



United States  
Department of  
Agriculture



Natural  
Resources  
Conservation  
Service

In cooperation with  
the University of Georgia,  
College of Agricultural and  
Environmental Sciences,  
Agricultural Experiment  
Stations, and the Flint  
River Soil and Water  
Conservation District

# Soil Survey of Grady County, Georgia





# How To Use This Soil Survey

## General Soil Map

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

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

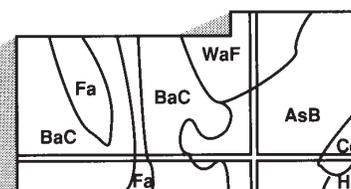
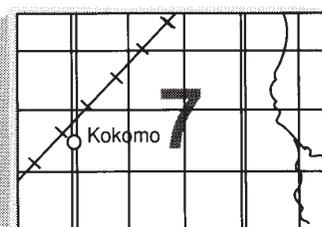
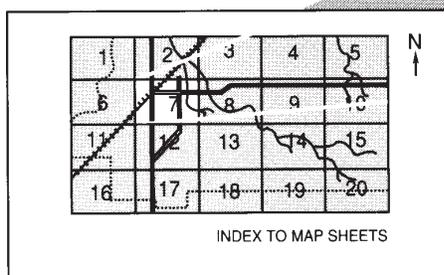
## Detailed Soil Maps

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

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

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

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



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

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

Major fieldwork for this soil survey was completed in 1995. Soil names and descriptions were approved in 1998. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1998. This survey was made cooperatively by the Natural Resources Conservation Service and the University of Georgia, College of Agricultural and Environmental Sciences, Agricultural Experiment Stations, and the Flint River Soil and Water Conservation District. The survey is part of the technical assistance furnished to the Flint River Soil and Water Conservation District.

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

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**Cover: Grady sandy loam, ponded, which supports many species of wetland vegetation.**

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

# Contents

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<b>How To Use This Soil Survey</b> .....	i
<b>Foreword</b> .....	vii
General Nature of the County .....	1
History and Development .....	1
Agriculture .....	2
Water Resources .....	2
Mineral Resources .....	2
Climate .....	2
Geology .....	3
How This Survey Was Made .....	3
<b>General Soil Map Units</b> .....	5
1.  Bonneau-Blanton .....	5
2.  Rembert-Bonneau .....	6
3.  Tifton-Dothan-Nankin .....	6
4.  Faceville-Tifton-Nankin .....	7
5.  Osier-Bibb .....	8
6.  Orangeburg-Nankin-Faceville .....	9
7.  Cowarts-Gritney-Tifton .....	9
<b>Detailed Soil Map Units</b> .....	11
BgB—Bigbee loamy fine sand, 0 to 5 percent slopes, rarely flooded .....	12
BIB—Blanton loamy sand, 0 to 5 percent slopes .....	13
BID—Blanton loamy sand, 5 to 12 percent slopes .....	14
BoB—Bonneau loamy sand, 0 to 5 percent slopes .....	16
BoD—Bonneau loamy sand, 5 to 12 percent slopes .....	18
CaB—Carnegie gravelly sandy loam, 2 to 5 percent slopes .....	19
CaC—Carnegie gravelly sandy loam, 5 to 8 percent slopes .....	21
CgC—Cowarts-Gritney complex, 5 to 8 percent slopes .....	22
CgD—Cowarts-Gritney complex, 8 to 12 percent slopes .....	24
DoA—Dothan loamy sand, 0 to 2 percent slopes .....	26
DoB—Dothan loamy sand, 2 to 5 percent slopes .....	27
FeA—Faceville sandy loam, 0 to 2 percent slopes .....	28
FeB—Faceville sandy loam, 2 to 5 percent slopes .....	30
FeC—Faceville sandy loam, 5 to 8 percent slopes .....	31
FuB—Fuquay loamy sand, 0 to 5 percent slopes .....	32
GoA—Goldsboro loamy sand, 0 to 2 percent slopes .....	34
GrA—Grady sandy loam, ponded .....	35
HvA—Hornsville fine sandy loam, 0 to 2 percent slopes .....	36
LkB—Lakeland sand, 0 to 5 percent slopes .....	38
LkD—Lakeland sand, 5 to 12 percent slopes .....	39
LmB—Lucy loamy sand, 0 to 5 percent slopes .....	40
LmC—Lucy loamy sand, 5 to 8 percent slopes .....	42
LnA—Lynchburg fine sandy loam, 0 to 2 percent slopes .....	43
NaB—Nankin loamy fine sand, 2 to 5 percent slopes .....	44
NcC—Nankin-Cowarts complex, 5 to 8 percent slopes .....	46
NcD—Nankin-Cowarts complex, 8 to 12 percent slopes .....	47
NoA—Norfolk loamy sand, 0 to 2 percent slopes .....	49
NoB—Norfolk loamy sand, 2 to 5 percent slopes .....	51
NoC—Norfolk loamy sand, 5 to 8 percent slopes .....	52
OcA—Ocilla loamy fine sand, 0 to 2 percent slopes .....	53
OeA—Orangeburg loamy sand, 0 to 2 percent slopes .....	55
OeB—Orangeburg loamy sand, 2 to 5 percent slopes .....	56
OeC—Orangeburg loamy sand, 5 to 8 percent slopes .....	57
OeD—Orangeburg loamy sand, 8 to 12 percent slopes .....	59
OSA—Osier and Bibb soils, frequently flooded .....	60
PeA—Pelham loamy fine sand, frequently flooded .....	61
ReA—Rembert sandy loam, frequently flooded .....	62

TfA—Tifton loamy sand, 0 to 2 percent slopes .....	63	Blanton Series .....	97
TfB—Tifton loamy sand, 2 to 5 percent slopes .....	65	Bonneau Series .....	98
TfC—Tifton loamy sand, 5 to 8 percent slopes .....	66	Carnegie Series .....	99
TrB—Troup loamy sand, 0 to 5 percent slopes .....	68	Cowarts Series .....	100
TrD—Troup loamy sand, 5 to 12 percent slopes .....	69	Dothan Series .....	101
Ud—Udorthents, loamy .....	70	Faceville Series .....	102
Up—Udorthents-Pits complex .....	71	Fuquay Series .....	103
UtC—Urban land-Tifton complex, 0 to 8 percent slopes .....	72	Goldsboro Series .....	105
WaB—Wagram loamy sand, 0 to 5 percent slopes .....	73	Grady Series .....	106
WhA—Wahee fine sandy loam, 0 to 2 percent slopes, occasionally flooded .....	74	Gritney Series .....	107
<b>Use and Management of the Soils</b> .....	77	Hornsville Series .....	108
Interpretive Ratings .....	77	Lakeland Series .....	113
Rating Class Terms .....	77	Lucy Series .....	114
Numerical Ratings .....	77	Lynchburg Series .....	115
Crops and Pasture .....	77	Nankin Series .....	116
Yields per Acre .....	80	Norfolk Series .....	117
Land Capability Classification .....	80	Ocilla Series .....	119
Prime Farmland .....	81	Orangeburg Series .....	120
Hydric Soils .....	81	Osier Series .....	121
Forestland Productivity and Management .....	82	Pelham Series .....	121
Forest Productivity .....	83	Rembert Series .....	123
Forest Management .....	83	Tifton Series .....	123
Recreation .....	84	Troup Series .....	125
Wildlife Habitat .....	85	Wagram Series .....	125
Engineering .....	86	Wahee Series .....	126
Building Site Development .....	87	<b>Formation of the Soils</b> .....	129
Sanitary Facilities .....	88	Parent Material .....	129
Construction Materials .....	89	Climate .....	129
Water Management .....	89	Plants and Animals .....	129
<b>Soil Properties</b> .....	91	Relief .....	130
Engineering Index Properties .....	91	Time .....	130
Water Features .....	92	<b>References</b> .....	131
Physical and Chemical Properties .....	93	<b>Glossary</b> .....	133
<b>Classification of the Soils</b> .....	95	<b>Tables</b> .....	145
Soil Series and Their Morphology .....	95	Table 1.—Temperature and Precipitation .....	146
Bibb Series .....	95	Table 2.—Freeze Dates in Spring and Fall .....	147
Bigbee Series .....	96	Table 3.—Growing Season .....	147
		Table 4.—Acreage and Proportionate Extent of the Soils .....	148
		Table 5.—Land Capability and Yields per Acre of Crops and Pasture .....	149
		Table 6.—Prime Farmland .....	153
		Table 7.—Hydric Soils List .....	154
		Table 8.—Forest Productivity and Seedling Mortality .....	158

---

Table 9a.—Forestland Management .....	164	Table 15.—Water Management .....	200
Table 9b.—Forestland Management .....	168	Table 16.—Engineering Index Properties .....	205
Table 10.—Recreation Site Development .....	172	Table 17.—Water Features .....	217
Table 11.—Wildlife Habitat .....	179	Table 18.—Selected Physical and Chemical Properties of the Soils .....	221
Table 12.—Building Site Development .....	183	Table 19.—Classification of the Soils .....	226
Table 13.—Sanitary Facilities .....	189		
Table 14.—Construction Materials .....	195		

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# Foreword

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

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

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

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

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



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State Conservationist  
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# Soil Survey of Grady County, Georgia

By Scott Moore, Natural Resources Conservation Service

Fieldwork by Scott Moore, Dennis Gay, Jerome L. Langlinais, Jorge L. Lugo,  
Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service,  
in cooperation with  
the University of Georgia, College of Agricultural and Environmental Sciences,  
Agricultural Experiment Stations, and the Flint River Soil and Water Conservation  
District

GRADY COUNTY is in the southwestern part of Georgia (fig. 1). Cairo, the county seat, is 200 miles south of Atlanta, Georgia; 50 miles south of Albany, Georgia; and 30 miles north of Tallahassee, Florida. Grady County is bordered on the north by Mitchell County, on the east by Thomas County, on the west by Decatur County, and on the south by Gadsden and Leon Counties, Florida. The total land area of Grady County is 294,300 acres, or about 467 square miles. The county is 34th in size among Georgia's 159 counties.

Grady County is in the Southern Coastal Plain Major Land Resource Area (USDA–SCS, 1981). The county sustains a strong economy based primarily on agriculture, forestry, and related manufacturing. More than 30 crops are grown on a commercial scale. The county ranked 18th in agricultural income in 1997 and ranked as high as 4th in 1992 (Richet and others, 1999). Grady county has a well-developed transportation system. U.S. Highway 84 transects the county from east to west. Numerous other State and county roads cross the county.

## General Nature of the County

This section provides general information about the county. It gives a brief description of the history and development, agriculture, water resources, mineral resources, climate, and geology.

## History and Development

Grady County was established January 1, 1906, from portions of Decatur and Thomas Counties. It was

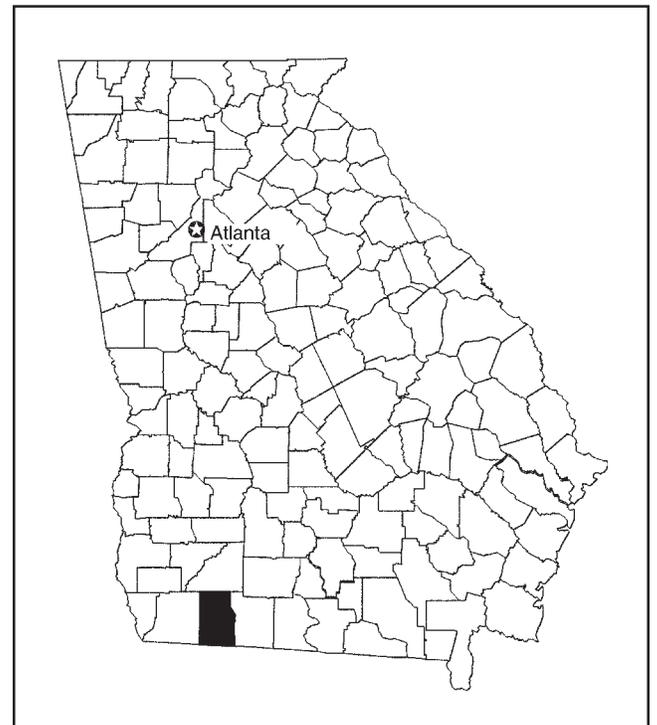


Figure 1.—Location of Grady County in Georgia.

named in honor of Henry W. Grady, an editor of the Atlanta Constitution and a southern orator.

In the early 1800s, William Hawthorn, a Baptist preacher and explorer, entered the area that is now Grady County. Finding the area to his liking, he and his

family settled along Tired Creek about 3 miles south of present-day Cairo (Connell and others, 1983).

Many of Hawthorn's friends and family sold their holdings in North Carolina and traveled down the Hawthorn trail, settling 10 miles farther down Tired Creek. In 1826, the Tired Creek Primitive Baptist Church was established. By 1828, numerous families had settled the area.

## Agriculture

Agriculture has always been important to the economy of Grady County. Currently, 71,554 acres, or about 24 percent of the county, is cultivated. About 22,000 acres, or 8 percent, is used as pastureland (USDA, 1999). Major crops in the area include cotton, peanuts, small grain, and specialty crops, such as vegetables, nursery crops, and tobacco. Beef cattle, poultry, and pork are the sources of the majority of income from livestock. Forest resources and related products are also major economic inputs.

## Water Resources

Grady County has an extensive series of branching drains as well as shallow depressions that collect surface water. The Ochlocknee River provides the primary drainage for the county. The major tributaries are Turkey Creek, Tired Creek, Little Tired Creek, Bennetts Creek, and Bryants Mill Creek. The area is underlain by an extensive aquifer system consisting of several layers. The shallowest layers are the Upper and Lower Brunswick aquifers, which are used for home and light-farm use and supply 10 to 30 gallons per minute. These layers are underlain by the Floridan Aquifer, which supplies 50 percent of the ground water in Georgia and supplies 1,000 to 5,000 gallons per minute. Below the Floridan Aquifer is the Clairborn Aquifer, which is a major source of water in southwestern Georgia. The Clairborn Aquifer supplies water for industrial and municipal use as well as for irrigation. Two other deep aquifers, the Clayton and Cretaceous aquifers, are major sources of water for industrial and municipal use. Grady County also has many small ponds and streams that provide water for livestock and irrigation (Tyson, 1993).

## Mineral Resources

Economically-important minerals in Grady County include clay and limestone aggregates. Bentonitic clays are mined commercially in the southwestern portion of the county. Limestone that has value as

aggregate is mined in the central portion of the county.

## Climate

Prepared by the Natural Resources Conservation Service Water and Climate Center, Portland, Oregon.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Camilla, Georgia, in the period 1961 to 1990. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season. The climate tables were created using data from climate station Camilla 3 SE, Georgia. Thunderstorm days, relative humidity, percent sunshine, and wind information are estimated from the first order station at Tallahassee, Florida.

In winter, the average temperature is 51.9 degrees F and the average daily minimum temperature is 40.1 degrees. The lowest temperature on record, which occurred on January 21, 1985, is 2 degrees. In summer, the average temperature is 81.0 degrees and the average daily maximum temperature is 92.4 degrees. The highest recorded temperature, which occurred on July 25, 1983, is 107 degrees.

Growing degree days are shown in Table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is about 52.53 inches. Of this, 29.30 inches, or about 56 percent, usually falls in April through October. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through October is less than 13.4 inches. The heaviest 1-day rainfall during the period of record was 6.20 inches at Camilla on July 25, 1983. Thunderstorms occur on about 83 days each year, and most occur in July.

The average seasonal snowfall is 0.1 inch. The greatest snow depth at any one time during the period of record was 3 inches recorded on February 10, 1973. Most years have no days with at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 3.0 inches recorded on February 10, 1973.

The average relative humidity in mid-afternoon is about 55 percent. Humidity is higher at night, and the average at dawn is about 91 percent. The sun shines 69 percent of the time possible in summer and 60

percent in winter. The prevailing wind is from the north. Average wind speed is highest, 7.6 miles per hour, in March.

## Geology

Grady County is principally in the Tifton Upland District of the Coastal Plain Physiographic Province. The Tifton Upland is an area of high ground that descends in altitude southeastward from an escarpment. This area has the appearance of a broad, flat plain that has been dissected by many small streams into a series of gently rolling hills. Surface streams form a strongly dendritic drainage pattern. Sinkholes and solution features are absent. Thick sediments of Miocene to recent age have prevented the formation of these features. Elevations range from 300 feet above mean sea level along the escarpment to 120 feet above mean sea level in the southeastern part of the county along the Ochlockonee River.

The solution escarpment is a relatively steep slope that separates the flat, low-lying Dougherty Plain from the Tifton Upland. Many streams that form on the face of the escarpment flow northwest and terminate in caves and sinkholes along the edge of the Dougherty Plain. The Suwannee Limestone provides scattered outcrops along the base of the escarpment. The northwest corner of Grady County is an area typical of the Dougherty Plain. It has flat to gently rolling topography interrupted by numerous sinkholes. Karst topography prevails in this district. Many sinkholes are sites of ponds and marshy areas. The karst topography formed through the solution and collapse of the underlying Tampa, Suwannee, and Ocala Limestones, which are all significant members of the regional Floridan Aquifer. Typical elevations for this area range from 160 to 170 above mean sea level.

The residuum of the Dougherty Plain consists of unsorted, varicolored sand and clay with chert nodules and boulders and local inclusions of silicified limestone boulders. These materials served as parent material for nearly level soils, dominantly the Bonneau-Blanton and Tifton-Dothan-Nankin soil associations. The Rembert-Bonneau soil association is on level flats between stream divides. The Osier-Bibb soil association is along the existing stream systems. The numerous sinks and depressions in the Dougherty Plain typically contain Grady and Rembert soils.

The uplands and stream divides of the Tifton Upland consist of Faceville, Norfolk, Dothan, and

Tifton soils. The Cowarts-Gritney-Tifton soil association consists of the soils along the lower slopes adjacent to the existing streams and water courses. The wet areas consist dominantly of Pelham and Osier soils.

## How This Survey Was Made

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

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

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

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

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

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

specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

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

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

The descriptions, names, and delineations of the soils in this survey area do not fully agree with those of the soils in adjacent survey areas. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

# General Soil Map Units

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

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

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

## 1. Bonneau-Blanton

*Nearly level to strongly sloping, well drained and somewhat excessively drained soils that have a thick sandy surface layer, have a fine-loamy subsoil, and are on upland ridges and side slopes*

### **Setting**

*Location in the survey area:* Northwest corner

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Ridges and side slopes

*Slope:* 0 to 12 percent

### **Composition**

*Percent of the survey area:* 1.1

Bonneau soils: 39 percent

Blanton soils: 28 percent

Minor soils: 33 percent

### **Soil Characteristics**

#### **Bonneau**

*Surface layer:* Dark grayish brown loamy sand

*Subsurface layer:* Yellowish brown loamy sand

*Subsoil:* Upper part—brownish yellow sandy loam that

has reddish yellow mottles; next part—brownish yellow sandy clay loam that has reddish yellow mottles; next part—mottled red, brownish yellow, and very pale brown sandy clay loam; lower part—mottled light red, brownish yellow, and light gray sandy clay loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Depth to seasonal high water table:* 3½ to 5 feet

*Slope:* 0 to 12 percent

*Parent material:* Coastal Plain sediments

#### **Blanton**

*Surface layer:* Dark brown loamy sand

*Subsurface layer:* Brownish yellow loamy sand

*Subsoil:* Upper part—brownish yellow sandy loam;

lower part—brownish yellow sandy clay loam that has yellowish red and light gray mottles

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Depth to seasonal high water table:* 4 to 6 feet

*Slope:* 0 to 12 percent

*Parent material:* Coastal Plain sediments

#### **Minor soils**

- Very poorly drained Grady soils in depressions and drainageways
- Well drained Wagram soils on summits and side slopes
- Somewhat poorly drained Ocilla soils in shallow depressions and on low flats

### **Use and Management**

**Major uses:** Cropland and pasture

**Other use:** Woodland

#### **Cropland**

*Management concerns:* Low available water capacity and low nutrient holding capacity

#### **Pasture and hayland**

*Management concerns:* Low available water capacity and low nutrient holding capacity

#### **Woodland**

*Management concerns:* Equipment use and seedling mortality

**Urban development**

*Management concerns:* Seasonal wetness at a depth of 3½ to 6 feet; cutbanks may cave

**Recreational development**

*Management concerns:* Droughtiness and trafficability

**2. Rembert-Bonneau**

*Nearly level to strongly sloping, poorly drained to well drained soils in shallow depressions and on adjacent uplands*

**Setting**

*Location in the survey area:* Northwestern part

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Drainageways and shallow depressions

*Slope:* 0 to 2 percent

**Composition**

*Percent of the survey area:* 0.3

Rembert soils: 65 percent

Goldsboro soils: 25 percent

Minor soils: 10 percent

**Soil Characteristics****Rembert**

*Surface layer:* Dark grayish brown sandy loam

*Subsurface layer:* Grayish brown sandy loam

*Subsoil:* Upper part—gray clay that has red mottles; next part—dark gray clay that has brownish yellow mottles; lower part—light gray sandy clay loam that has yellowish red and gray mottles

*Depth class:* Very deep

*Drainage class:* Poorly drained

*Seasonal high water table:* 1 foot above the surface to 1 foot below

*Slope:* 0 to 2 percent

*Parent material:* Coastal Plain sediments

**Bonneau**

*Surface layer:* Dark grayish brown loamy sand

*Subsurface layer:* Yellowish brown loamy sand

*Subsoil:* Upper part—brownish yellow sandy loam that has reddish yellow mottles; next part—brownish yellow sandy clay loam that has reddish yellow mottles; next part—mottled red, brownish yellow, and very pale brown sandy clay loam; lower part—mottled light red, brownish yellow, and light gray sandy clay loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Depth to seasonal high water table:* 3½ to 5 feet

*Slope:* 0 to 12 percent

*Parent material:* Coastal Plain sediments

**Minor soils**

- Well drained Norfolk soils in the higher landscape positions
- Poorly drained Grady soils in the deeper depressions
- Somewhat poorly drained Ocilla soils on rims of depressions

**Use and Management**

**Major use:** Woodland

**Other uses:** Cropland and pasture

**Cropland**

*Management concerns:* Flooding and wetness

**Pasture and hayland**

*Management concerns:* Flooding and wetness

**Woodland**

*Management concerns:* Equipment use and seedling mortality

**Urban development**

*Management concerns:* Flooding and wetness

**Recreational development**

*Management concerns:* Flooding and wetness

**3. Tifton-Dothan-Nankin**

*Nearly level to strongly sloping, well drained soils that have a sandy surface layer, have a fine-loamy subsoil, and are on upland ridges and side slopes*

**Setting**

*Location in the survey area:* Northern part

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Ridges and side slopes

*Slope:* 0 to 8 percent

**Composition**

*Percent of the survey area:* 56.4

Tifton soils: 31 percent

Dothan soils: 10 percent

Nankin soils: 8 percent

Minor soils: 51 percent

**Soil Characteristics****Tifton**

*Surface layer:* Dark grayish brown loamy sand

*Subsurface layer:* Yellowish brown loamy sand

*Subsoil:* Upper part—yellowish brown sandy clay

loam; next part—brownish yellow sandy clay loam; next part—brownish yellow sandy clay loam that has brownish yellow and yellow mottles; lower part—brownish yellow sandy clay loam that has yellow and light gray mottles

*Depth class:* Very deep

*Drainage class:* Well drained

*Depth to seasonal high water table:* 3½ to 5 feet

*Slope:* 0 to 8 percent

*Parent material:* Coastal Plain sediments

#### **Dothan**

*Surface layer:* Grayish brown loamy sand

*Subsoil:* Upper part—yellowish brown sandy clay loam; next part—brownish yellow sandy clay loam that has light yellowish brown mottles; next part—brownish yellow sandy clay loam; lower part—yellow sandy clay loam that has reddish yellow mottles

*Depth class:* Very deep

*Drainage class:* Well drained

*Depth to seasonal high water table:* 3 to 5 feet

*Slope:* 0 to 5 percent

*Parent material:* Coastal Plain sediments

#### **Nankin**

*Surface layer:* Yellowish brown fine sandy loam

*Subsoil:* Upper part—yellowish red sandy clay that has red mottles; next part—yellowish red sandy clay that has red and brownish yellow mottles; next part—yellowish red sandy clay that has brownish yellow mottles; lower part—yellowish red sandy clay loam that has red, brownish yellow, and pinkish gray mottles

*Substratum:* Mottled red, brownish yellow, and pinkish gray sandy loam with pockets of sandy clay loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Depth to seasonal high water table:* More than 6 feet

*Slope:* 0 to 12 percent

*Parent material:* Stratified loamy and clayey Coastal Plain sediments

#### **Minor soils**

- Well drained Cowarts soils in positions similar to those of the Tifton, Dothan, and Nankin soils
- Well drained Norfolk soils on broad ridges
- Poorly drained Pelham soils in drainageways
- Poorly drained Grady soils in depressions

### ***Use and Management***

**Major uses:** Cropland and pasture

#### **Cropland**

*Management concerns:* No significant concerns

#### **Pasture and hayland**

*Management concerns:* No significant concerns

#### **Woodland**

*Management concerns:* No significant concerns

#### **Urban development**

*Management concerns:* Seasonal high water table

#### **Recreational development**

*Management concerns:* No significant concerns

## **4. Faceville-Tifton-Nankin**

*Nearly level to strongly sloping, well drained soils that have a sandy surface layer, have a fine-loamy subsoil, and are on upland ridges and side slopes*

### ***Setting***

*Location in the survey area:* Central part; on the west side of the Ochlockonee River

*Landscape:* Coastal plain

*Landform:* Uplands

*Landform position:* Ridges and side slopes

*Slope:* 0 to 8 percent

### ***Composition***

*Percent of the survey area:* 20.4

Faceville soils: 20 percent

Tifton soils: 15 percent

Nankin soils: 10 percent

Minor soils: 55 percent

### ***Soil Characteristics***

#### **Faceville**

*Surface layer:* Brown sandy loam

*Subsoil:* Upper part—yellowish red sandy clay; lower part—red sandy clay

*Depth class:* Very deep

*Drainage class:* Well drained

*Depth to seasonal high water table:* More than 6 feet

*Slope:* 0 to 8 percent

*Parent material:* Coastal Plain sediments

#### **Tifton**

*Surface layer:* Dark grayish brown loamy sand

*Subsurface layer:* Yellowish brown loamy sand

*Subsoil:* Upper part—yellowish brown sandy clay loam; next part—brownish yellow sandy clay loam; next part—brownish yellow sandy clay loam that has brownish yellow and yellow mottles; lower part—brownish yellow sandy clay loam that has yellow and light gray mottles

*Depth class:* Very deep

*Drainage class:* Well drained

*Depth to seasonal high water table:* 3½ to 5 feet

*Slope:* 0 to 8 percent

*Parent material:* Coastal Plain sediments

**Nankin**

*Surface layer:* Yellowish brown fine sandy loam

*Subsoil:* Upper part—yellowish red sandy clay that has red mottles; next part—yellowish red sandy clay that has red and brownish yellow mottles; next part—yellowish red sandy clay that has brownish yellow mottles; lower part—yellowish red sandy clay loam that has red, brownish yellow, and pinkish gray mottles

*Substratum:* Mottled red, brownish yellow, and pinkish gray sandy loam with pockets of sandy clay loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Depth to seasonal high water table:* More than 6 feet

*Slope:* 0 to 12 percent

*Parent material:* Stratified loamy and clayey coastal plain sediments

**Minor soils**

- Well drained Carnegie soils in the higher landscape positions
- Well drained Dothan soils on broad ridges
- Poorly drained Pelham soils along drainageways

**Use and Management**

**Major uses:** Cropland and pasture

**Cropland**

*Management concerns:* Erosion

**Pasture and hayland**

*Management concerns:* No significant concerns

**Woodland**

*Management concerns:* No significant concerns

**Urban development**

*Management concerns:* No significant concerns

**Recreational development**

*Management concerns:* No significant concerns

**5. Osier-Bibb**

*Nearly level, poorly drained soils on flood plains and in drainageways*

**Setting**

*Location in the survey area:* Narrow bands throughout

*Landscape:* Coastal Plain

*Landform:* Flood plains

*Landform position:* Drainageways

*Slope:* 0 to 2 percent

**Composition**

*Percent of the survey area:* 4.5

Bibb soils: 39 percent

Osier soils: 26 percent

Minor soils: 35 percent

**Soil Characteristics****Osier**

*Surface layer:* Dark gray loamy fine sand

*Substratum:* Gray to light gray fine sand

*Depth class:* Very deep

*Drainage class:* Poorly drained

*Seasonal high water table:* At the surface to a depth of 1 foot

*Slope:* 0 to 2 percent

*Parent material:* Sandy alluvium

**Bibb**

*Surface layer:* Very dark gray loamy fine sand

*Substratum:* Upper part—dark gray fine sandy loam that has brownish yellow and yellowish red mottles; lower part—light gray sand that has yellow mottles

*Depth class:* Very deep

*Drainage class:* Poorly drained

*Depth to seasonal high water table:* 1/2 to 1 foot

*Slope:* 0 to 2 percent

*Parent material:* Stratified loamy and sandy alluvium

**Minor soils**

- Somewhat poorly drained Ocilla soils in the slightly higher positions
- Grady soils in the lower, ponded areas
- Moderately well drained Goldsboro soils on interstream divides

**Use and Management**

**Major uses:** Woodland

**Cropland**

*Management concerns:* Flooding makes this map unit unsuitable as cropland.

**Pasture and hayland**

*Management concerns:* Flooding makes this map unit unsuitable as pasture and hayland.

**Woodland**

*Management concerns:* Seedling mortality and equipment use

**Urban development**

*Management concerns:* Flooding makes this map unit unsuitable as a site for urban development.

**Recreational development**

*Management concerns:* Flooding makes this map unit unsuitable for recreation development.

## 6. Orangeburg-Nankin-Faceville

*Nearly level to strongly sloping, well drained soils that have a sandy surface layer, have a fine-loamy subsoil, and are on upland ridges and side slopes*

### Setting

*Location in the survey area:* Southeastern part

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Ridges and side slopes

*Slope:* 0 to 12 percent

### Composition

*Percent of the survey area:* 15.3

Orangeburg soils: 14 percent

Nankin soils: 14 percent

Faceville soils: 9 percent

Minor soils: 63 percent

### Soil Characteristics

#### Orangeburg

*Surface layer:* Dark yellowish brown loamy sand

*Subsurface layer:* Brown sandy loam

*Subsoil:* Red sandy clay loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Depth to seasonal high water table:* More than 6 feet

*Slope:* 0 to 12 percent

*Parent material:* Loamy and clayey Coastal Plain sediments

#### Nankin

*Surface layer:* Yellowish brown fine sandy loam

*Subsoil:* Upper part—yellowish red sandy clay that has red mottles; next part—yellowish red sandy clay that has red and brownish yellow mottles; next part—yellowish red sandy clay that has brownish yellow mottles; lower part—yellowish red sandy clay loam that has red, brownish yellow, and pinkish gray mottles

*Substratum:* Mottled red, brownish yellow, and pinkish gray sandy loam with pockets of sandy clay loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Depth to seasonal high water table:* More than 6 feet

*Slope:* 0 to 12 percent

*Parent material:* Stratified loamy and clayey Coastal Plain sediments

#### Faceville

*Surface layer:* Brown sandy loam

*Subsoil:* Upper part—yellowish red sandy clay; lower part—red sandy clay

*Depth class:* Very deep

*Drainage class:* Well drained

*Depth to seasonal high water table:* More than 6 feet

*Slope:* 0 to 8 percent

*Parent material:* Coastal Plain sediments

### Minor soils

- Well drained Carnegie soils in the higher landscape positions
- Well drained Dothan soils on broad ridges
- Poorly drained Pelham soils along drainageways

### Use and Management

**Major uses:** Cropland, pasture, and hayland

#### Cropland

*Management concerns:* Erosion

#### Pasture and hayland

*Management concerns:* No significant concerns

#### Woodland

*Management concerns:* No significant concerns

#### Urban development

*Management concerns:* Slope

#### Recreational development

*Management concerns:* Slope

## 7. Cowarts-Gritney-Tifton

*Nearly level to strongly sloping, moderately well drained and well drained soils that have a sandy surface layer, have a fine-loamy or clayey subsoil, and are on shoulders and side slopes*

### Setting

*Location in the survey area:* Northwestern part

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Shoulders and side slopes

*Slope:* 0 to 12 percent

### Composition

*Percent of the survey area:* 2

Cowarts soils: 20 percent

Gritney soils: 20 percent

Tifton soils: 18 percent

Minor soils: 42 percent

### Soil Characteristics

#### Cowarts

*Surface layer:* Brown loamy sand

*Subsurface layer:* Yellowish brown sandy loam

*Subsoil:* Upper part—strong brown sandy clay loam; next part—yellowish red sandy clay loam; lower

part—yellowish red sandy clay loam that has yellowish brown mottles

*Substratum:* Mottled brownish yellow, yellowish brown, and white sandy loam

*Depth class:* Very deep

*Drainage class:* Well drained

*Depth to seasonal high water table:* More than 5 feet

*Slope:* 5 to 12 percent

*Parent material:* Loamy Coastal Plain sediments

### **Gritney**

*Surface layer:* Yellowish brown loamy sand

*Subsoil:* Upper part—yellowish brown sandy clay that has red mottles; lower part—mottled, reddish brown, yellowish brown, and light gray sandy clay

*Substratum:* Light gray sandy clay that has reddish brown and yellowish brown mottles

*Depth class:* Very deep

*Drainage class:* Moderately well drained

*Depth to seasonal high water table:* 1½ to 3 feet

*Slope:* 0 to 12 percent

*Parent material:* Stratified loamy and clayey Coastal Plain sediments

### **Tifton**

*Surface layer:* Dark grayish brown loamy sand

*Subsurface layer:* Yellowish brown loamy sand

*Subsoil:* Upper part—yellowish brown sandy clay loam; next part—brownish yellow sandy clay loam; next part—brownish yellow sandy clay loam

that has brownish yellow and yellow mottles;

lower part—brownish yellow sandy clay loam that has yellow and light gray mottles

*Depth class:* Very deep

*Drainage class:* Well drained

*Depth to seasonal high water table:* 3½ to 5 feet

*Slope:* 0 to 8 percent

*Parent material:* Coastal Plain sediments

### **Minor soils**

- Well drained Dothan soils on ridgetops and side slopes
- Well drained Bonneau soils on broad ridges
- Poorly drained Pelham soils along drainageways

### ***Use and Management***

**Major use:** Woodland

**Other use:** Cropland

#### **Cropland**

*Management concerns:* Erosion and slope

#### **Pasture and hayland**

*Management concerns:* Erosion and slope

#### **Woodland**

*Management concerns:* No significant concerns

#### **Urban development**

*Management concerns:* Slope and moderately slow permeability

#### **Recreational development**

*Management concerns:* Slope

## Detailed Soil Map Units

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The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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

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

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

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Grady sandy loam, ponded, is a phase of the Grady series.

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

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Cowarts-Gritney complex, 5 to 8 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use

and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Osier and Bibb soils, frequently flooded, is an undifferentiated group in this survey area.

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

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

## **BgB—Bigbee loamy fine sand, 0 to 5 percent slopes, rarely flooded**

### ***Setting***

*Landscape:* Coastal Plain

*Landform:* Low stream terraces

*Landform position:* Knolls and natural levees

*Size of areas:* 5 to 50 acres

### ***Composition***

Bigbee and similar soils: 80 percent

Dissimilar soils: 20 percent

### ***Typical Profile***

*Surface layer:*

0 to 5 inches—dark grayish brown loamy fine sand

*Substratum:*

5 to 28 inches—yellowish brown fine sand

28 to 48 inches—very pale brown fine sand

48 to 62 inches—brownish yellow fine sand that has very pale brown and strong brown mottles

### ***Soil Properties and Qualities***

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Excessively drained

*Depth to seasonal high water table:* 3½ to 6 feet,

January through March

*Permeability:* Rapid

*Available water capacity:* Low

*Flooding:* Rare

*Content of organic matter in the surface layer:* Low or moderately low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid to moderately acid

*Other distinctive properties:* None

### ***Minor Components***

*Dissimilar soils:*

- Poorly drained Bibb and Osier soils in the slightly lower, concave positions on flood plains
- Moderately well drained Hornsville soils on the higher, broad stream terraces
- Lakeland soils on the higher natural levees, which are not subject to flooding

*Similar soils:*

- Scattered areas of soils that are similar to the Bigbee soil but have a surface layer of sandy loam
- Areas of a soil that is similar to the Bigbee soil but has a subsurface horizon of sandy loam

### ***Land Use***

**Dominant uses:** Woodland

**Other uses:** Pasture

#### **Cropland**

*Suitability:* Poorly suited

*Commonly grown crops:* None

*Management concerns:* Low available water capacity and flooding

*Management measures and considerations:*

- Harvesting row crops as soon as possible reduces the risk of damage from the flooding.
- A conservation tillage system increases the content of organic matter and helps to conserve soil moisture.
- Leaving the maximum amount of crop residue on the surface helps to control soil blowing and conserves soil moisture and plant nutrients.
- Using split applications of fertilizer and herbicides minimizes leaching and increases yields.

#### **Pasture and hayland**

*Suitability:* Poorly suited

*Commonly grown crops:* Bahiagrass, improved bermudagrass, and common bermudagrass

*Management concerns:* Low available water capacity

*Management measures and considerations:*

- Using split applications of fertilizer minimizes leaching and increases yields.

#### **Woodland**

*Suitability:* Moderately well suited

*Productivity class:* High for loblolly pine

*Management concerns:* Low available water capacity

*Management measures and considerations:*

- Proper site preparation, herbicides, and prescribed burning help to control competition from undesirable plant species.

- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

### Dwellings

*Suitability:* Poorly suited to dwellings with or without basements

*Management concerns:* Flooding, wetness, and sandy textures

*Management measures and considerations:*

- This map unit is severely limited as a site for dwellings because of the flooding.

### Septic tank absorption fields

*Suitability:* Poorly suited

*Management concerns:* Flooding and sandy textures

*Management measures and considerations:*

- The local Health Department can be contacted for guidance regarding sanitary facilities.

### Local roads and streets

*Suitability:* Moderately well suited

*Management concerns:* Flooding, wetness, and sandy textures

*Management measures and considerations:*

- Well-compacted fill material can be used as a road base to elevate roads above the flooding.

### Interpretive Groups

*Land capability classification:* 3s

## BIB—Blanton loamy sand, 0 to 5 percent slopes

### Setting

*Landscape:* Coastal Plain

*Landform:* Uplands and high stream terraces

*Landform position:* Ridgetops and side slopes

*Size of areas:* 5 to 300 acres

### Composition

Blanton and similar soils: 80 percent

Dissimilar soils: 20 percent

### Typical Profile

*Surface layer:*

0 to 10 inches—dark brown loamy sand

*Subsurface layer:*

10 to 16 inches—yellowish brown loamy sand

16 to 42 inches—brownish yellow loamy sand

42 to 61 inches—very pale brown loamy sand

61 to 68 inches—light yellowish brown loamy sand

*Subsoil:*

68 to 72 inches—brownish yellow sandy loam

72 to 80 inches—brownish yellow sandy clay loam

that has yellowish red and light gray mottles

### Soil Properties and Qualities

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* 4 to 6 feet,

December through March

*Permeability:* Rapid in the surface and subsurface layers, moderate in the subsoil

*Available water capacity:* Low

*Flooding:* None

*Content of organic matter in the surface layer:* Low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid or strongly acid

throughout, except where lime has been applied

*Other distinctive properties:* Thick, sandy surface layer

### Minor Components

*Dissimilar soils:*

- Bonneau, Fuquay, and Lucy soils, which are in the lower positions and have a sandy surface layer that ranges from 20 to 40 inches in thickness
- Lakeland soils, which are in the higher positions and are sandy to a depth of more than 80 inches

*Similar soils:*

- Troup soils in the higher positions
- Soils that are similar to the Blanton soil but have layers of sandy loam within a depth of 60 inches

### Land Use

**Dominant uses:** Pasture and woodland

**Other uses:** Cropland

### Cropland

*Suitability:* Poorly suited

*Commonly grown crops:* Corn, small grains, cotton, peanuts, grain sorghum, soybeans, and truck crops

*Management concerns:* Low available water capacity; low nutrient holding capacity in the surface layer

*Management measures and considerations:*

- Leaving the maximum amount of crop residue on the surface helps to control soil blowing and conserves soil moisture and plant nutrients.
- Using split applications of fertilizer and herbicides minimizes leaching and increases yields.

### Pasture and hayland

*Suitability:* Moderately well suited

*Commonly grown crops:* Bahiagrass, improved bermudagrass, common bermudagrass, legumes, and ryegrass

*Management concerns:* Moderate—equipment use, droughtiness, nutrient leaching, and low soil fertility

*Management measures and considerations:*

- Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- Using equipment that has low-pressure tires reduces the slippage and rutting caused by the high content of sand in the soil.
- Installing cross fencing to enable rotational grazing helps to keep the soil in good condition, especially during drier periods.
- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.
- Using split applications of fertilizer minimizes leaching and increases yields.

#### **Woodland**

*Suitability:* Suited

*Productivity class:* High for loblolly pine, longleaf pine, and slash pine

*Management concerns:* None

*Management measures and considerations:*

- Using tracked or low-pressure ground equipment minimizes rutting and the damage caused to roots by compaction during harvesting.
- Establishing a permanent plant cover on roads and landings after the completion of logging reduces the hazard of erosion and helps to control the siltation of streams.
- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

#### **Dwellings**

*Suitability:* Suited to dwellings without basements and moderately suited to dwellings with basements

*Management concerns:* Instability of cutbanks; seasonal high water table

*Management measures and considerations:*

- Cutbanks are unstable and are subject to slumping. Bracing should be used to reduce the severe risk of caving.
- Building on the highest part of the landscape and installing a subsurface drainage system help to overcome the seasonal high water table.

#### **Septic tank absorption fields**

*Suitability:* Moderately well suited

*Management concerns:* Seasonal high water table and seepage

*Management measures and considerations:*

- Installing the absorption fields on the highest part of landscape helps to overcome the wetness.
- The local Health Department can be contacted for guidance regarding sanitary facilities.

#### **Local roads and streets**

*Suitability:* Suited

*Management concerns:* None

#### **Interpretive Groups**

*Land capability classification:* 3s

## **BID—Blanton loamy sand, 5 to 12 percent slopes**

#### **Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands and stream terraces

*Landform position:* Ridges and side slopes

*Size of areas:* 5 to 200 acres

#### **Composition**

Blanton and similar soils: 75 percent

Dissimilar soils: 25 percent

#### **Typical Profile**

*Surface layer:*

0 to 10 inches—dark brown loamy sand

*Subsurface layer:*

10 to 16 inches—yellowish brown loamy sand

16 to 42 inches—brownish yellow loamy sand

42 to 61 inches—very pale brown loamy sand

61 to 68 inches—light yellowish brown loamy sand

*Subsoil:*

68 to 72 inches—brownish yellow sandy loam

72 to 80 inches—brownish yellow sandy clay loam that has yellowish red and light gray mottles

#### **Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* 4 to 6 feet, December through March

*Permeability:* Rapid in the surface and subsurface layers, moderate in the subsoil

*Available water capacity:* Low

*Flooding:* None

*Content of organic matter in the surface layer:* Low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid or strongly acid throughout, except where lime has been applied  
*Other distinctive properties:* Thick, sandy surface layer

### **Minor Components**

*Dissimilar soils:*

- Bonneau, Fuquay, and Lucy soils, which are in the lower positions and have a sandy surface layer that ranges from 20 to 40 inches in thickness
- Lakeland soils, which are in the higher positions and are sandy to a depth of more than 80 inches

*Similar soils:*

- Troup soils in the higher positions
- Soils that are similar to the Blanton soil but have layers of sandy loam within a depth of 60 inches

### **Land Use**

**Dominant uses:** Woodland

**Other uses:** Cropland and pasture

#### **Cropland**

*Suitability:* Poorly suited

*Commonly grown crops:* Corn, small grains, cotton, peanuts, grain sorghum, and soybeans

*Management concerns:* Slope, erosion, and low available water capacity; low nutrient holding capacity in the surface layer

*Management measures and considerations:*

- Leaving the maximum amount of crop residue on the surface helps to control soil blowing and conserves soil moisture and plant nutrients.
- Using split applications of fertilizer and herbicides minimizes leaching and increases yields.
- Planting on the contour helps to overcome the slope and reduces the hazard of erosion.

#### **Pasture and hayland**

*Suitability:* Moderately well suited

*Commonly grown crops:* Bahiagrass, improved bermudagrass, common bermudagrass, legumes, and ryegrass

*Management concerns:* Equipment use, droughtiness, nutrient leaching, and low soil fertility

*Management measures and considerations:*

- Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- Using equipment that has low-pressure tires reduces the slippage and rutting caused by the high content of sand in the soil.
- Installing cross fencing to enable rotational grazing helps to keep the soil in good condition, especially during drier periods.

- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.
- Using split applications of fertilizer minimizes leaching and increases yields.

#### **Woodland**

*Suitability:* Suited

*Productivity class:* High for loblolly pine, longleaf pine, and slash pine

*Management concerns:* Equipment use

*Management measures and considerations:*

- Using tracked or low-pressure ground equipment minimizes rutting and the damage caused to roots by compaction during harvesting.
- Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.
- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

#### **Dwellings**

*Suitability:* Moderately well suited to dwellings with or without basements

*Management concerns:* Instability of cutbanks; seasonal high water table. Also, slope is a moderate concern.

*Management measures and considerations:*

- Cutbanks are unstable and are subject to slumping. Bracing should be used to reduce the severe risk of caving.
- Building on the highest part of the landscape and installing a subsurface drainage system help to overcome the seasonal high water table.
- Cutting and filling help to overcome the slope limitation.

#### **Septic tank absorption fields**

*Suitability:* Moderately well suited

*Management concerns:* Seasonal high water table. Also, slope is a moderate concern.

*Management measures and considerations:*

- Installing the absorption fields on the highest part of landscape helps to overcome the wetness.
- Installing the distribution lines on the contour helps to overcome the steepness.
- The local Health Department can be contacted for guidance regarding sanitary facilities.

#### **Local roads and streets**

*Suitability:* Moderately well suited

*Management concerns:* Seasonal high water table. Also, slope is a moderate concern.

*Management measures and considerations:*

- Cutting and filling help to overcome the slope limitation.
- Using off-site material for the subgrade and placing roads on the highest part of the landscape help to overcome the wetness.
- Vegetating disturbed areas and using erosion-control structures, such as sediment fences and sediment catch basins, help to keep soil on the site. These practices should be used during any development.
- Designing roads to conform to the contour and providing water-control structures, such as culverts, help to maintain road stability.

**Interpretive Groups**

*Land capability classification:* 4s

**BoB—Bonneau loamy sand, 0 to 5 percent slopes****Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Low-lying ridges; side slopes

*Size of areas:* 5 to 300 acres

**Composition**

Bonneau and similar soils: 80 percent

Dissimilar soils: 20 percent

**Typical Profile***Surface layer:*

0 to 10 inches—dark grayish brown loamy sand

*Subsurface layer:*

10 to 21 inches—yellowish brown loamy sand

21 to 31 inches—brownish yellow loamy sand

*Subsoil:*

31 to 39 inches—brownish yellow sandy loam that has reddish yellow mottles

39 to 49 inches—brownish yellow sandy clay loam that has reddish yellow mottles

49 to 55 inches—mottled brownish yellow, very pale brown, and red sandy clay loam

55 to 72 inches—mottled light red, brownish yellow, and light gray sandy clay loam

**Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* 3½ to 5 feet, December through March

*Permeability:* Rapid in the surface and subsurface layers, moderate in the subsoil

*Available water capacity:* Low

*Flooding:* None

*Content of organic matter in the surface layer:* Low or moderately low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid or strongly acid, except where lime has been applied

*Other distinctive properties:* None

**Minor Components***Dissimilar soils:*

- Blanton soils, which are in the slightly higher positions and have a sandy surface layer that is 40 to 60 inches thick
- Fuquay soils, which are in the lower positions and have 5 percent plinthite within a depth of 60 inches
- Dothan soils, which are in the lower positions, have a surface layer that is less than 20 inches thick, and contain more than 5 percent plinthite

*Similar soils:*

- Soils that are similar to the Bonneau soil but have subsurface layers of sandy loam within a depth of 30 inches

**Land Use**

**Dominant uses:** Cropland, pasture, and woodland (fig. 2)

**Other uses:** Vegetable crops

**Cropland**

*Suitability:* Moderately well suited

*Commonly grown crops:* Cotton, peanuts, corn, soybeans, small grains, and truck crops

*Management concerns:* Low available water capacity; low nutrient holding capacity in the surface layer

*Management measures and considerations:*

- Leaving the maximum amount of crop residue on the surface helps to control soil blowing and conserves soil moisture and plant nutrients.
- Including grasses and legumes in the cropping system helps to control further erosion and reduces runoff.
- Terraces and diversions, stripcropping, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and maximize infiltration of rainfall into the soil.
- Using split applications of fertilizer and herbicides minimizes leaching and increases yields.



Figure 2.—Irrigated peanuts growing in an area of Bonneau loamy sand, 0 to 5 percent slopes.

### **Pasture and hayland**

*Suitability:* Suited

*Commonly grown crops:* Improved bermudagrass, common bermudagrass, bahiagrass, and ryegrass

*Management concerns:* Low available water capacity; low nutrient holding capacity in the surface layer

*Management measures and considerations:*

- Fencing livestock away from creeks and streams minimizes erosion of streambanks and sedimentation of the creeks and streams.
- Installing cross fencing to enable rotational grazing helps to keep the soil in good condition, especially during drier periods.
- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.
- Using split applications of fertilizer and herbicides minimizes leaching and increases yields.

### **Woodland**

*Suitability:* Well suited

*Productivity class:* High for loblolly pine, longleaf pine, and slash pine

*Management concerns:* None

*Management measures and considerations:*

- Using tracked or low-pressure ground equipment minimizes rutting and the damage caused to roots by compaction during harvesting.
- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

### **Dwellings**

*Suitability:* Well suited to dwellings without basements and moderately well suited to dwellings with basements

*Management concerns:* Seasonal wetness

*Management measures and considerations:*

- Building on the highest part of the landscape and installing a subsurface drainage system, where slope permits, help to overcome the wetness.

### **Septic tank absorption fields**

*Suitability:* Moderately well suited

*Management concerns:* Seasonal wetness; poor filter

*Management measures and considerations:*

- Installing the absorption fields on the highest part of the landscape and installing a subsurface drainage system help to overcome the wetness.
- The local Health Department can be contacted for guidance regarding sanitary facilities.

#### **Local roads and streets**

*Suitability:* Well suited

*Management concerns:* None

*Management measures and considerations:*

- Vegetating disturbed areas and using erosion-control structures, such as sediment fences and sediment catch basins, help to keep soil on the site. These practices should be used during any development.

#### **Interpretive Groups**

*Land capability classification:* 2s

## **BoD—Bonneau loamy sand, 5 to 12 percent slopes**

#### **Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Low-lying ridges; side slopes

*Size of areas:* 5 to 150 acres

#### **Composition**

Bonneau and similar soils: 75 percent

Dissimilar soils: 25 percent

#### **Typical Profile**

*Surface layer:*

0 to 10 inches—dark grayish brown loamy sand

*Subsurface layer:*

10 to 21 inches—yellowish brown loamy sand

21 to 31 inches—brownish yellow loamy sand

*Subsoil:*

31 to 39 inches—brownish yellow sandy loam that has reddish yellow mottles

39 to 49 inches—brownish yellow sandy clay loam that has reddish yellow mottles

49 to 55 inches—mottled brownish yellow, very pale brown, and red sandy clay loam

55 to 72 inches—mottled light red, brownish yellow, and light gray sandy clay loam

#### **Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 80 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* 3½ to 5 feet, December through March

*Permeability:* Rapid in the surface and subsurface layers, moderate in the subsoil

*Available water capacity:* Low

*Flooding:* None

*Content of organic matter in the surface layer:* Low or moderately low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid to moderately acid, except where lime has been applied

*Other distinctive properties:* None

#### **Minor Components**

*Dissimilar soils:*

- Blanton soils, which are in the slightly higher positions and have a sandy surface layer that is 40 to 60 inches thick
- Fuquay soils, which are in the lower positions and have 5 percent plinthite within a depth of 60 inches
- Dothan and Cowarts soils, which are in the lower positions and have a surface layer that is less than 20 inches thick

*Similar soils:*

- Soils that are similar to the Bonneau soil but have a subsurface layer of sandy loam within a depth of 30 inches

#### **Land Use**

**Dominant uses:** Cropland and pasture

**Other uses:** Woodland

#### **Cropland**

*Suitability:* Poorly suited

*Commonly grown crops:* Cotton, peanuts, corn, soybeans, small grains, and truck crops

*Management concerns:* Low available water capacity, low nutrient holding capacity in the surface layer, slope, and erosion

*Management measures and considerations:*

- Leaving the maximum amount of crop residue on the surface helps to control soil blowing and conserves soil moisture and plant nutrients.
- Including grasses and legumes in the cropping system helps to control further erosion and reduces runoff.
- Terraces and diversions, stripcropping, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and maximize infiltration of rainfall into the soil.
- Using split applications of fertilizer and herbicides minimizes leaching and increases yields.

**Pasture and hayland**

*Suitability:* Suited

*Commonly grown crops:* Improved bermudagrass, common bermudagrass, bahiagrass, and ryegrass

*Management concerns:* Low available water capacity; low nutrient holding capacity in the surface layer

*Management measures and considerations:*

- Fencing livestock away from creeks and streams minimizes erosion of streambanks and sedimentation of the creeks and streams.
- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.
- Using split applications of fertilizer minimizes leaching and increases yields.

**Woodland**

*Suitability:* Moderately well suited

*Productivity class:* High for loblolly pine, longleaf pine, and slash pine

*Management concerns:* Equipment use

*Management measures and considerations:*

- Planting and harvesting should be scheduled for periods when the soil has the proper moisture content.
- Using tracked or low-pressure ground equipment minimizes rutting and the damage caused to roots by compaction during harvesting.
- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

**Dwellings**

*Suitability:* Moderately well suited

*Management concerns:* Seasonal wetness. Also, slope is a moderate concern.

*Management measures and considerations:*

- Building on the highest part of the landscape and installing a subsurface drainage system help to overcome the wetness.
- Cutting and filling help to overcome the slope limitation.

**Septic tank absorption fields**

*Suitability:* Suited

*Management concerns:* Seasonal wetness and slope

*Management measures and considerations:*

- Installing the absorption fields on the highest part of the landscape and installing a subsurface drainage system help to overcome the wetness.
- Designing septic systems to conform to the contour helps to overcome the slope limitation.
- The local Health Department can be contacted for guidance regarding sanitary facilities.

**Local roads and streets**

*Suitability:* Moderately well suited

*Management concerns:* Seasonal wetness and slope

*Management measures and considerations:*

- Cutting and filling and building roads to conform to the contour help to overcome the slope limitation.
- Vegetating disturbed areas and using erosion-control structures, such as sediment fences and sediment catch basins, help to keep soil on the site. These practices should be used during any development.

***Interpretive Groups***

*Land capability classification:* 3s

**CaB—Carnegie gravelly sandy loam, 2 to 5 percent slopes*****Setting***

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Ridgetops, side slopes, and knolls

*Size of areas:* 5 to 75 acres

***Composition***

Carnegie and similar soils: 80 percent

Dissimilar soils: 20 percent

***Typical Profile***

*Surface layer:*

0 to 6 inches—brown gravelly sandy loam

*Subsoil:*

6 to 20 inches—strong brown sandy clay loam

20 to 32 inches—strong brown clay that has red and yellowish brown mottles

32 to 45 inches—mottled red, strong brown, and very pale brown clay

45 to 62 inches—mottled red, strong brown, and very pale brown sandy clay

62 to 76 inches—mottled yellowish red, reddish brown, and strong brown sandy clay loam

***Soil Properties and Qualities***

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* More than 6 feet

*Permeability:* Moderately slow

*Available water capacity:* Moderate

*Flooding:* None

*Content of organic matter in the surface layer:*

Moderately low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid or strongly acid, except where lime has been applied

*Other distinctive properties:* 5 to 15 percent plinthite below a depth of 18 inches; 5 to 20 percent ironstone nodules in the surface layer

### **Minor Components**

*Dissimilar soils:*

- Dothan and Tifton soils, which are fine-loamy, are in the lower positions, and are less red than the Carnegie soil
- Cowarts soils, which are fine-loamy and are on slope breaks
- Orangeburg soils, which are fine-loamy and are in the lower positions

*Similar soils:*

- Soils that are similar to the Carnegie soil but have a surface layer of sandy clay loam

### **Land Use**

**Dominant uses:** Cropland and pasture

**Other uses:** Woodland

#### **Cropland**

*Suitability:* Well suited

*Commonly grown crops:* Cotton, peanuts, corn, soybeans, and small grains

*Management concerns:* Erosion

*Management measures and considerations:*

- Terraces and diversions, stripcropping, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and maximize infiltration of rainfall into the soil.
- Leaving the maximum amount of crop residue on the surface helps to control soil blowing and conserves soil moisture and plant nutrients.

#### **Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Bahiagrass, improved bermudagrass, common bermudagrass, legumes, and ryegrass

*Management concerns:* Erosion

*Management measures and considerations:*

- During pasture establishment or renovation, preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- Fencing livestock away from creeks and streams minimizes erosion of streambanks and sedimentation of the creeks and streams.

- Using equipment that has low-pressure tires reduces the slippage and rutting caused by the high content of sand in the soil.
- Installing cross fencing to enable rotational grazing helps to keep the soil in good condition, especially during drier periods.
- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.

#### **Woodland**

*Suitability:* Well suited

*Productivity class:* High for loblolly pine and slash pine

*Management concerns:* Erosion

*Management measures and considerations:*

- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.
- Establishing a permanent plant cover on roads and log landings, reforesting immediately after harvesting, and preparing sites with recommended species reduce the hazard of erosion and help to control siltation of streams.

#### **Dwellings**

*Suitability:* Suited

*Management concerns:* None

*Management measures and considerations:*

- Structures can be designed to conform to the natural slope or can be built in the less sloping areas.
- Vegetating cleared-and-graded areas as soon as possible or constructing silt fences helps to maintain soil stability and prevents sediment from leaving the site.

#### **Septic tank absorption fields**

*Suitability:* Unsited

*Management concerns:* Slow permeability in the subsoil

*Management measures and considerations:*

- This map unit is severely limited as a site for septic tank absorption fields because of the slow permeability in the subsoil. The local Health Department can be contacted for guidance regarding sanitary facilities.

#### **Local roads and streets**

*Suitability:* Moderately well suited

*Management concerns:* Low strength in the subsoil

*Management measures and considerations:*

- Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil material.
- Designing roads to safely remove surface water improves soil performance.

- Vegetating disturbed areas and using erosion-control structures, such as sediment fences and sediment catch basins, help to keep soil on the site. These practices should be used during any development.

### **Interpretive Groups**

*Land capability classification:* 2e

## **CaC—Carnegie gravelly sandy loam, 5 to 8 percent slopes**

### **Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Ridgetops, short side slopes, and knolls

*Size of areas:* 5 to 75 acres

### **Composition**

Carnegie and similar soils: 80 percent

Dissimilar soils: 20 percent

### **Typical Profile**

*Surface layer:*

0 to 6 inches—brown gravelly sandy loam

*Subsoil:*

6 to 20 inches—strong brown sandy clay loam

20 to 32 inches—strong brown clay that has red and yellowish brown mottles

32 to 45 inches—mottled red, strong brown, and very pale brown clay

45 to 62 inches—mottled red, strong brown, and very pale brown sandy clay

62 to 76 inches—mottled yellowish red, reddish brown, and strong brown sandy clay loam

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* More than 6 feet

*Permeability:* Moderately slow

*Available water capacity:* Moderate

*Flooding:* None

*Content of organic matter in the surface layer:*

Moderately low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid to moderately acid throughout, except where lime has been applied

*Other distinctive properties:* 5 to 15 percent plinthite

below a depth of 18 inches; 5 to 20 percent ironstone nodules in the surface layer

### **Minor Components**

*Dissimilar soils:*

- Dothan and Tifton soils, which are fine-loamy, are in the lower positions, and are less red than the Carnegie soil
- Cowarts soils, which are fine-loamy and are on slope breaks
- Orangeburg soils, which are fine-loamy and are in the lower positions

*Similar soils:*

- Soils that are similar to the Carnegie soil but have a surface layer of sandy clay loam

### **Land Use**

**Dominant uses:** Cropland and pasture

**Other uses:** Woodland

#### **Cropland**

*Suitability:* Suited

*Commonly grown crops:* Cotton, peanuts, corn, soybeans, and small grains

*Management concerns:* Erosion

*Management measures and considerations:*

- Terraces and diversions, stripcropping, contour tillage, conservation tillage, winter cover crops, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and maximize infiltration of rainfall into the soil.
- Leaving the maximum amount of crop residue on the surface helps to control soil blowing and conserves soil moisture and plant nutrients.
- Restricting tillage during wet periods helps to prevent clodding and crusting and increases infiltration of water.

#### **Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Bahiagrass, improved bermudagrass, common bermudagrass, legumes, and ryegrass

*Management concerns:* Erosion

*Management measures and considerations:*

- Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- Fencing livestock away from creeks and streams minimizes erosion of streambanks and sedimentation of the creeks and streams.
- Installing cross fencing to enable rotational grazing helps to keep the soil in good condition, especially during drier periods.
- Using rotational grazing and implementing a well-

planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.

### Woodland

*Suitability:* Well suited

*Productivity class:* High for loblolly pine and slash pine

*Management concerns:* Erosion

*Management measures and considerations:*

- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.
- Establishing a permanent plant cover on roads and landings after the completion of logging reduces the hazard of erosion and helps to control the siltation of streams.
- Using tracked or low-pressure ground equipment minimizes rutting and the damage caused to roots by compaction during harvesting.

### Dwellings

*Suitability:* Suited

*Management concerns:* None

*Management measures and considerations:*

- Structures can be designed to conform to the natural slope or can be built in the less sloping areas.
- Vegetating cleared-and-graded areas as soon as possible or constructing silt fences helps to maintain soil stability and prevents sediment from leaving the site.

### Septic tank absorption fields

*Suitability:* Unsited

*Management concerns:* Slow permeability in the subsoil

*Management measures and considerations:*

- This map unit is severely limited as a site for septic tank absorption fields because of the slow permeability in the subsoil. The local Health Department can be contacted for guidance regarding sanitary facilities.

### Local roads and streets

*Suitability:* Moderately well suited

*Management concerns:* Low strength

*Management measures and considerations:*

- Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil material.
- Vegetating cut-and-fill slopes as soon as possible after construction helps to stabilize the soil and prevents excessive erosion.

### Interpretive Groups

*Land capability classification:* 3e

## CgC—Cowarts-Gritney complex, 5 to 8 percent slopes

### Setting

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Cowarts—narrow ridges and side slopes; Gritney—short side slopes

*Size of areas:* 10 to 100 acres

### Composition

Cowarts and similar soils: 40 percent

Gritney and similar soils: 40 percent

Dissimilar soils: 20 percent

### Typical Profile

#### Cowarts

*Surface layer:*

0 to 4 inches—brown loamy sand

*Subsurface layer:*

4 to 9 inches—yellowish brown sandy loam

*Subsoil:*

9 to 18 inches—strong brown sandy clay loam

18 to 25 inches—yellowish red sandy clay loam

25 to 31 inches—yellowish red sandy clay loam that has yellowish brown mottles

*Substratum:*

31 to 65 inches—mottled brownish yellow, yellowish brown, and white sandy loam

#### Gritney

*Surface layer:*

0 to 8 inches—yellowish brown loamy sand

*Subsoil:*

8 to 18 inches—yellowish brown sandy clay that has red mottles

18 to 50 inches—mottled reddish brown, yellowish brown, and light gray sandy clay

*Substratum:*

50 to 65 inches—light gray clay loam that has reddish brown and yellowish brown mottles

### Soil Properties and Qualities

*Depth class:* Very deep

*Depth to root-restricting layer:* Cowarts—more than 60 inches, but root growth may be limited by dense lower layers; Gritney—more than 60 inches

*Drainage class:* Cowarts—well drained; Gritney—moderately well drained

*Depth to seasonal high water table:* Cowarts—more

than 6 feet; Gritney—1½ to 3 feet, December through April

*Permeability:* Cowarts—moderate in the subsoil and moderately slow in the substratum; Gritney—slow

*Available water capacity:* Moderate

*Flooding:* None

*Content of organic matter in the surface layer:*

Cowarts—moderately low or moderate; Gritney—low or moderately low

*Natural fertility:* Low

*Tilth:* Cowarts—good; Gritney—fair

*Reaction:* Cowarts—very strongly acid or strongly acid, except where lime has been applied; Gritney—extremely acid to strongly acid, except where lime has been applied

*Other distinctive properties:* Cowarts—few quartz pebbles on the surface in some areas; Gritney—none

### **Minor Components**

*Dissimilar soils:*

- Bonneau and Fuquay soils, which are in the higher positions and have a sandy surface layer that ranges from 20 to 40 inches in thickness
- Carnegie soils, which are on ridgetops and have 5 percent or more plinthite within a depth of 20 to 50 inches
- Tifton and Dothan soils, which are on the broader ridgetops and have more than 5 percent plinthite in the subsoil

*Similar soils:*

- Areas of eroded soils that have a surface texture of sandy loam or sandy clay loam

### **Land Use**

**Dominant uses:** Woodland

**Other uses:** Pasture

#### **Cropland**

*Suitability:* Moderately well suited

*Commonly grown crops:* Cotton, peanuts, corn, soybeans, and small grains

*Management concerns:* Erosion and slope

*Management measures and considerations:*

- Terraces and diversions, stripcropping, contour tillage, conservation tillage, winter cover crops, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and maximize infiltration of rainfall into the soils.
- Leaving the maximum amount of crop residue on the surface helps to control soil blowing and conserves soil moisture and plant nutrients.
- Restricting tillage during wet periods helps to

prevent clodding and crusting and increases infiltration of water.

#### **Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Improved bermudagrass, bahiagrass, and ryegrass

*Management concerns:* Erosion and slope

*Management measures and considerations:*

- Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- Fencing livestock away from creeks and streams minimizes erosion of streambanks and sedimentation of the creeks and streams.
- Installing cross fencing to enable rotational grazing helps to keep the soil in good condition, especially during drier periods.
- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.

#### **Woodland**

*Suitability:* Moderately suited

*Productivity class:* Cowarts—high for loblolly pine, longleaf pine, and slash pine; Gritney—moderately high for loblolly pine, longleaf pine, and slash pine

*Management concerns:* Erosion

*Management measures and considerations:*

- Proper site preparation, herbicides, and prescribed burning help to control competition from undesirable plant species.
- Establishing a permanent plant cover on roads and landings after the completion of logging reduces the hazard of erosion and helps to control the siltation of streams.
- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.
- Using tracked or low-pressure ground equipment minimizes rutting and the damage caused to roots by compaction during harvesting.

#### **Dwellings**

*Suitability:* Cowarts—well suited to dwellings with or without basements; Gritney—moderately suited to dwellings without basements and poorly suited to dwellings with basements

*Management concerns:* Cowarts—none; Gritney—shrink-swell potential and slope

*Management measures and considerations:*

- Building on the highest part of the landscape and installing a subsurface drainage system, where slope permits, help to overcome the wetness.

- Structures can be designed to conform to the natural slope or can be built in the less sloping areas.
- Vegetating cleared-and-graded areas as soon as possible or constructing silt fences helps to maintain soil stability and prevents sediment from leaving the site.

### Septic tank absorption fields

*Suitability:* Cowarts—moderately well suited; Gritney—unsuited

*Management concerns:* Cowarts—slow permeability; Gritney—wetness and slow permeability

*Management measures and considerations:*

- Using suitable fill material to raise the filter field a sufficient distance above the seasonal high water table improves the performance of a septic system.
- The local Health Department can be contacted for guidance regarding sanitary facilities.

### Local roads and streets

*Suitability:* Cowarts—suited; Gritney—poorly suited

*Management concerns:* Cowarts—none; Gritney—shrink-swell potential and low strength

*Management measures and considerations:*

- Designing roads to safely remove surface water improves soil performance.
- Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil material and minimize the shrinking and swelling of the Gritney soil.
- Vegetating cut-and-fill slopes as soon as possible after construction helps to stabilize the soil and prevents excessive erosion.

### Interpretive Groups

*Land capability classification:* Cowarts—3e; Gritney—4e

## CgD—Cowarts-Gritney complex, 8 to 12 percent slopes

### Setting

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Cowarts—narrow ridges; Gritney—short side slopes

*Size of areas:* 10 to 100 acres

### Composition

Cowarts and similar soils: 40 percent

Gritney and similar soils: 40 percent

Dissimilar soils: 20 percent

### Typical Profile

#### Cowarts

*Surface layer:*

0 to 4 inches—brown loamy sand

*Subsurface layer:*

4 to 9 inches—yellowish brown sandy loam

*Subsoil:*

9 to 18 inches—strong brown sandy clay loam

18 to 25 inches—yellowish red sandy clay loam

25 to 31 inches—yellowish red sandy clay loam that has yellowish brown mottles

*Substratum:*

31 to 65 inches—mottled brownish yellow, yellowish brown, and white sandy loam

#### Gritney

*Surface layer:*

0 to 8 inches—yellowish brown loamy sand

*Subsoil:*

8 to 18 inches—yellowish brown sandy clay that has red mottles

18 to 50 inches—mottled reddish brown, yellowish brown, and light gray sandy clay

*Substratum:*

50 to 65 inches—light gray clay loam that has reddish brown and yellowish brown mottles

### Soil Properties and Qualities

*Depth class:* Very deep

*Depth to root-restricting layer:* Cowarts—more than 60 inches, but root growth may be limited by dense lower layers; Gritney—more than 60 inches

*Drainage class:* Cowarts—well drained; Gritney—moderately well drained

*Depth to seasonal high water table:* Cowarts—more than 6 feet; Gritney—1½ to 3 feet, December through April

*Permeability:* Cowarts—moderate in the subsoil and moderately slow in the substratum; Gritney—slow

*Available water capacity:* Moderate

*Flooding:* None

*Content of organic matter in the surface layer:*

Cowarts—moderately low or moderate; Gritney—low or moderately low

*Natural fertility:* Low

*Tilth:* Cowarts—good; Gritney—fair

*Reaction:* Cowarts—very strongly acid to acid, except where lime has been applied; Gritney—extremely acid to strongly acid, except where lime has been applied

*Other distinctive properties:* Cowarts—few quartz

pebbles on the surface in some areas; Gritney—none

### **Minor Components**

#### *Dissimilar soils:*

- Bonneau and Fuquay soils, which are on the broader, flatter ridgetops and have a thick, sandy surface layer that ranges from 20 to 40 inches in thickness
- Carnegie soils, which are on ridgetops and have 5 percent or more plinthite within a depth of 20 to 50 inches
- Tifton and Dothan soils, which are on the broader ridgetops and contain more than 5 percent plinthite in the subsoil
- Orangeburg soils, which are in the higher positions, are fine-loamy, and have no significant decrease in clay content within a depth of 60 inches

#### *Similar soils:*

- Areas of eroded soils that have a surface layer of sandy loam or sandy clay loam

### **Land Use**

**Dominant uses:** Woodland

**Other uses:** Pasture

#### **Cropland**

*Suitability:* Poorly suited

*Commonly grown crops:* Cotton, peanuts, corn, soybeans, and small grains

*Management concerns:* Erosion and slope

*Management measures and considerations:*

- This map unit is severely limited for use as cropland.

#### **Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Improved bermudagrass, bahiagrass, and ryegrass

*Management concerns:* Erosion and slope

*Management measures and considerations:*

- Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- Installing cross fencing to enable rotational grazing helps to keep the soils in good condition, especially during drier periods.
- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.
- Using split applications of fertilizer minimizes leaching and increases yields.

#### **Woodland**

*Suitability:* Suited

*Productivity class:* Cowarts—high for loblolly pine,

longleaf pine, and slash pine; Gritney—moderately high for loblolly pine, longleaf pine, and slash pine

*Management concerns:* Erosion and slope

*Management measures and considerations:*

- Establishing a permanent plant cover on roads and landings after the completion of logging reduces the hazard of erosion and helps to control the siltation of streams.
- Using tracked or low-pressure ground equipment minimizes rutting and the damage caused to roots by compaction during harvesting.
- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

#### **Dwellings**

*Suitability:* Cowarts—moderately well suited;

Gritney—poorly suited

*Management concerns:* Cowarts—slope; Gritney—wetness, slope, and shrink-swell potential

*Management measures and considerations:*

- Building on the highest part of the landscape and installing a subsurface drainage system, where slope permits, help to overcome the wetness.
- Building on loamy material brought in from offsite or using special foundation designs minimizes the damage caused by the shrinking and swelling of the Gritney soil.
- Designing structures to conform to the natural slope, cutting and filling, or building in the less sloping areas helps to overcome the slope.
- Vegetating cleared-and-graded areas as soon as possible or constructing silt fences helps to maintain soil stability and prevents sediment from leaving the site.

#### **Septic tank absorption fields**

*Suitability:* Cowarts—moderately well suited;

Gritney—unsuited

*Management concerns:* Cowarts—slow permeability and slope; Gritney—wetness, slow permeability, and slope

*Management measures and considerations:*

- Installing a subsurface drainage system lowers the seasonal high water table.
- Using suitable fill material to raise the filter field a sufficient distance above the seasonal high water table improves the performance of a septic system.
- The local Health Department can be contacted for guidance regarding sanitary facilities.

#### **Local roads and streets**

*Suitability:* Moderately well suited

*Management concerns:* Cowarts—slope; Gritney—wetness, low strength, and slope

*Management measures and considerations:*

- Designing roads to safely remove surface water improves soil performance.
- Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil material.
- Vegetating cut-and-fill slopes as soon as possible after construction helps to stabilize the soils and prevents excessive erosion.

### **Interpretive Groups**

*Land capability classification:* Cowarts—6e; Gritney—6e

## **DoA—Dothan loamy sand, 0 to 2 percent slopes**

### **Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Broad ridges

*Size of areas:* 10 to 300 acres

### **Composition**

Dothan and similar soils: 80 percent

Dissimilar soils: 20 percent

### **Typical Profile**

*Surface layer:*

0 to 12 inches—grayish brown loamy sand

*Subsoil:*

12 to 24 inches—yellowish brown sandy clay loam

24 to 34 inches—brownish yellow sandy clay loam that has light yellowish brown mottles

34 to 48 inches—brownish yellow sandy clay loam

48 to 65 inches—yellow sandy clay loam that has reddish yellow mottles

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* 3 to 5 feet, January through March

*Permeability:* Moderate in the upper part of the subsoil and moderately slow in the lower part

*Available water capacity:* Moderate

*Flooding:* None

*Content of organic matter in the surface layer:* Low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid or strongly acid, except where lime has been applied

*Other distinctive properties:* 5 to 15 percent plinthite within a depth of 30 to 60 inches

### **Minor Components**

*Dissimilar soils:*

- Fuquay soils, which are in the higher positions and have a sandy surface layer that ranges from 20 to 40 inches in thickness
- Norfolk soils, which are in positions similar to those of the Dothan soil and contain less than 5 percent plinthite
- Orangeburg soils, which are in the slightly higher positions and have a subsoil that is redder in hue than the subsoil of the Dothan soil

*Similar soils:*

- Soils that are similar to the Dothan soil but have a surface layer of loamy fine sand or sandy loam
- Tifton soils, which have 5 percent or more ironstone nodules on the surface

### **Land Use**

**Dominant uses:** Cropland and pasture

**Other uses:** Woodland

#### **Cropland**

*Suitability:* Well suited

*Commonly grown crops:* Cotton, peanuts, corn, soybeans, small grains, and truck crops

*Management concerns:* None

*Management measures and considerations:*

- Leaving the maximum amount of crop residue on the surface helps to control soil blowing and conserves soil moisture and plant nutrients.

#### **Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Improved bermudagrass, bahiagrass, and ryegrass

*Management concerns:* None

*Management measures and considerations:*

- Installing cross fencing to enable rotational grazing helps to keep the soil in good condition, especially during drier periods.
- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.

#### **Woodland**

*Suitability:* Well suited

*Productivity class:* High for loblolly pine, longleaf pine, and slash pine

*Management concerns:* No significant limitations affect woodland management.

**Management measures and considerations:**

- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

**Dwellings**

**Suitability:** Well suited to dwellings without basements and moderately well suited to dwellings with basements

**Management concerns:** The seasonal high water table is a moderate concern affecting buildings with basements.

**Management measures and considerations:**

- Constructing dwellings on raised, well-compacted fill material reduces the risk of damage from wetness.

**Septic tank absorption fields**

**Suitability:** Moderately well suited

**Management concerns:** Seasonal high water table and restricted permeability

**Management measures and considerations:**

- Using suitable fill material to raise the filter field a sufficient distance above the seasonal high water table improves the performance of a septic system.
- The local Health Department can be contacted for guidance regarding sanitary facilities.

**Local roads and streets**

**Suitability:** Well suited

**Management concerns:** None

**Management measures and considerations:**

- Designing roads to safely remove surface water improves soil performance.
- Vegetating cut-and-fill slopes as soon as possible after construction helps to stabilize the soil and prevents excessive erosion.

**Interpretive Groups**

**Land capability classification:** 1

**DoB—Dothan loamy sand, 2 to 5 percent slopes****Setting**

**Landscape:** Coastal Plain

**Landform:** Uplands

**Landform position:** Broad ridges

**Size of areas:** 10 to 300 acres

**Composition**

Dothan and similar soils: 80 percent

Dissimilar soils: 20 percent

**Typical Profile****Surface layer:**

0 to 12 inches—grayish brown loamy sand

**Subsoil:**

12 to 24 inches—yellowish brown sandy clay loam

24 to 34 inches—brownish yellow sandy clay loam that has light yellowish brown mottles

34 to 48 inches—brownish yellow sandy clay loam

48 to 65 inches—yellow sandy clay loam that has reddish yellow mottles

**Soil Properties and Qualities**

**Depth class:** Very deep

**Depth to root-restricting layer:** More than 60 inches

**Drainage class:** Well drained

**Depth to seasonal high water table:** 3 to 5 feet, January through March

**Permeability:** Moderate in the upper part of the subsoil and moderately slow in the lower part

**Available water capacity:** Moderate

**Flooding:** None

**Content of organic matter in the surface layer:** Low

**Natural fertility:** Low

**Tilth:** Good

**Reaction:** Very strongly acid or strongly acid, except where lime has been applied

**Other distinctive properties:** 5 to 15 percent plinthite below a depth of 30 to 60 inches

**Minor Components****Dissimilar soils:**

- Fuquay soils, which are in the higher positions and have a sandy surface layer that ranges from 20 to 40 inches in thickness
- Norfolk soils, which are in positions similar to those of the Dothan soil and contain less than 5 percent plinthite
- Orangeburg soils, which are in the slightly higher positions and have a subsoil that is redder in hue than the subsoil of the Dothan soil
- Tifton soils, which are in positions similar to those of the Dothan soil and have 5 percent or more ironstone nodules on the surface
- Cowarts soils, which are on slope breaks and have a thinner solum than that of the Dothan soil

**Similar soils:**

- Soils that are similar to the Dothan soil but have a surface layer of loamy fine sand or sandy loam

**Land Use**

**Dominant uses:** Cropland and pasture

**Other uses:** Woodland

**Cropland**

*Suitability:* Well suited

*Commonly grown crops:* Cotton, peanuts, corn, soybeans, small grains, and truck crops

*Management concerns:* Erosion

*Management measures and considerations:*

- Leaving the maximum amount of crop residue on the surface helps to control soil blowing and conserves soil moisture and plant nutrients.
- Terraces and diversions, stripcropping, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and maximize infiltration of rainfall into the soil.

**Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Improved bermudagrass, bahiagrass, and ryegrass

*Management concerns:* None

*Management measures and considerations:*

- Fencing livestock away from creeks and streams minimizes erosion of streambanks and sedimentation of the creeks and streams.
- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.

**Woodland**

*Suitability:* Well suited

*Productivity class:* High for loblolly pine, longleaf pine, and slash pine

*Management concerns:* None

*Management measures and considerations:*

- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

**Dwellings**

*Suitability:* Well suited to dwellings without basements and suited to dwellings with basements

*Management concerns:* The seasonal high water table is a moderate concern affecting buildings with basements.

*Management measures and considerations:*

- Building on the highest part of the landscape and installing a subsurface drainage system, where slope permits, help to overcome the wetness.
- Constructing dwellings on raised, well-compacted fill material reduces the risk of damage from wetness.

**Septic tank absorption fields**

*Suitability:* Moderately well suited

*Management concerns:* Seasonal high water table and restricted permeability

*Management measures and considerations:*

- Using suitable fill material to raise the filter field a sufficient distance above the seasonal high water table improves the performance of a septic system.
- The local Health Department can be contacted for guidance regarding sanitary facilities.

**Local roads and streets**

*Suitability:* Suited

*Management concerns:* None

*Management measures and considerations:*

- Designing roads to safely remove surface water improves soil performance.
- Vegetating cut-and-fill slopes as soon as possible after construction helps to stabilize the soil and prevents excessive erosion.

**Interpretive Groups**

*Land capability classification:* 2e

**FeA—Faceville sandy loam, 0 to 2 percent slopes****Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Convex interfluves

*Size of areas:* 5 to 50 acres

**Composition**

Faceville and similar soils: 85 percent

Dissimilar soils: 15 percent

**Typical Profile**

*Surface layer:*

0 to 4 inches—brown sandy loam

*Subsurface layer:*

4 to 7 inches—yellowish red sandy clay loam

*Subsoil:*

7 to 65 inches—red sandy clay

**Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* More than 6 feet

*Permeability:* Moderate

*Available water capacity:* Moderate to high

*Flooding:* None

*Content of organic matter in the surface layer:* Low or moderately low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid to moderately acid, except where lime has been applied

*Other distinctive properties:* None

### **Minor Components**

*Dissimilar soils:*

- Nankin soils, which are on adjacent side slopes and have a subsoil that is shallower than the subsoil of the Faceville soil
- Orangeburg soils, which are in the slightly lower positions and are fine-loamy

*Similar soils:*

- Soils that are similar to the Faceville soil but have a surface layer of loamy sand or sandy clay loam

### **Land Use**

**Dominant uses:** Cropland

**Other uses:** Pasture, hayland, and woodland (fig. 3)

### **Cropland**

*Suitability:* Well suited

*Commonly grown crops:* Corn, small grains, cotton, peanuts, grain sorghum, and soybeans

*Management concerns:* None

### **Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Bahiagrass, improved bermudagrass, common bermudagrass, legumes, and ryegrass

*Management concerns:* None

*Management measures and considerations:*

- Installing cross fencing to enable rotational grazing helps to keep the soil in good condition, especially during drier periods.

### **Woodland**

*Suitability:* Well suited

*Productivity class:* Moderately high for loblolly pine and slash pine

*Management concerns:* None



Figure 3.—A recently thinned stand of pines in an area of Faceville sandy loam, 0 to 2 percent slopes.

*Management measures and considerations:*

- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.
- Establishing a permanent plant cover on roads and landings after the completion of logging reduces the hazard of erosion and helps to control the siltation of streams.
- Using tracked or low-pressure ground equipment minimizes rutting and the damage caused to roots by compaction during harvesting.

**Dwellings**

*Suitability:* Well suited to dwellings without basements and suited to dwellings with basements

*Management concerns:* None

*Management measures and considerations:*

- Vegetating cleared-and-graded areas as soon as possible or constructing silt fences helps to maintain soil stability and prevents sediment from leaving the site.

**Septic tank absorption fields**

*Suitability:* Moderately well suited

*Management concerns:* Moderate permeability

*Management measures and considerations:*

- Increasing the size of the absorption field improves the performance of the system.
- Installing distribution lines during dry periods minimizes smearing and sealing of trench walls.
- The local Health Department can be contacted for guidance regarding sanitary facilities.

**Local roads and streets**

*Suitability:* Well suited

*Management concerns:* None

**Interpretive Groups**

*Land capability classification:* 1

**FeB—Faceville sandy loam, 2 to 5 percent slopes****Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Convex interfluves and shoulder slopes

*Size of areas:* 5 to 175 acres

**Composition**

Faceville and similar soils: 85 percent

Dissimilar soils: 15 percent

**Typical Profile***Surface layer:*

0 to 4 inches—brown sandy loam

*Subsurface layer:*

4 to 7 inches—yellowish red sandy clay loam

*Subsoil:*

7 to 65 inches—red sandy clay

**Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* More than 6 feet

*Permeability:* Moderate

*Available water capacity:* Moderate to high

*Flooding:* None

*Content of organic matter in the surface layer:* Low or moderately low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid to moderately acid, except where lime has been applied

*Other distinctive properties:* None

**Minor Components***Dissimilar soils:*

- Nankin, Cowarts, and Gritney soils, which are on adjacent side slopes and have a subsoil that is shallower than the subsoil of the Faceville soil
- Orangeburg soils, which are in the slightly lower positions and are fine-loamy

*Similar soils:*

- Soils that are similar to the Faceville soil but have a surface layer of loamy sand or sandy clay loam

**Land Use**

**Dominant uses:** Cropland

**Other uses:** Pasture, hayland, and woodland

**Cropland**

*Suitability:* Well suited

*Commonly grown crops:* Corn, small grains, cotton, peanuts, grain sorghum, and soybeans

*Management concerns:* Erosion

*Management measures and considerations:*

- Terraces and diversions, stripcropping, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and maximize infiltration of rainfall into the soil.

**Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Bahiagrass, improved bermudagrass, common bermudagrass, legumes, and ryegrass

*Management concerns:* None

*Management measures and considerations:*

- Installing cross fencing to enable rotational grazing helps to keep the soil in good condition, especially during drier periods.

### **Woodland**

*Suitability:* Well suited

*Productivity class:* Moderately high for loblolly pine and slash pine

*Management concerns:* None

*Management measures and considerations:*

- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.
- Establishing a permanent plant cover on roads and landings after the completion of logging reduces the hazard of erosion and helps to control the siltation of streams.

### **Dwellings**

*Suitability:* Well suited to dwellings with or without basements

*Management concerns:* The clayey subsoil is a moderate concern affecting buildings with basements.

*Management measures and considerations:*

- Reinforcing basements walls and backfilling with coarse material help to minimize the damage caused by shrinking and swelling of the soil.
- Vegetating cleared-and-graded areas as soon as possible or constructing silt fences helps to maintain soil stability and prevents sediment from leaving the site.

### **Septic tank absorption fields**

*Suitability:* Moderately well suited

*Management concerns:* Moderate permeability

*Management measures and considerations:*

- Increasing the size of the absorption field improves the performance of the system.
- Installing distribution lines during dry periods minimizes smearing and sealing of trench walls.
- The local Health Department can be contacted for guidance regarding sanitary facilities.

### **Local roads and streets**

*Suitability:* Well suited

*Management concerns:* None

*Management measures and considerations:*

- Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low

strength of the natural soil material and improve trafficability.

- Designing roads to safely remove surface water improves soil performance.

### **Interpretive Groups**

*Land capability classification:* 2e

## **FeC—Faceville sandy loam, 5 to 8 percent slopes**

### **Setting**

*Landscape:* Coastal Plain

*Landform:* Broad ridges

*Landform position:* Convex interfluves and shoulder slopes

*Size of areas:* 5 to 100 acres

### **Composition**

Faceville and similar soils: 85 percent

Dissimilar soils: 15 percent

### **Typical Profile**

*Surface layer:*

0 to 4 inches—brown sandy loam

*Subsurface layer:*

4 to 7 inches—yellowish red sandy clay loam

*Subsoil:*

7 to 65 inches—red sandy clay

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* More than 6 feet

*Permeability:* Moderate

*Available water capacity:* Moderate to high

*Flooding:* None

*Content of organic matter in the surface layer:* Low or moderately low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid to moderately acid, except where lime has been applied

*Other distinctive properties:* None

### **Minor Components**

*Dissimilar soils:*

- Nankin, Cowarts, and Gritney soils, which are on the adjacent side slopes and have a subsoil that is shallower than the subsoil of the Faceville soil

- Orangeburg soils, which are in the slightly lower positions and are fine-loamy

*Similar soils:*

- Soils that are similar to the Faceville soil but have a surface layer of loamy sand or sandy clay loam

### **Land Use**

**Dominant uses:** Cropland

**Other uses:** Pasture, hayland, and woodland

#### **Cropland**

*Suitability:* Suited

*Commonly grown crops:* Corn, small grains, cotton, peanuts, grain sorghum, and soybeans

*Management concerns:* Erosion

*Management measures and considerations:*

- Terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and a rotation that includes soil-conserving crops reduce the hazard of erosion, help to control surface runoff, and maximize infiltration of rainfall into the soil.

#### **Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Bahiagrass, improved bermudagrass, common bermudagrass, legumes, and ryegrass

*Management concerns:* None

*Management measures and considerations:*

- Installing cross fencing to enable rotational grazing helps to keep the soil in good condition, especially during drier periods.

#### **Woodland**

*Suitability:* Well suited

*Productivity class:* Moderately high for loblolly pine and slash pine

*Management concerns:* None

*Management measures and considerations:*

- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.
- Establishing a permanent plant cover on roads and landings after the completion of logging reduces the hazard of erosion and helps to control the siltation of streams.

#### **Dwellings**

*Suitability:* Well suited to dwellings without basements and suited to dwellings with basements

*Management concerns:* None

*Management measures and considerations:*

- Reinforcing basements walls and backfilling with

coarse material help to minimize the damage caused by shrinking and swelling of the soil.

- Vegetating cleared-and-graded areas as soon as possible or constructing silt fences helps to maintain soil stability and prevents sediment from leaving the site.

#### **Septic tank absorption fields**

*Suitability:* Moderately well suited

*Management concerns:* Moderate permeability

*Management measures and considerations:*

- Increasing the size of the absorption field improves the performance of the system.
- Installing distribution lines during dry periods minimizes smearing and sealing of trench walls.
- The local Health Department can be contacted for guidance regarding sanitary facilities.

#### **Local roads and streets**

*Suitability:* Well suited

*Management concerns:* None

### **Interpretive Groups**

*Land capability classification:* 3e

## **FuB—Fuquay loamy sand, 0 to 5 percent slopes**

### **Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Ridges and adjacent side slopes

*Size of areas:* 5 to 500 acres

### **Composition**

Fuquay and similar soils: 80 percent

Dissimilar soils: 20 percent

### **Typical Profile**

*Surface layer:*

0 to 8 inches—brown loamy sand

*Subsurface layer:*

8 to 32 inches—yellowish brown loamy sand

*Subsoil:*

32 to 40 inches—yellow sandy loam

40 to 58 inches—yellow sandy clay loam; 10 percent nodular plinthite; mottles in shades of red, yellow, brown, and gray

58 to 65 inches—strong brown sandy clay loam; 3 percent nodular plinthite; mottles in shades of red, yellow, brown, and gray

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* 4 to 6 feet,  
January through March

*Permeability:* Rapid in the surface and subsurface layers, moderate in the upper part of the subsoil, and slow in the lower part of the subsoil

*Available water capacity:* Low to moderate

*Flooding:* None

*Content of organic matter in the surface layer:* Low or moderately low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid to moderately acid, except where lime has been applied

*Other distinctive properties:* 5 to 10 percent plinthite below a depth of 35 inches

### **Minor Components**

*Dissimilar soils:*

- Blanton soils, which are in the slightly higher positions and have a sandy surface layer that is 40 to 60 inches thick
- Bonneau soils, which are in positions similar to those of the Fuquay soil and have less than 5 percent plinthite within a depth of 60 inches
- Dothan soils, which are in positions similar to those of the Fuquay soil and have a surface layer that is less than 20 inches thick

*Similar soils:*

- Areas of Fuquay soils that have a slope of more than 5 percent

### **Land Use**

**Dominant uses:** Cropland

**Other uses:** Pasture and woodland

#### **Cropland**

*Suitability:* Moderately well suited

*Commonly grown crops:* Cotton, peanuts, corn, soybeans, small grains, and truck crops

*Management concerns:* Low available water capacity

*Management measures and considerations:*

- Leaving the maximum amount of crop residue on the surface helps to control soil blowing and conserves soil moisture and plant nutrients.
- Terraces and diversions, stripcropping, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and maximize infiltration of rainfall into the soil.

#### **Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Improved bermudagrass, bahiagrass, and ryegrass

*Management concerns:* Low available water capacity; low nutrient holding capacity in the surface layer

*Management measures and considerations:*

- Fencing livestock away from creeks and streams minimizes erosion of streambanks and sedimentation of the creeks and streams.
- Installing cross fencing to enable rotational grazing helps to keep the soil in good condition, especially during drier periods.
- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.

#### **Woodland**

*Suitability:* Moderately well suited

*Productivity class:* Moderately high for loblolly pine and high for longleaf pine and slash pine

*Management measures and considerations:*

- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.
- Using tracked or low-pressure ground equipment minimizes rutting and the damage caused to roots by compaction during harvesting.
- Establishing a permanent plant cover on roads and log landings, reforestation immediately after harvesting, and preparing sites with recommended species reduce the hazard of erosion and help to control siltation of streams.

#### **Dwellings**

*Suitability:* Well suited to dwellings without basements and moderately well suited to dwellings with basements

*Management concerns:* Seasonal high water table

*Management measures and considerations:*

- Building on the highest part of the landscape and installing a subsurface drainage system, where slope permits, help to overcome the wetness.
- Vegetating cleared-and-graded areas as soon as possible or constructing silt fences helps to maintain soil stability and prevents sediment from leaving the site.

#### **Septic tank absorption fields**

*Suitability:* Moderately well suited

*Management concerns:* Slow permeability in the lower part of the subsoil; seasonal high water table

*Management measures and considerations:*

- Installing the absorption fields on the highest part of

the landscape and installing a subsurface drainage system help to overcome the wetness.

- The local Health Department can be contacted for guidance regarding sanitary facilities.

#### **Local roads and streets**

*Suitability:* Moderately well suited

*Management concerns:* None

*Management measures and considerations:*

- Vegetating cut-and-fill slopes as soon as possible after construction helps to stabilize the soil and prevents excessive erosion.

#### **Interpretive Groups**

*Land capability classification:* 2s

## **GoA—Goldsboro loamy sand, 0 to 2 percent slopes**

### **Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Slightly concave interfluves

*Size of areas:* 5 to 25 acres

### **Composition**

Goldsboro and similar soils: 80 percent

Dissimilar soils: 20 percent

### **Typical Profile**

*Surface layer:*

0 to 5 inches—dark gray loamy sand

*Subsurface layer:*

5 to 10 inches—grayish brown loamy sand

*Subsoil:*

10 to 17 inches—light yellowish brown sandy loam that has olive yellow mottles

17 to 25 inches—olive yellow sandy clay loam that has yellowish brown, yellow, and gray mottles

25 to 40 inches—brownish yellow clay loam that has yellowish brown and gray mottles

40 to 50 inches—yellowish brown sandy clay that has strong brown and gray mottles

50 to 65 inches—light gray sandy clay that has brownish and yellow mottles

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches, but root growth may be limited by a seasonal high water table

*Drainage class:* Moderately well drained

*Depth to seasonal high water table:* 2 to 3 feet, apparent, December through April

*Permeability:* Moderate

*Available water capacity:* Moderate to high

*Flooding:* None

*Content of organic matter in the surface layer:* Low or moderately low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid or strongly acid throughout, except where lime has been applied

*Other distinctive properties:* None

### **Minor Components**

*Dissimilar soils:*

- Well drained Norfolk and Orangeburg soils in the slightly higher, more convex positions
- Poorly drained Pelham and very poorly drained Grady soils in the lower, depressional areas
- Scattered areas of well drained soils consisting of stratified sandy and loamy alluvium along drainageways that are occasionally flooded for brief periods

*Similar soils:*

- Scattered areas of soils that are similar to the Goldsboro soil, are adjacent to depressions, and are somewhat poorly drained
- Scattered areas of soils that are similar to the Goldsboro soil but have a surface layer of loamy fine sand or sandy loam

### **Land Use**

**Dominant uses:** Cropland

**Other uses:** Pasture, hayland, and woodland

#### **Cropland**

*Suitability:* Well suited

*Commonly grown crops:* Corn, small grains, cotton, peanuts, grain sorghum, and soybeans

*Management concerns:* Seasonal wetness; soil blowing

*Management measures and considerations:*

- Installing and maintaining an artificial drainage system helps to overcome the wetness and increases productivity.
- Restricting tillage when the soil is wet helps to prevent clodding and crusting.
- Leaving the maximum amount of crop residue on the surface helps to control soil blowing and conserves soil moisture and plant nutrients.
- Applying lime and fertilizer on the basis of soil testing increases the availability of nutrients to plants and maximizes productivity.

**Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Bahiagrass, improved bermudagrass, common bermudagrass, legumes, and ryegrass

*Management concerns:* Seasonal wetness

*Management measures and considerations:*

- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.

**Woodland**

*Suitability:* Well suited

*Productivity class:* High for slash pine and loblolly pine

*Management concerns:* None

*Management measures and considerations:*

- Restricting logging to periods when the soil is not saturated minimizes rutting of the surface layer and compaction of the subsoil.
- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.
- Establishing a permanent plant cover on roads and log landings, reforestation immediately after harvesting, and preparing sites with recommended species reduce the hazard of erosion and help to control siltation of streams.

**Dwellings**

*Suitability:* Well suited to dwellings without basements and unsuited to dwellings with basements

*Management concerns:* The seasonal high water table is a severe limitation affecting buildings with basements.

*Management measures and considerations:*

- Vegetating cleared-and-graded areas as soon as possible or constructing silt fences helps to maintain soil stability and prevents sediment from leaving the site.
- This soil has severe limitations as a site for dwellings with basements. A site with better suited soils should be selected.

**Septic tank absorption fields**

*Suitability:* Unsuited

*Management concerns:* The seasonal high water table is a severe limitation.

*Management measures and considerations:*

- This map unit is unsuited to septic tank absorption fields because of the seasonal high water table. The local Health Department can be contacted for guidance regarding sanitary facilities.

**Local roads and streets**

*Suitability:* Suited

*Management concerns:* Low strength

*Management measures and considerations:*

- Incorporating sand and gravel into the roadbed and compacting the roadbed help to overcome the low strength of the natural soil material.
- Designing roads to safely remove surface water improves soil performance.

**Interpretive Groups**

*Land capability classification:* 2w

**GrA—Grady sandy loam, ponded****Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Upland depressions

*Size of areas:* 3 to 20 acres

**Composition**

Grady and similar soils: 80 percent

Dissimilar soils: 20 percent

**Typical Profile**

*Surface layer:*

0 to 6 inches—dark gray sandy loam

*Subsoil:*

6 to 12 inches—grayish brown clay that has strong brown and light brown mottles

12 to 40 inches—grayish brown clay that has light gray and strong brown mottles

40 to 65 inches—mottled grayish brown, light gray, and strong brown sandy clay

**Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* Very deep, but root growth may be limited by a seasonal high water table and ponding

*Drainage class:* Poorly drained

*Seasonal high water table:* 2 feet above the surface to 1 foot below the surface, December through June

*Permeability:* Slow

*Available water capacity:* Moderate to high

*Ponding:* Frequent, December through June

*Content of organic matter in the surface layer:*

Moderately low or moderate

*Natural fertility:* Low

*Tilth:* Fair when drained

*Reaction:* Extremely acid to strongly acid throughout, except where lime has been applied

*Other distinctive properties:* None

### **Minor Components**

#### *Dissimilar soils:*

- Moderately well drained, fine-loamy Goldsboro and well drained Norfolk soils in the higher adjacent positions

#### *Similar soils:*

- Poorly drained soils that have a sandy surface layer that ranges from 20 to 40 inches in thickness
- Poorly drained soils that have a subsoil that is less than 60 inches thick
- Areas that have a thick, dark surface layer
- Areas of fine-loamy, poorly drained soils in positions similar to those of the Grady soil

### **Land Use**

**Dominant uses:** Woodland and wildlife habitat

#### **Cropland**

*Suitability:* Unsuitied

*Commonly grown crops:* Corn, grain sorghum, and soybeans

*Management concerns:* Ponding and wetness

#### **Pasture and hayland**

*Suitability:* Unsuitied

*Management concerns:* Ponding and wetness

#### **Woodland**

*Suitability:* Poorly suited

*Productivity class:* Moderately high for water tupelo

*Management concerns:* Seedling mortality

*Management measures and considerations:*

- This map unit is best reforested by managing for natural regeneration of hardwoods.
- Mechanized management operations should be scheduled for late summer and early fall when the water table is lowest.
- Using low-pressure ground equipment minimizes rutting of the surface layer and compaction of the subsoil.
- If the soil is drained and planted, the seedlings should be planted on raised beds and the number of seedlings should be larger than the number typically planted on other soils.

#### **Dwellings**

*Suitability:* Unsuitied

*Management concerns:* Ponding and wetness

#### **Septic tank absorption fields**

*Suitability:* Unsuitied

*Management concerns:* Ponding and wetness

#### **Local roads and streets**

*Suitability:* Unsuitied

### **Interpretive Groups**

*Land capability classification:* 5w

## **HvA—Hornsville fine sandy loam, 0 to 2 percent slopes**

### **Setting**

*Landscape:* Coastal Plain

*Landform:* Broad stream terraces

*Landform position:* Smooth, level flats

*Size of areas:* 5 to 50 acres

### **Composition**

Hornsville and similar soils: 80 percent

Dissimilar soils: 20 percent

### **Typical Profile**

*Surface layer:*

0 to 6 inches—dark grayish brown fine sandy loam

*Subsurface layer:*

6 to 10 inches—light yellowish brown sandy loam

*Subsoil:*

10 to 16 inches—strong brown clay loam that has red mottles

16 to 24 inches—strong brown clay that has red mottles

24 to 28 inches—mottled reddish yellow, red, and light gray clay loam

28 to 65 inches—mottled red, reddish yellow, and light gray sandy clay loam

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Moderately well drained

*Depth to seasonal high water table:* 2½ to 3½ feet,  
December through April

*Permeability:* Moderately slow

*Available water capacity:* Moderate

*Flooding:* None

*Content of organic matter in the surface layer:* Low or moderately low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Extremely acid to strongly acid throughout, except where lime has been applied

*Other distinctive properties:* None

### **Minor Components**

*Dissimilar soils:*

- Well drained Nankin soils that are on high side

slopes and have a 20 percent decrease in clay content within a depth of 60 inches

- Somewhat poorly drained Wahee soils in depressions
- Well drained Orangeburg and Lucy soils that are on the higher ridges and have a subsoil that contains less clay than the subsoil of the Hornsville soil

*Similar soils:*

- Areas of Hornsville soils that have a surface layer of loamy fine sand
- Areas of Hornsville soils that have a slope of more than 2 percent

### **Land Use**

**Dominant uses:** Woodland

**Other uses:** Pasture and wildlife habitat

#### **Cropland**

*Suitability:* Suited

*Commonly grown crops:* Corn, small grains, cotton, peanuts, grain sorghum, and soybeans

*Management concerns:* Seasonal wetness; moderately slow permeability

*Management measures and considerations:*

- Installing and maintaining an underground drainage system helps to overcome the wetness and increases productivity.
- Terraces and diversions, stripcropping, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and maximize infiltration of rainfall into the soil.
- Restricting tillage during wet periods helps to prevent clodding and crusting and increases infiltration of water.

#### **Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Bahiagrass, improved bermudagrass, and common bermudagrass

*Management concerns:* Seasonal wetness

*Management measures and considerations:*

- Installing cross fencing to enable rotational grazing when the soil is wet minimizes compaction, increases productivity, and helps to maintain good tilth.
- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.

#### **Woodland**

*Suitability:* Well suited

*Productivity class:* High for loblolly pine, slash pine, and yellow-poplar

*Management concerns:* Equipment use and erosion

*Management measures and considerations:*

- Using tracked or low-pressure ground equipment minimizes rutting and the damage caused to roots by compaction during harvesting and helps to overcome the equipment limitations.
- Establishing a permanent plant cover on roads and landings after the completion of logging reduces the hazard of erosion and helps to control the siltation of streams.
- Restricting logging operations to periods when the soil is not saturated helps to prevent rutting and the damage to tree roots caused by compaction.
- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

#### **Dwellings**

*Suitability:* Well suited to dwellings without basements and poorly suited to dwellings with basements

*Management concerns:* Wetness

*Management measures and considerations:*

- Constructing dwellings on raised, well-compacted fill material reduces the risk of damage from wetness.
- This soil has severe limitations as a site for dwellings with basements. A site with better suited soils should be selected.

#### **Septic tank absorption fields**

*Suitability:* Unsited

*Management concerns:* Seasonal high water table and slow permeability

*Management measures and considerations:*

- This map unit is unsited to septic tank absorption fields because of the seasonal high water table. The local Health Department can be contacted for guidance regarding sanitary facilities.

#### **Local roads and streets**

*Suitability:* Moderately well suited

*Management concerns:* Low strength

*Management measures and considerations:*

- Incorporating sand and gravel into the roadbed helps to overcome the low strength of the natural soil material.
- Designing roads to safely remove surface water improves soil performance.
- Vegetating cut-and-fill slopes as soon as possible after construction helps to stabilize the soil and prevents excessive erosion.

### **Interpretive Groups**

*Land capability classification:* 2w

## LkB—Lakeland sand, 0 to 5 percent slopes

### Setting

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Broad ridges; side slopes of interfluves

*Size of areas:* 10 to 300 acres

### Composition

Lakeland and similar soils: 85 percent

Dissimilar soils: 15 percent

### Typical Profile

*Surface layer:*

0 to 9 inches—dark grayish brown sand

*Substratum:*

9 to 40 inches—brownish yellow sand

40 to 80 inches—yellow sand that has very pale brown mottles

### Soil Properties and Qualities

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Excessively drained

*Depth to seasonal high water table:* More than 6 feet

*Permeability:* Rapid

*Available water capacity:* Low to very low

*Flooding:* None

*Content of organic matter in the surface layer:* Low

*Natural fertility:* Low

*Tilth:* Poor

*Reaction:* Very strongly acid to moderately acid, except where lime has been applied

*Other distinctive properties:* None

### Minor Components

*Dissimilar soils:*

- Lucy soils, which are in the lower positions and have a subsoil that contains more clay within a depth of 20 to 40 inches than the subsoil of the Lakeland soil contains within a similar depth
- Orangeburg soils, which are in the slightly lower positions and on adjacent side slopes and have a subsoil that contains more clay within a depth of 20 inches than the subsoil of the Lakeland soil contains within a similar depth
- Troup soils, which are in landscape positions similar to those of the Lakeland soil and have a subsoil that contains more clay within a depth of 40 to 80 inches than the subsoil of the Lakeland soil contains within a similar depth

*Similar soils:*

- A few areas of soils that are in positions similar to those of the Lakeland soil but have layers of loamy sand

### Land Use

**Dominant uses:** Woodland

**Other uses:** Pasture, hayland, and cropland

#### Cropland

*Suitability:* Poorly suited

*Commonly grown crops:* Corn, small grains, cotton, peanuts, grain sorghum, and soybeans

*Management concerns:* Low available water capacity and low nutrient holding capacity

*Management measures and considerations:*

- Terraces and diversions, stripcropping, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and maximize infiltration of rainfall into the soil.
- Leaving the maximum amount of crop residue on the surface helps to control soil blowing and conserves soil moisture and plant nutrients.
- Using supplemental irrigation and planting crop varieties that are adapted to droughty conditions increase productivity.
- Using split applications increases the effectiveness of fertilizer and herbicides.

#### Pasture and hayland

*Suitability:* Moderately well suited

*Commonly grown crops:* Bahiagrass, improved bermudagrass, common bermudagrass, legumes, and ryegrass

*Management concerns:* Moderate—equipment use, droughtiness, nutrient leaching, and low soil fertility

*Management measures and considerations:*

- Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- Using equipment that has low-pressure tires reduces the slippage and rutting caused by the high content of sand in the soil.
- Installing cross fencing to enable rotational grazing helps to keep the soil in good condition, especially during drier periods.
- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.
- Using split applications of fertilizer and herbicides minimizes leaching and increases yields.

#### Woodland

*Suitability:* Well suited

*Productivity class:* Moderate for slash pine, loblolly pine, and longleaf pine

*Management concerns:* Equipment use

*Management measures and considerations:*

- Using tracked or low-pressure ground equipment minimizes rutting and the damage caused to roots by compaction during harvesting.
- Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.
- Establishing a permanent plant cover on roads and landings after the completion of logging reduces the hazard of erosion and helps to control the siltation of streams.
- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

#### **Dwellings**

*Suitability:* Well suited to dwellings with or without basements

*Management concerns:* Instability of cutbanks

*Management measures and considerations:*

- Cutbanks are unstable and are subject to slumping. Bracing should be used to reduce the severe risk of caving.

#### **Septic tank absorption fields**

*Suitability:* Poorly suited

*Management concerns:* Poor filtration

*Management measures and considerations:*

- The local Health Department can be contacted for guidance regarding sanitary facilities.

#### **Local roads and streets**

*Suitability:* Well suited

*Management concerns:* None

#### **Interpretive Groups**

*Land capability classification:* 4s

## **LkD—Lakeland sand, 5 to 12 percent slopes**

#### **Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Convex side slopes

*Size of areas:* 10 to 150 acres

#### **Composition**

Lakeland and similar soils: 80 percent

Dissimilar soils: 20 percent

#### **Typical Profile**

*Surface layer:*

0 to 9 inches—dark grayish brown sand

*Substratum:*

9 to 40 inches—brownish yellow sand

40 to 80 inches—yellow sand that has very pale brown mottles

#### **Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Excessively drained

*Depth to seasonal high water table:* More than 6 feet

*Permeability:* Rapid

*Available water capacity:* Very low or low

*Flooding:* None

*Content of organic matter in the surface layer:* Low

*Natural fertility:* Low

*Tilth:* Poor

*Reaction:* Very strongly acid to moderately acid

throughout, except where lime has been applied

*Other distinctive properties:* None

#### **Minor Components**

*Dissimilar soils:*

- Lucy soils, which are in the lower positions and have a subsoil that contains more clay within a depth of 20 to 40 inches than the subsoil of the Lakeland soil contains within a similar depth
- Cowarts soils, which are in the lower positions on the slope and toe slope and have a subsoil that contains more clay than the subsoil of the Lakeland soil
- Nankin soils, which are on the adjacent, lower side slopes and have a clayey subsoil

*Similar soils:*

- A few areas of soils that are similar to the Lakeland soil but have surface and subsurface layers of loamy sand

#### **Land Use**

**Dominant uses:** Woodland

**Other uses:** Pasture and hayland

#### **Cropland**

*Suitability:* Unsited

*Commonly grown crops:* Corn, small grains, cotton, peanuts, grain sorghum, and soybeans

*Management concerns:* Erosion, slope, low available water capacity, and low nutrient holding capacity

*Management measures and considerations:*

- This map unit is severely limited for use as cropland. A site with better suited soils should be selected.

**Pasture and hayland**

*Suitability:* Moderately well suited

*Commonly grown crops:* Bahiagrass, improved bermudagrass, common bermudagrass, legumes, and ryegrass

*Management concerns:* Moderate—equipment use, droughtiness, nutrient leaching, and low soil fertility

*Management measures and considerations:*

- Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- Using equipment that has low-pressure tires reduces the slippage and rutting caused by the high content of sand in the soil.
- Installing cross fencing to enable rotational grazing helps to keep the soil in good condition, especially during drier periods.
- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.
- Using split applications of fertilizer and herbicides minimizes leaching and increases yields.

**Woodland**

*Suitability:* Suited

*Productivity class:* Moderate for loblolly pine, slash pine, and longleaf pine

*Management concerns:* Equipment use and erosion

*Management measures and considerations:*

- Using tracked or low-pressure ground equipment minimizes rutting and the damage caused to roots by compaction during harvesting.
- Site preparation practices, such as chopping, prescribed burning, and applying herbicides, help to control competition from unwanted plants.
- Establishing a permanent plant cover on roads and landings after the completion of logging reduces the hazard of erosion and helps to control the siltation of streams.
- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

**Dwellings**

*Suitability:* Well suited to dwellings with or without basements

*Management concerns:* Moderate—slope; severe—instability of cutbanks

*Management measures and considerations:*

- Cutting and filling or building in the less sloping areas helps to overcome the slope limitation.
- Cutbanks are unstable and are subject to slumping. Bracing should be used to reduce the severe risk of caving.

- Vegetating cleared-and-graded areas as soon as possible or constructing silt fences helps to maintain soil stability and prevents sediment from leaving the site.

**Septic tank absorption fields**

*Suitability:* Moderately well suited

*Management concerns:* Moderate—slope and seepage

*Management measures and considerations:*

- Distribution lines should be installed on the contour at a proper distance from wells and water bodies.
- The local Health Department can be contacted for guidance regarding sanitary facilities.

**Local roads and streets**

*Suitability:* Suited

*Management concerns:* Moderate—slope

*Management measures and considerations:*

- Building roads on the contour and cutting and filling help to overcome the slope limitation.
- Vegetating disturbed areas and using erosion-control structures, such as sediment fences and sediment catch basins, help to keep soil on the site and should be used during development.

**Interpretive Groups**

*Land capability classification:* 6s

**LmB—Lucy loamy sand, 0 to 5 percent slopes****Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Broad ridges and adjacent side slopes

*Size of areas:* 5 to 200 acres

**Composition**

Lucy and similar soils: 80 percent

Dissimilar soils: 20 percent

**Typical Profile**

*Surface layer:*

0 to 7 inches—dark grayish brown loamy sand

*Subsurface layer:*

7 to 28 inches—brown loamy sand

*Subsoil:*

28 to 33 inches—strong brown sandy loam

33 to 40 inches—yellowish red sandy clay loam

40 to 50 inches—red sandy clay loam

50 to 65 inches—red sandy clay loam that has yellowish brown mottles

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* More than 6 feet

*Permeability:* Rapid in the surface and subsurface layers, moderate in the subsoil

*Available water capacity:* Low

*Flooding:* None

*Content of organic matter in the surface layer:* Low or moderately low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid or strongly acid, except where lime has been applied

*Other distinctive properties:* None

### **Minor Components**

*Dissimilar soils:*

- Blanton soils, which are in the slightly higher positions and have a sandy surface layer that is 40 to 60 inches thick
- Fuquay soils, which are in positions similar to those of the Lucy soil and have 5 percent or more plinthite within a depth of 60 inches
- Dothan soils, which are in positions similar to those of the Lucy soil, have more than 5 percent plinthite, and have a surface layer that is less than 20 inches thick
- Orangeburg soils, which are in the slightly lower positions and have a surface layer that is less than 20 inches thick

*Similar soils:*

- Soils that are similar to the Lucy soil but have a subsurface layer of sandy loam within a depth of 20 inches

### **Land Use**

**Dominant uses:** Cropland, pasture, and woodland

#### **Cropland**

*Suitability:* Moderately well suited

*Commonly grown crops:* Cotton, peanuts, corn, soybeans, small grains, and truck crops

*Management concerns:* Erosion and low available water capacity; low nutrient holding capacity in the surface layer

*Management measures and considerations:*

- A conservation tillage system increases the content of organic matter and helps to conserve soil moisture.
- Leaving the maximum amount of crop residue on

the surface helps to control soil blowing and conserves soil moisture and plant nutrients.

- Stripcropping, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and maximize infiltration of rainfall into the soil.

#### **Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Improved bermudagrass, common bermudagrass, bahiagrass, and ryegrass

*Management concerns:* Low available water capacity; low nutrient holding capacity in the surface layer

*Management measures and considerations:*

- Fencing livestock away from creeks and streams minimizes erosion of streambanks and sedimentation of the creeks and streams.
- Installing cross fencing to enable rotational grazing helps to keep the soil in good condition, especially during drier periods.
- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.
- Using split applications of fertilizer and herbicides minimizes leaching and increases yields.

#### **Woodland**

*Suitability:* Suited

*Productivity class:* Moderately high for loblolly pine, longleaf pine, and slash pine

*Management concerns:* Equipment use

*Management measures and considerations:*

- Planting and harvesting should be scheduled for periods when the soil has the proper moisture content.
- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

#### **Dwellings**

*Suitability:* Well suited

*Management concerns:* None

#### **Septic tank absorption fields**

*Suitability:* Moderately well suited

*Management concerns:* Poor filter

*Management measures and considerations:*

- Distribution lines should be installed at a proper distance from wells and water bodies.
- The local Health Department can be contacted for guidance regarding sanitary facilities.

#### **Local roads and streets**

*Suitability:* Well suited

*Management concerns:* None

### **Interpretive Groups**

*Land capability classification:* 2s

## **LmC—Lucy loamy sand, 5 to 8 percent slopes**

### **Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Ridges and adjacent side slopes

*Size of areas:* 5 to 50 acres

### **Composition**

Lucy and similar soils: 75 percent

Dissimilar soils: 25 percent

### **Typical Profile**

*Surface layer:*

0 to 7 inches—dark grayish brown loamy sand

*Subsurface layer:*

7 to 28 inches—brown loamy sand

*Subsoil:*

28 to 33 inches—strong brown sandy loam

33 to 40 inches—yellowish red sandy clay loam

40 to 50 inches—red sandy clay loam

50 to 65 inches—red sandy clay loam that has yellowish brown mottles

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* More than 6 feet

*Permeability:* Rapid in the surface and subsurface layers, moderate in the subsoil

*Available water capacity:* Low

*Flooding:* None

*Content of organic matter in the surface layer:* Low or moderately low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid or strongly acid, except where lime has been applied

*Other distinctive properties:* None

### **Minor Components**

*Dissimilar soils:*

- Blanton soils, which are in the slightly higher positions and have a sandy surface layer that is 40 to 60 inches thick
- Fuquay soils, which are in positions similar to those

of the Lucy soil and have 5 percent or more plinthite within a depth of 60 inches

- Dothan soils, which are in positions similar to those of the Lucy soil, have more than 5 percent plinthite, and have a surface layer that is less than 20 inches thick
- Orangeburg soils, which are in the slightly lower positions and have a surface layer that is less than 20 inches thick

*Similar soils:*

- A few areas of soils that are similar to the Lucy soil but have subsurface layers of sandy loam within a depth of 20 inches

### **Land Use**

**Dominant uses:** Cropland and pasture

**Other uses:** Woodland

#### **Cropland**

*Suitability:* Moderately well suited

*Commonly grown crops:* Cotton, peanuts, corn, soybeans, small grains, and truck crops

*Management concerns:* Erosion and low available water capacity; low nutrient holding capacity in the surface layer

*Management measures and considerations:*

- Leaving the maximum amount of crop residue on the surface helps to control soil blowing and conserves soil moisture and plant nutrients.
- Including grasses and legumes in the cropping system reduces the hazard of erosion and helps to control runoff.
- Stripcropping, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and maximize infiltration of rainfall into the soil.

#### **Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Improved bermudagrass, common bermudagrass, bahiagrass, and ryegrass

*Management concerns:* Low available water capacity; low nutrient holding capacity in the surface layer

*Management measures and considerations:*

- Fencing livestock away from creeks and streams minimizes erosion of streambanks and sedimentation of the creeks and streams.
- Installing cross fencing to enable rotational grazing helps to keep the soil in good condition, especially during drier periods.
- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.

**Woodland**

*Suitability:* Suited

*Productivity class:* Moderately high for loblolly pine, longleaf pine, and slash pine

*Management concerns:* Erosion

*Management measures and considerations:*

- Planting and harvesting should be scheduled for periods when the soil has the proper moisture content.
- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

**Dwellings**

*Suitability:* Well suited

*Management concerns:* None

**Septic tank absorption fields**

*Suitability:* Moderately well suited

*Management concerns:* Poor filter

*Management measures and considerations:*

- Distribution lines should be installed at a proper distance from wells and water bodies.
- The local Health Department can be contacted for guidance regarding sanitary facilities.

**Local roads and streets**

*Suitability:* Well suited

*Management concerns:* None

**Interpretive Groups**

*Land capability classification:* 3s

**LnA—Lynchburg fine sandy loam,  
0 to 2 percent slopes****Setting**

*Landscape:* Coastal Plain

*Landform:* Interstream divides; shallow depressions

*Landform position:* Slightly concave interfluves

*Size of areas:* 5 to 25 acres

**Composition**

Lynchburg and similar soils: 80 percent

Dissimilar soils: 20 percent

**Typical Profile**

*Surface layer:*

0 to 9 inches—dark gray fine sandy loam

*Subsurface layer:*

9 to 18 inches—light gray fine sandy loam that has strong brown mottles

*Subsoil:*

18 to 22 inches—yellowish brown sandy clay loam that has light brownish gray and brownish yellow mottles

22 to 34 inches—light gray sandy clay loam that has strong brown mottles

34 to 56 inches—light gray sandy clay loam that has red and brownish yellow mottles

56 to 65 inches—gray sandy clay loam that has strong brown mottles

**Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches, but root growth may be limited by a seasonal high water table

*Drainage class:* Somewhat poorly drained

*Depth to seasonal high water table:* 1/2 to 1 1/2 feet, apparent, December through April

*Permeability:* Moderate

*Available water capacity:* Moderate to high

*Flooding:* None

*Content of organic matter in the surface layer:* Low or moderately low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Extremely acid to strongly acid throughout, except where lime has been applied

*Other distinctive properties:* None

**Minor Components**

*Dissimilar soils:*

- Well drained Norfolk and Orangeburg soils in the higher, more convex positions
- Moderately well drained Goldsboro soils
- Poorly drained Pelham and very poorly drained Grady soils in the lower, depressional areas
- Ocilla soils, which are in positions similar to those of the Lynchburg soil or higher and have sandy surface and subsurface layers with a combined thickness of 20 to 40 inches
- Well drained soils consisting of stratified sandy and loamy alluvium along drainageways that are occasionally flooded for brief periods

*Similar soils:*

- Moderately well drained soils that are similar to the Lynchburg soil and are adjacent to the depressions
- Soils that are similar to the Lynchburg soil but have a surface layer of sandy loam

**Land Use**

**Dominant uses:** Cropland and woodland

**Other uses:** Pasture and hayland

**Cropland**

*Suitability:* Suited

*Commonly grown crops:* Corn, small grains, cotton, peanuts, grain sorghum, and soybeans

*Management concerns:* Seasonal wetness

*Management measures and considerations:*

- Installing and maintaining an artificial drainage system helps to overcome the wetness and increases productivity.
- Restricting tillage when the soil is wet helps to prevent clodding and crusting.

**Pasture and hayland**

*Suitability:* Suited

*Commonly grown crops:* Bahiagrass, improved bermudagrass, common bermudagrass, legumes, and ryegrass

*Management concerns:* Seasonal wetness

*Management measures and considerations:*

- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.

**Woodland**

*Suitability:* Well suited

*Productivity class:* High for slash pine and loblolly pine

*Management concerns:* Moderate—seedling mortality and equipment use

*Management measures and considerations:*

- Proper site preparation, herbicides, and prescribed burning help to control competition from undesirable plant species.
- Logging operations should be restricted to periods when the soil is not saturated.
- Establishing a permanent plant cover on roads and log landings, reforestation immediately after harvesting, and preparing sites with recommended species reduce the hazard of erosion and help to control siltation of streams.
- Using tracked or low-pressure ground equipment minimizes rutting and the damage caused to roots by compaction during harvesting.
- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.
- Increasing planting rates and planting in raised beds help to offset the seedling mortality rate.

**Dwellings**

*Suitability:* Poorly suited to dwellings without basements and unsuited to dwellings with basements

*Management concerns:* The seasonal high water

table is a severe limitation affecting buildings with or without basements.

*Management measures and considerations:*

- Building on material brought in from offsite helps to overcome the wetness.

**Septic tank absorption fields**

*Suitability:* Unsuited

*Management concerns:* The seasonal high water table is a severe limitation.

*Management measures and considerations:*

- This map unit is unsuited to septic tank absorption fields because of the seasonal high water table. The local Health Department can be contacted for guidance regarding sanitary facilities.

**Local roads and streets**

*Suitability:* Unsuited

*Management concerns:* Seasonal wetness is a severe limitation.

*Management measures and considerations:*

- Using material brought in from offsite as fill for the subgrade and building roads on the highest part of the landscape help to overcome the wetness.
- Designing roads to safely remove surface water improves soil performance.

**Interpretive Groups**

*Land capability classification:* 2w

**NaB—Nankin loamy fine sand, 2 to 5 percent slopes****Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Upper side slopes

*Size of areas:* 5 to 175 acres

**Composition**

Nankin and similar soils: 80 percent

Dissimilar soils: 20 percent

**Typical Profile**

*Surface layer:*

0 to 6 inches—brown loamy fine sand

*Subsoil:*

6 to 21 inches—yellowish red sandy clay

21 to 32 inches—yellowish red sandy clay that has red and brownish yellow mottles

32 to 39 inches—yellowish red sandy clay that has brownish yellow mottles

39 to 50 inches—yellowish red sandy clay loam that has red and brownish yellow mottles

*Substratum:*

50 to 65 inches—mottled red, brownish yellow, and pinkish gray sandy clay loam

**Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* More than 6 feet

*Permeability:* Moderately slow

*Available water capacity:* Moderate

*Flooding:* None

*Content of organic matter in the surface layer:* Low or moderately low

*Natural fertility:* Low

*Tilth:* Fair

*Reaction:* Very strongly acid or strongly acid, except where lime has been applied

*Other distinctive properties:* None

**Minor Components**

*Dissimilar soils:*

- Cowarts soils, which are on adjacent side slopes and have a subsoil that contains less clay than the subsoil of the Nankin soil
- Orangeburg soils, which are in the slightly lower positions, have a subsoil that contains less clay than the subsoil of the Nankin soil, and have no significant decrease in clay content within a depth of 60 inches
- Tifton soils, which are on broad, convex slopes, are less red than the Nankin soil, and contain 5 percent or more plinthite at a depth of 40 to 60 inches

*Similar soils:*

- Soils that are similar to the Nankin soil but have a surface layer of loamy sand or sandy clay loam

**Land Use**

**Dominant uses:** Pasture and cropland

**Other uses:** Woodland

**Cropland**

*Suitability:* Well suited

*Commonly grown crops:* Corn, small grains, cotton, peanuts, grain sorghum, and soybeans

*Management concerns:* Erosion

*Management measures and considerations:*

- Terraces and diversions, stripcropping, contour farming, conservation tillage, and crop residue management reduce the hazard of erosion, help to

control surface runoff, and maximize infiltration of rainfall into the soil.

- Restricting tillage when the soil is wet helps to prevent clodding and crusting.

**Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Bahiagrass, improved bermudagrass, common bermudagrass, legumes, and ryegrass

*Management concerns:* None

*Management measures and considerations:*

- Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- Installing cross fencing to enable rotational grazing helps to keep the soil in good condition, especially during drier periods.
- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.

**Woodland**

*Suitability:* Well suited

*Productivity class:* Moderately high for loblolly pine, longleaf pine, and slash pine

*Management concerns:* None

*Management measures and considerations:*

- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

**Dwellings**

*Suitability:* Well suited

*Management concerns:* None

**Septic tank absorption fields**

*Suitability:* Poorly suited

*Management concerns:* Slow permeability

*Management measures and considerations:*

- Increasing the size of the absorption field improves the performance of the system.
- Installing distribution lines during dry periods minimizes smearing and sealing of trench walls.
- The local Health Department can be contacted for guidance regarding sanitary facilities.

**Local roads and streets**

*Suitability:* Well suited

*Management concerns:* None

**Interpretive Groups**

*Land capability classification:* 2e

## **NcC—Nankin-Cowarts complex, 5 to 8 percent slopes**

### **Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Nankin—ridges; Cowarts—side slopes

*Size of areas:* 10 to 100 acres

### **Composition**

Nankin and similar soils: 40 percent

Cowarts and similar soils: 35 percent

Dissimilar soils: 25 percent

### **Typical Profile**

#### **Nankin**

*Surface layer:*

0 to 6 inches—brown loamy fine sand

*Subsoil:*

6 to 21 inches—yellowish red sandy clay

21 to 32 inches—yellowish red sandy clay that has red and brownish yellow mottles

32 to 39 inches—yellowish red sandy clay that has brownish yellow mottles

39 to 50 inches—yellowish red sandy clay loam that has red and brownish yellow mottles

*Substratum:*

50 to 65 inches—mottled red, brownish yellow, and pinkish gray sandy clay loam

#### **Cowarts**

*Surface layer:*

0 to 4 inches—brown loamy sand

*Subsurface layer:*

4 to 9 inches—yellowish brown sandy loam

*Subsoil:*

9 to 18 inches—strong brown sandy clay loam

18 to 25 inches—yellowish red sandy clay loam

25 to 31 inches—yellowish red sandy clay loam that has yellowish brown mottles

*Substratum:*

31 to 65 inches—mottled brownish yellow, yellowish brown, and white sandy loam

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* Nankin—more than 60 inches, but root growth may be limited by dense lower layers; Cowarts—more than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* More than 6 feet

*Permeability:* Nankin—slow; Cowarts—moderate

*Available water capacity:* Moderate

*Flooding:* None

*Content of organic matter in the surface layer:*

Nankin—low or moderately low; Cowarts—moderately low or moderate

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid or strongly acid, except where lime has been applied

*Other distinctive properties:* Nankin—none;

Cowarts—few quartz pebbles on the surface in some areas

### **Minor Components**

*Dissimilar soils:*

- Bonneau and Fuquay soils, which are on broad ridgetops and have thick, sandy surface layers
- Carnegie soils, which are on the adjacent ridgetops and have 5 percent or more plinthite within a depth of 20 to 50 inches

*Similar soils:*

- Areas of eroded soils that have a surface texture of sandy loam or sandy clay loam

### **Land Use**

**Dominant uses:** Woodland

**Other uses:** Pasture

#### **Cropland**

*Suitability:* Moderately well suited

*Commonly grown crops:* Cotton, peanuts, corn, soybeans, and small grains

*Management concerns:* Erosion and slope

*Management measures and considerations:*

- Leaving the maximum amount of crop residue on the surface helps to control soil blowing and conserves soil moisture and plant nutrients.
- Terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and a rotation that includes soil-conserving crops reduce the hazard of erosion, help to control surface runoff, and maximize infiltration of rainfall into the soils.
- Restricting tillage during wet periods helps to prevent clodding and crusting and increases infiltration of water.

#### **Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Improved bermudagrass, bahiagrass, and ryegrass

*Management concerns:* Erosion and slope

*Management measures and considerations:*

- Preparing seedbeds on the contour or across the

slope reduces the hazard of erosion and increases the rate of germination.

- Installing cross fencing to enable rotational grazing helps to keep the soils in good condition, especially during drier periods.
- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.

### Woodland

*Suitability:* Suited

*Productivity class:* Nankin—moderately high for loblolly pine, longleaf pine, and slash pine;  
Cowarts—high for loblolly pine, longleaf pine, and slash pine

*Management concerns:* Erosion and slope

*Management measures and considerations:*

- Restricting logging operations to periods when the soils are not saturated minimizes rutting and the damage to tree roots caused by soil compaction.
- Establishing a permanent plant cover on roads and log landings, reforestation immediately after harvesting, and preparing sites with recommended species reduce the hazard of erosion and help to control siltation of streams.
- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

### Dwellings

*Suitability:* Suited

*Management measures and considerations:*

- Cutting and filling, designing structures to conform to the contour of the natural slope, or building in the less sloping areas improve soil performance.
- Establishing a suitable vegetative cover, mulching, or both reduces the hazard of erosion.

### Septic tank absorption fields

*Suitability:* Nankin—poorly suited; Cowarts—moderately well suited

*Management concerns:* Slow permeability and slope

*Management measures and considerations:*

- Installing distribution lines during dry periods minimizes smearing and sealing of trench walls.
- Installing distribution lines on the contour improves the performance of septic tank absorption fields.
- The local Health Department can be contacted for guidance regarding sanitary facilities.

### Local roads and streets

*Suitability:* Suited

*Management concerns:* Slope

*Management measures and considerations:*

- Designing roads to conform to the contour and

providing adequate water-control structures, such as culverts, help to maintain road stability.

- Vegetating disturbed areas and using erosion-control structures, such as sediment fences and sediment catch basins, help to keep soil on the site. These practices should be used during any development.

### Interpretive Groups

*Land capability classification:* Nankin—4e; Cowarts—3e

## NcD—Nankin-Cowarts complex, 8 to 12 percent slopes

### Setting

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Nankin—ridges; Cowarts—side slopes

*Size of areas:* 10 to 100 acres

### Composition

Nankin and similar soils: 40 percent

Cowarts and similar soils: 35 percent

Dissimilar soils: 25 percent

### Typical Profile

#### Nankin

*Surface layer:*

0 to 6 inches—brown loamy fine sand

*Subsoil:*

6 to 21 inches—yellowish red sandy clay

21 to 32 inches—yellowish red sandy clay that has red and brownish yellow mottles

32 to 39 inches—yellowish red sandy clay that has brownish yellow mottles

39 to 50 inches—yellowish red sandy clay loam that has red and brownish yellow mottles

*Substratum:*

50 to 65 inches—mottled red, brownish yellow, and pinkish gray sandy clay loam

#### Cowarts

*Surface layer:*

0 to 4 inches—brown loamy sand

*Subsurface layer:*

4 to 9 inches—yellowish brown sandy loam

*Subsoil:*

9 to 18 inches—strong brown sandy clay loam

18 to 25 inches—yellowish red sandy clay loam

25 to 31 inches—yellowish red sandy clay loam that has yellowish brown mottles

**Substratum:**

31 to 65 inches—mottled brownish yellow, yellowish brown, and white sandy loam

**Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* Nankin—more than 60 inches, but root growth may be limited by dense lower layers; Cowarts—more than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* More than 6 feet

*Permeability:* Nankin—slow; Cowarts—moderate

*Available water capacity:* Moderate

*Flooding:* None

*Content of organic matter in the surface layer:*

Nankin—low or moderately low; Cowarts—moderately low or moderate

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid or strongly acid, except where lime has been applied

*Other distinctive properties:* Nankin—none; Cowarts—few quartz pebbles on the surface in some areas

**Minor Components****Dissimilar soils:**

- Bonneau and Fuquay soils, which are on broad ridgetops and have a sandy surface layer that ranges from 20 to 40 inches in thickness
- Carnegie soils, which are on ridgetops and have 5 percent or more plinthite within a depth of 20 to 50 inches

**Similar soils:**

- Areas of eroded soils that have a surface texture of sandy loam or sandy clay loam

**Land Use**

**Dominant uses:** Woodland

**Other uses:** Pasture

**Cropland**

*Suitability:* Poorly suited

*Commonly grown crops:* Cotton, peanuts, corn, soybeans, and small grains

*Management concerns:* Erosion and slope

*Management measures and considerations:*

- Leaving the maximum amount of crop residue on the surface helps to control soil blowing and conserves soil moisture and plant nutrients.
- Terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and a rotation that includes soil-conserving crops reduce the hazard of erosion,

help to control surface runoff, and maximize infiltration of rainfall into the soils.

- Restricting tillage during wet periods helps to prevent clodding and crusting and increases infiltration of water.

**Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Improved bermudagrass, bahiagrass, and ryegrass

*Management concerns:* Erosion and slope

*Management measures and considerations:*

- Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- Installing cross fencing to enable rotational grazing helps to keep the soils in good condition, especially during drier periods.
- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.

**Woodland**

*Suitability:* Suited

*Productivity class:* Nankin—moderately high for loblolly pine, longleaf pine, and slash pine;

Cowarts—high for loblolly pine, longleaf pine, and slash pine

*Management concerns:* Erosion and slope

*Management measures and considerations:*

- Restricting logging operations to periods when the soils are not saturated minimizes rutting and the damage to tree roots caused by soil compaction.
- Establishing a permanent plant cover on roads and log landings, reforestation immediately after harvesting, and preparing sites with recommended species reduce the hazard of erosion and help to control siltation of streams.
- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

**Dwellings**

*Suitability:* Suited

*Management concerns:* Slope

*Management measures and considerations:*

- Cutting and filling, designing structures to conform to the contour of the natural slope, or building in the less sloping areas improve soil performance.
- Establishing a suitable vegetative cover, mulching, or both reduces the hazard of erosion.

**Septic tank absorption fields**

*Suitability:* Nankin—poorly suited; Cowarts—moderately well suited

*Management concerns:* Slow permeability and slope

*Management measures and considerations:*

- Installing distribution lines during dry periods minimizes smearing and sealing of trench walls.
- Installing distribution lines on the contour improves the performance of septic tank absorption fields.
- The local Health Department can be contacted for guidance regarding sanitary facilities.

#### **Local roads and streets**

*Suitability:* Moderately well suited

*Management concerns:* Slope

*Management measures and considerations:*

- Designing roads to conform to the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.
- Vegetating disturbed areas and using erosion-control structures, such as sediment fences and sediment catch basins, help to keep soil on the site. These practices should be used during any development.

#### **Interpretive Groups**

*Land capability classification:* Nankin—6e; Cowarts—6e

## **NoA—Norfolk loamy sand, 0 to 2 percent slopes**

#### **Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Broad ridges

*Size of areas:* 10 to 300 acres

#### **Composition**

Norfolk and similar soils: 80 percent

Dissimilar soils: 20 percent

#### **Typical Profile**

*Surface layer:*

0 to 6 inches—very dark grayish brown loamy sand

*Subsurface layer:*

6 to 14 inches—brown sandy loam

*Subsoil:*

14 to 22 inches—yellowish brown sandy clay loam that has brownish yellow mottles

22 to 38 inches—brownish yellow sandy clay loam

38 to 52 inches—yellowish brown sandy clay loam that has strong brown and red mottles

52 to 65 inches—mottled yellowish red, strong brown, brownish yellow, yellowish brown, and light gray sandy clay loam

## **Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* 4 to 6 feet, January through March

*Permeability:* Moderate

*Available water capacity:* Moderate

*Flooding:* None

*Content of organic matter in the surface layer:* Low or moderately low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid or strongly acid, except where lime has been applied

*Other distinctive properties:* None

#### **Minor Components**

*Dissimilar soils:*

- Bonneau soils, which are in the higher positions and have a sandy surface layer that ranges from 20 to 40 inches in thickness
- Dothan soils, which are in the slightly higher positions and have 5 percent or more plinthite at a depth of 24 to 60 inches
- Orangeburg soils, which are in the slightly higher positions and have a subsoil that is redder in hue than the subsoil of the Norfolk soil
- Moderately well drained Goldsboro soils in the slightly lower positions
- Somewhat poorly drained Lynchburg soils in the slightly lower positions

*Similar soils:*

- Soils that are similar to the Norfolk soil but have a surface layer of loamy fine sand

#### **Land Use**

**Dominant uses:** Cropland and pasture (fig. 4)

**Other uses:** Woodland

#### **Cropland**

*Suitability:* Well suited

*Commonly grown crops:* Cotton, peanuts, corn, soybeans, small grains, and truck crops

*Management concerns:* None

*Management measures and considerations:*

- A conservation tillage system increases the content of organic matter and conserves soil moisture.

#### **Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Improved bermudagrass, bahiagrass, and ryegrass



Figure 4.—Cotton growing in an area of Norfolk loamy sand, 0 to 2 percent slopes.

*Management concerns:* None

*Management measures and considerations:*

- Installing cross fencing to enable rotational grazing helps to keep the soil in good condition, especially during drier periods.
- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.

#### **Woodland**

*Suitability:* Well suited

*Productivity class:* High for longleaf pine and moderately high for slash pine and loblolly pine

*Management concerns:* None

*Management measures and considerations:*

- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

#### **Dwellings**

*Suitability:* Well suited to dwellings without basements and moderately well suited to dwellings with basements

*Management concerns:* The seasonal high water table is a moderate concern affecting buildings with basements.

*Management measures and considerations:*

- Building on the highest part of the landscape and installing a subsurface drainage system, where slope permits, help to overcome the wetness.

#### **Septic tank absorption fields**

*Suitability:* Moderately well suited

*Management concerns:* Seasonal high water table

*Management measures and considerations:*

- Using suitable fill material to raise the filter field a sufficient distance above the seasonal high water table improves the performance of a septic system.
- The local Health Department can be contacted for guidance regarding sanitary facilities.

#### **Local roads and streets**

*Suitability:* Well suited

*Management concerns:* Seasonal high water table

*Management measures and considerations:*

- Designing roads to safely remove surface water improves soil performance.

- Vegetating disturbed areas and using erosion-control structures, such as sediment fences and sediment catch basins, help to keep soil on the site. These practices should be used during any development.

### **Interpretive Groups**

*Land capability classification:* 1

## **NoB—Norfolk loamy sand, 2 to 5 percent slopes**

### **Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Broad ridges

*Size of areas:* 10 to 300 acres

### **Composition**

Norfolk and similar soils: 80 percent

Dissimilar soils: 20 percent

### **Typical Profile**

*Surface layer:*

0 to 6 inches—very dark grayish brown loamy sand

*Subsurface layer:*

6 to 14 inches—brown sandy loam

*Subsoil:*

14 to 22 inches—yellowish brown sandy clay loam that has brownish yellow mottles

22 to 38 inches—brownish yellow sandy clay loam

38 to 52 inches—yellowish brown sandy clay loam that has strong brown and red mottles

52 to 65 inches—mottled yellowish red, strong brown, brownish yellow, yellowish brown, and light gray sandy clay loam

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* 4 to 6 feet, January through March

*Permeability:* Moderate

*Available water capacity:* Moderate

*Flooding:* None

*Content of organic matter in the surface layer:* Low or moderately low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid or strongly acid, except where lime has been applied

*Other distinctive properties:* None

### **Minor Components**

*Dissimilar soils:*

- Bonneau soils, which are in the higher positions and have a sandy surface layer that ranges from 20 to 40 inches in thickness
- Dothan soils, which are in the slightly higher positions and have 5 percent or more plinthite at a depth of 24 to 60 inches
- Orangeburg soils, which are in the slightly higher positions and have a subsoil that is redder in hue than the subsoil of the Norfolk soil
- Moderately well drained Goldsboro soils in the slightly lower positions
- Somewhat poorly drained Lynchburg soils in the slightly lower positions

*Similar soils:*

- Soils that are similar to the Norfolk soil but have a surface layer of sandy loam

### **Land Use**

**Dominant uses:** Cropland and pasture

**Other uses:** Woodland

#### **Cropland**

*Suitability:* Well suited

*Commonly grown crops:* Cotton, peanuts, corn, soybeans, small grains, and truck crops

*Management concerns:* Erosion

*Management measures and considerations:*

- Terraces and diversions, stripcropping, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and maximize infiltration of rainfall into the soil.
- Leaving the maximum amount of crop residue on the surface helps to control soil blowing and conserves soil moisture.

#### **Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Improved bermudagrass, bahiagrass, and ryegrass

*Management concerns:* None

*Management measures and considerations:*

- Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- Fencing livestock away from creeks and streams minimizes erosion of streambanks and sedimentation of the creeks and streams.
- Installing cross fencing to enable rotational grazing helps to keep the soil in good condition, especially during drier periods.

- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.

### **Woodland**

*Suitability:* Well suited

*Productivity class:* High for longleaf pine and moderately high for slash pine and loblolly pine

*Management concerns:* None

*Management measures and considerations:*

- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

### **Dwellings**

*Suitability:* Well suited to dwellings without basements and moderately well suited to dwellings with basements

*Management concerns:* The seasonal high water table is a moderate concern affecting buildings with basements.

*Management measures and considerations:*

- Building on the highest part of the landscape and installing a subsurface drainage system, where slope permits, help to overcome the wetness.

### **Septic tank absorption fields**

*Suitability:* Moderately well suited

*Management concerns:* Seasonal high water table

*Management measures and considerations:*

- Using suitable fill material to raise the filter field a sufficient distance above the seasonal high water table improves the performance of a septic system.
- The local Health Department can be contacted for guidance regarding sanitary facilities.

### **Local roads and streets**

*Suitability:* Well suited

*Management concerns:* None

*Management measures and considerations:*

- Vegetating disturbed areas and using erosion-control structures, such as sediment fences and sediment catch basins, help to keep soil on the site. These practices should be used during any development.

### **Interpretive Groups**

*Land capability classification:* 2e

## **NoC—Norfolk loamy sand, 5 to 8 percent slopes**

### **Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Ridges and side slopes

*Size of areas:* 10 to 30 acres

### **Composition**

Norfolk and similar soils: 75 percent

Dissimilar soils: 25 percent

### **Typical Profile**

*Surface layer:*

0 to 4 inches—very dark grayish brown loamy sand

*Subsurface layer:*

4 to 14 inches—brown sandy loam

*Subsoil:*

14 to 22 inches—yellowish brown sandy clay loam that has brownish yellow mottles

22 to 38 inches—brownish yellow sandy clay loam

38 to 52 inches—yellowish brown sandy clay loam that has strong brown and red mottles

52 to 65 inches—mottled yellowish red, strong brown, brownish yellow, yellowish brown, and light gray sandy clay loam

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* 4 to 6 feet, January through March

*Permeability:* Moderate

*Available water capacity:* Moderate

*Flooding:* None

*Content of organic matter in the surface layer:* Low or moderately low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid or strongly acid, except where lime has been applied

*Other distinctive properties:* None

### **Minor Components**

*Dissimilar soils:*

- Bonneau soils, which are in the higher positions and have a sandy surface layer that ranges from 20 to 40 inches in thickness
- Dothan soils, which are in the slightly higher positions and have 5 percent or more plinthite at a depth of 24 to 60 inches
- Orangeburg soils, which are in the slightly higher positions and have a subsoil that is redder in hue than the subsoil of the Norfolk soil
- Cowarts soils, which are on slope breaks and have a decrease in clay content within a depth of 60 inches

*Similar soils:*

- Soils that are similar to the Norfolk soil but have a surface layer of sandy loam

**Land Use**

**Dominant uses:** Pasture and woodland

**Other uses:** Cropland

**Cropland**

*Suitability:* Moderately well suited

*Commonly grown crops:* Cotton, peanuts, corn, soybeans, and small grains

*Management concerns:* Erosion

*Management measures and considerations:*

- Terraces and diversions, stripcropping, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and maximize infiltration of rainfall into the soil.
- Leaving the maximum amount of crop residue on the surface helps to control soil blowing and conserves soil moisture
- Conservation tillage, winter cover crops, crop residue management, and a crop rotation that includes grasses and legumes increase available water capacity, improve tilth, and improve soil fertility.

**Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Improved bermudagrass, bahiagrass, and ryegrass

*Management concerns:* Erosion

*Management measures and considerations:*

- Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- Installing cross fencing to enable rotational grazing helps to keep the soil in good condition, especially during drier periods.
- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.
- Fencing livestock away from creeks and streams minimizes erosion of streambanks and sedimentation of the creeks and streams.

**Woodland**

*Suitability:* Well suited

*Productivity class:* High for longleaf pine and moderately high for slash pine and loblolly pine

*Management concerns:* None

*Management measures and considerations:*

- Mechanical and chemical means can help to control plant competition.

- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.
- Restricting logging operations to periods when the soil is not saturated minimizes rutting and the damage to tree roots caused by soil compaction.

**Dwellings**

*Suitability:* Well suited to dwellings without basements and moderately well suited to dwellings with basements

*Management concerns:* Slope. Also, the seasonal high water table is a moderate concern affecting buildings with basements.

*Management measures and considerations:*

- Building on the highest part of the landscape and installing a subsurface drainage system, where slope permits, help to overcome the wetness.
- Cutting and filling or building in the less sloping areas helps to overcome the slope limitation.

**Septic tank absorption fields**

*Suitability:* Moderately well suited

*Management concerns:* Seasonal high water table

*Management measures and considerations:*

- Using suitable fill material to raise the filter field a sufficient distance above the seasonal high water table improves the performance of a septic system.
- The local Health Department can be contacted for additional guidance regarding sanitary facilities.

**Local roads and streets**

*Suitability:* Moderately well suited

*Management concerns:* None

*Management measures and considerations:*

- Vegetating disturbed areas and using erosion-control structures, such as sediment fences and sediment catch basins, help to keep soil on the site. These practices should be used during any development.

**Interpretive Groups**

*Land capability classification:* 3e

**OcA—Ocilla loamy fine sand, 0 to 2 percent slopes****Setting**

*Landscape:* Coastal Plain

*Landform:* Stream terraces and low uplands

*Landform position:* Slightly concave interfluves

*Size of areas:* 5 to 50 acres

### **Composition**

Ocilla and similar soils: 80 percent  
Dissimilar soils: 20 percent

### **Typical Profile**

*Surface layer:*

0 to 3 inches—dark brown loamy fine sand

*Subsurface layer:*

3 to 27 inches—gray and light gray loamy fine sand

*Subsoil:*

27 to 45 inches—brownish yellow sandy clay loam that has strong brown and light gray mottles

45 to 55 inches—brownish yellow sandy clay loam that has strong brown and light gray mottles

55 to 65 inches—gray sandy clay that has red, strong brown, and brownish yellow mottles

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches, but root growth may be limited by a seasonal high water table

*Drainage class:* Somewhat poorly drained

*Depth to seasonal high water table:* 1 to 2½ feet, apparent, December through April

*Permeability:* Moderate

*Available water capacity:* Moderate

*Flooding:* None

*Content of organic matter in the surface layer:* Low or moderately low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid or strongly acid throughout, except where lime has been applied

*Other distinctive properties:* None

### **Minor Components**

*Dissimilar soils:*

- Well drained Norfolk and Orangeburg soils in the higher and more convex positions
- Moderately well drained Goldsboro soils in the slightly higher positions
- Lynchburg soils in the slightly lower positions
- Poorly drained Pelham and Grady soils in the lower, depressional areas
- Areas of well drained soils consisting of stratified sandy and loamy alluvium along drainageways that are occasionally flooded for brief periods

*Similar soils:*

- Soils that are similar to the Ocilla soil, are adjacent to the depressions, and are moderately well drained

- Soils that are similar to the Ocilla soil but have a surface layer of loamy fine sand

### **Land Use**

**Dominant uses:** Cropland and woodland

**Other uses:** Pasture and hayland

#### **Cropland**

*Suitability:* Moderately well suited

*Commonly grown crops:* Corn, small grains, cotton, peanuts, grain sorghum, and soybeans

*Management concerns:* Seasonal wetness; soil blowing

*Management measures and considerations:*

- Installing and maintaining an artificial drainage system helps to overcome the wetness and increases productivity.
- Restricting tillage when the soil is wet helps to prevent clodding and crusting.
- Leaving the maximum amount of crop residue on the surface helps to control soil blowing and conserves soil moisture and plant nutrients.

#### **Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Bahiagrass, improved bermudagrass, common bermudagrass, legumes, and ryegrass

*Management concerns:* Seasonal wetness

*Management measures and considerations:*

- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.

#### **Woodland**

*Suitability:* Well suited

*Productivity class:* High for slash pine and moderately high for loblolly pine

*Management concerns:* Equipment use

*Management measures and considerations:*

- Restricting logging to periods when the soil is not saturated minimizes rutting of the surface layer and compaction of the subsoil.
- Using tracked or low-pressure ground equipment minimizes rutting and the damage caused to roots by compaction during harvesting.
- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.
- Establishing a permanent plant cover on roads and log landings, reforesting immediately after harvesting, and preparing sites with recommended species reduce the hazard of erosion and help to control siltation of streams.

**Dwellings**

*Suitability:* Poorly suited to dwellings without basements and unsuited to dwellings with basements

*Management concerns:* The seasonal high water table is a severe limitation affecting buildings without or without basements.

*Management measures and considerations:*

- Filling the selected area with suitable material brought in from offsite helps to minimize wetness.
- This soil has severe limitations as a site for dwellings. A site with better suited soils should be selected.

**Septic tank absorption fields**

*Suitability:* Unsuited

*Management concerns:* Wetness

*Management measures and considerations:*

- Because of the seasonal high water table, managing this map unit for septic tank absorption fields is difficult.
- The local Health Department can be contacted for guidance regarding sanitary facilities.

**Local roads and streets**

*Suitability:* Poorly suited

*Management concerns:* Seasonal wetness

*Management measures and considerations:*

- Constructing roads on raised, well-compacted fill material helps to overcome the wetness.
- Designing roads to safely remove surface water improves soil performance.

**Interpretive Groups**

*Land capability classification:* 3w

**OeA—Orangeburg loamy sand, 0 to 2 percent slopes****Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Broad, convex ridges

*Size of areas:* 5 to 125 acres

**Composition**

Orangeburg and similar soils: 90 percent

Dissimilar soils: 10 percent

**Typical Profile**

*Surface layer:*

0 to 8 inches—dark yellowish brown loamy sand

*Subsurface layer:*

8 to 13 inches—brown sandy loam

*Subsoil:*

13 to 72 inches—red sandy clay loam

**Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* More than 6 feet

*Permeability:* Moderate

*Available water capacity:* Moderate

*Flooding:* None

*Content of organic matter in the surface layer:* Low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid or strongly acid, except where lime has been applied

*Other distinctive properties:* None

**Minor Components**

*Dissimilar soils:*

- Faceville soils, which are in the slightly higher positions and have a clayey subsoil
- Nankin soils, which are on the adjacent side slopes and have a clayey subsoil
- Norfolk soils, which are in the slightly lower positions and have a subsoil that is more yellow than the subsoil of the Orangeburg soil

*Similar soils:*

- Soils that are similar to the Orangeburg soil but have a surface layer of sandy loam
- Orangeburg soils that have a slope of more than 2 percent, typically adjacent to drains

**Land Use**

**Dominant uses:** Cropland (fig. 5)

**Other uses:** Pasture, hayland, and woodland

**Cropland**

*Suitability:* Well suited

*Commonly grown crops:* Corn, small grains, cotton, grain sorghum, soybeans, and vegetable crops

*Management concerns:* None

*Management measures and considerations:*

- Conservation tillage, winter cover crops, crop residue management, and a crop rotation that includes grasses and legumes increase available water capacity, improve tilth, and improve soil fertility.

**Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Improved bermudagrass, bahiagrass, and ryegrass

*Management concerns:* None

*Management measures and considerations:*

- Using rotational grazing and implementing a well-



Figure 5.—Mature cotton growing in an area of Orangeburg loamy sand, 0 to 2 percent slopes.

planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.

#### **Woodland**

*Suitability:* Well suited

*Productivity class:* High for longleaf pine and slash pine and moderately high for loblolly pine

*Management concerns:* None

*Management measures and considerations:*

- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

#### **Dwellings**

*Suitability:* Well suited

*Management concerns:* None

#### **Septic tank absorption fields**

*Suitability:* Well suited

*Management concerns:* None

*Management measures and considerations:*

- The local Health Department can be contacted for guidance regarding sanitary facilities.

#### **Local roads and streets**

*Suitability:* Well suited

*Management concerns:* None

#### ***Interpretive Groups***

*Land capability classification:* 1

### **OeB—Orangeburg loamy sand, 2 to 5 percent slopes**

#### ***Setting***

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Broad, convex ridges

*Size of areas:* 5 to 150 acres

### **Composition**

Orangeburg and similar soils: 85 percent

Dissimilar soils: 15 percent

### **Typical Profile**

*Surface layer:*

0 to 8 inches—dark yellowish brown loamy sand

*Subsurface layer:*

8 to 13 inches—brown sandy loam

*Subsoil:*

13 to 72 inches—red sandy clay loam

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* More than 6 feet

*Permeability:* Moderate

*Available water capacity:* Moderate

*Flooding:* None

*Content of organic matter in the surface layer:* Low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid or strongly acid, except where lime has been applied

*Other distinctive properties:* None

### **Minor Components**

*Dissimilar soils:*

- Faceville soils, which are in the slightly higher positions and have a clayey subsoil
- Nankin soils, which are on the adjacent side slopes and have a clayey subsoil
- Norfolk soils, which are in the slightly lower positions and have a subsoil that is more yellow than the subsoil of the Orangeburg soil

*Similar soils:*

- Soils that are similar to the Orangeburg soil but have a surface layer of sandy loam or sandy clay loam

### **Land Use**

**Dominant uses:** Cropland

**Other uses:** Pasture, hayland, and woodland

#### **Cropland**

*Suitability:* Well suited

*Commonly grown crops:* Corn, small grains, cotton, peanuts, grain sorghum, soybeans, and vegetable crops

*Management concerns:* Erosion

*Management measures and considerations:*

- Terraces and diversions, stripcropping, contour tillage, no-till planting, and crop residue

management reduce the hazard of erosion, help to control surface runoff, and maximize infiltration of rainfall into the soil.

#### **Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Bahiagrass, improved bermudagrass, common bermudagrass, legumes, and ryegrass

*Management concerns:* None

*Management measures and considerations:*

- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.

#### **Woodland**

*Suitability:* Well suited

*Productivity class:* High for longleaf pine and slash pine and moderately high for loblolly pine

*Management concerns:* None

*Management measures and considerations:*

- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

#### **Dwellings**

*Suitability:* Well suited

*Management concerns:* None

#### **Septic tank absorption fields**

*Suitability:* Well suited

*Management concerns:* None

*Management measures and considerations:*

- The local Health Department can be contacted for guidance regarding sanitary facilities.

#### **Local roads and streets**

*Suitability:* Well suited

*Management concerns:* None

*Management measures and considerations:*

- Designing roads to safely remove surface water improves soil performance.

### **Interpretive Groups**

*Land capability classification:* 2e

## **OeC—Orangeburg loamy sand, 5 to 8 percent slopes**

### **Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Ridges and side slopes

*Size of areas:* 5 to 50 acres

### **Composition**

Orangeburg and similar soils: 85 percent  
Dissimilar soils: 15 percent

### **Typical Profile**

#### *Surface layer:*

0 to 8 inches—dark yellowish brown loamy sand

#### *Subsurface layer:*

8 to 13 inches—brown sandy loam

#### *Subsoil:*

13 to 72 inches—red sandy clay loam

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* More than 6 feet

*Permeability:* Moderate

*Available water capacity:* Moderate

*Flooding:* None

*Content of organic matter in the surface layer:* Low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid or strongly acid, except where lime has been applied

*Other distinctive properties:* None

### **Minor Components**

#### *Dissimilar soils:*

- Faceville soils, which are in the slightly higher positions and have a clayey subsoil
- Nankin soils, which are on the adjacent side slopes and have a clayey subsoil
- Norfolk soils, which are in the slightly lower positions and have a subsoil that is more yellow than the subsoil of the Orangeburg soil

#### *Similar soils:*

- Soils that are similar to the Orangeburg soil but have a surface layer of sandy loam or sandy clay loam

### **Land Use**

**Dominant uses:** Woodland

**Other uses:** Pasture, hayland, and woodland

#### **Cropland**

*Suitability:* Suited

*Commonly grown crops:* Corn, small grains, cotton, peanuts, grain sorghum, and soybeans

*Management concerns:* Erosion

*Management measures and considerations:*

- Terraces and diversions, conservation tillage,

strip cropping, contour farming, crop residue management, and a rotation that includes soil-conserving crops reduce the hazard of erosion, help to control surface runoff, and maximize infiltration of rainfall into the soil.

#### **Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Bahiagrass, improved bermudagrass, common bermudagrass, legumes, and ryegrass

*Management concerns:* None

*Management measures and considerations:*

- Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- Fencing livestock away from creeks and streams minimizes erosion of streambanks and sedimentation of the creeks and streams.
- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.

#### **Woodland**

*Suitability:* Well suited

*Productivity class:* High for longleaf pine and slash pine and moderately high for loblolly pine

*Management concerns:* None

*Management measures and considerations:*

- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

#### **Dwellings**

*Suitability:* Suited

*Management concerns:* Slope

*Management measures and considerations:*

- Structures can be designed to conform to the natural slope or can be built in the less sloping areas.

#### **Septic tank absorption fields**

*Suitability:* Well suited

*Management concerns:* None

*Management measures and considerations:*

- The local Health Department can be contacted for guidance regarding sanitary facilities.

#### **Local roads and streets**

*Suitability:* Well suited

*Management concerns:* None

### **Interpretive Groups**

*Land capability classification:* 3e

## OeD—Orangeburg loamy sand, 8 to 12 percent slopes

### Setting

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Ridges and side slopes

*Size of areas:* 5 to 60 acres

### Composition

Orangeburg and similar soils: 80 percent

Dissimilar soils: 20 percent

### Typical Profile

*Surface layer:*

0 to 5 inches—dark yellowish brown loamy sand

*Subsurface layer:*

5 to 13 inches—brown sandy loam

*Subsoil:*

13 to 72 inches—red sandy clay loam

### Soil Properties and Qualities

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* More than 6 feet

*Permeability:* Moderate

*Available water capacity:* Moderate

*Flooding:* None

*Content of organic matter in the surface layer:* Low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid or strongly acid, except where lime has been applied

*Other distinctive properties:* None

### Minor Components

*Dissimilar soils:*

- Faceville soils, which are in the slightly higher positions and have a clayey subsoil
- Nankin soils, which are on the adjacent side slopes and have a clayey subsoil
- Norfolk soils, which are in the slightly lower positions and have a subsoil that is more yellow than the subsoil of the Orangeburg soil

*Similar soils:*

- Soils that are similar to the Orangeburg soils but have a surface layer of sandy clay loam

### Land Use

**Dominant uses:** Woodland

**Other uses:** Pasture

### Cropland

*Suitability:* Poorly suited

*Commonly grown crops:* Corn, small grains, cotton, peanuts, grain sorghum, and soybeans

*Management concerns:* Erosion

*Management measures and considerations:*

- Terraces and diversions, conservation tillage, stripcropping, contour farming, crop residue management, and a rotation that includes soil-conserving crops reduce the hazard of erosion, help to control surface runoff, and maximize infiltration of rainfall into the soil.

### Pasture and hayland

*Suitability:* Well suited to pasture and moderately well suited to hayland

*Commonly grown crops:* Bahiagrass, improved bermudagrass, common bermudagrass, legumes, and ryegrass

*Management concerns:* Erosion

*Management measures and considerations:*

- Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- Fencing livestock away from creeks and streams minimizes erosion of streambanks and sedimentation of the creeks and streams.
- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.

### Woodland

*Suitability:* Well suited

*Productivity class:* High for longleaf pine and slash pine and moderately high for loblolly pine

*Management concerns:* Erosion

*Management measures and considerations:*

- Establishing a permanent plant cover on roads and log landings, reforestation immediately after harvesting, and preparing sites with recommended species reduce the hazard of erosion and help to control siltation of streams.
- Constructing roads, fire lanes, and skid trails on the contour reduces the accelerated rates of erosion associated with these surface disturbances.
- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

### Dwellings

*Suitability:* Moderately well suited

*Management concerns:* Slope

*Management measures and considerations:*

- Structures can be designed to conform to the natural slope or can be built in the less sloping areas.

- Vegetating disturbed areas and using erosion-control structures, such as sediment fences and sediment catch basins, help to keep soil on the site. These practices should be used during any development.

### Septic tank absorption fields

*Suitability:* Well suited

*Management concerns:* Slope

*Management measures and considerations:*

- Installing distribution lines on the contour improves the performance of septic tank absorption fields.
- The local Health Department can be contacted for guidance regarding sanitary facilities.

### Local roads and streets

*Suitability:* Moderately well suited

*Management concerns:* Slope

*Management measures and considerations:*

- Designing roads to conform to the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.
- Vegetating disturbed areas and using erosion-control structures, such as sediment fences and sediment catch basins, help to keep soil on the site. These practices should be used during any development.

### Interpretive Groups

*Land capability classification:* 4e

## OSA—Osier and Bibb soils, frequently flooded

### Setting

*Landscape:* Coastal Plain

*Landform:* Flood plains and drainageways

*Landform position:* Osier—adjacent to and near stream channels; Bibb—along the edge and inner parts of flood plains

*Size of areas:* 50 to 800 acres

### Composition

Osier and similar soils: 50 percent

Bibb and similar soils: 30 percent

Dissimilar soils: 20 percent

### Typical Profile

#### Osier

*Surface layer:*

0 to 8 inches—dark gray loamy fine sand

*Substratum:*

8 to 15 inches—gray loamy fine sand

15 to 45 inches—grayish brown fine sand

45 to 55 inches—light brownish gray fine sand

55 to 65 inches—light gray fine sand stratified with layers of medium sand

#### Bibb

*Surface layer:*

0 to 5 inches—dark gray loamy fine sand

*Substratum:*

5 to 10 inches—very dark gray fine sandy loam that has brownish yellow and yellowish red mottles

10 to 45 inches—very dark gray fine sandy loam that has red mottles

45 to 65 inches—light gray sand that has yellow mottles

### Soil Properties and Qualities

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches, but root growth is limited by seasonal wetness

*Drainage class:* Poorly drained

*Seasonal high water table:* Osier—at the surface to a depth of 1/2 foot, November through March; Bibb—at a depth of 1/2 to 1 foot, December through April

*Permeability:* Rapid

*Available water capacity:* Osier—low; Bibb—medium

*Flooding:* Frequent

*Content of organic matter in the surface layer:* Moderate

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Osier—extremely acid or very strongly acid; Bibb—very strongly acid or strongly acid

*Other distinctive properties:* None

### Minor Components

*Dissimilar soils:*

- Pelham soils, which are on the slightly higher ridges and have a sandy surface layer that ranges from 20 to 40 inches in thickness
- Ocilla soils, which are on the slightly higher ridges, are somewhat poorly drained, and have a sandy surface layer that ranges from 20 to 40 inches in thickness
- Lynchburg soils, which are on the slightly higher ridges and are somewhat poorly drained
- Goldsboro soils, which are on the higher interstream divides, are moderately well drained, and have a sandy surface layer that is less than 20 inches thick

*Similar soils:*

- Soils that are similar to the Osier and Bibb soils but have a thick, dark surface layer

### **Land Use**

**Dominant uses:** Woodland

**Other uses:** Pasture

#### **Cropland**

*Suitability:* Unsited

*Commonly grown crops:* None

*Management concerns:* This map unit is severely limited for use as cropland because of the flooding and seasonal wetness.

#### **Pasture and hayland**

*Suitability:* Poorly suited

*Commonly grown crops:* Improved bermudagrass, bahiagrass, and ryegrass

*Management concerns:* Flooding and seasonal wetness

*Management measures and considerations:*

- Harvesting hay as soon as possible reduces the risk of damage from flooding.
- Restricting grazing when the soils are too wet minimizes compaction and helps maintain productivity and tilth.

#### **Woodland**

*Suitability:* Moderately suited

*Productivity class:* High for slash pine and loblolly pine

*Management concerns:* Flooding, seasonal wetness, and seedling mortality

*Management measures and considerations:*

- Restricting the use of standard wheeled and tracked equipment to dry periods minimizes rutting and the damage caused to roots by compaction.
- Harvesting timber during the summer months reduces the risk of damage from the flooding.
- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.
- Establishing a permanent plant cover on roads and log landings, reforestation immediately after harvesting, and preparing sites with recommended species reduce the hazard of erosion and help to control siltation of streams.

#### **Dwellings**

*Suitability:* Unsited

*Management concerns:* Flooding and seasonal wetness

#### **Septic tank absorption fields**

*Suitability:* Unsited

*Management concerns:* Flooding and seasonal wetness

#### **Local roads and streets**

*Suitability:* Unsited

*Management concerns:* Flooding and seasonal wetness

### **Interpretive Groups**

*Land capability classification:* 5w

## **PeA—Pelham loamy fine sand, frequently flooded**

### **Setting**

*Landscape:* Coastal Plain

*Landform:* Flood plains

*Landform position:* Slightly concave interfluves

*Size of areas:* 5 to 325 acres

### **Composition**

Pelham similar soils: 80 percent

Dissimilar soils: 20 percent

### **Typical Profile**

*Surface layer:*

0 to 6 inches—gray loamy fine sand

6 to 25 inches—gray loamy fine sand

25 to 30 inches—gray loamy sand that has brownish yellow mottles

*Subsoil:*

30 to 65 inches—light gray and gray sandy clay loam that has yellowish brown mottles

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches, but root growth may be limited by the seasonal high water table

*Drainage class:* Poorly drained

*Seasonal high water table:* At the surface to a depth of 1 foot, apparent, January through April

*Permeability:* Moderate

*Available water capacity:* Moderate

*Flooding:* Frequent

*Content of organic matter in the surface layer:* Low or moderately low

*Natural fertility:* Low

*Tilth:* Fair

*Reaction:* Very strongly acid or strongly acid throughout, except where lime has been applied

*Other distinctive properties:* None

### **Minor Components**

*Dissimilar soils:*

- Bibb, Osier, and Grady soils in the lower, depressional areas

- Somewhat poorly drained Ocilla and moderately well drained Goldsboro soils in the higher positions around the edge of the flood plains
- Well drained soils consisting of stratified sandy and loamy alluvium along drainageways

*Similar soils:*

- Soils that are similar to the Pelham soil, are adjacent to the depressions, and have a thick, dark surface layer.

### **Land Use**

**Dominant uses:** Woodland

**Other uses:** Pasture and hayland

#### **Cropland**

*Suitability:* Unsited

*Commonly grown crops:* None

*Management concerns:* Flooding and seasonal wetness

#### **Pasture and hayland**

*Suitability:* Poorly suited

*Commonly grown crops:* Improved bermudagrass, bahiagrass, and ryegrass

*Management concerns:* Flooding and seasonal wetness

*Management measures and considerations:*

- Installing cross fencing to enable rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.

#### **Woodland**

*Suitability:* Suited

*Productivity class:* High for slash pine and loblolly pine

*Management concerns:* Flooding, seasonal wetness, and seedling mortality

*Management measures and considerations:*

- Restricting logging to periods when the soil is not saturated minimizes rutting of the surface layer and compaction of the subsoil.
- Using tracked or low-pressure ground equipment minimizes rutting and the damage caused to roots by compaction during harvesting.
- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.
- Increasing planting rates and planting on raised beds help to offset the seedling mortality rate.
- Establishing a permanent plant cover on roads and log landings, reforestation immediately after harvesting, and preparing sites with recommended species reduce the hazard of erosion and help to control siltation of streams.

#### **Dwellings**

*Suitability:* Unsited

*Management concerns:* Flooding and wetness

#### **Septic tank absorption fields**

*Suitability:* Unsited

*Management concerns:* Flooding and wetness

#### **Local roads and streets**

*Suitability:* Unsited

*Management concerns:* Flooding and wetness

### **Interpretive Groups**

*Land capability classification:* 5w

## **ReA—Rembert sandy loam, frequently flooded**

### **Setting**

*Landscape:* Coastal Plain

*Landform:* Flood plains

*Landform position:* Depressions and drainageways

*Size of areas:* 5 to 100 acres

### **Composition**

Rembert and similar soils: 80 percent

Dissimilar soils: 20 percent

### **Typical Profile**

*Surface layer:*

0 to 9 inches—dark grayish brown sandy loam

*Subsurface layer:*

9 to 12 inches—grayish brown sandy loam

*Subsoil:*

12 to 39 inches—dark gray clay that has red mottles

39 to 52 inches—dark gray clay that has brownish yellow mottles

52 to 65 inches—light gray sandy clay loam that has yellowish red mottles

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Poorly drained

*Seasonal high water table:* 1 foot above the surface to 1 foot below the surface, December through April

*Permeability:* Slow

*Available water capacity:* Moderate

*Flooding:* Frequent

*Content of organic matter in the surface layer:*

Moderately low

*Natural fertility:* Low

*Tilth:* Fair

*Reaction:* Very strongly acid or strongly acid, except where lime has been applied

*Other distinctive properties:* None

### **Minor Components**

*Dissimilar soils:*

- Grady soils, which are in positions similar to those of the Rembert soil and do not have a 20 percent decrease in clay content within a depth of 60 inches
- Pelham soils, which are in positions similar to those of the Rembert soil, have a sandy surface layer that ranges from 20 to 40 inches in thickness, and have a fine-loamy subsoil
- Somewhat poorly drained Wahee soils on stream terraces

*Similar soils:*

- Soils that are similar to the Rembert soil but are subject to rare or occasional flooding

### **Land Use**

**Dominant uses:** Woodland

**Other uses:** Some drained areas are used as pasture or cropland in drier years.

#### **Cropland**

*Suitability:* Unsited

*Commonly grown crops:* None

*Management concerns:* Seasonal wetness, flooding, and ponding

#### **Pasture and hayland**

*Suitability:* Poorly suited

*Commonly grown crops:* Improved bermudagrass, bahiagrass, and ryegrass

*Management concerns:* Seasonal wetness, flooding, and ponding

*Management measures and considerations:*

- Installing cross fencing to enable rotational grazing when the soil is wet minimizes compaction, increases productivity, and helps to maintain good tilth.

#### **Woodland**

*Suitability:* Suited

*Productivity class:* Moderately high for loblolly pine

*Management concerns:* Seedling mortality

*Management measures and considerations:*

- Mechanized management operations should be scheduled for late summer and early fall when the water table is lowest.
- Using low-pressure ground equipment minimizes rutting of the surface layer and compaction of the subsoil.
- If the soil is drained and planted, the seedlings

should be planted on raised beds and the number of seedlings should be larger than the number typically planted on other soils.

- This map unit is best reforested by managing for natural regeneration of hardwoods.

#### **Dwellings**

*Suitability:* Unsited

*Management concerns:* Wetness, flooding, and ponding

#### **Septic tank absorption fields**

*Suitability:* Unsited

*Management concerns:* Wetness, flooding, and ponding

#### **Local roads and streets**

*Suitability:* Unsited

*Management concerns:* Wetness, flooding, and ponding

### **Interpretive Groups**

*Land capability classification:* 6w

## **TfA—Tifton loamy sand, 0 to 2 percent slopes**

### **Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Broad ridges

*Size of areas:* 10 to 300 acres

### **Composition**

Tifton and similar soils: 80 percent

Dissimilar soils: 20 percent

### **Typical Profile**

*Surface layer:*

0 to 8 inches—dark grayish brown loamy sand

*Subsurface layer:*

8 to 10 inches—yellowish brown loamy sand

*Subsoil:*

10 to 22 inches—yellowish brown sandy clay loam

22 to 43 inches—brownish yellow sandy clay loam

43 to 51 inches—brownish yellow sandy clay loam that has brownish yellow and yellow mottles

51 to 65 inches—brownish yellow sandy clay loam that has yellow and light gray mottles

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* 3½ to 5 feet,  
January through March

*Permeability:* Moderate in the upper part of the  
subsoil and moderately slow in the lower part

*Available water capacity:* Moderate

*Flooding:* None

*Content of organic matter in the surface layer:* Low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid to moderately acid,  
except where lime has been applied

*Other distinctive properties:* 5 to 15 percent plinthite  
within a depth of 40 to 60 inches

### **Minor Components**

*Dissimilar soils:*

- Fuquay soils, which are in the slightly lower positions and have a sandy surface layer that ranges from 20 to 40 inches in thickness
- Norfolk soils, which are in positions similar to those of the Tifton soil and contain less than 5 percent plinthite

- Orangeburg soils, which are in the slightly higher positions, have a subsoil that is redder in hue than the subsoil of the Tifton soil, and have less than 5 percent plinthite
- Dothan soils, which are in positions similar to those of the Tifton soil and have 5 percent or less ironstone nodules on the surface

*Similar soils:*

- Soils that are similar to the Tifton soil but have a surface layer of loamy fine sand or sandy loam

### **Land Use**

**Dominant uses:** Cropland and pasture (fig. 6)

**Other uses:** Woodland

#### **Cropland**

*Suitability:* Well suited

*Commonly grown crops:* Cotton, peanuts, corn,  
soybeans, small grains, and truck crops

*Management concerns:* None

*Management measures and considerations:*

- A conservation tillage system increases the content



Figure 6.—Tomatoes growing in an area of Tifton loamy sand, 0 to 2 percent slopes. The amount of vegetable crops produced in Grady County is increasing.

of organic matter and helps to conserve soil moisture.

### **Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Improved bermudagrass, bahiagrass, and ryegrass

*Management concerns:* None

### **Woodland**

*Suitability:* Well suited

*Productivity class:* Very high for loblolly pine, longleaf pine, and slash pine

*Management concerns:* None

*Management measures and considerations:*

- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

### **Dwellings**

*Suitability:* Well suited to dwellings without basements and moderately well suited to dwellings with basements

*Management concerns:* The seasonal high water table is a moderate concern affecting buildings with basements.

*Management measures and considerations:*

- Building on the highest part of the landscape and installing a subsurface drainage system, where slope permits, help to overcome the wetness.
- Constructing dwellings on raised, well-compacted fill material reduces the risk of damage from the wetness.

### **Septic tank absorption fields**

*Suitability:* Moderately well suited

*Management concerns:* Seasonal high water table

*Management measures and considerations:*

- Using suitable fill material to raise the filter field a sufficient distance above the seasonal high water table improves the performance of a septic system.
- The local Health Department can be contacted for guidance regarding sanitary facilities.

### **Local roads and streets**

*Suitability:* Suited

*Management concerns:* None

*Management measures and considerations:*

- Vegetating cut-and-fill slopes as soon as possible after construction helps to stabilize the soil and prevents excessive erosion.

### **Interpretive Groups**

*Land capability classification:* 1

## **TfB—Tifton loamy sand, 2 to 5 percent slopes**

### **Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Side slopes and broad ridges

*Size of areas:* 10 to 300 acres

### **Composition**

Tifton and similar soils: 80 percent

Dissimilar soils: 20 percent

### **Typical Profile**

*Surface layer:*

0 to 8 inches—dark grayish brown loamy sand

*Subsurface layer:*

8 to 10 inches—yellowish brown loamy sand

*Subsoil:*

10 to 22 inches—yellowish brown sandy clay loam

22 to 43 inches—brownish yellow sandy clay loam

43 to 51 inches—brownish yellow sandy clay loam that has brownish yellow and yellow mottles

51 to 65 inches—brownish yellow sandy clay loam that has yellow and light gray mottles

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* 3½ to 5 feet, January through March

*Permeability:* Moderate in the upper part of the subsoil and moderately slow in the lower part

*Available water capacity:* Moderate

*Flooding:* None

*Content of organic matter in the surface layer:* Low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid to moderately acid, except where lime has been applied

*Other distinctive properties:* 5 to 15 percent plinthite within a depth of 40 to 60 inches

### **Minor Components**

*Dissimilar soils:*

- Dothan soils, which are in positions similar to those of the Tifton soil and have 5 percent or less ironstone nodules in the surface layer
- Fuquay soils, which are in the slightly lower positions and have a sandy surface layer that ranges from 20 to 40 inches in thickness

- Norfolk soils, which are in positions similar to those of the Tifton soil and contain less than 5 percent plinthite
- Orangeburg soils, which are in the slightly higher positions, have a subsoil that is redder in hue than the subsoil of the Tifton soil, and have less than 5 percent plinthite

*Similar soils:*

- Soils that are similar to the Tifton soil but have a surface layer of loamy fine sand or sandy loam

### **Land Use**

**Dominant uses:** Cropland and pasture

**Other uses:** Woodland

#### **Cropland**

*Suitability:* Well suited

*Commonly grown crops:* Cotton, peanuts, corn, soybeans, small grains, and truck crops

*Management concerns:* Erosion

*Management measures and considerations:*

- Terraces and diversions, stripcropping, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and maximize infiltration of rainfall into the soil.

#### **Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Improved bermudagrass, bahiagrass, and ryegrass

*Management concerns:* None

*Management measures and considerations:*

- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.

#### **Woodland**

*Suitability:* Well suited

*Productivity class:* Very high for loblolly pine, longleaf pine, and slash pine

*Management concerns:* None

*Management measures and considerations:*

- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

#### **Dwellings**

*Suitability:* Well suited to dwellings without basements and moderately well suited to dwellings with basements

*Management concerns:* The seasonal high water table is a moderate concern affecting buildings with basements.

*Management measures and considerations:*

- Building on the highest part of the landscape and

installing a subsurface drainage system, where slope permits, help to overcome the wetness.

- Constructing dwellings on raised, well-compacted fill material reduces the risk of damage from wetness.
- The hazard of corrosion is moderate for steel and high for concrete.

#### **Septic tank absorption fields**

*Suitability:* Moderately well suited

*Management concerns:* Seasonal high water table

*Management measures and considerations:*

- Using suitable fill material to raise the filter field a sufficient distance above the seasonal high water table improves the performance of a septic system.
- The local Health Department can be contacted for guidance regarding sanitary facilities.

#### **Local roads and streets**

*Suitability:* Well suited

*Management concerns:* None

*Management measures and considerations:*

- Vegetating cut-and-fill slopes as soon as possible after construction helps to stabilize the soil and prevents excessive erosion.

### **Interpretive Groups**

*Land capability classification:* 2e

## **TfC—Tifton loamy sand, 5 to 8 percent slopes**

### **Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Ridges and side slopes

*Size of areas:* 10 to 100 acres

### **Composition**

Tifton and similar soils: 75 percent

Dissimilar soils: 25 percent

### **Typical Profile**

*Surface layer:*

0 to 8 inches—dark grayish brown loamy sand

*Subsurface layer:*

8 to 10 inches—yellowish brown loamy sand

*Subsoil:*

10 to 22 inches—yellowish brown sandy clay loam

22 to 43 inches—brownish yellow sandy clay loam

43 to 51 inches—brownish yellow sandy clay loam that has brownish yellow and yellow mottles

51 to 65 inches—brownish yellow sandy clay loam that has yellow and light gray mottles

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* 3½ to 5 feet, January through March

*Permeability:* Moderate in the upper part of the subsoil and moderately slow in the lower part

*Available water capacity:* Moderate

*Flooding:* None

*Content of organic matter in the surface layer:* Low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid to moderately acid, except where lime has been applied

*Other distinctive properties:* 5 to 15 percent plinthite within a depth of 40 to 60 inches

### **Minor Components**

*Dissimilar soils:*

- Fuquay soils, which are in the slightly lower positions and have a sandy surface layer that ranges from 20 to 40 inches in thickness
- Norfolk soils, which are in positions similar to those of the Tifton soil and contain less than 5 percent plinthite
- Orangeburg soils, which are in the slightly higher positions and have a subsoil that is redder in hue than the subsoil of the Tifton soil
- Dothan soils, which are in positions similar to those of the Tifton soil and have 5 percent or less ironstone nodules in the surface layer
- Cowarts soils, which are on steep slope breaks and have less than 5 percent plinthite

*Similar soils:*

- Soils that are similar to the Tifton soil but have a surface layer of loamy fine sand or sandy loam

### **Land Use**

**Dominant uses:** Cropland and pasture

**Other uses:** Woodland

#### **Cropland**

*Suitability:* Suited

*Commonly grown crops:* Cotton, peanuts, corn, soybeans, small grains, and truck crops

*Management concerns:* Erosion

*Management measures and considerations:*

- Terraces and diversions, stripcropping, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to

control surface runoff, and maximize infiltration of rainfall into the soil.

- Conservation tillage, winter cover crops, crop residue management, and a crop rotation that includes grasses and legumes increase available water capacity, improve tilth, and improve soil fertility.

#### **Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Improved bermudagrass, bahiagrass, and ryegrass

*Management concerns:* Erosion

*Management measures and considerations:*

- Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- Fencing livestock away from creeks and streams minimizes erosion of streambanks and sedimentation of the creeks and streams.

#### **Woodland**

*Suitability:* Well suited

*Productivity class:* Very high for longleaf pine and moderately high for slash pine and loblolly pine

*Management concerns:* None

*Management measures and considerations:*

- Establishing a permanent plant cover on roads and log landings, reforestation immediately after harvesting, and preparing sites with recommended species reduce the hazard of erosion and help to control siltation of streams.
- Restricting logging operations to periods when the soil is not saturated minimizes rutting and the damage to tree roots caused by soil compaction.
- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

#### **Dwellings**

*Suitability:* Well suited to dwellings without basements and suited to dwellings with basements

*Management concerns:* Seasonal high water table

*Management measures and considerations:*

- Building on the highest part of the landscape and installing a subsurface drainage system, where slope permits, help to overcome the wetness.

#### **Septic tank absorption fields**

*Suitability:* Moderately well suited

*Management concerns:* Seasonal high water table

*Management measures and considerations:*

- Using suitable fill material to raise the filter field a sufficient distance above the seasonal high water table improves the performance of a septic system.

- The local Health Department can be contacted for additional guidance regarding sanitary facilities.

### **Local roads and streets**

*Suitability:* Well suited

*Management concerns:* None

*Management measures and considerations:*

- Vegetating disturbed areas and using erosion-control structures, such as sediment fences and sediment catch basins, help to keep soil on the site. These practices should be used during any development.

### **Interpretive Groups**

*Land capability classification:* 3e

## **TrB—Troup loamy sand, 0 to 5 percent slopes**

### **Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Broad ridges

*Size of areas:* 5 to 325 acres

### **Composition**

Troup and similar soils: 80 percent

Dissimilar soils: 20 percent

### **Typical Profile**

*Surface layer:*

0 to 8 inches—brown loamy sand

*Subsurface layer:*

8 to 20 inches—yellowish brown loamy sand

20 to 32 inches—strong brown loamy sand

32 to 52 inches—yellowish red loamy sand

*Subsoil:*

52 to 80 inches—yellowish red sandy clay loam

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Somewhat excessively drained

*Depth to seasonal high water table:* More than 6 feet

*Permeability:* Rapid in the surface and subsurface layers and moderate in the subsoil

*Available water capacity:* Low to moderate

*Flooding:* None

*Content of organic matter in the surface layer:* Very low or low

*Natural fertility:* Low

*Tilth:* Fair

*Reaction:* Very strongly acid or strongly acid throughout, except where lime has been applied

*Other distinctive properties:* Thick, sandy surface layer

### **Minor Components**

*Dissimilar soils:*

- Lakeland soils, which are in positions similar to those of the Troup soil and are sandy to a depth of 80 inches or more
- Lucy soils, which are in the slightly lower positions and on the adjacent side slopes and that have a sandy surface layer that ranges from 20 to 40 inches in thickness
- Orangeburg soils, which are in the slightly lower positions and have a sandy surface layer that is less than 20 inches thick

*Similar soils:*

- Soils that are similar to the Troup soil but have a subsoil that is more yellow than the subsoil of the Troup soil

### **Land Use**

**Dominant uses:** Cropland and woodland

**Other uses:** Pasture and hayland

#### **Cropland**

*Suitability:* Moderately well suited

*Commonly grown crops:* Corn, small grains, cotton, peanuts, grain sorghum, soybeans, and truck crops

*Management concerns:* Soil blowing, droughtiness, and nutrient leaching

*Management measures and considerations:*

- Terraces and diversions, stripcropping, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and maximize infiltration of rainfall into the soil.
- Using supplemental irrigation and planting crop varieties that are adapted to droughty conditions increase productivity.
- Using split applications of fertilizer and herbicides minimizes leaching and increases yields.

#### **Pasture and hayland**

*Suitability:* Moderately well suited

*Commonly grown crops:* Bahiagrass, improved bermudagrass, common bermudagrass, legumes, and ryegrass

*Management concerns:* Droughtiness, nutrient leaching, and low soil fertility

*Management measures and considerations:*

- Installing cross fencing to enable rotational grazing

helps to keep the soil in good condition, especially during drier periods.

- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.
- Using split applications of fertilizer and herbicides minimizes leaching and increases yields.

### **Woodland**

*Suitability:* Well suited

*Productivity class:* Moderately high for slash pine, loblolly pine, and longleaf pine

*Management concerns:* Equipment use

*Management measures and considerations:*

- Using tracked or low-pressure ground equipment minimizes rutting and the damage caused to roots by compaction during harvesting.

### **Dwellings**

*Suitability:* Well suited

*Management concerns:* None

### **Septic tank absorption fields**

*Suitability:* Moderately well suited

*Management concerns:* Poor filtration

*Management measures and considerations:*

- The local Health Department can be contacted for guidance regarding sanitary facilities.

### **Local roads and streets**

*Suitability:* Well suited

*Management concerns:* None

### **Interpretive Groups**

*Land capability classification:* 3s

## **TrD—Troup loamy sand, 5 to 12 percent slopes**

### **Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Side slopes

*Size of areas:* 5 to 90 acres

### **Composition**

Troup and similar soils: 80 percent

Dissimilar soils: 20 percent

### **Typical Profile**

*Surface layer:*

0 to 8 inches—brown loamy sand

*Subsurface layer:*

8 to 20 inches—yellowish brown loamy sand

20 to 32 inches—strong brown loamy sand

32 to 52 inches—yellowish red loamy sand

*Subsoil:*

52 to 80 inches—yellowish red sandy clay loam

### **Soil Properties and Qualities**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Somewhat excessively drained

*Depth to seasonal high water table:* More than 6 feet

*Permeability:* Rapid in the surface and subsurface layers and moderate in the subsoil

*Available water capacity:* Low to moderate

*Flooding:* None

*Content of organic matter in the surface layer:* Very low or low

*Natural fertility:* Low

*Tilth:* Fair

*Reaction:* Very strongly acid or strongly acid, except where lime has been applied

*Other distinctive properties:* Thick, sandy surface and subsurface layers

### **Minor Components**

*Dissimilar soils:*

- Lakeland soils, which are in positions similar to those of the Troup soil and are sandy to a depth of 80 inches or more
- Lucy soils, which are in the slightly lower positions and on the adjacent side slopes and have a sandy surface layer that ranges from 20 to 40 inches in thickness
- Orangeburg soils, which are in the slightly lower positions and have a sandy surface layer that is less than 20 inches thick

*Similar soils:*

- Soils that are similar to the Troup soil but have a subsoil that is more yellow than the subsoil of the Troup soil

### **Land Use**

**Dominant uses:** Woodland

**Other uses:** Cropland, pasture, and hayland

### **Cropland**

*Suitability:* Poorly suited

*Commonly grown crops:* Corn, small grains, cotton, peanuts, grain sorghum, and soybeans

*Management concerns:* Soil blowing, erosion, equipment use, droughtiness, and nutrient leaching

*Management measures and considerations:*

- Terraces and diversions, stripcropping, contour tillage, no-till planting, and crop residue

management reduce the hazard of erosion, reduce the hazard of soil blowing, help to control surface runoff, and maximize infiltration of rainfall into the soil.

- Leaving the maximum amount of crop residue on the surface helps to control soil blowing and conserves soil moisture and plant nutrients.
- Using split applications of fertilizer and herbicides minimizes leaching and increases yields.

### **Pasture and hayland**

*Suitability:* Moderately well suited

*Commonly grown crops:* Bahiagrass, improved bermudagrass, common bermudagrass, legumes, and ryegrass

*Management concerns:* Equipment use, droughtiness, and nutrient leaching

*Management measures and considerations:*

- Preparing seedbeds on the contour or across the slope reduces the hazard of erosion and increases the rate of germination.
- Using equipment that has low-pressure tires reduces the slippage and rutting caused by the high content of sand in the soil.
- Installing cross fencing to enable rotational grazing helps to keep the soil in good condition, especially during drier periods.
- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.
- Using split applications of fertilizer and herbicides minimizes leaching and increases yields.

### **Woodland**

*Suitability:* Well suited

*Productivity class:* High for slash pine and loblolly pine

*Management concerns:* Equipment use

*Management measures and considerations:*

- Using tracked or low-pressure ground equipment minimizes rutting and the damage caused to roots by compaction during harvesting.
- Establishing a permanent plant cover on roads and landings after the completion of logging reduces the hazard of erosion and helps to control the siltation of streams.
- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

### **Dwellings**

*Suitability:* Moderately well suited

*Management concerns:* Slope

*Management measures and considerations:*

- Cutting and filling or building in the less sloping areas helps to overcome the slope limitation.

### **Septic tank absorption fields**

*Suitability:* Moderately well suited

*Management concerns:* Poor filtration; slope

*Management measures and considerations:*

- The local Health Department can be contacted for guidance regarding sanitary facilities.

### **Local roads and streets**

*Suitability:* Moderately well suited

*Management concerns:* Slope

*Management measures and considerations:*

- Cutting and filling and building roads on the contour help to overcome the slope limitation.

### **Interpretive Groups**

*Land capability classification:* 6s

## **Ud—Udorthents, loamy**

### **Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Ridges and side slopes

*Size of areas:* 10 to 30 acres

### **Composition**

This map unit is a miscellaneous land type consisting of areas on uplands that were formed by cutting, filling, leveling, and removing soil material. Cuts range from 3 to more than 5 feet in depth, are typically square or rectangular in shape, and range from 5 to 30 acres in size. This map unit occurs throughout the survey area, usually along roadsides and in urban areas.

### **Soil Properties and Qualities**

Due to the diversity of the Udorthents, onsite investigation is needed.

### **Minor Components**

- Some areas contain minor inclusions of the original soil material.

### **Land Use**

**Dominant uses:** Idle land

**Other uses:** Woodland

### **Cropland**

- This map unit is severely limited for use as cropland. A site with better suited soils should be selected.

### **Pasture and hayland**

- This map unit is severely limited for use as pasture and hayland. A site with better suited soils should be selected.

**Woodland**

*Suitability:* Poorly suited

*Management concerns:* Limited size of areas, low fertility, and droughtiness

*Management measures and considerations:*

- Although timber production is rarely feasible in areas of this map unit because of the limited size of the areas and the high degree of soil disturbance, trees can be planted for aesthetic benefits.

**Dwellings**

*Suitability:* No suitability class assigned

*Management concerns:* The extensive disturbance makes many areas of this unit unsuitable for dwellings.

*Management measures and considerations:*

- Onsite investigation is needed prior to construction.

**Septic tank absorption fields**

*Suitability:* No suitability class assigned

*Management concerns:* The extensive disturbance makes many areas of this unit unsuitable for septic tank absorption fields.

*Management measures and considerations:*

- The local Health Department can be contacted for guidance regarding sanitary facilities.

**Local roads and streets**

*Suitability:* No suitability class assigned

*Management concerns:* The extensive disturbance makes many areas of this unit unsuitable for local roads and streets.

*Management measures and considerations:*

- Onsite investigation is needed prior to construction.
- Vegetating disturbed areas and using erosion-control structures, such as sediment fences and sediment catch basins, help to keep soil on the site. These practices should be used during any development.

**Interpretive Groups**

*Land capability classification:* None assigned

**Up—Udorthents-Pits complex****Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Ridges and side slopes

*Size of areas:* 10 to 20 acres

**Composition**

This map unit is a miscellaneous land type consisting of pits and areas of soils that have been highly disturbed by mechanical means. It commonly

includes areas of open water. Areas of this map unit are mined for clay minerals and stone. These areas have had soil overburden removed and piled to the side. Typically, these areas are 10 to 75 feet in depth, irregular in shape, and 10 to 100 acres in size. Most areas are idle and in various stages of reclamation.

**Soil Properties and Qualities**

Due to the diversity of this map unit, onsite investigation is needed.

**Minor Components**

- Some areas contain minor inclusions of the original soil material.

**Land Use**

**Dominant uses:** Idle land and planted pine

**Other uses:** Recreational development

**Cropland**

- This map unit is severely limited for use as cropland. A site with better suited soils should be selected.

**Pasture and hayland**

- This map unit is severely limited for use as pasture and hayland. A site with better suited soils should be selected.

**Woodland**

*Suitability:* Poorly suited

*Productivity class:* None assigned

*Management concerns:* Limited size of areas, low fertility, and droughtiness

*Management measures and considerations:*

- Although timber production is rarely feasible in areas of this map unit because of the limited size of the areas and the high degree of soil disturbance, trees can be planted for aesthetic benefits.

**Dwellings**

*Suitability:* No suitability class assigned

*Management concerns:* The extensive disturbance makes many areas of this unit unsuitable for dwellings.

*Management measures and considerations:*

- Onsite investigation is needed prior to construction.

**Septic tank absorption fields**

*Suitability:* No suitability class assigned

*Management concerns:* The extensive disturbance makes many areas of this unit unsuitable for septic tank absorption fields.

*Management measures and considerations:*

- The local Health Department can be contacted for guidance regarding sanitary facilities.

**Local roads and streets**

*Suitability:* No suitability class assigned

*Management concerns:* The extensive disturbance makes many areas of this unit unsuitable for local roads and streets.

*Management measures and considerations:*

- Onsite investigation is needed prior to construction.
- Vegetating disturbed areas and using erosion-control structures, such as sediment fences and sediment catch basins, help to keep soil on the site. These practices should be used during any development.

**Interpretive Groups**

*Land capability classification:* None assigned

**UtC—Urban land-Tifton complex,  
0 to 8 percent slopes****Setting**

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Ridges and side slopes

*Size of areas:* 10 to 200 acres

**Composition**

Urban land and similar areas: 45 percent

Tifton and similar soils: 35 percent

Dissimilar soils: 20 percent

The Urban land is a miscellaneous land type consisting of areas covered by streets, buildings, sidewalks, parking lots, and playgrounds.

**Typical Profile****Tifton**

*Surface layer:*

0 to 8 inches—dark grayish brown loamy sand

*Subsurface layer:*

8 to 10 inches—yellowish brown loamy sand

*Subsoil:*

10 to 22 inches—yellowish brown sandy clay loam

22 to 43 inches—brownish yellow sandy clay loam

43 to 51 inches—brownish yellow sandy clay loam that has brownish yellow and yellow mottles

51 to 65 inches—brownish yellow sandy clay loam that has yellow and light gray mottles

**Soil Properties and Qualities****Urban land**

Because of the diversity of the Urban land, onsite investigation is needed.

**Tifton**

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches

*Drainage class:* Well drained

*Depth to seasonal high water table:* 3½ to 6 feet, January through March

*Permeability:* Moderate in the upper part of the subsoil and moderately slow in the lower part

*Available water capacity:* Moderate

*Flooding:* None

*Content of organic matter in the surface layer:* Low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid or strongly acid, except where lime has been applied

*Other distinctive properties:* 5 to 15 percent plinthite within a depth of 40 to 60 inches

**Minor Components**

*Dissimilar soils:*

- Fuquay soils, which are in the slightly lower positions and have a sandy surface layer that ranges from 20 to 40 inches in thickness
- Norfolk soils, which are in positions similar to those of the Tifton soil and have less than 5 percent plinthite
- Orangeburg soils, which are in the slightly higher positions, have a subsoil that is redder in hue than the subsoil of the Tifton soil, and have less than 5 percent plinthite
- Dothan soils, which are in positions similar to those of the Tifton soil and have 5 percent or less ironstone nodules in the surface layer
- Areas of soils that are so highly disturbed by mechanical means that the soil series can no longer be identified

*Similar soils:*

- Areas of soils that are similar to the Tifton soil but have a surface layer of loamy fine sand or sandy loam
- Areas of Tifton soils where the surface layer has been slightly disturbed by mechanical means

**Land Use**

**Dominant uses:** Urban and residential development

**Dwellings  
in areas of the Tifton soil**

*Suitability:* Well suited to dwellings without basements and moderately well suited to dwellings with basements

*Management concerns:* The seasonal high water table is a concern affecting buildings with basements.

*Management measures and considerations:*

- Building on the highest part of the landscape and installing a subsurface drainage system, where slope permits, help to overcome the wetness.
- Constructing dwellings on raised, well-compacted fill material reduces the risk of damage from wetness.

**Septic tank absorption fields in areas of the Tifton soil***Suitability:* Moderately well suited*Management concerns:* Seasonal high water table*Management measures and considerations:*

- Using suitable fill material to raise the filter field a sufficient distance above the seasonal high water table improves the performance of a septic system.
- The local Health Department can be contacted for guidance regarding sanitary facilities.

**Local roads and streets in areas of the Tifton soil***Suitability:* Well suited*Management concerns:* None*Management measures and considerations:*

- Vegetating disturbed areas and using erosion-control structures, such as sediment fences and sediment catch basins, help to keep soil on the site. These practices should be used during any development.

**Interpretive Groups***Land capability classification:* Urban land—none assigned; Tifton—2e**WaB—Wagram loamy sand, 0 to 5 percent slopes****Setting***Landscape:* Coastal Plain*Landform:* Uplands*Landform position:* Broad ridges; adjacent side slopes*Size of areas:* 5 to 30 acres**Composition**

Wagram and similar soils: 70 percent

Dissimilar soils: 30 percent

**Typical Profile***Surface layer:*

0 to 6 inches—dark grayish brown loamy sand

*Subsurface layer:*

6 to 28 inches—light yellowish brown loamy sand

*Subsoil:*

28 to 34 inches—brownish yellow sandy loam

34 to 46 inches—yellowish brown sandy clay loam

46 to 80 inches—yellowish brown sandy clay loam that has strong brown mottles

**Soil Properties and Qualities***Depth class:* Very deep*Depth to root-restricting layer:* More than 60 inches*Drainage class:* Well drained*Depth to seasonal high water table:* More than 6 feet*Permeability:* Rapid in the surface and subsurface layers, moderate in the subsoil*Available water capacity:* Moderate*Flooding:* None*Content of organic matter in the surface layer:* Low or moderately low*Natural fertility:* Low*Tilth:* Good*Reaction:* Very strongly acid or strongly acid throughout, except where lime has been applied*Other distinctive properties:* None**Minor Components***Dissimilar soils:*

- Blanton soils, which are in the slightly higher positions and have a sandy surface layer that ranges from 40 to 60 inches in thickness
- Fuquay soils, which are in positions similar to those of the Wagram soil and have more than 5 percent plinthite within a depth of 60 inches
- Dothan soils, which have a surface layer that is less than 20 inches thick
- Bonneau soils, which are in the slightly lower positions and have a perched water table within a depth of 60 inches

*Similar soils:*

- Soils that are similar to the Wagram soil but have subsurface layers of sandy loam within a depth of 30 inches

**Land Use****Dominant uses:** Cropland and pasture**Other uses:** Woodland**Cropland***Suitability:* Moderately well suited*Commonly grown crops:* Cotton, peanuts, corn, soybeans, small grains, and truck crops*Management concerns:* Low available water capacity; low nutrient holding capacity in the surface layer*Management measures and considerations:*

- Leaving the maximum amount of crop residue on

the surface helps to control soil blowing and conserves soil moisture and plant nutrients.

- Stripcropping, contour tillage, no-till planting, and crop residue management reduce the hazard of erosion, help to control surface runoff, and maximize infiltration of rainfall into the soil.
- Using split applications of fertilizer and herbicides minimizes leaching and increases yields.

#### **Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Improved bermudagrass, common bermudagrass, bahiagrass, and ryegrass

*Management concerns:* Low available water capacity

*Management measures and considerations:*

- Fencing livestock away from creeks and streams minimizes erosion of streambanks and sedimentation of the creeks and streams.
- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.
- Using split applications of fertilizer and herbicides minimizes leaching and increases yields.

#### **Woodland**

*Suitability:* Moderately well suited

*Productivity class:* Moderately high for loblolly pine, longleaf pine, and slash pine

*Management concerns:* Equipment use

*Management measures and considerations:*

- Planting and harvesting should be scheduled for periods when the soil has the proper moisture content.
- Drought-hardy species should be planted.
- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

#### **Dwellings**

*Suitability:* Well suited

*Management concerns:* None

#### **Septic tank absorption fields**

*Suitability:* Well suited

*Management concerns:* None

- The local Health Department can be contacted for guidance regarding sanitary facilities.

#### **Local roads and streets**

*Suitability:* Well suited

*Management concerns:* None

### ***Interpretive Groups***

*Land capability classification:* 2s

## **WhA—Wahee fine sandy loam, 0 to 2 percent slopes, occasionally flooded**

### ***Setting***

*Landscape:* Coastal Plain

*Landform:* Stream terraces

*Landform position:* Shallow depressions

*Size of areas:* 5 to 50 acres

### ***Composition***

Wahee and similar soils: 80 percent

Dissimilar soils: 20 percent

### ***Typical Profile***

*Surface layer:*

0 to 6 inches—dark grayish brown sandy loam

*Subsoil:*

6 to 10 inches—light yellowish brown sandy clay loam

10 to 18 inches—pale brown sandy clay that has light gray mottles

18 to 22 inches—pale brown sandy clay that has red and light gray mottles

22 to 28 inches—light gray clay that has red and yellow mottles

28 to 45 inches—light gray sandy clay that has light brown and yellow mottles

45 to 55 inches—light gray sandy clay that has light brown and yellow mottles

55 to 65 inches—light gray sandy clay loam that has light brown mottles

### ***Soil Properties and Qualities***

*Depth class:* Very deep

*Depth to root-restricting layer:* More than 60 inches, but root growth may be limited by a seasonal high water table

*Drainage class:* Somewhat poorly drained

*Depth to seasonal high water table:* 1/2 to 1 1/2 feet, apparent, December through April

*Permeability:* Slow

*Available water capacity:* Moderate

*Flooding:* Occasional, brief, December through April

*Content of organic matter in the surface layer:* Low or moderately low

*Natural fertility:* Low

*Tilth:* Good

*Reaction:* Very strongly acid to moderately acid in the surface layer, except where lime has been applied, and extremely acid to strongly acid throughout the rest of the profile

### **Minor Components**

#### *Dissimilar soils:*

- Well drained Norfolk and Orangeburg soils in the higher, more convex positions
- Moderately well drained Goldsboro and somewhat poorly drained Lynchburg soils in the slightly higher positions
- Poorly drained Pelham and Grady soils in the lower, depressional areas

#### *Similar soils:*

- Scattered areas of soils that are similar to the Wahee soil, are adjacent to depressions, and are moderately well drained
- Scattered areas of soils that are similar to the Wahee soil but have a surface layer of loamy fine sand
- Well drained soils consisting of stratified sandy and loamy alluvium along drainageways that are occasionally flooded for brief periods

### **Land Use**

**Dominant uses:** Woodland and cropland

**Other uses:** Pasture and hayland

#### **Cropland**

*Suitability:* Moderately well Suited

*Commonly grown crops:* Corn, small grains, cotton, peanuts, grain sorghum, and soybeans

*Management concerns:* Seasonal wetness; flooding

*Management measures and considerations:*

- Managing this soil as cropland is difficult because of the hazard of flooding during the growing season.
- Diverting water with open ditches and diversions increases productivity.
- Restricting tillage when the soil is wet helps to prevent clodding and crusting.
- Conservation tillage, winter cover crops, crop residue management, and a crop rotation that includes grasses and legumes increase available water capacity, improve tilth, and improve soil fertility.

#### **Pasture and hayland**

*Suitability:* Well suited

*Commonly grown crops:* Bahiagrass, improved bermudagrass, common bermudagrass, legumes, and ryegrass

*Management concerns:* Flooding and seasonal wetness

*Management measures and considerations:*

- Harvesting hay as soon as possible reduces the risk of damage from the flooding.
- Using rotational grazing and implementing a well-planned schedule of clipping and harvesting help to maintain the pasture and increase productivity.

#### **Woodland**

*Suitability:* Well suited

*Productivity class:* High for slash pine and moderately high for loblolly pine

*Management concerns:* Equipment use and seedling mortality

*Management measures and considerations:*

- Restricting logging to periods when the soil is not saturated minimizes rutting of the surface layer and compaction of the subsoil.
- Planting in raised beds and increasing the number of seedlings planted help to overcome the seedling mortality rate.
- Leaving a buffer zone of trees and shrubs along creeks and streams helps to control siltation and provides shade for the surface of the water, thereby improving aquatic habitat.

#### **Dwellings**

*Suitability:* Unsited

*Management concerns:* Flooding and wetness

#### **Septic tank absorption fields**

*Suitability:* Unsited

*Management concerns:* Flooding, wetness, and the clayey subsoil

#### **Local roads and streets**

*Suitability:* Unsited

*Management concerns:* Flooding and low bearing strength

### **Interpretive Groups**

*Land capability classification:* 2w



# Use and Management of the Soils

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

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

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

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

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

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

## Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and

indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

## Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited*, *somewhat limited*, and *very limited*. The suitability ratings are expressed as *well suited*, *moderately suited*, *poorly suited*, and *unsuited* or as *good*, *fair*, and *poor*.

## Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

## Crops and Pasture

James E. Dean, conservation agronomist, Natural Resources Conservation Service, and Ramiro Cordero, district conservationist, Natural Resources Conservation Service, helped prepare this section.

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

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

the Natural Resources Conservation Service or the Cooperative Extension Service.

The major management concerns in the use of the soils for crops and pasture are described in this section. The crops and pasture plants best suited to the soil are identified; the system of land capability classification used by the Natural Resources Conservation Service is explained; and the predicted yields of the main crops and hay and pasture plants are given for each soil.

This section provides information about the overall agricultural potential of the survey area and about the management practices that are needed. The information is useful to land users, equipment dealers, land improvement contractors, fertilizer companies, planners, conservationists, and others. For each kind of soil, information about management is presented in the section "Detailed Soil Map Units".

Erosion is a hazard in most areas of cropland. It is a more severe hazard where the slope is more than 3 percent.

Erosion can reduce productivity and can result in the pollution of streams and wetlands. Productivity is reduced as the surface layer erodes and more of the subsoil is incorporated into the plow layer. Loss of the surface layer is especially damaging on soils that have a shallow surface layer, a clayey subsoil, or both. Examples include Carnegie, Cowarts, and Nankin soils, which have a shallow surface layer, and Faceville soils, which have a clayey subsoil. In eroded areas of these soils, tilling or preparing a good seedbed is difficult on the clayey spots where the original, friable surface soil has eroded away. Controlling erosion minimizes the pollution of streams by sediment and improves the quality of surface water for use by livestock, fish, and wildlife and for recreational uses.

Erosion-control practices provide a protective plant cover, increase the rate of water infiltration, and help to control runoff (fig. 7). A cropping system that keeps plant cover and crop residue on the surface for extended periods can hold soil losses to amounts that do not reduce the productive capacity of the soils. Including grasses and legumes in the cropping system helps to control erosion in sloping areas and improves tilth for the crops that follow in the rotation. The legumes also increase nitrogen levels in the soils.

Terraces and diversions reduce the length of a slope, help to control runoff, and reduce the hazard of erosion. They are most practical on deep, well drained soils that have a uniform slope. Carnegie, Dothan, Orangeburg, and Tifton soils are suitable for terraces. Grassed waterways and underground outlets provide suitable outlets for terraces and diversions. Some

slopes are so short and irregular that terraces are not practical. In these areas, a cropping system that provides a substantial cover of plant residue is needed to reduce the hazard of erosion.

Residue management, conservation tillage, cover crops, strip-cropping, and a rotation that includes grasses and legumes provide ground cover, increase the rate of water infiltration, help to control runoff, and reduce the hazard of erosion. These conservation practices can be adapted to most of the soils in the county. No-till and strip-till, which are forms of residue management, are becoming more common in the county.

Most of the soils that are used as cropland are subject to increased erosion if they are plowed in the fall and left bare until spring. Winter cover crops should be planted if cropland is plowed in the fall.

Soil blowing is a management concern on soils that have a sandy surface layer. Examples include Dothan, Fuquay, Lakeland, Lucy, and Tifton soils. Damage occurs to young seedlings on these soils if winds are strong and the soils are dry and do not have a cover of vegetation or crop residue. Maintaining crop residue on the surface, planting cover crops, using a conservation tillage system, and keeping the surface rough minimize soil blowing.

Bottomland soils in the survey area include Grady, Rembert, and Ocilla soils. The production of crops and pasture plants is generally not possible on these soils without artificial drainage. Existing drainage systems need continuing maintenance in areas of these soils. Bottomland soils are also subject to flooding.

Information regarding erosion-control practices and drainage practices is available at the local offices of the Natural Resources Conservation Service. Wetlands are important natural resources that provide water-recharge areas, improve water quality, and support habitat for many species of game and non-game wildlife. Drainage is a major consideration in the management of crops and pasture. Because of Federal, State, and local regulations, the installation of drainage practices and the maintenance of existing drainage systems may require special permits and extra planning where wetlands are influenced.

Natural fertility is low in most of the upland soils in the survey area. Most of the soils in the survey area are naturally acid. Soils on flood plains, such as Osier, Bibb, and Pelham soils, range from slightly acid to strongly acid. Many of the upland soils are strongly acid or very strongly acid in their natural state. Applications of agricultural limestone are needed to neutralize acidity in most of these soils. Applications of lime, fertilizer, and organic wastes should be based on the results of soil testing, waste analysis, a



**Figure 7.—A grassed waterway that helps to control erosion in an area of Orangeburg loamy sand, 2 to 5 percent slopes.**

realistic projection of crop yields, and a nutrient management plan.

Nutrient management plans provide recommendations that are beneficial to the crop, profitable to the grower, and compatible with the environment. The Natural Resources Conservation Service and the Cooperative Extension Service can provide information concerning nutrient management plans.

The content of organic matter in a soil is an important factor affecting water infiltration, erosion, crusting, fertility, germination of seeds, and root growth. An adequate amount of organic matter at the surface enables the soil to absorb and hold more water, be less subject to soil erosion, and be more productive.

Most of the soils that are used for crops in the survey area have a surface layer of loamy sand and a low content of organic matter. Generally, the structure

of these soils is poor and a crust forms on the surface following rainfall. This crust is hard when dry, reduces the rate of water infiltration, hinders plant growth, and increases the runoff rate. Long-term use of residue management, conservation tillage, strip-cropping, a rotation that includes grasses and legumes, and regular additions of manure and other organic material improve soil structure and minimize crusting.

The commonly grown crops in the survey area are corn, cotton, grain sorghum, peanuts, rye, soybeans, tobacco, vegetables, and wheat. Other field crops that are suited to the soils and climate of the survey area are not commonly grown.

The specialty crops grown in the survey area are sweet corn, field peas, watermelons, cantaloupes, small fruits, and nursery plants. Watermelons comprise the greatest acreage of specialty crops.

Deep soils that have good natural drainage and that warm up early in the spring are especially well

suitable to many vegetables and small fruits. Where the slope is less than 6 percent, Cowarts, Dothan, Faceville, Fuquay, Orangeburg, and Tifton soils are well suited to such crops.

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

If adequately managed and protected from flooding, many of the soils on flood plains are suitable for a wide range of vegetable crops.

Technical assistance and information about specialty crops are available from the Cooperative Extension Service and other agricultural agencies.

Irrigation is becoming used more widely in the county for the production of row crops, orchard crops, and specialty crops. The major sources of water for irrigation are subsurface water from deep wells and surface water from streams and ponds.

Urban development and other land uses compete with agriculture for land in the county. Each year, additional land that is well suited to crops is developed for urban uses. Prime farmland makes up about 153,000 acres in Grady County. Prime farmland is the best land available for producing food, feed, forage, fiber, and oilseed crops.

### **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 land capability classification of map units in the survey area also is shown in the table.

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

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

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 Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

### **Land Capability Classification**

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

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit. Only capability class and subclass are used in this survey.

*Capability classes*, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

*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, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); and *s* shows that the soil is limited mainly because it is shallow, droughty, or stony.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w* or *s* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

The capability classification of map units in this survey area is given in the section "Detailed Soil Map Units" and in the yields table.

## Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland,

forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in table 6. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

## Hydric Soils

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed.

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of

ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 1998) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and others, 1998).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

The following map units meet the definition of hydric soils and, in addition, have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 1998).

- GrA Grady sandy loam, ponded
- OSA Osier and Bibb soils, frequently flooded
- PeA Pelham loamy fine sand, frequently flooded
- ReA Rembert sandy loam, frequently flooded

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The following map units, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. A portion of these map units, however, may include hydric soils. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

- BgB Bigbee loamy fine sand, 0 to 5 percent slopes, rarely flooded
- LnA Lynchburg fine sandy loam, 0 to 2 percent slopes
- OcA Ocilla loamy fine sand, 0 to 2 percent slopes

Table 7 provides more information regarding which components and inclusions of the map unit meet the definition of hydric soils and also have at least one of the hydric soil indicators. This list can help in the planning of land uses, but onsite investigation is needed to determine if hydric soils occur at a specific site.

## Forestland Productivity and Management

By Josh A. Wheat, resource conservationist, Natural Resources Conservation Service

Of a total of more than 293,000 acres in Grady County, 166,700 acres, or almost 57 percent, is forestland. About 154,000 acres, or 92 percent of the forestland, is privately owned. The remainder is owned by the forest industry and local governments.

Among the most significant forest types in Grady County are mixed oak-hickory and oak-pine (78,900 acres), oak-gum-cypress (29,500 acres), longleaf-slash pine (16,500 acres), and loblolly-shortleaf pine (41,000 acres).

Virgin forest once covered most of the county. As settlement progressed in the area, the well drained soils on uplands were cleared for cultivation. The soils in the remaining forestland consist of moderately well drained to poorly drained soils along streams and wetlands, on flood plains, in depressions, and on

broad, low-lying uplands and deep, excessively drained soils on ridges, uplands, and stream terraces. The trend during the past several years has been away from cultivation and toward reforestation. The amount of forest increased by over 20,000 acres from 1989 to 1997. Most of the increase was areas of loblolly pine and slash pine (USDA, 1999).

Over 65 percent of the forestland in Grady County is fully stocked or medium stocked. The remainder is poorly stocked. Only about 40 percent of the forestland is considered moderately productive, which means capable of producing, using average management, about 1 to 1.5 cords per acre per year. One cord of standing timber equals approximately 70 to 90 cubic feet of wood. Much of the remaining 60 percent normally produces less than 1 cord per acre. Much of the existing forestland could be improved by thinning out mature trees and undesirable species. Stands could also be improved by restricting excessive grazing and controlling fire, disease, and insects. The Natural Resources Conservation Service, the Georgia Forestry Commission, and the Cooperative Extension Service can help determine specific management needs.

Site index is a measure of quality based on the height (in feet) of the dominant trees at a specified age (usually 50 years for natural stands and 25 years for planted pine stands). The site indexes in the following paragraphs are based on a 50-year period. For loblolly pine and slash pine, the site index for a 25-year period can be calculated by multiplying the 50-year site index by 0.64.

A wide variety of soils are used as forestland in the county. Poorly drained to somewhat poorly drained soils, such as Bibb, Grady, Ocilla, Pelham, and Wahee soils, have high potential productivity for timber, primarily pine. These soils are best suited to slash pine, loblolly pine, water tupelo, American sycamore, sweetgum, and water oak. The site index ranges from 65 to 90 for the hardwood species and 85 to 100 for the pine. These soils have moderate to severe equipment limitations due to flooding or wetness. Seedling mortality may be excessive in wet years.

Well drained soils on uplands have high potential productivity and are best suited to longleaf pine, slash pine, and loblolly pine. Cowarts, Dothan, Faceville, Orangeburg, and Tifton soils are examples. The site index for pine ranges from 67 to 86. No significant management concerns are associated with these soils.

Somewhat excessively drained soils, such as Troup, Lakeland, and Bigbee soils, also have relatively high potential productivity for pine. The site index ranges from 60 to 88. These soils, however, have

moderate equipment limitations due to coarse texture. Also, seedling mortality is a moderate concern because of droughtiness.

The tables in this section can help forest owners or managers plan the use of soils for wood crops. They show the potential productivity of the soils for wood crops and rate the soils according to the limitations that affect various aspects of forest management.

### Forest Productivity

In table 8, the *potential productivity* of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

*Trees to manage* are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Rating class terms for seedling mortality are expressed as *low*, *moderate*, and *high*. Where these terms are used, the numerical ratings indicate gradations between the point at which the potential for fire damage or seedling mortality is highest (1.00) and the point at which the potential is lowest (0.00).

Ratings in the column *potential for seedling mortality* are based on flooding, ponding, depth to a water table, content of lime, reaction, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality.

### Forest Management

In tables 9a and 9b, interpretive ratings are given for various aspects of forest management. The ratings are both verbal and numerical.

Some rating class terms indicate the degree to which the soils are suited to a specified forest management practice. *Well suited* indicates that the soil has features that are favorable for the specified practice and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has features that are moderately favorable for the specified practice. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified forest management practice (1.00) and the point at which the soil feature is not a limitation (0.00).

The paragraphs that follow indicate the soil properties considered in rating the soils for forest management practices. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet (<http://soils.usda.gov/technical/>).

The ratings of *suitability for log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The soils are described as well suited, moderately suited, or poorly suited to use as log landings.

Ratings in the column *hazard of erosion on roads and trails* are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that little or no erosion is likely; *moderate* indicates that some erosion is likely, that the roads or trails may require occasional maintenance, and that simple erosion-control measures are needed; and *severe* indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Ratings in the column *suitability for roads (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the columns *suitability for hand planting* and *suitability for mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *suitability for use of harvesting equipment* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, and ponding. The soils are described as well suited, moderately suited, or poorly suited to this use.

## Recreation

The soils of the survey area are rated in table 10 according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive

soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in table 10 can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

*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 ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Picnic areas* are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are

texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Playgrounds* require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Paths and trails* for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

## Wildlife Habitat

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 11, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of

*fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

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

*Grain and seed crops* are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

*Grasses and legumes* are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are fescue, lovegrass, brome grass, clover, and alfalfa.

*Wild herbaceous plants* are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, wheatgrass, and grama.

*Hardwood trees* and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are Russian olive, autumn olive, and crabapple.

*Coniferous plants* furnish browse and seeds. Soil properties and features that affect the growth of

coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are loblolly pine, slash pine, longleaf pine, eastern redcedar, 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, slope, and surface stoniness. Examples of wetland plants are smartweed, cattails, 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 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. Wildlife attracted to these areas include bobwhite quail, field sparrow, cottontail, and red fox.

*Habitat for woodland wildlife* consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, thrushes, woodpeckers, squirrels, gray fox, raccoon, and deer.

*Habitat for wetland wildlife* consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, 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. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading "Soil Properties."

*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 between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.*

*The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.*

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a

special meaning in soil science and are defined in the Glossary.

### **Building Site Development**

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Table 12 shows the degree and kind of soil limitations that affect dwellings with and without basements, local roads and streets, and shallow excavations.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

*Dwellings* are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the

ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

*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 soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

*Shallow excavations* are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

### Sanitary Facilities

Table 13 shows the degree and kind of soil limitations that affect septic tank absorption fields and sewage lagoons. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations

generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

*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 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

*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. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if the water table is high enough to raise the level of

sewage in the lagoon or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over a cemented pan to make land smoothing practical.

### Construction Materials

Table 14 gives information about the soils as potential sources of sand, topsoil, and roadfill. Normal compaction, minor processing, and other standard construction practices are assumed.

*Sand* is a natural aggregate suitable for commercial use with a minimum of processing. It is used in many kinds of construction. Specifications for each use vary widely. In table 14, only the likelihood 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 are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand, the soil is considered a likely source regardless of thickness. The assumption is that the sand layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good*, *fair*, or *poor* as potential sources of sand. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is a poor source. The number 1.00 indicates that the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

The soils are rated *good*, *fair*, or *poor* as potential sources of topsoil and roadfill. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of topsoil or roadfill. The lower the number, the greater the limitation.

*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. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

*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 whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a 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 AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

### Water Management

Table 15 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas and for embankments, dikes, and levees. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the

specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

*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 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. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones. A high water table affects the amount of usable material. It also affects trafficability.

# Soil Properties

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Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained 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 particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

## Engineering Index Properties

Table 16 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

*Depth* to the upper and lower boundaries of each layer is indicated.

*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 15 percent or more, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

*Classification* of the soils is determined according to the Unified soil classification system (ASTM, 2001) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2000).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-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.

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

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

*Liquid limit and plasticity index* (Atterberg limits)

indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

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

## Water Features

Table 17 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

*Hydrologic soil groups* are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

*Water table* refers to a saturated zone in the soil.

Table 17 indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

*Ponding* is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 17 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

*Flooding* is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

*Duration* and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay

deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

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

## Physical and Chemical Properties

Table 18 shows estimates of some physical and chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

*Depth* to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

*Clay* as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 18, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

*Moist bulk density* is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at  $1/3$ - or  $1/10$ -bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each 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. Depending on soil texture, a bulk density of more than 1.4 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* ( $K_{sat}$ ) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity ( $K_{sat}$ ). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

*Available water capacity* refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

*Linear extensibility* refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at  $1/3$ - or  $1/10$ -bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

*Soil reaction* is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil

amendments for fertility and stabilization, and in determining the risk of corrosion.

*Organic matter* is the plant and animal residue in the soil at various stages of decomposition. In table 18, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

*Erosion factors* are shown in table 18 as the K factor ( $K_w$  and  $K_f$ ) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of several factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to

predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

*Erosion factor  $K_w$*  indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

*Erosion factor  $K_f$*  indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

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

# Classification of the Soils

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The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1998 and 1999). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 19 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

**ORDER.** Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Ultisol.

**SUBORDER.** Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udult (*Ud*, meaning humid, plus *ult*, from Ultisol).

**GREAT GROUP.** Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Kandiuults (*Kandi*, meaning low activity, plus *uult*, the suborder of the Ultisols that has a udic moisture regime).

**SUBGROUP.** Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Kandiuults.

**FAMILY.** Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, kaolinitic, thermic Typic Kandiuults.

**SERIES.** The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. An example is the Orangeburg series.

## Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (Soil Survey Staff, 1999) and in "Keys to Soil Taxonomy" (Soil Survey Staff, 1998). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

### Bibb Series

*Depth class:* Very deep

*Drainage class:* Poorly drained

*Permeability:* Moderate

*Parent material:* Stratified loamy and sandy alluvium

*Depth to the seasonal high water table:* 1/2 to 1 foot

*Landscape:* Coastal Plain

*Landform:* Flood plains

*Landform position:* Drainageways

*Slope:* 0 to 2 percent

*Taxonomic class:* Coarse-loamy, siliceous, active, acid, thermic Typic Fluvaquents

### **Commonly Associated Soils**

- Bigbee soils, which are excessively drained and are in the higher adjacent positions
- Ocilla soils, which are somewhat poorly drained, are fine-loamy, and are at the head of streams and low flats
- Osier soils, which are sandier than the Bibb soils
- Pelham soils, which are at the head of streams and low flats and have sandy surface and subsurface layers with a combined thickness of 20 to 40 inches

### **Typical Pedon**

Bibb loamy fine sand in an area of Osier and Bibb soils, frequently flooded; from the intersection of Hadley Ferry Road and Turkey Creek, 450 feet north of the creek and 200 feet east of Hadley Ferry Road; Grady County; USGS Cairo South topographic quadrangle (1974); lat. 30 degrees 45 minutes 56 seconds N. and long. 84 degrees 13 minutes 37 seconds W.

A—0 to 5 inches; dark gray (10YR 4/1) loamy fine sand; about 35 percent clean sand grains; weak fine granular structure; very friable; many fine and few medium and coarse roots; very strongly acid; clear smooth boundary.

Cg1—5 to 10 inches; dark gray (10YR 4/1) fine sandy loam; massive; very friable; few fine and medium roots; common medium prominent brownish yellow (10YR 6/8) and common medium prominent yellowish red (5YR 4/6) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; very strongly acid; clear smooth boundary.

Cg2—10 to 45 inches; very dark gray (10YR 3/1) fine sandy loam; massive; very friable; few fine prominent red (2.5YR 4/6) irregularly shaped masses of iron accumulation with clear boundaries throughout; very strongly acid; clear smooth boundary.

Cg3—45 to 65 inches; light gray (10YR 7/1) sand; massive; very friable; common medium prominent yellow (10YR 7/8) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; very strongly acid.

### **Range in Characteristics**

*Thickness of the sandy epipedon:* 80 inches or more

*Depth to chroma of 2 or less:* Reduced matrix at a depth of 5 to more than 60 inches

*Reaction:* Very strongly acid or strongly acid throughout

*A or Ap horizon:*

Hue—7.5YR or 10YR

Thickness—2 to 6 inches

Value—2 to 5

Chroma—1 to 3

Texture—loamy fine sand, sandy loam, or fine sandy loam

*Cg horizon:*

Hue—10YR or 2.5Y

Value—3 to 7

Chroma—2 or less

Redoximorphic features—reduced matrix and few or common iron accumulations in shades of red, brown, or yellow

Texture—sandy loam or fine sandy loam; the lower part of the horizon may contain loamy fine sand or sand; thin strata of finer or coarser material are common.

## **Bigbee Series**

*Depth class:* Very deep

*Drainage class:* Excessively drained

*Permeability:* Rapid

*Parent material:* Sandy fluvial sediments

*Depth to the seasonal high water table:* 3½ to 6 feet, January through March

*Landscape:* Coastal Plain

*Landform:* Low stream terraces

*Landform position:* Knolls and natural levees

*Slope:* 0 to 5 percent

*Taxonomic class:* Thermic, coated Typic Quartzipsamments

### **Commonly Associated Soils**

- Poorly drained Bibb and Osier soils on flood plains
- Hornsville soils, which are moderately well drained, are on broad stream terraces, and have a clayey subsoil
- Lakeland soils, which are in the adjacent upland positions and do not have a water table within a depth of 80 inches

### **Typical Pedon**

Bigbee loamy fine sand, 0 to 5 percent slope, rarely flooded; in Cheney Griffin Park; 0.1 mile west on a dirt road from a train track, 110 feet south on dirt trail, and 50 feet west of the trail; Decatur County; USGS Bainbridge topographic quadrangle (1974); lat. 30 degrees 54 minutes 15 seconds N. and long. 84 degrees 35 minutes 08 seconds W.

- Ap—0 to 5 inches; dark grayish brown (10YR 4/2) loamy fine sand; single grained; loose; many very fine and fine and common medium roots; very strongly acid; clear wavy boundary.
- C1—5 to 28 inches; yellowish brown (10YR 5/4) fine sand; single grained; loose; many very fine and fine roots; strongly acid; gradual wavy boundary.
- C2—28 to 48 inches; very pale brown (10YR 7/4) fine sand; single grained; loose; strongly acid; gradual wavy boundary.
- C3—48 to 62 inches; brownish yellow (10YR 6/6) fine sand with common bodies of loamy sand; single grained; loose; common medium distinct very pale brown (10YR 7/4) and strong brown (7.5YR 5/6) irregularly shaped masses of iron accumulation with diffuse boundaries; strongly acid.

### **Range in Characteristics**

*Thickness of the sandy epipedon:* 60 to more than 80 inches

*Content of pebbles:* Less than 5 percent

*Depth to chroma of 2 or less:* 40 inches

*Reaction:* Very strongly acid to moderately acid throughout, except where lime has been applied

#### *A or Ap horizon:*

Thickness—4 to 8 inches

Hue—10YR

Value—3 to 5

Chroma—2 to 4

Texture—loamy fine sand or loamy sand

#### *C horizon, upper part:*

Hue—7.5YR or 10YR

Value—4 to 7

Chroma—4 or 5

Redoximorphic features—none to common in shades of brown

Texture—sand or fine sand

#### *C horizon, lower part:*

Hue—10YR

Value—6 to 8

Chroma—3 to 6

Redoximorphic features—none to common in shades of brown, yellow, or, below a depth of 40 inches, gray

Texture—sand or fine sand

## **Blanton Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Rapid in the A and E horizons and moderate or moderately slow in the Bt horizon

*Parent material:* Sandy and loamy marine sediments (fig. 8)

*Depth to the seasonal high water table:* 4 to 6 feet

*Landscape:* Coastal Plain

*Landform:* Uplands and high stream terraces

*Landform position:* Ridgetops and side slopes

*Slope:* 1 to 12 percent

*Taxonomic class:* Loamy, siliceous, semiactive, thermic Grossarenic Paleudults

### **Commonly Associated Soils**

- Bonneau, Fuquay, and Lucy soils, which have a sandy epipedon that ranges from 20 to 40 inches in thickness
- Lakeland soils, which are excessively drained, do not have a water table within a depth of 6 feet, and are sandy to a depth of more than 80 inches
- Pelham soils, which are poorly drained and have a sandy epipedon that ranges from 20 to 40 inches in thickness
- Troup soils, which are somewhat excessively drained, are redder than the Blanton soils, and do not have a water table within a depth of 6 feet
- Wahee soils, which are somewhat poorly drained, have a clayey subsoil, and are in slight depressions

### **Typical Pedon**

Blanton loamy sand, 0 to 5 percent slopes; 0.9 mile west on Cook-Womack Road from its intersection with Georgia Highway 27 in Eldorado, 75 feet north of the road; Decatur County; USGS Boykin topographic quadrangle (1974); lat. 31 degrees 02 minutes 40 seconds N. and long. 84 degrees 40 minutes 01 second W.

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

E1—10 to 16 inches; yellowish brown (10YR 5/4) loamy sand; single grained; loose; few very fine roots; many pockets of uncoated sand grains; strongly acid; gradual wavy boundary.

E2—16 to 42 inches; brownish yellow (10YR 6/6) loamy sand; single grained; loose; very friable; few very fine roots; many uncoated sand grains; strongly acid; clear smooth boundary.

E3—42 to 61 inches; very pale brown (10YR 7/4) loamy sand; weak fine granular structure; very friable; many uncoated sand grains; strongly acid; clear smooth boundary.

BE—61 to 68 inches; light yellowish brown (10YR 6/4) loamy sand; weak fine subangular blocky structure; very friable; few uncoated sand grains; strongly acid; clear wavy boundary.

Bt1—68 to 72 inches; brownish yellow (10YR 6/6) sandy loam; weak fine subangular blocky structure; very friable; some sand grains bridged and coated with clay; strongly acid; clear wavy boundary.

Bt2—72 to 80 inches; brownish yellow (10YR 6/6) sandy clay loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; common medium prominent yellowish red (5YR 5/8) masses of iron accumulation with diffuse boundaries; few medium prominent light gray (10YR 7/1) iron depletions with diffuse boundaries; strongly acid.

### **Range in Characteristics**

*Thickness of the solum:* 60 to more than 80 inches

*Thickness of the sandy epipedon:* 40 to 80 inches

*Content of rock gravel:* Less than 5 percent

*Concentrations:* Few nodular concentrations of plinthite

*Depth to chroma of 2 or less:* 46 to 71 inches

*Reaction:* Very strongly acid or strongly acid throughout, except where lime has been applied

#### *Ap horizon:*

Hue—10YR

Value—3 to 5

Chroma—2 or 3

Texture—loamy sand

#### *E horizon:*

Hue—7.5YR or 10YR

Value—5 to 7

Chroma—3 to 8

Texture—sand or loamy sand

#### *BE horizon:*

Hue—10YR or 2.5Y

Value—5 to 7

Chroma—3 to 8

Texture—loamy sand, loamy fine sand, or sandy loam

#### *Bt horizon:*

Hue—7.5YR or 10YR; or variegated in shades of red, brown, yellow, or gray

Value—5 to 7

Chroma—3 to 8

Redoximorphic features—common in shades of red, brown, yellow, or gray

Texture—sandy loam or sandy clay loam

## **Bonneau Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Rapid in the A and E horizons and moderate in the Bt horizon

*Parent material:* Loamy marine sediments

*Depth to the seasonal high water table:* 3½ to 5 feet, January through March

*Landscape:* Coastal Plain

*Landform:* Low-lying ridges

*Landform position:* Ridges and side slopes

*Slope:* 0 to 12 percent

*Taxonomic class:* Loamy, siliceous, subactive, thermic Arenic Paleudults

### **Commonly Associated Soils**

- Blanton soils, which are in the higher positions and have a sandy epipedon that ranges from 40 to 65 inches in thickness
- Fuquay soils, which have more than 5 percent plinthite
- Goldsboro soils, which are moderately well drained, are in the lower positions, and have a sandy epipedon that is less than 20 inches thick
- Gritney soils, which are moderately well drained, are clayey, and have a sandy epipedon that is less than 20 inches thick
- Lucy soils, which are redder than the Bonneau soils, are in the higher positions, and have a water table that is at a depth of more than 60 inches
- Norfolk soils, which are in the lower positions and have a sandy epipedon that is less than 20 inches thick
- Pelham soils, which are poorly drained and are in the lower positions
- Wagram soils, which are in positions similar to those of the Bonneau soils and do not have redoximorphic features

### **Typical Pedon**

Bonneau loamy sand, 0 to 5 percent slopes; 0.8 mile south on Vada Road from Mount Pleasant Church, 0.9 mile west on a dirt road (Swindell Rd.), and 25 feet south of the road; Decatur County; USGS Vada topographic quadrangle (1971); lat. 31 degrees 03 minutes 19 seconds N. and long. 84 degrees 26 minutes 43 seconds W.

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

E1—10 to 21 inches; yellowish brown (10YR 5/6) loamy sand; single grained; loose; few very fine and fine roots; strongly acid; clear smooth boundary.

E2—21 to 31 inches; brownish yellow (10YR 6/6) loamy sand; single grained; loose; few very fine

and fine roots; strongly acid; gradual smooth boundary.

Bt1—31 to 39 inches; brownish yellow (10YR 6/6) sandy loam; weak medium subangular blocky structure; friable; few fine prominent reddish yellow (7.5YR 6/8) irregularly shaped masses of iron accumulation with diffuse boundaries; strongly acid; clear wavy boundary.

Bt2—39 to 49 inches; brownish yellow (10YR 6/6) sandy clay loam; weak medium subangular blocky structure; very friable; few faint clay films on faces of peds; few fine prominent reddish yellow (7.5YR 6/8) irregularly shaped masses of iron accumulation with diffuse boundaries; very strongly acid; gradual wavy boundary.

Bt3—49 to 55 inches; 35 percent brownish yellow (10YR 6/8), 35 percent very pale brown (10YR 7/4), and 30 percent red (2.5YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; common distinct clay films on faces of peds; the red and brownish yellow areas are iron accumulations; very strongly acid; clear wavy boundary.

Bt4—55 to 72 inches; about 40 percent light red (2.5YR 6/6), 35 percent brownish yellow (10YR 6/8), and 25 percent light gray (10YR 7/2) sandy clay loam; weak medium subangular blocky structure; friable; few faint clay films on faces of peds; the light red and brownish yellow areas are iron accumulations; the light gray areas are iron depletions; very strongly acid.

### **Range in Characteristics**

*Thickness of the solum:* 60 to more than 80 inches

*Thickness of the sandy epipedon:* 20 to 40 inches

*Content of gravel:* Less than 5 percent

*Concentrations:* 0 to 2 percent ironstone nodules throughout

*Depth to chroma of 2 or less:* 30 inches or more

*Reaction:* Very strongly acid or strongly acid throughout, except where lime has been applied

*A or Ap horizon:*

Hue—10YR

Value—4 or 5

Chroma—2 to 4

Texture—loamy sand

*E horizon:*

Hue—10YR or 2.5Y

Value—4 to 6

Chroma—2 to 6

Texture—loamy sand or loamy fine sand

*Bt horizon, upper part:*

Hue—7.5YR or 10YR

Value—5 to 7

Chroma—4 to 8

Redoximorphic features—few or common in shades of red, brown, or yellow

Texture—sandy loam or sandy clay loam

*Bt horizon, lower part:*

Hue—7.5YR or 10YR; or variegated in shades of red, brown, yellow, or gray

Value—5 to 7

Chroma—3 to 8; 2 or less below a depth of 60 inches

Redoximorphic features—common or many in shades of red, brown, yellow, or gray

Texture—sandy loam or sandy clay loam

## **Carnegie Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Parent material:* Clayey marine sediments

*Depth to the seasonal high water table:* More than 6 feet

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Ridges, side slopes, and knolls

*Slope:* 3 to 8 percent

*Taxonomic class:* Fine, kaolinitic, thermic Plinthic Kandiodults

### **Commonly Associated Soils**

- Cowarts and Norfolk soils, which have less than 5 percent plinthite in the subsoil and are fine-loamy
- Dothan and Fuquay soils, which are fine-loamy
- Nankin and moderately well drained Gritney soils, which have less than 5 percent plinthite in the subsoil
- Tifton soils, which have more than 5 percent plinthite below a depth of 30 inches and are fine-loamy

### **Typical Pedon**

Carnegie gravelly sandy loam, 5 to 8 percent slopes; 1.5 miles north of Whigham on Georgia Highway 179 from its intersection with U.S. Highway 84, about 400 feet east of the highway; Grady County; USGS Whigham topographic quadrangle (1974); lat. 30 degrees 54 minutes 16 seconds N. and long. 84 degrees 19 minutes 39 seconds W.

Apc—0 to 6 inches; brown (7.5YR 5/4) gravelly sandy loam; weak fine granular structure; very friable; many very fine and fine roots; about 15 percent,

by volume, ironstone nodules; strongly acid; abrupt wavy boundary.

Btc—6 to 20 inches; strong brown (7.5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; many very fine and fine roots; common distinct clay films on faces of peds; about 10 percent, by volume, ironstone nodules; very strongly acid; gradual wavy boundary.

Btv1—20 to 32 inches; strong brown (7.5YR 5/8) clay; moderate medium subangular blocky structure; firm; few fine roots; many distinct clay films on faces of peds; about 5 percent, by volume, plinthite; common medium prominent red (2.5YR 4/6) and common medium distinct yellowish brown (10YR 5/6) irregularly shaped masses of relic iron accumulation with diffuse boundaries; very strongly acid; gradual wavy boundary.

Btv2—32 to 45 inches; clay, 40 percent red (2.5YR 4/6), 30 percent strong brown (7.5YR 5/8), and 30 percent very pale brown (10YR 7/4) in a variegated pattern; moderate medium subangular blocky structure; firm; many distinct clay films on faces of peds; about 5 percent, by volume, plinthite; the red and strong brown areas are relic iron accumulations; very strongly acid; gradual wavy boundary.

Bt1—45 to 62 inches; sandy clay, 35 percent red (10R 4/6), 35 percent strong brown (7.5YR 5/6), and 30 percent very pale brown (10YR 8/2) in a variegated pattern; moderate medium subangular blocky structure; firm; few distinct clay films on faces of peds; the red and strong brown areas are relic iron accumulations; the very pale brown areas are relic iron depletions; very strongly acid; gradual wavy boundary.

Bt2—62 to 76 inches; sandy clay loam, 35 percent yellowish red (5YR 5/8), 35 percent reddish brown (2.5YR 4/4), and 30 percent strong brown (7.5YR 5/6) in a variegated pattern; weak medium subangular blocky structure; friable; very strongly acid.

### **Range in Characteristics**

*Thickness of the solum:* More than 60 inches

*Thickness of the sandy epipedon:* Less than 20 inches

*Content of gravel:* Less than 5 percent

*Concentrations:* 5 to 20 percent, by volume, ironstone nodules

*Depth to chroma of 2 or less:* 30 inches or more

*Reaction:* Very strongly acid or strongly acid throughout, except where lime has been applied

*A, Ap, or Apc horizon:*

Hue—7.5YR or 10YR

Value—3 to 5

Chroma—2 to 6

Texture—sandy loam or gravelly sandy loam

*Btc horizon (where present):*

Hue—7.5YR or 10YR

Value—4 or 5

Chroma—6 to 8

Texture—sandy clay loam or sandy clay

*Bt horizon, upper part (where present):*

Hue—7.5YR or 10YR

Value—4 or 5

Chroma—6 to 8

Relic redoximorphic features—none to few in shades of red or yellow

Texture—sandy clay loam or sandy clay

*Btv horizon:*

Hue—7.5YR or 10YR; or variegated in shades of red, brown, yellow, or gray

Value—4 or 5

Chroma—6 to 8

Relic redoximorphic features—few or common in shades of red, brown, yellow, or gray

Texture—sandy clay or clay

*Bt horizon, lower part (where present):*

Hue—variegated from 10R to 10YR

Value—4 to 8

Chroma—1 to 8

Relic redoximorphic features—common or many in shades of red, brown, yellow, or gray

Texture—sandy clay, sandy clay loam, or clay

## **Cowarts Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate in the subsoil and moderately slow or slow in the substratum

*Parent material:* Loamy marine sediments (fig. 9)

*Depth to the seasonal high water table:* More than 6 feet

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Ridges and side slopes

*Slope:* 5 to 12 percent

*Taxonomic class:* Fine-loamy, kaolinitic, thermic Typic Kanhapludults

### **Commonly Associated Soils**

- Carnegie and Orangeburg soils, which have a solum that is more than 40 inches thick
- Fuquay soils, which have a sandy epipedon that ranges from 20 to 40 inches in thickness

- Moderately well drained Gritney soils, which are clayey
- Nankin soils, which are clayey

### **Typical Pedon**

Cowarts loamy sand, in an area of Cowarts-Gritney complex, 5 to 8 percent slopes; 1.0 mile east on Georgia Highway 312 from its intersection with Georgia Highway 262, about 0.1 mile north on a dirt road, and 25 feet west of the road; Decatur County; USGS Climax North topographic quadrangle (1974); lat. 30 degrees 53 minutes 57 seconds N. and long. 84 degrees 23 minutes 35 seconds W.

A—0 to 4 inches; brown (10YR 5/3) loamy sand; weak fine granular structure; very friable; many fine and medium roots; about 2 percent, by volume, ironstone nodules; strongly acid; clear smooth boundary.

BE—4 to 9 inches; yellowish brown (10YR 5/6) sandy loam; weak fine granular structure; very friable; common fine roots; strongly acid; clear smooth boundary.

Bt1—9 to 18 inches; strong brown (7.5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; strongly acid; clear smooth boundary.

Bt2—18 to 25 inches; yellowish red (5YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; common distinct clay films on faces of peds; strongly acid; clear smooth boundary.

BC—25 to 31 inches; yellowish red (5YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; common medium prominent yellowish brown (10YR 5/4) irregularly shaped masses of relic iron accumulation with abrupt boundaries; strongly acid; clear smooth boundary.

C—31 to 65 inches; sandy loam, 40 percent brownish yellow (10YR 6/8), 35 percent yellowish brown (10YR 5/4 and 5/8), and 25 percent white (10YR 8/1) in a variegated pattern; massive; friable; the brownish yellow and yellowish brown areas are relic iron accumulations; the white areas are relic iron depletions; strongly acid.

### **Range in Characteristics**

*Thickness of the solum:* 20 to 40 inches

*Thickness of the sandy epipedon:* Less than 20 inches

*Content of rock fragments:* 0 to 10 percent in some pedons

*Depth to chroma of 2 or less:* 20 to 40 inches

*Reaction:* Very strongly acid or strongly acid throughout, except where lime has been applied

*A or Ap horizon:*

Hue—10YR

Value—4 or 5

Chroma—2 to 4

Texture—loamy sand

*E horizon (where present):*

Hue—10YR

Value—5

Chroma—4 to 6

Texture—loamy sand or sandy loam

*BE horizon (where present):*

Hue—7.5YR or 10YR

Value—5 or 6

Chroma—4 to 8

Texture—sandy loam

*Bt horizon:*

Hue—5YR to 10YR

Value—5 or 6

Chroma—6 to 8

Relic redoximorphic features—none to common in shades of red, brown, or yellow

Texture—sandy clay loam or sandy clay

*BC horizon (where present):*

Hue—5YR to 10YR; or variegated in shades of red, brown, yellow, or gray

Value—5 or 6

Chroma—6 to 8

Relic redoximorphic features—common in shades of red, brown, yellow, or gray

Texture—sandy loam or sandy clay loam

*C horizon:*

Hue—2.5YR to 10YR; or variegated in shades of red, brown, yellow, or gray

Value—4 to 8

Chroma—1 to 8

Relic redoximorphic features—common or many in shades of red, brown, yellow, or gray

Texture—loamy sand, sandy loam, or sandy clay loam

## **Dothan Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate in the upper part and moderately slow in the lower part

*Parent material:* Loamy marine sediments

*Depth to the seasonal high water table:* 3 to 5 feet, January through April

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Broad ridges

*Slope:* 0 to 5 percent

*Taxonomic class:* Fine-loamy, kaolinitic, thermic

Plinthic Kandiudults

### **Commonly Associated Soils**

- Carnegie and Nankin soils, which are clayey and are in the slightly higher positions
- Faceville soils, which are clayey, are redder than the Dothan soils, and have less than 5 percent plinthite
- Fuquay and Lucy soils, which have a sandy epipedon that ranges from 20 to 40 inches in thickness
- Norfolk and Orangeburg soils, which do not have a horizon with more than 5 percent plinthite within a depth of 60 inches
- Tifton soils, which have 5 percent or more ironstone nodules in the upper part of the solum

### **Typical Pedon**

Dothan loamy sand, 0 to 2 percent slopes; 0.3 mile west on Green Shade Road from its intersection with Georgia Highway 309, about 0.8 mile south on Robert Stephens Road from its intersection with Green Shade Road, and 55 feet east of the road; Decatur County; USGS Fowlstown topographic quadrangle (1974); lat. 30 degrees 47 minutes 06 seconds N. and long. 84 degrees 33 minutes 31 seconds W.

Ap—0 to 12 inches; grayish brown (10YR 5/2) loamy sand; weak fine granular structure; very friable; common very fine and fine roots; about 4 percent, by volume, ironstone nodules; neutral; abrupt smooth boundary.

Btc—12 to 24 inches; yellowish brown (10YR 5/8) sandy clay loam; weak fine subangular blocky structure; friable; common very fine and fine roots; 4 percent, by volume, ironstone nodules; very strongly acid; gradual smooth boundary.

Bt1—24 to 34 inches; brownish yellow (10YR 6/8) sandy clay loam; weak medium subangular blocky structure; friable; few very fine and fine roots; about 4 percent, by volume, ironstone nodules; few fine distinct light yellowish brown (10YR 6/4) irregularly shaped masses of iron accumulation with diffuse boundaries; strongly acid; gradual smooth boundary.

Bt2—34 to 48 inches; brownish yellow (10YR 6/8) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; about 4 percent, by volume, ironstone nodules; strongly acid; gradual smooth boundary.

Btv—48 to 65 inches; yellow (10YR 7/8) sandy clay

loam; weak medium subangular blocky structure; friable; about 10 percent, by volume, plinthite; about 5 percent, by volume, ironstone nodules; common medium distinct reddish yellow (7.5YR 6/8) irregularly shaped masses of iron accumulation with diffuse boundaries; very strongly acid.

### **Range in Characteristics**

*Thickness of the solum:* 60 inches or more

*Thickness of the sandy epipedon:* Less than 20 inches

*Content of pebbles:* Less than 5 percent

*Concentrations:* 0 to 5 percent ironstone nodules

*Depth to chroma of 2 or less:* 30 inches or more

*Reaction:* Very strongly acid or strongly acid throughout, except where lime has been applied

*Ap horizon:*

Hue—10YR

Value—4 or 5

Chroma—2 or 3

Texture—loamy sand

*BA horizon (where present):*

Hue—10YR

Value—5 or 6

Chroma—3 to 8

Texture—sandy loam

*Bt and Btc horizons:*

Hue—7.5YR or 10YR

Value—5 or 6

Chroma—6 to 8

Redoximorphic features—none or few in shades of red, brown, or yellow

Texture—sandy loam or sandy clay loam

*Btv horizon:*

Hue—7.5YR or 10YR; or variegated in shades of red, brown, yellow, or gray

Value—5 to 7

Chroma—6 to 8

Redoximorphic features—few or common in shades of red, brown, yellow, or gray

Texture—sandy clay loam

## **Faceville Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Parent material:* Clayey marine sediments (fig. 10)

*Depth to the seasonal high water table:* More than 6 feet

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Broad ridges and shoulder slopes

*Slope:* 0 to 8 percent

*Taxonomic class:* Fine, kaolinitic, thermic Typic  
Kandiudults

### **Commonly Associated Soils**

- Dothan soils, which are fine-loamy, are more yellow than the Faceville soils, and have a Bt horizon that contains 5 percent or more plinthite
- Nankin soils, which have more than a 20 percent decrease in clay content within a depth of 60 inches
- Orangeburg soils, which are fine-loamy

### **Typical Pedon**

Faceville sandy loam, 0 to 5 percent slopes; 1.8 miles southwest of Rocky Hill on Meridian Road from its intersection with Hadley Ferry Road, 200 feet south of the road; Grady County; USGS Beachton topographic quadrangle (1982); lat. 30 degrees 41 minutes 36 seconds N. and long. 84 degrees 14 minutes 10 seconds W.

Ap—0 to 4 inches; brown (7.5YR 4/3) sandy loam; weak medium granular structure; very friable; many very fine and fine and common medium roots; strongly acid; clear smooth boundary.

BA—4 to 7 inches; yellowish red (5YR 4/6) sandy clay loam; weak fine subangular blocky structure; friable; many very fine and fine and common medium roots; strongly acid; clear smooth boundary.

Bt1—7 to 30 inches; red (2.5YR 4/8) sandy clay; weak fine subangular blocky structure; firm; few very fine roots; common faint clay films on faces of peds; very strongly acid; gradual smooth boundary.

Bt2—30 to 50 inches; red (2.5YR 4/8) sandy clay; moderate medium subangular blocky structure; firm; common faint clay films on faces of peds; very strongly acid; gradual smooth boundary.

Bt3—50 to 65 inches; red (10R 4/8) sandy clay; weak fine subangular blocky structure; firm; common faint clay films on faces of peds; strongly acid; gradual smooth boundary.

### **Range in Characteristics**

*Thickness of the solum:* 65 inches or more

*Thickness of the sandy epipedon:* Less than 20 inches

*Content of pebbles:* Less than 5 percent

*Concentrations:* 0 to 10 percent throughout

*Depth to chroma of 2 or less:* More than 60 inches

*Reaction:* Very strongly acid or strongly acid, except where lime has been applied

*A or Ap horizon:*

Hue—7.5YR or 10YR

Value—4 or 5

Chroma—3 or 4

Texture—sandy loam

*BA horizon (where present):*

Hue—5YR

Value—4 or 5

Chroma—6 to 8

Texture—sandy clay loam

*Bt horizon:*

Hue—10R to 5YR

Value—4 or 5

Chroma—6 to 8

Texture—sandy clay

Relic redoximorphic features—common in shades of brown or yellow in the lower part

*BC horizon (where present):*

Hue—2.5YR; or variegated in shades of red, brown, or yellow

Value—4 or 5

Chroma—4 to 8

Texture—sandy clay loam or sandy clay

Relic redoximorphic features—none to common in shades of brown or yellow

## **Fuquay Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Rapid in the A and E horizons, moderate in the Bt horizon, and slow in the Btv horizon

*Parent material:* Sandy and loamy marine sediments (fig. 11)

*Depth to the seasonal high water table:* 4 to 6 feet, January through March

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Ridges and adjacent side slopes

*Slope:* 1 to 8 percent

*Taxonomic class:* Loamy, kaolinitic, thermic Arenic  
Kandiudults

### **Commonly Associated Soils**

- Blanton soils, which are in the higher positions and have a sandy epipedon that ranges from 40 to 80 inches in thickness
- Bonneau and Wagram soils, which do not have more than 5 percent plinthite and are in positions similar to those of the Fuquay soils
- Carnegie soils, which are in the higher positions,

are clayey, and have a sandy epipedon that is less than 20 inches thick

- Cowarts soils, which are on slope breaks and have a sandy epipedon that is less than 20 inches thick
- Dothan and Tifton soils, which are in positions similar to those of the Fuquay soils and have a sandy epipedon that is less than 20 inches thick
- Nankin soils, which are on slope breaks and have a sandy epipedon that is less than 20 inches thick
- Norfolk soils, which, do not have more than 5 percent plinthite, are in positions similar to those of the Fuquay soils, and have a sandy epipedon that is less than 20 inches thick
- Orangeburg soils, which are in the higher positions, do not have more than 5 percent plinthite, and have a sandy epipedon that is less than 20 inches thick

### **Typical Pedon**

Fuquay loamy sand, 1 to 5 percent slopes; 0.6 mile south of Spring Hill church on Peeble's Still Road, 0.4 mile east on Kims Road, and 205 feet east in a field; Grady County; USGS Reno topographic quadrangle (1974); lat. 30 degrees 57 minutes 59 seconds N. and long. 84 degrees 18 minutes 31 seconds W.

Ap—0 to 8 inches; brown (10YR 4/3) loamy sand; weak fine granular structure; very friable; few fine roots; about 1 percent, by volume, ironstone nodules 5 millimeters in size; very strongly acid; clear smooth boundary.

E—8 to 32 inches; brownish yellow (10YR 6/6) loamy sand; common medium light gray (10YR 7/1) bodies of clean sand grains in the lower part; weak fine granular structure; loose; few fine roots; about 1 percent, by volume, ironstone nodules 5 millimeters in size; very strongly acid; clear smooth boundary.

Bt—32 to 40 inches; yellowish brown (10YR 5/8) sandy loam; weak medium subangular blocky structure; very friable; about 3 percent, by volume, nodular plinthite 5 millimeters in size; very strongly acid; clear smooth boundary.

Btv1—40 to 58 inches; brownish yellow (10YR 6/8) sandy clay loam; moderate medium subangular blocky structure; friable; common medium distinct yellow (10YR 7/8) and yellowish brown (10YR 5/8) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; common medium prominent light gray (10YR 7/1) irregularly shaped iron depletions with diffuse boundaries throughout; about 10 percent, by volume, plinthite; about 3 percent, by volume, ironstone nodules 5 millimeters in size; very strongly acid; clear smooth boundary.

Btv2—58 to 72 inches; brownish yellow (10YR 6/8) sandy clay loam; moderate medium subangular blocky structure; friable; common medium distinct yellow (10YR 7/8) and yellowish brown (10YR 5/8) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; common medium prominent light gray (10YR 7/1) irregularly shaped iron depletions with diffuse boundaries throughout; about 7 percent, by volume, plinthite; about 1 percent, by volume, ironstone nodules 5 millimeters in size; very strongly acid.

### **Range in Characteristics**

*Thickness of the solum:* 60 inches or more

*Thickness of the sandy epipedon:* 20 to 40 inches

*Content of pebbles:* Less than 15 percent

*Concentrations:* 0 to 3 percent ironstone nodules throughout

*Depth to chroma of 2 or less:* 30 inches or more

*Reaction:* Very strongly acid to moderately acid, except where lime has been applied

*A or Ap horizon:*

Hue—10YR

Value—4 or 5

Chroma—1 to 3

Texture—loamy sand

*E horizon:*

Hue—10YR or 2.5Y

Value—5 to 7

Chroma—3 to 6

Texture—sand or loamy sand

*BE horizon (where present):*

Hue—10YR

Value—5 or 6

Chroma—4 to 8

Texture—sandy loam

*Bt horizon:*

Hue—7.5YR or 10YR

Value—4 to 6

Chroma—6 to 8

Redoximorphic features—none to common in shades of red or yellow

Texture—sandy loam or sandy clay loam

*Btv horizon:*

Hue—7.5YR or 10YR; or variegated in shades of red, brown, yellow, or gray

Value—5 or 6

Chroma—6 to 8

Redoximorphic features—none to many in shades of red, brown, yellow, or gray

Texture—sandy loam or sandy clay loam

## Goldsboro Series

*Depth class:* Very deep

*Drainage class:* Moderately well drained

*Permeability:* Moderate

*Parent material:* Loamy marine sediments (fig. 12)

*Depth to the seasonal high water table:* 2 to 3 feet,  
December through April

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Slightly concave interfluves

*Slope:* 0 to 2 percent

*Taxonomic class:* Fine-loamy, siliceous, subactive,  
thermic Aquic Paleudults

### Commonly Associated Soils

- Bonneau soils, which are well drained, are in the higher positions, and have a sandy epipedon that ranges from 20 to 40 inches in thickness
- Lynchburg soils, which are somewhat poorly drained and are in the slightly lower positions
- Norfolk soils, which are well drained
- Pelham soils, which are poorly drained, are in the lower positions, and have a sandy epipedon that ranges from 20 to 40 inches in thickness
- Ocilla soils, which are somewhat poorly drained, are in the lower positions, and have a sandy epipedon that ranges from 20 to 40 inches in thickness

### Typical Pedon

Goldsboro loamy sand, 0 to 2 percent slopes; 3.8 miles north of Climax on Georgia Highway 262 from its intersection with U.S. Highway 84, about 190 feet west of the highway; Decatur County; USGS Climax North topographic quadrangle (1974); lat. 30 degrees 55 minutes 39 seconds N. and long. 84 degrees 24 minutes 46 seconds W.

A—0 to 5 inches; dark gray (10YR 4/1) loamy sand; weak fine granular structure; very friable; many very fine and fine and few coarse roots; strongly acid; clear smooth boundary.

E—5 to 10 inches; grayish brown (2.5Y 5/2) loamy sand; weak fine granular structure; very friable; common fine and medium roots; strongly acid; clear wavy boundary.

Bt1—10 to 17 inches; light yellowish brown (2.5Y 6/4) sandy loam; weak medium subangular blocky structure; friable; few fine and medium roots; few fine faint olive yellow (2.5Y 6/8) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; strongly acid; gradual wavy boundary.

Bt2—17 to 25 inches; olive yellow (2.5Y 6/6) sandy clay loam; weak medium subangular blocky

structure; friable; few fine and medium roots; common medium prominent yellowish brown (10YR 5/8) and common fine distinct yellow (2.5Y 7/8) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; common fine prominent gray (2.5Y 6/1) irregularly shaped iron depletions with diffuse boundaries throughout; strongly acid; gradual wavy boundary.

Bt3—25 to 40 inches; brownish yellow (10YR 6/8) clay loam; moderate medium subangular blocky structure; firm; few medium roots; many medium faint yellowish brown (10YR 5/8) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; many medium prominent gray (10YR 6/1) irregularly shaped iron depletions with diffuse boundaries throughout; strongly acid; gradual wavy boundary.

Bt4—40 to 50 inches; yellowish brown (10YR 5/8) sandy clay; moderate medium subangular blocky structure; firm; many medium prominent strong brown (7.5YR 5/8) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; many medium prominent gray (10YR 6/1) irregularly shaped iron depletions with diffuse boundaries throughout; strongly acid; gradual wavy boundary.

Btg—50 to 60 inches; light gray (10YR 7/1) sandy clay loam; moderate medium subangular blocky structure; firm; common medium prominent brownish yellow (10YR 6/8) and yellow (10YR 7/8) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; very strongly acid.

### Range in Characteristics

*Thickness of the solum:* 60 inches or more

*Thickness of the sandy epipedon:* Less than 20 inches

*Content of pebbles:* Less than 5 percent

*Depth to chroma of 2 or less:* 18 to 30 inches

*Reaction:* Very strongly acid or strongly acid throughout, except where lime has been applied

*A or Ap horizon:*

Hue—10YR

Value—4 or 5

Chroma—1 to 3

Texture—loamy sand

*E horizon:*

Hue—10YR or 2.5Y

Value—5 to 7

Chroma—2 to 4

Texture—loamy sand

*BE horizon (where present):*

Hue—10YR  
 Value—5 or 6  
 Chroma—3 to 6  
 Texture—sandy loam

*Bt horizon, upper part:*

Hue—10YR or 2.5Y  
 Value—5 or 6  
 Chroma—4 to 6  
 Redoximorphic features—few to many in shades of red, brown, yellow, or gray  
 Texture—sandy clay loam, sandy loam, or clay loam

*Bt horizon, lower part:*

Hue—10YR or 2.5Y  
 Value—5 or 6  
 Chroma—4 to 8  
 Redoximorphic features—few to many in shades of red, brown, yellow, or gray  
 Texture—sandy clay loam, clay loam, or sandy clay

*Btg horizon (where present):*

Hue—10YR or 2.5Y  
 Value—5 to 7  
 Chroma—1 or 2  
 Redoximorphic features—common or many in shades of red, brown, or yellow  
 Texture—sandy clay loam or sandy clay

## Grady Series

*Depth class:* Very deep

*Drainage class:* Poorly drained

*Permeability:* Slow

*Parent material:* Clayey marine sediments

*Seasonal high water table:* 2 feet above the surface to 1 foot below the surface

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Upland depressions

*Slope:* 0 to 2 percent

*Taxonomic class:* Fine, kaolinitic, thermic Typic Paleaquults

### Commonly Associated Soils

- Lynchburg soils, which are in the higher positions, are somewhat poorly drained, and are fine-loamy
- Ocilla soils, which are in the higher positions, are somewhat poorly drained, and have a sandy epipedon that ranges from 20 to 40 inches in thickness
- Pelham soils, which have a sandy epipedon that ranges from 20 to 40 inches in thickness

- Rembert soils, which have more than a 20 percent decrease in clay content within a depth of 60 inches
- Wahee soils, which are somewhat poorly drained and are in the higher positions

### Typical Pedon

Grady sandy loam, ponded; 5.5 miles north on U.S. Highway 27 from its intersection with U.S. Highway 84 in West Bainbridge, 1,060 feet east of U.S. Highway 27; Decatur County; USGS Bainbridge topographic quadrangle (1974); lat. 30 degrees 59 minutes 44 seconds N. and long. 84 degrees 37 minutes 14 seconds W.

Ap—0 to 6 inches; dark gray (10YR 4/1) sandy loam; weak fine granular structure; very friable; few very fine and many fine roots; very strongly acid; abrupt smooth boundary.

Btg1—6 to 12 inches; grayish brown (10YR 5/2) clay; moderate medium subangular blocky structure; firm; common fine roots; few faint clay films on faces of peds; few fine prominent strong brown (7.5YR 5/8) and light brown (7.5YR 6/4) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; very strongly acid; clear wavy boundary.

Btg2—12 to 40 inches; grayish brown (10YR 5/2) clay; few fine distinct light gray (10YR 7/1) variegations; moderate medium subangular blocky structure; firm; few fine roots; few faint clay films on faces of peds; common medium prominent strong brown (7.5YR 5/8) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; very strongly acid; clear wavy boundary.

Btg3—40 to 65 inches; sandy clay, 40 percent grayish brown (10YR 5/2), 30 percent light gray (10YR 7/1), and 30 percent strong brown (7.5YR 5/8) in a variegated pattern; weak medium subangular blocky structure; firm; few distinct clay films on faces of peds; the grayish brown and light gray areas are iron depletions with diffuse boundaries throughout; the strong brown areas are masses of iron accumulation with diffuse boundaries throughout; very strongly acid.

### Range in Characteristics

*Thickness of the solum:* 60 inches or more

*Thickness of the sandy epipedon:* Less than 20 inches

*Content of rock fragments:* Less than 5 percent

*Depth to chroma of 2 or less:* 4 to 10 inches

*Reaction:* Extremely acid to strongly acid throughout, except where lime has been applied

*A or Ap horizon:*

Hue—10YR or 2.5Y  
 Value—3 or 4  
 Chroma—1 or 2  
 Texture—sandy loam

*E horizon (where present):*

Hue—10YR or 2.5Y  
 Value—5 or 6  
 Chroma—1 or 2  
 Redoximorphic features—reduced matrix  
 Texture—sandy loam

*BEg horizon (where present):*

Hue—10YR or 2.5Y  
 Value—4 or 5  
 Chroma—1 or 2  
 Redoximorphic features—few to many in shades of red, brown, or yellow or reduced matrix  
 Texture—sandy clay loam or clay loam

*Btg horizon:*

Hue—10YR to 5Y; or, below a depth of 30 inches, variegated in shades of gray, red, brown, or yellow  
 Value—5 to 7  
 Chroma—1 or 2  
 Redoximorphic features—few to many in shades of red, brown, or yellow or reduced matrix  
 Texture—sandy clay or clay

## Gritney Series

*Depth class:* Very deep

*Drainage class:* Moderately well drained

*Permeability:* Slow

*Parent material:* Clayey marine sediments

*Depth to the seasonal high water table:* 1½ to 3 feet, December through April

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Ridges and short side slopes

*Slope:* 5 to 12 percent

*Taxonomic class:* Fine, mixed, semiactive, thermic Aquic Hapludults

### Commonly Associated Soils

- Bonneau soils, which are well drained and have a sandy epipedon that ranges from 20 to 40 inches in thickness
- Carnegie soils, which have more than 5 percent plinthite within a depth of 60 inches, are well drained, and are in positions similar to those of the Gritney soils
- Cowarts soils, which are well drained, are fine-

loamy, and are in positions similar to those of the Gritney soils

### Typical Pedon

Gritney loamy sand, in an area of Cowarts-Gritney complex, 5 to 8 percent slopes; 0.8 mile north of Climax on Salem Church Road from its intersection with U.S. Highway 84, about 600 feet east of the road; Decatur County; USGS Climax North topographic quadrangle; lat. 30 degrees 53 minutes 23 seconds N. and long. 84 degrees 26 minutes 21 seconds W.

Ap—0 to 8 inches; yellowish brown (10YR 5/4) loamy sand; weak fine granular structure; very friable; many very fine and fine roots; very strongly acid; abrupt smooth boundary.

Bt1—8 to 18 inches; yellowish brown (10YR 5/8) sandy clay; moderate medium subangular blocky structure; firm; common fine and medium roots; few distinct clay films on faces of pedis; few fine prominent red (2.5YR 5/8) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; very strongly acid; clear wavy boundary.

Bt2—18 to 50 inches; sandy clay, 45 percent reddish brown (2.5YR 4/4), 40 percent yellowish brown (10YR 5/8), and 15 percent light gray (5YR 7/1) in a variegated pattern; moderate medium subangular blocky structure; firm; many distinct clay films on faces of pedis; the reddish brown and yellowish brown areas are iron accumulations; the light gray areas are iron depletions; extremely acid; gradual wavy boundary.

Cg—50 to 65 inches; light gray (5YR 7/1) clay loam; thin strata and veins of sandy clay loam; massive; very firm and cemented in place; common medium prominent reddish brown (2.5YR 4/4) and yellowish brown (10YR 5/8) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; extremely acid.

### Range in Characteristics

*Thickness of the solum:* 35 to 60 inches

*Thickness of the sandy epipedon:* Less than 20 inches

*Content of pebbles:* 0 to 10 percent in some pedons

*Depth to chroma of 2 or less:* 18 to 28 inches

*Reaction:* Extremely acid to strongly acid throughout, except where lime has been applied

*A or Ap horizon:*

Hue—10YR  
 Value—3 to 5  
 Chroma—2 to 4  
 Texture—loamy sand

*E horizon (where present):*

Hue—10YR  
 Value—5 or 6  
 Chroma—3 to 6  
 Texture—loamy sand or loamy fine sand

*Bt horizon:*

Hue—5YR to 10YR; or, in the middle or lower part, variegated in shades of red, brown, yellow, or gray  
 Value—5 or 6  
 Chroma—4 to 8  
 Redoximorphic features—few to many in shades of red, brown, yellow, or gray  
 Texture—clay loam, sandy clay, or clay

*BC horizon (where present):*

Hue—5YR to 10YR; or variegated in shades of red, brown, yellow, or gray  
 Value—5 or 6  
 Chroma—4 to 6  
 Redoximorphic features—common or many in shades of red, brown, yellow, or gray  
 Texture—sandy clay loam or sandy clay

*Cg horizon, where present:*

Hue—5YR, 7.5YR, 10YR, or 2.5Y; or variegated in shades of red, brown, yellow, or gray  
 Value—4 to 7  
 Chroma—1 or 2  
 Redoximorphic features—common in shades of red, brown, yellow, or gray  
 Texture—dominantly sandy clay loam, loam, or clay loam with lenses, pockets, or strata of loamy sand or sandy loam. In some pedons, however, the Cg or 2Cg horizon is clay.

**Hornsville Series**

*Depth class:* Very deep

*Drainage class:* Moderately well drained

*Permeability:* Moderately slow

*Parent material:* Loamy and clayey marine sediments

*Depth to the seasonal high water table:* 2½ to 3½ feet, December through April

*Landscape:* Coastal Plain

*Landform:* Broad stream terraces

*Landform position:* Smooth, level flats

*Slope:* 0 to 2 percent

*Taxonomic class:* Fine, kaolinitic, thermic Aquic Hapludults

**Commonly Associated Soils**

- Bigbee soils, which are excessively drained and are on low stream terraces

- Wahee soils, which are somewhat poorly drained and are in shallow depressions
- Lucy and Orangeburg soils, which are on the higher ridges, are well drained, and are fine-loamy

**Typical Pedon**

Hornsville fine sandy loam, 0 to 2 percent slopes; 0.7 mile south on Georgia Highway 253 from its intersection with U.S. Highway 84 in West Bainbridge, 0.6 mile west on the county road at the prison farm, and 50 feet north of road; Decatur County; USGS Bainbridge topographic quadrangle (1974); lat. 30 degrees 54 minutes 34 seconds N. and long. 84 degrees 36 minutes 46 seconds W.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; very friable; few very fine, fine, and medium roots; moderately acid; clear smooth boundary.

E—6 to 10 inches; light yellowish brown (10YR 6/4) sandy loam; weak fine granular structure; very friable; common very fine and fine roots; few fine flakes of mica; strongly acid; clear smooth boundary.

Bt1—10 to 16 inches; strong brown (7.5YR 5/6) clay loam; moderate medium subangular blocky structure; firm; few fine and medium roots; common distinct clay films on faces of peds; few fine flakes of mica; few fine prominent red (2.5YR 5/6) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; very strongly acid; gradual smooth boundary.

Bt2—16 to 24 inches; strong brown (7.5YR 5/6) clay; moderate medium subangular blocky structure; firm; few fine and medium roots; many distinct clay films on faces of peds; few fine flakes of mica; common medium prominent red (2.5YR 5/6) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; very strongly acid; gradual smooth boundary.

Bt3—24 to 28 inches; clay loam, 40 percent reddish yellow (7.5YR 6/6), 35 percent red (2.5YR 5/6), and 25 percent light gray (10YR 7/2) in a variegated pattern; moderate medium subangular blocky structure; firm; few fine and medium roots; many distinct clay films on faces of peds; few fine flakes of mica; the red and reddish yellow areas are irregularly shaped masses of iron accumulation with diffuse boundaries throughout; the light gray areas are irregularly shaped iron depletions with diffuse boundaries throughout; very strongly acid; gradual smooth boundary.

BC—28 to 60 inches; sandy clay loam, 40 percent red (2.5YR 5/6), 35 percent reddish yellow (7.5YR

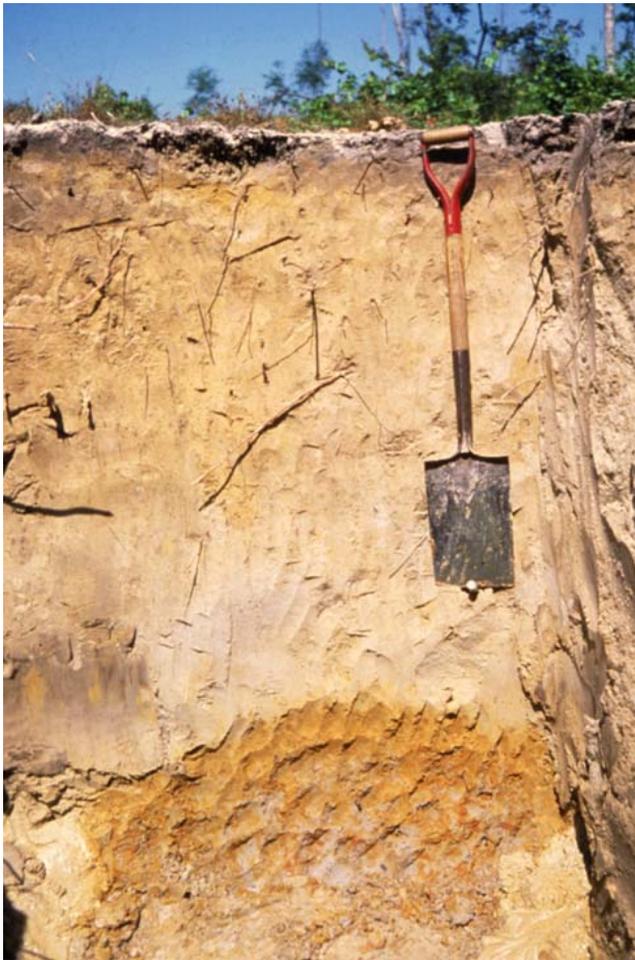


Figure 8.—Profile of Blanton loamy sand, 0 to 5 percent slopes. Blanton soils are characterized by sandy surface and subsurface layers with a combined thickness of 40 to 80 inches.



Figure 9.—Profile of a Cowarts soil in an area of Cowarts-Gritney complex, 5 to 8 percent slopes. Cowarts soils are characterized by a dense layer at a depth of about 30 inches.



Figure 10.—Profile of Faceville sandy loam, 2 to 5 percent slopes. Faceville soils are well suited to most agronomic and forest crops.

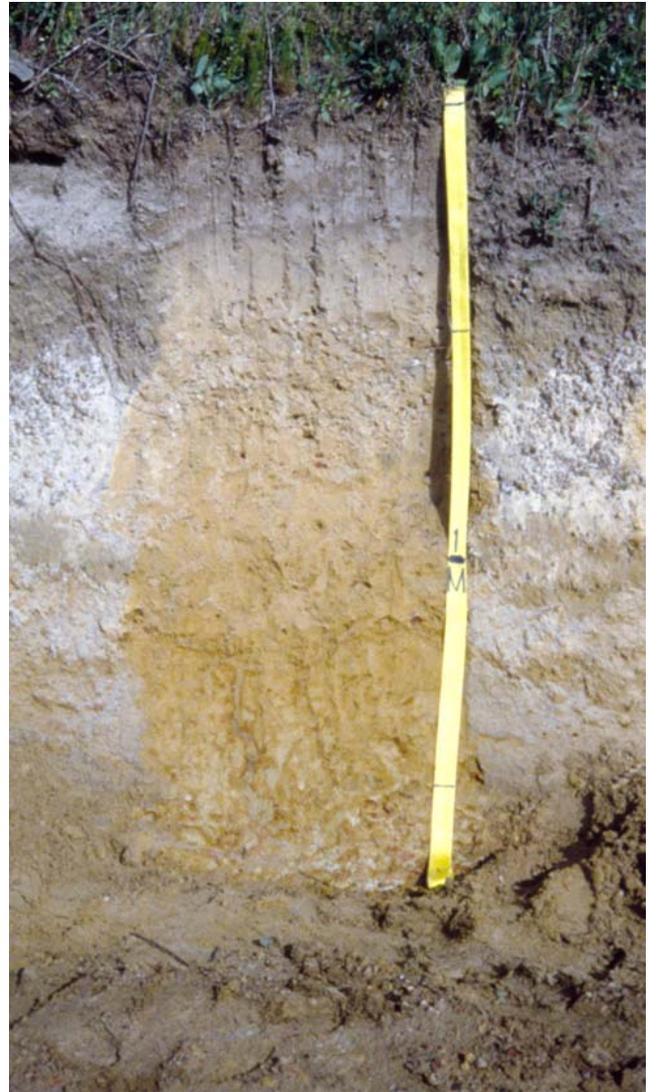


Figure 11.—Profile of Fuquay loamy sand, which has thick, sandy surface and subsurface layers with a combined thickness of 20 to 40 inches.



Figure 12.—Profile of Goldsboro loamy sand. Note the redoximorphic features in the lower part.



Figure 13.—Profile of Lakeland sand, 0 to 5 percent slopes. Lakeland soils are characterized by sandy surface and subsurface layers with a combined thickness of 80 inches or more.

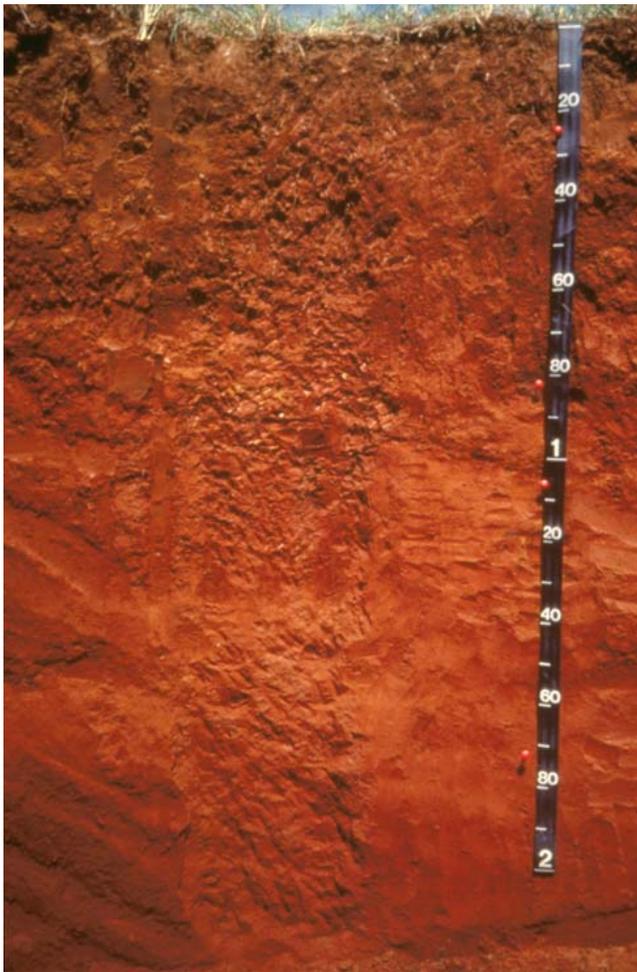


Figure 14.—Profile of Orangeburg loamy sand, 2 to 5 percent slopes. Orangeburg soils are characterized by a red subsoil.



Figure 15.—Profile of Tifton loamy sand. Note the redoximorphic features starting at a depth of about 4 feet.

6/6), and 25 percent light gray (10YR 7/2) in a variegated pattern; weak medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; few fine flakes of mica; the areas of red and reddish yellow are iron accumulations; the areas of light gray are iron depletions; very strongly acid.

### **Range in Characteristics**

*Thickness of the solum:* 40 to more than 60 inches

*Thickness of the sandy epipedon:* Less than 20 inches

*Content of pebbles:* Less than 5 percent

*Depth to chroma of 2 or less:* 21 to 27 inches

*Reaction:* Extremely acid to strongly acid throughout, except where lime has been applied

*A or Ap horizon:*

Hue—10YR

Value—2 to 4

Chroma—2 or 3

Texture—fine sandy loam

*E horizon:*

Hue—10YR

Value—4 to 7

Chroma—3 or 4

Texture—loamy sand, loamy fine sand, sandy loam, or fine sandy loam

*Bt horizon (upper part):*

Hue—5YR to 10YR

Value—4 or 5

Chroma—6 to 8

Redoximorphic features—few to many in shades of red, brown, or yellow

Texture—sandy clay loam, clay loam, sandy clay, or clay

*Bt horizon (lower part):*

Hue—5YR to 10YR; or variegated in shades of red, brown, yellow, or gray

Value—5 or 6

Chroma—6 to 8

Redoximorphic features—few or common in shades of red, brown, yellow, or gray

Texture—clay loam or sandy clay

*BC horizon:*

Hue—2.5YR to 10YR; or variegated in shades of red, brown, yellow, or gray

Value—5 or 6

Chroma—6 to 8

Redoximorphic features—few to many in shades of red, yellow, brown, or gray

Texture—sandy clay loam

*C horizon (where present):*

Hue—variegated in shades of red, brown, yellow, or gray

Redoximorphic features—common or many in shades of red, brown, yellow, or gray

Texture—sandy loam or fine sandy loam

## **Lakeland Series**

*Depth class:* Very deep

*Drainage class:* Excessively drained

*Permeability:* Rapid

*Parent material:* Sandy marine or eolian sediments (fig. 13)

*Depth to the seasonal high water table:* More than 6 feet

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Broad ridges and side slopes

*Slope:* 0 to 12 percent

*Taxonomic class:* Thermic, coated Typic Quartzipsamments

### **Commonly Associated Soils**

- Bigbee soils, which are in the lower positions and have a seasonal high water table within a depth of 3½ to 6 feet
- Blanton and Troup soils, which have a sandy epipedon that ranges from 40 to 80 inches in thickness

### **Typical Pedon**

Lakeland sand, 0 to 5 percent slopes; 4.2 miles north of Bainbridge on Georgia Highway 311 from its intersection with Georgia Highway 97, about 1.2 miles west of Georgia Highway 311 on Riverview Road, 1.1 miles south on Riverview Drive, and 60 feet west of the road; Decatur County; USGS Bainbridge topographic quadrangle (1974); lat. 30 degrees 57 minutes 27 seconds N. and long. 84 degrees 33 minutes 26 seconds W.

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) sand; single grained; loose; common very fine, fine, and medium roots; few uncoated sand grains; strongly acid; clear wavy boundary.

C1—9 to 40 inches; brownish yellow (10YR 6/6) sand; single grained; loose; few fine and medium roots; few uncoated sand grains; strongly acid; gradual wavy boundary.

C2—40 to 80 inches; yellow (10YR 7/6) sand; single grained; loose; few fine roots; many uncoated sand grains; few very fine flakes of mica; few

medium faint very pale brown (10YR 7/4) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; the iron accumulations are relict redoximorphic features; strongly acid.

### **Range in Characteristics**

*Depth of sand:* 80 inches or more

*Content of rock fragments:* Less than 5 percent

*Reaction:* Very strongly acid to moderately acid throughout, except where lime has been applied

*A or Ap horizon:*

Hue—10YR

Value—3 or 4

Chroma—2 to 4

Texture—sand or fine sand

*C horizon:*

Hue—7.5YR or 10YR

Value—4 to 7

Chroma—6 to 8

Texture—sand or fine sand

Relic redoximorphic features—none to common in shades of brown or yellow

Texture—sand or fine sand below a depth of 40 inches

## **Lucy Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Rapid in the A and E horizons and moderate in the Bt horizon

*Parent material:* Sandy and loamy marine sediments

*Depth to the seasonal high water table:* More than 5 feet

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Broad ridges and adjacent side slopes

*Slope:* 0 to 8 percent

*Taxonomic class:* Loamy, kaolinitic, thermic Arenic Kandiudults

### **Commonly Associated Soils**

- Blanton and Troup soils, which have a sandy epipedon that ranges from 40 to 80 inches in thickness
- Bonneau soils, which have mottles of chroma 2 or less within a depth of 60 inches and have dominant hue of 7.5YR or more yellow in the Bt horizon
- Dothan soils, which have one or more Bt horizons with 5 percent or more plinthite and have a sandy epipedon that is less than 20 inches thick

- Hornsville soils, which are moderately well drained, are on broad stream terraces, and have a clayey subsoil
- Orangeburg soils, which have a sandy epipedon that is less than 20 inches thick
- Wagram soils, which are in positions similar to those of the Lucy soils and have a Bt horizon dominated by hue of 7.5YR or more yellow

### **Typical Pedon**

Lucy loamy sand, 0 to 5 percent slopes; 2.4 miles north of West Bainbridge on U.S. Highway 27 from its intersection with U.S. Highway 84, about 1.0 mile east of U.S. Highway 27 on Whites Mill Road, and 300 feet north of the road; Decatur County; USGS Bainbridge topographic quadrangle; lat. 30 degrees 57 minutes 11 seconds N. and long. 84 degrees 35 minutes 43 seconds W.

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

E1—7 to 14 inches; brown (10YR 4/3) loamy sand; weak fine granular structure; very friable; common very fine and fine and few coarse roots; very strongly acid; clear smooth boundary.

E2—14 to 28 inches; brown (7.5YR 5/4) loamy sand; weak medium granular structure; very friable; few fine roots; very strongly acid; clear smooth boundary.

BE—28 to 33 inches; strong brown (7.5YR 5/6) sandy loam; weak medium granular structure; very friable; few fine roots; very strongly acid; clear smooth boundary.

Bt1—33 to 40 inches; yellowish red (5YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; very strongly acid; clear smooth boundary.

Bt2—40 to 50 inches; red (2.5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; very strongly acid; clear wavy boundary.

Bt3—50 to 65 inches; red (2.5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; common medium prominent yellowish brown (10YR 5/6) relic iron depletions with sharp boundaries throughout; very strongly acid.

### **Range in Characteristics**

*Thickness of the solum:* 60 inches or more

*Thickness of the sandy epipedon:* 20 to 40 inches

*Content of pebbles:* Less than 10 percent

*Concentrations:* Less than 5 percent ironstone nodules

*Reaction:* Very strongly acid or strongly acid throughout, except where lime has been applied

*A or Ap horizon:*

Hue—5YR to 10YR

Value—3 to 5

Chroma—2 or 3

Texture—loamy sand

*E horizon:*

Hue—5YR to 10YR

Value—4 or 5

Chroma—3 to 6

Texture—sand or loamy sand

*BE horizon (where present):*

Hue—5YR or 7.5YR

Value—4 to 6

Chroma—6 to 8

Texture—sandy loam

*Bt horizon, upper part:*

Hue—2.5YR or 5YR

Value—4 or 5

Chroma—6 to 8

Texture—sandy loam or sandy clay loam

*Bt horizon, lower part:*

Hue—2.5YR or 5YR

Value—4 to 6

Chroma—6 to 8

Redoximorphic features—none to common in shades of brown or yellow

Texture—sandy clay loam

## Lynchburg Series

*Depth class:* Very deep

*Drainage class:* Somewhat poorly drained

*Permeability:* Moderate

*Parent material:* Loamy marine sediments

*Depth to the seasonal high water table:* 1/2 to 1 1/2 feet, December through March

*Landscape:* Coastal Plain

*Landform:* Interstream divides and shallow depressions

*Landform position:* Slightly concave interfluves

*Slope:* 0 to 2 percent

*Taxonomic class:* Fine-loamy, siliceous, semiactive, thermic Aeric Paleaquults

### Commonly Associated Soils

- Goldsboro soils, which are moderately well drained
- Grady and Rembert soils, which are clayey and are poorly drained

- Norfolk soils, which are well drained
- Ocilla soils, which have a sandy epipedon that ranges from 20 to 40 inches in thickness
- Pelham soils, which are poorly drained and have a sandy epipedon that ranges from 20 to 40 inches in thickness

### Typical Pedon

Lynchburg fine sandy loam, 0 to 2 percent slopes; 6.7 miles north of Whigham on Georgia Highway 179 from its intersection with U.S. Highway 84, about 50 feet east of the highway; Grady County; USGS Whigham topographic quadrangle (1974); lat. 30 degrees 59 minutes 28 seconds N. and long. 84 degrees 21 minutes 08 seconds W.

Ap—0 to 9 inches; dark gray (10YR 4/1) fine sandy loam; weak medium granular structure; very friable; many fine and few medium and coarse roots; strongly acid; clear wavy boundary.

E—9 to 18 inches; light gray (10YR 7/2) fine sandy loam; common fine prominent strong brown (7.5YR 5/6) iron concentrations in root channels; weak medium subangular blocky structure; very friable; many fine and few medium and coarse roots; strongly acid; gradual wavy boundary.

Bt—18 to 22 inches; yellowish brown (10YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; common fine and few medium roots; many medium prominent light brownish gray (10YR 6/2) iron depletions with diffuse boundaries throughout; common medium distinct brownish yellow (10YR 6/8) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; strongly acid; gradual wavy boundary.

Btg1—22 to 34 inches; light gray (10YR 7/2) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; common distinct clay films on faces of peds; many medium prominent strong brown (7.5YR 5/6) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; strongly acid; gradual wavy boundary.

Btg2—34 to 39 inches; light gray (10YR 7/1) sandy clay loam; moderate medium subangular blocky structure; friable; common distinct clay films on faces of peds; many medium prominent brownish yellow (10YR 6/6) and common medium prominent red (2.5YR 4/6) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; strongly acid; gradual wavy boundary.

Btg3—39 to 56 inches; light gray (10YR 7/1) sandy clay loam; moderate medium subangular blocky

structure; friable; common medium prominent brownish yellow (10YR 6/6) and common medium prominent red (2.5YR 4/6) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; strongly acid; gradual wavy boundary.

Btg4—56 to 65 inches; gray (10YR 6/1) sandy clay loam; moderate medium subangular blocky structure; friable; many fine prominent strong brown (7.5YR 4/6) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; strongly acid; gradual wavy boundary.

### **Range in Characteristics**

*Thickness of the solum:* 60 inches or more

*Thickness of the sandy epipedon:* Less than 20 inches

*Content of rock fragments:* Less than 10 percent

*Concentrations:* 0 to 5 percent ironstone nodules throughout

*Depth to chroma of 2 or less:* 12 to 18 inches

*Reaction:* Extremely acid to strongly acid throughout, except where lime has been applied

*A or Ap horizon:*

Hue—10YR or 2.5Y

Value—3 or 4

Chroma—1 or 2

Texture—fine sandy loam or sandy loam

*E horizon (where present):*

Hue—10YR or 2.5Y

Value—5 to 7

Chroma—2 to 4

Redoximorphic features—none to common in shades of brown or yellow

Texture—loamy sand, sandy loam, or fine sandy loam

*Bt horizon:*

Hue—10YR or 2.5Y; or variegated in shades of brown, yellow, or gray

Value—5 or 6

Chroma—4 to 6

Redoximorphic features—few to many in shades of red, brown, yellow, or gray

Texture—sandy clay loam

*Btg horizon:*

Hue—10YR

Value—6 or 7

Chroma—1 or 2

Redoximorphic features—few to many in shades of red, brown, or yellow

Texture—sandy clay loam or clay loam

*BCg horizon (where present):*

Hue—10YR

Value—5 or 6

Chroma—1 or 2

Redoximorphic features—few to many in shades of red, brown, or yellow

Texture—sandy loam

## **Nankin Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Parent material:* Loamy and clayey marine sediments

*Depth to the seasonal high water table:* More than 6 feet

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Upper side slopes

*Slope:* 2 to 12 percent

*Taxonomic class:* Fine, kaolinitic, thermic Typic Kanhapludults

### **Commonly Associated Soils**

- Carnegie soils, which have more than 5 percent plinthite
- Cowarts soils, which are in positions similar to those of the Nankin soils and are fine loamy
- Dothan and Tifton soils, which have more than 5 percent plinthite and are fine-loamy
- Faceville soils, which do not have a 20 percent decrease in clay content in the lower part of the B horizon
- Fuquay soils, which have more than 5 percent plinthite and have a sandy epipedon that ranges from 20 to 40 inches in thickness
- Orangeburg soils, which are fine-loamy

### **Typical Pedon**

Nankin fine sandy loam in an area of Nankin-Cowarts complex, 5 to 8 percent slopes; 4.2 miles northeast of Whigham on U.S. Highway 84 from its intersection with Georgia Highway 179, about 100 feet north of the highway; Grady County; USGS Whigham topographic quadrangle (1974); lat. 30 degrees 54 minutes 09 seconds N. and long. 84 degrees 15 minutes 07 seconds W.

Ap—0 to 6 inches; brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; few ironstone nodules; very strongly acid; abrupt smooth boundary.

Bt1—6 to 21 inches; yellowish red (5YR 5/8) sandy clay; moderate medium subangular blocky

structure; firm; few fine faint red (2.5YR 4/8) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; very strongly acid; gradual wavy boundary.

Bt2—21 to 32 inches; yellowish red (5YR 5/8) sandy clay; moderate medium subangular blocky structure; firm; few fine faint red (2.5YR 4/8) and few fine prominent brownish yellow (10YR 6/8) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; very strongly acid; gradual wavy boundary.

Bt3—32 to 39 inches; yellowish red (5YR 5/8) sandy clay; moderate medium subangular blocky structure; firm; many medium prominent brownish yellow (10YR 6/8) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; very strongly acid; gradual wavy boundary.

BC—39 to 50 inches; yellowish red (5YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; many medium faint red (2.5YR 4/8) and many medium prominent brownish yellow (10YR 6/8) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; few fine prominent pinkish gray (5YR 7/2) iron depletions with diffuse boundaries throughout; very strongly acid; gradual wavy boundary.

C—50 to 65 inches; sandy loam with pockets of sandy clay loam, 40 percent red (2.5YR 4/8), 35 percent brownish yellow (10YR 6/8), and 25 percent pinkish gray (5YR 7/2) in a variegated pattern; massive; firm; the red and brownish yellow areas are iron accumulations; the pinkish gray areas are iron depletions; very strongly acid.

### **Range in Characteristics**

*Thickness of the solum:* 40 to 60 inches

*Thickness of the sandy epipedon:* Less than 20 inches

*Content of pebbles:* 0 to 5 percent in some

*Concentrations:* 0 to 25 percent ironstone nodules and 0 to 5 percent plinthite

*Depth to chroma of 2 or less:* 40 inches or more

*Reaction:* Very strongly acid or strongly acid throughout, except where lime has been applied

*A or Ap horizon:*

Hue—10YR

Value—4 or 5

Chroma—3 to 5

Texture—loamy fine sand, fine sandy loam, or sandy loam

*BE horizon (where present):*

Hue—7.5YR or 10YR

Value—5 or 6

Chroma—4 to 8

Texture—sandy loam or sandy clay loam

*Bt horizon:*

Hue—2.5YR to 10YR; or, in the lower part, variegated in shades of red, brown, or yellow

Value—5 or 6

Chroma—6 to 8

Redoximorphic features—few to many in shades of red, brown, or yellow

Texture—clay loam, sandy clay, or clay

*BC horizon (where present):*

Hue—2.5YR to 7.5YR; or variegated in shades of red, brown, yellow, pink, or gray

Value—5 or 6

Chroma—6 to 8

Redoximorphic features—few to many in shades of red, brown, yellow, pink, or gray

Texture—sandy clay loam or sandy clay loam with pockets of sandy loam

*C horizon:*

Hue—variegated in shades of red, brown, yellow, pink, or gray

Redoximorphic features—common or many in shades of red, brown, or gray

Texture—sandy loam with pockets of sandy clay loam or sandy clay

## **Norfolk Series**

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Parent material:* Loamy marine sediments

*Depth to the seasonal high water table:* 4 to 6 feet, January through March

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Broad ridges

*Slope:* 0 to 8 percent

*Taxonomic class:* Fine-loamy, kaolinitic, thermic Typic Kandiudults

### **Commonly Associated Soils**

- Bonneau, Fuquay, and Wagram soils, which have a sandy epipedon that ranges from 20 to 40 inches in thickness
- Carnegie soils, which are clayey and are in the slightly higher positions

- Dothan soils, which are in positions similar to those of the Norfolk soils and have subsoil layers that contain 5 percent or more plinthite
- Goldsboro soils, which are moderately well drained
- Lynchburg soils, which are somewhat poorly drained
- Orangeburg soils, in which all or some part of the Bt horizon has hue of 5YR or redder
- Pelham soils, which are poorly drained and have a sandy epipedon that ranges from 20 to 40 inches in thickness
- Wagram soils, which have a sandy epipedon that ranges from 20 to 40 inches in thickness

### **Typical Pedon**

Norfolk loamy sand, 0 to 2 percent slopes; 5.2 miles east of Bainbridge on Georgia Highway 312 from its intersection with Wheat Avenue in Bainbridge, 0.6 mile north on Palmer Road, 1.0 mile east on Friendship Cemetery Road, and 100 feet north of the road; Decatur County; USGS Climax North topographic quadrangle (1974); lat. 30 degrees 54 minutes 59 seconds N. and long. 84 degrees 27 minutes 59 seconds W.

Ap—0 to 6 inches; very dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many very fine roots; few ironstone nodules; moderately acid; clear smooth boundary.

BE—6 to 14 inches; brown (10YR 5/3) sandy loam; weak medium granular structure; very friable; few fine roots; moderately acid; clear wavy boundary.

Bt1—14 to 22 inches; yellowish brown (10YR 5/4) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; few ironstone nodules; common medium distinct brownish yellow (10YR 6/6) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; strongly acid; gradual wavy boundary.

Bt2—22 to 38 inches; brownish yellow (10YR 6/6) sandy clay loam; moderate medium subangular blocky structure; friable; few very fine roots; few faint clay films on faces of peds; strongly acid; gradual wavy boundary.

Bt3—38 to 52 inches; yellowish brown (10YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; common faint clay films on faces of peds; about 2 percent, by volume, nodular plinthite; common medium distinct strong brown (7.5YR 5/6) and few fine prominent red (2.5YR 5/6) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; very strongly acid; gradual wavy boundary.

BC—52 to 65 inches; sandy clay loam, 30 percent yellowish red (5YR 5/8), 20 percent strong brown (7.5YR 5/8), 20 percent brownish yellow (10YR 6/6), 20 percent yellowish brown (10YR 5/8), and 10 percent light gray (10YR 7/2) in a variegated pattern; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; about 2 percent, by volume, nodular plinthite; the yellowish red, strong brown, and brownish yellow areas are iron accumulations; the light gray areas are iron depletions; strongly acid.

### **Range in Characteristics**

*Thickness of the solum:* 60 inches or more

*Thickness of the sandy epipedon:* Less than 20 inches

*Content of pebbles:* Less than 5 percent

*Concentrations:* 0 to 5 percent ironstone nodules throughout and less than 5 percent plinthite in the Bt horizon

*Depth to chroma of 2 or less:* 48 to 60 inches

*Reaction:* Very strongly acid or strongly acid throughout, except where lime has been applied

*A or Ap horizon:*

Hue—10YR or 2.5Y

Value—4 or 5

Chroma—2 or 3

Texture—loamy sand

*E horizon (where present):*

Hue—10YR or 2.5Y

Value—4 to 6

Chroma—3 or 4

Texture—loamy sand

*BE horizon (where present):*

Hue—10YR or 2.5Y

Value—5 or 6

Chroma—3 to 8

Texture—sandy loam

*Bt horizon:*

Hue—7.5YR or 10YR

Value—5 or 6

Chroma—4 to 8

Redoximorphic features—none to common in shades of brown or yellow

Texture—sandy loam, sandy clay loam, or, below a depth of 40 inches, sandy clay

*BC horizon:*

Hue—7.5YR or 10YR; or variegated in shades of red, brown, yellow, or gray

Value—5 to 8

Chroma—3 to 8

Redoximorphic features—few or common in shades of red, brown, yellow, or gray  
Texture—sandy clay loam or sandy clay

## Ocilla Series

*Depth class:* Very deep

*Drainage class:* Somewhat poorly drained

*Permeability:* Moderate

*Parent material:* Sandy and loamy marine sediments

*Depth to the seasonal high water table:* 1 to 2½ feet, December through April

*Landscape:* Coastal Plain

*Landform:* Low uplands and stream terraces

*Landform position:* Slightly concave interfluves

*Slope:* 0 to 5 percent

*Taxonomic class:* Loamy, siliceous, semiactive, thermic Aquic Arenic Paleudults

### Commonly Associated Soils

- Bibb soils, which are in the lower positions and are poorly drained
- Goldsboro soils, which are in the slightly higher positions and are moderately well drained
- Lynchburg soils, which are in the slightly higher positions and have a sandy surface layer that is less than 20 inches thick
- Poorly drained Pelham, Grady, Rembert soils in depressions

### Typical Pedon

Ocilla loamy fine sand, 0 to 2 percent slopes; on Pine Park Road 1.0 mile south of its intersection with a railroad track in Pine Park, east of the road 200 feet; Grady County; USGS Pine Park topographic quadrangle (1982); lat. 30 degrees 50 minutes 30 seconds N. and long. 84 degrees 06 minutes 38 seconds W.

A—0 to 3 inches; dark gray (10YR 4/1) loamy fine sand; weak fine granular structure; very friable; many very fine and common fine roots; strongly acid; clear smooth boundary.

E1—3 to 18 inches; gray (10YR 5/1) loamy fine sand; weak medium granular structure; very friable; common very fine roots; strongly acid; clear smooth boundary.

E2—18 to 27 inches; light gray (10YR 6/1) loamy fine sand; weak fine granular structure; very friable; few very fine roots; common medium faint grayish brown (10YR 5/2) irregularly shaped iron depletions with diffuse boundaries throughout; strongly acid; clear smooth boundary.

Bt1—27 to 45 inches; brownish yellow (10YR 6/8)

sandy clay loam; weak fine subangular blocky structure; very friable; about 3 percent, by volume, nodular plinthite; few very fine roots; few medium prominent strong brown (7.5YR 5/8) masses of iron accumulation with diffuse boundaries throughout; common medium prominent light gray (10YR 6/1) iron depletions with diffuse boundaries throughout; strongly acid; gradual smooth boundary.

Bt2—45 to 55 inches; brownish yellow (10YR 6/8) sandy clay; moderate medium subangular blocky structure; friable; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation with diffuse boundaries throughout; common medium prominent light gray (10YR 6/1) iron and clay depletions with diffuse boundaries throughout; very strongly acid; gradual smooth boundary.

Btg—55 to 65 inches; gray (10YR 5/1) sandy clay; weak medium subangular blocky structure; friable; few medium prominent red (2.5YR 4/8), common medium prominent strong brown (7.5YR 5/8), and common medium prominent brownish yellow (10YR 6/8) masses of iron accumulation with diffuse boundaries throughout; very strongly acid.

### Range in Characteristics

*Thickness of the solum:* 60 to 80 inches

*Thickness of the sandy epipedon:* 20 to 40 inches

*Content of pebbles:* Less than 5 percent

*Content of plinthite:* Less than 5 percent

*Depth to chroma of 2 or less:* 22 to 33 inches

*Reaction:* Very strongly acid or strongly acid throughout, except where lime has been applied

*A or Ap horizon:*

Hue—10YR

Value—3 or 4

Chroma—1 or 2

Texture—loamy fine sand

*E horizon:*

Hue—10YR or 2.5Y

Value—5 or 6

Chroma—1 to 4

Redoximorphic features—none to common in shades of brown or gray

Texture—loamy sand or loamy fine sand

*BE horizon (where present):*

Hue—10YR

Value—5 or 6

Chroma—4 to 6

Redoximorphic features—none to common in shades of red, brown, yellow, or gray

Texture—loamy sand

*Bt horizon, upper part:*

Hue—7.5YR to 2.5Y

Value—5 to 7

Chroma—2 to 8

Redoximorphic features—few to many in shades of red, brown, yellow, or gray

Texture—sandy loam or sandy clay loam

*Bt horizon, lower part:*

Hue—7.5YR to 2.5Y; or variegated in shades of red, brown, yellow, or gray

Value—5 to 7

Chroma—3 to 8

Redoximorphic features—few to many in shades of red, brown, yellow, or gray

Texture—sandy loam, sandy clay loam, or sandy clay

*Btg horizon (where present):*

Hue—10YR or 2.5Y

Value—5 to 7

Chroma—1 or 2

Redoximorphic features—few to many in shades of red, brown, yellow, or gray

Texture—sandy clay loam or sandy clay

**Orangeburg Series***Depth class:* Very deep*Drainage class:* Well drained*Permeability:* Moderate*Parent material:* Loamy and clayey marine sediments (fig. 14)*Depth to the seasonal high water table:* More than 6 feet*Landscape:* Coastal Plain*Landform:* Uplands*Landform position:* Broad ridges*Slope:* 0 to 12 percent*Taxonomic class:* Fine-loamy, kaolinitic, thermic Typic Kandiudults**Commonly Associated Soils**

- Cowarts soils, which have a solum that is less than 40 inches thick
- Dothan and Tifton soils, which have plinthite and have a subsoil that is dominantly 7.5YR in hue or more yellow
- Faceville soils, which are clayey
- Fuquay soils, which have a sandy epipedon that ranges from 20 to 40 inches in thickness and have horizons that contain 5 percent or more plinthite
- Hornsville soils, which are moderately well drained and have a clayey subsoil

- Nankin soils, which are clayey and have a 20 percent decrease in clay content within a depth of 60 inches
- Lucy soils, which have a sandy epipedon that ranges from 20 to 40 inches in thickness
- Norfolk soils, which have a subsoil that is dominantly hue of 7.5YR or more yellow
- Troup soils, which are somewhat excessively drained and have a sandy epipedon that ranges from 40 to 80 inches in thickness

**Typical Pedon**

Orangeburg loamy sand, 2 to 5 percent slopes; 1.8 miles southeast of Bainbridge on Lake Douglas Road from its intersection with U.S. Highway 84 Bypass, 1.2 miles south on Toole Dairy Road (dirt road) from its intersection with Lake Douglas Road, and 125 feet north of the road; Decatur County; USGS Fowlstown topographic quadrangle (1974); lat. 30 degrees 51 minutes 46 seconds N. and long. 84 degrees 32 minutes 18 seconds W.

Ap—0 to 8 inches; dark yellowish brown (10YR 4/4) loamy sand; weak fine granular structure; very friable; many very fine and fine and common medium roots; strongly acid; clear smooth boundary.

BA—8 to 13 inches; brown (7.5YR 4/4) sandy loam; weak medium subangular blocky structure; very friable; common very fine and few fine roots; very strongly acid; clear smooth boundary.

Bt1—13 to 32 inches; red (2.5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; friable; common very fine, fine, and medium roots; few faint clay films on faces of peds; very strongly acid; gradual smooth boundary.

Bt2—32 to 72 inches; red (2.5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; friable; few very fine roots; few faint clay films on faces of peds; very strongly acid.

**Range in Characteristics***Thickness of the solum:* 70 inches or more*Thickness of the sandy epipedon:* Less than 20 inches*Content of pebbles:* Less than 5 percent*Concentrations:* 0 to 3 percent ironstone nodules throughout*Depth to chroma of 2 or less:* 60 inches or more*Reaction:* Very strongly acid or strongly acid, except where lime has been applied*A or Ap horizon:*

Hue—10YR

Value—3 or 4  
 Chroma—2 to 4  
 Texture—loamy sand

*E horizon (where present):*

Hue—7.5YR or 10YR  
 Value—5  
 Chroma—4 to 6  
 Texture—loamy sand

*BA horizon (where present):*

Hue—2.5YR to 10YR  
 Value—4 to 6  
 Chroma—4 to 8  
 Texture—sandy loam or fine sandy loam

*Bt horizon:*

Hue—2.5YR or 5YR  
 Value—4 or 5  
 Chroma—6 to 8  
 Redoximorphic features—none to common in shades of brown or yellow at a depth of more than 60 inches  
 Texture—sandy clay loam

## Osier Series

*Depth class:* Very deep  
*Drainage class:* Poorly drained  
*Permeability:* Rapid  
*Parent material:* Sandy fluvial sediments  
*Seasonal high water table:* At the surface to a depth of 1/2 foot  
*Landscape:* Coastal Plain  
*Landform:* Flood plains  
*Landform position:* Drainageways  
*Slope:* 0 to 2 percent  
*Taxonomic class:* Siliceous, thermic Typic Psammaquents

### Commonly Associated Soils

- Bibb soils, which are coarse-loamy
- Pelham soils, which are loamy and have a sandy epipedon that ranges from 20 to 40 inches in thickness

### Typical Pedon

Osier loamy fine sand, in an area of Osier and Bibb soils, frequently flooded; from the intersection of Hadley Ferry Road and Turkey Creek, 225 feet north of the creek, and 200 feet east of Hadley Ferry Road; Grady County; USGS Cairo South topographic quadrangle (1974); lat. 30 degrees 45 minutes 52 seconds N. and long. 84 degrees 13 minutes 41 seconds W.

A—0 to 8 inches; dark gray (10YR 4/1) loamy fine sand; about 25 percent clean sand grains; weak fine granular structure; loose; many fine, many medium, and few coarse roots; very strongly acid; clear smooth boundary.

Cg1—8 to 15 inches; gray (10YR 6/1) loamy fine sand; weak fine granular structure; loose; few fine and few medium roots; very strongly acid; clear smooth boundary.

Cg2—15 to 45 inches; grayish brown (10YR 5/2) fine sand; weak fine granular structure; loose; few fine roots; common medium pockets of clean sand grains; very strongly acid; clear smooth boundary.

Cg3—45 to 55 inches; light brownish gray (10YR 6/2) fine sand; weak fine granular structure; loose; many medium pockets of clean sand grains; very strongly acid; clear smooth boundary.

Cg4—55 to 65 inches; light gray (10YR 7/1) fine sand stratified with thin layers of medium sand; weak fine granular structure; loose; very strongly acid.

### Range in Characteristics

*Depth of sand:* 70 inches or more  
*Content of pebbles:* Less than 10 percent  
*Concentrations:* Less than 2 percent  
*Depth to chroma of 2 or less:* 0 inches  
*Reaction:* Extremely acid or very strongly acid throughout

*A horizon:*

Hue—10YR or 2.5Y  
 Value—2 to 4  
 Chroma—1 or 2  
 Texture—fine sandy loam, loamy fine sand, or fine sand

*Cg horizon:*

Hue—7.5YR to 2.5Y  
 Value—3 to 8  
 Chroma—1 or 2  
 Redoximorphic features—none to common in shades of gray, brown, or yellow  
 Texture—loamy fine sand, fine sand, sand, or stratified with these textures

## Pelham Series

*Depth class:* Very deep  
*Drainage class:* Poorly drained  
*Permeability:* Moderate  
*Parent material:* Sandy and loamy marine sediments  
*Seasonal high water table:* At the surface to a depth of 1 foot, January through April  
*Landscape:* Coastal Plain  
*Landform:* Broad flats

*Landform position:* Flood plains and slight depressions

*Slope:* 0 to 2 percent

*Taxonomic class:* Loamy, siliceous, subactive, thermic Arenic Paleaquults

### **Commonly Associated Soils**

- Bonneau soils, which are well drained and are in the higher adjacent positions
- Blanton soils, which are well drained and have a sandy epipedon that ranges from 20 to 40 inches in thickness
- Bibb soils, which are coarse-loamy
- Grady and Rembert soils, which are clayey
- Lynchburg soils, which are somewhat poorly drained and have a sandy epipedon that is less than 20 inches thick
- Ocilla soils, which are somewhat poorly drained
- Osier soils, which are sandy
- Goldsboro soils, which are moderately well drained and have a sandy epipedon that is less than 20 inches thick
- Norfolk soils, which are well drained, are in the adjacent higher positions, and have a sandy epipedon that is less than 20 inches thick

### **Typical Pedon**

Pelham loamy fine sand, frequently flooded; Wautauga Road 0.5 mile from its intersection with US Highway 27, about 150 feet north of the road; Decatur County; USGS Climax South topographic quadrangle (1974); lat. 30 degrees 45 minutes 28 seconds N. and long. 84 degrees 27 minutes 33 seconds W.

A—0 to 6 inches; gray (10YR 5/1) loamy fine sand; weak medium granular structure; very friable; many very fine roots; very strongly acid; clear smooth boundary.

Eg1—6 to 25 inches; gray (10YR 6/1) loamy fine sand; weak fine granular structure; very friable; many very fine and few fine roots; very strongly acid; clear smooth boundary.

Eg2—25 to 30 inches; gray (10YR 6/1) loamy sand; weak fine granular structure; very friable; common very fine roots; few fine prominent brownish yellow (10YR 6/6) masses of iron accumulation with diffuse boundaries; very strongly acid; clear wavy boundary.

Btg1—30 to 45 inches; light gray (10YR 6/1) sandy loam; weak medium subangular blocky structure; very friable; few very fine and fine roots; many medium prominent yellowish brown (10YR 5/8 and 5/6) masses of iron accumulation with diffuse boundaries; very strongly acid; gradual wavy boundary.

Btg2—45 to 50 inches; gray (10YR 6/1) sandy clay loam; moderate medium subangular blocky structure; friable; many coarse prominent yellowish brown (10YR 5/8 and 5/6) masses of iron accumulation with diffuse boundaries; very strongly acid; gradual wavy boundary.

Btg3—50 to 65 inches; gray (10YR 6/1) sandy clay loam; moderate medium subangular blocky structure; friable; many coarse prominent strong brown (7.5YR 5/6) and brownish yellow (10YR 6/8) masses of iron accumulation with diffuse boundaries; few fine faint light gray (10YR 7/1) iron depletions with diffuse boundaries; very strongly acid.

### **Range in Characteristics**

*Thickness of the solum:* 60 inches or more

*Thickness of the sandy epipedon:* 20 to 40 inches

*Content of pebbles:* Less than 5 percent

*Concentrations:* 0 to 3 percent plinthite in some pedons

*Depth to chroma of 2 or less:* 2 to 8 inches

*Reaction:* Very strongly acid or strongly acid throughout, except where lime has been applied

*A or Ap horizon:*

Hue—10YR or 2.5Y

Value—3 or 4

Chroma—1 or 2

Texture—sand, loamy sand, or loamy fine sand

*E horizon:*

Hue—10YR or 2.5Y

Value—4 to 7

Chroma—1 or 2

Redoximorphic features—none to common in shades of brown, yellow, or gray

Texture—sand, loamy sand, or loamy fine sand

*Btg horizon, upper part:*

Hue—10YR to 5Y

Value—6 or 7

Chroma—1 or 2

Redoximorphic features—few to many in shades of red, brown, yellow, or gray

Texture—sandy loam or sandy clay loam

*Btg horizon, lower part:*

Hue—10YR to 5Y

Value—5 to 7

Chroma—1 or 2

Redoximorphic features—few to many in shades of brown, yellow, pink, or gray; or mottled in shades of red, brown, yellow, or gray

Texture—sandy clay loam or sandy clay

## Rembert Series

*Depth class:* Very deep

*Drainage class:* Poorly drained

*Permeability:* Slow

*Parent material:* Clayey and loamy marine sediments

*Seasonal high water table:* 1 foot above the surface to 1 foot below the surface, December to April

*Landscape:* Coastal Plain

*Landform:* Flood plains

*Landform position:* Depressions and drainageways

*Slope:* 0 to 2 percent

*Taxonomic class:* Fine, kaolinitic, thermic Typic Endoaquults

### Commonly Associated Soils

- Grady soils, which do not have a 20 percent or more decrease in clay content within a depth of 60 inches
- Lynchburg soils, which are somewhat poorly drained and have a fine-loamy subsoil
- Ocilla soils, which are somewhat poorly drained and have a sandy epipedon that ranges from 20 to 40 inches in thickness
- Pelham soils, which have a sandy epipedon that ranges from 20 to 40 inches in thickness

### Typical Pedon

Rembert sandy loam, frequently flooded; 1.2 miles east of Mount Pleasant on Jessie Brock Road from its intersection with Georgia Highway 97, about 150 feet south of the road; Decatur County; USGS Vada topographic quadrangle (1971); lat. 31 degrees 01 minute 20 seconds N. and long. 84 degrees 26 minutes 25 seconds W.

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) sandy loam; weak fine granular structure; very friable; common fine and medium and few coarse roots; very strongly acid; clear smooth boundary.

E—9 to 12 inches; grayish brown (10YR 5/2) sandy loam; weak fine subangular blocky structure; very friable; few fine, medium, and coarse roots; very strongly acid; clear wavy boundary.

Btg1—12 to 39 inches; dark gray (10YR 4/1) clay; moderate medium subangular blocky structure; firm; few fine, medium, and coarse roots; common distinct clay films on faces of peds; few fine prominent red (2.5YR 4/8) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; very strongly acid; clear wavy boundary.

Btg2—39 to 52 inches; dark gray (10YR 4/1) clay; moderate medium subangular blocky structure; firm; many prominent clay films on faces of peds;

common medium prominent brownish yellow (10YR 6/8) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; very strongly acid; clear wavy boundary.

BCg—52 to 65 inches; light gray (10YR 7/2) sandy clay loam; weak medium subangular blocky structure; firm; few fine prominent yellowish red (5YR 5/8) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; very strongly acid; gradual wavy boundary.

### Range in Characteristics

*Thickness of the solum:* 40 to more than 60 inches

*Thickness of the sandy epipedon:* Less than 20 inches

*Content of pebbles:* Less than 5 percent

*Concentrations:* Less than 5 percent

*Depth to chroma of 2 or less:* 4 to 6 inches

*Reaction:* Very strongly acid or strongly acid throughout, except where lime has been applied

*A or Ap horizon:*

Hue—10YR to 5Y

Value—2 to 5

Chroma—1 or 2

Texture—sandy loam

*E horizon (where present):*

Hue—10YR or 2.5Y

Value—3 to 5

Chroma—1 or 2

Texture—sandy loam

*Btg horizon:*

Hue—10YR to 5Y

Value—4 to 7

Chroma—1 or 2

Redoximorphic features—few to many in shades of red, brown, or yellow

Texture—clay loam, sandy clay, or clay

*BCg horizon:*

Hue—10YR to 5Y

Value—5 to 8

Chroma—1 or 2

Redoximorphic features—none to many in shades of red, brown, or yellow

Texture—sandy clay loam

## Tifton Series

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate in BtC horizon and moderately slow in Btv horizon

*Parent material:* Loamy marine sediments (fig. 15)

*Depth to the seasonal high water table:* 3½ to 5 feet,  
January through March

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Broad ridges and side slopes

*Slope:* 0 to 8 percent

*Taxonomic class:* Fine-loamy, kaolinitic, thermic  
Plinthic Kandiudults

### **Commonly Associated Soils**

- Orangeburg soils, which are redder in hue than the Tifton soils and are in the higher positions
- Carnegie soils, which are clayey
- Dothan soils, which have less than 5 percent ironstone nodules in the upper part of the solum
- Fuquay soils, which have a sandy surface layer that ranges from 20 to 40 inches in thickness
- Nankin soils, which are clayey and contain less than 5 percent plinthite

### **Typical Pedon**

Tifton loamy sand, 0 to 2 percent slopes; 9.5 miles northwest of Cairo on Georgia Highway 112 from its intersection with U.S. Highway 84, about 50 feet east of the highway; Grady County; USGS Whigham topographic quadrangle (1974); lat. 30 degrees 59 minutes 09 seconds N. and long. 84 degrees 15 minutes 25 seconds W.

*Apc*—0 to 8 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; about 10 percent, by volume, ironstone nodules; slightly acid; abrupt smooth boundary.

*Ec*—8 to 10 inches; yellowish brown (10YR 5/6) loamy sand; weak fine granular structure; very friable; about 12 percent, by volume, ironstone nodules; moderately acid; clear wavy boundary.

*Btc1*—10 to 22 inches; yellowish brown (10YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; about 12 percent, by volume, ironstone nodules; moderately acid; gradual wavy boundary.

*Btc2*—22 to 43 inches; brownish yellow (10YR 6/8) sandy clay loam; moderate medium subangular blocky structure; friable; about 8 percent, by volume, ironstone nodules; strongly acid; gradual wavy boundary.

*Btv1*—43 to 51 inches; brownish yellow (10YR 6/6) sandy clay loam; weak medium subangular blocky structure; friable; about 10 percent, by volume, nodular plinthite; about 1 percent, by volume, ironstone nodules; few fine faint brownish yellow (10YR 6/8) and common medium faint yellow (10YR 7/6) irregularly shaped masses of iron accumulation with

diffuse boundaries throughout; very strongly acid; clear wavy boundary.

*Btv2*—51 to 65 inches; brownish yellow (10YR 6/8) sandy clay loam; weak medium subangular blocky structure; friable; about 10 percent, by volume, plinthite; few fine faint yellow (10YR 7/8) irregularly shaped masses of iron accumulation with diffuse boundaries throughout; few medium prominent light gray (10YR 7/1) iron depletions with diffuse boundaries throughout; very strongly acid.

### **Range in Characteristics**

*Thickness of the solum:* 60 inches or more

*Thickness of the sandy epipedon:* Less than 20 inches

*Content of pebbles:* Less than 5 percent

*Concentrations:* 5 to 25 percent ironstone nodules in the A, Apc, or Ap horizon; 5 to 30 percent in the Ec, Btc1, and Btc2 horizons; 0 to 13 percent in the Btv1, Btv2, and BC horizons; and 5 percent or more nodular plinthite

*Depth to chroma of 2 or less:* 36 inches or more

*Reaction:* Very strongly acid to moderately acid, except where lime has been applied

*Ac or Apc horizon:*

Hue—10YR

Value—4

Chroma—2 or 3

Texture—loamy sand

*Ec horizon (where present):*

Hue—10YR or 2.5Y

Value—5 or 6

Chroma—4 to 6

Texture—loamy sand or sandy loam

*Btc horizon:*

Hue—7.5YR or 10YR

Value—5 or 6

Chroma—6 to 8

Redoximorphic features—none to common in shades of red or brown

Texture—sandy loam or sandy clay loam

*Btv horizon:*

Hue—10YR; or variegated in shades of red, brown, yellow, gray, or white

Value—5 or 6

Chroma—6 to 8

Redoximorphic features—few to many in shades of red, brown, yellow, or gray

Texture—sandy clay loam

*BC horizon (where present):*

Hue—variegated in shades of red, brown, yellow, or gray

Redoximorphic features—shades of red, brown, or gray  
Texture—sandy clay loam

## Troup Series

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Permeability:* Rapid in the A and E horizons and moderate in the Bt horizon

*Parent material:* Sandy and loamy marine sediments

*Depth to the seasonal high water table:* More than 6 feet

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Broad ridges and side slopes

*Slope:* 0 to 12 percent

*Taxonomic class:* Loamy, kaolinitic, thermic Grossarenic Kandiuults

### Commonly Associated Soils

- Blanton soils, which are more yellow than the Troup soils and have a seasonal high water table within a depth of 6 feet
- Lakeland soils, which are sandy to a depth of more than 80 inches and are excessively well drained
- Lucy soils, which have a sandy epipedon that ranges from 20 to 40 inches in thickness
- Orangeburg soils, which have a sandy epipedon that is less than 20 inches thick

### Typical Pedon

Troup loamy sand, 1 to 5 percent slopes; 5.9 miles northwest of Bainbridge on Bethel Road from its intersection with U.S. Highway 27, about 200 feet east of the road; Decatur County; USGS Brinson topographic quadrangle (1974); lat. 30 degrees 59 minutes 38 seconds N. and long. 84 degrees 40 minutes 24 seconds W.

Ap—0 to 8 inches; brown (10YR 5/3) loamy sand; weak fine granular structure; very friable; many fine roots; very strongly acid; abrupt smooth boundary.

E1—8 to 20 inches; yellowish brown (10YR 5/4) loamy sand; weak fine granular structure; very friable; few fine roots; very strongly acid; clear smooth boundary.

E2—20 to 32 inches; strong brown (7.5YR 5/6) loamy sand; weak fine granular structure; very friable; few fine roots; very strongly acid; gradual smooth boundary.

E3—32 to 52 inches; yellowish red (5YR 5/8) loamy sand; weak fine granular structure; very friable; very strongly acid; clear wavy boundary.

Bt—52 to 80 inches; yellowish red (5YR 5/8) sandy clay loam; weak fine subangular blocky structure; very friable; very strongly acid.

### Range in Characteristics

*Thickness of the solum:* 80 inches or more

*Thickness of the sandy epipedon:* 40 to 80 inches

*Content of rock quartz:* Less than 10 percent pebbles

*Concentrations:* Less than 5 percent

*Depth to chroma of 2 or less:* More than 6 feet

*Reaction:* Very strongly acid or strongly acid throughout, except where lime has been applied

*A or Ap horizon:*

Hue—7.5YR or 10YR

Value—3 to 5

Chroma—2 or 3

Texture—loamy sand

*E horizon:*

Hue—5YR to 10YR

Value—4 to 6

Chroma—4 to 8

Texture—loamy fine sand, loamy sand, or sand

*BE horizon (where present):*

Hue—5YR or 7.5YR

Value—5 or 6

Chroma—6 to 8

Texture—sandy loam

*Bt horizon:*

Hue—2.5YR to 7.5YR

Value—4 to 6

Chroma—6 to 8

Texture—sandy loam or sandy clay loam

## Wagram Series

*Depth class:* Very deep

*Drainage class:* Well drained

*Permeability:* Moderate

*Parent material:* Loamy marine sediments

*Depth to the seasonal high water table:* More than 6 feet

*Landscape:* Coastal Plain

*Landform:* Uplands

*Landform position:* Ridges and adjacent side slopes

*Slope:* 0 to 5 percent

*Taxonomic class:* Loamy, kaolinitic, thermic Arenic Kandiuults

### Commonly Associated Soils

- Bonneau soils, which have mottles indicating wetness within a depth of 60 inches

- Fuquay soils, which have a layer containing 5 percent or more plinthite
- Lucy soils, which have a Bt horizon with redder hues than the Bt horizon of the Wagram soils
- Norfolk soils, which have a sandy surface layer that is less than 20 inches thick

### **Typical Pedon**

Wagram loamy sand, 0 to 5 percent slopes; 10.7 miles south on Georgia highway 91 from its intersection with Georgia highway 37, about 0.5 mile southeast on Itchaway Plantation Road, and 50 feet north of the road; Baker County; USGS Hopeful topographic quadrangle (1971); lat. 31 degrees 12 minutes 30 seconds N. and long. 84 degrees 27 minutes 44 seconds W.

- A—0 to 6 inches; grayish brown (2.5Y 5/2) loamy sand; weak fine granular structure; very friable; common fine and medium roots; slightly acid; clear smooth boundary.
- E1—6 to 19 inches; light yellowish brown (10YR 6/4) loamy sand; weak fine granular structure; very friable; common fine and medium roots; strongly acid; gradual wavy boundary.
- E2—19 to 28 inches; light yellowish brown (10YR 6/4) loamy sand; moderate medium granular structure; very friable; common fine and medium roots; strongly acid; gradual wavy boundary.
- Bt1—28 to 34 inches; brownish yellow (10YR 6/6) sandy loam; weak fine subangular blocky structure; very friable; few fine roots; strongly acid; gradual wavy boundary.
- Bt2—34 to 46 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; few faint clay films on faces of peds; few fine roots; strongly acid; gradual wavy boundary.
- Bt3—46 to 80 inches; yellowish brown (10YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; few fine roots; few medium distinct strong brown (7.5YR 5/8) relic iron accumulations; strongly acid.

### **Range in Characteristics**

*Thickness of the solum:* 60 to 80 inches  
*Thickness of the sandy epipedon:* 20 to 40 inches  
*Content of pebbles:* Less than 5 percent  
*Concentrations:* Less than 2 percent  
*Depth to chroma of 2 or less:* More than 60 inches  
*Reaction:* Very strongly acid or strongly acid throughout, except where lime has been applied

### **A or Ap horizon:**

Hue—10YR, 2.5Y, or neutral  
 Value—4 to 6  
 Chroma—0 to 4  
 Texture—loamy sand, loamy fine sand, or sand

### **E horizon:**

Hue—10YR or 2.5Y  
 Value—5 to 7  
 Chroma—2 to 4  
 Texture—loamy sand or loamy fine sand

### **Bt horizon:**

Hue—7.5YR to 2.5Y  
 Value—5 or 6  
 Chroma—4 to 8  
 Relic redoximorphic features—shades of red, brown, or yellow in the lower part  
 Texture—sandy loam or sandy clay loam

### **BC horizon (where present):**

Hue—7.5YR to 2.5Y; or variegated in shades red, brown, or yellow  
 Value—5 to 7  
 Chroma—1 to 8  
 Relic redoximorphic features—shades of red, brown, or yellow in the lower part  
 Texture—sandy loam

## **Wahee Series**

*Depth class:* Very deep

*Drainage class:* Somewhat poorly

*Permeability:* Slow

*Parent material:* Clayey marine sediments

*Depth to the seasonal high water table:* 1 to 1½ feet

*Landscape:* Coastal Plain

*Landform:* Stream terraces

*Landform position:* Shallow depressions

*Slope:* 0 to 2 percent

*Taxonomic class:* Fine, mixed, semiactive, thermic  
 Aeric Endoaquults

### **Commonly Associated Soils**

- Blanton soils, which are in the higher positions, are well drained, and have a sandy epipedon that ranges from 40 to 80 inches in thickness
- Hornsville soils, which are moderately well drained
- Grady soils, which are poorly drained and are in the lower positions

### **Typical Pedon**

Wahee fine sandy loam, 0 to 2 percent slopes, occasionally flooded; 1.85 miles north of Bainbridge

on Georgia Highway 311 from its intersection with Georgia Highway 97, about 250 feet west of the highway; Decatur County; USGS Bainbridge topographic quadrangle (1974); lat. 30 degrees 56 minutes 32 seconds N. and long. 84 degrees 32 minutes 52 seconds W.

A—0 to 6 inches; dark grayish brown (10YR 4/2) fine sandy loam; single grained; loose; many fine and medium roots; strongly acid; abrupt smooth boundary.

Bt1—6 to 10 inches; light yellowish brown (10YR 6/4) sandy clay loam; moderate medium subangular blocky structure; very friable; common fine and medium roots; strongly acid; gradual wavy boundary.

Bt2—10 to 18 inches; pale brown (10YR 6/3) sandy clay; moderate medium subangular blocky structure; firm; common fine and medium roots; few fine prominent light gray (10YR 7/1) irregularly shaped iron depletions with diffuse boundaries throughout; strongly acid; gradual wavy boundary.

Bt3—18 to 22 inches; pale brown (10YR 6/3) sandy clay; moderate medium subangular blocky structure; firm; few fine and common medium roots; few fine prominent red (2.5YR 5/8) irregular shaped masses of iron accumulation with diffuse boundaries; light gray (10YR 7/1) irregularly shaped iron depletions with diffuse boundaries throughout; strongly acid; gradual wavy boundary.

Btg1—22 to 28 inches; light gray (10YR 7/1) clay; moderate medium subangular blocky structure; firm; few fine roots; few fine prominent red (2.5YR 5/8) and yellow (10YR 8/8) irregular shaped masses of iron accumulation with diffuse boundaries; very strongly acid; gradual wavy boundary.

Btg2—28 to 45 inches; light gray (10YR 7/1) sandy clay; moderate medium subangular blocky structure; firm; few fine prominent light brown (7.5YR 6/4) and yellow (10YR 8/8) irregular shaped masses of iron accumulation with diffuse boundaries; very strongly acid; gradual wavy boundary.

Btg3—45 to 55 inches; light gray (10YR 7/1) sandy clay; weak medium subangular blocky structure; friable; few fine prominent light brown (7.5YR 6/4) and yellow (10YR 8/8) irregular shaped masses of iron accumulation with diffuse boundaries; very strongly acid; gradual wavy boundary.

BCg—55 to 65 inches; light gray (10YR 7/1) sandy

clay loam; weak medium subangular blocky structure; friable; many fine prominent light brown (10YR 6/4) irregular shaped masses of iron accumulation with diffuse boundaries; very strongly acid.

### **Range in Characteristics**

*Thickness of the solum:* 30 to more than 60 inches

*Depth to chroma of 2 or less:* 12 to 18 inches

*Reaction:* Very strongly acid to moderately acid in the surface horizon, except where lime has been applied, and extremely acid to strongly acid throughout the rest of the profile

*A or Ap horizon:*

Hue—10YR, 2.5Y, or neutral

Value—2 to 5

Chroma—0 to 3

Texture—fine sandy loam, sandy loam, or loamy sand

*E horizon (where present):*

Hue—10YR to 5Y

Value—5 to 7

Chroma—2 to 4

Texture—loamy sand or sandy loam

*Bt horizon:*

Hue—10YR to 5Y

Value—5 to 7

Chroma—3 to 8

Redoximorphic features—iron accumulations in shades of red, yellow, or brown and iron depletions in shades of gray or white  
Texture—clay, clay loam, or sandy clay

*Btg horizon:*

Hue—10YR to 5Y or neutral

Value—4 to 7

Chroma—0 to 2

Redoximorphic features—iron accumulations in shades of red, yellow, or brown and iron depletions in shades of gray or white  
Texture—clay, clay loam, or sandy clay

*BCg horizon (where present):*

Hue—10YR to 5Y or neutral

Value—5 to 7

Chroma—0 to 2

Redoximorphic features—iron accumulations in shades of red, yellow, or brown and iron depletions in shades of gray or white  
Texture—clay loam, sandy clay, or sandy clay loam



# Formation of the Soils

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Soil characteristics are determined by the physical and mineral composition of the parent material; the climate under which the parent material accumulated and has existed since accumulation; the plant and animal life on and in the soil; the relief, or lay of the land; and the length of time that the forces of soil formation have acted on the soil material (Jenny, 1941). All of these factors influence every soil, but the significance of each factor varies from place to place. In one area, one factor may dominate soil formation; in another area, a different factor may be the most important. The interrelationships among these five factors are complex and the effects of any one factor cannot be isolated and completely evaluated. It is convenient, however, to discuss each factor separately and to indicate the probable effects of each.

## Parent Material

Parent material is the unconsolidated mass in which soil forms. The chemical and mineralogical composition of the soil is largely derived from the parent material. Grady County is underlain by Coastal Plain sedimentary rock (GDNR, 1976). Sandy to clayey marine sediments overlie the rock.

The Flint River Formation makes up the parent material for the upland soils in the northwestern part of Grady County. The dominant soils that formed in this material are characterized by brownish, sandy surface and subsurface layers and a brownish or reddish subsoil. Tifton, Norfolk, Fuquay, and Orangeburg soils are the main soils that formed on uplands.

The Hawthorn Formation of the Tertiary Period underlies the majority of Grady County. The Tifton, Dothan, and Fuquay soils are the main soils that formed in these materials. These soils are characterized by a predominantly yellowish brown, loamy subsoil that contains plinthite, which is a kind of iron concentration. Cowarts, Nankin, and Gritney soils also formed in material from the Hawthorn Formation. They also have a subsoil that is predominantly yellowish brown but are not as deeply developed as the Tifton, Dothan, and Fuquay soils and commonly have dense layers beneath the subsoil.

Stream alluvium is adjacent to all the streams in the survey area. The alluvium is most extensive on the flood plain along the Ochlocknee River. Soils that formed in alluvium formed in more recent sediments than soils that formed on uplands. Osier and Bibb soils formed in sandy and loamy alluvium along the Ochlocknee River and the larger creeks in the county.

## Climate

The present climate of the survey area is probably similar to the climate that existed as the soils formed. The relatively high rainfall and warm temperature contribute to rapid soil formation and are the most important climatic features related to soil properties. Water from precipitation is essential in the formation of soil. Water dissolves soluble materials and is used by plants and animals. It transports material from one part of the soil to another part or from one area to another area. Soils in the survey area formed under a thermic temperature regime; that is, with a mean soil temperature at a depth of 20 inches of 59 to 72 degrees Fahrenheit. The rate of chemical reactions and other processes in the soil depends to some extent on temperature. In addition, temperature affects the type and quantity of vegetation, the amount and kind of organic matter, and the rate of decomposition of organic matter.

## Plants and Animals

The role of plants, animals, and other organisms is significant in soil formation. Plants and animals increase the amounts of organic matter and nitrogen, increase or decrease the content of plant nutrients, and change soil structure and porosity. Plants recycle nutrients, accumulate organic matter, and provide food and cover for animals. Plants stabilize the surface layer so that soil-forming processes can continue. Vegetation also provides a more stable environment for soil-forming processes by protecting the soils from extremes in temperature.

The soils in the survey area formed under a succession of briars, brambles, and woody plants that yielded to pines and hardwood trees. Later, the

hardwoods suppressed most of the other plants and became the climax vegetation.

Animals rearrange soil material by roughening the surface, forming and filling channels, and shaping peds and voids. The soil is mixed by ants, wasps, worms, and spiders that make channels; by crustacea, such as crabs and crayfish; and by turtles and foxes that dig burrows. Humans affect the soil-forming process by tilling, removing natural vegetation, establishing different plants, and reducing or increasing soil fertility. Bacteria, fungi, and other microorganisms increase the rate of decomposition of organic matter and increase the release of minerals for plant growth. The net gains and losses caused by plants and animals in the soil-forming process are important in the survey area. However, the relationship between plants and animals, climate, and parent materials is very close; therefore, the soils do not differ significantly because of plants and animals.

## Relief

Relief is the elevations, or inequalities, of land surface considered collectively. The color of the soil, wetness, thickness of the A horizon, content of organic matter, and plant cover are commonly related to relief. In the survey area, the most obvious effects of relief are the differences in the colors of the soils and the degree of soil wetness. Dothan and Tifton soils primarily have a yellowish brown subsoil, and Grady, Pelham, and Rains soils primarily are gray throughout the subsoil. This color difference results from a difference in relief and a corresponding difference in internal drainage. Dothan and Tifton soils

are in higher areas and are better drained than the other soils; therefore, the soil material is better oxidized and the subsoil is browner. The movement of water across the surface and through the soil is controlled to a large extent by relief. Water flowing over the soil commonly carries solid particles and results in either erosion or deposition, depending on the kind of relief. More water runs off sloping areas and less water enters the soil, so the soils are drier in the steeper areas. Lower-lying areas receive the water that flows off and through the higher soils. The lower-lying areas are commonly wetter than the other areas.

## Time

The length of time that soil-forming factors act on the parent material determines to a large degree the characteristics of the soil. Most of the soils in the survey area are considered mature. A mature soil is in equilibrium with the environment. It has readily recognized pedogenic horizons and a regular decrease in content of carbon with increasing depth. Some areas of Dothan and Tifton soils are on broad, stable landscapes where the soil-forming processes have been active for thousands of years. These mature soils have a thick solum and a well expressed zone of illuviation.

Osier and Bibb soils receive sediment annually from flood water. These young soils are stratified and are not old enough to have a zone of illuviation. Young soils do not have well-developed pedogenic horizons. The content of carbon decreases irregularly with increasing depth.

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# Glossary

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**Aeration, soil.** The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

**Aggregate, soil.** Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

**Alluvium.** Material, such as sand, silt, or clay, deposited on land by streams.

**Alpha,alpha-dipyridyl.** A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

**Animal unit month (AUM).** The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

**Aquic conditions.** Current soil wetness characterized by saturation, reduction, and redoximorphic features.

**Argillic horizon.** A subsoil horizon characterized by an accumulation of illuvial clay.

**Aspect.** The direction in which a slope faces.

**Association, soil.** A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

**Available water capacity (available moisture capacity).** The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low .....	0 to 3
Low .....	3 to 6
Moderate .....	6 to 9
High .....	9 to 12
Very high .....	more than 12

**Backslope.** The position that forms the steepest and generally linear, middle portion of a hillslope. In

profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

**Basal area.** The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

**Base saturation.** The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

**Bedding planes.** Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

**Bedding system.** A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

**Bedrock.** The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

**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.

**Breaks.** The steep and very steep broken land at the border of an upland summit that is dissected by ravines.

**Breast height.** An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

**Brush management.** Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

**Cable yarding.** A method of moving felled trees to a nearby central area for transport to a

processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

**California bearing ratio (CBR).** The load-supporting capacity of a soil as compared to that of 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.

**Canopy.** The leafy crown of trees or shrubs. (See Crown.)

**Capillary water.** Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

**Catena.** A sequence, or “chain,” of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

**Cation.** An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

**Cation-exchange capacity.** The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

**Chemical treatment.** Control of unwanted vegetation through the use of chemicals.

**Chiseling.** Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

**Clay.** As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

**Clay depletions.** Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

**Clay film.** A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

**Claypan.** A slowly permeable soil horizon that

contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

**Climax plant community.** The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

**Coarse textured soil.** Sand or loamy sand.

**Cobble (or cobblestone).** A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

**Cobbly soil material.** Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

**COLE (coefficient of linear extensibility).** See Linear extensibility.

**Complex slope.** Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

**Complex, soil.** A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

**Concretions.** Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

**Conglomerate.** A coarse grained, clastic rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

**Conservation cropping system.** Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system

include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

**Conservation tillage.** A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

**Consistence, soil.** Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

**Contour stripcropping.** Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

**Control section.** The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

**Corrosion.** Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

**Cover crop.** A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

**Cropping system.** Growing crops according to a planned system of rotation and management practices.

**Crop residue management.** Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

**Crown.** The upper part of a tree or shrub, including the living branches and their foliage.

**Culmination of the mean annual increment (CMAI).** The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

**Cutbanks cave** (in tables). The walls of excavations tend to cave in or slough.

**Decreasers.** The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

**Deferred grazing.** Postponing grazing or resting grazing land for a prescribed period.

**Dense layer** (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

**Depth, soil.** Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

**Diversion (or diversion terrace).** A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

**Divided-slope farming.** A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

**Drainage class** (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained*. These classes are defined in the "Soil Survey Manual."

**Drainage, surface.** Runoff, or surface flow of water, from an area.

**Draw.** A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.

**Duff.** A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

**Ecological site.** An area where climate, soil, and

relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

**Eluviation.** The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

**Endosaturation.** A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

**Ephemeral stream.** A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

**Episaturation.** A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

**Erosion.** The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

*Erosion (geologic).* Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

*Erosion (accelerated).* Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

**Escarpment.** A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

**Fallow.** Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

**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, tillage, and other growth factors are favorable.

**Field moisture capacity.** The moisture content of a

soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity*, *normal moisture capacity*, or *capillary capacity*.

**Fill slope.** A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

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

**Firebreak.** Area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

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

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

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

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

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

**Foothill.** A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.

**Footslope.** The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

**Forb.** Any herbaceous plant not a grass or a sedge.

**Forest cover.** All trees and other woody plants (underbrush) covering the ground in a forest.

**Forest type.** A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

**Fragipan.** A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above.

When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

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

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

**Graded stripcropping.** Growing crops in strips that grade toward a protected waterway.

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

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

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

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

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

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

**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.

**Hard to reclaim** (in tables). Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

**Head slope.** A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

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

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

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

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

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

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

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

**Humus.** The well decomposed, more or less stable part of the organic matter in mineral soils.

**Hydrologic soil groups.** Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable

layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

**Illuviation.** The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

**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.

**Increasesers.** Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasesers commonly are the shorter plants and the less palatable to livestock.

**Infiltration.** The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

**Infiltration capacity.** The maximum rate at which water can infiltrate into a soil under a given set of conditions.

**Infiltration rate.** The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

**Intake rate.** The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2 .....	very low
0.2 to 0.4 .....	low
0.4 to 0.75 .....	moderately low
0.75 to 1.25 .....	moderate
1.25 to 1.75 .....	moderately high
1.75 to 2.5 .....	high
More than 2.5 .....	very high

**Interfluve.** An elevated area between two drainageways that sheds water to those drainageways.

**Intermittent stream.** A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

**Invaders.** On range, plants that encroach into an area and grow after the climax vegetation has been

reduced by grazing. Generally, plants invade following disturbance of the surface.

**Iron depletions.** Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

**Irrigation.** Application of water to soils to assist in production of crops. Methods of irrigation are: *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.

**Karst (topography).** The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

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

**K<sub>sat</sub>.** Saturated hydraulic conductivity. (See Permeability.)

**Lacustrine deposit.** Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

**Leaching.** The removal of soluble material from soil or other material by percolating water.

**Linear extensibility.** Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at  $1/3$ - or  $1/10$ -bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

**Liquid limit.** The moisture content at which the soil passes from a plastic to a liquid state.

**Loam.** Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

**Low-residue crops.** Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

**Low strength.** The soil is not strong enough to support loads.

**Marl.** An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal amounts.

**Masses.** Concentrations of substances in the soil

matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

**Mechanical treatment.** Use of mechanical equipment for seeding, brush management, and other management practices.

**Medium textured soil.** Very fine sandy loam, loam, silt loam, or silt.

**Mineral soil.** Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

**Minimum tillage.** Only the tillage essential to crop production and prevention of soil damage.

**Miscellaneous area.** An area that has little or no natural soil and supports little or no vegetation.

**Moderately coarse textured soil.** Coarse sandy loam, sandy loam, or fine sandy loam.

**Moderately fine textured soil.** Clay loam, sandy clay loam, or silty clay loam.

**Mollic epipedon.** A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

**Morphology, soil.** The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

**Mottling, soil.** Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few*, *common*, and *many*; size—*fine*, *medium*, and *coarse*; and contrast—*faint*, *distinct*, and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

**Munsell notation.** A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

**Neutral soil.** A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

**Nodules.** Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and

manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

**Nutrient, plant.** Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

**Organic matter.** Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low .....	less than 0.5 percent
Low .....	0.5 to 1.0 percent
Moderately low .....	1.0 to 2.0 percent
Moderate .....	2.0 to 4.0 percent
High .....	4.0 to 8.0 percent
Very high .....	more than 8.0 percent

**Paleoterrace.** An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.

**Pan.** A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan*, *fragipan*, *claypan*, *plowpan*, and *traffic pan*.

**Parent material.** The unconsolidated organic and mineral material in which soil forms.

**Ped.** An individual natural soil aggregate, such as a granule, a prism, or a block.

**Pedon.** The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

**Percolation.** The movement of water through the soil.

**Permeability.** The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as “saturated hydraulic conductivity,” which is defined in the “Soil Survey Manual.” In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as “permeability.” Terms describing permeability, measured in inches per hour, are as follows:

Impermeable .....	less than 0.0015 inch
Very slow .....	0.0015 to 0.06 inch
Slow .....	0.06 to 0.2 inch
Moderately slow .....	0.2 to 0.6 inch
Moderate .....	0.6 inch to 2.0 inches
Moderately rapid .....	2.0 to 6.0 inches
Rapid .....	6.0 to 20 inches
Very rapid .....	more than 20 inches

**Phase, soil.** A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

**pH value.** A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

**Piping** (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

**Plasticity index.** The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

**Plastic limit.** The moisture content at which a soil changes from semisolid to plastic.

**Plinthite.** The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

**Plowpan.** A compacted layer formed in the soil directly below the plowed layer.

**Ponding.** Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

**Poorly graded.** Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

**Potential native plant community.** See Climax plant community.

**Potential rooting depth (effective rooting depth).** Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

**Prescribed burning.** Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

**Productivity, soil.** The capability of a soil for

producing a specified plant or sequence of plants under specific management.

**Profile, soil.** A vertical section of the soil extending through all its horizons and into the parent material.

**Proper grazing use.** Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

**Rangeland.** Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

**Reaction, soil.** A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid .....	less than 3.5
Extremely acid .....	3.5 to 4.4
Very strongly acid .....	4.5 to 5.0
Strongly acid .....	5.1 to 5.5
Moderately acid .....	5.6 to 6.0
Slightly acid .....	6.1 to 6.5
Neutral .....	6.6 to 7.3
Slightly alkaline .....	7.4 to 7.8
Moderately alkaline .....	7.9 to 8.4
Strongly alkaline .....	8.5 to 9.0
Very strongly alkaline .....	9.1 and higher

**Redoximorphic concentrations.** Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

**Redoximorphic depletions.** Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

**Redoximorphic features.** Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of

iron and manganese compounds resulting from saturation.

**Reduced matrix.** A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II).

The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

**Regolith.** The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

**Relief.** The elevations or inequalities of a land surface, considered collectively.

**Residuum (residual soil material).** Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

**Rill.** A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

**Road cut.** A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

**Rock fragments.** Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

**Root zone.** The part of the soil that can be penetrated by plant roots.

**Runoff.** The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

**Sand.** As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

**Saturation.** Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

**Scarification.** The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

**Second bottom.** The first terrace above the normal flood plain (or first bottom) of a river.

**Sequum.** A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

**Series, soil.** A group of soils that have profiles that

are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

**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 position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

**Shrink-swell (in tables).** The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

**Side slope.** A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

**Silica.** A combination of silicon and oxygen. The mineral form is called quartz.

**Silt.** As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

**Siltstone.** Sedimentary rock made up of dominantly silt-sized particles.

**Similar soils.** Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

**Sinkhole.** A depression in the landscape where limestone has been dissolved.

**Site index.** A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

**Slickensides.** Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

**Slope.** The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a

drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level .....	0 to 2 percent
Gently sloping .....	2 to 5 percent
Moderately sloping .....	5 to 8 percent
Strongly sloping .....	8 to 12 percent
Moderately steep .....	12 to 25 percent
Steep .....	25 to 35 percent
Very steep .....	35 percent and higher

**Sloughed till.** Water-saturated till that has flowed slowly downhill from its original place of deposit by glacial ice. It may rest on other till, on glacial outwash, or on a glaciolacustrine deposit.

**Slow refill** (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

**Soil.** A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

**Soil separates.** Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand .....	2.0 to 1.0
Coarse sand .....	1.0 to 0.5
Medium sand .....	0.5 to 0.25
Fine sand .....	0.25 to 0.10
Very fine sand .....	0.10 to 0.05
Silt .....	0.05 to 0.002
Clay .....	less than 0.002

**Solum.** The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

**Stone line.** A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

**Stones.** Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

**Stony.** Refers to a soil containing stones in numbers that interfere with or prevent tillage.

**Stripcropping.** Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

**Structure, soil.** The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

**Stubble mulch.** Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

**Subsoil.** Technically, the B horizon; roughly, the part of the solum below plow depth.

**Subsoiling.** Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

**Substratum.** The part of the soil below the solum.

**Subsurface layer.** Any surface soil horizon (A, E, AB, or EB) below the surface layer.

**Summer fallow.** The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

**Summit.** The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

**Surface layer.** The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

**Surface soil.** The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

**Taxadjuncts.** Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only

when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

**Terrace.** An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

**Terrace** (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

**Texture, soil.** The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, and clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

**Thin layer** (in tables). Otherwise suitable soil material that is too thin for the specified use.

**Tilth, soil.** The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

**Toeslope.** The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

**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, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

**Upland.** Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

**Variation.** Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

**Water bars.** Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

**Weathering.** All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

**Well graded.** Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

**Wilting point (or permanent wilting point).** The moisture content of soil, on an oven-dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

**Windthrow.** The uprooting and tipping over of trees by the wind.



# Tables

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Table 1.--Temperature and Precipitation  
 [Recorded in the period 1961-90 at Camilla, Georgia]

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temp. higher than--	Minimum temp. lower than--			Less than--	More than--		
°F	°F	°F	°F	°F	Units	In	In	In	In	In	
January----	61.4	38.4	49.9	80	13	124	5.19	2.89	7.23	7	0.0
February---	65.5	40.9	53.2	83	20	155	4.96	3.03	6.70	6	.1
March-----	73.5	47.7	60.6	88	27	343	5.73	3.42	7.80	6	.0
April-----	80.9	53.7	67.3	93	36	518	3.94	1.23	6.15	4	.0
May-----	87.1	61.3	74.2	98	46	751	4.24	1.52	6.50	5	.0
June-----	91.6	67.9	79.8	101	55	888	5.27	2.67	7.55	6	.0
July-----	93.0	70.4	81.7	103	61	983	5.94	3.17	8.38	8	.0
August-----	92.5	70.4	81.5	100	61	975	4.78	2.92	6.46	7	.0
September--	89.0	66.5	77.8	98	49	833	2.99	1.08	4.57	4	.0
October----	81.2	54.9	68.0	94	33	558	2.14	0.85	3.81	3	.0
November---	71.9	46.8	59.4	86	25	302	3.00	1.72	4.14	4	.0
December---	64.3	41.0	52.6	82	17	167	4.34	2.66	5.85	6	.0
Yearly:											
Average---	79.3	55.0	67.2	---	---	---	---	---	---	---	---
Extreme---	107	2	---	103	11	---	---	---	---	---	---
Total-----	---	---	---	---	---	6,598	52.53	44.86	59.91	66	.1

\* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 degrees F).

Table 2.--Freeze Dates in Spring and Fall  
 [Recorded in the period 1961-90 at Camilla, Georgia]

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
<b>Last freezing temperature in spring:</b>			
1 year in 10 later than--	Feb. 24	Mar. 18	Mar. 30
2 years in 10 later than--	Feb. 17	Mar. 10	Mar. 23
5 years in 10 later than--	Feb. 3	Feb. 23	Mar. 10
<b>First freezing temperature in fall:</b>			
1 year in 10 earlier than--	Nov. 22	Nov. 11	Oct. 26
2 years in 10 earlier than--	Dec. 2	Nov. 18	Nov. 1
5 years in 10 earlier than--	Dec. 20	Dec. 3	Nov. 14

Table 3.--Growing Season

[Recorded in the period 1961-90 at Camilla, Georgia]

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	<i>Days</i>	<i>Days</i>	<i>Days</i>
9 years in 10	279	244	220
8 years in 10	294	257	230
5 years in 10	321	283	248
2 years in 10	349	308	267
1 year in 10	363	321	277

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Map unit name	Acres	Percent
BgB	Bigbee loamy fine sand, 0 to 5 percent slopes, rarely flooded-----	368	0.1
BlB	Blanton loamy sand, 0 to 5 percent slopes-----	6,864	2.3
BlD	Blanton loamy sand, 5 to 12 percent slopes-----	1,297	0.4
BoB	Bonneau loamy sand, 0 to 5 percent slopes-----	13,651	4.6
BoD	Bonneau loamy sand, 5 to 12 percent slopes-----	1,526	0.5
CaB	Carnegie gravelly sandy loam, 2 to 5 percent slopes-----	1,929	0.7
CaC	Carnegie gravelly sandy loam, 5 to 8 percent slopes-----	7,782	2.6
CgC	Cowarts-Gritney complex, 5 to 8 percent slopes-----	4,606	1.6
CgD	Cowarts-Gritney complex, 8 to 12 percent slopes-----	1,300	0.4
DoA	Dothan loamy sand, 0 to 2 percent slopes-----	5,521	1.9
DoB	Dothan loamy sand, 2 to 5 percent slopes-----	16,000	5.4
FeA	Faceville sandy loam, 0 to 2 percent slopes-----	1,354	0.5
FeB	Faceville sandy loam, 2 to 5 percent slopes-----	16,538	5.6
FeC	Faceville sandy loam, 5 to 8 percent slopes-----	3,395	1.2
FuB	Fuquay loamy sand, 0 to 5 percent slopes-----	3,958	1.3
GoA	Goldsboro loamy sand, 0 to 2 percent slopes-----	7,180	2.4
GrA	Grady sandy loam, ponded-----	5,112	1.7
HvA	Hornsville fine sandy loam, 0 to 2 percent slopes-----	41	*
LkB	Lakeland sand, 0 to 5 percent slopes-----	94	*
LkD	Lakeland sand, 5 to 12 percent slopes-----	88	*
LmB	Lucy loamy sand, 0 to 5 percent slopes-----	2,194	0.7
LmC	Lucy loamy sand, 5 to 8 percent slopes-----	858	0.3
LnA	Lynchburg fine sandy loam, 0 to 2 percent slopes-----	4,498	1.5
NaB	Nankin loamy fine sand, 2 to 5 percent slopes-----	8,920	3.0
NcC	Nankin-Cowarts complex, 5 to 8 percent slopes-----	26,250	8.9
NcD	Nankin-Cowarts complex, 8 to 12 percent slopes-----	6,133	2.1
NoA	Norfolk loamy sand, 0 to 2 percent slopes-----	3,262	1.1
NoB	Norfolk loamy sand, 2 to 5 percent slopes-----	4,604	1.6
NoC	Norfolk loamy sand, 5 to 8 percent slopes-----	150	*
OcA	Ocilla loamy fine sand, 0 to 2 percent slopes-----	7,505	2.6
OeA	Orangeburg loamy sand, 0 to 2 percent slopes-----	474	0.2
OeB	Orangeburg loamy sand, 2 to 5 percent slopes-----	8,487	2.9
OeC	Orangeburg loamy sand, 5 to 8 percent slopes-----	4,409	1.5
OeD	Orangeburg loamy sand, 8 to 12 percent slopes-----	483	0.2
OSA	Osier and Bibb soils, frequently flooded-----	35,750	12.1
PeA	Pelham loamy fine sand, frequently flooded-----	11,285	3.8
ReA	Rembert sandy loam, frequently flooded-----	1,050	0.4
TfA	Tifton loamy sand, 0 to 2 percent slopes-----	15,600	5.3
TfB	Tifton loamy sand, 2 to 5 percent slopes-----	46,490	15.8
TfC	Tifton loamy sand, 5 to 8 percent slopes-----	936	0.3
TrB	Troup loamy sand, 0 to 5 percent slopes-----	341	0.1
TrD	Troup loamy sand, 5 to 12 percent slopes-----	150	*
Ud	Udorthents, loamy-----	267	*
Up	Udorthents-Pits complex-----	115	*
UtC	Urban land-Tifton complex, 0 to 8 percent slopes-----	1,432	0.5
W	Water-----	3,787	1.3
WaB	Wagram loamy sand, 0 to 5 percent slopes-----	81	*
WhA	Wahee fine sandy loam, 0 to 2 percent slopes, occasionally flooded-----	185	*
	Total-----	294,300	100.0

\* Less than 0.1 percent.

Table 5.--Land Capability and Yields per Acre of Crops and Pasture

[Yields in the "N" columns are for nonirrigated areas; those in the "I" columns are for irrigated areas. 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		Cotton lint		Improved bermudagrass		Peanuts		Soybeans	
	N	I	N	I	N	I	N	I	N	I	N	I
			Bu	Bu	Lbs	Lbs	AUM	AUM	Lbs	Lbs	Bu	Bu
BgB: Bigbee-----	3s	---	50	150	500	600	10	25	---	---	25	45
BlB: Blanton-----	3s	---	60	150	500	600	8	10	2,200	3,200	25	45
BlD: Blanton-----	4s	---	50	130	500	600	7.5	8.5	2,000	3,000	20	40
BoB: Bonneau-----	2s	---	85	180	700	900	8.5	10.5	2,900	3,500	30	50
BoD: Bonneau-----	3s	---	80	175	600	800	8	10	2,300	3,200	25	40
CaB: Carnegie-----	2e	---	75	105	750	850	9	10	3,200	4,300	35	35
CaC: Carnegie-----	3e	---	65	90	500	600	6.5	8.5	3,200	3,800	30	35
CgC: Cowarts-----	3e	---	70	120	600	700	7.5	12	1,800	2,200	25	35
Gritney-----	4e	---	80	150	550	650	5	7	2,600	3,000	24	34
CgD: Cowarts-----	6e	---	---	---	---	---	7	12	---	---	---	---
Gritney-----	6e	---	---	---	---	---	4	7	---	---	---	---
DoA: Dothan-----	1	---	120	190	900	1,100	10.5	14	3,800	5,000	40	50
DoB: Dothan-----	2e	---	120	190	900	1,100	10.5	14	3,600	5,000	35	50
FeA: Faceville-----	1	---	115	185	875	1,050	10	12.5	4,000	4,750	45	50

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Corn		Cotton lint		Improved bermudagrass		Peanuts		Soybeans	
	N	I	N	I	N	I	N	I	N	I	N	I
			Bu	Bu	Lbs	Lbs	AUM	AUM	Lbs	Lbs	Bu	Bu
FeB: Faceville-----	2e	---	115	185	875	1,050	10	12.5	4,000	4,750	45	50
FeC: Faceville-----	3e	---	90	135	650	700	9.5	12	3,000	3,800	30	40
FuB: Fuquay-----	2s	---	85	180	650	800	8.5	10.5	2,900	3,500	30	45
GoA: Goldsboro-----	2w	---	125	200	700	7,200	10	12	3,600	3,900	42	55
GrA: Grady-----	5w	---	---	---	---	---	---	---	---	---	---	---
HvA: Hornsville-----	2w	---	100	160	600	700	12	13	3,300	3,800	40	50
LkB: Lakeland-----	4s	---	55	160	---	---	7	9.5	2,000	3,500	20	40
LkD: Lakeland-----	6s	---	---	---	---	---	6.5	8.5	---	---	---	---
LmB: Lucy-----	2s	---	80	180	650	800	8	10.5	3,000	4,500	33	50
LmC: Lucy-----	3s	---	70	160	600	750	7.5	10.5	2,500	3,750	25	40
LnA: Lynchburg-----	2w	---	115	190	675	775	8	10	---	---	45	55
NaB: Nankin-----	2e	---	75	150	650	750	9	12	2,200	3,000	30	40
NcC: Nankin-----	4e	---	55	95	600	700	7	9	1,800	2,300	20	35
Cowarts-----	3e	---	70	120	600	700	6.5	8.5	1,800	2,200	25	35
NcD: Nankin-----	6e	---	---	---	---	---	5	7	---	---	---	---
Cowarts-----	6e	---	---	---	---	---	6.5	7.5	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Corn		Cotton lint		Improved bermudagrass		Peanuts		Soybeans	
	N	I	N	I	N	I	N	I	N	I	N	I
			Bu	Bu	Lbs	Lbs	AUM	AUM	Lbs	Lbs	Bu	Bu
NoA: Norfolk-----	1	---	110	190	700	1,000	9	12	4,000	5,400	40	55
NoB: Norfolk-----	2e	---	100	190	650	1,000	9	12	3,700	5,400	35	55
NoC: Norfolk-----	3e	---	90	150	600	900	8	10	3,300	4,300	30	40
OcA: Ocilla-----	3w	---	75	120	600	700	8.5	10.5	2,200	2,900	35	40
OeA: Orangeburg-----	1	---	120	190	900	1,100	10.5	14	4,000	4,900	45	55
OeB: Orangeburg-----	2e	---	120	190	900	1,100	10.5	14	4,000	4,900	45	55
OeC: Orangeburg-----	3e	---	95	150	800	950	10	12.5	3,200	4,300	35	40
OeD: Orangeburg-----	4e	---	85	135	650	800	9	12	2,800	3,500	30	35
OSA: Osier-----	5w	---	---	---	---	---	---	---	---	---	---	---
Bibb-----	5w	---	---	---	---	---	---	---	---	---	---	---
PeA: Pelham-----	5w	---	---	---	---	---	---	---	---	---	---	---
ReA: Rembert-----	6w	---	---	---	---	---	---	---	---	---	---	---
TfA: Tifton-----	1	---	115	185	950	1,150	10.5	14	3,800	5,100	46	55
TfB: Tifton-----	2e	---	115	185	950	1,150	10.5	14	3,800	5,100	46	55
TfC: Tifton-----	3e	---	80	145	650	900	9	12	3,000	4,800	34	45

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Corn		Cotton lint		Improved bermudagrass		Peanuts		Soybeans	
	N	I	N	I	N	I	N	I	N	I	N	I
			Bu	Bu	Lbs	Lbs	AUM	AUM	Lbs	Lbs	Bu	Bu
TrB: Troup-----	3s	---	60	160	500	600	7.5	9.5	2,200	3,850	25	45
TrD: Troup-----	6s	---	---	---	---	---	6.5	8.5	---	---	---	---
Ud: Udorthents, loamy.												
Up: Udorthents. Pits.												
UtC: Urban land.												
Tifton-----	2e	---	115	185	950	1,150	10.5	14	3,800	5,100	46	55
WaB: Wagram-----	2s	---	75	175	550	650	7.5	9.5	2,900	4,350	25	155
WhA: Wahee-----	2w	---	110	175	---	---	---	---	---	---	45	55

Table 6.--Prime Farmland

[Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland]

Map symbol	Soil name
CaB	Carnegie gravelly sandy loam, 2 to 5 percent slopes
CaC	Carnegie gravelly sandy loam, 5 to 8 percent slopes
DoA	Dothan loamy sand, 0 to 2 percent slopes
DoB	Dothan loamy sand, 2 to 5 percent slopes
FeA	Faceville sandy loam, 0 to 2 percent slopes
FeB	Faceville sandy loam, 2 to 5 percent slopes
FeC	Faceville sandy loam, 5 to 8 percent slopes
GoA	Goldsboro loamy sand, 0 to 2 percent slopes
HvA	Hornsville fine sandy loam, 0 to 2 percent slopes
NaB	Nankin loamy fine sand, 2 to 5 percent slopes
NcC	Nankin-Cowarts complex, 5 to 8 percent slopes
NoA	Norfolk loamy sand, 0 to 2 percent slopes
NoB	Norfolk loamy sand, 2 to 5 percent slopes
NoC	Norfolk loamy sand, 5 to 8 percent slopes
OeA	Orangeburg loamy sand, 0 to 2 percent slopes
OeB	Orangeburg loamy sand, 2 to 5 percent slopes
OeC	Orangeburg loamy sand, 5 to 8 percent slopes
TfA	Tifton loamy sand, 0 to 2 percent slopes
TfB	Tifton loamy sand, 2 to 5 percent slopes
TfC	Tifton loamy sand, 5 to 8 percent slopes

Table 7.--Hydric Soils List

Map symbol and map unit name	Component	Hydric	Hydric soils criteria			Acres	
			Hydric criteria code	Meets saturation criteria	Meets flooding criteria		Meets ponding criteria
<b>BgB:</b> Bigbee loamy fine sand, 0 to 5 percent slopes, rarely flooded	Bigbee	No	---	---	---	---	294
	Bibb	Yes	2B3,4	Yes	Yes	No	18
	Osier	Yes	2B2,4	Yes	Yes	No	18
	Osier	Yes	2B2,4	Yes	Yes	No	18
<b>BlB:</b> Blanton loamy sand, 0 to 5 percent slopes	Blanton	No	---	---	---	---	5,491
<b>BlD:</b> Blanton loamy sand, 5 to 12 percent slopes	Blanton	No	---	---	---	---	973
<b>BoB:</b> Bonneau loamy sand, 0 to 5 percent slopes	Bonneau	No	---	---	---	---	10,921
<b>BoD:</b> Bonneau loamy sand, 5 to 12 percent slopes	Bonneau	No	---	---	---	---	1,144
<b>CaB:</b> Carnegie gravelly sandy loam, 2 to 5 percent slopes	Carnegie	No	---	---	---	---	1,543
<b>CaC:</b> Carnegie gravelly sandy loam, 5 to 8 percent slopes	Carnegie	No	---	---	---	---	6,226
<b>CgC:</b> Cowarts-Gritney complex, 5 to 8 percent slopes	Cowarts	No	---	---	---	---	1,842
	Gritney	No	---	---	---	---	1,842
<b>CgD:</b> Cowarts-Gritney complex, 8 to 12 percent slopes	Cowarts	No	---	---	---	---	520
	Gritney	No	---	---	---	---	520
<b>DoA:</b> Dothan loamy sand, 0 to 2 percent slopes	Dothan	No	---	---	---	---	4,417
<b>DoB:</b> Dothan loamy sand, 2 to 5 percent slopes	Dothan	No	---	---	---	---	12,800
<b>FeA:</b> Faceville sandy loam, 0 to 2 percent slopes	Faceville	No	---	---	---	---	1,151
<b>FeB:</b> Faceville sandy loam, 2 to 5 percent slopes	Faceville	No	---	---	---	---	14,057
<b>FeC:</b> Faceville sandy loam, 5 to 8 percent slopes	Faceville	No	---	---	---	---	2,886

Table 7.--Hydric Soils List--Continued

Map symbol and map unit name	Component	Hydric	Hydric soils criteria				Acres
			Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria	
FuB: Fuquay loamy sand, 0 to 5 percent slopes	Fuquay	No	---	---	---	---	3,166
GoA: Goldsboro loamy sand, 0 to 2 percent slopes	Goldsboro	No	---	---	---	---	5,744
GrA: Grady sandy loam, ponded	Grady	Yes	3,2B3	Yes	No	Yes	4,090
HvA: Hornsville fine sandy loam, 0 to 2 percent slopes	Hornsville	No	---	---	---	---	33
LkB: Lakeland sand, 0 to 5 percent slopes	Lakeland	No	---	---	---	---	80
LkD: Lakeland sand, 5 to 12 percent slopes	Lakeland	No	---	---	---	---	70
LmB: Lucy loamy sand, 0 to 5 percent slopes	Lucy	No	---	---	---	---	1,755
LmC: Lucy loamy sand, 5 to 8 percent slopes	Lucy	No	---	---	---	---	644
LnA: Lynchburg fine sandy loam, 0 to 2 percent slopes	Lynchburg	No	---	---	---	---	4,048
	Grady	Yes	2B3,3	Yes	No	Yes	225
	Pelham	Yes	2B2	Yes	No	No	225
NaB: Nankin loamy fine sand, 2 to 5 percent slopes	Nankin	No	---	---	---	---	7,136
NcC: Nankin-Cowarts complex, 5 to 8 percent slopes	Nankin	No	---	---	---	---	10,500
	Cowarts	No	---	---	---	---	9,188
NcD: Nankin-Cowarts complex, 8 to 12 percent slopes	Nankin	No	---	---	---	---	2,453
	Cowarts	No	---	---	---	---	2,147
NoA: Norfolk loamy sand, 0 to 2 percent slopes	Norfolk	No	---	---	---	---	2,610
NoB: Norfolk loamy sand, 2 to 5 percent slopes	Norfolk	No	---	---	---	---	3,683

Table 7.--Hydric Soils List--Continued

Map symbol and map unit name	Component	Hydric	Hydric soils criteria				Acres
			Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria	
NoC: Norfolk loamy sand, 5 to 8 percent slopes	Norfolk	No	---	---	---	---	112
OcA: Ocilla loamy fine sand, 0 to 2 percent slopes	Ocilla	No	---	---	---	---	6,004
	Bibb	Yes	4,2B3	Yes	Yes	No	375
	Osier	Yes	4,2B2	Yes	Yes	No	375
	Pelham	Yes	2B2	Yes	No	No	375
OeA: Orangeburg loamy sand, 0 to 2 percent slopes	Orangeburg	No	---	---	---	---	427
OeB: Orangeburg loamy sand, 2 to 5 percent slopes	Orangeburg	No	---	---	---	---	7,214
OeC: Orangeburg loamy sand, 5 to 8 percent slopes	Orangeburg	No	---	---	---	---	3,748
OeD: Orangeburg loamy sand, 8 to 12 percent slopes	Orangeburg	No	---	---	---	---	386
OSA: Osier and Bibb soils, frequently flooded	Osier	Yes	2B2,4	Yes	Yes	No	17,875
	Bibb	Yes	2B3,4	Yes	Yes	No	10,725
PeA: Pelham loamy fine sand, frequently flooded	Pelham	Yes	2B2	Yes	No	No	9,028
ReA: Rembert sandy loam, frequently flooded	Rembert	Yes	2B3,3	Yes	No	Yes	840
TfA: Tifton loamy sand, 0 to 2 percent slopes	Tifton	No	---	---	---	---	12,480
TfB: Tifton loamy sand, 2 to 5 percent slopes	Tifton	No	---	---	---	---	37,192
TfC: Tifton loamy sand, 5 to 8 percent slopes	Tifton	No	---	---	---	---	702
TrB: Troup loamy sand, 0 to 5 percent slopes	Troup	No	---	---	---	---	273
TrD: Troup loamy sand, 5 to 12 percent slopes	Troup	No	---	---	---	---	120

Table 7.--Hydric Soils List--Continued

Map symbol and map unit name	Component	Hydric	Hydric soils criteria				Acres
			Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria	
Ud: Udorthents, loamy	Udorthents, loamy	Unranked	---	---	---	---	267
Up: Udorthents-Pits complex	Udorthents Pits	Unranked ---	---	---	---	---	109 6
UtC: Urban land-Tifton complex, 0 to 8 percent slopes	Urban land Tifton	Unranked No	---	---	---	---	644 501
WaB: Wagram loamy sand, 0 to 5 percent slopes	Wagram	No	---	---	---	---	57
WhA: Wahee fine sandy loam, 0 to 2 percent slopes, occasionally flooded	Wahee	No	---	---	---	---	148

Table 8.--Forest Productivity and Seedling Mortality

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Potential for seedling mortality		Potential productivity			Trees to manage
	Rating class and limiting features	Value	Common trees	Site index	Volume of wood fiber cu ft/ac	
BgB: Bigbee-----	Low		Loblolly pine-----	88	129	Loblolly pine
B1B: Blanton-----	Low		Bluejack oak-----	---	---	Loblolly pine, longleaf pine, slash pine
			Live oak-----	---	---	
			Loblolly pine-----	85	114	
			Longleaf pine-----	70	86	
			Slash pine-----	90	157	
			Southern red oak----	---	---	
			Turkey oak-----	---	---	
BLD: Blanton-----	Low		Bluejack oak-----	---	---	Loblolly pine, longleaf pine, slash pine
			Live oak-----	---	---	
			Loblolly pine-----	85	114	
			Longleaf pine-----	70	86	
			Slash pine-----	90	157	
			Southern red oak----	---	---	
			Turkey oak-----	---	---	
BoB: Bonneau-----	Low		Hickory-----	---	---	Loblolly pine, longleaf pine
			Loblolly pine-----	95	143	
			Longleaf pine-----	75	86	
			White oak-----	---	---	
BoD: Bonneau-----	Low		Hickory-----	---	---	Loblolly pine, longleaf pine
			Loblolly pine-----	95	143	
			Longleaf pine-----	75	86	
			White oak-----	---	---	
CaB: Carnegie-----	Low		Loblolly pine-----	86	129	Loblolly pine, slash pine
			Longleaf pine-----	72	86	
			Slash pine-----	86	157	
CaC: Carnegie-----	Low		Loblolly pine-----	86	129	Loblolly pine, slash pine
			Longleaf pine-----	72	86	
			Slash pine-----	86	157	
CgC: Cowarts-----	Low		Loblolly pine-----	86	129	Loblolly pine, longleaf pine, slash pine
			Longleaf pine-----	67	72	
			Slash pine-----	86	157	
Gritney-----	Low		Loblolly pine-----	85	114	Loblolly pine
			Southern red oak----	---	---	
			Sweetgum-----	---	---	
			White oak-----	---	---	
			Yellow-poplar-----	---	---	

Table 8.--Forest Productivity and Seedling Mortality--Continued

Map symbol and soil name	Potential for seedling mortality		Potential productivity			Trees to manage
	Rating class and limiting features	Value	Common trees	Site index	Volume of wood fiber <i>cu ft/ac</i>	
CgD: Cowarts-----	Low		Loblolly pine----- Longleaf pine----- Slash pine-----	86 67 86	129 72 157	Loblolly pine, longleaf pine, slash pine
Gritney-----	Low		Loblolly pine----- Southern red oak---- Sweetgum----- White oak----- Yellow-poplar-----	85 --- --- --- ---	114 --- --- --- ---	Loblolly pine
DoA: Dothan-----	Low		Hickory----- Loblolly pine----- Longleaf pine----- Slash pine----- Water oak-----	--- 88 84 92 ---	--- 129 114 172 ---	Loblolly pine, longleaf pine, slash pine
DoB: Dothan-----	Low		Hickory----- Loblolly pine----- Longleaf pine----- Slash pine----- Water oak-----	--- 88 84 92 ---	--- 129 114 172 ---	Loblolly pine, longleaf pine, slash pine
FeA: Faceville-----	Low		Loblolly pine----- Longleaf pine----- Slash pine-----	82 65 80	114 72 143	Loblolly pine, slash pine
FeB: Faceville-----	Low		Loblolly pine----- Longleaf pine----- Slash pine-----	82 65 80	114 72 143	Loblolly pine, slash pine
FeC: Faceville-----	Low		Loblolly pine----- Longleaf pine----- Slash pine-----	82 65 80	114 72 143	Loblolly pine, slash pine
FuB: Fuquay-----	Low		Loblolly pine----- Longleaf pine----- Slash pine-----	85 77 93	114 100 172	Loblolly pine, longleaf pine
GoA: Goldsboro-----	Low		Loblolly pine----- Longleaf pine----- Red maple----- Slash pine----- Southern red oak---- Sweetgum----- Water oak----- White oak----- Yellow-poplar-----	90 73 --- 94 --- --- --- --- ---	129 86 --- 172 --- --- --- --- ---	Loblolly pine, slash pine

Table 8.--Forest Productivity and Seedling Mortality--Continued

Map symbol and soil name	Potential for seedling mortality		Potential productivity			Trees to manage
	Rating class and limiting features	Value	Common trees	Site index	Volume of wood fiber cu ft/ac	
GrA: Grady-----	High Wetness	1.00	Baldcypress----- Water oak----- Water tupelo-----	65 65 68	43 57 86	American sycamore, water tupelo
HvA: Hornsville-----	Low		Loblolly pine----- Slash pine----- Sweetgum-----	90 90 90	129 157 100	Loblolly pine, slash pine, yellow-poplar
LkB: Lakeland-----	Low		Blackjack oak----- Loblolly pine----- Longleaf pine----- Post oak----- Slash pine----- Turkey oak-----	--- 75 60 --- 75 ---	--- 100 57 --- 129 ---	Loblolly pine, longleaf pine, slash pine
LkD: Lakeland-----	Low		Blackjack oak----- Loblolly pine----- Longleaf pine----- Post oak----- Slash pine----- Turkey oak-----	--- 75 60 --- 75 ---	--- 100 57 --- 129 ---	Loblolly pine, longleaf pine, slash pine
LmB: Lucy-----	Low		Loblolly pine----- Longleaf pine----- Slash pine-----	80 70 84	114 86 157	Loblolly pine, longleaf pine, slash pine
LmC: Lucy-----	Low		Loblolly pine----- Longleaf pine----- Slash pine-----	80 70 84	114 86 157	Loblolly pine, longleaf pine, slash pine
LnA: Lynchburg-----	High Wetness	1.00	Blackgum----- Loblolly pine----- Longleaf pine----- Southern red oak----- Sweetgum----- White oak----- Yellow-poplar-----	--- 86 74 --- 90 --- 92	--- 129 86 --- 100 --- 86	American sycamore, loblolly pine, sweetgum
NaB: Nankin-----	Low		Loblolly pine----- Longleaf pine----- Slash pine-----	80 70 80	114 86 143	Loblolly pine, slash pine
NcC: Nankin-----	Low		Loblolly pine----- Longleaf pine----- Slash pine-----	80 70 80	114 86 143	Loblolly pine, slash pine
Cowarts-----	Low		Loblolly pine----- Longleaf pine----- Slash pine-----	86 67 86	129 72 157	Loblolly pine, longleaf pine, slash pine

Table 8.--Forest Productivity and Seedling Mortality--Continued

Map symbol and soil name	Potential for seedling mortality		Potential productivity			Trees to manage
	Rating class and limiting features	Value	Common trees	Site index	Volume of wood fiber <i>cu ft/ac</i>	
NcD: Nankin-----	Low		Loblolly pine-----	80	114	Loblolly pine, slash pine
Longleaf pine-----			70	86		
Slash pine-----			80	143		
Cowarts-----	Low		Loblolly pine-----	86	129	Loblolly pine, longleaf pine, slash pine
Longleaf pine-----			67	72		
Slash pine-----			86	157		
NoA: Norfolk-----	Low		Hickory-----	---	---	Loblolly pine, longleaf pine, slash pine
Loblolly pine-----			84	114		
Longleaf pine-----			77	100		
Slash pine-----			78	143		
White oak-----			---	---		
Yellow-poplar-----			---	---		
NoB: Norfolk-----	Low		Hickory-----	---	---	Loblolly pine, longleaf pine, slash pine
Loblolly pine-----			84	114		
Longleaf pine-----			77	100		
Slash pine-----			78	143		
White oak-----			---	---		
Yellow-poplar-----			---	---		
NoC: Norfolk-----	Low		Hickory-----	---	---	Loblolly pine, longleaf pine, slash pine
Loblolly pine-----			84	114		
Longleaf pine-----			77	100		
Slash pine-----			78	143		
White oak-----			---	---		
Yellow-poplar-----			---	---		
OcA: Ocilla-----	Low		Loblolly pine-----	85	114	Loblolly pine, slash pine
Longleaf pine-----			77	100		
Slash pine-----			90	157		
OeA: Orangeburg-----	Low		Loblolly pine-----	80	114	Loblolly pine, slash pine
Longleaf pine-----			77	100		
Slash pine-----			86	157		
OeB: Orangeburg-----	Low		Loblolly pine-----	80	114	loblolly pine, slash pine
Longleaf pine-----			77	100		
Slash pine-----			86	157		
OeC: Orangeburg-----	Low		Loblolly pine-----	80	114	Loblolly pine, slash pine
Longleaf pine-----			77	100		
Slash pine-----			86	157		
OeD: Orangeburg-----	Low		Loblolly pine-----	80	114	Loblolly pine, slash pine
Longleaf pine-----			77	100		
Slash pine-----			86	157		

Table 8.--Forest Productivity and Seedling Mortality--Continued

Map symbol and soil name	Potential for seedling mortality		Potential productivity			Trees to manage
	Rating class and limiting features	Value	Common trees	Site index	Volume of wood fiber cu ft/ac	
OSA: Osier-----	High Wetness	1.00	Loblolly pine----- Longleaf pine----- Slash pine-----	87 69 85	129 72 157	Loblolly pine, slash pine
Bibb-----	High Wetness	1.00	Atlantic white cedar Blackgum----- Loblolly pine----- Sweetgum----- Water oak----- Yellow-poplar-----	--- --- 100 90 90 ---	--- --- 157 100 86 ---	Eastern cottonwood, sweetgum, yellow-poplar
PeA: Pelham-----	High Wetness	1.00	Blackgum----- Loblolly pine----- Longleaf pine----- Slash pine----- Sweetgum----- Water oak-----	80 90 80 90 80 80	114 129 100 157 86 72	Loblolly pine, slash pine
ReA: Rembert-----	High Wetness	1.00	Baldcypress----- Loblolly pine----- Sweetgum----- Water tupelo-----	60 90 90 60	--- --- 100 ---	Baldcypress, eastern cottonwood, water tupelo
TfA: Tifton-----	Low		Loblolly pine----- Longleaf pine----- Slash pine-----	86 72 86	129 86 157	Loblolly pine, longleaf pine, slash pine
TfB: Tifton-----	Low		Loblolly pine----- Longleaf pine----- Slash pine-----	86 72 86	129 86 157	Loblolly pine, longleaf pine, slash pine
TfC: Tifton-----	Low		Loblolly pine----- Longleaf pine----- Slash pine-----	86 72 86	129 86 157	Loblolly pine, longleaf pine, slash pine
TrB: Troup-----	Low		Loblolly pine----- Longleaf pine----- Slash pine-----	80 76 85	114 86 157	Loblolly pine, longleaf pine, slash pine
TrD: Troup-----	Low		Loblolly pine----- Longleaf pine----- Slash pine-----	80 76 85	114 86 157	Loblolly pine, longleaf pine, slash pine
Ud: Udorthents, loamy----	Not rated		---	---	---	---
Up: Udorthents-----	Not rated		---	---	---	---
Pits-----	Not rated		---	---	---	---

Table 8.--Forest Productivity and Seedling Mortality--Continued

Map symbol and soil name	Potential for seedling mortality		Potential productivity			Trees to manage
	Rating class and limiting features	Value	Common trees	Site index	Volume of wood fiber <i>cu ft/ac</i>	
UtC: Urban land-----	Not rated		---	---	---	---
Tifton-----	Low		Loblolly pine----- Longleaf pine----- Slash pine-----	86 72 86	129 86 157	Loblolly pine, slash pine
WaB: Wagram-----	Low		Loblolly pine----- Longleaf pine----- Slash pine-----	81 72 80	114 86 143	Loblolly pine, longleaf pine, slash pine
WhA: Wahee-----	High Wetness	1.00	Blackgum----- Loblolly pine----- Slash pine----- Southern red oak--- Swamp chestnut oak-- Sweetgum----- Water oak----- Willow oak-----	--- 86 86 --- --- 90 --- ---	--- 129 157 --- --- 100 --- ---	Loblolly pine, slash pine

Table 9a.--Forestland Management

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.1 to 1.0. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Suitability for log landings		Hazard of erosion on roads and trails		Suitability for roads (natural surface)		
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
BgB: Bigbee-----	Well suited		Slight		Well suited		
BlB: Blanton-----	Well suited		Slight		Well suited		
BLD: Blanton-----	Moderately suited Slope	0.50	Moderate Slope/erodibility	0.50	Moderately suited Slope	0.50	
BoB: Bonneau-----	Well suited		Slight		Well suited		
BoD: Bonneau-----	Moderately suited Slope	0.50	Moderate Slope/erodibility	0.50	Moderately suited Slope	0.50	
CaB: Carnegie-----	Well suited		Moderate Slope/erodibility	0.50	Well suited		
CaC: Carnegie-----	Moderately suited Slope	0.50	Moderate Slope/erodibility	0.50	Moderately suited Slope	0.50	
CgC: Cowarts-----	Moderately suited Slope	0.50	Moderate Slope/erodibility	0.50	Moderately suited Slope	0.50	
	Gritney-----	Moderately suited Sandiness Slope	0.50 0.50	Moderate Slope/erodibility	0.50	Moderately suited Sandiness Slope	0.50 0.50
CgD: Cowarts-----	Moderately suited Slope	0.50	Moderate Slope/erodibility	0.50	Moderately suited Slope	0.50	
	Gritney-----	Moderately suited Slope Sandiness	0.50 0.50	Moderate Slope/erodibility	0.50	Moderately suited Slope Sandiness	0.50 0.50
DoA: Dothan-----	Well suited		Slight		Well suited		
DoB: Dothan-----	Well suited		Slight		Well suited		
FeA: Faceville-----	Well suited		Slight		Well suited		
FeB: Faceville-----	Well suited		Moderate Slope/erodibility	0.50	Well suited		

Table 9a.--Forestland Management--Continued

Map symbol and soil name	Suitability for log landings		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
FeC: Faceville-----	Moderately suited Slope	0.50	Moderate Slope/erodibility	0.50	Moderately suited Slope	0.50
FuB: Fuquay-----	Well suited		Slight		Well suited	
GoA: Goldsboro-----	Well suited		Slight		Well suited	
GrA: Grady-----	Poorly suited Ponding Wetness	1.00 1.00	Slight		Poorly suited Ponding Wetness	1.00 1.00
HvA: Hornsville-----	Well suited		Slight		Well suited	
LkB: Lakeland-----	Moderately suited Sandiness	0.50	Slight		Moderately suited Sandiness	0.50
LkD: Lakeland-----	Moderately suited Sandiness Slope	0.50 0.50	Moderate Slope/erodibility	0.50	Moderately suited Sandiness Slope	0.50 0.50
LmB: Lucy-----	Well suited		Slight		Well suited	
LmC: Lucy-----	Moderately suited Slope	0.50	Moderate Slope/erodibility	0.50	Moderately suited Slope	0.50
LnA: Lynchburg-----	Moderately suited Wetness	0.50	Slight		Moderately suited Wetness	0.50
NaB: Nankin-----	Well suited		Moderate Slope/erodibility	0.50	Well suited	
NcC: Nankin-----	Moderately suited Slope	0.50	Moderate Slope/erodibility	0.50	Moderately suited Slope	0.50
	Cowarts-----	0.50	Moderate Slope/erodibility	0.50	Moderately suited Slope	0.50
NcD: Nankin-----	Moderately suited Slope	0.50	Severe Slope/erodibility	0.95	Moderately suited Slope	0.50
	Cowarts-----	0.50	Moderate Slope/erodibility	0.50	Moderately suited Slope	0.50
NoA: Norfolk-----	Well suited		Slight		Well suited	
NoB: Norfolk-----	Well suited		Slight		Well suited	

Table 9a.--Forestland Management--Continued

Map symbol and soil name	Suitability for log landings		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
NoC: Norfolk-----	Moderately suited Slope	0.50	Moderate Slope/erodibility	0.50	Moderately suited Slope	0.50
OcA: Ocilla-----	Moderately suited Wetness	0.50	Slight		Moderately suited Wetness	0.50
OeA: Orangeburg-----	Well suited		Slight		Well suited	
OeB: Orangeburg-----	Well suited		Slight		Well suited	
OeC: Orangeburg-----	Moderately suited Slope	0.50	Moderate Slope/erodibility	0.50	Moderately suited Slope	0.50
OeD: Orangeburg-----	Moderately suited Slope	0.50	Moderate Slope/erodibility	0.50	Moderately suited Slope	0.50
OSA: Osier-----	Poorly suited Flooding Wetness	1.00 1.00	Slight		Poorly suited Flooding Wetness	1.00 1.00
Bibb-----	Poorly suited Flooding Wetness	1.00 1.00	Slight		Poorly suited Flooding Wetness	1.00 1.00
PeA: Pelham-----	Poorly suited Flooding Wetness	1.00 1.00	Slight		Poorly suited Flooding Wetness	1.00 1.00
ReA: Rembert-----	Poorly suited Ponding Flooding Wetness	1.00 1.00 1.00	Slight		Poorly suited Ponding Flooding Wetness	1.00 1.00 1.00
TfA: Tifton-----	Well suited		Slight		Well suited	
TfB: Tifton-----	Well suited		Slight		Well suited	
TfC: Tifton-----	Moderately suited Slope	0.50	Moderate Slope/erodibility	0.50	Moderately suited Slope	0.50
TrB: Troup-----	Well suited		Slight		Well suited	
TrD: Troup-----	Moderately suited Slope	0.50	Moderate Slope/erodibility	0.50	Moderately suited Slope	0.50
Ud: Udorthents, loamy-----	Not rated		Not rated		Not rated	

Table 9a.--Forestland Management--Continued

Map symbol and soil name	Suitability for log landings		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Up:						
Udorthents-----	Not rated		Not rated		Not rated	
Pits-----	Not rated		Not rated		Not rated	
UtC:						
Urban land-----	Not rated		Not rated		Not rated	
Tifton-----	Well suited		Slight		Well suited	
WaB:						
Wagram-----	Well suited		Slight		Well suited	
WhA:						
Wahee-----	Moderately suited		Slight		Moderately suited	
	Wetness	0.50			Wetness	0.50
	Flooding	0.50			Flooding	0.50

Table 9b.--Forestland Management

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.1 to 1.0. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BgB: Bigbee-----	Moderately suited Sandiness	0.50	Moderately suited Sandiness	0.50	Well suited	
BlB: Blanton-----	Well suited		Well suited		Well suited	
BlD: Blanton-----	Well suited		Moderately suited Slope	0.50	Well suited	
BoB: Bonneau-----	Well suited		Well suited		Well suited	
BoD: Bonneau-----	Well suited		Moderately suited Slope	0.50	Well suited	
CaB: Carnegie-----	Well suited		Well suited		Well suited	
CaC: Carnegie-----	Well suited		Moderately suited Slope	0.50	Well suited	
CgC: Cowarts-----	Well suited		Moderately suited Slope	0.50	Well suited	
Gritney-----	Poorly suited Stickiness Sandiness	0.75 0.50	Poorly suited Stickiness Slope Sandiness	0.75 0.50 0.50	Moderately suited Sandiness	0.50
CgD: Cowarts-----	Well suited		Moderately suited Slope	0.50	Well suited	
Gritney-----	Poorly suited Stickiness Sandiness	0.75 0.50	Poorly suited Stickiness Slope Sandiness	0.75 0.50 0.50	Moderately suited Sandiness	0.50
DoA: Dothan-----	Well suited		Well suited		Well suited	
DoB: Dothan-----	Well suited		Well suited		Well suited	
FeA: Faceville-----	Well suited		Well suited		Well suited	
FeB: Faceville-----	Well suited		Well suited		Well suited	

Table 9b.--Forestland Management--Continued

Map symbol and soil name	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
FeC: Faceville-----	Well suited		Moderately suited Slope	0.50	Well suited	
FuB: Fuquay-----	Well suited		Well suited		Well suited	
GoA: Goldsboro-----	Well suited		Well suited		Well suited	
GrA: Grady-----	Well suited		Well suited		Well suited	
HvA: Hornsville-----	Moderately suited Stickiness	0.50	Moderately suited Stickiness	0.50	Well suited	
LkB: Lakeland-----	Moderately suited Sandiness	0.50	Moderately suited Sandiness	0.50	Moderately suited Sandiness	0.50
LkD: Lakeland-----	Moderately suited Sandiness	0.50	Moderately suited Slope Sandiness	0.50 0.50	Moderately suited Sandiness	0.50
LmB: Lucy-----	Well suited		Well suited		Well suited	
LmC: Lucy-----	Well suited		Moderately suited Slope	0.50	Well suited	
LnA: Lynchburg-----	Well suited		Well suited		Well suited	
NaB: Nankin-----	Well suited		Well suited		Well suited	
NcC: Nankin-----	Well suited		Moderately suited Slope	0.50	Well suited	
Cowarts-----	Well suited		Moderately suited Slope	0.50	Well suited	
NcD: Nankin-----	Well suited		Moderately suited Slope	0.50	Well suited	
Cowarts-----	Well suited		Moderately suited Slope	0.50	Well suited	
NoA: Norfolk-----	Well suited		Well suited		Well suited	
NoB: Norfolk-----	Well suited		Well suited		Well suited	

Table 9b.--Forestland Management--Continued

Map symbol and soil name	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
NoC: Norfolk-----	Well suited		Moderately suited Slope	0.50	Well suited	
OcA: Ocilla-----	Well suited		Well suited		Well suited	
OeA: Orangeburg-----	Well suited		Well suited		Well suited	
OeB: Orangeburg-----	Well suited		Well suited		Well suited	
OeC: Orangeburg-----	Well suited		Moderately suited Slope	0.50	Well suited	
OeD: Orangeburg-----	Well suited		Moderately suited Slope	0.50	Well suited	
OSA: Osier-----	Moderately suited Sandiness	0.50	Moderately suited Sandiness	0.50	Well suited	
Bibb-----	Well suited		Well suited		Well suited	
PeA: Pelham-----	Well suited		Well suited		Well suited	
ReA: Rembert-----	Moderately suited Stickiness	0.50	Moderately suited Stickiness	0.50	Well suited	
TfA: Tifton-----	Well suited		Well suited		Well suited	
TfB: Tifton-----	Well suited		Well suited		Well suited	
TfC: Tifton-----	Well suited		Moderately suited Slope	0.50	Well suited	
TrB: Troup-----	Well suited		Well suited		Well suited	
TrD: Troup-----	Well suited		Moderately suited Slope	0.50	Well suited	
Ud: Udorthents, loamy-----	Not rated		Not rated		Not rated	
Up: Udorthents-----	Not rated		Not rated		Not rated	
Pits-----	Not rated		Not rated		Not rated	

Table 9b.--Forestland Management--Continued

Map symbol and soil name	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UtC: Urban land-----	Not rated		Not rated		Not rated	
Tifton-----	Well suited		Well suited		Well suited	
WaB: Wagram-----	Well suited		Well suited		Well suited	
WhA: Wahee-----	Poorly suited Stickiness	0.75	Poorly suited Stickiness	0.75	Well suited	

Table 10.--Recreation Site Development

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
EgB: Bigbee-----	Very limited Flooding Too sandy	1.00 0.94	Somewhat limited Too sandy	0.94	Somewhat limited Too sandy Slope	0.94 0.12	Somewhat limited Too sandy	0.94
BlB: Blanton-----	Somewhat limited Too sandy	0.70	Somewhat limited Too sandy	0.70	Somewhat limited Too sandy Slope	0.70 0.12	Somewhat limited Too sandy	0.70
BlD: Blanton-----	Somewhat limited Too sandy Slope	0.70 0.04	Somewhat limited Too sandy Slope	0.70 0.04	Very limited Slope Too sandy	1.00 0.70	Somewhat limited Too sandy	0.70
BoB: Bonneau-----	Somewhat limited Too sandy	0.91	Somewhat limited Too sandy	0.91	Somewhat limited Too sandy Slope	0.91 0.12	Somewhat limited Too sandy	0.91
BoD: Bonneau-----	Somewhat limited Too sandy Slope	0.91 0.04	Somewhat limited Too sandy Slope	0.91 0.04	Very limited Slope Too sandy	1.00 0.91	Somewhat limited Too sandy	0.91
CaB: Carnegie-----	Somewhat limited Restricted permeability	0.26	Somewhat limited Restricted permeability	0.26	Somewhat limited Slope Restricted permeability Gravel content	0.50 0.26 0.22	Not limited	
CaC: Carnegie-----	Somewhat limited Restricted permeability	0.26	Somewhat limited Restricted permeability	0.26	Very limited Slope Restricted permeability Gravel content	1.00 0.26 0.22	Not limited	

Table 10.--Recreation Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CgC: Cowarts-----	Somewhat limited Restricted permeability	0.60	Somewhat limited Restricted permeability	0.60	Very limited Slope Restricted permeability	1.00 0.60	Not limited	
Gritney-----	Somewhat limited Restricted permeability Depth to saturated zone	0.96 0.07	Somewhat limited Restricted permeability Depth to saturated zone	0.96 0.03	Very limited Slope Restricted permeability Depth to saturated zone	1.00 0.96 0.07	Not limited	
CgD: Cowarts-----	Somewhat limited Restricted permeability Slope	0.60 0.16	Somewhat limited Restricted permeability Slope	0.60 0.16	Very limited Slope Restricted permeability	1.00 0.60	Not limited	
Gritney-----	Somewhat limited Restricted permeability Slope Depth to saturated zone	0.96 0.16 0.07	Somewhat limited Restricted permeability Slope Depth to saturated zone	0.96 0.16 0.03	Very limited Slope Restricted permeability Depth to saturated zone	1.00 0.96 0.07	Not limited	
DoA: Dothan-----	Not limited		Not limited		Not limited		Not limited	
DoB: Dothan-----	Not limited		Not limited		Somewhat limited Slope	0.50	Not limited	
FeA: Faceville-----	Not limited		Not limited		Not limited		Not limited	
FeB: Faceville-----	Not limited		Not limited		Somewhat limited Slope	0.50	Not limited	
FeC: Faceville-----	Not limited		Not limited		Very limited Slope	1.00	Not limited	

Table 10.--Recreation Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
FuB: Fuquay-----	Somewhat limited Too sandy	0.87	Somewhat limited Too sandy	0.87	Somewhat limited Too sandy Slope	0.87 0.50	Somewhat limited Too sandy	0.87
GoA: Goldsboro-----	Not limited		Not limited		Not limited		Not limited	
GrA: Grady-----	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Ponding	1.00 1.00
HvA: Hornsville-----	Somewhat limited Restricted permeability	0.26	Somewhat limited Restricted permeability	0.26	Somewhat limited Restricted permeability	0.26	Not limited	
LkB: Lakeland-----	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Too sandy Slope	1.00 0.12	Very limited Too sandy	1.00
LkD: Lakeland-----	Very limited Too sandy Slope	1.00 0.04	Very limited Too sandy Slope	1.00 0.04	Very limited Too sandy Slope	1.00 1.00	Very limited Too sandy	1.00
LmB: Lucy-----	Somewhat limited Too sandy	0.84	Somewhat limited Too sandy	0.84	Somewhat limited Too sandy Slope	0.84 0.12	Somewhat limited Too sandy	0.84
LmC: Lucy-----	Somewhat limited Too sandy	0.84	Somewhat limited Too sandy	0.84	Very limited Slope Too sandy	1.00 0.84	Somewhat limited Too sandy	0.84
LnA: Lynchburg-----	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00

Table 10.--Recreation Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value						
NaB: Nankin-----	Somewhat limited Restricted permeability	0.26	Somewhat limited Restricted permeability	0.26	Somewhat limited Slope Restricted permeability	0.50 0.26	Not limited	
NcC: Nankin-----	Somewhat limited Restricted permeability	0.26	Somewhat limited Restricted permeability	0.26	Very limited Slope Restricted permeability	1.00 0.26	Not limited	
Cowarts-----	Somewhat limited Restricted permeability	0.60	Somewhat limited Restricted permeability	0.60	Very limited Slope Restricted permeability	1.00 0.60	Not limited	
NcD: Nankin-----	Somewhat limited Restricted permeability Slope	0.26 0.16	Somewhat limited Restricted permeability Slope	0.26 0.16	Very limited Slope Restricted permeability	1.00 0.26	Not limited	
Cowarts-----	Somewhat limited Restricted permeability Slope	0.60 0.16	Somewhat limited Restricted permeability Slope	0.60 0.16	Very limited Slope Restricted permeability	1.00 0.60	Not limited	
NoA: Norfolk-----	Not limited		Not limited		Not limited		Not limited	
NoB: Norfolk-----	Not limited		Not limited		Somewhat limited Slope	0.50	Not limited	
NoC: Norfolk-----	Not limited		Not limited		Very limited Slope	1.00	Not limited	
OcA: Ocilla-----	Somewhat limited Too sandy Depth to saturated zone	0.81 0.81	Somewhat limited Too sandy Depth to saturated zone	0.81 0.48	Somewhat limited Too sandy Depth to saturated zone	0.81 0.81	Somewhat limited Too sandy Depth to saturated zone	0.81 0.11

Table 10.--Recreation Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
OeA: Orangeburg-----	Not limited		Not limited		Not limited		Not limited	
OeB: Orangeburg-----	Not limited		Not limited		Somewhat limited Slope	0.50	Not limited	
OeC: Orangeburg-----	Not limited		Not limited		Very limited Slope	1.00	Not limited	
OeD: Orangeburg-----	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00	Not limited	
OSA: Osier-----	Very limited Depth to saturated zone Flooding Too sandy	1.00 1.00 0.92	Very limited Depth to saturated zone Too sandy Flooding	1.00 0.92 0.40	Very limited Depth to saturated zone Flooding Too sandy	1.00 1.00 0.92	Very limited Depth to saturated zone Too sandy Flooding	1.00 0.92 0.40
Bibb-----	Very limited Depth to saturated zone Flooding	1.00 1.00	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Depth to saturated zone Flooding	1.00 1.00	Very limited Depth to saturated zone Flooding	1.00 0.40
PeA: Pelham-----	Very limited Depth to saturated zone Flooding Too sandy	1.00 1.00 0.92	Very limited Depth to saturated zone Too sandy Flooding	1.00 0.92 0.40	Very limited Depth to saturated zone Flooding Too sandy	1.00 1.00 0.92	Very limited Depth to saturated zone Too sandy Flooding	1.00 0.92 0.40
ReA: Rembert-----	Very limited Depth to saturated zone Flooding Ponding Restricted permeability	1.00 1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Restricted permeability Flooding	1.00 1.00 0.96 0.40	Very limited Depth to saturated zone Flooding Ponding Restricted permeability	1.00 1.00 1.00 0.96	Very limited Depth to saturated zone Ponding Flooding	1.00 1.00 0.40

Table 10.--Recreation Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TfA: Tifton-----	Not limited		Not limited		Somewhat limited Gravel content	0.92	Not limited	
TfB: Tifton-----	Not limited		Not limited		Somewhat limited Gravel content Slope	0.92 0.50	Not limited	
TfC: Tifton-----	Not limited		Not limited		Very limited Slope Gravel content	1.00 0.92	Not limited	
TrB: Troup-----	Somewhat limited Too sandy	0.81	Somewhat limited Too sandy	0.81	Somewhat limited Too sandy Slope	0.81 0.12	Somewhat limited Too sandy	0.81
TrD: Troup-----	Somewhat limited Too sandy Slope	0.81 0.04	Somewhat limited Too sandy Slope	0.81 0.04	Very limited Slope Too sandy	1.00 0.81	Somewhat limited Too sandy	0.81
Ud: Udorthents, loamy--	Not Rated		Not Rated		Not Rated		Not Rated	
Up: Udorthents-----	Not Rated		Not Rated		Not Rated		Not Rated	
Pits-----	Not Rated		Not Rated		Not Rated		Not Rated	
UtC: Urban land-----	Not Rated		Not Rated		Not Rated		Not Rated	
Tifton-----	Not limited		Not limited		Somewhat limited Gravel content Slope	0.92 0.50	Not limited	
WaB: Wagram-----	Somewhat limited Too sandy	0.87	Somewhat limited Too sandy	0.87	Somewhat limited Too sandy Slope	0.87 0.12	Somewhat limited Too sandy	0.87

Table 10.--Recreation Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WhA: Wahee-----	Very limited Depth to saturated zone Flooding Restricted permeability	1.00 1.00 0.96	Very limited Depth to saturated zone Restricted permeability	1.00 0.96	Very limited Depth to saturated zone Restricted permeability Flooding	1.00 0.96 0.60	Very limited Depth to saturated zone	1.00

Table 11.--Wildlife Habitat

[See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable]

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wet- land wild- life
BgB: Bigbee-----	Poor	Fair	Fair	Poor	Fair	Very poor	Very poor	Fair	Poor	Very poor
BlB: Blanton-----	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
BlD: Blanton-----	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
BoB: Bonneau-----	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
BoD: Bonneau-----	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
CaB: Carnegie-----	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
CaC: Carnegie-----	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
CgC: Cowarts-----	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Gritney-----	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
CgD: Cowarts-----	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Gritney-----	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
DoA: Dothan-----	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
DoB: Dothan-----	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
FeA: Faceville-----	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
FeB: Faceville-----	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor

Table 11.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wet- land wild- life
FeC: Faceville-----	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
FuB: Fuquay-----	Fair	Fair	Good	Fair	Fair	Very poor	Very poor	Good	Good	Very poor
GoA: Goldsboro-----	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
GrA: Grady-----	Very poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good
HvA: Hornsville-----	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
LkB: Lakeland-----	Poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
LkD: Lakeland-----	Poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
LmB: Lucy-----	Poor	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor
LmC: Lucy-----	Poor	Fair	Good	Fair	Good	Very poor	Very poor	Fair	Good	Very poor
LnA: Lynchburg-----	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair
NaB: Nankin-----	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
NcC: Nankin-----	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Cowarts-----	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
NcD: Nankin-----	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Cowarts-----	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
NoA: Norfolk-----	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor

Table 11.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wet- land wild- life
NoB: Norfolk-----	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
NoC: Norfolk-----	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
OcA: Ocilla-----	Fair	Fair	Good	Fair	Good	Fair	Fair	Fair	Good	Fair
OeA: Orangeburg-----	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
OeB: Orangeburg-----	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
OeC: Orangeburg-----	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
OeD: Orangeburg-----	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
OSA: Osier-----	Very poor	Poor	Fair	Fair	Fair	Fair	Good	Poor	Fair	Fair
Bibb-----	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good
PeA: Pelham-----	Poor	Poor	Fair	Fair	Poor	Fair	Fair	Poor	Fair	Fair
ReA: Rembert-----	Very poor	Poor	Very poor	Poor	Very poor	Good	Good	Very poor	Poor	Good
TfA: Tifton-----	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
TfB: Tifton-----	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
TfC: Tifton-----	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
TrB: Troup-----	Poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Fair	Good	Very poor
TrD: Troup-----	Poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Fair	Good	Very poor

Table 11.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wet- land wild- life
Ud: Udorthents, loamy.										
Up: Udorthents. Pits.										
UtC: Urban land.										
Tifton-----	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
WaB: Wagram-----	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
WhA: Wahee-----	Fair	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair

Table 12.--Building Site Development

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
EgB: Bigbee-----	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.24	Somewhat limited Flooding	0.40	Very limited Cutbanks cave Depth to saturated zone	1.00 0.24
BlB: Blanton-----	Not limited		Somewhat limited Depth to saturated zone	0.15	Not limited		Very limited Cutbanks cave Depth to saturated zone	1.00 0.15
BLD: Blanton-----	Somewhat limited Slope	0.04	Somewhat limited Depth to saturated zone Slope	0.15 0.04	Somewhat limited Slope	0.04	Very limited Cutbanks cave Depth to saturated zone Slope	1.00 0.15 0.04
BoB: Bonneau-----	Not limited		Somewhat limited Depth to saturated zone	0.47	Not limited		Very limited Cutbanks cave Depth to saturated zone	1.00 0.47
BoD: Bonneau-----	Somewhat limited Slope	0.04	Somewhat limited Depth to saturated zone Slope	0.47 0.04	Somewhat limited Slope	0.04	Very limited Cutbanks cave Depth to saturated zone Slope	1.00 0.47 0.04
CaB: Carnegie-----	Not limited		Not limited		Somewhat limited Low strength	0.50	Somewhat limited Too clayey	0.15
CaC: Carnegie-----	Not limited		Not limited		Somewhat limited Low strength	0.50	Somewhat limited Too clayey	0.15

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CgC: Cowarts-----	Not limited		Not limited		Not limited		Not limited	
Gritney-----	Somewhat limited Shrink-swell Depth to saturated zone	0.50 0.07	Very limited Depth to saturated zone Shrink-swell	1.00 0.50	Very limited Low strength Shrink-swell Depth to saturated zone	1.00 0.50 0.03	Very limited Depth to saturated zone Too clayey	1.00 0.28
CgD: Cowarts-----	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16
Gritney-----	Somewhat limited Shrink-swell Slope Depth to saturated zone	0.50 0.16 0.07	Very limited Depth to saturated zone Shrink-swell Slope	1.00 0.50 0.16	Very limited Low strength Shrink-swell Slope Depth to saturated zone	1.00 0.50 0.16 0.03	Very limited Depth to saturated zone Too clayey Slope	1.00 0.28 0.16
DoA: Dothan-----	Not limited		Somewhat limited Depth to saturated zone	0.61	Not limited		Somewhat limited Depth to saturated zone	0.61
DoB: Dothan-----	Not limited		Somewhat limited Depth to saturated zone	0.61	Not limited		Somewhat limited Depth to saturated zone	0.61
FeA: Faceville-----	Not limited		Not limited		Somewhat limited Low strength	0.50	Somewhat limited Too clayey	0.12
FeB: Faceville-----	Not limited		Not limited		Somewhat limited Low strength	0.50	Somewhat limited Too clayey	0.12
FeC: Faceville-----	Not limited		Not limited		Somewhat limited Low strength	0.50	Somewhat limited Too clayey	0.12

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
FuB: Fuquay-----	Not limited		Somewhat limited Depth to saturated zone	0.16	Not limited		Very limited Cutbanks cave Depth to saturated zone	1.00 0.16
GoA: Goldsboro-----	Not limited		Very limited Depth to saturated zone	1.00	Somewhat limited Low strength	0.76	Very limited Depth to saturated zone	1.00
GrA: Grady-----	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding Low strength	1.00 1.00 0.50	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.88
HvA: Hornsville-----	Not limited		Somewhat limited Depth to saturated zone	0.95	Somewhat limited Low strength	0.50	Somewhat limited Depth to saturated zone	0.95
LkB: Lakeland-----	Not limited		Not limited		Not limited		Very limited Cutbanks cave	1.00
LkD: Lakeland-----	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Cutbanks cave Slope	1.00 0.04
LmB: Lucy-----	Not limited		Not limited		Not limited		Very limited Cutbanks cave	1.00
LmC: Lucy-----	Not limited		Not limited		Not limited		Very limited Cutbanks cave	1.00
LnA: Lynchburg-----	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
NaB: Nankin-----	Not limited		Not limited		Not limited		Somewhat limited Too clayey	0.03
NcC: Nankin-----	Not limited		Not limited		Not limited		Somewhat limited Too clayey	0.03
Cowarts-----	Not limited		Not limited		Not limited		Not limited	
NcD: Nankin-----	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Somewhat limited Slope Too clayey	0.16 0.03
Cowarts-----	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16
NoA: Norfolk-----	Not limited		Somewhat limited Depth to saturated zone	0.15	Not limited		Somewhat limited Depth to saturated zone	0.15
NoB: Norfolk-----	Not limited		Somewhat limited Depth to saturated zone	0.15	Not limited		Somewhat limited Depth to saturated zone	0.15
NoC: Norfolk-----	Not limited		Somewhat limited Depth to saturated zone	0.15	Not limited		Somewhat limited Depth to saturated zone	0.15
OcA: Ocilla-----	Somewhat limited Depth to saturated zone	0.81	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.48	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00
OeA: Orangeburg-----	Not limited		Not limited		Not limited		Not limited	
OeB: Orangeburg-----	Not limited		Not limited		Not limited		Not limited	

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
OeC: Orangeburg-----	Not limited		Not limited		Not limited		Not limited	
OeD: Orangeburg-----	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16
OSA: Osier-----	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Flooding	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave Flooding	1.00 1.00 0.80
Bibb-----	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Flooding	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave Flooding	1.00 1.00 0.80
PeA: Pelham-----	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Flooding	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave Flooding	1.00 1.00 0.80
ReA: Rembert-----	Very limited Flooding Depth to saturated zone Ponding	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Flooding Ponding Low strength	1.00 1.00 1.00 0.50	Very limited Depth to saturated zone Ponding Flooding Too clayey	1.00 1.00 0.80 0.28
TfA: Tifton-----	Not limited		Somewhat limited Depth to saturated zone	0.35	Not limited		Somewhat limited Depth to saturated zone	0.35
TfB: Tifton-----	Not limited		Somewhat limited Depth to saturated zone	0.35	Not limited		Somewhat limited Depth to saturated zone	0.35

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TfC: Tifton-----	Not limited		Somewhat limited Depth to saturated zone	0.35	Not limited		Somewhat limited Depth to saturated zone	0.35
TrB: Troup-----	Not limited		Not limited		Not limited		Very limited Cutbanks cave	1.00
TrD: Troup-----	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Cutbanks cave Slope	1.00 0.04
Ud: Udorthents, loamy--	Not Rated		Not Rated		Not Rated		Not Rated	
Up: Udorthents-----	Not Rated		Not Rated		Not Rated		Not Rated	
Pits-----	Not Rated		Not Rated		Not Rated		Not Rated	
UtC: Urban land-----	Not Rated		Not Rated		Not Rated		Not Rated	
Tifton-----	Not limited		Somewhat limited Depth to saturated zone	0.35	Not limited		Somewhat limited Depth to saturated zone	0.35
WaB: Wagram-----	Not limited		Not limited		Not limited		Very limited Cutbanks cave	1.00
WhA: Wahee-----	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.50	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.50	Very limited Flooding Low strength Depth to saturated zone Shrink-swell	1.00 1.00 1.00 0.50	Very limited Depth to saturated zone Too clayey Flooding	1.00 0.72 0.60

Table 13.--Sanitary Facilities

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
BgB: Bigbee-----	Very limited Filtering capacity Depth to saturated zone Flooding	1.00 0.65 0.40	Very limited Seepage Flooding Slope Depth to saturated zone	1.00 0.40 0.08 0.02
BlB: Blanton-----	Very limited Filtering capacity Restricted permeability Depth to saturated zone	1.00 0.68 0.40	Very limited Seepage Slope	1.00 0.08
BlD: Blanton-----	Very limited Filtering capacity Restricted permeability Depth to saturated zone Slope	1.00 0.68 0.40 0.04	Very limited Seepage Slope	1.00 1.00
BoB: Bonneau-----	Very limited Filtering capacity Depth to saturated zone Restricted permeability	1.00 0.94 0.50	Very limited Seepage Depth to saturated zone Slope	1.00 0.40 0.08
BoD: Bonneau-----	Very limited Filtering capacity Depth to saturated zone Restricted permeability Slope	1.00 0.94 0.50 0.04	Very limited Seepage Slope Depth to saturated zone	1.00 1.00 0.40
CaB: Carnegie-----	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.32
CaC: Carnegie-----	Very limited Restricted permeability	1.00	Very limited Slope	1.00

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
CgC: Cowarts-----	Very limited Restricted permeability	1.00	Very limited Slope Seepage	1.00 0.32
Gritney-----	Very limited Restricted permeability Depth to saturated zone	1.00 1.00	Very limited Slope Seepage Depth to saturated zone	1.00 1.00 0.44
CgD: Cowarts-----	Very limited Restricted permeability Slope	1.00 0.16	Very limited Slope Seepage	1.00 0.32
Gritney-----	Very limited Restricted permeability Depth to saturated zone Slope	1.00 1.00 0.16	Very limited Slope Seepage Depth to saturated zone	1.00 1.00 0.44
DoA: Dothan-----	Very limited Restricted permeability Depth to saturated zone	1.00 1.00	Somewhat limited Seepage	0.50
DoB: Dothan-----	Very limited Restricted permeability Depth to saturated zone	1.00 1.00	Somewhat limited Seepage Slope	0.50 0.32
FeA: Faceville-----	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
FeB: Faceville-----	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage Slope	0.50 0.32
FeC: Faceville-----	Somewhat limited Restricted permeability	0.50	Very limited Slope Seepage	1.00 0.50
FuB: Fuquay-----	Very limited Restricted permeability Filtering capacity Depth to saturated zone	1.00 1.00 0.43	Very limited Seepage Slope	1.00 0.32

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
GoA: Goldsboro-----	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
	Restricted permeability	0.50	Seepage	0.50
GrA: Grady-----	Very limited Restricted permeability	1.00	Very limited Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00		
HvA: Hornsville-----	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
	Restricted permeability	1.00	Seepage	0.50
LkB: Lakeland-----	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
			Slope	0.08
LkD: Lakeland-----	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
	Slope	0.04	Slope	1.00
LmB: Lucy-----	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
	Restricted permeability	0.50	Slope	0.08
LmC: Lucy-----	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
	Restricted permeability	0.50	Slope	1.00
LnA: Lynchburg-----	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
	Restricted permeability	0.50	Seepage	1.00
NaB: Nankin-----	Very limited Restricted permeability	1.00	Somewhat limited Seepage	0.50
			Slope	0.32
NcC: Nankin-----	Very limited Restricted permeability	1.00	Very limited Slope	1.00
			Seepage	0.50

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
NcC: Cowarts-----	Very limited Restricted permeability	1.00	Very limited Slope Seepage	1.00 0.32
NcD: Nankin-----	Very limited Restricted permeability Slope	1.00 0.16	Very limited Slope Seepage	1.00 0.50
Cowarts-----	Very limited Restricted permeability Slope	1.00 0.16	Very limited Slope Seepage	1.00 0.32
NoA: Norfolk-----	Somewhat limited Restricted permeability Depth to saturated zone	0.50 0.40	Somewhat limited Seepage	0.50
NoB: Norfolk-----	Somewhat limited Restricted permeability Depth to saturated zone	0.50 0.40	Somewhat limited Seepage Slope	0.50 0.32
NoC: Norfolk-----	Somewhat limited Restricted permeability Depth to saturated zone	0.50 0.40	Very limited Slope Seepage	1.00 0.50
OcA: Ocilla-----	Very limited Depth to saturated zone Filtering capacity Restricted permeability	1.00 1.00 0.68	Very limited Depth to saturated zone Seepage	1.00 1.00
OeA: Orangeburg-----	Somewhat limited Restricted permeability	0.50	Very limited Seepage	1.00
OeB: Orangeburg-----	Somewhat limited Restricted permeability	0.50	Very limited Seepage Slope	1.00 0.32
OeC: Orangeburg-----	Somewhat limited Restricted permeability	0.50	Very limited Seepage Slope	1.00 1.00

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
OeD: Orangeburg-----	Somewhat limited Restricted permeability Slope	0.50 0.16	Very limited Slope Seepage	1.00 1.00
OSA: Osier-----	Very limited Flooding Depth to saturated zone Filtering capacity	1.00 1.00 1.00	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 1.00
Bibb-----	Very limited Flooding Depth to saturated zone Restricted permeability	1.00 1.00 0.50	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00
PeA: Pelham-----	Very limited Flooding Depth to saturated zone Filtering capacity Restricted permeability	1.00 1.00 1.00 0.68	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 1.00
ReA: Rembert-----	Very limited Flooding Restricted permeability Depth to saturated zone Ponding	1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage Ponding	1.00 1.00 1.00 1.00
TfA: Tifton-----	Very limited Restricted permeability Depth to saturated zone	1.00 0.84	Somewhat limited Seepage	0.50
TfB: Tifton-----	Very limited Restricted permeability Depth to saturated zone	1.00 0.84	Somewhat limited Seepage Slope	0.50 0.32
TfC: Tifton-----	Very limited Restricted permeability Depth to saturated zone	1.00 0.84	Very limited Slope Seepage	1.00 0.50

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
TrB: Troup-----	Very limited Filtering capacity Restricted permeability	1.00 0.50	Very limited Seepage Slope	1.00 0.08
TrD: Troup-----	Very limited Filtering capacity Restricted permeability Slope	1.00 0.50 0.04	Very limited Seepage Slope	1.00 1.00
Ud: Udorthents, loamy---	Not Rated		Not Rated	
Up: Udorthents-----	Not Rated		Not Rated	
Pits-----	Not Rated		Not Rated	
UtC: Urban land-----	Not Rated		Not Rated	
Tifton-----	Very limited Restricted permeability Depth to saturated zone	1.00 0.84	Somewhat limited Seepage Slope	0.50 0.32
WaB: Wagram-----	Very limited Filtering capacity Restricted permeability	1.00 0.50	Very limited Seepage Slope	1.00 0.08
WhA: Wahee-----	Very limited Flooding Restricted permeability Depth to saturated zone	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00

Table 14.--Construction Materials

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Potential source of sand		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BgB: Bigbee-----	Fair Thickest layer Bottom layer	0.19 0.19	Good		Poor Too sandy Too acid	0.00 0.98
BlB: Blanton-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Fair Too sandy Too acid	0.07 0.98
BlD: Blanton-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Fair Too sandy Slope Too acid	0.07 0.96 0.98
BoB: Bonneau-----	Fair Bottom layer Thickest layer	0.00 0.06	Good		Poor Too sandy Too acid	0.00 0.98
BoD: Bonneau-----	Fair Bottom layer Thickest layer	0.00 0.06	Good		Poor Too sandy Slope Too acid	0.00 0.96 0.98
CaB: Carnegie-----	Poor Thickest layer Bottom layer	0.00 0.00	Fair Low strength	0.50	Poor Too Clayey Too acid	0.00 0.59
CaC: Carnegie-----	Poor Thickest layer Bottom layer	0.00 0.00	Fair Low strength	0.50	Poor Too Clayey Too acid	0.00 0.59
CgC: Cowarts-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Fair Too Clayey Too acid	0.31 0.88
Gritney-----	Poor Thickest layer Bottom layer	0.00 0.00	Poor Low strength Depth to saturated zone Shrink-swell	0.00 0.76 0.95	Poor Too Clayey Too acid Depth to saturated zone	0.00 0.50 0.76
CgD: Cowarts-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Fair Too Clayey Slope Too acid	0.31 0.84 0.88

Table 14.--Construction Materials--Continued

Map symbol and soil name	Potential source of sand		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CgD: Gritney-----	Poor Thickest layer Bottom layer	0.00 0.00	Poor Low strength Depth to saturated zone Shrink-swell	0.00 0.76 0.95	Poor Too Clayey Too acid Depth to saturated zone Slope	0.00 0.50 0.76 0.84
DoA: Dothan-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Fair Too Clayey Too acid	0.55 0.98
DoB: Dothan-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Fair Too Clayey Too acid	0.55 0.98
FeA: Faceville-----	Poor Thickest layer Bottom layer	0.00 0.00	Fair Low strength	0.50	Poor Too Clayey Too acid	0.00 0.98
FeB: Faceville-----	Poor Thickest layer Bottom layer	0.00 0.00	Fair Low strength	0.50	Poor Too Clayey Too acid	0.00 0.98
FeC: Faceville-----	Poor Thickest layer Bottom layer	0.00 0.00	Fair Low strength	0.50	Poor Too Clayey Too acid	0.00 0.98
FuB: Fuquay-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Poor Too sandy Too acid	0.00 0.98
GoA: Goldsboro-----	Poor Thickest layer Bottom layer	0.00 0.00	Fair Low strength Depth to saturated zone	0.24 0.89	Fair Too acid Too Clayey Depth to saturated zone	0.50 0.57 0.89
GrA: Grady-----	Poor Thickest layer Bottom layer	0.00 0.00	Poor Depth to saturated zone Low strength	0.00 0.50	Poor Too Clayey Depth to saturated zone Too acid	0.00 0.00 0.59
HvA: Hornsville-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Fair Too Clayey Too acid	0.01 0.76
LkB: Lakeland-----	Fair Thickest layer Bottom layer	0.84 0.99	Good		Poor Too sandy Too acid	0.00 0.98

Table 14.--Construction Materials--Continued

Map symbol and soil name	Potential source of sand		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LkD: Lakeland-----	Fair Thickest layer Bottom layer	0.84 0.99	Good		Poor Too sandy Slope Too acid	0.00 0.96 0.98
LmB: Lucy-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Poor Too sandy	0.00
LmC: Lucy-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Poor Too sandy	0.00
LnA: Lynchburg-----	Poor Thickest layer Bottom layer	0.00 0.00	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Too Clayey Too acid	0.00 0.49 0.59
NaB: Nankin-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Poor Too Clayey Too acid	0.00 0.88
NcC: Nankin-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Poor Too Clayey Too acid	0.00 0.88
Cowarts-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Fair Too Clayey Too acid	0.33 0.88
NcD: Nankin-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Poor Too Clayey Slope Too acid	0.00 0.84 0.88
Cowarts-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Fair Too Clayey Slope Too acid	0.31 0.84 0.88
NoA: Norfolk-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Fair Too Clayey Too acid	0.38 0.50
NoB: Norfolk-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Fair Too Clayey Too acid	0.38 0.50

Table 14.--Construction Materials--Continued

Map symbol and soil name	Potential source of sand		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
NoC: Norfolk-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Fair Too Clayey Too acid	0.38 0.50
OcA: Ocilla-----	Poor Thickest layer Bottom layer	0.00 0.00	Fair Depth to saturated zone	0.29	Fair Too sandy Depth to saturated zone Too acid	0.01 0.29 0.88
OeA: Orangeburg-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Fair Too Clayey Too acid	0.58 0.88
OeB: Orangeburg-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Fair Too Clayey Too acid	0.58 0.88
OeC: Orangeburg-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Fair Too Clayey Too acid	0.58 0.88
OeD: Orangeburg-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Fair Too Clayey Slope Too acid	0.58 0.84 0.88
OSA: Osier-----	Fair Thickest layer Bottom layer	0.19 0.57	Poor Depth to saturated zone	0.00	Poor Too sandy Depth to saturated zone Too acid	0.00 0.00 0.76
Bibb-----	Fair Thickest layer Bottom layer	0.00 0.61	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Rock fragments Too acid	0.00 0.12 0.59
PeA: Pelham-----	Poor Thickest layer Bottom layer	0.00 0.00	Poor Depth to saturated zone	0.00	Poor Too sandy Depth to saturated zone Too acid	0.00 0.00 0.59
ReA: Rembert-----	Poor Thickest layer Bottom layer	0.00 0.00	Poor Depth to saturated zone Low strength	0.00 0.50	Poor Depth to saturated zone Too Clayey Too acid	0.00 0.00 0.88

Table 14.--Construction Materials--Continued

Map symbol and soil name	Potential source of sand		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TfA: Tifton-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Fair Rock fragments Too Clayey Too acid	0.45 0.52 0.98
TfB: Tifton-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Fair Rock fragments Too Clayey Too acid	0.45 0.52 0.98
TfC: Tifton-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Fair Rock fragments Too Clayey Too acid	0.45 0.52 0.98
TrB: Troup-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Fair Too sandy Too acid	0.01 0.98
TrD: Troup-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Fair Too sandy Slope Too acid	0.01 0.96 0.98
Ud: Udorthents, loamy----	Not Rated		Not rated		Not Rated	
Up: Udorthents-----	Not Rated		Not rated		Not Rated	
Pits-----	Not Rated		Not rated		Not Rated	
UtC: Urban land-----	Not Rated		Not rated		Not Rated	
Tifton-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Fair Rock fragments Too Clayey Too acid	0.45 0.54 0.98
WaB: Wagram-----	Poor Thickest layer Bottom layer	0.00 0.00	Good		Poor Too sandy Too acid	0.00 0.98
WhA: Wahee-----	Poor Thickest layer Bottom layer	0.00 0.00	Poor Low strength Depth to saturated zone Shrink-swell	0.00 0.00 0.87	Poor Too Clayey Depth to saturated zone Too acid	0.00 0.00 0.59

Table 15.--Water Management

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table]

Map symbol and soil name	Pond reservoir areas		Embankments, dikes and levees	
	Rating class and limiting features	Value	Rating class and limiting features	Value
BgB: Bigbee-----	Very limited Seepage Slope	1.00 0.01	Somewhat limited Seepage	0.14
BlB: Blanton-----	Very limited Seepage Slope	1.00 0.01	Somewhat limited Seepage	0.10
BlD: Blanton-----	Very limited Seepage Slope	1.00 0.77	Somewhat limited Seepage	0.10
BoB: Bonneau-----	Very limited Seepage Slope	1.00 0.01	Somewhat limited Seepage	0.13
BoD: Bonneau-----	Very limited Seepage Slope	1.00 0.77	Somewhat limited Seepage	0.13
CaB: Carnegie-----	Somewhat limited Seepage Slope	0.03 0.03	Somewhat limited Piping	0.12
CaC: Carnegie-----	Somewhat limited Slope Seepage	0.40 0.03	Somewhat limited Piping	0.12
CgC: Cowarts-----	Somewhat limited Seepage Slope	0.57 0.40	Somewhat limited Seepage	0.03
Gritney-----	Very limited Seepage Slope	1.00 0.40	Somewhat limited Depth to saturated zone	0.95
CgD: Cowarts-----	Somewhat limited Slope Seepage	0.90 0.57	Somewhat limited Seepage	0.03
Gritney-----	Very limited Seepage Slope	1.00 0.90	Somewhat limited Depth to saturated zone	0.95

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes and levees	
	Rating class and limiting features	Value	Rating class and limiting features	Value
DoA: Dothan-----	Somewhat limited Seepage	0.70	Not limited	
DoB: Dothan-----	Somewhat limited Seepage Slope	0.70 0.03	Not limited	
FeA: Faceville-----	Somewhat limited Seepage	0.70	Somewhat limited Piping Seepage	0.26 0.04
FeB: Faceville-----	Somewhat limited Seepage Slope	0.70 0.03	Somewhat limited Piping Seepage	0.26 0.04
FeC: Faceville-----	Somewhat limited Seepage Slope	0.70 0.40	Somewhat limited Piping Seepage	0.26 0.04
FuB: Fuquay-----	Very limited Seepage Slope	1.00 0.03	Somewhat limited Seepage	0.11
GoA: Goldsboro-----	Somewhat limited Seepage	0.70	Somewhat limited Depth to saturated zone Seepage	0.86 0.03
GrA: Grady-----	Not limited		Very limited Depth to saturated zone Ponding Piping	1.00 1.00 0.41
HvA: Hornsville-----	Somewhat limited Seepage	0.70	Somewhat limited Depth to saturated zone	0.43
LkB: Lakeland-----	Very limited Seepage Slope	1.00 0.01	Somewhat limited Seepage	0.75
LkD: Lakeland-----	Very limited Seepage Slope	1.00 0.77	Somewhat limited Seepage	0.75
LmB: Lucy-----	Very limited Seepage Slope	1.00 0.01	Somewhat limited Seepage	0.10

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes and levees	
	Rating class and limiting features	Value	Rating class and limiting features	Value
LmC: Lucy-----	Very limited Seepage Slope	1.00 0.40	Somewhat limited Seepage	0.10
LnA: Lynchburg-----	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone	1.00
NaB: Nankin-----	Somewhat limited Seepage Slope	0.70 0.03	Not limited	
NcC: Nankin-----	Somewhat limited Seepage Slope	0.70 0.40	Not limited	
Cowarts-----	Somewhat limited Seepage Slope	0.57 0.40	Somewhat limited Seepage	0.03
NcD: Nankin-----	Somewhat limited Slope Seepage	0.90 0.70	Not limited	
Cowarts-----	Somewhat limited Slope Seepage	0.90 0.57	Somewhat limited Seepage	0.03
NoA: Norfolk-----	Somewhat limited Seepage	0.70	Somewhat limited Piping Seepage	0.94 0.03
NoB: Norfolk-----	Somewhat limited Seepage Slope	0.70 0.03	Somewhat limited Piping Seepage	0.94 0.03
NoC: Norfolk-----	Somewhat limited Seepage Slope	0.70 0.40	Somewhat limited Piping Seepage	0.92 0.03
OcA: Ocilla-----	Very limited Seepage	1.00	Very limited Depth to saturated zone	1.00
OeA: Orangeburg-----	Somewhat limited Seepage	0.70	Not limited	
OeB: Orangeburg-----	Somewhat limited Seepage Slope	0.70 0.03	Not limited	

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes and levees	
	Rating class and limiting features	Value	Rating class and limiting features	Value
OeC: Orangeburg-----	Somewhat limited Seepage Slope	0.70 0.40	Not limited	
OeD: Orangeburg-----	Somewhat limited Slope Seepage	0.90 0.70	Not limited	
OSA: Osier-----	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.30
Bibb-----	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.36
PeA: Pelham-----	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.07
ReA: Rembert-----	Very limited Seepage	1.00	Very limited Depth to saturated zone Ponding Piping	1.00 1.00 0.81
TfA: Tifton-----	Somewhat limited Seepage	0.70	Not limited	
TfB: Tifton-----	Somewhat limited Seepage Slope	0.70 0.03	Not limited	
TfC: Tifton-----	Somewhat limited Seepage Slope	0.70 0.40	Not limited	
TrB: Troup-----	Very limited Seepage Slope	1.00 0.01	Somewhat limited Seepage	0.10
TrD: Troup-----	Very limited Seepage Slope	1.00 0.77	Somewhat limited Seepage	0.10
Ud: Udorthents, loamy--	Not Rated		Not Rated	

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes and levees	
	Rating class and limiting features	Value	Rating class and limiting features	Value
Up:				
Udorthents-----	Not Rated		Not Rated	
Pits-----	Not Rated		Not Rated	
UtC:				
Urban land-----	Somewhat limited Slope	0.03	Not Rated	
Tifton-----	Somewhat limited Seepage	0.70	Not limited	
	Slope	0.03		
WaB:				
Wagram-----	Very limited Seepage	1.00	Somewhat limited Seepage	0.10
	Slope	0.01		
WhA:				
Wahee-----	Not limited		Very limited Depth to saturated zone	1.00
			Hard to pack	0.69
			Seepage	0.04

Table 16.--Engineering Index Properties

[Absence of an entry indicates that the data were not estimated]

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
<b>BgB:</b>												
Bigbee-----	0-5	Loamy fine sand	SM	A-2-4	0	0	100	95-100	60-90	15-30	0-2	1-6
	5-28	Fine sand	SM	A-2-4, A-3	0	0	95-100	85-100	50-75	5-20	0-24	NP-6
	28-62	Fine sand	SM	A-2-4, A-3	0	0	85-100	85-100	50-75	5-20	0-23	NP-6
<b>BlB:</b>												
Blanton-----	0-10	Loamy sand	SM	A-2-4	0	0	100	95-100	85-100	13-25	0-14	NP
	10-61	Loamy sand	SM	A-2-4	0	0	100	95-100	85-100	13-25	0-14	NP
	61-68	Sandy loam, loamy sand, loamy coarse sand	SM	A-2-4	0	0	100	95-100	65-96	13-30	0-25	NP-3
	68-80	Sandy clay loam, sandy loam, sandy clay	SC, SC-SM, SM	A-2-4, A-2-6, A-4, A-6	0	0	100	95-100	69-100	25-50	12-45	3-22
<b>BLD:</b>												
Blanton-----	0-10	Loamy sand	SM	A-2-4	0	0	100	95-100	85-100	13-25	0-14	NP
	10-61	Loamy sand	SM	A-2-4	0	0	100	95-100	85-100	13-25	0-14	NP
	61-68	Sandy loam, loamy sand, loamy coarse sand	SM	A-2-4	0	0	100	95-100	65-96	13-30	0-25	NP-3
	68-80	Sandy clay loam, sandy loam, sandy clay	SC, SC-SM, SM	A-4, A-6, A- 2-6, A-2-4	0	0	100	95-100	69-100	25-50	12-45	3-22
<b>BoB:</b>												
Bonneau-----	0-10	Loamy sand	SM	A-2	0	0	100	100	50-95	15-35	0-14	NP
	10-31	Loamy sand	SM	A-2	0	0	100	100	50-95	15-35	0-14	NP
	31-39	Sandy loam, sandy clay loam, fine sandy loam	SC, SC-SM	A-2, A-4, A-6	0	0	100	100	60-100	30-50	21-40	4-21
	39-72	Sandy loam, sandy clay loam, sandy clay	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0	0	100	100	60-95	25-60	20-40	4-18

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
BoD: Bonneau-----	0-10	Loamy sand	SM	A-2	0	0	100	100	50-95	15-35	0-14	NP
	10-31	Loamy sand	SM	A-2	0	0	100	100	50-95	15-35	0-14	NP
	31-39	Sandy loam, sandy clay loam, fine sandy loam	SC, SC-SM	A-2, A-4, A-6	0	0	100	100	60-100	30-50	21-40	4-21
	39-72	Sandy loam, sandy clay loam, sandy clay	CL, CL-ML, SC, SC-SM	A-6, A-4, A-2	0	0	100	100	60-95	25-60	20-40	4-18
CaB: Carnegie-----	0-6	Gravelly sandy loam	SC-SM, SM	A-2-4	0	0	85-100	75-95	51-75	13-30	0-25	NP-5
	6-20	Sandy clay, clay loam	CL	A-7-6, A-7	0	0	95-100	90-99	90-95	65-70	36-49	13-25
	20-45	Clay	CL	A-7-6, A-7	0	0	92-100	90-98	89-98	63-76	36-49	13-25
	45-65	Sandy clay, clay	CL	A-7, A-7-6	0	0	99-100	98-100	90-98	68-79	36-49	13-25
CaC: Carnegie-----	0-6	Gravelly sandy loam	SM, SC-SM,	A-2-4	0	0	85-100	75-95	51-75	13-30	0-25	NP-5
	6-20	Sandy clay, clay loam	CL	A-7, A-7-6	0	0	95-100	90-99	90-95	65-70	36-49	13-25
	20-45	Clay	CL	A-7, A-7-6	0	0	92-100	90-98	89-98	63-76	36-49	13-25
	45-65	Sandy clay, clay	CL	A-7, A-7-6	0	0	99-100	98-100	90-98	68-79	36-49	13-25
CgC: Cowarts-----	0-4	Loamy sand	SM	A-2-4	0	0	95-100	90-100	75-90	20-40	0-20	NP-5
	4-9	Sandy loam, sandy clay loam	SM, SC-SM, SC	A-2, A-4	0	0	95-100	90-100	60-95	23-45	20-40	NP-15
	9-31	Sandy clay loam, sandy clay, clay loam	SC	A-7, A-2-6, A-6	0	0	95-100	90-100	60-95	25-50	20-54	5-25
	31-65	Sandy loam, sandy clay loam, clay loam	SM, CL, SC	A-6, A-4, A- 2, A-7	0	0	85-100	80-100	60-95	25-58	25-53	5-20

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
CgC: Gritney-----	0-8	Loamy sand	SP-SM, SM	A-2-4	0	0	90-100	85-100	75-99	10-20	20-30	NP-8
	8-49	Sandy clay, clay loam	SC, CL	A-7-6	0	0	95-100	90-100	80-100	36-60	45-70	22-40
	49-65	Clay loam, sandy loam, sandy clay loam	SC, SM, CL	A-6, A-4	0	0-2	95-100	80-100	80-100	45-80	20-40	NP-20
CgD: Cowarts-----	0-4	Loamy sand	SM	A-2-4	0	0	95-100	90-100	75-90	20-40	0-20	NP-5
	4-9	Sandy loam, sandy clay loam	SC, SM, SC-SM	A-4, A-2	0	0	95-100	90-100	60-95	23-45	20-40	NP-15
	9-31	Sandy clay loam, sandy clay, clay loam	SC	A-6, A-7, A- 2-6	0	0	95-100	90-100	60-95	25-50	20-54	5-25
	31-65	Sandy loam, sandy clay loam, clay loam	CL, SC, SM	A-6, A-7, A- 4, A-2	0	0	85-100	80-100	60-95	25-58	25-53	5-20
Gritney-----	0-8	Loamy sand	SM, SP-SM	A-2-4	0	0	90-100	85-100	75-99	10-20	20-30	NP-8
	8-49	Sandy clay, clay loam	CL, SC	A-7-6	0	0	95-100	90-100	80-100	36-60	45-70	22-40
	49-65	Sandy loam, clay loam, sandy clay loam	CL, SC, SM	A-4, A-6	0	0-2	95-100	80-100	80-100	45-80	20-40	NP-25
DoA: Dothan-----	0-12	Loamy sand	SM	A-2	0	0	95-100	92-100	60-80	13-30	0-14	NP
	12-48	Sandy clay loam, sandy loam, fine sandy loam	SC-SM, SC	A-6, A-2, A-4	0	0	95-100	92-100	60-90	23-49	0-40	NP-16
	48-65	Sandy clay loam, sandy clay	CL, SC-SM, SC	A-4, A-2, A-6	0	0	95-100	92-100	70-95	30-53	25-45	4-23

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
<b>DoB:</b>												
Dothan-----	0-12	Loamy sand	SM	A-2	0	0	95-100	92-100	60-80	13-30	0-14	NP
	12-48	Sandy clay loam, sandy loam, fine sandy loam	SC, SC-SM	A-4, A-6, A-2	0	0	95-100	92-100	60-90	23-49	0-40	NP-16
	48-65	Sandy clay loam, sandy clay	CL, SC, SC-SM	A-2, A-6, A-4	0	0	95-100	92-100	70-95	30-53	25-45	4-23
<b>FeA:</b>												
Faceville-----	0-4	Sandy loam	SM, SC-SM	A-2-4, A-2, A-4	0	0	90-100	85-100	72-97	17-38	0-25	NP-7
	4-7	Sandy clay loam	SC-SM, ML	A-4	0	0	98-100	90-100	85-98	46-66	0-35	NP-7
	7-65	Sandy clay	SC, CL	A-6, A-7	0	0	98-100	98-100	75-99	45-72	25-52	11-25
<b>FeB:</b>												
Faceville-----	0-4	Sandy loam	SC-SM, SM	A-2, A-4, A- 2-4	0	0	90-100	85-100	72-97	17-38	0-25	NP-7
	4-7	Sandy clay loam	ML, SC-SM, SM	A-4	0	0	98-100	90-100	85-98	46-66	0-35	NP-7
	7-65	Sandy clay	CL, SC	A-7, A-6	0	0	98-100	98-100	75-99	45-72	25-52	11-25
<b>FeC:</b>												
Faceville-----	0-4	Sandy loam	SC-SM, SM	A-2-4, A-2, A-4	0	0	90-100	85-100	72-97	17-38	0-25	NP-7
	4-7	Sandy clay loam	SC-SM, SM	A-4	0	0	98-100	90-100	85-98	46-66	0-35	NP-7
	7-65	Sandy clay	CL, SC	A-6, A-7	0	0	98-100	98-100	75-99	45-72	25-52	11-25
<b>FuB:</b>												
Fuquay-----	0-8	Loamy sand	SM	A-2-4	0	0	95-100	90-100	50-83	5-35	10-20	NP
	8-32	Loamy sand	SM	A-2-4	0	0	95-100	90-100	50-83	5-35	10-20	NP
	32-40	Sandy loam, fine sandy loam, sandy clay loam	SM, SC-SM	A-2-4, A-4	0	0	85-100	85-100	70-90	23-45	20-45	NP-13
	40-65	Sandy clay loam	SC	A-2-6, A-6	0	0	95-100	90-100	58-90	28-55	25-45	13-25
<b>GoA:</b>												
Goldsboro-----	0-5	Loamy sand	SM	A-2, A-2-4	0	0	95-100	95-100	50-95	13-30	10-20	NP
	5-10	Loamy sand	SM	A-2-4, A-2	0	0	95-100	95-100	50-95	13-30	10-20	NP
	10-17	Sandy clay loam, sandy loam	SC, SC-SM, CL	A-6, A-4	0	0	98-100	95-100	60-100	25-55	20-37	4-18
	17-65	Sandy clay, sandy clay loam, clay loam	SC, CL	A-4, A-6	0	0	95-100	90-100	65-95	36-70	25-55	6-32

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
GrA: Grady-----	0-6	Sandy loam	SC, SC-SM, SM	A-4, A-2, A-2-4	0	0	100	99-100	85-100	25-50	0-20	NP-10
	6-40	Clay	CL	A-7, A-6	0	0	100	100	90-100	55-90	30-51	11-20
	40-65	Clay, sandy clay	CH, CL	A-6, A-7	0	0	100	100	90-100	55-90	30-51	12-24
HvA: Hornsville-----	0-6	Fine sandy loam	SM	A-4, A-2-4	0	0	100	100	60-95	30-50	0-30	NP-7
	6-10	Sandy loam	SM	A-2-4, A-4	0	0	100	100	60-95	30-50	0-30	NP-7
	10-28	Clay loam, clay	CH, CL, MH, SC	A-6, A-7	0	0	100	100	70-98	45-70	38-56	15-25
	28-65	Sandy clay loam, sandy loam, fine sandy loam	SC, SC-SM, SM	A-6, A-4, A-2-6, A-2-4	0	0	100	100	60-100	18-50	0-30	NP-12
LkB: Lakeland-----	0-9	Sand	SP-SM	A-3, A-2-4	0	0	90-100	90-100	60-100	5-12	0-14	NP
	9-80	Sand, fine sand	SP, SP-SM	A-2-4, A-3	0	0	90-100	90-100	50-100	1-12	0-14	NP
LkD: Lakeland-----	0-9	Sand	SP-SM	A-3, A-2-4	0	0	90-100	90-100	60-100	5-12	0-14	NP
	9-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	0	90-100	90-100	50-100	1-12	0-14	NP
LmB: Lucy-----	0-7	Loamy sand	SM, SP-SM	A-4, A-2-4, A-2	0	0	98-100	95-100	50-90	10-40	0-14	NP
	7-28	Loamy sand	SM, SP-SM	A-4, A-2-4, A-2	0	0	98-100	95-100	50-90	10-40	0-14	NP
	28-33	Sandy loam, fine sandy loam, sandy clay loam	SC, SC-SM, SM	A-2, A-4, A-6	0	0	97-100	95-100	55-95	15-50	10-30	NP-15
	33-65	Sandy clay loam, clay loam, sandy clay	SC, SC-SM, SM	A-6, A-4, A-2, A-2-6	0	0	100	95-100	60-95	20-50	20-40	3-20

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
<b>LmC:</b>												
Lucy-----	0-7	Loamy sand	SM, SP-SM	A-4, A-2-4, A-2	0	0	98-100	95-100	50-90	10-40	0-14	NP
	7-28	Loamy sand	SM, SP-SM	A-2, A-4, A- 2-4	0	0	98-100	95-100	50-90	10-40	0-14	NP
	28-33	Sandy loam, fine sandy loam, sandy clay loam	SC, SC-SM, SM	A-2, A-4, A-6	0	0	97-100	95-100	55-95	15-50	10-30	NP-15
	33-65	Sandy clay loam, clay loam, sandy clay	SC, SC-SM, SM	A-2, A-4, A- 6, A-2-6	0	0	100	95-100	60-95	20-50	20-40	3-20
<b>LnA:</b>												
Lynchburg-----	0-9	Fine sandy loam	SM	A-4, A-2	0	0	92-100	90-100	75-100	25-55	0-15	NP
	9-18	Fine sandy loam	SM	A-2, A-4	0	0	92-100	90-100	75-100	25-55	0-15	NP
	18-22	Sandy clay loam	SC	A-6	0	0	92-100	90-100	70-100	25-67	25-50	7-25
	22-65	Sandy clay loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0	0	95-100	90-100	75-100	25-67	25-50	7-25
<b>NaB:</b>												
Nankin-----	0-6	Loamy fine sand	SM	A-2, A-2-4	0	0	85-100	85-100	70-90	25-45	0-14	NP
	6-39	Sandy clay, clay	CL, CL-ML, SC	A-7, A-4, A-6	0	0	98-100	95-100	75-95	40-70	25-45	7-20
	39-65	Sandy clay loam, sandy loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0	0	98-100	95-100	70-85	25-55	20-40	4-16
<b>NcC:</b>												
Nankin-----	0-6	Loamy fine sand	SM	A-2, A-2-4	0	0	85-100	85-100	70-90	25-45	0-14	NP
	6-39	Sandy clay, clay	CL, CL-ML, SC	A-7, A-6, A-4	0	0	98-100	95-100	75-95	40-70	25-45	7-20
	39-65	Sandy clay loam, sandy loam	CL, CL-ML, SC, SC-SM	A-4, A-2, A-6	0	0	98-100	95-100	70-85	25-55	20-40	4-16

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
NcC: Cowarts-----	0-4	Loamy sand	SM	A-2-4	0	0	95-100	90-100	75-90	20-40	0-20	NP-5
	4-9	Sandy loam, sandy clay loam	SM, SC-SM, SC	A-4, A-2	0	0	95-100	90-100	60-95	23-45	20-40	NP-15
	9-31	Sandy clay loam, sandy clay, clay loam	SC	A-7, A-2-6, A-6	0	0	95-100	90-100	60-95	25-50	20-54	5-25
	31-65	Sandy loam, sandy clay loam, clay loam	CL, SC, SM	A-4, A-7, A- 6, A-2	0	0	85-100	80-100	60-95	25-58	25-53	5-20
NcD: Nankin-----	0-6	Loamy fine sand	SM	A-2, A-2-4	0	0	85-100	85-100	70-90	25-45	0-14	NP
	6-39	Sandy clay, clay	CL, CL-ML, SC	A-6, A-7, A-4	0	0	98-100	95-100	75-95	40-70	25-45	7-20
	39-65	Sandy clay loam, sandy loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0	0	98-100	95-100	70-85	25-55	20-40	4-16
Cowarts-----	0-4	Loamy sand	SM	A-2-4	0	0	95-100	90-100	75-90	20-40	0-20	NP-5
	4-9	Sandy loam, sandy clay loam	SM, SC-SM, SC	A-4, A-2	0	0	95-100	90-100	60-95	23-45	20-40	NP-15
	9-31	Sandy clay loam, sandy clay, clay loam	SC	A-2-6, A-7, A-6	0	0	95-100	90-100	60-95	25-50	20-54	5-25
	31-65	Sandy loam, sandy clay loam, clay loam	CL, SC, SM	A-6, A-7, A- 2, A-4	0	0	85-100	80-100	60-95	25-58	25-53	5-20
NoA: Norfolk-----	0-6	Loamy sand	SM	A-2, A-2-4	0	0	95-100	92-100	50-95	13-30	15-20	NP
	6-14	Sandy loam, sandy clay loam, clay loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0	0	95-100	91-100	70-96	30-63	20-38	4-15
	14-65	Sandy clay loam, clay loam, sandy clay	CL, CL-ML, SC, SC-SM	A-4, A-6, A- 7-6	0	0	100	98-100	65-98	36-72	25-52	4-23

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
NoB: Norfolk-----	0-6	Loamy sand	SM	A-2-4, A-2	0	0	95-100	92-100	50-95	13-30	15-20	NP
	6-14	Sandy loam, sandy clay loam, clay loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0	0	95-100	91-100	70-96	30-63	20-38	4-15
	14-65	Sandy clay loam, clay loam, sandy clay	CL, CL-ML, SC, SC-SM	A-4, A-6, A- 7-6	0	0	100	98-100	65-98	36-72	25-52	4-23
NoC: Norfolk-----	0-4	Loamy sand	SM	A-2-4, A-2	0	0	95-100	92-100	50-95	13-30	15-20	NP
	4-14	Sandy loam, sandy clay loam, clay loam	CL, CL-ML, SC, SC-SM	A-4, A-2, A-6	0	0	95-100	91-100	70-96	30-63	20-38	4-15
	14-65	Sandy clay loam, clay loam, sandy clay	CL, CL-ML, SC, SC-SM	A-4, A-7-6, A-6	0	0	100	98-100	65-98	36-72	25-52	4-23
OcA: Ocilla-----	0-3	Loamy fine sand	SM	A-2-4, A-3, A-2	0	0	100	95-100	75-100	8-35	0-14	NP
	3-27	Loamy sand	SM	A-3, A-2, A- 2-4	0	0	100	95-100	75-100	8-35	0-14	NP
	27-55	Sandy clay loam, fine sandy loam	CL, ML, SC, SM	A-2, A-4, A-6	0	0	100	95-100	80-100	20-55	20-40	NP-18
	55-65	Sandy clay loam, sandy clay, sandy loam	SC, CL	A-7, A-6, A-4	0	0	100	95-100	80-100	36-60	20-45	7-20
OeA: Orangeburg-----	0-8	Loamy sand	SM	A-2, A-2-4	0	0	98-100	95-100	60-87	14-28	0-14	NP
	8-13	Sandy loam	SM	A-2-4, A-2	0	0	98-100	95-100	70-96	20-35	0-30	NP-4
	13-32	Sandy clay loam, sandy loam	CL, SC, SC- SM, SM	A-4, A-6	0	0	98-100	95-100	71-96	38-58	22-40	3-19
	32-72	Sandy clay loam	CL, SC	A-4, A-6, A-7	0	0	98-100	95-100	70-97	40-65	24-46	8-21

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
OeB: Orangeburg-----	0-8	Loamy sand	SM	A-2-4, A-2	0	0	98-100	95-100	60-87	14-28	0-14	NP
	8-13	Sandy loam	SM	A-2, A-2-4	0	0	98-100	95-100	70-96	20-35	0-30	NP-4
	13-32	Sandy clay loam, sandy loam	CL, SC, SC- SM, SM	A-6, A-4	0	0	98-100	95-100	71-96	38-58	22-40	3-19
	32-72	Sandy clay loam	CL, SC	A-4, A-6, A-7	0	0	98-100	95-100	70-97	40-65	24-46	8-21
OeC: Orangeburg-----	0-8	Loamy sand	SM	A-2, A-2-4	0	0	98-100	95-100	60-87	14-28	0-14	NP
	8-13	Sandy loam	SM	A-2, A-2-4	0	0	98-100	95-100	70-96	20-35	0-30	NP-4
	13-32	Sandy clay loam, sandy loam	CL, SC, SC- SM, SM	A-4, A-6	0	0	98-100	95-100	71-96	38-58	22-40	3-19
	32-72	Sandy clay loam	CL, SC	A-6, A-4, A-7	0	0	98-100	95-100	70-97	40-65	24-46	8-21
OeD: Orangeburg-----	0-8	Loamy sand	SM	A-2-4, A-2	0	0	98-100	95-100	60-87	14-28	0-14	NP
	8-13	Sandy loam	SM	A-2-4, A-2	0	0	98-100	95-100	70-96	20-35	0-30	NP-4
	13-32	Sandy clay loam, sandy loam	CL, SC, SC- SM, SM	A-4, A-6	0	0	98-100	95-100	71-96	38-58	22-40	3-19
	32-72	Sandy clay loam	CL, SC	A-4, A-6, A-7	0	0	98-100	95-100	70-97	40-65	24-46	8-21
OSA: Osier-----	0-8	Loamy fine sand	SM	A-2, A-2-4	0	0	100	98-100	70-90	13-25	0-14	NP
	8-55	Fine sand, loamy sand, loamy fine sand	SM	A-2, A-3, A- 2-4	0	0	100	95-100	65-96	5-20	0-14	NP
	55-65	Coarse sand, sand, fine sand	SP, SP-SM	A-1, A-2-4, A-3	0	0	100	90-100	40-60	2-10	0-14	NP
Bibb-----	0-5	Loamy fine sand	CL-ML, ML, SC-SM, SM	A-4, A-2	0	0-5	95-100	90-100	60-90	30-60	0-25	NP-7
	5-45	Fine sandy loam, loam, silt loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0-10	60-100	50-100	40-100	30-90	0-30	NP-7
	45-65	Sand, fine sand, loamy sand	SM	A-2-4, A-2, A-3	0	0-5	95-100	90-100	40-90	8-35	0-14	NP

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
PeA: Pelham-----	0-6	Loamy fine sand	SM	A-2, A-2-4	0	0	100	95-100	75-90	15-30	0-14	NP
	6-30	Loamy fine sand	SM	A-2, A-2-4	0	0	100	95-100	75-90	15-30	0-14	NP
	30-50	Sandy clay loam, sandy loam, fine sandy loam	SC, SC-SM, SM	A-4, A-2, A-6	0	0	100	95-100	65-90	27-50	15-30	2-12
	50-65	Sandy clay loam, sandy loam, sandy clay	CL, ML, SC, SM	A-2, A-4, A- 6, A-7	0	0	100	95-100	65-90	27-65	20-45	3-20
ReA: Rembert-----	0-9	Sandy loam	SC-SM, SM	A-4	0	0	100	95-100	60-80	36-50	0-20	NP-7
	9-12	Sandy loam	SM, SC-SM	A-4	0	0	100	95-100	60-80	36-50	0-20	NP-7
	12-39	Clay, clay loam, sandy clay	CL, CH	A-6, A-7-6	0	0	100	98-100	85-98	55-85	35-53	15-30
	39-65	Sandy clay loam, sandy loam, loamy sand	SC, CL	A-2, A-4, A-6	0	0	100	98-100	60-90	20-50	15-35	4-15
TfA: Tifton-----	0-8	Loamy sand	SM, SP-SM	A-2, A-2-4	0	0	70-97	62-94	53-85	11-27	0-14	NP
	8-10	Loamy sand	SM, SP-SM	A-2, A-2-4	0	0	70-97	62-94	53-85	11-27	0-14	NP
	10-43	Sandy clay loam, gravelly sandy clay loam	CL, SC	A-2, A-4, A-6	0	0	70-98	65-94	60-89	22-53	22-40	8-22
	43-65	Sandy clay loam, sandy clay	CL, SC	A-2, A-4, A- 6, A-7	0	0	87-100	80-99	50-94	34-55	24-45	8-23
TfB: Tifton-----	0-8	Loamy sand	SM, SP-SM	A-2-4, A-2	0	0	70-97	62-94	53-85	11-27	0-14	NP
	8-10	Loamy sand	SM, SP-SM	A-2-4, A-2	0	0	70-97	62-94	53-85	11-27	0-14	NP
	10-43	Sandy clay loam, gravelly sandy clay loam	CL, SC	A-2, A-4, A-6	0	0	70-98	65-94	60-89	22-53	22-40	8-22
	43-65	Sandy clay loam, sandy clay	CL, SC	A-4, A-6, A- 7, A-2	0	0	87-100	80-99	50-94	34-55	24-45	8-23

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
TfC:												
Tifton-----	0-8	Loamy sand	SM, SP-SM	A-2-4, A-2	0	0	70-97	62-94	53-85	11-27	0-14	NP
	8-10	Loamy sand	SM, SP-SM	A-2-4, A-2	0	0	70-97	62-94	53-85	11-27	0-14	NP
	10-43	Sandy clay loam, gravelly sandy clay loam	CL, SC	A-4, A-6, A-2	0	0	70-98	65-94	60-89	22-53	22-40	8-22
	43-65	Sandy clay loam, sandy clay	CL, SC	A-7, A-2, A- 4, A-6	0	0	87-100	80-99	50-94	34-55	24-45	8-23
TrB:												
Troup-----	0-8	Loamy sand	SM, SP-SM	A-2, A-2-4, A-4	0	0	95-100	90-100	50-90	10-40	0-14	NP
	8-52	Loamy sand	SM, SP-SM	A-2-4, A-4, A-2	0	0	95-100	90-100	50-90	10-40	0-14	NP
	52-80	Sandy clay loam, sandy loam, fine sandy loam	CL, CL-ML, SC, SC-SM	A-4, A-2, A-6	0	0	95-100	90-100	60-90	24-55	19-40	4-20
TrD:												
Troup-----	0-8	Loamy sand	SM, SP-SM	A-2, A-4, A- 2-4	0	0	95-100	90-100	50-90	10-40	0-14	NP
	8-52	Loamy sand	SP-SM, SM	A-2, A-4, A- 2-4	0	0	95-100	90-100	50-90	10-40	0-14	NP
	52-80	Sandy clay loam, sandy loam, fine sandy loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0	0	95-100	90-100	60-90	24-55	19-40	4-20
Ud:												
Udorthents, loamy.												
Up:												
Udorthents. Pits.												

Table 16.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
UtC: Urban land.												
Tifton-----	0-8	Loamy sand	SM, SP-SM	A-2, A-2-4	0	0	70-97	62-94	53-85	11-27	0-14	NP
	8-10	Loamy sand	SM, SP-SM	A-2, A-2-4	0	0	70-97	62-94	53-85	11-27	0-14	NP
	10-43	Sandy clay loam, gravelly sandy clay loam	CL, SC	A-2, A-6, A-4	0	0	70-98	65-94	60-89	22-53	22-40	8-22
	43-65	Sandy clay loam, sandy clay	CL, SC	A-2, A-4, A- 6, A-7	0	0	87-100	80-99	50-94	34-55	24-45	8-23
WaB: Wagram-----	0-6	Loamy sand	SM	A-2, A-3, A- 2-4	0	0	100	98-100	50-85	8-35	10-20	NP
	6-28	Loamy sand, sandy loam	SM	A-2, A-2-4	0	0	100	98-100	50-85	8-35	10-20	NP
	28-80	Sandy loam	SC, SC-SM	A-6, A-7, A-4	0	0	100	98-100	60-95	31-49	21-41	8-25
WhA: Wahee-----	0-6	Fine sandy loam	SM, SC-SM	A-2, A-4	0	0	100	95-100	50-98	30-50	0-28	NP-7
	6-65	Sandy clay, clay loam, silty clay	CH, CL	A-7, A-6	0	0	100	100	85-100	51-92	38-81	16-54

Table 17.--Water Features

[Depths of layers are in feet. See text for definitions of terms used in this table. 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	Months	Water table		Ponding			Flooding	
			Upper limit	Kind	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft		Ft				
BgB: Bigbee-----	A	Jan-Mar Apr-Dec	3.5-6.0 >6.0	Apparent ---	--- ---	--- ---	None None	Brief ---	Rare None
BlB: Blanton-----	A	Jan-Mar Apr-Nov Dec	4.0-6.0 >6.0 4.0-6.0	Perched --- Perched	--- --- ---	--- --- ---	None None None	--- --- ---	None None None
BlD: Blanton-----	A	Jan-Mar Apr-Nov Dec	4.0-6.0 >6.0 4.0-6.0	Perched --- Perched	--- --- ---	--- --- ---	None None None	--- --- ---	None None None
BoB: Bonneau-----	A	Jan-Mar Apr-Nov Dec	3.5-5.0 >6.0 3.5-5.0	Perched --- Perched	--- --- ---	--- --- ---	None None None	--- --- ---	None None None
BoD: Bonneau-----	A	Jan-Mar Apr-Nov Dec	3.5-5.0 >6.0 3.5-5.0	Perched --- Perched	--- --- ---	--- --- ---	None None None	--- --- ---	None None None
CaB: Carnegie-----	C	Jan-Dec	>6.0	---	---	---	None	---	None
CaC: Carnegie-----	C	Jan-Dec	>6.0	---	---	---	None	---	None
CgC: Cowarts-----	C	Jan-Dec	>6.0	---	---	---	None	---	None
Gritney-----	C	Jan-Apr May-Nov Dec	1.5-3.0 >6.0 1.5-3.0	Perched --- Perched	--- --- ---	--- --- ---	None None None	--- --- ---	None None None
CgD: Cowarts-----	C	Jan-Dec	>6.0	---	---	---	None	---	None
Gritney-----	C	Jan-Apr May-Nov Dec	1.5-3.0 >6.0 1.5-3.0	Perched --- Perched	--- --- ---	--- --- ---	None None None	--- --- ---	None None None
DoA: Dothan-----	B	Jan-Mar Apr-Dec	3.0-5.0 >6.0	Perched ---	--- ---	--- ---	None None	--- ---	None None
DoB: Dothan-----	B	Jan-Mar Apr-Dec	3.0-5.0 >6.0	Perched ---	--- ---	--- ---	None None	--- ---	None None
FeA: Faceville-----	B	Jan-Dec	>6.0	---	---	---	None	---	None
FeB: Faceville-----	B	Jan-Dec	>6.0	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Months	Water table		Ponding			Flooding	
			Upper limit	Kind	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft		Ft				
FeC: Faceville-----	B	Jan-Dec	>6.0	---	---	---	None	---	None
FuB: Fuquay-----	B	Jan-Mar	4.0-6.0	Perched	---	---	None	---	None
		Apr-Dec	---	---	---	---	None	---	None
GoA: Goldsboro-----	B	Jan-Apr	2.0-3.0	Apparent	---	---	None	---	None
		May-Nov	>6.0	---	---	---	None	---	None
		Dec	2.0-3.0	Apparent	---	---	None	---	None
GrA: Grady-----	D	Jan-Jun	0.0-1.0	Apparent	0.0-2.0	Long	Frequent	---	None
		Jul-Nov	>6.0	---	---	---	None	---	None
		Dec	0.0-1.0	Apparent	0.0-2.0	Long	Frequent	---	None
HvA: Hornsville-----	C	Jan-Apr	2.5-3.5	Apparent	---	---	None	---	None
		May-Nov	>6.0	---	---	---	None	---	None
		Dec	2.5-3.5	Apparent	---	---	None	---	None
LkB: Lakeland-----	A	Jan-Dec	>6.0	---	---	---	None	---	None
LkD: Lakeland-----	A	Jan-Dec	>6.0	---	---	---	None	---	None
LmB: Lucy-----	A	Jan-Dec	>6.0	---	---	---	None	---	None
LmC: Lucy-----	A	Jan-Dec	>6.0	---	---	---	None	---	None
LnA: Lynchburg-----	C	Jan-Apr	0.5-1.5	Apparent	---	---	None	---	None
		May-Nov	>6.0	---	---	---	None	---	None
		Dec	0.5-1.5	Apparent	---	---	None	---	None
NaB: Nankin-----	C	Jan-Dec	>6.0	---	---	---	None	---	None
NcC: Nankin-----	C	Jan-Dec	>6.0	---	---	---	None	---	None
	C	Jan-Dec	>6.0	---	---	---	None	---	None
NcD: Nankin-----	C	Jan-Dec	>6.0	---	---	---	None	---	None
	C	Jan-Dec	>6.0	---	---	---	None	---	None
NoA: Norfolk-----	B	Jan-Mar	4.0-6.0	Perched	---	---	None	---	None
		Apr-Dec	>6.0	---	---	---	None	---	None
NoB: Norfolk-----	B	Jan-Mar	4.0-6.0	Perched	---	---	None	---	None
		Apr-Dec	>6.0	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table		Ponding			Flooding	
			Upper limit	Kind	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft		Ft				
NoC: Norfolk-----	B	Jan-Mar Apr-Dec	4.0-6.0 >6.0	Perched ---	--- ---	--- ---	None None	--- ---	None None
OcA: Ocilla-----	C	Jan-Apr May-Nov Dec	1.0-2.5 >6.0 1.0-2.5	Apparent --- Apparent	--- --- ---	--- --- ---	None None None	--- --- ---	None None None
OeA: Orangeburg-----	B	Jan-Dec	>6.0	---	---	---	None	---	None
OeB: Orangeburg-----	B	Jan-Dec	>6.0	---	---	---	None	---	None
OeC: Orangeburg-----	B	Jan-Dec	>6.0	---	---	---	None	---	None
OeD: Orangeburg-----	B	Jan-Dec	>6.0	---	---	---	None	---	None
OSA: Osier-----	A/D	Jan-Mar Apr May-Oct Nov-Dec	0.0-0.5 >6.0 >6.0 0.0-0.5	Apparent --- --- Apparent	--- --- --- ---	--- --- --- ---	None None None None	Long Long --- Long	Frequent Frequent None Frequent
Bibb-----	D	Jan-Apr May Jun-Nov Dec	0.5-1.0 >6.0 >6.0 0.5-1.0	Apparent --- --- Apparent	--- --- --- ---	--- --- --- ---	None None None None	Long Long --- Long	Frequent Frequent None Frequent
PeA: Pelham-----	B/D	Jan-Apr May-Dec	0.0-1.0 >6.0	Apparent ---	--- ---	--- ---	None None	Brief ---	Frequent None
ReA: Rembert-----	D	Jan-Apr May-Nov Dec	0.0-1.0 >6.0 0.0-1.0	Apparent --- Apparent	0.0-1.0 --- 0.0-1.0	Brief --- Brief	Frequent None Frequent	Brief --- Brief	Frequent None Frequent
TfA: Tifton-----	B	Jan-Mar Apr-Dec	3.5-5.0 >6.0	Perched ---	--- ---	--- ---	None None	--- ---	None None
TfB: Tifton-----	B	Jan-Mar Apr-Dec	3.5-5.0 >6.0	Perched ---	--- ---	--- ---	None None	--- ---	None None
TfC: Tifton-----	B	Jan-Mar Apr-Dec	3.5-5.0 >6.0	Perched ---	--- ---	--- ---	None None	--- ---	None None
TrB: Troup-----	A	Jan-Dec	>6.0	---	---	---	None	---	None
TrD: Troup-----	A	Jan-Dec	>6.0	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Months	Water table		Ponding			Flooding	
			Upper limit	Kind	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>		<i>Ft</i>				
Ud: Udorthents, loamy-----	---	Jan-Dec	>6.0	---	---	---	None	---	None
Up: Udorthents-----	---	Jan-Dec	>6.0	---	---	---	None	---	None
UtC: Urban land-----	---	Jan-Dec	>6.0	---	---	---	None	---	None
Tifton-----	B	Jan-Mar	3.5-6.0	Perched	---	---	None	---	None
		Apr-Dec	---	---	---	---	None	---	None
WaB: Wagram-----	A	Jan-Dec	>6.0	---	---	---	None	---	None
WhA: Wahee-----	D	Jan-Mar	0.5-1.5	Apparent	---	---	None	Brief	Occasional
		Apr-Nov	>6.0	---	---	---	None	---	None
		Dec	0.5-1.5	Apparent	---	---	None	Brief	Occasional

Table 18.--Selected Physical and Chemical Properties of the Soils

[Entries under "Erosion factors--T" apply to the entire profile. Absence of an entry indicates that data were not estimated]

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Soil reaction	Organic matter	Erosion factors		
									Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	pH	Pct			
BgB: Bigbee-----	0-5	4-10	1.40-1.50	6-20	0.05-0.10	0.0-2.9	4.5-6.0	0.5-2.0	.10	.10	5
	5-28	1-10	1.40-1.50	6-20	0.05-0.08	0.0-2.9	4.5-6.0	0.5-0.8	.17	.17	
	28-62	1-10	1.40-1.50	6-20	0.05-0.08	0.0-2.9	4.5-6.0	0.0-0.5	.17	.17	
BlB: Blanton-----	0-10	5-13	1.35-1.60	6-20	0.05-0.10	0.0-2.9	4.5-6.0	0.5-2.0	.10	.10	5
	10-61	5-13	1.35-1.60	6-20	0.05-0.10	0.0-2.9	4.5-6.0	0.0-0.5	.10	.10	
	61-68	10-18	1.50-1.65	2-6	0.10-0.15	0.0-2.9	4.5-5.5	0.0-0.2	.15	.15	
	68-80	12-40	1.60-1.70	0.2-2	0.10-0.15	0.0-2.9	4.5-5.5	0.0-0.2	.20	.20	
BlD: Blanton-----	0-10	5-13	1.35-1.60	6-20	0.05-0.10	0.0-2.9	4.5-6.0	0.5-2.0	.10	.10	5
	10-61	5-13	1.35-1.60	6-20	0.05-0.10	0.0-2.9	4.5-6.0	0.0-0.5	.10	.10	
	61-68	10-18	1.50-1.65	2-6	0.10-0.15	0.0-2.9	4.5-5.5	0.0-0.2	.15	.15	
	68-80	12-40	1.60-1.70	0.2-2	0.10-0.15	0.0-2.9	4.5-5.5	0.0-0.2	.20	.20	
BoB: Bonneau-----	0-10	5-15	1.30-1.70	6-20	0.05-0.11	0.0-2.9	4.5-6.0	0.5-2.0	.10	.10	5
	10-31	5-15	1.30-1.70	6-20	0.05-0.11	0.0-2.9	4.5-6.0	0.0-0.5	.10	.10	
	31-39	13-35	1.40-1.60	0.6-2	0.10-0.15	0.0-2.9	4.5-5.5	0.0-0.2	.20	.20	
	39-72	15-40	1.40-1.60	0.6-2	0.10-0.16	0.0-2.9	4.5-5.5	0.0-0.2	.20	.20	
BoD: Bonneau-----	0-10	5-15	1.30-1.70	6-20	0.05-0.11	0.0-2.9	4.5-6.0	0.5-2.0	.10	.10	5
	10-31	5-15	1.30-1.70	6-20	0.05-0.11	0.0-2.9	4.5-6.0	0.0-0.5	.10	.10	
	31-39	13-35	1.40-1.60	0.6-2	0.10-0.15	0.0-2.9	4.5-5.5	0.0-0.2	.20	.20	
	39-72	15-40	1.40-1.60	0.6-2	0.10-0.16	0.0-2.9	4.5-5.5	0.0-0.2	.20	.20	
CaB: Carnegie-----	0-6	3-8	1.45-1.65	2-6	0.05-0.10	0.0-2.9	4.5-6.0	1.0-2.0	.28	.28	3
	6-20	36-43	1.40-1.65	0.2-0.6	0.10-0.16	0.0-2.9	3.6-5.5	0.0-0.5	.32	.32	
	20-45	36-51	1.40-1.65	0.2-0.6	0.10-0.14	0.0-2.9	3.6-5.5	0.0-0.2	.28	.28	
	45-65	36-55	1.40-1.65	0.2-0.6	0.10-0.14	0.0-2.9	3.6-5.5	0.0-0.2	.28	.28	
CaC: Carnegie-----	0-6	3-8	1.45-1.65	2-6	0.05-0.10	0.0-2.9	4.5-6.0	1.0-2.0	.28	.28	3
	6-20	36-43	1.40-1.65	0.2-0.6	0.10-0.16	0.0-2.9	3.6-5.5	0.0-0.5	.32	.32	
	20-45	36-51	1.40-1.65	0.2-0.6	0.10-0.14	0.0-2.9	3.6-5.5	0.0-0.2	.28	.28	
	45-65	36-55	1.40-1.65	0.2-0.6	0.10-0.14	0.0-2.9	3.6-5.5	0.0-0.2	.28	.28	
CgC: Cowarts-----	0-4	5-20	1.30-1.65	2-6	0.08-0.13	0.0-2.9	4.5-5.5	1.0-3.0	.15	.15	4
	4-9	5-20	1.30-1.50	0.6-2	0.10-0.16	0.0-2.9	4.5-5.5	0.2-1.0	.28	.28	
	9-31	25-40	1.30-1.50	0.2-2	0.10-0.16	0.0-2.9	4.5-5.5	0.0-0.2	.28	.28	
	31-65	18-35	1.65-1.80	0.06-0.6	0.10-0.14	0.0-2.9	4.5-5.5	0.0-0.2	.24	.24	
Gritney-----	0-8	5-20	1.30-1.50	2-6	0.08-0.12	0.0-2.9	3.5-6.0	0.5-2.0	.15	.15	4
	8-49	35-60	1.30-1.50	0.06-0.2	0.10-0.17	3.0-5.9	3.5-5.5	0.0-0.5	.32	.32	
	49-65	10-35	1.30-1.50	0.06-6	0.06-0.12	0.0-2.9	3.5-5.5	0.0-0.1	.28	.28	
CgD: Cowarts-----	0-4	5-20	1.30-1.65	2-6	0.08-0.13	0.0-2.9	4.5-5.5	1.0-3.0	.15	.15	4
	4-9	5-20	1.30-1.50	0.6-2	0.10-0.16	0.0-2.9	4.5-5.5	0.2-1.0	.28	.28	
	9-31	25-40	1.30-1.50	0.2-2	0.10-0.16	0.0-2.9	4.5-5.5	0.0-0.2	.28	.28	
	31-65	18-35	1.65-1.80	0.06-0.6	0.10-0.14	0.0-2.9	4.5-5.5	0.0-0.5	.24	.24	

Table 18.--Selected Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Soil reaction	Organic matter	Erosion factors		
									Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	pH	Pct			
CgD: Gritney-----	0-8	5-20	1.30-1.50	2-6	0.08-0.12	0.0-2.9	3.5-6.0	0.5-2.0	.15	.15	4
	8-49	35-60	1.30-1.50	0.06-0.2	0.10-0.17	3.0-5.9	3.5-5.5	0.0-0.5	.32	.32	
	49-65	10-35	1.30-1.50	0.06-6	0.06-0.12	0.0-2.9	3.5-5.5	0.0-0.1	.28	.28	
DoA: Dothan-----	0-12	5-15	1.30-1.60	2-6	0.06-0.10	0.0-2.9	4.5-6.0	0.0-0.5	.15	.15	5
	12-48	18-35	1.40-1.60	0.6-2	0.12-0.16	0.0-2.9	4.5-6.0	0.0-0.2	.28	.28	
	48-65	18-40	1.45-1.70	0.2-0.6	0.08-0.12	0.0-2.9	4.5-6.0	0.0-0.2	.28	.28	
DoB: Dothan-----	0-12	5-15	1.30-1.60	2-6	0.06-0.10	0.0-2.9	4.5-6.0	0.0-0.5	.15	.15	5
	12-48	18-35	1.40-1.60	0.6-2	0.12-0.16	0.0-2.9	4.5-6.0	0.0-0.2	.28	.28	
	48-65	18-40	1.45-1.70	0.2-0.6	0.08-0.12	0.0-2.9	4.5-6.0	0.0-0.2	.28	.28	
FeA: Faceville-----	0-4	5-20	1.40-1.65	6-20	0.06-0.09	0.0-2.9	4.5-5.5	0.5-2.0	.28	.28	5
	4-7	20-36	1.35-1.60	0.6-2	0.12-0.15	0.0-2.9	4.5-5.5	0.0-0.2	.37	.37	
	7-65	35-55	1.25-1.60	0.6-2	0.12-0.18	0.0-2.9	4.5-6.0	0.0-0.2	.37	.37	
FeB: Faceville-----	0-4	5-20	1.40-1.65	6-20	0.06-0.09	0.0-2.9	4.5-5.5	0.5-2.0	.28	.28	5
	4-7	20-36	1.35-1.60	0.6-2	0.12-0.15	0.0-2.9	4.5-5.5	0.0-0.2	.37	.37	
	7-65	35-55	1.25-1.60	0.6-2	0.12-0.18	0.0-2.9	4.5-6.0	0.0-0.2	.37	.37	
FeC: Faceville-----	0-4	5-20	1.40-1.65	6-20	0.06-0.09	0.0-2.9	4.5-5.5	0.5-2.0	.28	.28	5
	4-7	20-36	1.35-1.60	0.6-2	0.12-0.15	0.0-2.9	4.5-5.5	0.0-0.2	.37	.37	
	7-65	35-55	1.25-1.60	0.6-2	0.12-0.18	0.0-2.9	4.5-6.0	0.0-0.2	.37	.37	
FuB: Fuquay-----	0-8	2-10	1.60-1.70	6-20	0.04-0.09	0.0-2.9	4.5-6.0	0.5-2.0	.15	.15	5
	8-32	2-10	1.60-1.70	6-20	0.04-0.09	0.0-2.9	4.5-6.0	0.0-0.5	.15	.15	
	32-40	10-35	1.40-1.60	0.6-2	0.12-0.15	0.0-2.9	4.5-6.0	0.0-0.2	.20	.20	
	40-65	20-35	1.40-1.60	0.06-0.2	0.10-0.13	0.0-2.9	4.5-6.0	0.0-0.2	.20	.20	
GoA: Goldsboro-----	0-5	2-8	1.55-1.75	6-20	0.06-0.11	0.0-2.9	3.5-5.5	0.5-2.0	.17	.17	5
	5-10	2-8	1.55-1.75	6-20	0.06-0.11	0.0-2.9	3.5-5.5	0.0-0.5	.17	.17	
	10-17	18-30	1.30-1.50	0.6-2	0.11-0.17	0.0-2.9	3.5-5.5	0.0-0.5	.24	.24	
	17-65	20-36	1.30-1.40	0.6-2	0.11-0.20	0.0-2.9	3.5-5.5	0.0-0.5	.24	.24	
GrA: Grady-----	0-6	15-20	1.25-1.45	0.6-2	0.10-0.15	0.0-2.9	3.6-5.5	1.0-4.0	.10	.10	5
	6-40	45-65	1.50-1.60	0.06-0.2	0.12-0.16	0.0-2.9	3.6-5.5	0.5-0.8	.10	.10	
	40-65	45-65	1.50-1.60	0.06-0.2	0.12-0.16	3.0-5.9	3.6-5.5	0.0-0.5	.10	.10	
HvA: Hornsville-----	0-6	6-15	1.45-1.65	6-20	0.08-0.12	0.0-2.9	3.6-6.0	1.0-4.0	.20	.20	3
	6-10	6-15	1.45-1.65	6-20	0.08-0.12	0.0-2.9	3.6-6.0	0.0-0.5	.20	.20	
	10-28	35-60	1.55-1.70	0.2-0.6	0.12-0.16	0.0-2.9	3.6-6.0	0.0-0.2	.28	.28	
	28-65	12-35	1.55-1.70	0.6-2	0.10-0.14	0.0-2.9	3.6-6.0	0.0-0.2	.24	.24	
LkB: Lakeland-----	0-9	2-8	1.35-1.65	6-20	0.05-0.09	0.0-2.9	4.5-6.0	0.5-1.0	.10	.10	5
	9-80	1-6	1.50-1.60	6-20	0.02-0.08	0.0-2.9	4.5-6.0	0.0-0.2	.10	.10	
LkD: Lakeland-----	0-9	2-8	1.35-1.65	6-20	0.05-0.09	0.0-2.9	4.5-6.0	0.5-1.0	.10	.10	5
	9-80	1-6	1.50-1.60	6-20	0.02-0.08	0.0-2.9	4.5-6.0	0.0-0.2	.10	.10	

Table 18.--Selected Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Soil reaction	Organic matter	Erosion factors		
									Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	pH	Pct			
<b>LmB:</b>											
Lucy-----	0-7	1-12	1.30-1.70	6-20	0.08-0.12	0.0-2.9	5.1-6.0	0.5-1.0	.10	.10	5
	7-28	1-12	1.30-1.70	6-20	0.08-0.12	0.0-2.9	5.1-6.0	0.0-0.5	.10	.10	
	28-33	10-30	1.40-1.60	2-6	0.10-0.12	0.0-2.9	4.5-5.5	0.0-0.2	.24	.24	
	33-65	20-45	1.40-1.60	0.6-2	0.12-0.14	0.0-2.9	4.5-5.5	0.0-0.2	.28	.28	
<b>LmC:</b>											
Lucy-----	0-7	1-12	1.30-1.70	6-20	0.08-0.12	0.0-2.9	5.1-6.0	0.5-1.0	.10	.10	5
	7-28	1-12	1.30-1.70	6-20	0.08-0.12	0.0-2.9	5.1-6.0	0.0-0.5	.10	.10	
	28-33	10-30	1.40-1.60	2-6	0.10-0.12	0.0-2.9	4.5-5.5	0.0-0.2	.24	.24	
	33-65	20-45	1.40-1.60	0.6-2	0.12-0.14	0.0-2.9	4.5-5.5	0.0-0.2	.28	.28	
<b>LnA:</b>											
Lynchburg-----	0-9	5-20	1.30-1.45	2-6	0.09-0.13	0.0-2.9	3.5-5.5	0.5-3.0	.20	.20	5
	9-18	5-20	1.30-1.45	2-6	0.09-0.13	0.0-2.9	3.5-5.5	0.0-0.5	.20	.20	
	18-22	18-35	1.30-1.45	0.6-2	0.12-0.16	0.0-2.9	3.6-5.5	0.0-0.5	.20	.20	
	22-65	20-50	1.30-1.50	0.6-2	0.12-0.16	0.0-2.9	3.6-5.5	0.0-0.5	.20	.20	
<b>NaB:</b>											
Nankin-----	0-6	7-12	1.45-1.65	2-6	0.08-0.12	0.0-2.9	4.5-5.5	0.5-1.0	.28	.28	3
	6-39	35-50	1.30-1.70	0.2-0.6	0.11-0.16	0.0-2.9	4.5-5.5	0.0-0.5	.24	.24	
	39-65	15-35	1.60-1.70	0.6-2	0.10-0.15	0.0-2.9	4.5-5.5	0.0-0.2	.24	.24	
<b>NcC:</b>											
Nankin-----	0-6	7-12	1.45-1.65	2-6	0.08-0.12	0.0-2.9	4.5-5.5	0.5-1.0	.28	.28	3
	6-39	35-50	1.30-1.70	0.2-0.6	0.11-0.16	0.0-2.9	4.5-5.5	0.0-0.5	.24	.24	
	39-65	15-35	1.60-1.70	0.6-2	0.10-0.15	0.0-2.9	4.5-5.5	0.0-0.2	.24	.24	
<b>Cowarts-----</b>	0-4	5-20	1.30-1.65	2-6	0.08-0.13	0.0-2.9	4.5-5.5	1.0-3.0	.15	.15	4
	4-9	5-20	1.30-1.50	0.6-2	0.10-0.16	0.0-2.9	4.5-5.5	0.2-1.0	.28	.28	
	9-31	25-40	1.30-1.50	0.2-2	0.10-0.16	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
	31-65	18-35	1.65-1.80	0.06-0.6	0.10-0.14	0.0-2.9	4.5-5.5	0.0-0.2	.24	.24	
<b>NcD:</b>											
Nankin-----	0-6	7-12	1.45-1.65	2-6	0.08-0.12	0.0-2.9	4.5-5.5	0.5-1.0	.28	.28	3
	6-39	35-50	1.30-1.70	0.2-0.6	0.11-0.16	0.0-2.9	4.5-5.5	0.0-0.2	.24	.24	
	39-65	15-35	1.60-1.70	0.6-2	0.10-0.15	0.0-2.9	4.5-5.5	0.0-0.2	.24	.24	
<b>Cowarts-----</b>	0-4	5-20	1.30-1.65	2-6	0.08-0.13	0.0-2.9	4.5-5.5	1.0-3.0	.15	.15	4
	4-9	5-20	1.30-1.50	0.6-2	0.10-0.16	0.0-2.9	4.5-5.5	0.2-1.0	.28	.28	
	9-31	25-40	1.30-1.50	0.2-2	0.10-0.16	0.0-2.9	4.5-5.5	0.0-0.2	.28	.28	
	31-65	18-35	1.65-1.80	0.06-0.6	0.10-0.14	0.0-2.9	4.5-5.5	0.0-0.2	.24	.24	
<b>NoA:</b>											
Norfolk-----	0-6	2-8	1.55-1.70	6-20	0.06-0.11	0.0-2.9	3.5-6.0	0.5-2.0	.17	.17	5
	6-14	18-35	1.30-1.65	0.6-2	0.10-0.18	0.0-2.9	3.5-5.5	0.0-0.5	.24	.24	
	14-65	20-43	1.20-1.65	0.6-2	0.12-0.18	0.0-2.9	3.5-5.5	0.0-0.5	.24	.24	
<b>NoB:</b>											
Norfolk-----	0-6	2-8	1.55-1.70	6-20	0.06-0.11	0.0-2.9	3.5-6.0	0.5-2.0	.17	.17	5
	6-14	18-35	1.30-1.65	0.6-2	0.10-0.18	0.0-2.9	3.5-5.5	0.0-0.5	.24	.24	
	14-65	20-43	1.20-1.65	0.6-2	0.12-0.18	0.0-2.9	3.5-5.5	0.0-0.5	.24	.24	
<b>NoC:</b>											
Norfolk-----	0-4	2-8	1.55-1.70	6-20	0.06-0.11	0.0-2.9	3.5-6.0	0.5-2.0	.17	.17	5
	4-14	18-35	1.30-1.65	0.6-2	0.10-0.18	0.0-2.9	3.5-5.5	0.0-0.5	.24	.24	
	14-65	20-43	1.20-1.65	0.6-2	0.12-0.18	0.0-2.9	3.5-5.5	0.0-0.5	.24	.24	
<b>OcA:</b>											
Ocilla-----	0-3	4-10	1.45-1.65	2-20	0.05-0.08	0.0-2.9	4.5-5.5	1.0-2.0	.10	.10	5
	3-27	4-10	1.45-1.65	2-20	0.05-0.08	0.0-2.9	4.5-5.5	0.5-0.8	.10	.10	
	27-55	15-35	1.55-1.70	0.6-2	0.09-0.12	0.0-2.9	4.5-5.5	0.0-0.2	.24	.24	
	55-65	15-40	1.55-1.70	0.2-2	0.09-0.12	0.0-2.9	4.5-5.5	0.0-0.2	.24	.24	

Table 18.--Selected Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Soil reaction	Organic matter	Erosion factors		
									Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	pH	Pct			
OeA: Orangeburg-----	0-8	4-10	1.35-1.55	2-6	0.06-0.09	0.0-2.9	4.5-6.0	0.5-1.0	.10	.10	5
	8-13	7-18	1.50-1.65	2-6	0.09-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.20	.20	
	13-32	18-35	1.60-1.75	0.6-2	0.11-0.14	0.0-2.9	4.5-5.5	0.0-0.5	.24	.24	
	32-72	20-45	1.60-1.75	0.6-2	0.11-0.14	0.0-2.9	4.5-5.5	0.0-0.2	.24	.24	
OeB: Orangeburg-----	0-8	4-10	1.35-1.55	2-6	0.06-0.09	0.0-2.9	4.5-6.0	0.5-1.0	.10	.10	5
	8-13	7-18	1.50-1.65	2-6	0.09-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.20	.20	
	13-32	18-35	1.60-1.75	0.6-2	0.11-0.14	0.0-2.9	4.5-5.5	0.0-0.5	.24	.24	
	32-72	20-45	1.60-1.75	0.6-2	0.11-0.14	0.0-2.9	4.5-5.5	0.0-0.2	.24	.24	
OeC: Orangeburg-----	0-8	4-10	1.35-1.55	2-6	0.06-0.09	0.0-2.9	4.5-6.0	0.5-1.0	.10	.10	5
	8-13	7-18	1.50-1.65	2-6	0.09-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.20	.20	
	13-32	18-35	1.60-1.75	0.6-2	0.11-0.14	0.0-2.9	4.5-5.5	0.0-0.5	.24	.24	
	32-72	20-45	1.60-1.75	0.6-2	0.11-0.14	0.0-2.9	4.5-5.5	0.0-0.2	.24	.24	
OeD: Orangeburg-----	0-8	4-10	1.35-1.55	2-6	0.06-0.09	0.0-2.9	4.5-6.0	0.5-1.0	.10	.10	5
	8-13	7-18	1.50-1.65	2-6	0.09-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.20	.20	
	13-32	18-35	1.60-1.75	0.6-2	0.11-0.14	0.0-2.9	4.5-5.5	0.0-0.5	.24	.24	
	32-72	20-45	1.60-1.75	0.6-2	0.11-0.14	0.0-2.9	4.5-5.5	0.0-0.2	.24	.24	
OSA: Osier-----	0-8	10-15	1.35-1.60	6-20	0.10-0.15	0.0-2.9	3.6-6.0	2.0-5.0	.15	.15	5
	8-55	1-10	1.40-1.60	6-20	0.03-0.10	0.0-2.9	3.6-6.0	0.5-0.8	.10	.10	
	55-65	2-5	1.40-1.60	20-20	0.02-0.05	0.0-2.9	3.6-6.0	0.0-0.5	.05	.05	
Bibb-----	0-5	2-18	1.50-1.70	0.6-2	0.12-0.18	0.0-2.9	3.6-5.5	1.0-3.0	.20	.20	5
	5-45	2-18	1.45-1.75	0.6-2	0.10-0.20	0.0-2.9	3.6-5.5	0.5-1.0	.20	.20	
	45-65	2-12	1.60-1.75	2-6	0.06-0.10	0.0-2.9	3.6-5.5	0.0-0.5	.37	.37	
PeA: Pelham-----	0-6	5-10	1.50-1.70	6-20	0.05-0.08	0.0-2.9	3.6-5.5	1.0-2.0	.10	.10	5
	6-30	5-10	1.50-1.70	6-20	0.05-0.08	0.0-2.9	3.6-5.5	0.0-0.5	.10	.10	
	30-50	15-30	1.30-1.60	0.6-2	0.10-0.13	0.0-2.9	3.5-5.5	0.0-0.5	.24	.24	
	50-65	15-40	1.30-1.60	0.2-2	0.10-0.16	0.0-2.9	3.5-5.5	0.0-0.5	.24	.24	
ReA: Rembert-----	0-9	5-18	1.40-1.60	0.6-2	0.10-0.14	0.0-2.9	4.5-6.5	1.0-5.0	.20	.20	5
	9-12	5-18	1.40-1.60	0.6-2	0.10-0.14	0.0-2.9	4.5-5.5	0.0-0.5	.20	.20	
	12-39	35-60	1.30-1.50	0.06-0.2	0.12-0.16	0.0-2.9	4.5-5.5	0.0-0.5	.17	.17	
	39-65	8-25	1.30-1.60	0.6-6	0.07-0.12	0.0-2.9	4.5-5.5	0.0-0.5	.17	.17	
TfA: Tifton-----	0-8	3-8	1.30-1.55	6-20	0.03-0.08	0.0-2.9	4.5-6.0	0.5-1.0	.10	.15	4
	8-10	3-8	1.30-1.55	6-20	0.03-0.08	0.0-2.9	4.5-6.0	0.0-0.5	.10	.15	
	10-43	20-35	1.50-1.70	0.6-2	0.12-0.16	0.0-2.9	4.5-6.0	0.0-0.2	.24	.28	
	43-65	25-40	1.55-1.80	0.2-0.6	0.10-0.13	0.0-2.9	4.5-5.5	0.0-0.2	.17	.17	
TfB: Tifton-----	0-8	3-8	1.30-1.55	6-20	0.03-0.08	0.0-2.9	4.5-6.0	0.5-1.0	.10	.15	4
	8-10	3-8	1.30-1.55	6-20	0.03-0.08	0.0-2.9	4.5-6.0	0.0-0.5	.10	.15	
	10-43	20-35	1.50-1.70	0.6-2	0.12-0.16	0.0-2.9	4.5-6.0	0.0-0.2	.24	.28	
	43-65	25-40	1.55-1.80	0.2-0.6	0.10-0.13	0.0-2.9	4.5-5.5	0.0-0.2	.17	.17	
TfC: Tifton-----	0-8	3-8	1.30-1.55	6-20	0.03-0.08	0.0-2.9	4.5-6.0	0.5-1.0	.10	.15	4
	8-10	3-8	1.30-1.55	6-20	0.03-0.08	0.0-2.9	4.5-6.0	0.0-0.5	.10	.15	
	10-43	20-35	1.50-1.70	0.6-2	0.12-0.16	0.0-2.9	4.5-6.0	0.0-0.2	.24	.28	
	43-65	25-40	1.55-1.80	0.2-0.6	0.10-0.13	0.0-2.9	4.5-5.5	0.0-0.2	.17	.17	

Table 18.--Selected Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Soil reaction	Organic matter	Erosion factors		
									Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	pH	Pct			
TrB: Troup-----	0-8	2-12	1.30-1.70	6-20	0.08-0.12	0.0-2.9	4.5-6.0	0.5-1.0	.10	.10	5
	8-52	2-12	1.30-1.70	6-20	0.08-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.10	.10	
	52-80	15-35	1.40-1.60	0.6-2	0.10-0.13	0.0-2.9	4.5-5.5	0.0-0.2	.20	.20	
TrD: Troup-----	0-8	2-12	1.30-1.70	6-20	0.08-0.12	0.0-2.9	4.5-6.0	0.5-1.0	.10	.10	5
	8-52	2-12	1.30-1.70	6-20	0.08-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.10	.10	
	52-80	15-35	1.40-1.60	0.6-2	0.10-0.13	0.0-2.9	4.5-5.5	0.0-0.2	.20	.20	
Ud: Udorthents, loamy.											
Up: Udorthents. Pits.											
UtC: Urban land.											
Tifton-----	0-8	3-8	1.30-1.55	6-20	0.03-0.08	0.0-2.9	4.5-6.0	0.5-1.0	.10	.15	4
	8-10	3-8	1.30-1.55	6-20	0.03-0.08	0.0-2.9	4.5-6.0	0.0-0.5	.10	.15	
	10-43	20-35	1.50-1.70	0.6-2	0.12-0.16	0.0-2.9	4.5-6.0	0.0-0.2	.24	.28	
	43-65	25-40	1.55-1.80	0.2-0.6	0.10-0.13	0.0-2.9	4.5-5.5	0.0-0.2	.17	.17	
WaB: Wagram-----	0-6	2-10	1.60-1.75	6-20	0.05-0.08	0.0-2.9	4.5-6.0	0.5-2.0	.15	.15	5
	6-28	2-10	1.60-1.75	6-20	0.05-0.08	0.0-2.9	4.5-6.0	0.0-0.5	.15	.15	
	28-80	10-35	1.35-1.60	0.6-2	0.12-0.16	0.0-2.9	4.5-6.0	0.0-0.5	.20	.20	
WhA: Wahee-----	0-6	5-20	1.30-1.60	0.6-2	0.10-0.15	0.0-2.9	4.5-6.0	0.5-5.0	.24	.24	5
	6-65	35-70	1.40-1.60	0.06-0.2	0.12-0.20	3.0-5.9	3.6-5.5	0.0-0.5	.28	.28	

Table 19.--Classification of the Soils

Soil name	Family or higher taxonomic class
Bibb-----	Coarse-loamy, siliceous, active, acid, thermic Typic Fluvaquents
Bigbee-----	Thermic, coated Typic Quartzipsamments
Blanton-----	Loamy, siliceous, semiactive, thermic Grossarenic Paleudults
Bonneau-----	Loamy, siliceous, subactive, thermic Arenic Paleudults
Carnegie-----	Fine, kaolinitic, thermic Plinthic Kandiudults
Cowarts-----	Fine-loamy, kaolinitic, thermic Typic Kanhapludults
Dothan-----	Fine-loamy, kaolinitic, thermic Plinthic Kandiudults
Faceville-----	Fine, kaolinitic, thermic Typic Kandiudults
Fuquay-----	Loamy, kaolinitic, thermic Arenic Kandiudults
Goldsboro-----	Fine-loamy, siliceous, subactive, thermic Aquic Paleudults
Grady-----	Fine, kaolinitic, thermic Typic Paleaquults
Gritney-----	Fine, mixed, semiactive, thermic Aquic Hapludults
Hornsville-----	Fine, kaolinitic, thermic Aquic Hapludults
Lakeland-----	Thermic, coated Typic Quartzipsamments
Lucy-----	Loamy, kaolinitic, thermic Arenic Kandiudults
Lynchburg-----	Fine-loamy, siliceous, semiactive, thermic Aeric Paleaquults
Nankin-----	Fine, kaolinitic, thermic Typic Kanhapludults
Norfolk-----	Fine-loamy, kaolinitic, thermic Typic Kandiudults
Ocilla-----	Loamy, siliceous, semiactive, thermic Aquic Arenic Paleudults
Orangeburg-----	Fine-loamy, kaolinitic, thermic Typic Kandiudults
Osier-----	Siliceous, thermic Typic Psammaquents
Pelham-----	Loamy, siliceous, subactive, thermic Arenic Paleaquults
Rembert-----	Fine, kaolinitic, thermic Typic Endoaquults
Tifton-----	Fine-loamy, kaolinitic, thermic Plinthic Kandiudults
Troup-----	Loamy, kaolinitic, thermic Grossarenic Kandiudults
Wagram-----	Loamy, kaolinitic, thermic Arenic Kandiudults
Wahee-----	Fine, mixed, semiactive, thermic Aeric Endoaquults

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