SOIL SURVEY OF

Lexington County, South Carolina

United States Department of Agriculture
Soil Conservation Service
In cooperation with
South Carolina Agricultural Experiment Station and
South Carolina Land Resources Conservation Commission

This is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and agencies of the States, usually the Agricultural Experiment Stations. In some surveys, other Federal and local agencies also contribute. The Soil Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in the period 1962-70. Soil names and descriptions were approved in 1972. Unless otherwise indicated, statements in the publication refer to conditions in the county in 1970. This survey was made cooperatively by the Soil Conservation Service, the South Carolina Agricultural Experiment Station, and the South Carolina Land Resources Conservation Commission. It is part of the technical assistance furnished to the Lexington Soil and Water Conservation District.

HOW TO USE THIS SOIL SURVEY

THIS SOIL SURVEY contains information that can be applied in managing farms, ranches, and woodlands; in selecting sites for roads, ponds, buildings, and other structures; and in judging the suitability of tracts of land for agriculture, industry, and recreation.

Locating Soils

All the soils of Lexington County are shown on the detailed map at the back of this publication. This map consists of many sheets made from aerial photographs. Each sheet is numbered to correspond with a number on the Index to Map Sheets.

On each sheet of the detailed map, soil areas are outlined and are identified by symbols. All areas marked with the same symbol are the same kind of soil. The soil symbol is inside the area if there is enough room; otherwise, it is outside and a pointer shows where the symbol belongs. This detailed map does not precisely join maps in the soil surveys of adjoining Newberry, Saluda, and Calhoun Counties published in 1960, 1962, and 1963, respectively. Also, some names of soil series have been changed to comply with more recent refinements of the soil classification system.

Finding and Using Information

The "Guide to Mapping Units" can be used to find information. This guide lists all the soils of the county in alphabetic order by map symbol and gives the capability classification and woodland group of each. It also shows the page where each soil is described and the page for the capability unit in which the soil has been placed.

Individual colored maps showing the relative suitability or degree of limitation of soils for many specific purposes can be developed by using the soil map and the information in the text. Translucent material can be used as an overlay over the soil map and colored to show soils that have the same limitation or suitability. For example, soils that have a slight limitation for a given use can be colored green, those with a moderate limitation can be colored yellow, and those with a severe limitation can be colored red.

Farmers and those who work with farmers can learn about use and management of the soils from the soil descriptions and from the discussions of the capability units and woodland groups.

Foresters and others can refer to the section "Use of the Soils as Woodland," where the soils of the county are grouped according to their suitability for trees.

Game managers, sportsmen, and others can find information about soils and wildlife in the section "Use of the Soils for Wildlife Habitat."

Community planners and others can read about soil properties that affect the choice of sites for nonindustrial buildings and for recreation areas in the section "Town and Country Planning."

Engineers and builders can find, under "Engineering Uses of the Soils," tables that contain test data, estimates of soil properties, and information about soil features that affect engineering practices.

Scientists and others can read about how the soils formed and how they are classified in the section "Formation and Classification of the Soils."

Newcomers in Lexington County may be especially interested in the section "General Soil Map," where broad patterns of soils are described. They may also be interested in the information about the county given at the beginning of the publication and in the section "Additional Facts About the County."

Cover: Coastal bermudagrass pasture in an area of Blaney sand, 2 to 10 percent slopes.

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SOIL SURVEY OF LEXINGTON COUNTY, SOUTH CAROLINA

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UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, IN COOPERATION WITH THE SOUTH CAROLINA AGRICULTURAL EXPERIMENT STATION AND THE SOUTH CAROLINA LAND RESOURCES CONSERVATION COMMISSION

LEXINGTON COUNTY is in the approximate center of South Carolina (fig. 1). The northern one-fourth of the county is in the Piedmont Plateau, and the southern three-fourths is in the part of the Atlantic Coastal Plain known as the "Sandhills." Streams drain to the Congaree and Saluda Rivers in the northeast and to the North Fork of the Edisto River in the southwest.

The area of the county is about 455,000 acres, or about 711 square miles. Lake Murray makes up an additional 30,696 acres.

In 1970 the population of the county was 89,012. About 53 percent of the people live in urban areas, and 47 percent live in rural areas. Between 1960 and 1970 the total population increased 46.6 percent. Urban population increased 73.9 percent during this period and rural population 24.4 percent. Rural areas are rapidly becoming urbanized. Lexington, the county seat, has a population of 969.

The lowest elevation in the county, about 120 feet, is near the Congaree River. The highest elevation, about 660 feet, is in the vicinity of Gilbert and Summit. Elevations are commonly 400 to 500 feet on the ridgetops and 120 to 200 feet in the valleys near the streams.

In 1969 the market value of crops, nursery products, and hay sold in the county was $2,815,784. The market value of forest products was $70,617, and the market value of livestock, poultry, and their products was $7,241,866. Total value of all farm products sold was $10,128,267, an increase of $1,616,517 over the 1964 total value.

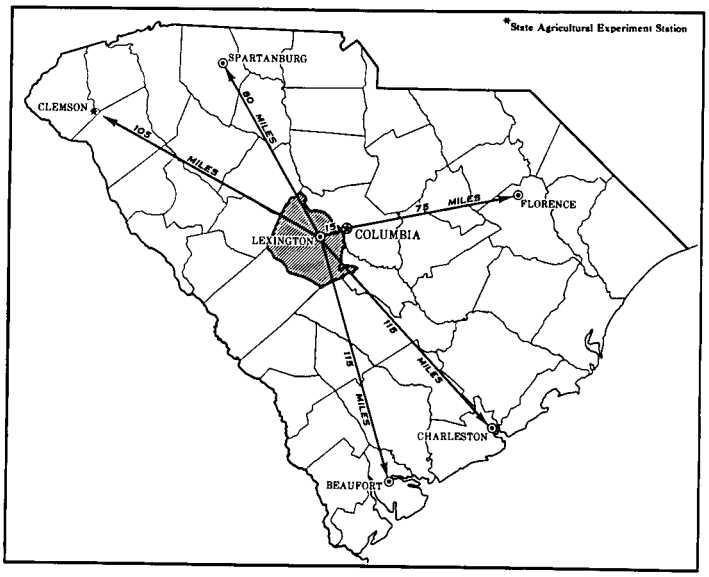

Figure 1.—Location of Lexington County in South Carolina.

How This Survey Was Made

Soil scientists made this survey to learn what kinds of soil are in Lexington County, where they are located, and how they can be used. The soil scientists went into the county knowing they likely would find many soils they had already seen and perhaps some they had not. They observed the steepness, length, and shape of slopes; the size and speed of streams; the kinds of native plants or crops; the kinds of rock; and many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material that has not been changed much by leaching or by the action of plant roots.

The soil scientists made comparisons among the profiles they studied, and they compared these profiles with those in counties nearby and in places more distant. They classified and named the soils according to nationwide, uniform procedures. The *soil series* (*9*) [1] and the *soil phase* are the categories of soil classification most used in a local survey.

Soils that have profiles almost alike make up a soil series. Except for different texture in the surface layer, all the soils of one series have major horizons that are similar in thickness, arrangement, and other important characteristics. Each soil series is named for a town or other geographic feature near the place where a soil of that series was first observed and mapped. Cecil and Dothan, for example are the names of two soil series. All the soils in the United States having the same series name are essentially alike in those characteristics that affect their behavior in the undisturbed landscape.

Soils of one series can differ in texture of the surface layer and in slope, stoniness, or some other characteristic that affects use of the soils by man. On the basis of such differences, a soil series is divided into phases. The name of a soil phase indicates a feature that affects management. For example, Cecil fine sandy loam, 2 to 6 percent slopes, is one of several phases within the Cecil series.

[1] Italic numbers in parentheses refer to Literature Cited, p. 83.

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

The areas shown on a soil map are called mapping units. On most maps detailed enough to be useful in planning the management of farms and fields, a mapping unit is nearly equivalent to a soil phase. It is not exactly equivalent, because it is not practical to show on such a map all the small, scattered bits of soil of some kind that have been seen within an area that is dominantly of a recognized soil phase.

Some mapping units are made up of soils of different series, or of different phases within one series. Two such kinds of mapping units are shown on the soil map of Lexington County: soil complexes and undifferentiated groups.

A soil complex consists of areas of two or more soils, so intricately mixed or so small in size that they cannot be shown separately on the soil map. Each area of a complex contains some of each of the two or more dominant soils, and the pattern and relative proportions are about the same in all areas. Generally, the name of a soil complex consists of the names of the dominant soils, joined by a hyphen. Blaney-Vaucluse complex, 10 to 25 percent slopes, is an example.

An undifferentiated group is made up of two or more soils that could be delineated individually but are shown as one unit because, for the purpose of the soil survey, there is little value in separating them. The pattern and proportion of soils are not uniform. An area shown on the map may be made up of only one of the dominant soils, or of two or more. If there are two or more dominant series represented in the group, the name of the group ordinarily consists of the names of the dominant soils, joined by "and." In this county, the undifferentiated units have only one series in the name of the unit, because this series makes up the dominant part of the unit. The other components are unclassified soils that are not named but are similar in use, management, and behavior. The word "soils" is used as the second part of the name to indicate that the unit was mapped at a lower intensity and is more variable than other units in the survey area. Johnston soils is an example.

While a soil survey is in progress, soil scientists take soil samples needed for laboratory measurements and for engineering tests. Laboratory data from the same kind of soil in other places are also assembled. Data on yields of crops under defined practices are assembled from farm records and from field or plot experiments on the same kind of soil. Yields under defined management are estimated for all the soils.

Soil scientists observe how soils behave when used as a growing place for native and cultivated plants, and as material for structures, foundations for structures, or covering for structures. They relate this behavior to properties of the soils. For example, they observe that filter fields for onsite disposal of sewage fail on a given kind of soil, and they relate this to the slow permeability of the soil or its high water table. Thus, they use observation and knowledge of soil properties, together with available research data, to predict limitations or suitability of soils for present and potential uses.

After data have been collected and tested for the key, or benchmark, soils in a survey area, the soil scientists set up trial groups of soils. They test these groups by further study and by consultation with farmers, agronomists, engineers, and others. They then adjust the groups according to the results of their studies and consultation. Thus, the groups that are finally evolved reflect up-to-date knowledge of the soils and their behavior under current methods of use and management.

General Soil Map

The General Soil Map at the back of this survey shows, in color, the soil associations in Lexington County. A soil association is a landscape that has a distinctive proportional pattern of soils. It normally consists of one or more major soils and at least one minor soil, and it is named for the major soils. The soils in one association may occur in another, but in a different pattern.

A map showing soil associations is useful to people who want a general idea of the soils in a county, who want to compare different parts of a county, or who want to know the location of large tracts that are suitable for a certain kind of land use. Such a map is a useful general guide in managing a watershed, a wooded tract, or a wildlife area, or in planning engineering works, recreational facilities, and community developments. It is not a suitable map for planning the management of a farm or field, or for selecting the exact location of a road, building, or similar structure, because the soils in any one association ordinarily differ in slope, depth, stoniness, drainage, and other characteristics that affect their management.

The General Soil Map in this survey does not precisely join maps published in the soil surveys of Newberry, Saluda, and Calhoun Counties published in 1960, 1962, and 1963, respectively. Also, some names of soil series have been changed to comply with more recent refinements of the soil classification system.

The six soil associations in Lexington County are discussed in the following paragraphs.

1. Georgeville-Nason Association

Gently sloping to strongly sloping, well-drained soils that have a predominantly clayey subsoil high in content of silt; underlain by slate bedrock; on southern Piedmont

This association is in the northern part of the county. The largest area is north of Hollow Creek and Lake Murray. Another area extends northeast from Lexington to the Lexington-Richland county line. Most slopes are 2 to 6 percent, but the range is 2 to 15

percent. The steeper slopes are close to streams. The soils in this association are underlain by bedrock at a depth of 2 to 12 feet. In upland areas the water table is at a depth of more than 6 feet.

The association makes up about 15 percent of the county. Georgeville soils make up about 27 percent of the association, and Nason soils about 23 percent. The rest are minor soils.

Georgeville soils have a surface layer of very fine sandy loam and a subsoil of silty clay or clay. Nason soils have a surface layer of silt loam and a subsoil of silty clay or silty clay loam.

Among the minor soils in this association are those in the Enon, Herndon, Alamance, Tatum, Mecklenburg, and Lignum series.

The soils in this association are suited to farming and to growing pine trees. Most areas have been farmed in the past, but presently about 70 percent of the association is wooded. In general, most areas are suited to nonfarm uses. Many nonfarm residences are scattered throughout the association, and year-around homes and weekend cottages are concentrated around the shores of Lake Murray. Limitations for building sites, roads, foundations, and septic-tank absorption fields are moderate to severe, but limitations vary with individual soils and locations.

Small game and bird hunting are good in areas of this association. Fishing is good in the many manmade farm ponds. Lake Murray, a popular recreational facility, is suited to most water sports.

2. Cecil-Appling Association

Gently sloping to strongly sloping, well-drained soils that have a clayey subsoil low in content of silt; underlain by granitic bedrock; on southern Piedmont

This association extends across the northern part of the county from the Saluda County line to the Richland County line in a belt approximately 2 miles wide. Most slopes range from 2 to 10 percent. Slopes close to the streams range from 6 to 15 percent. Bedrock is at a depth of 6 to 10 feet. The water table is at a depth of more than 6 feet.

This association makes up about 9 percent of the county. Cecil soils make up about 45 percent of the association, and Appling soils about 36 percent. The rest are minor soils.

Cecil soils have a brown fine sandy loam surface layer and a red clay or clay loam subsoil. Appling soils have a dark grayish-brown sandy loam surface layer and a yellowish-red clay or clay loam subsoil.

Among the minor soils in this association are those in the Helena, Dothan, Pelion, Blaney, and Fuquay series.

Most of the association is in family owned and operated farms. Many of these are operated on a part-time basis. The main crops are soybeans, corn, small grains, vegetables, peaches, hay, and pasture plants. Control of erosion and runoff is the greatest management need.

Approximately 30 percent of the association is wooded. In most wooded areas slopes are 6 to 15 percent. These areas are also suited to farming.

Nonfarm homes are scattered throughout the area. A concentrated development of weekend cottages and year-around homes is around the shores of Lake Murray. Many small farm ponds have been built throughout the area, and small upland game and quail are plentiful.

Areas of this association are suited to most nonfarm uses. Most of the soils have moderate limitations for septic-tank absorption fields and highway and building sites. Bedrock is at a depth of 6 to 10 feet. Large granite boulders are common on the surface, but they are seldom close enough together to interfere with cultivation. Lake Murray is suited to most water sports and is an important recreational attraction.

3. Lakeland-Blaney Association

Nearly level to strongly sloping, excessively drained and well drained soils; some are sandy throughout and some have a loamy subsoil and a fragipan; on Coastal Plain

This association is south of U.S. Highway No. 1 and extends across the county. It is on broad ridgetops where the landscape is irregular and gently sloping and on long side slopes that range from 2 to 25 percent. The range of slope on ridgetops is 0 to 6 percent. Many streams and drainageways dissect the areas.

This association makes up about 53 percent of the county. Lakeland soils make up about 43 percent of the association and Blaney soils about 14 percent. The rest are minor soils.

Lakeland soils have a thin, very dark gray surface layer and a yellowish-brown subsoil. They are sand to a depth of 80 inches or more. These soils are deep, droughty, and excessively drained. The most extensive areas are on ridgetops and side slopes.

Blaney soils have a sand surface layer 20 to 40 inches thick. They have a firm, brittle, light-brown sandy clay loam subsoil that is slowly permeable. They are mainly on side slopes and toe slopes.

Among the minor soils in this association are those in the Vaucluse, Pelion, Fuquay, Dothan, Troup, Alaga, and Johnston series. Vaucluse and Pelion soils are the most extensive of these. Vaucluse soils have short, abrupt slopes of 6 to 15 percent. Pelion soils are mainly in areas of gentle toe slopes in the valleys.

About 20 percent of this association is farmed, and about 75 percent is wooded. Soybeans, corn, small grains, vegetables, peaches, hay, and pasture are the main crops. Much of the farming is on a part-time basis, and the farms range from 50 to 300 acres in size. Droughtiness and low productivity are the chief limitations to farming. The dominant trees are blackjack oak and turkey oak. Also, a few longleaf pines are present, mostly on Lakeland soils. Mixed hardwoods and pines grow on the lower side slopes, toe slopes, and valleys. The soils of this association have a moderately high productivity potential for pines. Perennial streams and spring branches are numerous, and many ponds have been built for recreational purposes.

Urban and suburban areas are expanding rapidly into areas of this association, and nonfarm homes are numerous. Limitations for such urban uses as road

locations, building sites, and septic-tank disposal systems are moderate to severe, but specific limitations and suitabilities for nonfarm uses vary with individual soils.

4. Lakeland-Fuquay Association

Nearly level to gently sloping, excessively drained and well drained soils; some are sandy throughout and some have a loamy subsoil; on Coastal Plain

This association is in the southern part of the county on high smooth plains of the Sandhills at elevations of about 400 feet. The soils are nearly level to gently sloping. Some broad areas of well-drained soils that lack surface drainage outlets are in depressions. A few flowing streams dissect the area.

This association makes up about 10 percent of the county. Lakeland soils make up about 55 percent of the association and Fuquay soils about 20 percent. The rest are minor soils.

Lakeland soils are deep, excessively drained, and droughty. They have a thin, very dark gray surface layer and a yellowish-brown subsoil, and they are sand to a depth of 80 inches or more.

Fuquay soils are deep and well drained. They have a dark grayish-brown surface layer, a light yellowish-brown subsurface layer, and a yellowish-brown sandy clay loam subsoil that contains plinthite.

Among the minor soils in this association are those in the Alaga, Troup, Dothan, Pelion, and Vaucluse series.

About 20 percent of the acreage this association is planted to soybeans, corn, and small grains. A small acreage is in cotton. Costal bermudagrass, bahiagrass, and sericea lespedeza are commonly used for hay and pasture. Most of the remaining acreage is idle or is in blackjack oak and turkey oak. Some areas have been planted to pines. Suitability of the soils for pines is medium to low.

Farms and landholdings vary in size but average about 200 acres. Available water capacity and fertility limit crop and tree production. Trafficability is good in all seasons for horseback riding and similar recreational uses. Quail and dove hunting are limited by lack of native food plants, but the association is suited to improvement for wildlife habitat. Limitations are moderate for building sites, roads, and urbanization. Limitations for septic-tank filter fields are moderate to severe.

5. Dothan-Troup-Fuquay Association

Nearly level to sloping, somewhat excessively drained and well drained soils that have a loamy subsoil; on Coastal Plain

This association is in the southeastern part of the county. It is a nearly level and gently sloping plain that is dissected by many streams and drainageways and draws. Slopes range from 0 to 6 percent on the broad ridgetops and from 6 to 10 percent on the side slopes. Most of the side slopes are short and round off abruptly from the plain. The bottoms of the larger drainageways have gentle slopes of 0 to 6 percent. Most of the drainageways flow only part of the time.

This association makes up about 11 percent of the county. Dothan soils make up 30 percent of the association, Troup soils 23 percent, and Fuquay soils 17 percent. The rest are minor soils.

Dothan soils have a dark grayish-brown loamy sand surface layer and a yellowish-brown sandy clay loam subsoil. They are well drained.

Troup soils have a dark grayish-brown sandy surface layer, a yellowish-brown or strong-brown sand subsurface layer, and a red sandy clay loam or sandy loam subsoil. They are somewhat excessively drained.

Fuquay soils have a dark grayish-brown sandy surface layer and a yellowish-brown sandy clay subsoil. They are well drained.

Among the minor soils in this association are those in the Lakeland, Vaucluse, Blaney, Troup, Alaga, and Orangeburg series.

This association is used mainly for farming. About 30 percent of the area is wooded. Farms range from 50 to 200 acres in size. Most farms are family owned and operated, but much of the cropped acreage is rented to large operators. Soybeans, corn, small grains, hay, and pasture are the main crops. A small acreage is in cotton.

The soils of this association are suited to the crops that are grown in them, and they are suited to modern machine and tillage practices. Suitability of the soils for pines is high to medium.

Hunting for rabbit, quail, and dove is good on this association and, with additional management, the game population can be increased.

Limitations for nonfarm uses, building sites, and road locations are slight to moderate. Most of the soils have slight to moderate limitations for septic-tank absorption fields. Trafficability of the soils is good for most recreational uses. Suitable pond sites are scarce.

6. Congaree-Toccoa-Brogdon Association

Nearly level, well-drained soils that are predominantly loamy throughout; on flood plains

This association is in the east-central part of the county south of Cayce, along the Congaree River. The landscape is smooth and nearly level to depressional. A few streams rise and flow through the area, and large streams from soil associations further west dissect this one. The major soils in this association are nearly level and well drained. The depressions and broad flats are made up of very poorly drained to poorly drained minor soils that are in hardwood trees. Congaree and Toccoa soils are on flood plains and are subject to flooding (fig. 2).

This association makes up about 2 percent of the county. Congaree soils make up about 20 percent of the association, Toccoa soils about 18 percent, and Brogdon soils about 14 percent. The rest is minor soils.

Congaree soils have a dark-brown silt loam surface layer and a brownish sandy clay loam, silt loam, or silty clay loam subsoil. Toccoa soils have a brown fine sandy loam surface layer and a brownish sandy loam or silt loam subsoil. Brogdon soils have a very dark

Figure 2.—**Flooding on soils of the Congaree-Toccoa-Brogdon association.**

gray loamy sand surface layer and a brownish sandy loam subsoil.

Among the minor soils of this association are the Craven, Goldsboro, Rains, Lumbee, Johnston, Paleaquults, and Orangeburg.

About 40 percent of this association is farmed, and the rest is wooded or is idle. Farms or landholdings range from 100 to 1,200 acres in size. Soybeans and corn are grown mainly in the well-drained soils, and hay and pasture are grown mainly in the somewhat poorly drained soils. The soils are suited to these uses. In wooded areas soils are somewhat poorly drained and poorly drained.

Some urban development is taking place in the northern part of this association. Flooding, poor drainage, slow permeability, low bearing strength, and poor trafficability are limitations for urban and industrial uses. Brogdon and Orangeburg soils have few limitations for urban and other nonfarm uses. This association is suited to wildlife habitat.

Descriptions of the Soils

The soil series and mapping units of Lexington County are described in this section. Each series is described in detail, and then, briefly, each mapping unit in that series. Unless it is specifically mentioned otherwise, it is to be assumed that what is stated about the soil series holds true for the mapping units in that series. Thus, to get full information about any one mapping unit, it is necessary to read both the description of the mapping unit and the description of the soil series to which it belongs.

An important part of the description of each soil series is the soil profile, that is, the sequence of layers from the surface downward to rock or other underlying material. Each series contains two descriptions of this profile. The first is brief and in terms familiar to the layman. The second is much more detailed and is for those who need to make thorough and precise studies of soils. Color terms are for moist soil unless otherwise stated. The profile described in the series is representatve for mapping units in that series. If the profile of a given mapping unit is different from the one described for the series, these differences are stated in describing the mapping unit, or they are differences that are apparent in the name of the mapping unit.

Not all mapping units are members of a soil series. Paleaquults sandy, for example, does not belong to a soil series, but nevertheless Paleaquults is listed in alphabetic order along with the soil series, and a description of Paleaquults, sandy, is presented.

Following the name of each mapping unit is a symbol in parentheses. This symbol identifies the mapping

unit on the detailed soil map. Listed at the end of each description of a mapping unit are the capability unit and woodland group in which the mapping unit has been placed. The page for the description of each capability unit or woodland group can be found by referring to the "Guide to Mapping Units" at the back of this survey.

The acreage and proportionate extent of each mapping unit are shown in table 1. Many of the terms used in describing soils can be found in the Glossary at the end of this survey, and more detailed information about the terminology and methods of soil mapping can be obtained from the Soil Survey Manual (*9*).

Alaga Series

The Alaga series consists of nearly level to gently sloping, deep, somewhat excessively drained soils of the Sandhills area. These soils formed in sandy marine sediment.

In a representative profile the surface layer is 10 inches of dark-brown loamy sand. Below this is strong-brown loamy sand to a depth of 40 inches, reddish-yellow sand between depths of 40 and 56 inches, and very pale brown sand between depths of 56 and 75 inches.

Permeability is rapid in Alaga soils. Available water capacity is low in the rooting zone and very low in the underlying material.

Representative profile of Alaga loamy sand, 0 to 4 percent slopes, 2 miles northeast of Steedman and about 2½ miles southwest of Wingard's Machine Shop; on the south side of an unpaved road, 0.5 mile north of U.S. Highway 178:

Ap—0 to 10 inches, dark-brown (10YR 3/3) loamy sand; weak, fine, granular structure; very friable; many fine roots; strongly acid, pH 5.5; abrupt, smooth boundary.

C1—10 to 20 inches, strong-brown (7.5YR 5/6) loamy sand; structureless; very friable; many fine roots; strongly acid, pH 5.2; clear, smooth boundary.

C2—20 to 40 inches, strong-brown (7.5YR 5/8) loamy sand; structureless; very friable and slightly firm in place; common fine roots; clay coatings on sand grains; strongly acid, pH 5.3; gradual, smooth boundary.

C3—40 to 56 inches, reddish-yellow (7.5YR 6/8) sand; structureless; loose; few fine roots; strongly acid, pH 5.4; gradual, wavy boundary.

C4—56 to 75 inches, very pale brown (10YR 7/4) sand; structureless; loose; medium acid, pH 5.9.

TABLE 1.—*Approximate acreage and proportionate extent of the soils*

Soil	Acres	Percent	Soil	Acres	Percent
Alaga loamy sand, 0 to 4 percent slopes	8,303	1.8	Johnston soils	17,550	3.8
Alamance very fine sandy loam, 2 to 6 percent slopes	3,611	.8	Kershaw sand, 0 to 10 percent slopes	1,156	.2
Appling sandy loam, 2 to 6 percent slopes	9,249	2.0	Lakeland soils, undulating	98,168	21.9
Appling sandy loam, 6 to 10 percent slopes	5,025	1.1	Lakeland sand, 6 to 15 percent slopes	31,050	6.9
Appling sandy loam, 10 to 15 percent slopes	834	.2	Lignum silt loam, 2 to 6 percent slopes	1,480	.3
Blaney sand, 2 to 10 percent slopes	35,111	7.8	Lucy loamy sand, 0 to 6 percent slopes	1,434	.3
Blaney-Vaucluse complex, 10 to 25 percent slopes	1,935	.4	Lucy loamy sand, 6 to 10 percent slopes	996	.2
Brogdon loamy sand, 0 to 2 percent slopes	1,299	.3	Lumbee sandy loam	2,131	.5
Cecil fine sandy loam, 2 to 6 percent slopes	9,009	2.1	Lynn Haven loamy sand	2,455	.5
Cecil fine sandy loam, 6 to 10 percent slopes	7,804	1.7	Mecklenburg silt loam, 6 to 10 percent slopes	2,281	.5
Cecil fine sandy loam, 10 to 15 percent slopes	2,423	.5	Nason silt loam, 2 to 6 percent slopes	8,190	1.8
Cecil-Urban land complex, 0 to 8 percent slopes	375	.1	Nason silt loam, 6 to 15 percent slopes	7,943	1.7
Cecil-Urban land complex, 8 to 15 percent slopes	790	.2	Orangeburg loamy sand, 0 to 2 percent slopes	511	.1
Chenneby silty clay loam	1,330	.3	Orangeburg loamy sand, 2 to 6 percent slopes	3,002	.7
Chenneby soils	775	.1	Orangeburg loamy sand, 6 to 10 percent slopes	604	.1
Congaree silt loam	2,236	.5	Orangeburg loamy sand, overwash, 0 to 4 percent slopes	450	.1
Cowarts loamy sand, 2 to 6 percent slopes	581	.1	Paleaquults, sandy	507	.1
Craven fine sandy loam, 0 to 2 percent slopes	1,703	.4	Pelion loamy sand, 0 to 2 percent slopes	1,558	.3
Dothan loamy sand, 0 to 2 percent slopes	4,656	1.0	Pelion loamy sand, 2 to 6 percent slopes	14,892	3.2
Dothan loamy sand, 2 to 6 percent slopes	16,997	3.7	Pelion loamy sand, 6 to 10 percent slopes	5,798	1.3
Dothan-Urban land complex, 0 to 6 percent slopes	5,890	1.3	Pickens slaty silt loam, 6 to 15 percent slopes	506	.1
Enon silt loam, 2 to 6 percent slopes	6,735	1.5	Rains sandy loam	3,045	.6
Enoree soils	540	.1	Tatum silt loam, 15 to 25 percent slopes	3,073	.7
Fuquay loamy sand, 0 to 6 percent slopes	28,083	6.1	Toccoa fine sandy loam	1,839	.4
Fuquay loamy sand, 6 to 10 percent slopes	2,159	.5	Troup sand, 0 to 6 percent slopes	16,808	3.7
Georgeville very fine sandy loam, 2 to 6 percent slopes	10,594	2.3	Troup-Urban land complex, 0 to 6 percent slopes	3,819	.7
Georgeville very fine sandy loam, 6 to 10 percent slopes	6,306	1.5	Vaucluse loamy sand, 2 to 6 percent slopes	4,300	.9
Georgeville very fine sandy loam, 10 to 15 percent slopes	1,890	.4	Vaucluse loamy sand, 6 to 10 percent slopes	17,788	3.9
Goldsboro sandy loam, 0 to 2 percent slopes	1,307	.3	Vaucluse loamy sand, 10 to 25 percent slopes	8,878	1.9
Helena sandy loam, 2 to 6 percent slopes	1,277	.3	Wahee sandy loam, 0 to 4 percent slopes	2,212	.5
Helena sandy loam, 6 to 10 percent slopes	848	.3	Water (all lakes and ponds except Lake Murray, spillways, and Saluda and Congaree Rivers)	5,182	1.1
Herndon silt loam, 2 to 6 percent slopes	4,562	1.0	Quarries, sand pits, borrow pits, and clay pits	1,157	.3
			Total	455,000	100.0

Alaga soils are very strongly acid or strongly acid throughout their profile. Uncoated sand grains are present in these soils in most areas.

The Al or Ap horizon ranges from 6 to 10 inches in thickness. Color is dark brown, grayish brown, dark grayish brown, or very dark grayish brown. The Al or Ap horizon is thicker where soils are level or in slight depressions than it is in other areas.

Between depths of 10 and 40 inches the soil material is dominantly loamy sand or loamy fine sand. Content of silt and clay at these depths ranges from 10 to 25 percent. Below a depth of 40 inches and extending to a depth of 80 inches or more is sand or loamy sand. The upper part of the C horizon is strong brown, yellowish brown, and reddish yellow; the lower part is reddish yellow, pinkish gray, or very pale brown.

Alaga soils are near or adjacent to Lakeland, Troup, and Fuquay soils. They are finer textured than Lakeland soils, and they lack the Bt horizons of Troup and Fuquay soils.

Alaga loamy sand, 0 to 4 percent slopes (AgB).—This soil is in smooth and slightly depressional areas on the upland plains of the Sandhills.

Included with this soil in mapping are small acreages of Troup and Lakeland soils. Also included are soils in small depressions where the seasonal water table is at a depth of less than 30 inches for brief periods after heavy rains.

Runoff is negligible on this soil. Most of the rainfall infiltrates the surface and percolates to depths of more than 6 feet. The material in the upper 40 inches of this soil retains more moisture than that in adjacent sandier soils.

This soil is important for farming, especially in the Sandhills; and most areas are cultivated. Good tilth is easily maintained. The principal crops are soybeans, corn, and small grains. Coastal bermudagrass, bahiagrass, and sericea lespedeza are grown for pasture and hay. Capability unit IIIs–1; woodland group 3s2.

Alamance Series

The Alamance series consists of gently sloping, deep, well-drained soils. These soils formed in material that weathered from fine-grained slate rock.

In a represenative profile the surface layer is about 7 inches of brown very fine sandy loam, and the subsurface layer is about 4 inches of light yellowish-brown loam. The subsoil is about 35 inches thick. The upper 4 inches is brownish-yellow loam, the next 20 inches is yellowish-brown clay loam that has yellowish-red and strong-brown mottles, and the lower 11 inches is brownish-yellow and strong-brown loam that has light-gray and red mottles. The underlying material, to a depth of 64 inches, is mottled yellow, white, and yellowish-brown very fine sandy loam.

Permeability is moderate in Alamance soils, and available water capacity is high.

Representative profile of Alamance very fine sandy loam, 2 to 6 percent slopes, 14 miles west of Lexington, 2 miles south of U.S. Highway 378, 0.25 mile northeast of secondary road 54, and 20 feet north of secondary road 46:

Ap—0 to 7 inches, brown (10YR 4/3) very fine sandy loam; weak, fine, granular structure; very friable; many fine roots; about 5 percent gravel; medium acid, pH 5.7; clear, smooth boundary.

A2—7 to 11 inches, light yellowish-brown (10YR 6/4) loam; weak, fine, granular structure; very friable; many fine roots; 5 percent gravel; slightly acid, pH 6.3; abrupt, smooth boundary.

B1t—11 to 15 inches, brownish-yellow (10YR 6/6) loam; weak, medium, subangular blocky structure; friable; common fine roots; many fine pores; 5 percent gravel; strongly acid, pH 5.5; clear, smooth boundary.

B2lt—15 to 27 inches, yellowish-brown (10YR 5/6) clay loam; moderate, medium, subangular blocky structure; friable; few fine roots; common fine and medium pores, few pebbles; patchy clay films on faces of most peds; very strongly acid, pH 5.0; gradual, smooth boundary.

B22t—27 to 35 inches, yellowish-brown (10YR 5/4) clay loam; common, medium, distinct, yellowish-red (5YR 5/8) and strong-brown (7.5YR 5/6) mottles; moderate, medium, subangular blocky structure and fine angular blocky; friable; few fine pores; thin, patchy clay films; strongly acid, pH 5.2; gradual, smooth boundary.

B3t—35 to 46 inches, brownish-yellow (10YR 6/8) and strong-brown (7.5YR 5/6) loam; many, medium, distinct, light-gray (10YR 7/2) and red (2.5YR 5/8) mottles; weak, medium, subangular blocky structure; friable; few fine pores; thin, patchy clay films on faces of some peds; strongly acid, pH 5.2; gradual, irregular boundary.

C—46 to 64 inches, coarsely mottled, splotched, and streaked yellow (10YR 7/6), white (10YR 8/1), and yellowish-brown (10YR 5/6) fine-grained saprolite; few, medium, strong-brown (7.5YR 5/6) mottles along cracks; very fine sandy loam when crushed; rock-controlled structure; strongly acid, pH 5.2.

The solum ranges from 30 to 60 inches in thickness. The Al or Ap horizon is brown, dark grayish brown, or grayish brown. The A2 horizon is light yellowish brown, light brownish gray, pale brown, or very pale brown. The A horizon is 0 to 10 percent gravel. Reaction ranges from very strongly acid to slightly acid.

The upper part of the B horizon is 0 to 10 percent gravel. The B2t horizon is yellowish brown or brownish yellow and has few to many mottles of yellow, light yellowish brown, yellowish red, or strong brown. It is clay loam or silty clay loam. Content of clay in the B2t horizon ranges from about 20 to 30 percent. The B3t horizon is brownish yellow, yellowish brown, or strong brown and has few to many red and gray mottles. It is loam, silt loam, or very fine sandy loam. Reaction in the B horizon is very strongly acid or strongly acid.

The C horizon is coarsely mottled in browns, yellows, light gray, and white. It is highly weathered and can be readily cut by handtools. Reaction is very strongly acid or strongly acid. Hard slate rock is at a depth of more than 60 inches.

Alamance soils are near or adjacent to Nason, Herndon, Enon, and Lignum soils. They have less clay in the Bt horizon than any of these soils and are less plastic than Enon and Lignum soils. Also, base saturation is lower in Alamance soils than it is in Enon soils. Alamance soils, unlike Lignum soils, lack gray colors in the upper 24 inches of the Bt horizon.

Alamance very fine sandy loam, 2 to 6 percent slopes (AmB).—This soil is on smooth, moderately broad ridgetops of the Piedmont Plateau.

Included with this soil in mapping are small areas of Nason and Herndon soils and small areas in draws and low places where the soils have gray mottles at a depth of less than 30 inches. Also included are small areas where bedrock is at a depth of 3 to 5 feet, small areas where slope is less than 2 percent, and small areas where slope is more than 6 percent.

Runoff is medium on this soil. The hazard of erosion is moderate.

Good tilth can be maintained, and most of the acreage of this soil is cultivated. The principal crops are corn, cotton, small grains, and peaches. A small acreage is used for hay and pasture. Capability unit IIe–1; woodland group 3o7.

Appling Series

The Appling series consists of gently sloping to strongly sloping, deep, well-drained soils on uplands of the Piedmont Plateau. These soils formed in material that weathered from granite bedrock.

In a representative profile the surface layer is dark grayish-brown sandy loam about 8 inches thick. The subsoil is about 52 inches thick. The upper 14 inches is yellowish-red clay loam that has red and strong-brown mottles, and the next 19 inches is mottled strong-brown, brownish-yellow, and yellowish-red clay loam. Below this the subsoil is 10 inches of mottled, yellowish-red, red, strong-brown, brownish-yellow, and yellow sandy clay loam over 9 inches of red sandy clay loam that has mottles of brownish yellow and yellowish red. The underlying material, to a depth of 86 inches, is red sandy loam streaked with gray.

Permeability is moderate in Appling soils, and available water capacity is medium.

Representative profile of Appling sandy loam, 2 to 6 percent slopes, north of U.S. Highway 378, approximately 8 miles west of Lexington, and 0.5 mile east of Taylor Brothers Store:

Ap—0 to 8 inches, dark grayish-brown (10YR 4/2) sandy loam; weak, fine, granular structure; friable; many fine roots; slightly acid, pH 6.2; abrupt, smooth boundary.

B21t—8 to 22 inches, yellowish-red (5YR 5/8) clay loam; few, fine, faint, red and strong-brown mottles; rubbed color is yellowish red (5YR 5/8); moderate, medium, subangular blocky structure; firm; many fine roots; many fine pores; many continuous and prominent clay films; strongly acid, pH 5.5; clear, smooth boundary.

B22t—22 to 41 inches, mottled, strong-brown (7.5YR 5/6), brownish-yellow (10YR 6/6), and yellowish-red (5YR 5/8) clay loam; rubbed color is strong brown (7.5YR 5/8); moderate, medium, subangular blocky structure; firm; thick, prominent clay films; many fine sand grains of quartz and feldspar; strongly acid, pH 5.4; clear, wavy boundary.

B23t—41 to 51 inches, mottled, red (2.5YR 5/8), yellowish-red (5YR 5/8), strong-brown (7.5YR 5/8), brownish-yellow (10YR 6/6), and yellow (10YR 7/6) sandy clay loam; yellowish-red clay streaks in old rock cleavages and joint fractures; weak, coarse, angular blocky structure, medium, platy in places; friable; few old roots; few, thin, prominent, discontinuous clay films; many light-gray to white quartz sand grains 1 to 4 millimeters in diameter; translocated clay in cold cracks and joints; strongly acid, pH 5.1; clear, smooth boundary.

B3t—51 to 60 inches, red (2.5YR 5/8) sandy clay loam; many, coarse, prominent, brownish-yellow (10YR 6/8) and yellowish-red (5YR 5/8) mottles; weak, coarse, angular blocky and coarse, platy structure; friable; translocated clay in old cracks and rock fractures; many light-gray and white quartz sand grains 1 to 4 millimeters in diameter and diagonal quartz veins about 1½ inches thick; strongly acid, pH 5.1; clear, smooth boundary.

C—60 to 86 inches, red (2.5YR 5/8) sandy loam streaked with gray granitic saprolite; massive; very friable; many light-gray and white quartz sand grains; strongly acid, pH 5.1.

The solum ranges from 44 to 60 inches in thickness. Depth to bedrock is 6 to 10 feet.

The Al or Ap horizon is 5 to 8 inches thick and is dark grayish brown, grayish brown, very dark grayish brown, or brown. Reaction ranges from strongly acid to slightly acid.

The Bt horizon is 38 to 54 inches thick. It is yellowish red, strong brown, and yellowish brown in the upper part and mottled, yellowish red, strong brown, yellowish brown, brownish yellow, yellow, and red in the lower part. The Bt horizon is clay or clay loam. If a B1 horizon is present, it is sandy clay loam or clay loam. The B3t horizon is sandy clay loam, clay loam, or sandy loam. Reaction in the B horizon is very strongly acid or strongly acid.

The C horizon is red, yellowish red, yellowish brown, and reddish yellow or is mottled with those colors or colors of brownish yellow, yellow, and light gray. The colors are frequently in streaks. The C horizon is sandy loam or sandy clay loam. It is structureless (massive) or has fine, platy structure. Reaction is very strongly acid or strongly acid.

Appling soils are near or adjacent to Cecil, Georgeville, Herndon, Nason, Helena, Pelion, Dothan, and Fuquay soils. They are more yellowish in the B horizon than Cecil and Georgeville soils, and they contain less silt than Herndon and Nason soils. They lack the gray mottles in the upper part of the Bt horizon that are characteristic of Helena and Pelion soils. They have a finer textured B horizon than Dothan and Fuquay soils.

Appling sandy loam, 2 to 6 percent slopes (ApB).—This soil is on smooth, simple ridgetops and side slopes. It has the profile described as representative of the series.

Included with this soil in mapping are small knolls or short slopes of Cecil soils and small areas of Helena soils in a few of the depressions or draws. Also included are soils that have a sandy clay loam subsoil but are otherwise similar to this soil. In places the surface layer has been eroded and is yellowish-red or yellowish-brown sandy clay loam. In other places it is gray or light brownish-gray loamy sand. Other inclusions are a few areas where slope is less than 2 percent or more than 6 percent and a few areas less than 0.1 acre in size, where large granite boulders are on the surface. These are shown on the map by appropriate symbols.

Runoff is medium on this soil. The hazard of erosion is moderate.

Good tilth is easily maintained. This soil is one of the more important for farming in the county. The principal crops are corn, cotton, soybeans, small grains, peaches, hay, and pasture. Capability unit IIe–1; woodland group 3o7.

Appling sandy loam, 6 to 10 percent slopes (ApC).—This soil is on side slopes. Areas range from 300 to 1,600 feet in width and are approximately parallel to the drainageways. Slopes are simple, but many small draws dissect the areas.

Included with this soil in mapping are small areas of Helena soils and small areas of soils similar to Appling soils, except their subsoil is sandy clay loam throughout or ranges from 13 to 24 inches in thickness. On many of the included areas less than 0.25 acre in size are small gullies and clusters of boulders. Also included are areas where slope is less than 6 percent and areas where slope is more than 10 percent.

Runoff is rapid on this soil. Where cultivated, the hazard of erosion on this soil is severe.

Approximately half of the acreage of this soil is wooded. Most of the cleared acreage is in hay and pasture. A few areas are in corn or soybeans. Capability unit IIIe–1; woodland group 3o7.

Appling sandy loam, 10 to 15 percent slopes (ApD).—This soil is on narrow side slopes parallel to streams.

Included with this soil in mapping are areas of Cecil soils on narrow ridges and Helena soils in the bottoms of steep draws. Also included are many small areas where slope is less than 10 percent and areas where slope is more than 15 percent. Many outcroppings of granite and granite boulders are included, but the total acreage is small.

Almost all the acreage of this soil is in heavily cutover hardwoods. Runoff is very rapid. The hazard of erosion is very severe where this soil is cleared. Cultivation is very difficult on the strongly sloping narrow and dissected slopes. Capability unit IVe–1; woodland group 3o7.

Blaney Series

The Blaney series consists of gently sloping to moderately steep, deep, well-drained soils mostly in the Sandhills. These soils formed in loamy and sandy marine sediment.

In a representative profile the surface layer is very dark gray sand about 3 inches thick. The subsurface layer is sand about 22 inches thick. The upper 6 inches is dark grayish brown, and the lower 16 inches is pale brown. The subsoil is a firm and brittle fragipan about 40 inches thick. The upper 13 inches of it is light-brown sandy clay loam mottled with very pale brown, and the next 12 inches is light-brown sandy clay loam mottled with reddish yellow. The 15 inches of the subsoil below this is reddish-yellow sandy loam.

Available water capacity is low in the sandy surface and subsurface layers. In the fragipan, permeability is slow and available water capacity is low to medium. The fragipan retards but does not severely restrict root penetration for trees or other deep-rooted perennial plants. The roots of the common annual plants are mainly in the sandy surface and subsurface layers.

Representative profile of Blaney sand, 2 to 10 percent slopes, 20 feet south of Dogwood Road, 300 feet west of the intersection with Fish Hatchery Road, and 2.6 miles southwest of the intersection of Fish Hatchery Road and U.S. Highway 21:

A1—0 to 3 inches, very dark gray (10YR 3/1) sand; weak, fine, granular structure; very friable; many roots; strongly acid, pH 5.1; abrupt, smooth boundary.

A21—3 to 9 inches, dark grayish-brown (2.5Y 4/2) sand; single grained; loose; mostly uncoated sand grains; many roots; strongly acid, pH 5.4; clear, smooth boundary.

A22—9 to 25 inches, pale-brown (10YR 6/3) sand; single grained; loose; mostly uncoated sand grains; many roots; strongly acid, pH 5.5; clear, smooth boundary.

Bxl—25 to 38 inches, light-brown (7.5YR 6/4) sandy clay loam; few, medium, faint very pale brown (10YR 7/4) mottles; moderate, medium, subangular blocky structure; firm and brittle; many medium and fine pores; strongly acid, pH 5.1; gradual, wavy boundary.

Bx2—38 to 50 inches, light-brown (7.5YR 6/4) sandy clay loam; common, coarse, distinct reddish-yellow (7.5YR 7/6) mottles; weak, medium, subangular and angular blocky structure; firm and brittle; patchy clay films on faces of peds; strongly acid; pH 5.2; gradual, wavy boundary.

Bx3—50 to 65 inches, reddish-yellow (7.5YR 6/6) sandy loam; weak, medium, subangular blocky structure; firm and brittle; sand grains coated and bridged; strongly acid, pH 5.2.

The solum is more than 60 inches thick. Depth to the fragipan ranges ffrom 22 to 40 inches. Reaction is strongly acid or very strongly acid throughout the profile.

The Al or Ap horizon is 3 to 8 inches thick. It is very dark gray, dark grayish brown, very dark grayish brown, or very dark brown. The A2 horizon is 12 to 22 inches thick. It is dark grayish-brown, pale-brown, very pale brown, and light yellowish-brown sand, coarse sand, or loamy sand.

The Bx horizon, or fragipan, ranges from 23 to 50 inches in thickness. It is reddish yellow, light yellowish brown, strong brown, light brown, or mottled combinations of these colors and has mottles of pale brown, yellow, brownish yellow, and pink. The Bx horizon is mainly sandy clay loam, but in places subhorizons are sandy loam, sandy clay, or clay.

A Bl horizon of sandy loam or coarse clay loam 3 to 4 inches thick is present in places, and in places a B3 horizon of sandy loam is present.

Blaney soils are near or adjacent to Pelion, Vaucluse, Dothan, Wahee, Fuquay, and Lakeland soils. They have a thicker A horizon than Pelion, Vaucluse, Dothan, and Wahee soils. They have less clay and are better drained than the Wahee soils, and they lack the plinthite that is characteristic of Fuquay soils. Blaney soils, unlike Lakeland soils, have a fragipan.

Blaney sand, 2 to 10 percent slopes (BnC).—This soil is mainly gently sloping in areas of toe slopes but is gently sloping in a few areas on ridgetops. It is sloping where areas are on side slopes. This soil has the profile described as representative of the series.

Included with this soil in mapping are small areas of Lakeland, Fuquay, and Vaucluse soils mainly on ridgetops and side slopes. Small areas of Pelion soils and Wahee soils are included on the top slopes and the more gently sloping side slopes. In places small areas are included where slope is less than 2 percent. Also included are small areas of soils similar to Blaney soils but that have a surface layer less than 20 inches thick or more than 40 inches thick.

Runoff is slow to medium on this soil. Percolation of water is retarded in the fragipan horizons. In a few areas where the soil is nearly level, a perched water table overlies the fragipan for short periods after heavy rains. In dry seasons shallow-rooted plants lack sufficient moisture in the sandy surface layer. Erosion is a hazard where runoff concentrates.

Much of the acreage of this soil that was cultivated at one time is now idle or in pines (fig. 3). Corn and small grains are the main crops. Sericea lespedeza and Coastal bermudagrass are common hay and pasture plants. Capability unit IIIs–2; woodland group 4s2.

Blaney-Vaucluse complex, 10 to 25 percent slopes (BoE).—This complex is on narrow side slopes along streams where the landscape is strongly sloping and moderately steep. About 70 percent of it is soils of

the Blaney series, and 30 percent is soils of the Vaucluse series. Intricacy of association of Blaney and Vaucluse soils within the complex varies from top to bottom on the side slopes and horizontally.

Included with this complex in mapping are soils very similar to Blaney and Vaucluse that have a thick sandy surface layer 40 to 80 inches thick. Also included are soils that are sandy throughout their profile.

Runoff is medium to rapid on these soils. Seepage water is present at various depths and is on top of the fragipan. Almost all of the acreage of this complex is wooded, and water is available for good growth of trees. Capability unit VIe–1; Blaney part woodland group 4s2, Vaucluse part woodland group 4r2.

Figure 3.—**A young stand of loblolly pine on Blaney sand, 2 to 10 percent slopes.**

Brogdon Series

The Brogdon series consists of nearly level, deep, well-drained soils. These soils formed in loamy sediment on marine and stream terraces.

In a representative profile the surface layer is very dark gray loamy sand about 9 inches thick. The subsurface layer is light olive-brown loamy sand about 5 inches thick. The subsoil is about 36 inches thick. The upper 14 inches is light olive-brown sandy loam; the next 7 inches is pale-brown sandy loam mottled with yellowish red and yellowish brown; and the lower 15 inches is mottled, pale-brown and strong-brown loamy sand. The underlying material, to a depth of 72 inches, is mottled, light-gray and yellow loamy sand and sand.

Permeability is moderately rapid in Brogdon soils, and available water capacity is medium.

Representative profile of Brogdon loamy sand, 0 to 2 percent slopes, on the east side of secondary road 66, 2 miles north of the Calhoun County line:

Ap—0 to 9 inches, very dark gray (10YR 3/1) loamy sand; weak, fine, granular structure; very friable; many fine roots; medium acid, pH 5.8; abrupt, smooth boundary.

A2—9 to 14 inches, light olive-brown (2.5Y 5/4) loamy sand; weak, fine, granular structure; very friable; common fine and medium roots; very strongly acid, pH 5.0; clear, smooth boundary.

B21t—14 to 28 inches, light olive-brown (2.5Y 5/6) sandy loam; weak, medium, granular structure; friable; common pores; thin clay coatings on sand grains and in pores; very strongly acid, pH 5.0; clear, smooth boundary.

B22t—28 to 35 inches, pale-brown (10YR 6/3) sandy loam; common, medium, distinct, yellowish-brown (10YR 5/8) and few, fine, prominent, yellowish-red mottles that are firm in the center; weak, medium, subangular blocky structure; friable; thin clay coatings on sand grains and in pores; very strongly acid, pH 5.0; gradual, wavy boundary.

B3—35 to 50 inches, mottled, pale-brown (10YR 6/3) and strong-brown (7.5YR 5/6) loamy sand; single grained; very friable but slightly firm in place; many coarse clear sand grains; few pores; very strongly acid, pH 4.7; gradual, smooth boundary.

A'2—50 to 72 inches, mottled, light-gray (10YR 7/2) and yellow (10YR 7/6) sand and loamy sand; single grained; loose; occasional bodies of kaolin clay; all sand grains are partly rounded; very strongly acid, pH 5.0.

The solum is more than 60 inches thick. The Ap horizon is 6 to 9 inches thick. It is very dark gray, dark brown, or dark yellowish brown. Reaction in the A horizon is medium acid or strongly acid.

The B2t horizon is 18 to 40 inches thick. It is light olive brown, pale brown, strong brown, or yellowish brown, and the lower part is mottled in places with combinations of these colors. A B3 horizon is present in places. It is mottled with pale brown, yellowish brown, strong brown, or grayish brown. Reaction in the B horizon is strongly acid or very strongly acid.

The A'2 horizon is sand or loamy sand. It is mottled with light gray, yellow, light yellowish brown, pale brown, or very pale brown.

Brogdon soils are near or adjacent to Goldsboro, Craven, Rains, Lumbee, Dothan, and Fuquay soils. They lack the gray colors and are better drained than Goldsboro, Craven, Rains, and Lumbee soils. They are coarser textured and lack the plinthite of Dothan soils. Brogdon soils, unlike Fuquay soils, do not have a thick sandy A horizon or contain plinthite.

Brogdon loamy sand, 0 to 2 percent slopes (BrA).—This soil is on stream terraces and marine terraces. Included with this soil in mapping are small areas of Goldsboro, Rains, and Lumbee soils. Also included are areas of soils that have thin horizons of sandy clay loam at a depth of less than 60 inches, and have brown, dark-brown, or yellowish-red colors in the subsoil.

Runoff is slow on this soil. Tilth is good, and the soil can be readily worked with farm machinery. This soil is used for pasture and crops. Capability unit IIs–3; woodland group 2o1.

Cecil Series

The Cecil series consists of gently sloping to strongly sloping, deep, well-drained soils on uplands of the Piedmont Plateau. These soils formed in material that weathered from granite rock.

In a representative profile the surface layer is about 6 inches of brown fine sandy loam. The subsoil is about 69 inches thick. The upper 2 inches is yellowish-red sandy clay loam, and the next 26 inches is red clay (fig. 4). The layer below this is 16 inches of red clay loam, and the layer below it is 8 inches of red sandy loam. The lower 17 inches of the subsoil is red sandy clay loam.

Permeability is moderate in Cecil soils, and available water capacity is medium.

Representative profile of Cecil fine sandy loam, 2 to 6 percent slopes, 9 miles west of Lexington on U.S. Highway 378, 50 feet north of this highway, 0.1 mile west of Taylor Brothers store:

AP—0 to 6 inches, brown (7.5YR 4/2) fine sandy loam; weak, medium, granular structure; friable; many fine and medium roots; medium acid, pH 6.0; abrupt, smooth boundary.

B1—6 to 8 inches, yellowish-red (5YR 4/8) sandy clay loam; weak, fine, subangular blocky structure; friable; many medium and fine roots; many fine pores; medium acid, pH 6.0; clear, smooth boundary.

B21t—8 to 34 inches, red (2.5Y 4/8) clay; moderate, fine and medium, subangular blocky structure; firm; common fine and medium roots; continuous prominent clay films on faces of most peds; few medium and fine pores; very strongly acid, pH 5.0; gradual, smooth boundary.

B22t—34 to 43 inches, red (2.5YR 5/8) clay loam; moderate, medium, subangular blocky structure; friable; many fine and medium roots; many, discontinuous, prominent clay films; common fine pores; very strongly acid, pH 5.0; gradual, smooth boundary.

B23t—43 to 50 inches, red (2.5YR 5/8) clay loam; weak, medium, subangular blocky structure; friable; many fine roots; common, prominent, discontinuous clay films; many fine pores; very strongly acid, pH 5.0; gradual, smooth boundary.

B31t—50 to 58 inches, red (2.5YR 5/8) sandy loam; weak, coarse, subangular blocky structure; friable; common fine roots; few fine pores; very strongly acid, pH 5.0; gradual, smooth boundary.

B32t—58 to 75 inches, red (2.5YR 5/8) sandy clay loam; weak, coarse, subangular blocky structure; very friable; few roots; very strongly acid, pH 5.0.

The solum ranges from 50 to more than 70 inches in thickness. Where it exceeds 60 inches, the maximum clay content is reduced by 20 percent or more above a depth of 60 inches. Depth to bedrock ranges from 6 to 10 feet.

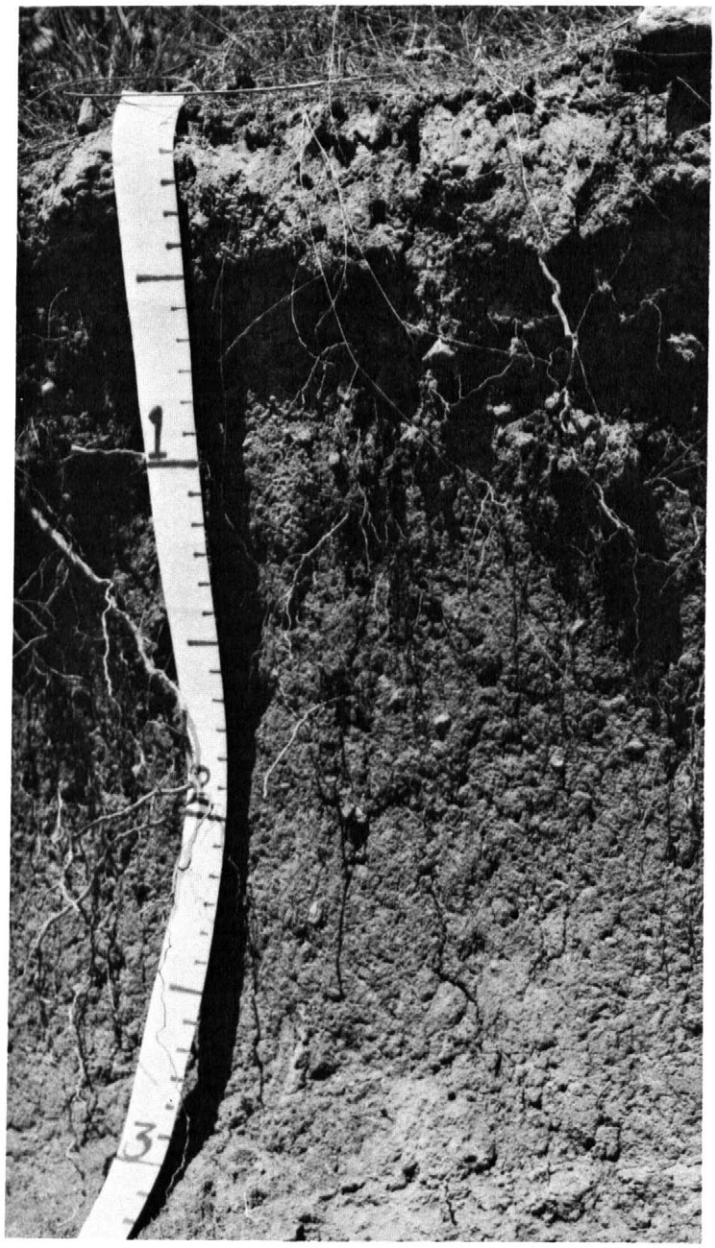

Figure 4.—**Profile of Cecil fine sandy loam, 2 to 6 percent slopes, showing clay between depths of 8 and 34 inches.**

The Ap horizon is brown, dark brown, reddish brown, or yellowish brown and is 5 to 8 inches thick. A brown or brownish-yellow A2 horizon, 1 to 4 inches thick, is present in places. Reaction in the A horizon is strongly acid or medium acid.

A B1 horizon, 2 to 5 inches thick, is present in places. It is yellowish-red, strong-brown, reddish-brown, or red sandy clay loam or clay loam. The B2t horizon is 24 to 45 inches of clay or clay loam. The B3t horizon is sandy loam or sandy clay loam. Reaction in the B horizon is strongly acid or very strongly acid.

Cecil soils are near or adjacent to Appling, Georgeville, Herndon, Nason, and Helena soils. They have a redder B2 horizon than Appling, Herndon, Nason, and Helena soils. Cecil soils contain less silt than Georgeville, Herndon, and Nason soils, and they lack the light-gray colors in the B2 horizon of Helena soils.

Cecil fine sandy loam, 2 to 6 percent slopes (CeB).—This soil is on smooth ridgetops. It has the profile described as representative of the series.

Included with this soil in mapping are small areas of Appling and Helena soils. In some areas large granite boulders are exposed on the surface, but these are not numerous enough to interfere with cultivation. Also included are small areas where the surface layer is yellowish-red or red sandy clay loam 2 to 5 inches thick and areas where the surface layer is 8 to 12 inches thick.

Runoff is medium on this soil. This Cecil soil is one of the more important for farming in the county. The principal crops are corn, small grains, peaches, vegetables, hay, pasture, and trees. Capability unit IIe–1; woodland group 3o7.

Cecil fine sandy loam, 6 to 10 percent slopes (CeC).—This soil is mainly along drainageways. Slopes are characteristically single.

Included with this soil in mapping are a few small areas where small and large granite boulders crop out, small areas of Appling soils, areas where slope is more than 10 percent, areas where slope is less than 6 percent, a few gullies, and small areas where the surface layer is 8 to 12 inches of sandy loam. Also included, in the vicinity of the Saluda River, are areas of soils that are sandy clay loam in the upper part of the subsoil and have subangular and rounded pebbles on the surface and in the upper part of the subsoil.

Runoff is rapid where this soil is clean tilled, but it is medium in well-stocked wooded areas. Most of the acreage is in trees or pasture, but in places areas of this soil are cultivated. Erosion is a major concern in the cultivated areas. The principal crops are corn, soybeans, small grains, peaches, and hay. Capability unit IIIe–1; woodland group 3o7.

Cecil fine sandy loam, 10 to 15 percent slopes (CeD).—This soil is on narrow, complex side slopes near drainageways. Numerous ravines dissect the areas.

Included with this soil in mapping are small areas of Appling and Helena soils, areas of soils that slope less than 10 percent, areas of soils that slope more than 15 percent, and a few areas of similar soils that have dominant slopes of 15 to 25 percent and a subsoil 10 to 25 inches thick. Also included are a few areas of similar soils that have a sandy clay loam subsoil and a few areas where numerous small and large granite boulders crop out.

Runoff is rapid on this soil. Most of the acreage is wooded and has been cut over. Cleared areas are subject to erosion. Capability unit IVe–1; woodland group 3o7.

Cecil-Urban land complex, 0 to 8 percent slopes (CfC).—The largest acreages of this complex are in the Saint Andrews area, the West Columbia area, and the Batesburg area. These areas, originally Cecil soils, are now used for residential dwellings, commercial buildings, schools, industrial sites, paved streets, and parking lots. In about 30 percent of the areas, the soil is undisturbed or only slightly altered, and in another 30 percent it is covered by buildings and paving. In the remaining 40 percent the soil has been altered by cutting, filling, or grading for construction.

The areas of this mapping unit are not used for farming. The soil, however, is suited to lawn grasses, trees, and shrubs common to the area, except where it has been drastically altered. The soils are stable and suitable for dwellings and paving, but onsite investigation is necessary prior to construction of large buildings.

Runoff from buildings and paving is about 100 percent. Runoff from uncovered soils is variable and depends on slope and the amount of cutting and filling that has taken place. Areas undergoing construction are subject to erosion and are sources of sediment. Hard bedrock is generally at a depth of 6 to 10 feet in undisturbed areas. Not assigned to a capability unit; woodland group 3o7.

Cecil-Urban land complex, 8 to 15 percent slopes (CfD).—This complex is in the Saint Andrews area and in the vicinity of West Columbia, Lexington, and Batesburg. These areas, originally entirely Cecil soils, are now used mainly for residential dwellings. In about 40 percent of the areas the soil is undisturbed, and in about another 40 percent it is covered by dwellings and paving. The rest has been altered by deep cutting, filling, and grading.

Included with this soil in mapping are areas where hard bedrock is at a depth of 3 to 6 feet. Also included are areas where large granite boulders are on the surface.

This complex is not used for farming. Special management is required to establish plant cover. The soils are suitable for dwellings but have severe limitations for this use because of slope. Onsite investigation is necessary prior to construction of large buildings.

Runoff from structures, paving, and heavily graded areas is almost 100 percent. Unless special precautions are taken, areas undergoing construction are subject to erosion and are sources of sediment. Not assigned to a capability unit; woodland group 3o7.

Chenneby Series

The Chenneby series consists of nearly level, deep, and somewhat poorly drained soils. These soils formed in silty fluvial sediment of stream flood plains.

In a representative profile the surface layer is dark-brown silty clay loam about 10 inches thick. The subsoil is about 52 inches thick. The upper 12 inches is mottled, reddish-brown and brown silt loam; the next 13 inches is reddish-brown silt loam that has grayish-brown mottles; and the next 10 inches is dark-brown loam mottled with grayish brown. The underlying material, to a depth of 62 inches, is dark-brown silt loam that has grayish-brown and pink mottles.

Permeability is moderate in Chenneby soils, and available water capacity is high. These soils are frequently flooded for brief periods.

Representative profile of Chenneby silty clay loam, 1.5 miles north of Calhoun County line and 0.75 mile east of secondary road 66 (Old State Road):

Ap—0 to 10 inches, dark-brown (7.5YR 4/4) silty clay loam; weak, fine, subangular blocky and granular structure; friable; many fine grass roots and worm casts; strongly acid, pH 5.5; clear, smooth boundary.

B21—10 to 22 inches, mottled, reddish-brown (5YR 4/4) and brown (7.5YR 5/4) silt loam; weak, fine, granular structure; friable; many pores, roots, and worm casts and a few mica flakes; strongly acid, pH 5.4; clear, smooth boundary.

B22—22 to 35 inches, reddish-brown (5YR 4/4) silt loam; few, fine, faint grayish-brown mottles along root channels; massive; firm; few, dark reddish-brown, soft segregations; many fine pores and roots; medium acid, pH 6.0; gradual, smooth boundary.

B23—35 to 45 inches, dark-brown (10YR 4/3) silt loam; common, fine and medium, faint, grayish-brown (10YR 5/2) mottles; massive; firm; many fine pores and roots; medium acid, pH 5.9; gradual, smooth boundary.

B24—45 to 62 inches, dark-brown (10YR 3/3) silt loam; few, fine, faint grayish-brown and pink mottles; massive; friable; few mica flakes; many pores and old root channels; strongly acid, pH 5.5.

The solum ranges from 40 to 70 inches in thickness. Depth to gray mottles ranges from 19 to 27 inches.

The A horizon is reddish-brown, dark-brown, or dark-gray silt loam or silty clay loam 6 to 10 inches thick. Reaction in the A horizon is very strongly acid or strongly acid.

The B horizon is reddish brown, brown, dark brown, yellowish red, yellowish brown, and strong brown or mottled combinations of these colors. The lower part of the B horizon is mottled with grayish brown, brownish gray, light gray, or gray. It is silt loam or silty clay loam 30 to 60 inches thick. Reaction in the B horizon is strongly acid or medium acid.

Chenneby soils are near or adjacent to Congaree, Toccoa, Enoree, Wahee, Craven, Rains, and Johnston soils. They have gray colors in the upper 20 inches of the B horizon that are lacking in Congaree and Toccoa soils. They have more silt in the B horizon than Toccoa and Enoree soils. They have a coarser textured B horizon than Wahee and Craven soils. Thy lack the dominantly gray color of Rains soils and the thick black surface layer of Johnston soils.

Chenneby silty clay loam (Ch).—This soil is on flats or in slight depressions on flood plains. It has the profile described as representative of the series.

Included with this soil in mapping are small areas of Congaree, Toccoa, Enoree, Craven, and Rains soils. Also included are areas of soils similar to Chenneby soils that have a silty clay, clay, clay loam, or loam subsoil. Reaction in the subsoil of some included soils is slightly acid or neutral.

Runoff is slow on this soil. A seasonal high water table is at a depth of 1 to 3 feet. Water ponds in low places after rains. This soil is used mainly for trees, pasture, and hay. A few acres are drained and planted to corn. Capability unit IIIw–1; woodland group 1w8.

Chenneby soils (Ck).—This soil is on flats or in slight depressions on stream terraces and flood plains. It has a profile similar to the one described as representative of the series, but the surface layer is silt loam, loam, or silty clay loam. This unit consists of Chenneby soils and unclassified soils that are similar in use, management, and behavior to Chenneby soils. This unit was mapped at a lower intensity than most other units in this survey. Included in mapping are small areas of Enoree, Craven, and Toccoa soils.

Runoff is slow on Chenneby soils. A seasonal high water table is at a depth of 1 to 3 feet. Water ponds in low places for long periods. Most of the acreage of this soil is wooded. A small acreage is used for pasture or hay. Capability unit IIIw–1; woodland group 1w8.

Congaree Series

The Congaree series consists of nearly level, deep, and well-drained soils. These soils formed in loamy alluvium on river and stream flood plains.

In a representative profile the surface layer is dark-brown silt loam about 10 inches thick. The upper 14 inches of the underlying material is dark yellowish-brown silt loam, the next 26 inches is dark-brown sandy clay loam, and the lower 12 inches is strong-brown sandy loam that has mottles of yellowish red and yellowish brown.

Permeability is moderate in Congaree soils, and available water capacity is medium. The soils are subject to flooding.

Representative profile of Congaree silt loam is 0.875 mile south of Congaree Creek on secondary road 66 (Old State Road) and 200 feet east of the road:

Ap—0 to 7 inches, dark-brown (7.5YR 4/4) silt loam; moderate, fine and medium, granular structure; friable; many roots; slightly acid, pH 6.4; clear, smooth boundary.

A1—7 to 10 inches, dark-brown (7.5YR 4/4) silt loam; moderate, fine, granular structure; friable; many roots and worm casts; slightly acid, pH 6.2; abrupt, wavy boundary.

C1—10 to 24 inches, dark yellowish-brown (10YR 3/4) silt loam; moderate, fine and medium, subangular blocky structure; friable, slightly firm in place; many fine roots on ped faces; medium acid, pH 5.6; abrupt, smooth boundary.

IIC2—24 to 50 inches, dark-brown (7.5YR 4/4) sandy clay loam; moderate, fine, granular structure; friable, slightly firm in place; common medium pores and many old root channels filled with A1 material; medium acid, pH 5.6; gradual, smooth boundary.

IIC3—50 to 62 inches, strong-brown (7.5YR 5/6) sandy loam; common, medium, faint, yellowish-red (5YR 5/8) and yellowish-brown (10YR 5/8) mottles; structureless; friable; strongly acid, pH 5.4.

Reaction is strongly acid to slightly acid throughout the profile. The Ap horizon ranges from 4 to 8 inches in thickness. The entire A horizon ranges from 4 to 14 inches in thickness. It is dark brown, dark yellowish brown, or brown.

The C horizon is dark yellowish brown, dark grayish brown, dark brown, strong brown, or brown. It is silty clay loam, silt loam, or sandy clay loam; but in many places it has thin strata of sandy loam, loam, or loamy sand. Thick beds of sandy sediment are at a depth of 40 inches or more in places.

Congaree soils are near or adjacent to Toccoa, Chenneby, and Enoree soils. They are finer textured at a depth of 10 to 40 inches than Toccoa and Enoree soils. They are better drained than Chenneby and Enoree soils.

Congaree silt loam (Co).—This soil is mainly on large, broad areas of the Congaree River flood plain. Small areas are along the smaller streams of the Piedmont.

Included with this soil in mapping are small areas of Toccoa, Chenneby, and Enoree soils. Also included are small areas where the surface layer is fine sandy loam, loamy fine sand, or silty clay, and some areas where the underlying material is silty clay loam or silty clay below a depth of 40 inches. In a few small depressions the water table is at a depth of less than 12 inches.

Runoff is slow on this soil. Areas of this soil flood annually for short periods. Good tilth is easy to maintain.

Most of the acreage of this soil is wooded. Larger cultivated areas are in corn and soybeans. Smaller areas are in pasture and hay. Capability unit IIw–7; woodland group 1o7.

Cowarts Series

The Cowarts series consists of gently sloping, deep, well-drained soils that have plinthite in the subsoil. These soils formed in loamy marine sediment.

In a representative profile the surface layer is dark grayish-brown loamy sand about 8 inches thick. The subsurface layer is light yellowish-brown loamy sand about 7 inches thick. The subsoil is about 49 inches thick. The upper 8 inches is yellowish-brown sandy clay loam, the next 6 inches is yellowish-brown sandy clay loam that has red mottles and plinthite nodules; and the 13 inches below is mottled, yellow and red sandy clay loam that has plinthite nodules. The lower 22 inches of the subsoil is mottled, yellow, brownish-yellow, and red sandy clay.

Permeability in these Cowarts soils is moderate in the upper part of the subsoil and slow in that part of the subsoil that contains plinthite. Available water capacity is medium.

Representative profile of Cowarts loamy sand, 2 to 6 percent slopes, 3 miles southwest of Edmund, 0.25 mile east of secondary road 73, and 2 miles northeast of the intersection of secondary roads 73 and 65:

Ap—0 to 8 inches, dark grayish-brown (10YR 4/2) loamy sand; weak, fine, granular structure; very friable; many roots and a few small concretions; slightly acid, pH 6.3; abrupt, smooth boundary.

A2—8 to 15 inches, light yellowish-brown (10YR 6/4) loamy sand; weak, fine, granular structure; very friable; few coarse quartz sand grains and fine gravel; strongly acid, pH 5.2; abrupt, smooth boundary.

B21t—15 to 23 inches, yellowish-brown (10YR 5/4) sandy clay loam; weak, fine, subangular blocky structure; friable; common fine roots; few quartz and ironstone gravel; few fine pores; very strongly acid, pH 4.8; clear, smooth boundary.

B22t—23 to 29 inches, yellowish-brown (10YR 5/6) sandy clay loam; common, medium, prominent, red (2.5YR 5/8) mottles; weak, fine, subangular blocky structure; firm; brittle in about 35 percent of the mass; about 20 percent plinthite nodules; common, fine, discontinuous pores; few thin clay films on red faces; strongly acid, pH 5.3; clear, smooth boundary.

B23t—29 to 42 inches, coarsely and reticulately mottled yellow (10YR 7/6) and red (2.5YR 4/8) sandy clay loam; weak, fine, subangular blocky structure; firm in place but crushes to friable mass, red part is brittle; few dark-red concretions 5 to 10 millimeters in diameter; about 25 percent plinthite nodules; thin discontinuous clay films on red peds; very strongly acid, pH 4.8; gradual, smooth boundary.

B24t—42 to 64 inches, mottled, yellow (10YR 7/6), brownish-yellow (10YR 6/6), and red (2.5YR 4/8) sandy clay; moderate, fine and medium, subangular blocky structure; firm; about 20 percent plinthite; red mottles become softer with increasing depth; clay films are discontinuous but are more numerous than in upper horizons; strongly acid, pH 5.3.

The solum ranges from 60 to 72 inches in thickness. Plinthite is at a depth of 20 to 24 inches.

The Ap horizon is 7 to 9 inches thick. The A2 horizon is present in places and is light yellowish brown or pale brown. Reaction in the A horizon is strongly acid to slightly acid.

The B2 horizon is yellowish brown, or it is mottled with yellowish brown, brownish yellow, yellow, red, and strong brown. The lower part of the B horizon is sandy clay loam or sandy clay and is 5 to 30 percent plinthite. Reaction in the B horizon is strongly acid or very strongly acid.

Cowarts soils are near or adjacent to Dothan and Fuquay soils. They lack the thick sandy surface layer that is characteristic of Fuquay soils. They have plinthite nearer the surface than Dothan soils.

Cowarts loamy sand, 2 to 6 percent slopes (CsB).—This soil is mainly on smooth ridgetops, but a few areas are in oval depressional flats in the Sandhills. Included in mapping are small areas of Dothan, Fuquay, and Orangeburg soils.

Runoff is medium on this soil. Downward movement of water is retarded by the plinthite in the subsoil, and the subsoil above the plinthite remains sticky and wet for long periods after rains.

All areas of this soil are cultivated. Cotton, corn, and soybeans are the main crops. Capability unit IIe–5; woodland group 2o1.

Craven Series

The Craven series consists of nearly level, deep, and moderately well drained soils. These soils formed in fine-textured marine sediment on stream terraces.

In a representative profile the surface layer is brown fine sandy loam about 8 inches thick. The subsoil is about 28 inches thick. The upper 4 inches is yellowish-brown loam that has mottles of strong brown, the next 8 inches is light yellowish-brown clay that has mottles of yellowish brown and light brownish gray, and the 9 inches below is yellowish-brown clay loam that has mottles of light brownish gray and strong brown. The lower 7 inches of the subsoil is sandy clay loam that has mottles of gray, yellowish brown, strong brown, yellowish red, and red. The underlying material, to a depth of 50 inches, is sandy clay loam that has mottles of gray and strong brown.

Permeability is slow in Craven soils, and available water capacity is medium.

Representative profile of Craven fine sandy loam, 0 to 2 percent slopes, on the north side of a private road, 0.5 mile west of secondary road 66 (Old State Road), where it crosses Congaree Creek:

Ap—0 to 8 inches, brown (10YR 4/3) fine sandy loam; weak, fine and medium, granular structure; friable; many fine roots; yellowish-brown stains along root channels; medium acid, pH 6.0; abrupt smooth boundary.

B1—8 to 12 inches, yellowish-brown (10YR 5/4) loam; common, fine, faint, strong-brown mottles; weak, medium, subangular blocky structure; friable; clay films on some ped faces; very strongly acid, pH 5.0; abrupt, smooth boundary.

B21t—12 to 20 inches, light yellowish-brown (10YR 6/4) clay; common, medium, distinct, yellowish-brown (10YR 5/6) and light brownish-gray (10YR 6/2) mottles; moderate, medium and coarse, subangular blocky structure; very firm; clay films on ped faces and in root channels; many vertical cracks that have clay films on faces; many fine roots in cracks; strongly acid, pH 5.4; clear, smooth boundary.

B22tg—20 to 29 inches, yellowish-brown (10YR 5/6) clay loam; common, medium, distinct, strong-brown

(7.5YR 5/8) and light brownish-gray (10YR 6/2) mottles and few, fine, yellowish-red and red mottles; part that has red mottles is sandy loam; strong, medium and coarse, angular blocky structure; very firm; many, thick clay films; many pores and old root channels; many fine roots between peds; horizontal axis of peds much longer than the vertical axis; strongly acid, pH 5.3; clear, smooth boundary.

B3tg—29 to 36 inches, mottled, gray (10YR 6/1), yellowish-brown (10YR 5/8), strong-brown (7.5YR 5/6), yellowish-red (5YR 4/8), and red (2.5YR 4/8) sandy clay loam; yellowish-brown and yellowish-red part is sandy loam; massive; firm, hard; few fine pores; strongly acid, pH 5.5; clear, smooth boundary.

C—36 to 50 inches, mottled, gray (10YR 6/1) sandy clay loam and strong-brown (7.5YR 5/8) sandy loam; massive; firm; few gray balls of clay; strongly acid, pH 5.6.

The solum ranges from 36 to 50 inches in thickness. The A1 or Ap horizon is 4 to 8 inches thick and is brown, grayish brown, or very dark gray. An A2 horizon is present in places. It is light yellowish-brown or light brownish-gray silt loam or fine sandy loam and is 4 to 5 inches thick. Reaction is strongly acid or medium acid in the A horizon.

The Bt horizon is 20 to 52 inches thick. It is yellowish brown, light yellowish brown, or brownish yellow. The lower part of the B horizon is mottled with these colors, as well as light olive brown, yellow, pale yellow, and light gray, light brownish gray, or gray. The Bt horizon is clay, clay loam, or sandy clay. A B3 horizon of sandy clay loam or sandy loam is present in places. Reaction is strongly acid or very strongly acid in the B horizon.

The C horizon is sandy loam, sandy clay loam, or sandy clay. It is gray and has mottles of yellowish brown, light olive brown, and brownish yellow. Reaction is strongly acid or very strongly acid in the C horizon.

Craven soils are near or adjacent to Rains, Wahee, Goldsboro, Kalmia, and Chenneby soils. They have a finer textured Bt horizon than Rains, Goldsboro, Brogdon, and Chenneby soils. They are not so gray in the upper part of the Bt horizon as Rains and Wahee soils.

Craven fine sandy loam, 0 to 2 percent slopes (CvA).—This soil is on terraces along the Congaree River and along large creeks in the Coastal Plain part of the county.

Included with this soil in mapping are small areas of Rains, Brogdon, Chenneby, and Goldsboro soils and small areas at lower elevations where the seasonal water table is at a depth of 1 foot. In a few areas thin, recent silty deposits are on the surface. Also included, in the vicinity of Hollow Creek, are small areas of a similar soil that is neutral to moderately alkaline in reaction in the lower part of the subsoil.

Runoff is slow on this soil. Permeability is slow, and in wet seasons and after rains, water ponds on the surface for long periods. Drainage is needed to maintain good tilth and crop production. Most of the acreage is in trees, pasture, or hay. A small acreage is in corn, soybeans, and small grains. Capability unit IIw–5; woodland group 3w2.

Dothan Series

The Dothan series consists of nearly level to gently sloping, deep, and well-drained soils that have plinthite in the lower part of the subsoil. These soils formed in loamy Coastal Plain sediment.

In a representative profile the surface layer is dark grayish-brown loamy sand about 7 inches thick. The subsurface layer is light yellowish-brown loamy sand about 4 inches thick. The subsoil is about 49 inches thick. The upper 5 inches is yellowish-brown sandy loam; the next 17 inches is yellowish-brown sandy clay loam that has yellowish-red and red mottles; and the 9 inches below is mottled, brownish-yellow and yellowish-red sandy clay loam that contains plinthite. The lower 18 inches of the subsoil is mottled, yellowish-red, strong-brown, and light yellowish-brown sandy clay loam that contains plinthite.

Permeability is moderate in the upper part of the subsoil in these Dothan soils and moderately slow in the lower part that contains plinthite. Available water capacity is medium.

Representative profile of Dothan loamy sand, 0 to 2 percent slopes, 1.5 miles west of Pelion and 0.1 mile south of U.S. Highway 178:

Ap—0 to 7 inches, dark grayish-brown (10YR 4/2) loamy sand; very weak, fine, granular structure; very friable; many fine roots; slightly acid, pH 6.5; abrupt, smooth boundary.

A2—7 to 11 inches, light yellowish-brown (10YR 6/4) loamy sand; weak, medium, granular structure; very friable; common fine roots; slightly acid, pH 6.2; abrupt, smooth boundary.

B1—11 to 16 inches, yellowish-brown (10YR 5/6) sandy loam; weak, fine, subangular blocky structure; friable; few fine pores; medium acid, pH 5.9; clear, smooth boundary.

B21t—16 to 29 inches, yellowish-brown (10YR 5/6) sandy clay loam; weak, medium, subangular blocky structure; friable; sand grains coated and bridged with clay; few fine pores; strongly acid, pH 5.3; gradual, smooth boundary.

B22t—29 to 33 inches, yellowish-brown (10YR 5/6) sandy clay loam; few coarse, distinct, yellowish-red (5YR 5/6) and few, medium, distinct, red (2.5YR 4/6) mottles; moderate, medium, subangular blocky structure; friable; few plinthite nodules; sand grains coated and bridged with clay; few pores; strongly acid, pH 5.5; gradual, smooth boundary.

B23t—33 to 42 inches, mottled, brownish-yellow (10YR 6/6) and yellowish-red (5YR 5/6) sandy clay loam; moderate, coarse, subangular and angular blocky structure; firm; about 10 percent plinthite nodules; thin patchy clay films; sand grains coated and bridged with clay; strongly acid, pH 5.2; gradual, smooth boundary.

B3t—42 to 60 inches, reticulately mottled, yellowish-red (5YR 5/6), strong-brown (7.5YR 5/6), and light yellowish-brown (10YR 6/4) sandy clay loam; yellowish-red mottles are plinthite nodules; moderate, coarse, subangular blocky structure; very firm, patchy clay films; sand grains coated and bridged with clay; very strongly acid, pH 4.5.

The solum ranges from 60 to 80 inches in thickness. Depth to plinthite ranges from 28 to 42 inches.

The A1 or Ap horizon is dark grayish brown to grayish brown and is 6 to 8 inches thick. The A2 horizon is light yellowish brown, pale brown, and very pale brown; and it is 3 to 9 inches thick. Reaction is strongly acid to slightly acid in the A horizon.

A sandy loam or sandy clay loam B1 horizon 3 to 5 inches thick is present in many places. The B2t horizon is 25 to 65 inches thick. It is yellowish brown or strong brown and is mottled with red, yellowish red, strong brown, and pale brown in the lower part. The lower part of the B2t horizon is 5 to 30 percent plinthite. Reaction is strongly acid or very strongly acid in the B2t horizon.

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The B3t horizon is mottled with yellowish red, strong brown, yellowish brown, light yellowish brown, or pale brown. Texture is sandy loam, sandy clay loam, or sandy clay. This horizon is 15 to 35 percent plinthite.

Dothan soils are near or adjacent to Fuquay, Troup, Alaga, Cowarts, and Pelion soils. The plinthite in Dothan soils is deeper than that in Cowarts soils. Dothan soils lack the thick sandy surface horizon that is characteristic of Fuquay and Troup soils. They have a finer textured subsoil than Alaga soils. They lack the fragipan and high kaolin content that is typical of Pelion soils.

Dothan loamy sand, 0 to 2 percent slopes. (DoA).—This soil is on smooth upland plains and ridgetops. It has the profile described as representative of the series.

Included with this soil in mapping are small areas of Pelion, Fuquay, Cowarts, and Vaucluse soils and a few areas where slope is more than 2 percent. Also included are a few areas where a sand or sandy loam surface layer and subsurface layer are present. In some of the included soils, a few light-gray mottles are in the layer of the subsoil that contains plinthite.

Runoff is slow on this soil. Good tilth is easy to maintain. The subsoil layer containing plinthite retards the downward movement of water and root penetration.

Almost all of the acreage of this soil is cultivated. Soybeans, cotton, small grains, corn, and peaches are the main crops. Bahiagrass, Coastal bermudagrass, and sericea lespedeza are the main hay and pasture grasses. Capability unit IIs–2; woodland group 2o1.

Dothan loamy sand, 2 to 6 percent slopes (DoB).—This soil is on smooth (fig. 5), broad upland ridgetops and a few side slopes on the Coastal Plain. Slopes are simple and convex.

Included with this soil in mapping are small areas of Cowarts, Fuquay, Pelion, and Vaucluse soils and a few small areas where the slope is less than 2 percent or more than 6 percent. Also included are a few soils that have a sand or sandy loam surface layer and subsurface layer. In a few included areas, the lower part of the subsoil is less than 5 percent plinthite.

Runoff is medium on this soil. Good tilth is easy to maintain. Almost all of the acreage of this soil is cultivated. Soybeans, cotton, small grains, corn, and peaches are the main crops. Bahiagrass, Coastal bermudagrass, and sericea lespedeza are the main hay and pasture grasses. Erosion is the main hazard where this soil is used for row crops. Capability unit IIe–5; woodland group 2o1.

Figure 5.—**Typical area of Dothan loamy sand, 2 to 6 percent slopes. The field shown is terraced and cultivated on the contour.**

Dothan-Urban land complex, 0 to 6 percent slopes (DwB).—This complex is mostly within and around the West Columbia-Cayce area. A large acreage is in the Batesburg-Leesville area, and a smaller acreage is in the Saint Andrews area north of the Saluda River and east of Kinley Creek to the county line. These areas were originally Dothan soils but are now used for such urban structures as commercial buildings, dwellings, streets, sidewalks, and parking lots. In places the undisturbed soil remains, but in about 30 percent of the area the soils have been altered by cutting, filling, or grading.

This complex is not used for farming. Except in areas where drastic alteration has taken place, the soil is well suited to lawn grasses, trees, and shrubs common to the area. Some areas that have been drastically altered require special attention before plant cover can be established. The soils are suited to homesites, but onsite investigation is needed for sites for large buildings.

Runoff from urban works and structures is almost 100 percent. Runoff from the soils varies, depending on slope and the amount of alteration in the form of cutting and filling that has taken place. Unless special precautions are taken, areas undergoing construction are subject to erosion and are sources of sediment. Capability unit not assigned; woodland group 2o1.

Enon Series

The Enon series consists of gently sloping, moderately deep, well-drained soils on uplands of the Piedmont Plateau. These soils formed in material that weathered from mixed acid and basic rocks.

In a representative profile the surface layer is dark grayish-brown silt loam about 5 inches thick. The subsurface layer is light yellowish-brown silt loam about 3 inches thick. The subsoil is about 18 inches thick. The upper 13 inches is dark-brown, very plastic clay mottled with yellowish brown and yellowish red. The lower 5 inches is yellowish-brown firm clay loam mottled with brown. The underlying material is light olive-brown slate rock and clay about 10 inches thick. It is mottled with strong brown and yellowish brown. Hard slate rock is at a depth of 36 inches.

Permeability is slow in Enon soils, and available water capacity is medium.

Representative profile of Enon silt loam, 2 to 6 percent slopes, on the east bank of secondary road 59, 0.2 mile south of St. Marks Church and 0.75 mile south of the intersection of secondary road 59 and U.S. Highway 378:

Ap—0 to 5 inches, dark grayish-brown (10YR 4/2) silt loam, weak, medium, granular structure; friable; many fine roots; many fine pores; medium acid, pH 6.0; abrupt, smooth boundary.

A2—5 to 8 inches, light yellowish-brown (2.5Y 6/4) silt loam; weak, medium, granular structure; friable; many fine roots; slightly acid, pH 6.4; abrupt, smooth boundary.

B1t—8 to 11 inches, light olive-brown (2.5Y 5/4) silty clay loam; common, fine, faint, yellowish-brown and few, fine, distinct, strong-brown mottles; weak, very fine, subangular blocky structure; friable, many fine roots; many fine pores; thin discontinuous clay films; slightly acid, pH 6.5; abrupt, smooth boundary.

B2t—11 to 21 inches, dark-brown (7.5YR 4/4) clay; many, fine, faint, yellowish-brown and yellowish-red mottles; strong, coarse, subangular blocky structure parting to strong, fine, angular blocky; very firm; common fine roots; few fine pores; prominent, thick, continuous clay films on faces of peds; neutral; pH 7.0; gradual, wavy boundary.

B3t—21 to 26 inches, yellowish-brown (10YR 5/6) clay loam; few, fine, faint, strong-brown mottles; moderate, fine, angular blocky structure and weak, fine, platy; firm; few roots; thick, prominent, continuous clay films on faces of peds; few pores; coarse fragments of yellowish-brown soft slate rock; neutral, pH 7.0; gradual, irregular boundary.

C&R—26 to 36 inches, light olive-brown (2.5Y 5/4) slate rock, mottled and stained with strong brown and yellowish brown; difficult to cut with spade; streaks of clay similar to that of B3 horizon in cracks; thick discontinuous clay films on joint faces; moderately alkaline, pH 8.0.

R—36 inches, fractured hard slate rock.

The solum ranges from 22 to 40 inches in thickness. Depth to bedrock ranges from 2½ to 4 feet.

The Ap horizon is 4 to 5 inches thick, and it is dark grayish brown, grayish brown, brown, or dark gray. An A2 horizon of silt loam or loamy fine sand 2 to 4 inches thick is present in places. Reaction in the A horizon is medium acid or slightly acid.

The B1t horizon, where present, is light olive brown, light yellowish brown, or yellowish brown. It is about 3 to 5 inches thick. The B2t horizon is clay or silty clay 10 to 27 inches thick. It is yellowish brown, dark brown, dark yellowish brown, and light olive brown; or it is mottled with combinations of these colors. The B3t horizon is yellowish-brown, strong-brown, or light olive-brown clay or clay loam. It is 4 to 10 inches thick. Reaction in the B horizon is slightly acid or neutral.

A C horizon of clay or clay loam 10 to 19 inches thick is present in places. It is gray, yellowish brown, strong brown, light olive brown, and pale yellow; or it is mottled with combinations of these colors. It contains soft slate rock fragments or has streaks of slate rock and clay.

Enon soils are near or adjacent to Nason, Alamance, Georgeville, and Mecklenburg soils. They lack the red and yellowish-red hues in the B horizon that are characteristic of Georgeville and Mecklenburg soils. They have finer textures and higher pH values in the subsoil than Nason and Alamance soils.

Enon silt loam, 2 to 6 percent slopes (EnB).—This soil is on ridgetops and side slopes. Slopes are smooth and simple.

Included with this soil in mapping are small areas of Nason, Alamance, Mecklenburg, and Georgeville soils. Also included are a few soils that have gray mottles in the lower part of the subsoil close to the bedrock and a few soils that are very strongly acid to strongly acid in the subsoil. The surface layers in some areas are loam or silty clay loam, and some included soils have a yellowish-red subsoil. Small wet areas in the bottoms of draws are also included. These are shown on the map by appropriate symbols for wetness.

Runoff is rapid on this soil. Tilth is easy to maintain except in areas where the surface layer is silty clay loam. Most of the acreage is in pasture or hayland or is wooded. A small acreage is in cultivated crops. The hazard of erosion is a major limitation in management. Capability unit IIe–3; woodland group 4o1.

Enoree Series

The Enoree series consists of nearly level and poorly drained soils. These soils formed in deposits of sandy and loamy alluvium on stream flood plains.

In a representative profile the surface layer is brown silt loam in the upper 5 inches and grayish-brown loam mottled with strong brown in the lower 5 inches. The upper 4 inches of the underlying material is brownish-yellow sandy loam mottled with light brownish gray, and the next 30 inches is light brownish-gray fine sandy loam mottled with yellowish brown and brownish yellow. The 16 inches of the underlying material below this is greenish-gray sand mottled with yellowish brown.

Permeability is moderate in Enoree soils, and available water capacity is medium.

Representative profile of Enoree soils on the south side of Twelvemile Creek 3 miles east of Lexington on U.S. Highway 378 and 0.25 mile south of this highway:

A11—0 to 5 inches, brown (10YR 4/3) silt loam (recent alluvium; weak, medium, granular structure; friable; many medium pores; many fine and medium roots; very strongly acid, pH 5.0; abrupt, smooth boundary.

A12—5 to 10 inches, grayish-brown (10YR 5/2) loam; few, fine, distinct, strong-brown mottles; weak, fine, granular structure; friable; many fine pores; many medium roots; medium acid, pH 5.9; abrupt, smooth boundary.

C1—10 to 14 inches, brownish-yellow (10YR 6/6) sandy loam; many, medium, distinct, light brownish-gray (10YR 6/2) mottles; weak, fine, subangular blocky structure; friable; many fine pores; common medium roots; strongly acid, pH 5.3; abrupt, smooth boundary.

C2—14 to 24 inches, light brownish-gray (10YR 6/2) fine sandy loam; many, medium, distinct, yellowish-brown (10YR 5/6) and brownish-yellow (10YR 6/6) mottles; firm; many fine pores; few medium roots; medium acid, pH 6.0; clear, smooth boundary.

C3—24 to 44 inches, light brownish-gray (10YR 6/2) fine sandy loam; many, medium and coarse, distinct, yellowish-brown (10YR 5/6) and brownish-yellow (10YR 6/6) mottles; massive; slightly firm; common fine pores; few fine roots; medium acid, pH 5.8; gradual, smooth boundary.

C4—44 to 60 inches, greenish-gray (5GY 6/1) sand; common, coarse, distinct, yellowish-brown (10YR 5/6) mottles between depths of 44 and 50 inches; coarse yellowish-brown mottles are in slightly firm and loamy sand; structureless; single grained; slightly acid, pH 6.4.

The A horizon is brown, grayish-brown, or dark grayish-brown silt loam or loam 10 to 12 inches thick. Reaction is very strongly acid to medium acid.

The upper part of the C horizon is sandy loam, loam, or silt loam. It is brownish yellow, light brownish gray, or grayish brown. Mottles are also these colors or yellowish brown. The lower part of the C horizon is grayish brown, gray, or greenish gray. Mottles have higher chroma than those of these colors; texture is loamy sand or sand. In many places the lower part of the C horizon is stratified. Reaction in the C horizon is strongly acid to slightly acid.

Enoree soils are near or adjacent to Chenneby, Congaree, and Toccoa soils. They are coarser textured between depths of 10 to 40 inches than Congaree and Chenneby soils and are not so well drained as Congaree and Toccoa soils.

Enoree soils (Eo).—These soils are on flats and in slight depressions on stream flood plains. This mapping unit consists of Enoree soils and unclassified soils that are similar to Enoree soils in use, management, and behavior. This unit was mapped at a lower intensity than most other units in this soil survey. Included in mapping are small areas of Chenneby, Toccoa, and Congaree soils.

Runoff is very slow on these soils, and the soils are subject to frequent flooding. Water ponds on the surface for long periods. All of the acreage is wooded. Capability unit Vw–1; woodland group 2w9.

Fuquay Series

The Fuquay series consists of nearly level to sloping, deep, well-drained soils. These soils formed in marine sediment of the Coastal Plain.

In a representative profile the surface layer is dark grayish-brown loamy sand about 7 inches thick. The subsurface layer is light yellowish-brown loamy sand about 15 inches thick. The subsoil is about 50 inches thick. The upper 4 inches is yellowish-brown sandy loam; the next 11 inches is yellowish-brown sandy clay loam mottled with strong brown; and the 23 inches below is mottled, light yellowish-brown, yellowish-brown, and strong-brown sandy clay loam that contains plinthite. The lower 12 inches of the subsoil is light-red coarse sandy loam.

Permeability is rapid in the surface and subsurface layer, moderate in the upper part of the subsoil, and slow in the lower part of the subsoil, which contains plinthite. Available water capacity is low in the sandy surface and subsurface layers and medium in the subsoil.

Representative profile of Fuquay loamy sand, 0 to 6 percent slopes, about 0.5 mile north of U.S. Highway 1 from a point 2 miles east of Lexington:

Ap—0 to 7 inches, dark grayish-brown (10YR 4/2) loamy sand; weak, fine, granular structure; very friable; strongly acid, pH 5.3; abrupt, smooth boundary.

A2—7 to 22 inches, light yellowish-brown (2.5Y 6/4) loamy sand; weak, fine, granular structure; very friable; few dusky-red and yellowish-brown concretions; few coarse, clear quartz sand grains; strongly acid, pH 5.1; abrupt, smooth boundary.

B1—22 to 26 inches, yellowish-brown (10YR 5/6) sandy loam; few, fine, distinct, strong-brown mottles; weak, medium, granular structure; friable; few iron concretions at upper boundary; common, clear, coarse, quartz sand grains; very strongly acid, pH 5.0; clear, smooth boundary.

B21t—26 to 33 inches, yellowish-brown (10YR 5/8) sandy clay loam; common, medium, faint, strong-brown (7.5YR 5/6) and yellowish-red (5YR 5/6) mottles; weak, fine, subangular blocky structure; friable; most sand grains coated and bridged; common, 1 to 2 millimeters in diameter, clear quartz sand grains and a few iron concretions; strongly acid, pH 5.1; clear, smooth boundary.

B22t—33 to 37 inches, yellowish-brown (10YR 5/8) sandy clay loam; common, coarse, distinct strong-brown (7.5YR 5/8) mottles and bands; weak, medium and coarse, subangular blocky structure; friable, firm in areas of strong-brown mottles; sand grains coated and bridged; very strongly acid, pH 4.9; clear, smooth boundary.

B23t—37 to 60 inches, coarsely mottled, light yellowish-brown (10YR 6/4), yellowish-brown (10YR 5/8), and strong-brown (7.5YR 5/6) sandy clay loam; moderate, medium, subangular blocky structure;

friable; common plinthite nodules; sand grains coated and bridged; very strongly acid, pH 4.8; abrupt, smooth boundary.

B3—60 to 72 inches, light-red (2.5YR 6/8) coarse sandy loam; structureless (single grained); friable; sand grains are rounded and similar in size; very strongly acid, pH 4.7.

The solum is 72 inches thick or thicker. Depth to plinthite ranges from 30 to 55 inches. Reaction is very strongly acid or strongly acid throughout the profile.

The Ap or A1 horizon is 4 to 10 inches thick. It is very dark grayish brown, dark grayish brown, or grayish brown. The A2 horizon is 10 to 36 inches thick. It is light yellowish-brown, very pale brown, or yellowish-brown sand or loamy sand. An A3 horizon of yellowish-brown loamy sand is present in places.

A B1 horizon 4 to 7 inches thick is present in places. The upper part of the B2t horizon is free of plinthite (fig. 6). It is 10 to 20 inches thick. The lower part of the B2t horizon is 8 to 27 inches thick and is 5 to 38 percent plinthite. It is yellowish brown or strong brown. The B3 horizon is light-red or mottled, red, gray, yellowish-red, or strong-brown sandy loam or sandy clay loam 12 to 27 inches thick.

Fuquay soils are near or adjacent to Lakeland, Troup, Blaney, and Dothan soils. Fuquay soils, unlike Troup and Lakeland soils, have a Bt horizon at a depth of less than 40 inches. Unlike Blaney soils, they contain plinthite in the subsoil. The sandy A horizon in Fuquay soils is thicker than that in Dothan soils.

Figure 6.—**Profile of Fuquay loamy sand, 0 to 6 percent slopes. The A2 horizon extends to a depth of 2 feet in this profile. The upper part of the B2t horizon, between depths of 2 and 3 feet, is free of plinthite. Plinthite nodules are conspicuous between depths of 3 and 5 feet.**

Fuquay loamy sand, 0 to 6 percent slopes (FaB).—This soil is on broad upland ridges and plains on the Coastal Plain. Slopes are simple and smooth. This soil has the profile described as representative of the series.

Included with this soil in mapping are a few small areas of Dothan, Troup, Blaney, and Alaga soils. Also included are a few small depressions where the surface is ponded or a water table is at a depth of 12 to 30 inches. These are shown on the map by appropriate wetness symbols.

Runoff is slow on this soil. The layer in the subsoil that contains plinthite retards downward movement of water and root penetration. In places, for short periods after long heavy rains, free water perches above that part of the subsoil containing plinthite. This soil is used for cultivated crops, pasture, hay, peach orchards (fig. 7), trees, and urban developments. Tilth is good, and the soil can be cultivated soon after rains. The main concern of management is maintaining organic-matter content in the surface layer and conserving moisture. Capability unit IIs–4; woodland group 3s2.

Fuquay loamy sand, 6 to 10 percent slopes (FaC).—This soil is on simple side slopes on the Coastal Plain. Included in mapping are small areas of Blaney, Troup, and Lakeland soils and small areas of a soil similar to Fuquay soil, but which is less than 5 percent plinthite within a depth of 60 inches. Also included are areas where the slope is more than 10 percent or less than 6 percent.

Runoff is medium on this soil. About half of the acreage is wooded, and the other half is in cultivated crops, pasture, or hay. The main concerns of management are controlling erosion, conserving moisture, and maintaining organic-matter content in the surface layer. Capability unit IIIs–4; woodland group 3s2.

Georgeville Series

The Georgeville series consists of gently sloping to strongly sloping, deep, well-drained soils on uplands of the Piedmont Plateau. These soils formed in material that weathered from slate rocks.

In a representative profile the surface layer is dark-brown very fine sandy loam about 6 inches thick. The subsoil is about 59 inches thick. The upper 10 inches is red clay loam, the next 21 inches is red clay (fig. 8), the 8 inches below is red silty clay loam mottled with streaks of brownish yellow, and the 7 inches below that is red silt loam mottled with brownish

Figure 7.—**A young peach orchard on Fuquay loamy sand, 0 to 6 percent slopes.**

yellow. The lower 13 inches is mottled, red, yellowish-red, pale-red, and dusky-red silt loam.

Permeability is moderate in Georgeville soils. Available water capacity is medium to high.

Representative profile of Georgeville very fine sandy loam, 2 to 6 percent slopes, 4 miles northeast of Lexington on secondary road 916, 0.75 mile east of the intersection with secondary road 28, and 0.25 mile north of Fourteenmile Creek:

O1—1 inch to 0, pine-leaf litter partly and fully decomposed; abrupt, smooth boundary.

Ap—0 to 6 inches, dark-brown (7.5YR 4/4) very fine sandy loam; weak, fine, granular structure; friable; many quartz pebbles ranging from 5 to 60 millimeters in size; strongly acid, pH 5.4; abrupt, smooth boundary.

B1t—6 to 9 inches, yellowish-red (5YR 4/6) loam; weak, fine, subangular blocky structure; friable, many quartz pebbles; strongly acid, pH 5.4; clear, smooth boundary.

B21t—6 to 16 inches, red (2.5YR 4/8) clay loam; moderate, coarse and fine, subangular blocky structure; firm, common quartz pebbles; many fine roots; many fine pores; thin patchy clay films; strongly acid, pH 5.5; clear, wavy boundary.

B22t—16 to 37 inches, red (2.5YR 4/8) clay; strong, fine, subangular and angular blocky structure; firm; many fine roots; common fine pores; thin continuous clay films; strongly acid, pH 5.5; clear, smooth boundary.

B23t—37 to 45 inches, red (2.5YR 4/8) silty clay loam; few fine mottles and streaks of brownish yellow; moderate, fine, subangular blocky structure; friable; thin discontinuous clay films; common fine roots; strongly acid, pH 5.5; gradual, smooth boundary.

B31t—42 to 52 inches, red (2.5YR 4/8) silt loam; common, coarse, brownish-yellow (10YR 6/8) mottles and streaks of soft weathered slate rock; moderate, medium and fine, angular blocky structure; friable; strongly acid, pH 5.4; gradual, smooth boundary.

B32—52 to 65 inches, mottled and streaked, red (2.5YR 4/8), yellowish-red (5YR 5/8), pale-red (2.5YR 6/2), and dusky-red (10R 3/2) silt loam; weak, medium and coarse, angular blocky and platy structure resembling that of parent rock; very friable; strongly acid, pH 5.3.

The solum ranges from 40 to more than 70 inches in thickness. Where the solum is more than 60 inches thick, the maximum clay content of the B2t horizon is reduced by more than 20 percent above a depth of 60 inches. Depth to hard bedrock is more than 10 feet.

The A1 or Ap horizon is brown, dark brown, grayish brown, or reddish brown. It is 4 to 6 inches thick. A very pale brown or reddish-yellow A2 horizon, 2 or 3 inches thick, is present in places. Reaction in the A horizon is strongly acid or medium acid.

The B1 horizon is light-red, yellowish-red, or red silty clay loam or loam 3 or 4 inches thick. It is not always present. The B2t horizon is clay or silty clay 26 to 45

Figure 8.—**Profile of Georgeville very fine sandy loam, 2 to 6 percent slopes.**

inches thick. The B3 horizon is silt loam, loam, or silty clay loam 17 to 35 inches thick and extends to a depth of more than 6 feet. Reaction in the B horizon is very strongly acid or strongly acid.

Georgeville soils are near or adjacent to Herndon, Nason, Alamance, Cecil, Enon, and Mecklenberg soils. They have a redder subsoil than Herndon, Nason, and Alamance soils, and they have a thicker B2t horizon than Nason soils. They are redder and lack the plasticity of Enon and Mecklenburg soils. They have a higher silt content than Cecil soils.

Georgeville very fine sandy loam, 2 to 6 percent slopes (GeB).—This soil is on smooth ridgetops and simple smooth side slopes. It has the profile described as representative of the series.

Included with this soil in mapping are small areas of Herndon, Nason, Alamance, and Enon soils and small areas where the slope is more than 6 percent or less than 2 percent. Also included are areas where the surface layer is a silt loam or loam and small areas of eroded soil that has a surface layer of silty clay loam 2 to 4 inches thick.

Runoff is medium on this soil. Tilth is good, except in places where the surface layer is less than 4 inches thick. This soil is mostly used for cultivated crops, hay, and pasture. Erosion is the major concern of management. Capability unit IIe–1; woodland group 3o7.

Georgeville very fine sandy loam, 6 to 10 percent slopes (GeC).—This soil is on smooth side slopes. Included in mapping are small areas of Herndon, Nason, Alamance, Cecil, and Enon soils, and small areas where the slope is less than 6 percent or more than 10 percent. In a few places bedrock is within 6 feet of the surface, and in a few places the clayey part of the subsoil extends to a depth of more than 60 inches. Also included are areas where the red silty clay loam subsoil is exposed or the surface layer is less than 4 inches thick. Also, accumulations of silty soil material are in the bottoms of some draws and depressions.

Runoff is rapid on this soil. Most of the acreage is in trees, hay, and pasture. Only a small acreage is used for row crops. Erosion is the main concern of management. Capability unit IIIe–1; woodland group 3o7.

Georgeville very fine sandy loam, 10 to 15 percent slopes (GeD).—This soil is on narrow, irregular side slopes. Included in mapping are small areas of Cecil, Nason, and Herndon soils, and a few areas where the slope is less than 10 percent or more than 15 percent. Also included are areas where bedrock is at a depth of 2 to 6 feet; areas in which the clayey part of the subsoil is 10 to 20 inches thick; and, in places, gullied areas where the red clayey subsoil is exposed on the surface.

Runoff is very rapid on this soil. Almost all of the acreage is wooded, but a small acreage is in pasture. Erosion is the main concern of management in cultivated areas. Capability unit IVe–1; woodland group 3o7.

Goldsboro Series

The Goldsboro series consists of nearly level, deep, and moderately well drained soils. These soils formed in loamy sediment on stream terraces.

In a representative profile the surface layer is very dark gray sandy loam about 7 inches thick. The subsurface layer is pale-brown sandy loam about 2 inches thick. The subsoil is about 53 inches thick. The upper 4 inches is light olive-brown sandy loam, the next 8 inches is light yellowish-brown sandy clay loam that has yellowish-brown mottles; and the 8 inches below is pale-brown sandy clay loam that has yellowish-brown, yellowish-red, and red mottles. The 11 inches below that is light brownish-gray sandy clay loam that has brownish-yellow, yellowish-brown, and yellowish-red mottles; and the next 14 inches is light-gray sandy clay loam that has brownish-yellow and yellowish-red mottles. The lower 8 inches is light-gray sandy clay.

Permeability is moderate in Goldsboro soils, and available water capacity is medium.

Representative profile of Goldsboro sandy loam, 0 to 2 percent slopes, 250 feet west of U.S. Interstate Highway 26 at a point 0.5 mile south of the Seaboard Coast Line Railroad crossing:

A1—0 to 7 inches, very dark gray (10YR 3/1) sandy loam; weak, fine, granular structure; very friable; many fine roots; many light-gray quartz sand grains; strongly acid, pH 5.2; clear, wavy boundary.

A2—7 to 9 inches, pale-brown (10YR 6/3) sandy loam; weak, fine, granular structure; very friable; many fine roots; many old root channels filled with A1 material; strongly acid, pH 5.2; abrupt, smooth boundary.

B1t—9 to 13 inches, light olive-brown (2.5Y 5/4) sandy loam; few, medium, faint, brownish-yellow (10YR 6/6) mottles; weak, medium and coarse, granular structure; friable; common fine roots and pores; strongly acid, pH 5.1; abrupt, smooth boundary.

B21t—13 to 21 inches, light yellowish-brown (2.5Y 6/4) sandy clay loam; few, fine, faint, yellowish-brown (10YR 5/8) mottles; weak, fine, subangular blocky structure; friable; common fine roots and pores; clay bridging and coatings on sand grains and in pores and old root channels; strongly acid, pH 5.2; abrupt, wavy boundary.

B22t—21 to 29 inches, pale-brown (10YR 6/3) sandy clay loam; few, medium, distinct, yellowish-brown (10YR 5/8) mottles; few, fine, distinct, yellowish-red mottles; common, fine, prominent, red mottles; weak, medium, subangular blocky structure; friable; clay bridging and coating on sand grains and in pores; strongly acid, pH 5.2; abrupt, smooth boundary.

B23tg—29 to 40 inches, light brownish-gray (10YR 6/2) sandy clay loam; many, medium and coarse, distinct, brownish-yellow (10YR 6/8), yellowish brown (10YR 5/8), and yellowish-red (5YR 4/8) mottles; weak, coarse, subangular blocky structure; friable; firm; few patchy clay films; strongly acid, pH 5.1; gradual, smooth boundary.

B24tg—40 to 54 inches, light-gray (N 7/0) sandy clay loam; many, coarse, prominent, brownish-yellow (10YR 6/8) and few, medium, prominent, yellowish-red (5YR 4/8) mottles; mottles decrease with increasing depth; massive; friable; coarse, rounded quartz sand grains; high kaolinitic clay content; strongly acid, pH 5.2; gradual, smooth boundary.

B3tg—54 to 62 inches, light-gray (N 7/0) sandy clay; massive; very firm; high kaolinitic clay content; strongly acid, pH 5.1.

The solum is 60 inches or more thick. The A1 or Ap horizon is dark grayish brown, very dark grayish brown, dark gray, or very dark gray. It is 4 to 8 inches thick. An A2 horizon, present in places, is light olive brown, light yellowish brown, pale brown, very pale brown, or pale yellow. It is loamy sand or sandy loam 2 to 8 inches thick. Reaction in the A horizon is very strongly acid, strongly acid, or medium acid.

A B1 horizon is present in places. It is pale brown or light olive brown and is 3 or 4 inches thick. The upper part of the B2t horizon is yellowish brown, light yellowish brown, pale brown, or mottled combinations of these colors. The lower part of the B2t horizon has similar colors mottled with brownish gray and light gray, or it is light gray with yellowish mottles. The B2t horizon ranges from 20 to 50 inches in thickness. The B3 horizon is light-gray or light brownish-gray sandy clay, sandy clay loam, or sandy loam 4 to 15 inches thick. Reaction in the B horizon is very strongly acid or strongly acid.

Goldsboro soils are near or adjacent to Brogdon, Fuquay, Rains, Wahee, Craven, and Lumbee soils. They are not so well drained as Brogdon and Fuquay soils, and they have a grayer subsoil. They have a coarser-textured subsoil than Wahee and Craven soils. They are better drained and lack the gray subsoil of Rains and Lumbee soils.

Goldsboro sandy loam, 0 to 2 percent slopes (GoA).—This soil is on broad flats on stream terraces. Included in mapping are small areas of Rains, Brogdon, Lumbee, Craven, and Johnston soils. In many places the Rains, Lumbee, and Johnston soils are small wet depressions less than one-fourth acre in size. Also included are areas of soils that have a loamy sand surface layer or a clay loam subsoil and areas where strata of clay underlie the subsoil.

Runoff is slow on this soil. Most of the acreage is wooded or is idle, but some of it is in pasture. Drainage is the main concern of management. Capability unit IIw–2; woodland group 2w8.

Helena Series

The Helena series consists of gently sloping to sloping, deep, and moderately well drained soils. These soils formed in material that weathered from acidic and basic rocks of the Piedmont Plateau.

In a representative profile the surface layer is dark-gray sandy loam 5 inches thick. The subsurface layer is about 10 inches thick. The upper 3 inches is light brownish-gray sandy loam, the next 4 inches is pale-brown loamy fine sand, and the lower 3 inches is light yellowish-brown fine sandy loam. The subsoil is about 41 inches thick. The upper 9 inches is mottled, yellowish-brown, light yellowish-brown, strong-brown, yellowish-red, and gray fine sandy clay; the next 12 inches is mottled, strong-brown, yellowish-brown, light yellowish-brown, and gray clay; and the 14 inches below it is gray clay that has mottles of strong brown, yellowish brown, and yellowish red. The lower 6 inches of the subsoil is mottled, gray, yellowish-brown, and strong-brown sandy clay loam. The underlying material, to a depth of about 70 inches, is mottled, gray, yellowish-brown, and strong-brown coarse sandy loam and sandy clay loam.

Permeability is slow on Helena soils, and available water capacity is medium.

Representative profile of Helena sandy loam, 6 to 10 percent slopes, approximately 0.25 mile east of Cedar Grove Church, on the west side of an unimproved connecting road:

O1—1 inch to 0, mixed hardwood and pine leaf litter in various stages of decompositon; matted; many roots present.

A1—0 to 5 inches, dark-gray (10YR 4/1) sandy loam; weak, fine, granular structure; friable; many fine roots; very strongly acid, pH 4.5; clear, smooth boundary.

A21—5 to 8 inches, light brownish-gray (10YR 6/2) sandy loam; weak, fine, granular structure; friable; many fine roots; very strongly acid, pH 5.0; clear, smooth boundary.

A22—8 to 12 inches, pale-brown (10YR 6/3) loamy fine sand; structureless; very friable; common fine and medium roots; very strongly acid, pH 5.0; abrupt, smooth boundary.

A3—12 to 15 inches, light yellowish-brown (10YR 6/4) fine sandy loam; weak, fine, subangular blocky structure; friable; common fine and medium roots; common fine pores; very strongly acid, pH 4.7; abrupt, smooth boundary.

B1t—15 to 18 inches, light yellowish-brown (2.5Y 6/4) sandy clay loam; few, medium, faint, yellowish-brown (10YR 5/6) mottles; friable; many fine pores; few thin patchy clay films; common medium and fine roots; very strongly acid, pH 4.7; clear, smooth boundary.

B21t—18 to 24 inches, mottled, light yellowish-brown (2.5Y 6/4), yellowish-brown (10YR 5/6), and strong-brown (7.5YR 5/6) sandy clay; few, medium, distinct, yellowish-red (5YR 5/8) and gray (10YR 6/1) mottles; moderate to strong, medium, subangular and angular blocky structure; firm; few medium and fine roots; thick continuous clay films on faces of peds; very strongly acid, pH 4.6; gradual, smooth boundary.

B22t—24 to 36 inches, mottled, strong-brown (7.5YR 5/6), yellowish-brown (10YR 5/6), light yellowish-brown (10YR 6/4), and gray (10YR 6/1 and 10YR 5/1) clay; strong, coarse and medium, angular blocky structure; very firm; the gray is mostly thick clay films on the exteriors of peds; ped interiors have no gray mottles; few roots between peds and in cracks; very strongly acid, pH 4.6; gradual, smooth boundary.

B23tg—36 to 50 inches, gray (10YR 6/1) clay; many, medium, prominent, yellowish-brown (10YR 5/6) and strong-brown (7.5YR 5/6) and few, fine, prominent, yellowish-red mottles; strong, coarse, angular blocky structure; very firm; thick continuous clay films on faces of all peds; few fine and medium roots between peds; very strongly acid, pH 4.6; gradual, wavy boundary.

B3tg—50 to 56 inches, mottled, gray (10YR 6/1), yellowish-brown (10YR 5/6), and strong-brown (7.5YR 5/6) sandy clay loam; moderate, coarse, angular blocky structure; firm in place; pockets of sandy clay; few discontinuous clay films in larger cracks; very strongly acid, pH 4.5; gradual, irregular boundary.

C—56 to 70 inches, mottled, gray (10YR 6/1), yellowish-brown (10YR 5/6), and strong-brown (7.5YR 5/6) coarse sandy loam and sandy clay loam; few pockets of sandy clay and clay; grainy structure of parent rock; gray clayey material accumulated in old granite joints; very strongly acid, pH 4.5.

The solum ranges from 30 to 60 inches in thickness. Reaction is very strongly acid or strongly acid throughout the profile. Depth to bedrock is more than 4 feet.

The A1 horizon is grayish brown, light brownish gray, or dark gray and is 4 to 8 inches thick. An A2 horizon is commonly present and is light brownish-gray, light yellowish-brown, pale-brown, or pale-yellow sandy loam, fine sandy loam, or loamy fine sand 3 to 8 inches thick. An A3 horizon is present in places. It is light yellowish-brown or pale-yellow sandy loam or fine sandy loam.

The B1t horizon, where present, is light yellowish brown or brownish yellow and is 2 to 5 inches thick. The B2t horizon is 25 to 40 inches thick. The upper part of the B2t horizon is light yellowish brown, brownish yellow, yellowish brown, or it is mottled with these colors as well as with combinations of strong brown, light olive brown, or yellowish red. The lower part of the B2t horizon is the same color as the upper part and also has light-gray and gray mottles. The B2t horizon is clay or sandy clay. A B3t horizon is commonly present. It is mottled, gray or light-gray, yellowish-brown, and strong-brown sandy loam or sandy clay loam 6 to 12 inches thick.

The C horizon is mottled, gray or light-gray, strong-brown, and yellowish-brown coarse sandy loam or sandy clay loam that contains masses of sandy clay or clay.

Helena soils are near or adjacent to Cecil, Appling, Lignum, Enon, and Nason soils. They are not so well drained as Cecil, Appling, Enon, and Nason soils, and they have gray colors within the upper 20 inches of the B horizon. They are less silty than Lignum soils, less plastic than Enon soils, and are deeper over bedrock than Nason soils.

Helena sandy loam, 2 to 6 percent slopes (HeB).—This soil is on small ridgetops on the Piedmont Plateau. Included in mapping are small areas of Appling, Cecil, Enon, and Lignum soils and a few areas where slope is more than 6 percent. Included in places in some of the draws is a poorly drained soil that has a very dark gray surface layer and a gray subsoil. In a few areas where the soil is eroded, the subsoil is exposed on the surface. Also included are areas where the surface layer is fine sandy loam or loamy sand.

Runoff is rapid on most of this soil, but it is medium in well-stocked wooded areas. Most of the acreage is wooded, but about 10 percent of it is cleared and is used for pasture and hay. Capability unit IIe–3; woodland group 3w8.

Helena sandy loam, 6 to 10 percent slopes (HeC).—This soil is on side slopes and at the heads of draws on the Piedmont Plateau. It has the profile described as representative of the series.

Included with this soil in mapping are small areas of Appling, Cecil, Nason, Enon, and Lignum soils; some areas where slope is less than 6 percent; and some areas where slope is more than 10 percent. In places in some of the draws are poorly drained soils that have a dark-gray surface layer and a gray subsoil. Also, a few granite outcrops are included and are shown on the map by an appropriate symbol. Additional inclusions are some eroded areas where the subsoil is exposed on the surface, some gullies, and some areas where the surface layer is fine sandy loam or loamy sand.

Runoff is rapid on this soil. Most of the acreage is wooded, but about 10 percent of it is in pasture or hay. Capability unit IIIe–3; woodland group 3w8.

Herndon Series

The Herndon series consists of gently sloping, deep, well-drained soils on uplands of the Piedmont Plateau. These soils formed in silty material that weathered from slate.

In a representative profile the surface layer is yellowish-brown silt loam about 5 inches thick. The subsurface layer is yellowish-brown silt loam about 2 inches thick. The subsoil is about 63 inches thick. The upper 10 inches is strong-brown clay that has yellowish-red mottles; the next 22 inches is mottled yellowish-red, yellowish-brown, and brownish-yellow silty clay; and the 14 inches below it is yellowish-red silty clay loam mottled with light yellowish brown, very pale brown, and light gray. The next 7 inches is yellowish-red clay loam that has light-gray mottles; and the lower 10 inches is coarsely mottled, red and light-red silt loam that has white mottles.

Permeability is moderate in the Herndon soils, and available water capacity is medium to high.

Representative profile of Herndon silt loam, 2 to 6 percent slopes, 3 miles west of Chapin, 50 feet west of a dirt road, about 0.5 mile southeast of its intersection with secondary road 231:

Ap—0 to 5 inches, yellowish-brown (10YR 5/4) silt loam; weak, very fine, subangular blocky structure; friable; many fine roots and worm casts; medium acid, pH 5.8; abrupt, smooth boundary.

A2—5 to 7 inches, yellowish-brown (10YR 5/6) silt loam; very fine, subangular blocky structure; friable;

many fine roots and worm casts; strongly acid, pH 5.4; clear, wavy boundary.

B21t—7 to 17 inches, strong-brown (7.5YR 5/6) clay; few, fine, faint, yellowish-red mottles; moderate, fine, subangular blocky and angular blocky structure; friable; many fine roots between peds; many fine worm casts; thick continuous clay films; strongly acid, pH 5.3; clear, smooth boundary.

B22t—17 to 39 inches, mottled, yellowish-red (5YR 4/6), yellowish-brown (10YR 5/6), and brownish-yellow (10YR 6/6) silty clay; strong, very fine and fine, angular blocky structure; friable; thick continuous clay films on faces of all peds; many fine roots between peds; strongly acid, pH 5.1; gradual, smooth boundary.

B23t—39 to 53 inches, yellowish-red (5YR 4/8) silty clay loam; many, coarse, distinct, light yellowish-brown (10YR 6/4) and very pale brown (10YR 7/4) and few, fine, distinct, light-gray (10YR 7/1) mottles; moderate, medium, subangular and angular blocky structure; friable; discontinuous thick clay films; very strongly acid, pH 5.0; gradual, smooth boundry.

B31t—53 to 60 inches, yellowish-red (5YR 4/6) clay loam; few, medium, prominent, light-gray (10YR 7/1) mottles; weak, medium, subangular blocky structure; friable; few discontinuous clay films; very strongly acid, pH 5.0; gradual, smooth boundary.

B32—60 to 70 inches, coarsely mottled, red (2.5YR 4/6) and light-red (2.5YR 6/8) silt loam; few, medium, prominent, white (10YR 8/2) mottles; weak, subangular blocky structure; white mottles exhibit structure of slaty rock and are sandy; friable; very strongly acid, pH 4.9.

The solum ranges from 48 to 70 inches in thickness. Where it exceeds 60 inches, the maximum clay content is reduced by 20 percent or more above a depth of 60 inches. Depth to bedrock is more than 10 feet.

The A1 or Ap horizon is grayish brown, dark grayish brown, brown, or yellowish brown and is 5 to 7 inches thick. A thin 2- to 4-inch thick A2 horizon is present in places and is pale brown, yellowish brown, or pale yellow. Reaction in the A horizon is very strongly acid, strongly acid, or medium acid.

The B2t horizon is 20 to 50 inches thick. It is yellowish brown, brownish yellow, strong brown, yellowish red, or mottled combinations of these colors and red. The B2t horizon is silty clay loam, silty clay, or clay. It is 35 to 50 percent clay and more than 30 percent silt. The B3 horizon is silt loam, clay loam, or silty clay loam, and it is 14 to 30 inches thick. It is mottled, yellowish red, red, light red, gray, white, yellow, yellowish brown, reddish yellow, strong brown, or brownish yellow. Reaction in the B horizon is very strongly acid or strongly acid.

Herndon soils are near or adjacent to Nason, Tatum, Alamance, Georgeville, Lignum, Appling, and Cecil soils. Their B2t horizon is thicker than the one in Nason, Tatum, and Lignum soils. They have more clay in the B2t horizon than Alamance soils. They are better drained than Lignum soils, and they lack the gray mottling in the upper part of the Bt horizon of those soils. They have a siltier subsoil than Appling and Cecil soils. They lack the red hues that are characteristic of Georgeville and Cecil soils.

Herndon silt loam, 2 to 6 percent slopes (HrB).—This soil is on smooth ridgetops and gentle side slopes in the slate belt of the Piedmont Plateau. Included in mapping are small areas of Nason, Georgeville, Lignum, and Alamance soils. Also included are small areas where slope is more than 6 percent or less than 2 percent, and small areas where the surface layer has been eroded and is less than 5 inches thick.

Runoff is medium on this soil. Good tilth is easy to maintain. Most of the acreage of this soil is cultivated. Soybeans, corn, cotton, peaches, and hay are the main crops. Vegetables for market are also grown. Erosion is the main concern of management. Capability unit IIe–1; woodland group 3o7.

Johnston Series

The Johnston series consists of nearly level, deep, and very poorly drained soils that formed in stratified marine and fluvial sediment.

In a representative profile the surface layer is about 36 inches thick. The upper 13 inches is black mucky loam, and the lower 23 inches is black mucky sandy loam. The underlying material to a depth of 70 inches is black sandy loam.

Permeability is moderate in these soils, and they are saturated throughout their profile. Available water capacity is medium.

Representative profile of Johnston soils, approximately 6 miles east of Lexington and 2 miles north of U.S. Highway 1:

A11—0 to 13 inches, black (N 2/0) mucky loam; massive; friable; very high content of organic matter; many large roots; very strongly acid, pH 4.5; abrupt, smooth boundary.

A12—13 to 36 inches, black (N 2/0) mucky sandy loam; massive; friable; contains common white quartz sand grains; many fine and medium roots; very strongly acid, pH 4.5; gradual, smooth boundary.

C—36 to 70 inches, black (10YR 2/1) sandy loam; structureless; very friable; many roots; very strongly acid, pH 4.5.

The water table is at a depth of 0 to 1 foot most of the time. Reaction is strongly acid or very strongly acid throughout the profile.

The A horizon is black or very dark gray mucky loam, loam, and sandy loam 24 to 48 inches thick. The content of organic matter is high. An A3 or A&C horizon is present in places.

The C horizon is black, very dark gray, dark gray, gray, or light gray. It is stratified in most places. The upper part of the C horizon is sandy loam or loamy sand to a depth of 40 inches. The lower part of the C horizon is sandy loam, loamy sand, sand, or strata of these materials. Clayey strata are also present in many places.

Johnston soils are near or adjacent to Rains, Lumbee, Lynn Haven, Paleaquults, and Craven soils. They have a thicker black A horizon and lack the Bt horizon of Rains and Lumbee soils. They are more stratified than Paleaquults and Lynn Haven soils. They are more poorly drained and lack the clayey subsoil of Craven soils.

Johnston soils (JO).—This soil is mainly on the level flood plains of streams in the Coastal Plain and in streamhead depressions in the Sandhills. This unit consists of Johnston soils and soils that are similar in use, management, and behavior to Johnston soils. It was mapped at a lower intensity, and the composition is more variable than that of most other soils mapped in the county. Composition is uniform enough however, to be interpreted for the expected use of the soils. Included in mapping are small areas of Lumbee, Lynn Haven, Paleaquults, and Rains soils.

This soil floods during heavy rains several times a year, and water remains on the surface for long periods. The entire acreage is in water-tolerant hardwoods. Important use and management concerns are flooding, wetness, and lack of drainage outlets. Capability unit VIIw–1; woodland group 1w9.

Kershaw Series

The Kershaw series consists of nearly level to sloping, deep, and excessively drained soils. These soils formed in thick beds of marine sand.

In a representative profile the surface layer is black sand about 3 inches thick. The subsurface layer is dark yellowish-brown sand about 4 inches thick. The underlying material, to a depth of 92 inches, is sand. The upper 37 inches is yellowish brown, the next 32 inches is strong brown, the next 5 inches is reddish yellow, and the 11 inches below that is yellow.

Permeability is very rapid in Kershaw soils, and available water capacity is very low.

Representative profile of Kershaw sand, 0 to 10 percent slopes, 3 miles west of Edmund and 1 mile south of secondary road 279, about 60 feet west of an unpaved road running northeast and southwest:

A1—0 to 3 inches, black (10YR 2/1) sand; weak, fine, granular structure; very friable; many fine roots; layer of light-gray and white sand (10YR 8/1 and 7/1) less than ¼ inch thick at the surface; strongly acid, pH 5.2; abrupt, smooth boundary.

C&A—3 to 7 inches, dark yellowish-brown (10YR 4/4) sand; weak, fine, granular structure; very friable; many fine roots; few small pockets, 25 to 50 millimeters in size, of clean fine sand; strongly acid, pH 5.4; clear, wavy boundary.

C1—7 to 44 inches, yellowish-brown (10YR 5/6) sand; single grained; loose; many small and medium roots and old root channels stained with A1 material; most sand grains are clean; strongly acid, pH 5.2; clear, wavy boundary.

C2—44 to 76 inches, strong-brown (7.5YR 5/6) sand; single grained; loose; most sand grains are clean; strongly acid, pH 5.2; gradual, smooth boundary.

C3—76 to 81 inches, reddish-yellow (7.5YR 6/6) sand; single grained; loose; strongly acid, pH 5.4; clear boundary.

C4—81 to 92 inches, yellow (10YR 7/6) sand; single grained, loose; strongly acid, pH 5.5.

Reaction is very strongly acid or strongly acid throughout the profile. The soil material throughout is 95 to 99 percent sand. Coarse, white, clean sand grains are concentrated on the surface in most places.

The A horizon is black, very dark gray, gray, dark yellowish brown, or grayish brown and is 2 to 3 inches thick. A thin A and C horizon is present in places.

The C horizon is yellowish brown, strong brown, brownish yellow, reddish yellow, or yellow. Colors of pale brown, very pale brown, yellow, and white are common at a depth of 5 or 6 feet.

Kershaw soils are near or adjacent to Lakeland soils. They contain less silt and clay than Lakeland soils and have a larger amount of clear or uncoated quartz sand grains.

Kershaw sand, 0 to 10 percent slopes (KeC).—This soil is on ridgetops and side slopes of the Sandhills. Included in mapping are small areas of Lakeland soils and small areas where the slope is more than 10 percent.

Runoff is slow on this soil. The soil is very droughty, and it is not used for farming. All of the acreage is in blackjack oak and turkey oak. Capability unit VIIs–1; woodland group 5s3.

Lakeland Series

The Lakeland series consists of nearly level to strongly sloping, deep, excessively drained soils. These soils formed in deep beds of marine sands.

In a representative profile the surface layer is very dark gray sand about 3 inches thick. The underlying material, to a depth of about 90 inches, is sand. The upper 57 inches is yellowish brown, and the lower 30 inches is yellowish red.

Permeability is rapid in these soils, and available water capacity is very low.

Representative profile of Lakeland sand in an area of Lakeland soils, undulating, about 6 miles southeast of Lexington at the southwest corner of the intersection of secondary road 168 and the Platt Springs Road on State Highway 602 in the vicinity of Emanuel Church:

A1—0 to 3 inches, very dark gray (10YR 3/1) sand; weak, fine, granular structure; very friable; many fine roots; recent leaf litter and a very thin layer, about 3 millimeters thick, of leaf mold; very strongly acid, pH 4.7; abrupt, smooth boundary.

C1—3 to 60 inches, yellowish-brown (10YR 5/4) sand; single grained; loose; many medium, large, and fine roots to a depth of 46 inches, less numerous below this depth; sand grains coated; very strongly acid, pH 5.0; clear, smooth boundary.

C2—60 to 70 inches, yellowish-red (5YR 5/8) sand; single grained; loose; many uncoated sand grains; strongly acid, pH 5.1; gradual, smooth boundary.

C3—70 to 90 inches, yellowish-red (5YR 4/8) sand; single grained; loose; mostly uncoated sand grains; strongly acid, pH 5.2.

The sand is more than 80 inches thick, and in many areas it extends to depths of 20 feet or more. Reaction is very strongly acid, strongly acid, or medium acid throughout the profile.

The A horizon is 1 to 5 inches thick. In cultivated areas, however, the Ap horizon ranges to 7 inches in thickness. The A1 horizon or Ap horizon is very dark gray, gray, or grayish brown. In many places light-gray or white clean quartz sand grains are on the surface.

The C horizon is yellowish brown, yellowish red, reddish yellow, yellow, or strong brown. It is 90 to 95 percent sand. Between a depth of 10 and 40 inches most of the sand grains are coated.

Lakeland soils are near or adjacent to Troup, Alaga, Kershaw, Fuquay, Blaney, and Pelion soils. They lack the Bt horizon of Troup, Fuquay, and Pelion soils and the Bx horizon of Blaney soils. They lack the loamy sand at a depth of 10 to 40 inches that is characteristic of Alaga soils. They contain more clay and silt than Kershaw soils, and their sand grains are more heavily coated than those of Kershaw soils.

Lakeland soils, undulating (LAB).—These soils are in areas of high undulating topography in the Sandhills. They have the profile described as representative of the series. This mapping unit consists of Lakeland soils and soils that are similar to Lakeland in use, management, and behavior. Areas of this mapping unit are larger and composition is more variable than in most other mapping units in the county, but these soils are uniform enough to be interpreted for their expected uses.

These soils commonly have a subsoil at a depth of more than 80 inches. In places on side slopes a subsoil or fragipan is within a depth of 80 inches. Included in mapping are small areas of Kershaw and Alaga soils.

Runoff is slow on these soils. The soils are too droughty for good crop growth. Coastal bermudagrass and bahiagrass are the main hay and pasture crops. Most of the acreage of these soils is in turkey oak and blackjack oak along with scattered bluejack oak, long-

leaf pine, and huckleberry bushes (fig. 9). Some areas have been cleared of the oaks and bushes and have been planted to pines. Capability unit IVs–1; woodland group 4s2.

Lakeland sand, 6 to 15 percent slopes (LkD).—This soil is on simple side slopes and in a few dunelike areas in the Sandhills. Drainageways and small streams are well defined.

Included with this soil in mapping are areas of Troup, Fuquay, Blaney, Vaucluse, and Kershaw soils and some poorly drained or very poorly drained soils that have a water table at or near the surface. They are along the drainageways or are shown on the map by appropriate wetness symbols. Also included are small areas where the slope is more than 15 percent or less than 6 percent.

Runoff is moderate to slow, and this soil is droughty. In places, springs and seepage areas are at the base of slopes.

The vegetation is turkey oak, blackjack oak, and scattered pines. Some areas have been cleared and planted to pines. A small acreage is in Coastal bermudagrass or bahiagrass and is used for hay and pasture. Capability unit VIs–1; woodland group 4s2.

Lignum Series

The Lignum soils are gently sloping, moderately deep, and moderately well drained and somewhat poorly drained. These soils formed in material that weathered from gray shales or slates in the Piedmont Plateau.

In a representative profile the surface layer is grayish-brown silt loam about 7 inches thick. The subsurface layer is light yellowish-brown silt loam about 5 inches thick. The subsoil is about 18 inches thick. The upper 8 inches is light yellowish-brown silty clay loam, and the lower 10 inches is brown clay that has mottles of strong brown, gray, and yellowish red. The underlying material is light-gray and yellowish red. The underlying material is light-gray, jointed, fine-grained, siliceous slate rock that is streaked and stained with brownish yellow, yellowish brown, and strong brown. Hard slate rock is at a depth of 38 inches.

Permeability is moderately slow to slow in the Lignum soils, and available water capacity is high.

Representative profile of Lignum silt loam, 2 to 6 percent slopes, 1.5 miles southeast of Chapin; 0.1 mile

Figure 9.—Turkey oaks and scattered longleaf pines on Lakeland soils, undulating.

northeast of U.S. Highway 76 on the south side of the road near a fork in the road:

Ap—0 to 7 inches, grayish-brown (2.5Y 5/2) silt loam; weak, medium, granular structure; friable; many fine grass roots and medium-sized tree roots; very strongly acid, pH 5.0; abrupt, smooth boundary.

A2—7 to 12 inches, light yellowish-brown (2.5Y 6/4) silt loam; weak, fine, granular structure; friable; common fine pores; very strongly acid, pH 5.0; clear, smooth boundary.

B1t—12 to 20 inches, light yellowish-brown (2.5Y 6/4) silty clay loam; weak, fine, subangular blocky structure; friable; many fine and coarse pores; common fine roots; very strongly acid, pH 4.8; clear, smooth boundary.

B2t—20 to 30 inches, brown (10YR 5/3) clay; common, medium, distinct, strong-brown (7.5YR 5/8) and gray (10YR 5/1) and few, medium, distinct, yellowish-red (5YR 5/6) mottles; moderate, medium, angular blocky structure; very firm; many prominent clay films; common fine roots between peds; very strongly acid, pH 4.7; irregular, wavy boundary.

B2t—20 to 30 inches, brown (10YR 5/3) clay; common, medium, distinct, strong-brown (7.5YR 5/8) and gray (10YR 5/1) and few, medium, distinct, yellowish-red (5YR 5/6) mottles; moderate, medium, angular blocky structure; very firm; many prominent clay films; common fine roots between peds; very strongly acid, pH 4.7; irregular, wavy boundary.

C—30 to 38 inches, light-gray (10YR 7/2), jointed, fine-grained slate rock streaked and stained with brownish yellow, yellowish brown, and strong brown on platy faces; coarse platy structure; extremely hard; cracks packed with gray clay; very strongly acid, pH 4.7.

R—38 inches, hard slate rock.

The solum ranges from 20 to 40 inches in thickness. Reaction is very strongly acid or strongly acid throughout the profile. Bedrock is at a depth of 3 to 8 feet.

The A horizon is grayish brown, dark gray, brown, or grayish brown, and it is 4 to 7 inches thick. A light yellowish-brown or very pale brown A2 horizon, 2 to 6 inches thick, is present in places.

The B1t horizon is silty clay loam or silt loam 5 to 20 inches thick. The B2t horizon is olive brown, light olive brown, brown, strong brown, and yellowish brown or is mottled combinations of these colors. The lower part of the Bt horizon, within inches of the upper limit of the Bt horizon, has mottles of gray, light gray, grayish brown, and pale brown.

Lignum soils are near or adjacent to Nason, Alamance, Helena, Herndon, and Enon soils. They are not so well drained as Nason, Alamance, Herndon, and Enon soils, and unlike these soils they have gray mottles within 24 inches of the upper limit of the Bt horizon. They have a siltier subsoil than that of Helena soils.

Lignum silt loam, 2 to 6 percent slopes (LnB).—This soil is mostly on ridgetops and side slopes. A few areas, however, are along drainageways in the slate-belt part of the county.

Included with this soil in mapping are small areas of Nason, Enon, Helena, and Alamance soils and areas where the slope is less than 2 percent or more than 6 percent. Also included are soils that have drainage characteristics similar to those of Lignum soils but lack the highly plastic subsoil. Other inclusions are soils that have a black or very dark gray surface layer and a gray subsoil, are poorly drained, and have a seasonal high water table.

Runoff is medium on this soil. Most of the acreage is wooded. A small acreage is used for pasture, hay, corn, and small grains. Capability unit IIe–3; woodland group 3w8.

Lucy Series

The Lucy series consists of nearly level, gently sloping or sloping, deep, well-drained soils. These soils formed in loamy marine sediment on the Coastal Plain.

In a representative profile the surface layer is grayish-brown loamy sand about 7 inches thick. The subsurface layer is very pale brown sand about 17 inches thick. The subsoil is about 48 inches thick. The upper 16 inches is yellowish-red sandy loam, and the lower 32 inches is red sandy clay loam.

Permeability is rapid in the sandy surface layer of these soils and moderately rapid to moderate in the subsoil. Available water capacity is low in the surface layer and medium in the subsoil.

Representative profile of Lucy loamy sand, 0 to 6 percent slopes, 1½ miles southwest of Florence Church Crossroads:

Ap—0 to 7 inches, grayish-brown (10YR 5/2) loamy sand; weak, fine, granular structure; very friable; many fine roots; very strongly acid, pH 5.0; abrupt, smooth boundary.

A2—7 to 24 inches, very pale brown (10YR 7/4) sand; single grained; loose; common fine roots; very strongly acid, pH 4.9; clear, smooth boundary.

B21t—24 to 40 inches, yellowish-red (5YR 5/8) sandy loam; weak, medium, subangular blocky structure; friable; common fine roots; very strongly acid, pH 5.0; clear, smooth boundary.

B22t—40 to 72 inches, red (2.5YR 5/8) sandy clay loam; weak, medium, subangular blocky structure; friable; many medium pores and old root channels; few fine roots; very strongly acid, pH 5.0.

The solum ranges from 65 to more than 80 inches in thickness. Reaction is very strongly acid or strongly acid throughout the profile.

The A1 or Ap horizon is brown, dark-brown, dark grayish-brown, or grayish-brown loamy sand 4 to 9 inches thick. The A2 horizon is very pale brown, pale-brown, or brownish-yellow sand or loamy sand 16 to 31 inches thick. The A1 and A2 horizons combined are 20 to 40 inches thick.

The B2t horizon is red or yellowish red, and it is 30 to 48 inches thick. In places the upper part of the B2t horizon is sandy loam, and in other places the B2t horizon is sandy clay loam throughout.

The Lucy soils are near or adjacent to Troup, Orangeburg, Dothan, Alaga, Fuquay, Blaney, and Vaucluse soils. They have a thicker A horizon than Orangeburg, Dothan, and Vaucluse soils and a thinner A horizon than Troup soils. They have B2t horizons which Alaga soils lack. Lucy soils lack the characteristic plinthite in the B2t horizon of Fuquay soils, and they lack the fragipan of Blaney soils.

Lucy loamy sand, 0 to 6 percent slopes (LuB).—This soil is on ridgetops and smooth side slopes in the Coastal Plain and Sandhill uplands. A few areas are on toe slopes. This soil has the profile described as representative of the series.

Included with this soil in mapping are small areas of Orangeburg, Alaga, and Blaney soils. Also included are small areas where the slope is more than 6 percent.

Runoff is slow on this soil. The thick sandy surface layer is droughty. Controlling erosion and conserving moisture for annual crops are the major concerns in management of this soil. Most of the acreage is in cotton, corn, and soybeans. Small acreages are wooded or

are used for hay and pasture. Capability unit IIs–4; woodland group 3s2.

Lucy loamy sand, 6 to 10 percent slopes (LuC).—This soil is on smooth side slopes and toe slopes in the Coastal Plain and Sandhill uplands. Included in mapping are small areas of Orangeburg, Troup, and Blaney and Vaucluse soils. Also included are a few small areas where the slope is less than 6 percent or more than 10 percent.

Runoff is moderate on this soil. Most of the acreage is wooded or is in pasture, but a small acreage is in row crops. Controlling erosion and conserving moisture for annual crops are the major concerns of management. Capability unit IIIs–4; woodland group 3s2.

Lumbee Series

The Lumbee series consists of nearly level, deep, and poorly drained soils. These soils formed in loamy stream and marine sediment on the Coastal Plain.

In a representative profile the surface layer is black sandy loam about 9 inches thick. The subsurface layer is gray loamy sand about 6 inches thick. The subsoil is about 21 inches thick. The upper 3 inches is gray sandy loam, and the lower 18 inches is gray sandy clay loam that has brownish-yellow mottles. The underlying material to a depth of 50 inches is light-gray sandy loam.

Permeability is moderate in the Lumbee soils, and available water capacity is medium.

Representative profile of Lumbee sandy loam, 1.75 miles north of Calhoun County line and 250 feet west of secondary road 66 (Old State Road) at the edge of a pipeline right-of-way:

A1—0 to 9 inches, black (N 2/0) sandy loam; weak, fine, granular structure; friable; many fine roots; strongly acid, pH 5.5; clear, irregular boundary.

A2—9 to 15 inches, gray (10YR 5/1) loamy sand; weak, fine, granular structure; very friable; common fine roots; strongly acid, pH 5.3; clear, smooth boundary.

B1tg—15 to 18 inches, gray (10YR 6/1) sandy loam, weak, fine, granular structure; friable; common fine roots; very strongly acid, pH 4.8; clear, smooth boundary.

B2tg—18 to 36 inches, gray (10YR 6/1) sandy clay loam; few, fine, distinct brownish-yellow mottles; weak, fine, subangular blocky structure; friable; coarse, slightly rounded quartz sand grains; few discontinuous clay films; very strongly acid, pH 4.7; gradual, smooth boundary.

Cg—36 to 50 inches, light-gray (N 7/0) sandy loam; massive; firm; very strongly acid, pH 4.7.

The solum ranges from 24 to 40 inches in thickness. Reaction is very strongly acid or strongly acid throughout the profile. Depth to a seasonal high water table is 0 to 1 foot.

The A1 horizon is black, very dark gray, dark gray, or very dark grayish brown and is 5 to 10 inches thick. An A2 horizon is present in most places. It is gray or light-gray loamy sand or sandy loam 4 to 10 inches thick.

The B horizon is gray, light gray, or light brownish gray. It generally has few to common brownish mottles and, less frequently, a few yellowish-red mottles. It is sandy loam or sandy clay loam 20 to 25 inches thick. A B1 or B3 horizon is present in places.

The C horizon is gray or light-gray sandy loam, loamy sand, or sand. In many places it is stratified.

The Lumbee soils are near or adjacent to Craven, Rains, Goldsboro, Enoree, Johnston, Lynn Haven, and Paleaquults soils. They are more poorly drained than Craven and Goldsboro soils, and they have a coarser textured B2t horizon than Craven soils. They are not so poorly drained as Johnston, Paleaquults, and Enoree soils. Lumbee soils have a thinner solum than Rains soils, and they have a Bt horizon which Enoree and Lynn Haven soils lack. Lumbee soils lack the characteristic Bh horizon of Lynn Haven soils.

Lumbee sandy loam (Lw).—This soil is on flats and in depressions on stream and estuary terraces. Included in mapping are areas of Rains, Paleaquults, Goldsboro, and Johnston soils.

Runoff is very slow on this soil, and water ponds on the surface in wet seasons. Drainage is necessary for crop production. Almost all of the acreage is wooded, dominantly with oak and sweetgum. Capability unit IIIw–4; woodland group 2w9.

Lynn Haven Series

The Lynn Haven series consists of nearly level to depressional, deep, poorly drained soils. These soils formed in sandy marine sediment in the Sandhills.

In a representative profile the surface layer is black sand about 4 inches thick. The subsurface layer is gray sand about 7 inches thick. The next layer is about 13 inches thick. The upper 8 inches is dark-brown sand, and the lower 5 inches is pale-brown and very pale brown sand that has a few dark-brown mottles. The underlying material, to a depth of 60 inches, is light-gray sand that has light brownish-gray mottles.

Permeability is moderately rapid in the Lynn Haven soils, and available water capacity is very low.

Representative profile of Lynn Haven loamy sand, approximately 7 miles south of Gilbert and 5 miles northwest of Fairview Crossroads; 0.75 mile west of Wingard's machine shop and about 250 feet north of an intersection of roads:

A1—0 to 4 inches, black (N 2/0) loamy sand; weak, fine, granular structure; very friable; light-gray sand grains; many fine roots; strongly acid, pH 5.5; abrupt, smooth boundary.

A2—4 to 11 inches, gray (10YR 6/1) sand; weak, fine, granular structure; very friable; common fine roots; dark-gray material from A1 horizon in old root channels; strongly acid, pH 5.5; abrupt, smooth boundary.

B2h—11 to 19 inches, dark-brown (7.5YR 3/2) sand; few, medium, faint, dark-brown (10YR 4/3) mottles; weak, medium and coarse, subangular blocky structure; friable; weakly cemented; common fine roots; old root channels filled with A horizon material; few fine pores; strongly acid, pH 5.5; clear, smooth boundary.

B3h—19 to 24 inches, pale-brown (10YR 6/3) and very pale brown (10YR 7/3) sand; few, medium, dark-brown (7.5YR 3/2) mottles; single grained; loose; few old root channels filled with material from above; strongly acid, pH 5.5; gradual, smooth boundary.

Cg—24 to 60 inches, light-gray (10YR 7/1) sand; few, coarse, faint, light brownish-gray (10YR 6/2) mottles; single grained; loose; few balls of sandy loam material; strongly acid, pH 5.4.

Sand extends to a depth of more than 72 inches. Reaction is very strongly acid or strongly acid throughout the profile. In undrained areas depth to a seasonal high water table is 0 to 1 foot.

The A1 horizon is black or very dark gray and is 3 to 17 inches thick. The A2 horizon is gray or light gray and is 5 to 9 inches thick.

The Bh horizon is very dark brown or dark brown. It is very pale brown and pale brown in the lower part and is about 10 to 26 inches thick. The C horizon is gray or light gray.

These soils are near or adjacent to Lumbee, Johnston, Rains, Pelion, Fuquay, and Blaney soils. They are more poorly drained than Pelion, Fuquay, and Blaney soils, and they have a coarser textured and grayer B horizon than these soils. They have Bh horizons that are lacking in Rains and Lumbee soils. They are not so poorly drained or as coarse textured as Johnston soils.

Lynn Haven loamy sand (Ly).—This soil is in areas of depressional landscapes on uplands and stream terraces of the Sandhills. Included in mapping are Johnston, Rains, and Lumbee soils. In places, similar soils that have a surface layer of sand are included in mapping. Also included are places where the underlying material has strata of sandy loam or sandy clay loam.

This soil is mainly wooded, but a few drained areas are used for pasture, corn, and garden vegetables. Capability unit IVw–4; woodland group 4w3.

Mecklenburg Series

The Mecklenburg series consists of sloping, deep, well-drained soils. These soils formed in material that weathered from slate.

In a representative profile the surface layer is dark-brown silt loam about 5 inches thick. The subsoil is about 34 inches thick. The upper 23 inches is yellowish-red clay that has reddish-brown mottles, and the lower 11 inches is yellowish-red clay that has pale-brown and strong-brown mottles. The underlying material is yellowish-brown slate rock that has streaks of dark yellowish brown, black, and yellowish red to a depth of 50 inches. Hard slate rock is at a depth of 50 inches.

Permeability is slow in Mecklenburg soils, and available water capacity is medium.

Representative profile of Mecklenburg silt loam, 0.75 mile south of the intersection of secondary roads 59 and 46 and 1 mile south of the U.S. Highway 378, at Lakeside Marina on the west bank of the Horse Creek neck of Lake Murray:

O1—½ inch to 0, matted litter of pine needles in various stages of decomposition.

Ap—0 to 5 inches, dark-brown (7.5YR 3/2) silt loam; weak, medium, granular structure; friable; many fine, medium, and large roots; few fine angular quartz fragments; medium acid, pH 5.8; abrupt, smooth boundary.

B2t—5 to 28 inches, yellowish-red (5YR 4/6) clay; few, medium, faint, reddish-brown (2.5YR 4/4) mottles; strong, medium, subangular blocky structure parting to strong, fine, angular and subangular blocky; very firm; thick continuous clay films; many medium and common large roots; slightly acid, pH 6.5; clear, wavy boundary.

B3t—28 to 39 inches, yellowish-red (5YR 5/8) clay; many, medium, distinct, pale-brown (10YR 7/4) mottles; strong, medium, platy structure; structure is rock controlled in about 75 percent of the mass; very firm; thick discontinuous clay films; many streaks of strong-brown (7.5YR 5/6) soft slate rock; few fragments of hard slate rock; slightly acid, pH 6.5; clear, wavy boundary.

C—39 to 50 inches, yellowish-brown (10YR 5/6) slate rock; streaks of dark yellowish-brown (10YR 4/4), black (10YR 2/1), yellowish-red (5YR 5/8), and very pale brown (10YR 7/3) clay; difficult to cut with spade; crushes to loamy texture; thick, platy structure that is rock controlled.

R—50 inches, hard slate rock.

The solum ranges from 30 to 45 inches in thickness. Reaction is medium acid or slightly acid throughout the profile. Depth to bedrock is more than 4 feet.

The Ap horizon is dark brown, dark grayish brown, or reddish brown. It is 3 to 6 inches thick.

The B horizon is yellowish red or yellowish red mottled with strong brown, yellowish brown, reddish brown, and brown. It is 20 to 40 inches thick.

The C horizon is soft to medium-hard basic slate rock. It is mottled and streaked with strong brown, yellowish red, yellowish brown, dark yellowish brown, and gray. Faces in rock fractures have a coating of black or dark yellowish brown.

Mecklenburg soils are near or adjacent to Enon, Lignum, Helena, Georgeville, and Nason soils. They have redder hues in the B horizon than Enon, Lignum, and Helena soils, and their B2t horizon is thicker than that of Enon and Nason soils. They lack gray mottles in the B horizon that are characteristic of Lignum and Helena soils. Mecklenburg soils are not so silty as Nason soils.

Mecklenburg silt loam, 6 to 10 percent slopes (MeC).—This soil is on side slopes of uplands in the Piedmont Plateau. Included in mapping are small areas of Enon, Georgeville, Nason, or Lignum soils and a few areas where slope is less than 7 percent or more than 10 percent. Also included are areas where the surface layer is loam, areas where bedrock is shallower than 4 feet, and areas where reaction is neutral in the subsoil.

Runoff is rapid on this soil. Good tilth is hard to maintain. Most of the acreage is wooded or is used for pasture or hay. A small acreage is in corn, soybeans, and small grains. Erosion is the main concern of management. Capability unit IIIe–3; woodland group 4o1.

Nason Series

The Nason series consists of gently sloping to strongly sloping, moderately deep, well-drained soils. These soils formed in material that weathered from slates in the Piedmont Plateau.

In a representative profile the surface layer is grayish-brown silt loam about 3 inches thick. The subsurface layer is silt loam about 8 inches thick. The upper 4 inches is very pale brown, and the lower 4 inches is brownish yellow. The subsoil is about 16 inches thick. The upper 9 inches of it is mottled, yellowish-red and brownish-yellow silty clay loam. The lower 7 inches is mottled, yellowish-red, red, and pale-brown silty clay. The underlying material is mottled, red, light-gray, and gray silty clay loam about 6 inches thick. Hard slate rock is at a depth of 33 inches.

Permeability is moderate in the Nason soils, and available water capacity is high.

Representative profile of Nason silt loam, 2 to 6 percent slopes, on the east side of an unpaved road, 1 mile southeast of Chapin and 100 feet west of a road intersection; 0.5 mile northeast of U.S. Highway 76:

A1—0 to 3 inches, grayish-brown (10YR 5/2) silt loam; weak, fine, granular structure; friable; many fine

and medium roots and pores; very strongly acid, pH 5.0; clear, smooth boundary.

A2—3 to 7 inches, very pale brown (10YR 7/4) silt loam; weak, fine, granular structure; friable; many fine and medium roots; many fine pores; very strongly acid, pH 4.8; clear, smooth boundary.

A3—7 to 11 inches, brownish-yellow (10YR 6/6) silt loam; weak, medium, subangular blocky structure; friable; many fine and medium roots; many fine pores; very strongly acid, pH 4.8; clear, smooth boundary.

B21t—11 to 20 inches, mottled, yellowish-red (5YR 5/8) and brownish-yellow (10YR 6/6) silty clay loam; moderate, medium, subangular and angular blocky structure; friable; common fine and medium roots; very strongly acid, pH 4.7; clear, smooth boundary.

B22t—20 to 27 inches, mottled, yellowish-red (5YR 4/8), red (2.5YR 5/8), and pale-brown (10YR 6/3) silty clay; pale-brown color is mostly on ped exteriors; moderate, medium, angular and subangular blocky structure; friable; prominent continuous clay films; common fine and medium roots; very strongly acid, pH 4.8; gradual, smooth boundary.

C—27 to 33 inches, mottled, red (2.5YR 5/8), light-gray (10YR 7/1), and gray (10YR 5/1) silty clay loam; platy structure similar to parent rock; hard, crushing to friable mass; streaks of slaty material that contains gray clay in cracks and cleavage plains; very strongly acid, pH 4.8; gradual, irregular boundary.

R—33 inches, gray (10YR 5/1) slate rock; red (2.5YR 4/8) and yellowish-red (5YR 5/8) mottles; cracks and cleavage planes filled with gray slaty material.

The solum ranges from 25 to 36 inches in thickness. In many places it rests directly on slaty bedrock. Reaction is very strongly acid or strongly acid throughout the profile. Depth to hard rock is generally 2 to 4 feet.

The A1 or Ap horizon is dark gray, dark grayish brown, or grayish brown. It is 3 to 5 inches thick. A thin A2 horizon is present in many uncultivated areas. It also ranges from 3 to 5 inches in thickness. A thin, 2- to 4-inch A3 horizon is present in places.

The B2t horizon is yellowish red, yellowish brown, light yellowish brown, strong brown, brownish yellow, or pale brown. It is generally mottled with two or more of these colors. This horizon is silty clay loam or silty clay. In places the lower part of the B2t horizon is 35 to 50 percent clay and is more than 30 percent silt. A thin, 2- to 4-inch B1 horizon is present in places. Its texture ranges from silt loam to silty clay loam.

The C horizon is weathered slaty material 4 to 8 inches thick. The foliation of the underlying slate rock is compact, and it dips about 45 to 85 degrees.

Nason soils are near or adjacent to Herndon, Tatum, Enon, Lignum, Alamance, and Georgeville soils. They have thinner B2t horizons than Herndon and Georgeville soils, and they are not so red in the B horizon as Georgeville and Tatum soils. They are less plastic and more acid than Enon soils. They lack the gray mottles in the Bt horizon that are characteristic of Lignum soils. They are finer textured and less silty than Alamance soils.

Nason silt loam, 2 to 6 percent slopes (NaB).—This soil is on upland ridges and side slopes. Slopes are mostly smooth and simple. This soil has the profile described as representative of the series.

Included with this soil in mapping are small areas of Herndon, Georgeville, Tatum, Enon, Lignum, Alamance, or Pickens soils and small areas where the slope is less than 2 percent or more than 6 percent. Also included are a few areas where the surface layer is loam or very fine sandy loam, a few places where the lower part of the subsoil has a few gray mottles, and a few places where bedrock is at a depth of less than 2 feet (fig. 10).

This soil is used for hay and pasture grasses, pine trees, and orchards. The common crops are corn, cotton, soybeans, small grains, peaches, pecans, and some vegetables. Runoff is moderately rapid to rapid, and erosion is the main concern of management. Capability unit IIe–1; woodland group 3o7.

Nason silt loam, 6 to 15 percent slopes (NaD).—This soil is on side slopes in the uplands. Included in mapping are areas of Tatum, Herndon, Georgeville, or Pickens soils and areas where the surface layer is loam or fine sandy loam. Also included are areas where there are small gullies, areas where slope is less than 6 percent or more than 15 percent, and areas of irregular slopes crossed by narrow ravines. Bedrock is at a depth of less than 2 feet in places.

Most of the acreage of this soil is wooded. A small acreage is used for pasture and hay. Runoff is rapid, and erosion is the main concern of management in cleared areas. Capability Unit IIIe–1; woodland group 3o7.

Orangeburg Series

The Orangeburg series consists of nearly level, gently sloping or sloping, well-drained soils. These soils formed in loamy marine sediment on uplands of the Coastal Plain and on terraces.

In a representative profile the surface layer is dark-brown loamy sand about 10 inches thick. The subsurface layer is yellowish-brown loamy sand about 2 inches thick. The subsoil is about 65 inches thick. The upper 14 inches is yellowish-red sandy clay loam, the next 12 inches is red sandy clay loam that has strong-brown mottles, and the 21 inches below it is red sandy clay loam that has strong-brown and yellowish-brown mottles. The lower 18 inches is red sandy clay loam that has yellow mottles. The underlying material, to a depth of 86 inches, is mottled, red, weak-red, yellow, and white sandy clay loam.

Permeability is moderate in Orangeburg soils, and available water capacity is medium.

Representative profile of Orangeburg loamy sand, 2 to 6 percent slopes, about 5½ miles south of Pelion; 0.2 mile east of U.S. Highway 178, 3 miles north of Pools Mill, and 0.1 mile south of unimproved road:

Ap—0 to 10 inches, dark-brown (10YR 4/3) loamy sand; weak, fine, granular structure; very friable; few fine and medium roots; few hard concretions of iron oxide 5 to 15 millimeters in diameter; medium acid, pH 6.0; clear, smooth boundary.

A2—10 to 12 inches, yellowish-brown (10YR 5/8) loamy sand; common, medium, distinct, dark grayish-brown (10YR 4/2) bands; weak, fine, granular structure; very friable; common fine and medium roots; medium acid, pH 5.9; abrupt, smooth boundary.

B21t—12 to 26 inches, yellowish-red (5YR 5/8) sandy clay loam; weak, fine and medium, subangular blocky structure; friable; few fine roots; common fine pores; thin, patchy, faint clay films on faces of peds; very strongly acid, pH 4.5; gradual, wavy boundary.

B22t—26 to 38 inches, red (2.5YR 4/8) sandy clay loam; few, fine and medium, distinct, strong-brown (7.5YR 5/8) mottles; moderate, medium and coarse, subangular blocky structure; friable; few fine roots; common fine pores; thin patchy clay

Figure 10.—**Profile of Nason silt loam, 2 to 6 percent slopes, showing range in depths to slate rock.**

films on faces of peds; strongly acid, pH 5.5; gradual, wavy boundary.

B23t—38 to 59 inches, red (2.5YR 4/8) sandy clay loam; common, medium, distinct, strong-brown (7.5YR 5/6) and yellowish-brown (10YR 5/6) mottles; moderate, medium, subangular blocky structure; friable; common fine roots; common fine pores; thin patchy clay films on faces of peds; strongly acid, pH 5.5; gradual, wavy boundary.

B24t—59 to 64 inches, red (2.5YR 4/8) sandy clay loam; common, medium, prominent, yellow (10YR 7/6) mottles; moderate, medium, subangular blocky structure; firm; few fine pores; thick patchy clay films on faces of peds; strongly acid, pH 5.5; clear, wavy boundary.

B3t—64 to 77 inches, red (2.5YR 4/8) sandy clay loam; common, medium, prominent, yellow (10YR 7/6) mottles; moderate, medium, subangular blocky structure; friable; common fine pores; thin patchy clay films on faces of peds; strongly acid, pH 5.5; gradual, wavy boundary.

C—77 to 86 inches, mottled, red (2.5YR 4/6), yellow (10YR 7/6), white (10YR 8/2), and weak-red (2.5YR 4/2) sandy clay loam; massive; friable; few fine pores; very strongly acid, pH 4.7.

The solum ranges from 60 to 80 inches or more in thickness. The A1 or Ap horizon is brown, dark brown, or dark grayish brown and is 3 to 11 inches thick. An A2 horizon, present in many places, is light yellowish-brown or yellowish-brown loamy sand or sand 2 to 8 inches thick. Reaction in the A horizon is very strongly acid to medium acid.

The B2t horizon is red or yellowish red. In places mottles of strong brown or yellowish brown and brownish yellow or reddish yellow are at lower depths in this horizon. It is mainly sandy clay loam but ranges to clay loam. In places a B3 horizon sandy loam or sandy clay loam is at a depth of 60 to 72 inches. Reaction in the B horizon is very strongly acid or strongly acid.

Orangeburg soils are near or adjacent to Dothan, Troup, Fuquay, Alaga, and Vaucluse soils. They have a thinner A horizon than Troup and Fuquay soils. They lack the fragipan of Vaucluse soils and the plinthite in the B horizon that is characteristic of Dothan and Fuquay soils. They have Bt horizons that are lacking in Alaga soils.

Orangeburg loamy sand, 0 to 2 percent slopes (OrA).—This soil is on smooth upland plains and ridgetops in the Coastal Plain and on terraces. Included in mapping are soils of the Alaga, Lucy, and Dothan series; areas where the surface layer is sandy loam; and a few areas where rounded pebbles are in the upper 40 inches. Also included are a few small areas where slope is more than 2 percent and a few small wet depressions. These wet areas are shown on the map by appropriate wetness symbols.

Runoff is medium on this soil. Tilth is good, and the soil is easy to cultivate. Most of the acreage is in row crops, pasture, and hay. Capability unit I–1; woodland group 2o1.

Orangeburg loamy sand, 2 to 6 percent slopes (OrB).—This soil is on smooth ridgetops and smooth, gentle side slopes. It has the profile described as representative of the series.

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Included with this soil in mapping are small areas of Alaga, Lucy, Dothan, and Vaucluse soils; areas where the slope is more than 6 percent or less than 2 percent; and a few small wet depressions. The latter are shown on the map by appropriate symbols. Also included are a few areas where the surface layer has been eroded and the yellowish-brown subsurface layer or yellowish-red subsoil is exposed.

This soil is used mostly for row crops, annual and perennial hay, pasture plants, and peach and pecan orchards. Runoff is medium, and erosion is the main concern of management. Capability unit IIe–6; woodland group 2o1.

Orangeburg loamy sand, 6 to 10 percent slopes (OrC).—This soil is on side slopes. Included in mapping are areas of Vaucluse, Troup, Alaga, and Blaney soils and areas where there are numerous ravines and small gullies and slopes are less than 6 percent or more than 10 percent. Also included are a few areas where the soil is eroded and the yellowish-red subsoil is exposed at the surface.

This soil is mostly wooded, but some of the acreage is used for pasture and hay. Only a small acreage is in row crops or small grains. Runoff is rapid, and erosion is the main concern of management. Capability unit IIIe–7; woodland group 2o1.

Orangeburg loamy sand, overwash, 0 to 4 percent slopes (OwB).—This soil is on bottom land and toe slopes in small, narrow, branching valleys and draws that are drained by intermittent streams. Steep draws, small ravines, and gullies extending into the valleys from side slopes of adjacent uplands have deposited coarse loamy and sandy sediment over the toe slopes and bottom land. This soil has a profile similar to the one described as representative of the series, but above the subsoil of this soil is recent sediment 6 to 15 inches thick. Colors are dark brown, brown, yellowish red, dark reddish brown, and reddish brown.

Included with this soil in mapping, and making up a high percentage of the area, are Vaucluse, Blaney, Pelion, and Lucy soils and Orangeburg loamy sand, 2 to 6 percent slopes. Other inclusions are soils that formed in stratified sandy and loamy alluvium 20 to 48 inches thick. These areas are narrow, and they follow the meandering, intermittent streams. Also included are wet depressional areas where the water table is at or within 30 inches of the surface and areas where the surface layer is sand or sandy loam.

Runoff is slow on this soil. Water ponds for brief periods on some level or depressional areas after heavy rains. Most areas of this soil are cleared and used for row crops, pasture, and hay. Corn, soybeans, and small grains are the main crops. Erosion and flooding are the main concerns of management. Capability unit IIe–6; woodland group 2o1.

Paleaquults

These soils are nearly level, deep, and very poorly drained. They formed in loamy marine and stream sediment.

In a representative profile the surface layer is about 34 inches thick. The upper 3 inches is black loam, the next 19 inches is black sandy loam, and the lower 12 inches is dark-gray sandy loam. The subsoil is gray clay loam to a depth of 72 inches.

These soils have moderately slow permeability in the subsoil. Available water capacity is medium.

Representative profile of Paleaquults, sandy, 0.37 mile northeast of intersection of Interstate Highway 26 and U.S. Highways 176 and 21, between Interstate Highway 26 and secondary road 66 (Old State Road):

O1—1 inch to 0, matted roots and hardwood leaves from gum, oak, and bay trees and sedges in various stages of decomposition; friable; very strongly acid, pH 4.5; abrupt, smooth boundary.

A11—0 to 3 inches, black (5YR 2/1) loam that has high content of organic matter; weak, fine, granular structure; very friable; many fine roots and root holes; very strongly acid, pH 4.7; clear, smooth boundary.

A12—3 to 22 inches, black (N 2/0) sandy loam; weak, coarse and fine, granular structure; very friable; common large and fine roots; common uncoated sand grains; extremely acid, pH 4.4; clear, wavy boundary.

A13—22 to 34 inches, dark-gray (10YR 4/1) sandy loam; weak, medium, subangular blocky structure; friable; few fine pores; A12 material present in large root channels; very strongly acid, pH 4.5; abrupt, smooth boundary.

Bt—34 to 72 inches, gray (N 6/0) clay loam; weak, very fine, subangular blocky structure; firm; few clean quartz sand grains; material from A horizons in old root channels; large root channels; apparent high kaolin content; very strongly acid, pH 4.6.

The solum is 72 inches or more in thickness. The A horizon is 20 to 40 inches of black or very dark gray loam or sandy loam. Content of organic matter decreases with increasing depth. Reaction in the A horizon is extremely acid to strongly acid.

The Bt horizon is very dark gray or gray sandy clay loam or clay loam 40 to 52 inches thick. Reaction in the B horizon is very strongly acid or strongly acid.

Paleaquults soils are near or adjacent to Rains, Johnston, and Lumbee soils. They have a thicker A horizon than those of Lumbee and Rains soils. In Paleaquults soils the content of organic matter and the texture are more consistent throughout than they are in Johnston soils.

Paleaquults, sandy (Pa).—This soil is in depressions on stream terraces and the Sandhill uplands.

Included with this soil in mapping are small areas of Rains, Lumbee, and Johnston soils. Also included are a few small areas of soils that are better drained than this one. In a few places recent alluvium, 4 to 8 inches thick, is on the surface.

Runoff is very slow on this soil, and water ponds on the surface for long periods. Almost all of the acreage is wooded, but a small acreage is in pasture. In a few drained areas this soil is planted to corn or vegetables. Drainage is the main concern of management. Capability unit IIIw–4; woodland group 1w9.

Pelion Series

The Pelion series consists of nearly level, gently sloping or sloping, deep, moderately well drained soils. These soils formed in loamy marine sediment in the Sandhills.

In a representative profile the surface layer is grayish-brown loamy sand about 5 inches thick. The subsurface layer is pale-brown loamy sand about 5 inches

thick. The subsoil is about 55 inches thick. The upper 12 inches is reddish-yellow sandy clay loam that has yellowish-red, yellow, and light-gray mottles; the next 17 inches is yellow sandy clay that has yellowish-red and light-gray mottles; and the lower 26 inches is yellow sandy loam that has strong-brown, pale-brown, and light-gray mottles.

Permeability is moderate in the upper part of the subsoil of these soils, and available water capacity is medium. In the lower part of the subsoil permeability is slow, and available water capacity is low.

Representative profile of Pelion loamy sand, 2 to 6 percent slopes, 20 feet west of secondary road 278 and 4.5 miles north of U.S. Highway 178:

A1—0 to 5 inches, grayish-brown (10YR 5/2) loamy sand; weak, fine, granular structure; very friable; many fine roots; medium acid, pH 5.6; abrupt, smooth boundary.

A2—5 to 10 inches, pale-brown (10YR 6/3) loamy sand; weak, fine, granular structure; very friable; few fine rounded pebbles; common fine roots; medium acid, pH 5.6; gradual, smooth boundary.

B2t—10 to 22 inches, reddish-yellow (7.5YR 6/6) sandy clay loam; few, medium, distinct, yellowish-red (5YR 5/6) and few, fine, distinct, yellow and light-gray mottles; weak, medium, subangular blocky structure; firm; few fine roots; common fine rounded quartz pebbles; few iron-manganese concretions; sand grains coated and bridged with clay; strongly acid, pH 5.4; clear, smooth boundary.

Bx—22 to 39 inches, yellow (10YR 7/6) sandy clay; common, fine, distinct, yellowish-red and few, fine, distinct, light-gray mottles; moderate, medium, subangular blocky structure; firm, brittle, hard, and compact; few pores; thin patchy clay films on faces of some peds; strongly acid, pH 5.2; gradual, smooth boundary.

B3t—39 to 65 inches, yellow (10YR 7/6) sandy loam; many, coarse, distinct, strong-brown (7.5YR 5/8) and few, medium, distinct, pale-brown (10YR 6/3) and light-gray (10YR 7/1) mottles; weak, medium, subangular blocky structure; friable; few medium and coarse mica flakes; sand grains coated and bridged with clay; few pores; strongly acid, pH 5.2.

The solum ranges from 40 to 72 inches in thickness. The A1 horizon is very dark gray, dark gray, grayish brown, or very dark grayish brown. It is 2 to 5 inches thick. The A2 horizon is pale-brown or light yellowish-brown loamy sand or sandy loam and is 3 to 5 inches thick. Reaction in the A horizon is very strongly acid to medium acid.

In places a B1 horizon of light-brown sandy loam is present. This horizon is 2 to 4 inches thick. The B2t horizon is strong brown, reddish yellow, yellowish brown, pale brown, brownish yellow, yellow, or mottled combinations of these colors and yellowish red. It is 8 to 20 inches thick. Gray mottles are in the upper 10 inches of the B2t horizon or within 16 inches of the surface. The Bx horizon has the same colors as the B2t horizon. It is sandy clay loam or sandy clay 10 to 24 inches thick. The B3t horizon is mottled, and is yellow, yellowish red, brownish yellow, or it is reddish yellow, very pale brown, pale brown or strong brown, and light gray. It is sandy loam or sandy clay loam 8 to 30 inches thick. Reaction in the B horizon is extremely acid to strongly acid.

Pelion soils are near or adjacent to Blaney, Fuquay, Lakeland, Troup, Wahee, Vaucluse, and Dothan soils. Within 16 inches of the surface they have gray mottles that are lacking in Vaucluse soils. They have a thinner A horizon than Blaney and Troup soils. They lack the plinthite that is characteristic of Fuquay and Dothan soils. They have Bt horizons that are lacking in Lakeland soils. They are better drained than Wahee soils.

Pelion loamy sand, 0 to 2 percent slopes (PeA).—This soil is in stream valleys, on toe slopes, and in a few depressional areas of the Sandhill uplands. Included in mapping are areas of Wahee, Blaney, Fuquay, and Vaucluse soils and small seepage areas of wet soils in the stream valleys and on toe slopes. These wet areas are shown on the map by appropriate symbols for wetness. Also included are soils similar to Pelion sandy loam that have stratified sand or clay below a depth of 40 inches and areas where the surface is sandy loam.

Runoff is slow on this soil, and water ponds on the surface or perches above the fragipan after heavy rains. This soil is used for crops, pasture, hay, and trees. The most common crops are corn and soybeans. A large acreage has been planted to pine trees. Capability unit IIw–6; woodland group 3w2.

Pelion loamy sand, 2 to 6 percent slopes (PeB).—This soil is mostly on toe slopes and side slopes. It has the profile described as representative of the series.

Included with this soil in mapping are areas of Fuquay, Blaney, Vaucluse, and Troup soils. In a few areas the surface layer is sandy loam, and in a few areas the subsoil is stratified sand or clay. Also included in mapping are wet areas where the water table is at or near the surface. These areas are shown on the map by appropriate symbols for wetness. Small areas where slope is more than 6 percent are also included.

Runoff is medium on this soil, and in places water perches briefly over the fragipan after rains. Erosion is a major concern of management.

This soil is used mostly for trees and pasture. Some corn, soybeans, and cotton are grown. Bermudagrass is the main pasture grass. A large acreage has been planted to pine trees. Capability unit IIe–4; woodland group 3w2.

Pelion loamy sand, 6 to 10 percent slopes (PeC).—This soil is on side slopes. Included in mapping are areas of Blaney, Vaucluse, and Fuquay soils and many seepage areas of wet soils. The wet areas are shown on the map by appropriate symbols for wetness. Also included are areas where the slope is less than 6 percent or more than 10 percent. In many areas the slopes are irregular.

Runoff is medium to rapid on this soil. Erosion is a major concern of management in cleared areas. Most of the acreage is wooded, but a small acreage is used for pasture or cultivated crops. Capability unit IVe–4; woodland group 3w2.

Pickens Series

The Pickens series consists of sloping to strongly sloping, shallow, somewhat excessively drained soils. These soils formed in silty slate and shale.

In a representative profile the surface layer is dark grayish-brown slaty silt loam about 4 inches thick. The subsoil is light yellowish-brown slaty silt loam about 14 inches thick. Gray slate rock is at a depth of 18 inches.

Permeability is moderate in these soils, and available water capacity is low.

Representative profile of Pickens slaty silt loam, 6 to 15 percent slopes, 1 mile north of the intersection of secondary road 24 and U.S. Highway 378 and 0.75 mile north of Beulah Church:

A1—0 to 4 inches, dark grayish-brown (10YR 4/2) slaty silt loam; weak, medium, granular structure; friable; many fine and medium roots; many medium pores; about 25 percent slate fragments; very strongly acid, pH 5.4; abrupt, irregular boundary.

B2—4 to 18 inches, light yellowish-brown (2.5Y 6/4) slaty silt loam; weak, medium, granular structure; friable; 50 to 80 percent slate fragments 5 to 30 millimeters in diameter, increasing in diameter in lower half of horizon; fractured faces of slate fragments are mottled with strong brown and yellowish brown; many fine and medium roots; strongly acid, pH 5.4; abrupt, irregular boundary.

R—18 inches, gray slate rock; coarse, platy structure; fractured and jointed; streaks of soft silty material in the joints; rock is mottled and stained with strong brown and yellowish brown.

The solum ranges from 10 to 20 inches in thickness. Bedrock is at a depth of 1 to 1½ feet.

The A horizon is dark grayish brown, very dark grayish brown, dark gray, or very dark brown. It is 3 to 5 inches thick. This horizon is 10 to 35 percent slate fragments. Reaction in the A horizon is very strongly acid or strongly acid.

The B horizon is light yellowish-brown, pale-yellow, or yellowish-brown silt loam or silty clay loam. It is 10 to 16 inches thick and is 50 to 80 percent slate fragments. Reaction in the B horizon is strongly acid or medium acid.

The Pickens soils are near or adjacent to Nason and Tatum soils. They have less clay and more slate fragments in the B horizon and have a thinner solum than Nason and Tatum soils.

Pickens slaty silt loam, 6 to 15 percent slopes (PkD).—This soil is on side slopes in the uplands. Included in mapping are small areas of Nason soils and small areas where the slope is less than 6 percent or more than 15 percent.

Runoff is rapid on this soil. All of the acreage is wooded. Post oak, hickory, and blackjack oak are the dominant species. Capability unit VIIs–4; woodland group 5d3.

Rains Series

The Rains series consists of nearly level, deep, and poorly drained soils. These soils formed in loamy marine sediment on uplands of the Sandhills and on stream terraces.

In a representative profile the surface layer is very dark gray sandy loam about 9 inches thick. The subsurface layer is light brownish-gray sandy loam about 2 inches thick. The subsoil is about 49 inches thick. The upper 13 inches in light brownish-gray sandy clay loam mottled with brown and yellow, the next 18 inches is gray sandy clay loam mottled with strong brown, yellowish brown, and dark yellowish brown; and the lower 18 inches is mottled, strong-brown, yellowish-brown, and gray sandy clay loam. The underlying material, to a depth of 72 inches, is mottled, strong-brown, brownish-yellow, and yellowish-red sandy clay loam.

Permeability is moderate in Rains soils, and available water capacity is medium.

Representative profile of Rains sandy loam in a cultivated field 2 miles southwest of Gilbert, 1,300 feet south of secondary road 261, and 1,500 feet east of secondary road 240:

Ap—0 to 9 inches, very dark gray (10YR 3/1) sandy loam; weak, fine, granular structure; friable; very strongly acid, pH 4.5; abrupt, smooth boundary.

A2—9 to 11 inches, light brownish-gray (10YR 6/2) sandy loam; weak, fine, granular structure; friable; very strongly acid, pH 4.7; abrupt, smooth boundary.

B21tg—11 to 24 inches, light brownish-gray (10YR 6/2) sandy clay loam; common, fine, faint, brown and few, fine, distinct, yellow mottles; friable; many fine, medium, and coarse pores; clay bridging between sand grains; strongly acid, pH 5.5; clear, smooth boundary.

B22tg—24 to 42 inches, gray (10YR 6/1) sandy clay loam; many, coarse, prominent, strong-brown (7.5YR 5/8) and yellowish-brown (10YR 5/6) and common, medium, distinct, dark yellowish-brown (10YR 3/1) mottles; moderate, medium, subangular blocky structure; friable; few medium roots; common medium pores; clay bridging and coating on sand grains; very strongly acid, pH 4.7; gradual, smooth boundary.

B23tg—42 to 60 inches, coarsely mottled, strong-brown (7.5YR 5/8), yellowish-brown (10YR 5/8), and gray (10YR 6/1) sandy clay loam; moderate, coarse, angular blocky structure; firm; few fine roots and pores; very strongly acid, pH 4.7; gradual, smooth boundary.

C—60 to 72 inches, mottled, strong-brown (7.5YR 5/8), brownish-yellow (10YR 6/8), and yellowish-red (5YR 5/8) sandy clay loam; white (10YR 8/1) kaolin balls; massive; firm; many fine mica flakes; very strongly acid, pH 4.8.

The solum ranges from 60 to more than 72 inches in thickness. Reaction is very strongly acid or strongly acid throughout the profile.

The A1 or Ap horizon is very dark gray, dark gray, or black and ranges from 5 to 10 inches in thickness. An A2 horizon is present in many places. It is light brownish gray, light gray, or gray and is 2 to 7 inches thick.

The B2tg horizon is sandy clay loam or clay loam. The Btg horizon is light gray, gray, dark gray, light brownish gray, or grayish brown. Mottles are few to many and are yellowish brown, strong brown, yellow, brownish yellow, and yellowish red. The Btg horizon is 45 to 60 inches thick.

In places a C horizon is at a depth of more than 72 inches. It has mottled colors similar to those in the Btg horizon, and it is gray or is mottled with these colors. It is sandy clay loam or sandy loam. On some terraces where the sediment is stratified, this horizon has strata of sandy clay or clay.

Rains soils are near or adjacent to Lumbee, Lynn Haven, Johnston, Paleaquults, Pelion, Wahee, and Craven soils. They are more poorly drained than Pelion, Wahee, and Craven soils and are grayer in the upper part of the B horizon. They have a thicker Bt horizon than Lumbee soils, and they lack the thick black A horizon of Johnston and Paleaquults soils. They lack the Bh horizons that are characteristic of Lynn Haven soils.

Rains sandy loam (Ra).—This soil is on flat terraces and in depressions on uplands. Included in mapping are small areas of Lumbee, Johnston, Paleaquults, Wahee, or Pelion soils. Also included are a few soils similar to Rains soils, except for their sandy clay or clay subsoil, and a few areas where the surface layer is loamy sand or loam.

Runoff is slow on this soil. In places water ponds on the surface after rains in undrained areas. This soil has a seasonal high water table at a depth of less than 1 foot. Most of the acreage is wooded. A small acreage has been drained and cleared and is used for crops and pasture. Corn and a few vegetables are the main crops. Capability unit IIIw–4; woodland group 2w3.

Tatum Series

The Tatum series consists of moderately steep, moderately deep, well-drained soils. These soils formed in material that weathered from slate.

In a representative profile the surface layer is very dark brown silt loam about 5 inches thick. The subsoil is about 27 inches thick. The upper 4 inches is strong-brown and yellowish-red silty clay loam, the next 17 inches is red silty clay, and the lower 6 inches is yellowish-red silty clay loam. The underlying material extends to a depth of 44 inches. It is mottled, yellowish-red and strong-brown silt loam that contains many slate fragments. Red, hard slate rock is mixed with light-gray, soft slate rock at a depth of 44 inches and below.

Permeability is moderate in Tatum soils, and available water capacity is high.

Representative profile of Tatum silt loam, 15 to 25 percent slopes, 250 feet east of secondary road 28 between U.S. Highway 378 and Twelvemile Creek; approximately 3 miles northeast of Lexington:

A1—0 to 5 inches, very dark brown (10YR 2/2) silt loam; weak, fine, granular structure; friable; many fine and medium roots; many medium pores; very strongly acid, pH 5.0; abrupt, smooth boundary.

B1t—5 to 9 inches, strong-brown (7.5YR 5/6) and yellowish-red (5YR 5/6) silty clay loam; weak, fine, subangular blocky structure; friable; many discontinuous clay films; many roots and pores; very strongly acid, pH 4.5; clear, smooth boundary.

B2t—9 to 26 inches, red (2.5YR 4/6) silty clay; weak, fine, subangular and angular blocky structure; friable; many continuous and prominent clay films; many medium roots; many fine pores; very strongly acid, pH 4.5; gradual, smooth boundary.

B3t—26 to 32 inches, yellowish-red (5YR 4/8) silty clay loam; weak, medium, subangular blocky structure; friable; fragments of pale-brown (10YR 6/3) schist; common discontinuous clay films; common medium roots; many medium and fine pores; many fine mica flakes; very strongly acid, pH 4.5; gradual, irregular boundary.

C—32 to 44 inches, mottled, yellowish-red (5YR 4/8) and strong-brown (7.5YR 5/6) saprolite that crushes to silt loam; rock-controlled structure; friable; few discontinuous clay films on faces of cracks; common fine and medium roots; many red and gray soft slate fragments; very strongly acid, pH 4.5; gradual, irregular boundary.

R—44 to 50 inches, red, hard slate rock mixed with light-gray, soft slate rock; rock becomes harder with increasing depth.

The solum ranges from 25 to 40 inches in thickness. Depth to bedrock is 3 to 5 feet. Reaction is very strongly acid or strongly acid throughout the profile.

The A1 horizon is brown, dark reddish brown, very dark brown, dark grayish brown, or very dark gray. It is 3 to 7 inches thick.

The B1t horizon, where present, is strong brown, yellowish red, or a combination of these colors. It is 3 to 6 inches thick. The B2t horizon is silty clay loam or silty clay and is 12 to 20 inches thick. A B3 horizon of red, reddish-yellow, or yellowish-red silty clay loam or silt loam is present in places.

The C horizon, where present, is mottled with light red, brownish yellow, yellowish red, or strong brown. It is 6 to 12 inches thick.

Tatum soils are near or adjacent to Nason, Herndon, and Georgeville soils. They have a thinner solum and a thinner B2 horizon than Herndon and Georgeville soils. They have redder hues in the B2 horizon than Herndon and Nason soils.

Tatum silt loam, 15 to 25 percent slopes (TaE).—This soil is in areas of short side slopes on uplands. Slopes are smooth and simple.

Included with this soil in mapping are small areas of Nason, Georgeville, Herndon, and Pickens soils and areas where the surface layer is loam or fine sandy loam. Also included are soils that have a clay loam or clay subsoil and a few areas where slope is less than 15 percent or more than 25 percent.

Runoff is rapid on this soil. If an area is cleared, the hazard of erosion then becomes severe. The entire acreage is in mixed upland hardwoods and pines. Capability unit VIe–6; woodland group 4r2.

Toccoa Series

The Toccoa series consists of nearly level, deep, and well-drained soils. These soils formed in loamy sediment on stream flood plains.

In a representative profile the surface layer is brown fine sandy loam about 10 inches thick. Below this, to a depth of 111 inches, is stratified underlying material. The upper 31 inches of it is brown and strong-brown or mottled, brown and strong-brown fine sandy loam; the next 15 inches is brown loamy fine sand; and the 19 inches below is brown or light-brown sand. The next 36 inches has thin lenses of fine sand and sandy loam to clay loam. Lenses are light brown, dark brown, reddish yellow, light brownish gray, and light brown in this part.

Permeability is moderately rapid in Toccoa soils, and available water capacity is low.

Representative profile of Toccoa fine sandy loam, 1 mile south of State Docks at old Granby Landing, 0.2 mile west of Old State Road, and 100 feet south of an unpaved road leading west toward Edenwood:

Ap—0 to 10 inches, brown (7.5YR 4/4) fine sandy loam; structureless; very friable; many fine roots; common fine mica flakes; slightly acid, pH 6.5; abrupt, smooth boundary.

C1—10 to 23 inches, brown (7.5YR 5/4) fine sandy loam; weak, medium and fine, subangular blocky structure; friable; many fine roots; many fine pores; many very fine mica flakes; few root holes filled with Ap material; slightly acid, pH 6.3; clear, wavy boundary.

C2—23 to 34 inches, strong-brown (7.5YR 5/6) fine sandy loam; structureless; friable; many very fine pores; many fine roots; many very fine mica flakes; medium acid, pH 6.0; gradual, wavy boundary.

C3—34 to 41 inches, mottled, strong-brown (7.5YR 5/6) and brown (7.5YR 4/4) fine sandy loam; structureless; very friable; many very fine pores; many fine roots; many very fine mica flakes; medium acid, pH 6.0; gradual, wavy boundary.

C4—41 to 56 inches, brown (7.5YR 4/4) loamy fine sand; structureless; very friable; few fine roots; few fine pores; common very fine mica flakes; medium acid, pH 6.0; gradual, wavy boundary.

C5—56 to 65 inches, brown (7.5YR 5/4) sand; structureless; very friable; few root holes that have dark stains; few mica flakes; medium acid, pH 6.0; clear, smooth boundary.

C6—65 to 75 inches, light-brown (7.5YR 6/4) sand; single grained; loose; common red and black sand grains; slightly acid, pH 6.3.

C7—75 to 100 inches, mottled, light-brown, dark-brown, and reddish-yellow lenses of fine sand and sandy loam.

C8—100 to 111 inches, mottled, light-brown, light brownish-gray, and strong-brown lenses of fine sand to clay loam.

Reaction is medium acid or slightly acid throughout the upper 72 inches of the soil. Where soils are on the flood plains of streams within the Piedmont Plateau section of the county, bedrock is at a depth of 5 to 10 feet. Along the Congaree River below Columbia, however, bedrock is at a depth of more than 10 feet.

The A1 or Ap horizon is brown, dark brown, or dark grayish brown. It is 5 to 10 inches thick.

In most areas the C horizon is stratified fine sandy loam, sandy loam, or silt loam in the upper 10 to 40 inches. Below this depth it is stratified fine sandy loam, sandy loam, or silt loam and also has strata or lenses of sand, loamy sand, or silty clay loam or clay loam.

Toccoa soils are near or adjacent to Congaree, Chenneby, and Enoree soils. They are coarser textured than Congaree and Chenneby soils, and they are better drained than Enoree soils. They lack the gray mottles at a depth of less than 10 inches that are characteristic of Enoree soils.

Toccoa fine sandy loam (To).—This soil is on flood plains. Included in mapping are areas of Congaree, Enoree, and Chenneby soils and areas where the surface layer is sandy loam, loam, or silt loam. Also included are a few small areas where sand or loamy sand extends to a depth of 40 inches.

Runoff is slow on this soil. A seasonal high water table is at a depth of 2½ to 3 feet. Most areas of this soil are flooded one or more times each year. Most of the acreage is planted to corn, soybeans, or pasture. A small acreage is wooded. Capability unit IIw–7; woodland group 1o7.

Troup Series

The Troup series consists of nearly level to gently sloping, deep, and somewhat excessively drained soils. These soils formed in loamy marine sediment in the Sandhills.

In a representative profile the surface layer is dark grayish-brown sand about 7 inches thick. The subsurface layer is sand about 55 inches thick. The upper 7 inches is yellowish brown, the next 24 inches is strong brown, and the lower 24 inches is reddish yellow. The subsoil is red sandy loam. It extends to a depth of 84 inches.

In Troup soils permeability is rapid in the surface layer and subsurface layer and moderate in the subsoil. Available water capacity is low in the sandy surface layer and subsurface layer, and it is medium in the subsoil.

Representative profile of Troup sand, 0 to 6 percent slopes, east of State Highway 215, approximately 2 miles south of Pelion:

Ap—0 to 7 inches, dark grayish-brown (10YR 4/2) sand; weak, fine, granular structure; very friable; many grass and weed roots; medium acid, pH 5.8; abrupt, smooth boundary.

A21—7 to 14 inches, yellowish-brown (10YR 5/6) sand; single grained; loose; common grass and weed roots; organic staining in root channels; medium acid, pH 5.7; gradual, smooth boundary.

A22—14 to 23 inches, strong-brown (7.5YR 5/6) sand; single grained; loose; few medium roots; medium acid, pH 5.7; gradual, smooth boundary.

A23—23 to 38 inches, strong-brown (7.5YR 5/6) sand; single grained; loose; few medium roots; medium acid, pH 5.6; gradual, wavy boundary.

A24—38 to 62 inches, reddish-yellow (7.5YR 6/8) sand; single grained; loose; medium acid, pH 6.0; clear, smooth boundary.

Bt—62 to 84 inches, red (2.5YR 4/8) sandy loam; weak, medium, subangular blocky structure; friable; strongly acid, pH 5.5.

The solum extends to a depth of more than 80 inches. The A1 horizon is dark grayish brown, very dark grayish brown, grayish brown, and dark gray. It ranges from 2 to 12 inches in thickness. The A2 horizon is yellowish brown, very pale brown, pale brown, light yellowish brown, brownish yellow, reddish yellow, or strong brown. The thickness of the entire A horizon ranges from 40 to 72 inches. Reaction in the A horizon is very strongly acid to medium acid.

The Bt horizon is red, yellowish-red, or strong-brown sandy loam or sandy clay loam. The Bt horizon begins at a depth of 40 to 72 inches and extends to a depth of more than 80 inches. Reaction in the B horizon is very strongly acid or strongly acid.

Troup soils are near or adjacent to Lakeland, Fuquay, Blaney, Lucy, and Alaga soils. They have a thicker sandy A horizon than Fuquay, Lucy, and Blaney soils. They lack the plinthite of Fuquay soils and the fragipan of Blaney soils. Unlike Lakeland and Alaga soils, Troup soils have a Bt horizon.

Troup sand, 0 to 6 percent slopes (TrB).—This soil is on undulating plains, broad ridgetops, and side slopes in the Sandhills. It has the profile described as representative of the series.

Included with this soil in mapping are small areas of Lakeland, Fuquay, Blaney, Alaga, and Lucy soils and a few areas where the subsoil is yellowish brown. Other inclusions are slightly depressional areas where soils are mottled with gray, a few areas where the subsoil is 5 to 10 percent plinthite nodules, a few areas where the surface layer is loamy sand, and a few areas where slope is more than 6 percent.

Runoff is very slow on this soil, but it can be tilled soon after rains. Fertilization and conservation of moisture are the main concerns of management.

Most of the acreage of this soil is cultivated or is in pasture or hay. Soybeans, corn, cotton, and small grains are the main crops. Some of the acreage is wooded and has been reforested to pines. Capability unit IIIs–1; woodland group 3s2.

Troup-Urban land complex, 0 to 6 percent slopes (TuB).—This complex is in the vicinity of West Columbia-Cayce, Lexington, Swansea, Leesville, and Columbia Metropolitan Airport. These areas, originally Troup soils, are now used for such urban structures as commercial buildings, dwellings, streets, and parking lots. In about 30 percent of the areas, the soil is undisturbed, and in about 70 percent it has been altered by grading, paving, cutting, and filling.

This complex is not used for farming. Except where drastic alteration has taken place, the soil is suited to the trees, shrubs and lawn grasses that are adapted to other Troup soils. In places areas that have been drastically altered need special attention when establishing plant cover. This complex is suited for urban uses, but onsite investigation is necessary prior to construction of large buildings.

Runoff from structures and paving is almost 100 percent. Runoff from uncovered soil varies, depending on slope and the amount of cutting and filling that has taken place. Not assigned to a capability unit; woodland group 3s2.

Vaucluse Series

The Vaucluse series consists of gently sloping to moderately steep, deep, and well-drained soils. These soils formed in sandy and loamy marine sediment.

In a representative profile the surface layer is dark grayish-brown loamy sand about 6 inches thick. The subsurface layer is yellowish-brown loamy sand about 4 inches thick. The subsoil is about 65 inches thick. The upper 6 inches is yellowish-red sandy loam, the next 8 inches is yellowish-red sandy clay loam, and the 36 inches below it is a fragipan of brittle, yellowish-red sandy clay loam that has mottles of yellowish brown and very pale brown. The lower 15 inches is yellowish-red sandy loam.

In Vaucluse soils permeability is moderate in the upper part of the subsoil and slow in the lower part where the material is brittle. Available water capacity is low to medium.

Representative profile of Vaucluse loamy sand, 6 to 10 percent slopes, 1 mile southwest of Columbia Metropolitan Airport, 20 feet south of secondary road 72, 0.75 mile west of State Highway 215, and 550 feet east of Southland Memorial Gardens Cemetery:

Ap—0 to 6 inches, dark grayish-brown (2.5Y 4/2) loamy sand; weak, fine, granular structure; very friable; many fine roots; very strongly acid, pH 4.8; clear, smooth boundary.

A2—6 to 10 inches, yellowish-brown (10YR 5/4) loamy sand; weak, fine, granular structure; very friable; many fine roots; very strongly acid, pH 4.8; clear, smooth boundary.

B1—10 to 16 inches, yellowish-red (5YR 5/6) sandy loam; weak, medium, subangular blocky structure; very friable; many fine roots; few fine pores; sand grains coated and bridged with clay; very strongly acid, pH 5.0; gradual, smooth boundary.

B2t—16 to 24 inches, yellowish-red (5YR 4/8) sandy clay loam; moderate, medium, subangular blocky structure; friable; common fine and medium roots; sand grains coated and bridged with clay; thin patchy clay films on a few faces of peds; very strongly acid, pH 5.0; clear, smooth boundary.

Bx1—24 to 48 inches, yellowish-red (5YR 4/8) sandy clay loam; many, medium and coarse, distinct, yellowish-brown (10YR 5/6) mottles and streaks; moderate, coarse, subangular blocky structure; yellowish-red part is about 60 to 70 percent of horizon (4 to 18 inches, horizontal dimension, and 12 to 36 inches, vertical dimension); yellowish-brown streaks are joined; yellowish-red part is brittle and yellowish-brown part is friable; few fine roots in yellowish-brown part and common fine roots along top of yellowish-red part; few medium pores; sand grains coated and bridged with clay; thin patchy clay films on some faces of peds and in some pores and holes; strongly acid, pH 5.3; gradual, smooth boundary.

Bx2—48 to 60 inches, yellowish-red (5YR 4/8) sandy clay loam; many, medium and coarse, distinct, yellowish-brown (10YR 5/6) and few, medium, distinct, very pale brown (10YR 7/3) mottles and streaks; moderate, coarse, subangular blocky structure; yellowish-red part (about 65 percent of horizon) is brittle and yellowish-brown part is friable; yellowish-brown part has very pale brown mottles and is in somewhat vertical streaks, 1 to 4 inches wide, that are irregular in shape; few medium pores; sand grains coated and bridged with clay; thin patchy clay films on some faces of peds; strongly acid, pH 5.2; gradual, smooth boundary.

B3t—60 to 75 inches, yellowish-red (5YR 4/8) sandy loam; weak, medium, subangular blocky structure; friable; sand grains coated with clay; very strongly acid, pH 4.8.

The solum ranges from 40 to more than 75 inches in thickness. Depth to the hard and brittle horizon is 15 to 30 inches. Reaction is very strongly acid or strongly acid throughout the profile.

The A1 or Ap horizon is dark grayish brown, dark brown, very dark grayish brown, or brown. It is 4 to 7 inches thick. An A2 horizon, 3 to 4 inches thick, of sand or loamy sand is present in many places.

A loamy sand B1 horizon is present in places. The B2t horizon is yellowish red, red, strong brown, or yellowish brown. In places it is mottled with two or more of these colors. This horizon is sandy clay loam and sandy loam 6 to 24 inches thick. It is more than 45 percent fine and coarser sands. The Bx horizon, or fragipan, has the same colors as the B2t horizon, and it is mottled with these colors and with very pale brown. It is sandy clay loam or sandy loam and is 15 to 40 inches thick. A sandy loam or sandy clay loam B3 horizon is present in most places. It extends to a depth of more than 72 inches. Colors are the same as in the B2t horizon.

Vaucluse soils are near or adjacent to Lakeland, Blaney, Fuquay, Dothan, Cowarts, Pelion, and Orangeburg soils. They have a thinner A horizon than Fuquay and Blaney soils and have a B horizon which the Lakeland soils lack. The fragipan of Vaucluse soils is lacking in Cowarts, Dothan, and Orangeburg soils. Vaucluse soils lack the gray mottles within a depth of 16 inches that are characteristic of Pelion soils.

Vaucluse loamy sand, 2 to 6 percent slopes (VaB).—This soil is in the Sandhills on side slopes, some toe slopes, ridgetops, and knolls. Included in mapping are areas of Blaney, Pelion, Orangeburg, and Fuquay soils. In a few areas where the soil is eroded, the surface layer is yellowish-red sandy loam or sandy clay loam, and in a few areas the surface layer is sand. Also included are a few areas where slope is more than 6 percent.

Runoff is medium on this soil. The hard, brittle horizons restrict root penetration and downward movement of water. Erosion is the main concern of management. Most of the acreage of this soil is wooded, but some is used for pasture, hay, and crops. Capability unit IIIe–4; woodland group 3o1.

Vaucluse loamy sand, 6 to 10 percent slopes (VaC).—This soil is on short side slopes, slopes around stream heads, and along intermittent drainageways and narrow ridges. It has the profile described as representative of the series.

Included with this soil in mapping are areas of Blaney, Pelion, Fuquay, and Orangeburg soils. In areas where the soil is eroded, the surface layer is yellowish-red or brown sandy loam or sandy clay loam. In places the surface layer is sandy loam or sand, and in places the subsoil overlies gray and white beds of kaolin clay within a depth of 72 inches. Also included are areas where slope is more than 10 percent or less than 6 percent.

Runoff is rapid on this soil. The brittle subsoil horizon retards root penetration and the downward movement of water. Erosion is the main concern of management. This soil is mostly wooded. Capability unit IVe–4; woodland group 3o1.

Vaucluse loamy sand, 10 to 25 percent slopes (VaE).—This soil is generally on narrow side slopes that rim smooth upland plains and ridges and surround ravines

and stream heads. It is also on side slopes that include many ravines.

Included with this soil in mapping are areas of Lakeland, Troup, Lucy, and Blaney soils. Also included are areas of sandstone outcrop and areas where slope is less than 10 percent or more than 25 percent.

Runoff is rapid to very rapid on this soil. The hard, brittle B horizon restricts root growth and the downward movement of water. Capability unit VIe–1; woodland group 3o1.

Wahee Series

The Wahee series consists of nearly level to gently sloping, deep, and somewhat poorly drained soils. These soils formed in clayey marine sediment on stream terraces.

In a representative profile the surface layer is very dark grayish-brown sandy loam about 5 inches thick. The subsurface layer is pale-brown loamy sand about 6 inches thick. The subsoil is about 47 inches thick. The upper 11 inches is pale-brown sandy clay loam and clay; the next 8 inches is light brownish-gray clay that has light-gray and brownish-yellow mottles; and the 14 inches below it is light-gray clay that has brownish-yellow, yellowish-red, red, yellow, or strong-brown mottles. The lower 14 inches is light-gray sandy clay loam that has brownish-yellow and yellowish-brown mottles. The underlying material, to a depth of 75 inches, is light-gray sandy loam that has strong-brown mottles.

In these soils permeability is slow in the subsoil, and available water capacity is high.

Representative profile of Wahee sandy loam, 0 to 4 percent slopes, 4 miles southeast of Leesville, 0.75 mile east of Providence Church, and about 0.12 mile west of Lightwood Creek:

A1—0 to 5 inches, very dark grayish-brown (10YR 3/2) sandy loam; weak, fine, granular structure; very friable; many fine roots; many fine pores; strongly acid, pH 5.2; clear, smooth boundary.

A2—5 to 11 inches, pale-brown (10YR 6/3) loamy sand; weak, fine, granular structure; very friable; common fine roots; strongly acid, pH 5.3; clear, smooth boundary.

B1t—11 to 14 inches, pale-brown (10YR 6/3) sandy clay loam; weak, fine, subangular blocky structure; friable; common fine roots; discontinuous clay films on faces of some peds and in old root channels; very strongly acid, pH 4.9; clear, smooth boundary.

B21t—14 to 22 inches, pale-brown (10YR 6/3) clay; moderate, medium, subangular blocky structure; firm; common fine and few medium roots; prominent clay films on faces of most peds; very strongly acid, pH 4.8; clear, smooth boundary.

B22t—22 to 30 inches, light brownish-gray (10YR 6/2) clay; few, medium, distinct, brownish-yellow (10YR 6/6) and common, medium, distinct, light-gray (10YR 6/1) mottles; brownish-yellow and light-gray mottles inside peds, pale-brown faces of peds; strong, coarse, subangular blocky structure that parts to fine subangular blocky; firm; common fine roots along faces of peds; prominent clay films on faces of peds; very strongly acid, pH 4.7; gradual, wavy boundary.

B23t—30 to 35 inches, light-gray (10YR 7/2) clay; common, fine, distinct, brownish-yellow and few, fine, prominent, yellowish-red mottles; strong, coarse, subangular blocky and prismatic structure that parts to angular blocky; firm; few fine roots; continuous clay films on faces of peds; very strongly acid, pH 4.7; gradual, smooth boundary.

B24t—35 to 44 inches, light-gray (10YR 7/1) clay; common, coarse, prominent, red (2.5YR 5/8), brownish-yellow (10YR 6/6), yellow (10YR 7/6), and strong-brown (7.5YR 5/6) mottles; strong, coarse, subangular blocky and prismatic structure that parts to angular blocky; very firm; continuous clay films on faces of peds; very strongly acid, pH 4.7; clear, smooth boundary.

B3t—44 to 58 inches, light-gray (N 7/0) sandy clay loam; few, coarse, distinct, brownish-yellow (10YR 6/6) and yellowish-brown (10YR 5/6) mottles; moderate, coarse, subangular blocky structure; friable; many fine mica flakes; many coarse quartz sand grains; very strongly acid, pH 4.7; clear, smooth boundary.

C—58 to 75 inches, light-gray (N 7/0) sandy loam; common, medium, prominent strong-brown (7.5YR 5/6) mottles; massive; friable; very strongly acid, pH 5.0.

The solum ranges from 50 to 70 inches in thickness. Reaction is very strongly acid to strongly acid throughout the profile.

The Ap or A1 horizon is dark grayish brown, very dark grayish brown, or very dark gray and is 5 to 9 inches thick. An A2 horizon is present in places. It is light yellowish brown, pale brown, or light gray and is 3 to 6 inches thick.

The B2t horizon is clay, sandy clay, or clay loam and is 25 to 40 inches thick. In the upper part it is pale brown, or it is mottled with light yellowish brown, brownish yellow, brown, light gray, light brownish gray, and very pale brown. To a depth of 30 inches below the Ap horizon the gray mottles make up less than 60 percent of the mass. In the lower part of the B2t horizon, gray colors are dominant. A B1 horizon and a B3 horizon are present in places.

The C horizon is at a depth of more than 55 inches. It is light-gray or white sandy loam, sandy clay loam, or clay loam, and it has yellowish-brown, strong-brown, brownish-yellow, or yellow mottles.

Wahee soils are near or adjacent to Pelion, Blaney, Craven, Rains, Lynn Haven, Lumbee, and Johnston soils. They have grayer colors in the upper part of the B horizon than Craven and Pelion soils and are less well drained than Pelion, Craven, and Blaney soils. They have a thinner A horizon than Blaney soils. They are better drained than Rains, Lumbee, Lynn Haven, and Johnston soils.

Wahee sandy loam, 0 to 4 percent slopes (WaB).—This soil is on stream and marine terraces and on toe slopes. Included in mapping are areas of Pelion, Craven, Blaney, Rains, and Lumbee soils. Also included are small depressional areas where the water table is at a depth of less than 1 foot. These wet areas are shown on the map by appropriate wetness symbols. In places areas where the surface layer is loamy sand are also included.

Runoff is slow on this soil, and the soil cannot be tilled soon after rains. Drainage is the main concern of management. This soil is used for trees, pasture, hay, and cultivated crops. Corn and soybeans are the main crops. Capability unit IIIw–3; woodland group 2w8.

Use and Management of the Soils

The soils of Lexington County are used for farm crops, pasture, trees, and wildlife habitat. Their use

for such nonfarm purposes as building sites, industrial, and urban-related needs is rapidly increasing.

This section contains information about the use and management of the soils for all these purposes. The management of crops and pasture, of woodland, and of wildlife habitats is discussed by groups of soils. To determine the soils in each group, refer to the "Guide to Mapping Units" at the back of this survey.

Capability Grouping

Capability grouping shows, in a general way, the suitability of soils for most kinds of field crops. The soils are grouped according to their limitations when used for field crops, the risk of damage when they are used, and the way they respond to treatment. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils; does not take into consideration possible but unlikely major reclamation projects; and does not apply to rice, cranberries, horticultural crops, or other crops requiring special management.

Those familiar with the capability classification can infer from it much about the behavior of soils when used for other purposes, but this classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for range, for forest trees, or for engineering.

In the capability system, the kinds of soil are grouped at three levels: the capability class, the subclass, and the unit. These are discussed in the following paragraphs.

CAPABILITY CLASSES, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use, defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants, require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants, require very careful management, or both.

Class V soils are subject to little or no erosion but have other limitations, impractical to remove, that limit their use largely to pasture, range, woodland, or wildlife habitat.

Class VI soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture or range, woodland, or wildlife habitat.

Class VII soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to pasture or range, woodland, or wildlife habitat.

Class VIII soils and landforms have limitations that preclude their use for commercial plants and restrict their use to recreation, wildlife habitat, water supply, or to esthetic purposes. (No class VIII soils were mapped in Lexington County.)

CAPABILITY SUBCLASSES are soil groups within one class; they are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in some parts of the United States but not in Lexington County, shows that the chief limitation is climate that is too cold or too dry.

In class I there are no subclasses, because the soils of this class have few limitations. Class V can contain, at the most, only the subclasses indicated by *w*, *s*, and *c*, because the soils in class V are subject to little or no erosion, although they have other limitations that restrict their use largely to pasture, range, woodland, wildlife habitat, or recreation.

CAPABILITY UNITS are soil groups within the subclasses. The soils in one capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity and other responses to management. Thus, the capability unit is a convenient grouping for making many statements about management of soils. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, IIe–4 or IIIe–1. Thus, in one symbol, the Roman numeral designates the capability class, or degree of limitation; the small letter indicates the subclass, or kind of limitation, as defined in the foregoing paragraph; and the Arabic numeral specifically identifies the capability unit within each subclass.

In the following pages the capability units in Lexington County are described, and suggestions for the use and management of the soils are given.

Managing cropland and pasture by use of capability units[2]

In this section each capability unit is described, and some suggestions for use and management of the soils are given.

Among the crops commonly grown in Lexington County are corn (for grain), cotton, soybeans, wheat, and oats. Peaches and many kinds of vegetables are also grown. Common and Coastal bermudagrass are the most widely used pasture and hay crops. Bahiagrass and dallisgrass are grown to a lesser extent. Sericea lespedeza is the most important legume grown in the county, and tall fescue is an important grass in the Piedmont area.

All of the soils in this county are naturally low in plant nutrients and organic-matter content. Lime and fertilizer need to be used regularly, according to results of soil tests, for sustained good crop production.

[2] By CHARLES A. HOLDEN, coservation agronomist, Soil Conservation Service, Columbia S.C.

On such sandy soils as Alaga loamy sand, Troup sand, and Lakeland sand, where leaching is a problem, fertilizer use is more efficient when the fertilizer is applied more frequently but in smaller amounts. Such soils as the Wahee, Lumbee, Rains, and others require drainage for satisfactory crop production. Tile drains, drainage ditches, or combinations of the two are used to provide the necessary drainage.

The sloping soils in Lexington County are susceptible to erosion when cultivated. Water-management systems that include contour farming, terraces, waterways, and cover crops in varying combinations are employed to control erosion. Cropping systems in which crop residue is returned to the soil and others that include frequent sod crops are also used to control erosion and help maintain the organic-matter content.

Grasses grown in the county are highly productive and live long on the better soils if they are adequately fertilized and properly grazed. Brush and weeds invade pastures rapidly if the fertility is allowed to drop or if they are otherwise mismanaged.

CAPABILITY UNIT I–1

Orangeburg loamy sand, 0 to 2 percent slopes, is the only soil in this unit. It is nearly level, deep, and well drained. The surface layer is loamy sand, and the subsoil is typically sandy clay loam.

This soil has very few limitations to use for crops or grass, and it is above average for the county in its response to lime, fertilizers, and good management.

In places winds early in spring cause soil blowing where this soil is exposed, freshly plowed, and is loose and dry. Stripcropping, windbreaks, and use of perennial grasses in the cropping system are effective means of reducing the loss of soil and the damage to crops.

CAPABILITY UNIT IIe–1

This unit consists of gently sloping, deep or moderately deep, well-drained soils. The surface layer of these soils is sandy loam, fine sandy loam, very fine sandy loam, or silt loam. The subsoil is clay, clay loam, silty clay, or silty clay loam.

Maintaining crop residue on the surface, cultivating on the contour, terracing, and stripcropping help to control erosion in cultivated areas, and one or more of these practices is generally needed. Cover crops are desirable for controlling erosion in orchards.

CAPABILITY UNIT IIe–3

This unit consists of gently sloping, deep or moderately deep, well drained or moderately well drained soils. The surface layer of these soils is silt loam or sandy loam. The subsoil typically is plastic, slowly permeable clay.

The firm clay subsoil of the soils in this unit restrict root development. Controlling erosion and maintaining a favorable rooting zone are major concerns of management if these soils are used for crops. Erosion is controlled by cultivating on the contour, terracing, and providing grassed waterways. Returning large amounts of organic matter to the soil helps to maintain soil tilth.

CAPABILITY UNIT IIe–4

Pelion loamy sand, 2 to 6 percent slopes, is the only soil in this unit. It is gently sloping, deep, and moderately well drained. The surface layer is loamy sand. The upper part of the subsoil is sandy clay loam. It is underlain by a firm, brittle, hard, compact layer that is typically sandy clay.

The compact layer retards root development of crops and limits the available water capacity of the soil. It is also low in content of elements essential for plant growth.

Contour farming and leaving crop residue on the surface help to control erosion and maintain tilth. Large amounts of commercial fertilizers and trace elements are needed for good crop production.

CAPABILITY UNIT IIe–5

This unit consists of gently sloping, deep, well-drained soils. The surface layer of these soils is loamy sand, and the subsoil is typically sandy clay loam. The subsoil contains plinthite.

Root penetration and the downward movement of water are restricted by the plinthite layer.

Terracing, cultivating on the contour, stripcropping, and grassed waterways help to control erosion on these soils.

CAPABILITY UNIT IIe–6

This unit consists of gently sloping, deep, well-drained soils. The surface layer of these soils is loamy sand, and the subsoil is typically sandy clay loam. A small acreage of the soils in this unit is in narrow stream valleys where a deposit of sand, loamy sand, or sandy loam, 6 to 20 inches thick, overlies the original surface layer.

Controlling erosion and maintaining organic-matter content are the main concerns of management if these soils are used for crops. Terracing, cultivating on the contour, and stripcropping are needed to help control erosion. Crop residue left on the surface helps to control erosion and maintain the content of organic matter.

CAPABILITY UNIT IIw–2

Goldsboro sandy loam, 0 to 2 percent slopes, is the only soil in this unit. It is nearly level, deep, and moderately well drained. The surface layer is sandy loam, and the subsoil is sandy clay loam.

Drainage is needed for optimum crop production. Open ditches, tile drains, or a combination of the two can be used to drain this soil.

CAPABILITY UNIT IIw–5

Craven fine sandy loam, 0 to 2 percent slopes, is the only soil in this unit. It is nearly level, deep, and moderately well drained. The surface layer is fine sandy loam, and the subsoil is firm clay or sandy clay.

A seasonal high water table delays planting and tillage on this soil in winter and spring. Open ditches, tile drains, or a combination of the two are needed for

sustained good production of crops. Surface drainage is needed for maximum production of grass.

CAPABILITY UNIT IIw-6

Pelion loamy sand, 0 to 2 percent slopes, is the only soil in this unit. It is nearly level, deep, and moderately well drained. The surface layer is loamy sand. The upper part of the subsoil is sandy clay loam. It is underlain by a firm, brittle, hard, compact layer of sandy clay.

Water ponds on the surface or perches above the compact layer after heavy rains. This soil also is low in content of most elements essential for plant growth.

Drainage, large amounts of commercial fertilizers, and trace elements are needed for good crop production.

CAPABILITY UNIT IIw-7

This unit consists of nearly level, deep, well-drained soils on stream flood plains. The surface layer of these soils is fine sandy loam or silt loam. The underlying material is stratified layers of fine sandy loam, sandy loam, silt loam, and sandy clay loam.

These soils are subject to flooding one or more times a year, generally during winter and spring. Other than this, they have few limitations for use. Dikes to protect against flooding and surface drains to remove floodwater generally are needed if these soils are used for cultivated crops.

CAPABILITY UNIT IIs-2

Dothan loamy sand, 0 to 2 percent slopes, is the only soil in this unit. It is nearly level, deep, and well drained. The surface layer is loamy sand. The subsoil typically is sandy clay loam that contains plinthite.

The plinthite layer restricts water movement through the soil and during very wet periods a perched water table is present in some areas.

Maintaining content of organic matter, tilth, and fertility are the main concerns of management in cultivated areas. Peach trees occasionally die where a high water table is present.

CAPABILITY UNIT IIs-3

Brogdon loamy sand, 0 to 2 percent slopes, is the only soil in this unit. It is nearly level, deep, and well drained. The surface layer is loamy sand. The subsoil is sandy loam.

This soil is slightly droughty during dry periods. It is easily tilled and can be cultivated soon after rains. Crops are subject to damage by soil blowing during spring.

Windbreaks and stripcropping help to control soil blowing on these soils. Crop residue needs to be returned to the soil to help maintain the content of organic matter and increase the available water capacity.

CAPABILITY UNIT IIs-4

This unit consists of nearly level to gently sloping, deep, well-drained soils. The surface layer of these soils is loamy sand 20 to 40 inches thick. The subsoil typically is sandy clay loam that contains plinthite. One soil of limited acreage in this unit has a sandy clay loam subsoil that does not contain plinthite.

These soils are somewhat droughty. Bare, exposed areas are subject to soil blowing and subsequent crop damage during spring. Leaching of plant nutrients from the sandy surface layer is a major concern of management.

Vegetables grown in these soils need supplemental irrigation (fig. 11). Annual cover crops are needed to protect against soil blowing and water erosion and to help maintain the content of organic matter. Terracing and cultivating on the contour are needed in places.

CAPABILITY UNIT IIIe-1

This unit consists of deep or moderately deep, well-drained, sloping soils. The surface layer of these soils is sandy loam, fine sandy loam, very fine sandy loam, or silt loam. The subsoil is clay, clay loam, silty clay, or silty clay loam.

Maintaining crop residue on the surface, cultivating on the contour, terracing, and stripcropping are needed to control erosion if these soils are used for cultivated crops. Trees need to be planted on the contour, and cover crops are necessary if these soils are used for orchards.

CAPABILITY UNIT IIIe-3

This unit consists of deep, well drained to moderately well drained, sloping soils. The surface layer of these soils is silt loam or sandy loam. The subsoil is plastic, slowly permeable clay or sandy clay.

The firm subsoil of the soils in this unit restricts root development and limits available water capacity. Erosion is a hazard if these soils are tilled.

Cultivating on the contour, terracing, and use of field borders and grassed waterways help to control erosion. Returning large amounts of organic matter to the soil helps to maintain tilth.

CAPABILITY UNIT IIIe-4

Vaucluse loamy sand, 2 to 6 percent slopes, is the only soil in this unit. It is gently sloping, well drained, and has a shallow to moderately deep rooting zone. The surface layer is loamy sand. The subsoil is brittle sandy clay loam.

The inherent fertility of this soil is low. Root development and the downward movement of water are restricted by the impermeable subsoil.

If this soil is used for crops, terracing, cultivating on the contour, and returning crop residue to the surface are needed to control erosion.

CAPABILITY UNIT IIIe-7

Orangeburg loamy sand, 6 to 10 percent slopes, is the only soil in this unit. It is deep, well-drained, and sloping. The surface layer is loamy sand. The subsoil typically is sandy clay loam.

Because of the slopes, only a small acreage of this soil is cultivated. If this soil is used for row crops, terracing, cultivating on the contour, use of cover crops, and use of cropping systems that include frequent close-growing crops are needed.

Figure 11.—**Irrigating collards in an area of Fuquay loamy sand, 0 to 6 percent slopes, capability unit IIs–4.**

CAPABILITY UNIT IIIw–1

This unit consists of nearly level or depressional, deep, somewhat poorly drained soils on stream flood plains. The surface layer of these soils is silty clay loam, silt loam, or loam. The subsoil is silt loam or silty clay loam.

These soils flood frequently for brief periods, generally in winter or early in spring. Surface drainage is slow after rains, and in places areas of the surface are ponded for long periods. Drainage is needed to remove surface water and to lower the seasonal high water table for corn production and improved pasture management.

CAPABILITY UNIT IIIw–3

Wahee sandy loam, 0 to 4 percent slopes, is the only soil in this unit. It is nearly level to gently sloping, deep, and somewhat poorly drained. The surface layer is sandy loam. The subsoil typically is firm clay.

The slowly permeable subsoil impedes water movement and keeps the soil wet for long periods after rains. Natural fertility is low in this soil. Open ditches, tile drains, or a combination of the two are needed for higher crop production and improved pasture.

CAPABILITY UNIT IIIw–4

This unit consists of nearly level to depressional, deep, poorly drained to very poorly drained soils. The surface layer of these soils is sandy loam or loam. The subsoil typically is sandy clay loam.

A high water table at or near the surface restricts the use of these soils for cultivated crops. Drainage ditches are needed for satisfactory corn production and pasture management.

CAPABILITY UNIT IIIs–1

This unit consists of nearly level to gently sloping, deep, somewhat excessively drained to well-drained soils. The surface layer of these soils is sand or loamy sand. The underlying material is loamy sand or sand. One of the soils in this unit has a sandy loam or sandy clay subsoil at a depth of 40 to 72 inches.

Water moves rapidly through these soils. They are droughty, and plant nutrients leach rapidly.

The major concerns of management in cultivated areas are conserving moisture and providing adequate fertilization. Fertilizer is more effective on these soils if it is applied frequently and in small amounts.

CAPABILITY UNIT IIIs–2

Blaney sand, 2 to 10 percent slopes, is the only soil in this unit. It is gently sloping to sloping, deep, and well drained. The surface layer is sand and is 20 to 40 inches thick. The subsoil is firm, brittle sandy clay loam. This material retards root penetration and downward movement of water.

If this soil is used for crops, large amounts of fertilizer are needed. Terracing, cultivating on the contour, and frequent close-growing crops are needed to help control erosion and maintain tilth.

CAPABILITY UNIT IIIs–4

This unit consists of sloping, deep, well-drained soils. The surface layer of these soils is loamy sand and is 20 to 40 inches thick. The subsoil typically is sandy clay loam that contains plinthite. One soil of limited acreage in this capability unit has a sandy clay loam subsoil that does not contain plinthite.

These soils are somewhat droughty. Leaching of plant nutrients from the sandy surface layer is also a problem if cultivated crops are grown.

Terracing, annual cover crops, and cropping systems that include frequent close-growing crops are needed if these soils are used for cultivated crops.

CAPABILITY UNIT IVe–1

This unit consists of strongly sloping, deep or moderately deep, well-drained soils. The surface layer of these soils is sandy loam, fine sandy loam, or very fine sandy loam. The subsoil is clay, clay loam, or silty clay.

Erosion is a severe hazard where these soils are cleared and are used for cultivated crops. Narrow slopes that are crossed by ravines make tillage and cultivation on the contour very difficult.

The soils in this capability unit can be more easily managed if they have a permanent ground cover. A cover of trees requires the least management for erosion control. If these soils are used for hay or pasture, intensive erosion control is needed to establish and maintain legumes and grasses.

CAPABILITY UNIT IVe–4

This unit consists of sloping, deep, moderately well drained to well drained soils. The surface layer of these soils is loamy sand. The subsoil typically is hard, firm, brittle sandy clay loam. It contains a fragipan.

Permeability is slow in the subsoil of these soils, and the material in the subsoil retards root penetration. The hazard of erosion is severe where permanent ground cover is removed. Annual crops suffer from a lack of available water during the growing season.

Erosion control is most easily accomplished in wooded areas. Where grasses or perennial legumes are desired, strong erosion control measures that include diversions, contouring, and heavy fertilizing are needed to establish and maintain a permanent plant cover.

CAPABILITY UNIT IVw–4

Lynn Haven loamy sand is the only soil in this unit. It is nearly level or depressional and is deep and very poorly drained. The surface layer is loamy sand, and the subsoil is sand.

This soil has a high water table, and the soil material is saturated for long periods. Trees grow slowly on this soil and appear somewhat stunted.

CAPABILITY UNIT IVs–1

Lakeland soils, undulating, are the only soils in this unit. These soils are nearly level to gently sloping, deep, and excessively drained. Sand extends to a depth of 80 inches or more.

These soils are very droughty and are subject to excessive leaching. In many areas turkey oak and blackjack oak are being cleared out, and pine trees are being planted (fig. 12). Many old fields have also been planted to pine trees.

If grazing is carefully managed and the soil is properly fertilized, coastal bermudagrass can be grown.

CAPABILITY UNIT Vw–1

Only soils of the mapping unit Enoree soils are in this unit. These soils are nearly level or depressional and poorly drained. They are on flood plains. The surface layer is silt loam or loam. The underlying material is sandy loam, loam, silt loam, or strata that contain these materials.

These soils have a high water table and flood frequently. Drainage is not practical because outlets are inadequate.

CAPABILITY UNIT VIe–1

This unit consists of strongly sloping to moderately steep, moderately deep to deep, well-drained soils. The surface layer of these soils is sand or loamy sand 6 to 40 inches thick. The subsoil typically is firm, hard, brittle sandy clay loam.

These soils are better suited to the production of timber than to most other uses.

CAPABILITY UNIT VIe–6

Tatum silt loam, 15 to 25 percent slopes, is the only soil in this unit. It is moderately steep, moderately deep, and well drained. The surface layer is silt loam. The subsoil is silty clay or silty clay loam.

Steepness of slope and erosion are major concerns of management.

CAPABILITY UNIT VIs–1

Lakeland sand, 6 to 15 percent slopes, is the only soil in this unit. It is sloping to strongly sloping, deep, and excessively drained. Sand extends to a depth of 80 inches or more.

Slope and droughtiness are major concerns of management.

CAPABILITY UNIT VIIw–1

Only soils of the mapping unit Johnston soils are in this unit. They are flat to depressional, deep, and very poorly drained. These soils are on flood plains and in depressions on uplands, and they are subject to frequent flooding. The surface layer typically is thick mucky loam, and the underlying material typically is sandy loam.

This soil is better suited to the production of hardwoods than to most other uses.

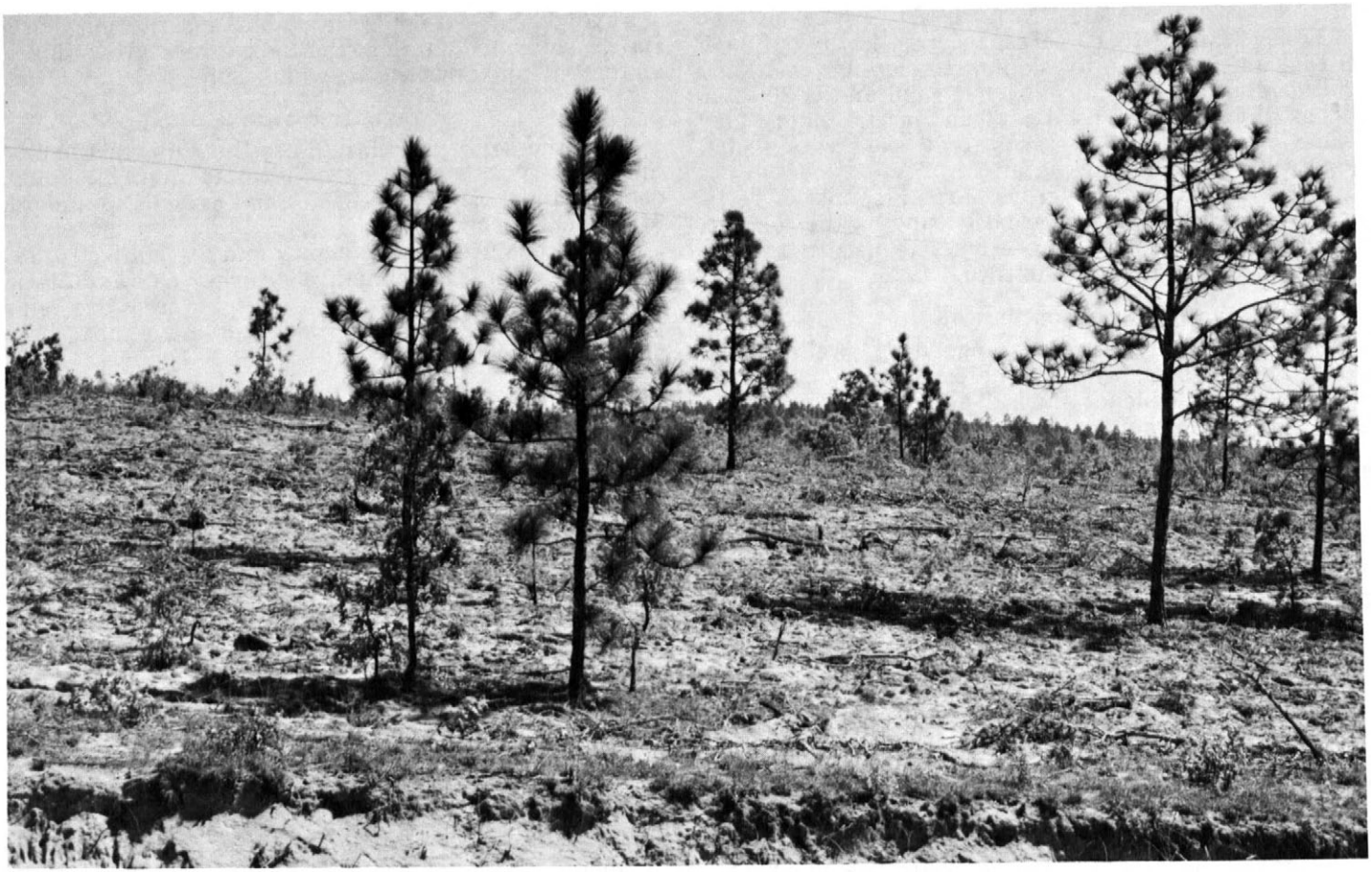

Figure 12.—An area of Lakeland soils, undulating, capability unit IVs–1. Turkey oaks have been destroyed by disking in preparation for pine planting in the area.

CAPABILITY UNIT VIIs–1

Kershaw sand, 0 to 10 percent slopes, is the only soil in this unit. It is nearly level to sloping, deep, and excessively drained. Texture throughout the profile is sand.

Lack of moisture is the main concern of management in the use of this soil.

CAPABILITY UNIT VIIs–4

Pickens slaty silt loam, 6 to 15 percent slopes, is the only soil in this unit. It is sloping to strongly sloping, shallow, and somewhat excessively drained. The surface layer is slaty silt loam. The subsoil is slaty silt loam or slaty silty clay loam. Rock is at a depth of 10 to 18 inches.

This soil is too steep and too shallow for cultivated crops, pasture, or hay.

Estimated Yields and Suitability of the Soils for Crops

The estimated average acre yields of the principal crops grown under a high level of management in the soils of Lexington County are given in table 2. These yields are higher than average. They are based largely on observations made by members of the soil survey party, on information given by farmers, and on information given by agricultural workers who are familiar with the county. Comparisons were also made with crop yields obtained from similar soils in other counties in South Carolina. The practices used in high-level management vary according to the characteristics of soils. The following practices are necessary for high yields in the county: proper choice and sequence of crops; correct use of commercial fertilizers, lime, and manure; correct methods of tillage; return of organic matter to the soils; adequate control of water; maintenance or improvement of soil tilth; and conservation of soil material, plant nutrients, and soil moisture. The soils of Lexington County are responsive to good management and fertilization. If management is improved, higher yields can be obtained from nearly all soils in the county.

In table 2 the suitability of the soils is rated for selected crops. A rating of 1 indicates the soil is well suited for the stated crop. Hazards are few, intensive management is not needed, and favorable yields are likely. A rating of 2 indicates that the soil is fairly well suited. Use of the soil is limited by excessive moisture, too little moisture, low fertility, or some other limitation. A rating of 3 indicates that the soil is not well suited. Favorable yields are not likely

TABLE 2.—*Estimated average yields per acre under a high level of management and suitability of soils for selected crops*

[Absence of yield indicates crop is generally not grown in that soil. Suitability ratings: 1 = well suited, 2 = fairly well suited, 3 = not well suited, and 4 = poorly suited. Wet soils (subclass w) are considered as being drained]

Soil type	Cotton lint		Corn		Soybeans		Peaches		Coastal bermudagrass	
	Yield	Suitability rating	Yield	Suitability rating	Yield	Suitability rating	Yield	Suitability rating	Yield	Suitability rating
	Lb		*Bu*		*Bu*		*Bu*		*AUM*[1]	
Alaga loamy sand, 0 to 4 percent slopes	450	2	60	3	25	2	200	3	8.0	1
Alamance very fine sandy loam, 2 to 6 percent slopes	600	1	70	2	30	2		2	6.0	2
Appling sandy loam, 2 to 6 percent slopes	650	1	80	1	30	2	300	1	9.5	1
Appling sandy loam, 6 to 10 percent slopes	550	2	70	2	25	2	250	2	7.0	2
Appling sandy loam, 10 to 15 percent slopes		4		3		3		4	6.0	2
Blaney sand, 2 to 10 percent slopes	450	3	55	2	30	2		4	8.0	1
Blaney-Vaucluse complex, 10 to 25 percent slopes		4		4		4		4	5.0	3
Brogdon loamy sand, 0 to 2 percent slopes	650	2	70	1	30	2		3	10.0	1
Cecil fine sandy loam, 2 to 6 percent slopes	700	1	85	1	30	2	350	1	9.5	1
Cecil fine sandy loam, 6 to 10 percent slopes	650	1	80	1	25	2	275	2	9.0	1
Cecil fine sandy loam, 10 to 15 percent slopes		4		4		4		3	7.5	2
Cecil-Urban land complex, 0 to 8 percent slopes		4		4		4		4		4
Cecil-Urban land complex, 8 to 15 percent slopes		4		4		4		4		4
Chenneby silty clay loam		4	90	1	35	2		4	7.0	2
Chenneby soils		4	80	1	30	2		4	7.0	2
Congaree silt loam		3	100	1	40	1		4	11.0	1
Cowarts loamy sand, 2 to 6 percent slopes	650	1	75	1	40	1		3	8.0	1
Craven fine sandy loam, 0 to 2 percent slopes		4	90	1	35	2		4	7.0	2
Dothan loamy sand, 0 to 2 percent slopes	800	1	80	1	40	1	300	1	10.0	1
Dothan loamy sand, 2 to 6 percent slopes	700	1	75	1	40	1	300	1	10.0	1
Dothan-Urban land complex, 0 to 6 percent slopes		4		4		4		4		4
Enon silt loam, 2 to 6 percent slopes		3	70	2	25	2		4		4
Enoree soils		4		4		4		4		4
Fuquay loamy sand, 0 to 6 percent slopes	550	2	80	1	30	2	250	2	9.0	1
Fuquay loamy sand, 6 to 10 percent slopes	500	2	70	2	25	2	250	2	8.0	1
Georgeville very fine sandy loam, 2 to 6 percent slopes	600	1	80	1	40	1	300	1	9.0	1
Georgeville very fine sandy loam, 6 to 10 percent slopes	500	2	70	2	25	2	275	2	8.0	1
Georgeville very fine sandy loam, 10 to 15 percent slopes		4		4		4		4	6.0	2
Goldsboro sandy loam, 0 to 2 percent slopes		3	110	1	40	1		4	10.0	1
Helena sandy loam, 2 to 6 percent slopes	500	2	75	1	25	2		4	9.0	1
Helena sandy loam, 6 to 10 percent slopes	450	3	65	2	25	2		4	8.0	1
Herndon silt loam, 2 to 6 percent slopes	600	1	80	1	30	2	250	2	9.0	1
Johnston soils		4		4		4		4		4
Kershaw sand, 0 to 10 percent slopes		4		4		4		4		4
Lakeland soils, undulating		4	45	3	20	3	150	3	6.5	2
Lakeland sand, 6 to 15 percent slopes		4		4		4		4	6.0	2
Lignum silt loam, 2 to 6 percent slopes		3	75	1	25	2		4	9.0	1
Lucy loamy sand, 0 to 6 percent slopes	650	1	70	2	35	2	250	2	10.0	1
Lucy loamy sand, 6 to 10 percent slopes	600	1	60	2	30	2	250	2	10.0	1
Lumbee sandy loam		4	100	1	40	1		4		4
Lynn Haven loamy sand		4		4		4		4		4
Mecklenburg silt loam, 6 to 10 percent slopes		3	65	2	30	2		4		4
Nason silt loam, 2 to 6 percent slopes	550	2	65	2	30	2		3	7.0	2
Nason silt loam, 6 to 15 percent slopes		3		3		3		3	7.0	2
Orangeburg loamy sand, 0 to 2 percent slopes	750	1	90	1	40	1	300	1	10.5	1
Orangeburg loamy sand, 2 to 6 percent slopes	750	1	85	1	40	1	300	1	10.5	1
Orangeburg loamy sand, 6 to 10 percent slopes	650	1	75	1	30	2	250	2	10.0	1
Orangeburg loamy sand, overwash, 0 to 4 percent slopes		2	75	1	35	2		4	10.0	4
Paleaquults, sandy		4	90	1	35	2		4		1
Pelion loamy sand, 0 to 2 percent slopes	500	2	55	2	25	2		4	7.0	2
Pelion loamy sand, 2 to 6 percent slopes	450	3	50	2	20	3		4	7.0	2
Pelion loamy sand, 6 to 10 percent slopes		4	40	3	15	3		4	7.0	2
Rains sandy loam		4	85	1	30	2		4		4

TABLE 2.—*Estimated average yields per acre under a high level of management and suitability of soils for selected crops*—Continued

Soil type	Cotton lint		Corn		Soybeans		Peaches		Coastal bermudagrass	
	Yield	Suitability rating	Yield	Suitability rating	Yield	Suitability rating	Yield	Suitability rating	Yield	Suitability rating
	Lb		*Bu*		*Bu*		*Bu*		*AUM*[1]	
Tatum silt loam, 15 to 25 percent slopes		4		4		4		4		4
Toccoa fine sandy loam		3	90	1	40	1		4	7.0	2
Troup sand, 0 to 6 percent slopes	500	2	60	2	25	2	200	3	8.0	1
Troup-Urban land complex, 0 to 6 percent slopes		4		4		4		4		4
Vaucluse loamy sand, 2 to 6 percent slopes	500	2	60	2	25	2		3	8.0	1
Vaucluse loamy sand, 6 to 10 percent slopes	400	3	50	2	20	3		4	7.0	2
Vaucluse loamy sand, 10 to 25 percent slopes		4		4		4		4	5.0	3
Wahee sandy loam, 0 to 4 percent slopes		4	70	2	30	2		4	7.0	2

[1] AUM is an abbreviation for animal-unit-months. It is a measure of forage or feed requirement to maintain one animal unit for a period of 30 days.

unless intensive management is practiced. A rating of 4 indicates that the soil is poorly suited to the stated crop and that growing the crop on that soil is not practical.

Use of the Soils as Woodland [3]

This section has been provided to explain how soils affect tree growth and management in the county.

Originally Lexington County was mainly wooded. Trees now cover about 64 percent of the county. Good stands of commercial trees are produced in the woodland. Needleleaf species are more prevalent on the hills, and broadleaf species generally are dominant on the bottoms along the rivers and creeks.

The potential value of the wood products in the county is higher than actual value, but the actual value is substantial. In addition to wood products, woodland in the county is useful for grazing, wildlife habitat, recreation and appreciation of natural beauty, and conservation of soil and water.

Potential productivity and trees suitable for planting in the soils of Lexington County are listed in table 3. The first column gives the woodland group and a brief description of that group. Each group is made up of soils that are suited to the same kinds of trees, that need about the same kind of management to produce these trees, and that have about the same potential productivity.

Each woodland group is identified by a three-part symbol. The first part of the symbol indicates the relative productivity of the soils. The Arabic number 1 is very high, 2 is high, 3 is moderately high, 4 is moderate, and 5 is low. The second part of the symbol, a lettel, indicates the important soil property that imposes a moderate or severe hazard or limitation in managing the soils for wood crops. The letter *w* shows that excessive water in or on the soil is the chief limitation, and the letter *d* shows that the rooting depth is restricted. The letter *s* shows the soils are sandy, and *r* shows the soils have steep slopes. The letter *o* shows the soils have no significant restrictions or limitations for woodland use or management. The third element in the symbol indicates the degree of management problems and the general suitability of the soils for certain kinds of trees.

In the second column the soils are listed by their mapping-unit symbols under the series name to which they belong. If a mapping unit contains the names of two series, as in a complex or an association, the component soils are listed and evaluated separately under each series name.

In the third and fourth columns the potential productivity of some of the commercially important trees adapted to the soil are listed. These are the trees woodland managers generally favor in intermediate or improved cuttings. Potential productivity is given in terms of site index. The site index is the average height of dominant trees, in feet to the nearest 10 feet, at age 30 for cottonwood; at age 35 for sycamore; and at age 50 for all other species or types.

In the fifth column is a list of trees suitable to plant for commercial wood production.

The management problems of equipment limitations, seedling morality, and erosion hazard are evaluated in the brief description of the woodland groups given in column 1 of table 3.

Equipment limitation ratings in this column reflect the soil conditions that restrict the use of equipment normally used in woodland management or harvesting. *Slight* ratings indicate equipment use is not limited to kind or time of year. A rating of *moderate* indicates a seasonal limitation or a need for modification in

[3] By GEORGE E. SMITH, JR., woodland conservationist, Soil Conservation Service, Columbia, South Carolina.

TABLE 3.—*Potential productivity of soils in woodland groups and trees suitable for planting*

Woodland group and description	Soil series and symbols	Potential productivity [1]		Trees suitable for planting [2]
		Tree	Site index	
Group 1o7: Well-drained soils that have very high potential productivity; no serious management concerns; suitable for broadleaf and needleleaf trees.	Congaree: Co Toccoa: To	Black cherry Black walnut Cottonwood Green ash Loblolly pine Shortleaf pine Sugarberry Sweetgum Sycamore Water oak Yellow-poplar	90 100 110 90 90 80 80 100 90 90 110	Black walnut. Cherrybark oak. Cottonwood. Slash pine. Sweetgum. Sycamore. Yellow-poplar.
Group 1w8: Seasonally wet soils that have very high potential productivity; moderate limitations for equipment and slight to moderate limitations because of seedling mortality; suitable for broadleaf and needleleaf trees.	Chenneby: Ch, Ck	Blackgum Cottonwood Green ash Loblolly pine Red oak Sugarberry Sweetgum Sycamore Water oak Yellow-poplar	80 100 100 100 90 80 100 90 90 100	Cherrybark oak. Cottonwood. Loblolly pine. Slash pine. Sweetgum. Sycamore. Yellow-poplar.
Group 1w9: Excessively wet soils that have very high potential productivity; severe limitations for equipment and moderate to severe limitations because of seedling mortality; suitable for broadleaf and needleleaf trees.	Johnston: JO Paleaquults: Pa	Cottonwood Green ash Loblolly pine Red maple Sweetgum Sycamore Water oak White ash Yellow-poplar	90 100 100 90 90 90 90 90 100	Cherrybark oak. Cottonwood. Green ash. Loblolly pine. Slash pine. Sweetgum. Sycamore. Yellow-poplar.
Group 2o1: Well-drained soils that have a high potential productivity; no serious management concerns; better suited to needleleaf trees than to broadleaf.	Brogdon: BrA Cowarts: CsB Dothan: DoA, DoB Dothan: DwB (Dothan part) Orangeburg: OrA, OrB, OrC, OwB	Loblolly pine Longleaf pine Slash pine	90 70 90	Loblolly pine. Slash pine.
Group 2w3: Excessively wet soils that have high potential productivity; severe limitations for equipment and seedling mortality without adequate surface drainage; better suited to needleleaf trees than to broadleaf.	Rains: Ra	Loblolly pine Longleaf pine Slash pine	90 70 90	Loblolly pine. Slash pine.
Group 2w8: Seasonally wet soils that have high potential productivity; moderate limitations for equipment and slight to moderate limitations because of seedling mortality; suitable for needleleaf trees and broadleaf trees.	Goldsboro: GoA Wahee: WaB	Blackgum Loblolly pine Red oak Slash pine Sweetgum Water oak White oak Yellow-poplar	--- 90 --- 90 90 90 --- 100	Loblolly pine. Slash pine. Sweetgum. Sycamore. Yellow-poplar.
Group 2w9: Excessively wet soils that have high potential productivity; severe limitations for equipment and moderate to severe limitations because of seedling mortality; suitable for water-tolerant broadleaf and needleleaf trees.	Enoree: Eo Lumbee: Lw	Green ash Loblolly pine Red maple Sweetgum Water oak	--- 90 --- 90 90	Green ash. Loblolly pine. Slash pine. Sweetgum. Sycamore.
Group 3o1: Well-drained soils that have moderately high productivity; no serious management concerns; better suited to needleleaf trees than to broadleaf trees.	Vaucluse: VaB, VaC, VaE	Loblolly pine Longleaf pine Slash pine	80 60–70 80	Loblolly pine. Slash pine.

TABLE 3.—*Potential productivity of soils in woodland groups and trees suitable for planting*—Continued

Woodland group and description	Soil series and symbols	Potential productivity [1]		Trees suitable for planting [2]
		Tree	Site index	
Group 3o7: Well-drained soils that have moderately high productivity; no serious management concerns; suitable for broadleaf and needleleaf trees.	Alamance: AmB Appling: ApB, ApC, ApD Cecil: CeB, CeC, CeD Cecil: CfC, CfD (Cecil part) Georgeville: GeB, GeC, GeD Herndon: HrB Nason: NaB, NaD	Loblolly pine Red oak Shortleaf pine Virginia pine White oak Yellow-poplar	80 70–80 70 70+ 70–80 90	Loblolly pine. Slash pine. Virginia pine. Yellow-poplar.
Group 3w2: Seasonally wet soils that have moderately high potential productivity; moderate limitations for equipment and slight to moderate limitations because of seedling mortality; better suited to needleleaf trees than to broadleaf.	Craven: CvA Pelion: PeA, PeB, PeC	Loblolly pine Longleaf pine Slash pine	80 70 80	Loblolly pine. Slash pine.
Group 3s2: Sandy soils that have moderately high productivity; moderate limitations for equipment and moderate limitations because of seedling mortality; better suited to needleleaf trees than to broadleaf.	Alaga: AgB Fuquay: FaB, FaC Lucy: LuB, LuC Troup: TrB Troup: TuB (Troup part)	Loblolly pine Longleaf pine Slash pine	80 60–70 80	Longleaf pine. Slash pine.
Group 3w8: Seasonally wet soils that have moderately high productivity; moderate limitations for equipment and slight to moderate limitations because of seedling mortality; suitable for broadleaf and needleleaf trees.	Helena: HeB, HeC Lignum: LnB	Loblolly pine Red oak Shortleaf pine Sweetgum White oak Yellow-poplar	80 70 70 80 70 90	Loblolly pine. Slash pine. Sweetgum. Sycamore. Yellow-poplar.
Group 4o1: Well-drained soils that have moderate productivity and no serious management concerns; better suited to needleleaf trees than to broadleaf.	Enon: EnB Mecklenburg: MeC	Loblolly pine Red oak Shortleaf pine Virginia pine White oak Yellow-poplar	70 70 60 60 70 80	Eastern redcedar. Loblolly pine. Slash pine. Virginia pine.
Group 4s2: Sandy soils that have moderate productivity; moderate limitations for equipment and moderate limitations because of seedling mortality; better suited to needleleaf trees than to broadleaf.	Blaney: BnC Blaney: BoE (Blaney part) Lakeland: LAB, LkD	Loblolly pine Longleaf pine Slash pine	70 60 70	Longleaf pine. Sand pine. Slash pine.
Group 4r2: Well-drained soils that have moderate productivity on moderately steep to steep slopes; moderate erosion hazard and limitations for equipment; better suited to needleleaf trees than to broadleaf.	Tatum: TaE Vaucluse: BoE (Vaucluse part)	Loblolly pine Red oak Shortleaf pine Virginia pine White oak	70 70 60 60 70	Eastern redcedar. Loblolly pine. Slash pine. Virginia pine.
Group 4w3: Excessively wet soils that have moderate productivity; severe limitations for equipment and severe limitations because of seedling mortality; suitable for needleleaf trees.	Lynn Haven: Ly	Loblolly pine Magnolia Slash pine Tupelos	70 --- 70 ---	Loblolly pine. Slash pine.
Group 5s3: Sandy soils that have low productivity; moderate limitations for equipment and severe limitations because of seedling mortality; better suited to needleleaf trees than to broadleaf.	Kershaw: KeC	Longleaf pine Slash pine	50 60	Longleaf pine. Sand pine. Slash pine.
Group 5d3: Shallow soils that have low productivity; severe limitations for equipment and severe limitations because of seedling mortality; better suited to needleleaf trees than to broadleaf.	Pickens: PkD	Loblolly pine Shortleaf pine Slash pine	60 50 60	Eastern redcedar. Loblolly pine. Longleaf pine. Slash pine. Virginia pine.

[1] Potential productivity of wet soils is applicable only where adequate surface drainage exists.
[2] Tree planting in wet soils is feasible only where adequate surface drainage is applied.

methods or equipment. A rating of *severe* indicates the need for specialized equipment or operations.

Seedling mortality ratings indicate the degree of expected mortality of planted seedlings when plant competition is not a limiting factor. Normal rainfall, good planting stock, and proper plantings are assumed. A *slight* rating indicates expected mortality is less than 25 percent. A *moderate* rating indicates a 25 to 50 percent loss, and a *severe* rating indicates a loss of more than 50 percent of the seedlings.

Erosion hazard measures the risk of soil losses in well-managed woodland. Erosion hazard is *slight* if expected soil loss is small, *moderate* if some measure to control erosion are needed in logging and construction, and *severe* if intensive treatment or special equipment and methods are needed to prevent excessive soil losses.

Woodland yields

Data on growth and yields of unmanaged stands are not a true measure of potential productivity of stands that are managed, but such information permits a comparison of productivity between sites or between species on the same site. Also, by comparing potential yields of wood crops and potential yields of other crops on a site, one can decide the use of the soil that best meets the objectives.

Average yearly growth per acre at age 50 for natural, unmanaged, well-stocked stands of southern pines are shown by site index in figure 13.

Average yearly growth per acre to age 60 for managed, well-stocked, even-aged stands of southern hardwoods are shown by site index in figure 14.

Merchantable volumes for loblolly pine plantations by site indexes at age 25 are shown in figure 15.

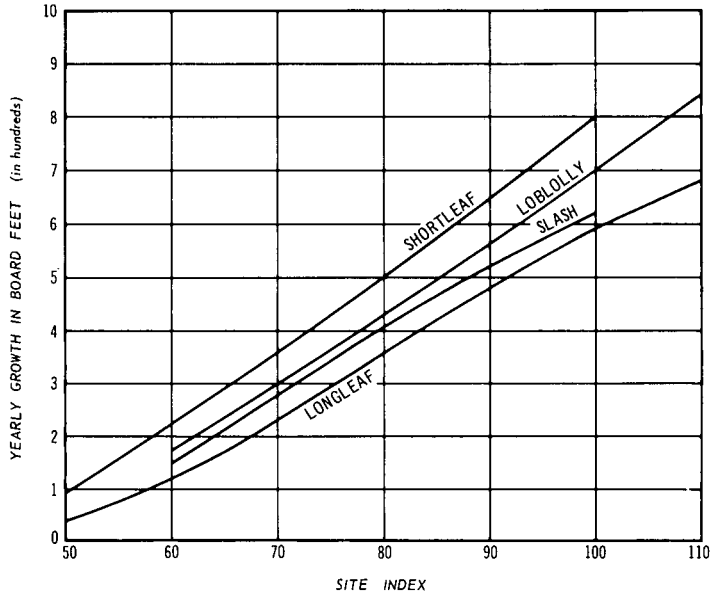

Figure 13.*—Average yearly growth per acre at age 50 for natural, unmanaged, well-stocked stands of southern pines *(8).

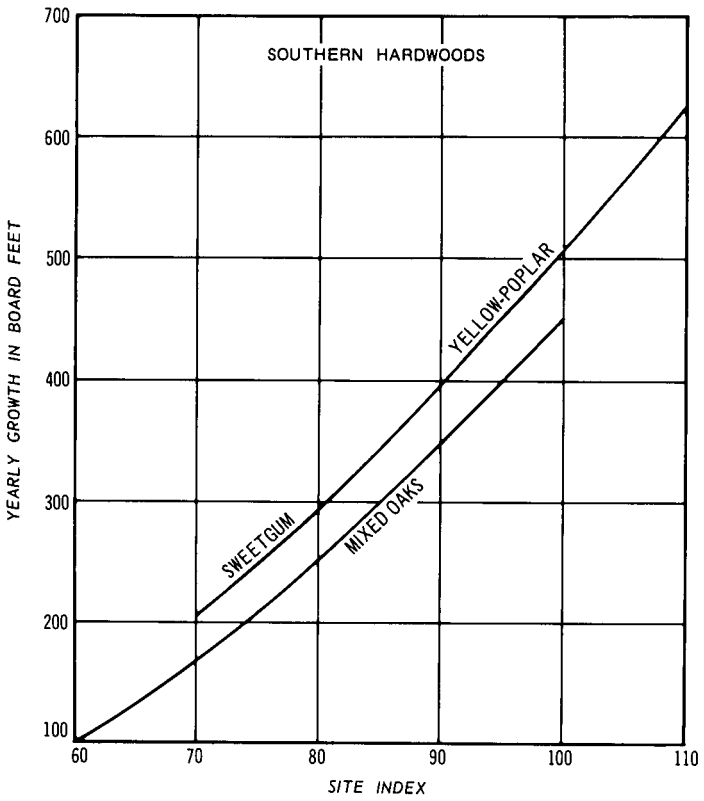

***Figure 14.*—Average yearly growth per acre to age 60 for managed, well-stocked, even-aged stands of southern hardwoods (*6*).**

Use of the Soils for Wildlife Habitat [4]

Soils directly influence kinds and amounts of vegetation and amounts of water available, and in this way they indirectly influence the kinds of wildlife that can live in an area. Soil properties that affect the growth of wildlife habitat are thickness of soil useful to crops, surface texture, available water capacity to a depth of 40 inches, wetness, surface stoniness or rockiness, flood hazard, slope, and permeability of the soil to air and water.

In table 4 soils of the county are rated for suitability to provide seven elements of wildlife habitat and for suitability to support three groups, or kinds, of wildlife. The meaning of the ratings in table 4 is given in the following paragraphs.

A rating of *good* means the habitat generally is easily created, improve, and maintained. Few or no limitations affect management in this category, and satisfactory results are expected when the soil is used for the prescribed purpose.

A rating of *fair* means the habitat can be created, improved, or maintained in most places, but moderate intensity of management and fairly frequent attention may be required for satisfactory results.

A rating of *poor* means the limitations for the designated use are rather severe. Habitats can be created,

[4] By WILLIAM W. NEELY, biologist, Soil Conservation Service, Columbia, South Carolina.

TABLE 4.—*Suitability of soils for elements*

Soils	Elements of wildlife habitat [1]			
	Grain and seed crops	Grasses and legumes	Wild herbaceous upland plants	Hardwood trees and shrubs
Alaga loamy sand, 0 to 4 percent slopes	Fair	Fair	Fair	Fair
Alamance very fine sandy loam, 2 to 6 percent slopes.	Good	Good	Good	Good
Appling sandy loam, 2 to 6 percent slopes	Good	Good	Good	Good
Appling sandy loam, 6 to 10 percent slopes	Fair	Fair	Fair	Good
Appling sandy loam, 10 to 15 percent slopes	Poor	Fair	Fair	Fair
Blaney sand, 2 to 10 percent slopes	Fair	Fair	Fair	Fair
Blaney-Vaucluse complex, 10 to 25 percent slopes.	Very poor	Very poor	Poor	Poor
Brogdon loamy sand, 0 to 2 percent slopes	Fair	Fair	Fair	Fair
Cecil fine sandy loam, 2 to 6 percent slopes	Good	Good	Good	Good
Cecil fine sandy loam, 6 to 10 percent slopes	Fair	Fair	Fair	Good
Cecil fine sandy loam, 10 to 15 percent slopes	Poor	Fair	Fair	Fair
Cecil-Urban land complex, 0 to 8 percent slopes	[2]	[2]	[2]	[2]
Cecil-Urban land complex, 8 to 15 percent slopes.	[2]	[2]	[2]	[2]
Chenneby silty clay loam	Poor	Poor	Poor	Fair
Chenneby soils	Poor	Poor	Poor	Fair
Congaree silt loam	Good	Good	Good	Good
Cowarts loamy sand, 2 to 6 percent slopes	Good	Good	Good	Good
Craven fine sandy loam, 0 to 2 percent slopes	Fair	Fair	Fair	Good
Dothan loamy sand, 0 to 2 percent slopes	Good	Good	Good	Good
Dothan loamy sand, 2 to 6 percent slopes	Good	Good	Good	Good
Dothan-Urban land complex, 0 to 6 percent slopes.	[2]	[2]	[2]	[2]
Enon silt loam, 2 to 6 percent slopes	Fair	Fair	Fair	Fair
Enoree soils	Very poor	Very poor	Poor	Fair
Fuquay loamy sand, 0 to 6 percent slopes	Fair	Fair	Fair	Fair
Fuquay loamy sand, 6 to 10 percent slopes	Poor	Fair	Fair	Fair
Georgeville very fine sandy loam, 2 to 6 percent slopes.	Good	Good	Good	Good
Georgeville very fine sandy loam, 6 to 10 percent slopes.	Fair	Fair	Fair	Good
Georgeville very fine sandy loam, 10 to 15 percent slopes.	Poor	Poor	Fair	Fair
Goldsboro sandy loam, 0 to 2 percent slopes	Good	Good	Good	Good
Helena sandy loam, 2 to 6 percent slopes	Fair	Good	Good	Good
Helena sandy loam, 6 to 10 percent slopes	Poor	Fair	Fair	Fair
Herndon silt loam, 2 to 6 percent slopes	Good	Good	Good	Good
Johnston soils	Very poor	Very poor	Very poor	Fair
Kershaw sand, 0 to 10 percent slopes	Very poor	Very poor	Very poor	Poor
Lakeland soils, undulating	Very poor	Very poor	Poor	Poor
Lakeland sand, 6 to 15 percent slopes	Very poor	Very poor	Very poor	Poor
Lignum silt loam, 2 to 6 percent slopes	Poor	Poor	Fair	Fair
Lucy loamy sand, 0 to 6 percent slopes	Fair	Fair	Fair	Fair
Lucy loamy sand, 6 to 10 percent slopes	Poor	Poor	Poor	Fair
Lumbee sandy loam	Poor	Poor	Poor	Fair
Lynn Haven loamy sand	Very poor	Very poor	Poor	Poor
Mecklenburg silt loam, 6 to 10 percent slopes	Fair	Fair	Fair	Fair
Nason silt loam, 2 to 6 percent slopes	Fair	Fair	Fair	Fair
Nason silt loam, 6 to 15 percent slopes	Poor	Fair	Fair	Fair
Orangeburg loamy sand, 0 to 2 percent slopes	Good	Good	Good	Good
Orangeburg loamy sand, 2 to 6 percent slopes	Good	Good	Good	Good
Orangeburg loamy sand, 6 to 10 percent slopes	Fair	Fair	Fair	Good
Orangeburg loamy sand, overwash, 0 to 4 percent slopes.	Fair	Fair	Fair	Fair
Paleaquults, sandy	Poor	Poor	Poor	Fair
Pelion loamy sand, 0 to 2 percent slopes	Fair	Fair	Fair	Fair
Pelion loamy sand, 2 to 6 percent slopes	Fair	Fair	Fair	Fair
Pelion loamy sand, 6 to 10 percent slopes	Poor	Poor	Poor	Fair
Pickens slaty silt loam, 6 to 15 percent slopes	Very poor	Very poor	Very poor	Poor
Rains sandy loam	Very poor	Poor	Fair	Fair
Tatum silt loam, 15 to 25 percent slopes	Very poor	Very poor	Very poor	Fair
Toccoa fine sandy loam	Good	Good	Good	Good
Troup sand, 0 to 6 percent slopes	Poor	Poor	Poor	Fair
Troup-Urban land complex, 0 to 6 percent slopes.	[2]	[2]	[2]	[2]
Vaucluse loamy sand, 2 to 6 percent slopes	Poor	Poor	Poor	Poor
Vaucluse loamy sand, 6 to 10 percent slopes	Very poor	Very poor	Poor	Poor
Vaucluse loamy sand, 10 to 25 percent slopes	Very poor	Very poor	Very poor	Poor
Wahee sandy loam, 0 to 4 percent slopes	Poor	Poor	Poor	Good

[1] Ratings for elements of wildlife habitat are for soils in their unimproved, natural state.

of wildlife habitat and kinds of wildlife

Elements of wildlife habitat [1]—Continued			Kinds of wildlife		
Coniferous woody plants	Wetland food and cover plants	Shallow-water developments	Openland	Woodland	Wetland
Fair	Very poor	Very poor	Fair	Fair	Very poor.
Good	Very poor	Very poor	Good	Good	Very poor.
Good	Very poor	Very poor	Good	Good	Very poor.
Fair	Very poor	Very poor	Fair	Good	Very poor.
Fair	Very poor	Very poor	Fair	Fair	Very poor.
Fair	Very poor	Very poor	Fair	Fair	Very poor.
Poor	Very poor	Very poor	Very poor	Poor	Very poor.
Fair	Very poor	Very poor	Fair	Fair	Very poor.
Good	Very poor	Very poor	Good	Good	Very poor.
Fair	Very poor	Very poor	Fair	Good	Very poor.
Fair	Very poor	Very poor	Fair	Fair	Very poor.
[2]	[2]	[2]	[2]	[2]	[2].
[2]	[2]	[2]	[2]	[2]	[2].
Fair	Fair	Fair	Poor	Fair	Fair.
Fair	Fair	Fair	Poor	Fair	Fair.
Fair	Fair	Fair	Good	Good	Fair.
Good	Very poor	Very poor	Good	Very poor	Very poor.
Fair	Poor	Fair	Fair	Good	Poor.
Good	Very poor	Very poor	Good	Good	Very poor.
Good	Very poor	Very poor	Good	Good	Very poor.
[2]	[2]	[2]	[2]	[2]	[2].
Fair	Very poor	Very poor	Fair	Fair	Very poor.
Poor	Fair	Fair	Very poor	Fair	Fair.
Fair	Very poor	Very poor	Fair	Fair	Very poor.
Fair	Very poor	Very poor	Fair	Fair	Very poor.
Good	Very poor	Very poor	Good	Good	Very poor.
Good	Very poor	Very poor	Fair	Good	Very poor.
Fair	Very poor	Very poor	Poor	Fair	Very poor.
Good	Poor	Poor	Good	Good	Poor.
Fair	Very poor	Very poor	Good	Good	Very poor.
Fair	Very poor	Very poor	Fair	Fair	Very poor.
Good	Very poor	Very poor	Good	Good	Very poor.
Poor	Fair	Poor	Very poor	Poor	Poor.
Poor	Very poor	Very poor	Very poor	Poor	Very poor.
Poor	Very poor	Very poor	Very poor	Poor	Very poor.
Poor	Very poor	Very poor	Very poor	Poor	Very poor.
Poor	Very poor	Very poor	Poor	Fair	Very poor.
Fair	Very poor	Very poor	Fair	Fair	Very poor.
Fair	Very poor	Very poor	Poor	Fair	Very poor.
Fair	Fair	Fair	Poor	Fair	Fair.
Poor	Poor	Poor	Very poor	Poor	Poor.
Fair	Very poor	Very poor	Fair	Fair	Very poor.
Fair	Very poor	Very poor	Fair	Fair	Very poor.
Fair	Very poor	Very poor	Fair	Fair	Very poor.
Good	Very poor	Very poor	Good	Good	Very poor.
Good	Very poor	Very poor	Good	Good	Very poor.
Good	Very poor	Very poor	Fair	Good	Very poor.
Fair	Very poor	Very poor	Fair	Fair	Very poor.
Fair	Fair	Fair	Poor	Fair	Fair.
Fair	Very poor	Very poor	Fair	Fair	Very poor.
Fair	Very poor	Very poor	Fair	Fair	Very poor.
Fair	Very poor	Very poor	Poor	Fair	Very poor.
Poor	Very poor	Very poor	Very poor	Poor	Very poor.
Fair	Fair	Good	Poor	Fair	Fair.
Fair	Very poor	Very poor	Very poor	Fair	Very poor.
Good	Poor	Poor	Good	Good	Poor.
Fair	Very poor	Very poor	Poor	Fair	Very poor.
[2]	[2]	[2]	[2]	[2]	[2].
Fair	Very poor	Very poor	Poor	Poor	Very poor.
Fair	Very poor	Very poor	Very poor	Poor	Very poor.
Fair	Very poor	Very poor	Very poor	Poor	Very poor.
Good	Poor	Fair	Poor	Good	Poor.

[2] Requires onsite determination.

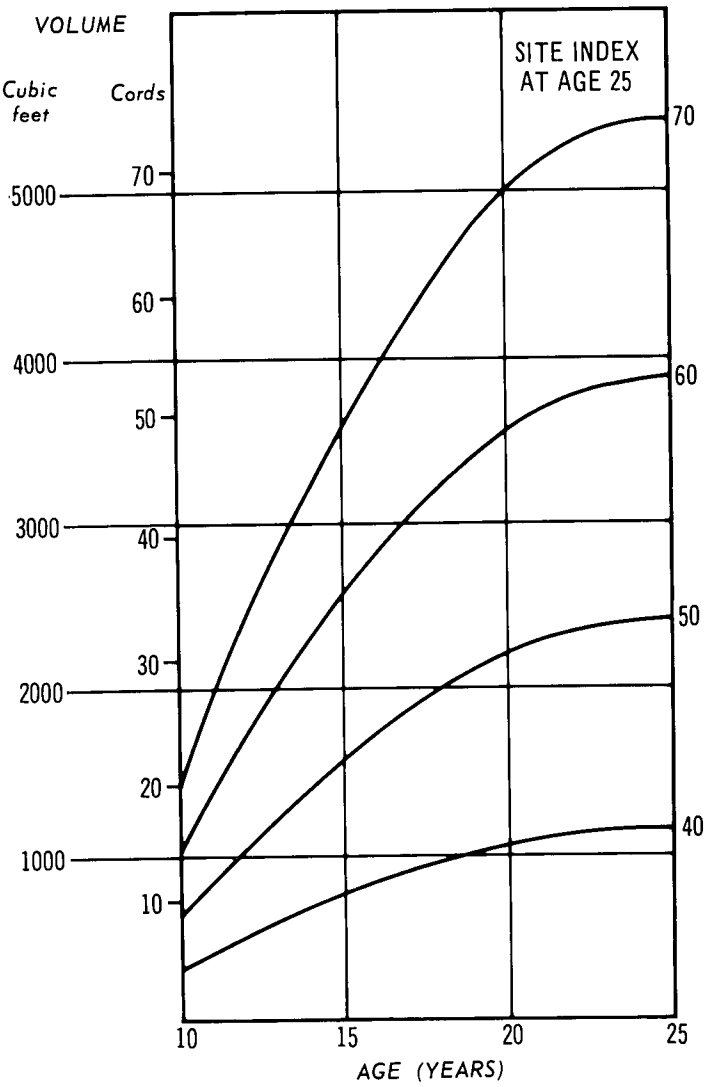

***Figure 15.*—Merchantable volumes per acre for loblolly pine plantations by site indexes at age 25 (3). (700 trees per acre; conversion factor of 73 cubic feet per cord)**

improved, or maintained in most places, but management is difficult and requires intensive effort.

A rating of *very poor* means the limitations are very severe and that unsatisfactory results are to be expected. It is either impossible or impractical to create, improve, or maintain habitats on soils in this category.

The significance of each subheading in table 4 under "Elements of Wildlife Habitat" and "Kinds of Wildlife" is given in the following paragraphs.

Elements of wildlife habitat.—Each soil is rated in table 4 according to its suitability for producing various kinds of plants and other elements that make up wildlife habitats. The ratings take into account mainly the characteristics of the soils and closely related natural factors of the environment. They do not take into account climate, present use of soils, or present distribution of wildlife and people. For this reason, selection of a site for development as a habitat for wildlife requires inspection at the site.

Grain and seed crops.—These crops are such annual grain-producing plants as corn, sorghum, millet, and soybeans.

Grasses and legumes.—Making up the group are domestic grasses and legumes that are established by planting. They provide food and cover for wildlife. Grasses include bahiagrass, ryegrass, and panicgrass; legumes include annual lespedeza, shrub lespedeza, and other clovers.

Wild herbaceous upland plants.—This group consists of native or introduced perennial grasses, forbs, and weeds that provide food and cover for upland wildlife. Beggarweed, perennial lespedaza, wild bean, pokeweed, and cheatgrass are typical examples.

Hardwood trees and shrubs.—These plants are nonconiferous trees, shrubs, and woody vines that produce wildlife food in the form of fruits, nuts, buds, catkins, or browse. Such plants commonly grow in their natural environment, but they can be planted and developed through wildlife management programs. Typical species in this category are oak, beech, cherry, dogwood, maple, viburnum, grape, honeysuckle, greenbrier, and silverberry.

Coniferous woody plants.—These plants are conebearing trees and shrubs that provide cover and frequently furnish food in the form of browse, seeds, or fruitlike cones. They commonly grow in their natural environment, but they may be planted and managed. Typical plants in this category are pines, cedars, and ornamental trees and shrubs.

Wetland food and cover plants.—In this group are annual and perennial herbaceous plants that grow wild on moist and wet sites. They furnish food and cover mostly for wetland wildlife. Typical examples of plants are smartweed, wild millet, spikerush and other rushes, sedges, burreed, tearthumb, and aneilema. Submersed and floating aquatics are not included in this category.

Shallow-water developments.—These developments are impoundments or excavations for controlling water, generally not more than five feet deep, to create habitats that are suitable for waterfowl. Some are designed to be drained, planted, and then flooded; others are permanent impoundments that grow submersed aquatics.

Kinds of wildlife.—In these columns soils are rated according to their suitability as habitat for the three kinds of wildlife in the country—*openland, woodland,* and *wetland.* These ratings are related to ratings made for the elements of habitat. For example, soils rated very poor for shallow water developments are rated very poor for wetland wildlife.

Openland wildlife are birds and mammals that normally live in meadows, pastures, and open areas where grasses, herbs, and shrubby plants grow. Quail, doves, meadowlarks, field sparrows, cottontail rabbits, and foxes are typical examples of openland wildlife.

Woodland wildlife are birds and mammals that normally live in wooded areas of hardwood trees, coniferous trees, and shrubs. Woodcocks, thrushes, wild

turkeys, vireos, deer, squirrels, and racoons are typical examples of woodland wildlife.

Wetland wildlife are birds and mammals that normally live in wet areas, marshes, and swamps. Ducks, geese, rails, shore birds, herons, minks, and muskrats are typical examples of wetland wildlife.

Engineering Uses of the Soils [5]

Soils and their properties are of special interest to engineers because they affect the design, construction, and maintenance of roads, airports, pipelines, buildings, water-storage facilities, erosion-control structures, drainage systems, sewage-disposal systems, and other construction projects. Soils vary considerably, often even within the space covered by a single project, and different soils generally have different engineering properties. Among the properties most important to engineers are permeability, shear strength, consolidation characteristics, compaction characteristics, drainage, shrink-swell characteristics, grain size, plasticity, and reaction. Also of importance on project sites are the depth to water table and bedrock.

Among the conservation engineering projects in the county are farm ponds, drainage and irrigation systems, terraces, diversions, and waterways.

Important steps in evaluating the engineering properties and uses of soils include differentiating between the various kinds of soil, mapping their location, determining their engineering properties, correlating these properties with the requirements of the job, and selecting the best material available for each job.

This soil survey contains information that engineers, architects, designers, and developers can use to:

1. Make soil and land-use studies that aid in selecting and developing industrial, business, residential, and recreational sites.
2. Make preliminary estimates of the engineering properties of soils in the planning of engineering systems for drainage, irrigation, terracing, land shaping, earth dams, and other structures in soil and water conservation projects.
3. Make preliminary evaluations of soil and ground conditions that aid in selecting highway, airport, pipeline, telephone and power cable locations and in planning detailed investigations at the selected location.
4. Locate sources of sand, gravel, clay, or other construction materials.
5. Correlate performance of engineering structures with soil mapping units to develop information which will be useful in overall planning for design and maintenance of engineering structures.
6. Determine the suitability of soil mapping units for cross-country movement of vehicles and construction equipment.
7. Supplement the information obtained from other previously published maps, reports, and aerial photographs to make more current maps and reports that can be used readily by engineers, architects, and designers.
8. Develop other preliminary estimates for construction projects in the county.

The engineering interpretations reported here, along with the soil map for identification, can be useful in any of the aforementioned as well as for many other purposes. It should be emphasized, however, that these interpretations will not eliminate the need for sampling and testing at the site of specific engineering works involving heavy loads and where the excavations are deeper than the depths of layers reported. The estimates of properties and engineering interpretations generally are limited to the depth of field investigation for mapping purposes. It should be noted that small areas of other soils, impractical to indicate, are included in the mapping units. Nevertheless, the soil map is still extremely useful for planning more detailed field investigations and for suggesting the kinds of problems that can be expected.

Most of the information in this section is presented in tables 5, 6, and 7, which show, respectively: engineering test data, estimated soil properties significant in engineering, and engineering interpretations of the soils. Limitations of the soils that affect town and country planning are given in table 8 in the section "Town and Country Planning" that follows this one.

This information, along with the soil map and other parts of this publication, can be used to make interpretations in addition to those given in tables 6, 7, and 8, and it also can be used to make other useful maps.

Occasionally a term used by soil scientists may not be familiar to engineers, and some words—for example, soil, clay, silt, sand, parent material, and structure—have special meanings in soil science. These and other special terms used in this soil survey are defined in the Glossary at the back of this publication. Other parts of this survey also may be useful to engineers, particularly the section "Descriptions of the Soils."

Engineering classification systems

Two systems of classifying soils for engineering purposes are in general use among engineers: the system approved by the American Association of State Highway Officials (AASHTO) (*1*), and the Unified Soil Classification System used by the Department of Defense (*10*). Both are used in this survey.

The AASHTO system of soil classification is based upon the observed field performance of soils under highway pavements. According to this system, soils having approximately the same general load-carrying capacity and service characteristics are grouped together to form the seven basic groups. The groups range from A–1 (gravelly soils of high bearing capacity) to A–7 (clay soils having low strength when wet). In general the best soils for highway subgrades are classified A–1, the next best A–2, and so on with the poorest rating for highway subgrades being in the A–7 group. Within each group, the relative engineering value of the soil material is indicated by a group

[5] By HOWARD E. MORRISON, agricultural engineer, Soil Conservation Service.

TABLE 5.—*Engineering*

[Tests performed by the Soil Testing Laboratory, South Carolina State Highway Department, in cooperation procedures of the American Association

Soil name and location	Parent material	South Carolina report No.	Depth	Moisture density [1]	
				Maximum dry density	Optimum moisture content
			Inches	*Pounds per foot*[3]	*Percent*
Chenneby silty clay loam: 1½ miles north of Calhoun County line and ¾ mile east of secondary road 66.	Recent silty alluvium.	G71449	0–10	88	26
		G71450	10–22	95	24
		G71451	22–35	97	22
		G71452	35–45	97	20
Congaree silt loam: ⅞ mile south of Congaree Creek on secondary road 66, 200 feet east of the road.	Recent silty alluvium.	G71438	0–7	100	23
		G71439	10–24	104	18
		G71440	24–50	116	13
		G71441	50–62	119	12
Herndon silt loam: 3 miles west of Chapin; 50 feet west of a dirt road and about ½ mile southeast of its intersection with secondary road 231.	Carolina slates.	G71430	0–5	106	14
		G71431	7–17	98	20
		G71432	17–39	96	21
		G71433	39–53	98	26
Rains sandy loam: On west side of secondary road 66, ¾ mile north of Calhoun County line.	Marine clays and sandy clays.	G71446	0–8	103	17
		G71447	18–36	108	17
		G71448	36–50	104	16
Lumbee sandy loam: 1¾ miles north of Calhoun County line and 250 feet west of secondary road 66, on the edge of a pipeline right-of-way.	Marine sandy clays.	G71442	0–9	105	14
		G71443	9–15	126	10
		G71444	18–36	124	10
		G71445	36–48	121	12
Paleaquults, sandy: ⅜ mile northeast of intersection of Highway I-26 and U.S. Highways 176 and 21 and ¾ mile north of Calhoun County line; between I-26 and secondary road 66.	Marine sandy loams and sandy clays.	G71434	0–3	69	33
		G71435	3–22	104	18
		G71436	22–34	111	14
		G71437	34–72	109	17

[1] Based on AASHO designation T99–57, Method A (*1*).

[2] Mechanical analyses according to AASHO designation T88–57 (*1*). Results by this procedure frequently may differ somewhat from results that have been obtained by the soil survey procedure of the Soil Conservation Service (SCS). In the AASHO procedure, the fine material is analyzed by the hydrometer method and the various grain-size fractions are calculated on the basis of all the material, including that coarser than 2 millimeters in diameter. In the SCS soil survey procedure, the fine material is analyzed by the pipette method, and the material coarser than 2 millimeters in diameter is excluded from calculations of grain-size fractions. The mechanical analyses used in this table are not suitable for use in naming textural classes for soil.

index number. Group indexes range from 0 for the best materials to 20 for the poorest. The group index number is shown in parentheses, following the soil subgroup symbol; for example, A–7–5 (10).

The Unified Soil Classification System is based on textural characteristics for those soils with such a small amount of fines that the fines do not affect the behavior. It is based on plasticity and compressibility characteristics for these soils where the fines affect the behavior. The following properties form the basis of soil identification: percentages of gravel, sand, and fines (passes No. 200 sieve); shape of the grain-size distribution curve; plasticity and compressibility characteristics (liquid and plastic limits); and organic matter present. Soils are grouped in fifteen classes: eight classes of coarse-grained soils, identified as GW (well-graded gravel), GP (poorly graded gravel), GM (silty gravel), GC (clayey gravel), SW (well-graded sand), SP (poorly graded sand), SM (silty sand), and SC (clayey sand); six classes of fine-grained soils, identified as ML (inorganic silts and very fine sands with slight plasticity), CL (inorganic clays of low to medium plasticity), OL (organic silts and organic silty clays of low plasticity), MH (inorganic and elastic silts), CH (inorganic clays of high plasticity), and OH (organic clays of medium to high plasticity); and one class of highly organic soils, identified as Pt.

The estimated percentage of soil passing the No. 4, 10, 40, and 200 sieve for each soil layer is shown in table 6.

Soil properties significant to engineering

The information and interpretations of most significance to engineers are presented in tables 5, 6, 7, and 8. Additional information can be found in the sections "Descriptions of the Soils" and "General Soil Map." Brief explanations of how the information in the tables was obtained and explanations of the significance

test data

with U.S. Department of Transportation, Federal Highway Administration, in accordance with standard of State Highway Officials (AASHO) (*1*)]

Mechanical analysis [2]				Liquid limit	Plasticity index	Classification		
Percentage passing sieve—			Percentage smaller than 0.005 mm			AASHTO [3]	Unified [4]	USDA (visual)
No. 10 (2.0 mm)	No. 40 (0.42 mm)	No. 200 (0.074 mm)						
			Percent	*Percent*				
100	97	89	70	51	16	A–7–5(13)	MH	Silty clay loam.
100	98	90	64	44	13	A–7–5(10)	ML	Silt loam.
100	99	93	59	40	11	A–6(8)	ML	Silt loam.
100	99	90	58	39	10	A–4(8)	ML	Silt loam.
100	99	90	62	43	13	A–7–5(10)	ML	Silt loam.
100	93	80	59	41	14	A–7–6(10)	ML	Silt loam.
100	83	39	31	26	11	A–6(1)	SC	Sandy clay loam.
100	77	37	30	21	[5]	A–4(0)	SM	Sandy loam.
100	95	82	26	[6]	[5]	A–4(8)	ML	Silt loam.
100	97	92	63	52	23	A–7–6(15)	MH	Clay.
100	96	90	68	62	29	A–7–5(20)	MH	Silty clay.
100	96	89	64	56	20	A–7–5(15)	MH	Silty clay loam.
100	81	46	32	34	7	A–4(2)	SM	Sandy loam.
100	81	61	50	41	14	A–7–6(7)	ML	Sandy clay loam.
100	85	66	56	46	17	A–7–6(10)	ML	Sandy clay loam.
100	73	41	31	33	8	A–4(1)	SM	Sandy loam.
100	64	27	21	18	5	A–2–4(0)	SM–SC	Loamy sand.
100	67	31	26	26	11	A–2–6(0)	SC	Sandy clay loam.
100	59	27	23	26	12	A–2–6(0)	SC	Sandy loam.
100	77	58	52	70	12	A–7–5(8)	OH	Loam.
100	65	41	33	41	11	A–7–5(1)	SM	Sandy loam.
100	66	43	34	35	14	A–6(3)	SC	Sandy loam.
100	76	59	49	36	15	A–6(7)	CL	Clay loam.

[3] Based on Standard Specifications for Highway Materials and Methods of Sampling and Testing (pt. 1, Ed. 8): The Classification of Soils and Soil-aggregate mixtures for Highway Construction Purposes.

[4] Based on the Unified Soil Classification System for Roads, Airfields, Embankments and Foundations (*10*).

[5] Nonplastic.

[6] Not applicable because of nonplastic soil material, and liquid limit (by definition) is the moisture content at which soil material passes from a plastic to a liquid state.

of some of the items are presented in the following paragraphs.

Engineering test data

To help evaluate the soils for engineering purposes, soil samples from six representative profiles were tested according to standard procedures. The tests were performed by the South Carolina State Highway Department in cooperation with the U.S. Department of Commerce, Bureau of Public Roads, according to standard procedures of the American Association of State Highway Officials. The test data are given in table 5. Grain-size distribution, liquid limit, and plasticity index were determined. The soils were subsequently classified according to the Unified Soil Classification System (*10*) and the AASHTO system (*1*).

The test data show the characteristics of the soils. Since each soil profile was sampled to a depth of about 6 feet, the data are not adequate for estimating the charactertistics of soil material in cuts deeper than 6 feet.

Mechanical analysis to determine the relative proportion of particles of different sizes was made by a combination of the sieve and hydrometer methods.

Liquid-limit and plastic-limit tests measure the effect of moisture on the consistence of soil material. As the moisture content of a clayey soil increases from a very dry state, the material changes from a semisolid to a plastic state. As the moisture content is further increased, the material changes from a plastic to a liquid state. The plastic limit is the moisture content at which the soil material passes from a semisolid to a plastic state. The liquid limit is the moisture content at which the material passes from a plastic to a liquid state. The plasticity index (*5*) is defined as the numerical difference between the liquid limit and the plastic limit and indicates the range of moisture content within which a soil is in a plastic condition.

TABLE 6.—*Estimated soil properties*

[An asterisk in the first column indicates that at least one mapping unit in the series is made up of two or more kinds of soil. The soils in such to other series that appear in the first

Soil series and map symbols	Depth to—		Depth from surface of typical profile	USDA texture	Classification	
	Bedrock	Seasonal high water table				
	Feet	*Feet*	*Inches*		*Unified*	*AASHTO*
Alaga: AgB	>10	>6	0–40	Loamy sand	SM	A–2
			40–75	Sand, loamy sand	SP–SM, SM	A–2
Alamance: AmB	>5	>6	0–11	Very fine sandy loam	ML	A–4
			11–46	Clay loam, silty clay loam	CL, CL–ML	A–6, A–7
			46–64	Very fine sandy loam	ML, CL–ML	A–4
Appling: ApB, ApC, ApD	6–10	>6	0–8	Sandy loam	SM	A–4, A–2
			8–41	Clay, clay loam	CL, CL–ML	A–6
			41–86	Sandy loam, sandy clay loam, clay loam.	CL, CL–ML, SM, SC	A–4, A–6
*Blaney: BnC, BoE For Vaucluse part of unit BoE, see Vaucluse series.	>10	>6	0–25	Sand	SM	A–2
			25–50	Sandy clay loam	SC	A–6
			50–65	Sandy loam	SM, SC	A–2
Brogdon: BrA	>10	>6	0–14	Loamy sand	SM	A–2
			14–35	Sandy loam	SM	A–2, A–4
			35–72	Sand, loamy sand	SM	A–2
Cecil: CeB, CeC, CeD, CfC, CfD	6–10	>6	0–6	Fine sandy loam	SM	A–4, A–2
			6–50	Clay, clay loam	MH, CL	A–7
			50–75	Sandy loam, sandy clay loam	ML, CL–ML, SM	A–6, A–4
Chenneby: Ch, Ck	>10	1–3	0–10	Loam, silt loam, silty clay loam.	ML, CL–ML, MH	A–4, A–5, A–7
			10–62	Silt loam, silty clay loam	ML, CL–ML	A–4, A–6, A–7
Congaree: Co	>10	>5	0–10	Silt loam	ML, CL–ML	A–6, A–7
			10–50	Sandy clay loam, silt loam, silty clay loam.	SC, CL, CL–ML	A–6, A–4, A–7
			50–62	Sandy loam	SM, ML	A–4, A–2
Cowarts: CsB	>10	>6	0–15	Loamy sand	SM	A–2
			15–23	Sandy clay loam	SC	A–2, A–6
			23–42	Sandy clay loam	SC	A–2, A–6
			42–64	Sandy clay loam, sandy clay	SC	A–6, A–2
Craven: CvA	>10	1–3	0–12	Fine sandy loam	ML, CL–ML	A–4
			12–29	Clay, clay loam, sandy clay	CL, CH, SC	A–7, A–6
			29–50	Sandy clay loam, sandy loam, sandy clay.	SC, CL, SM, ML	A–4, A–6
Dothan: DoA, DoB, DwB	>10	>6	0–11	Loamy sand	SM	A–2
			11–16	Sandy loam	SM	A–2, A–4
			16–33	Sandy clay loam	SC, CL	A–2, A–4
			33–60	Sandy loam, sandy clay loam, sandy clay.	SC, SM, CL	A–2, A–4, A–7
Enon: EnB	2½–4	>6	0–8	Silt loam	ML	A–4
			8–26	Clay, silty clay, clay loam	MH, CH	A–7
			26–36	Clay, clay loam	CL, MH, SM, SC	A–7, A–6, A–2
Enoree: Eo	>10	0–1	0–10	Loam, silt loam	ML, CL	A–6, A–4
			10–44	Sandy loam, loam, silt loam	SM, SC, ML	A–2, A–4
			44–60	Sand, loamy sand	SP–SM, SM	A–2
Fuquay: FaB, FaC	>10	[1]>6	0–22	Loamy sand	SM	A–2
			22–37	Sandy clay loam	SC	A–2, A–4
			37–60	Sandy clay loam	SC, CL	A–4, A–6

See footnotes at end of table.

significant to engineering

mapping units may have different properties and limitations, and for this reason it is necessary to follow carefully the instructions for referring column of this table. > = more than]

Percentage less than 3 inches passing sieve—				Permeability	Available water capacity	Reaction	Shrink-swell potential
No. 4 (4.7 mm)	No. 10 (2.0 mm)	No. 40 (0.42 mm)	No. 200 (0.074 mm)				
				In/hr	*In/in of soil*	*pH*	
100	100	80–90	13–25	6.0–20	0.05–0.10	4.5–5.5	Low.
100	100	60–80	5–25	6.0–20	0.02–0.03	4.5–5.5	Low.
95–100	95–100	80–90	70–80	0.6–2.0	0.10–0.18	4.5–6.5	Low.
95–100	95–100	90–100	70–90	0.6–2.0	0.15–0.18	4.5–5.5	Low.
90–100	90–100	85–100	80–98	2.0–6.0	0.10–0.13	4.5–5.5	Low.
95–100	90–97	75–85	30–45	2.0–6.0	0.10–0.12	5.1–6.5	Low.
100	100	80–92	55–70	0.6–2.0	0.12–0.14	4.5–5.5	Low to moderate.
100	100	75–85	46–55	0.6–2.0	0.12–0.14	4.5–5.5	Low.
100	100	60–80	13–25	6.0–20	0.03–0.08	4.5–5.5	Low.
100	100	75–95	36–45	0.06–0.20	0.09–0.12	4.5–5.5	Low.
100	100	65–70	13–35	0.2–0.6	0.08–0.12	4.5–5.5	Low.
100	100	55–70	20–30	2.0–6.0	0.05–0.10	5.1–6.0	Low.
100	100	60–70	25–45	2.0–6.0	0.10–0.14	4.5–5.5	Low.
100	100	65–75	15–25	6.0–20	0.02–0.06	4.5–5.5	Low.
95–100	90–100	75–80	30–45	2.0–6.0	0.10–0.14	5.1–6.0	Low.
100	100	85–90	75–85	0.6–2.0	0.13–0.15	4.5–5.5	Low.
100	100	78–85	36–70	0.6–2.0	0.13–0.15	4.5–5.5	Low.
100	100	95–100	85–95	0.6–2.0	0.16–0.20	4.5–5.5	Low.
100	100	95–100	85–95	0.6–2.0	0.16–0.20	5.1–6.0	Low.
100	100	90–100	70–90	0.6–2.0	0.12–0.15	5.1–6.5	Low.
100	100	75–95	36–80	0.6–2.0	0.12–0.15	5.1–6.5	Low.
100	100	70–90	30–60	2.0–6.0	0.12–0.15	5.1–6.5	Low.
95–100	95–100	75–85	20–35	2.0–6.0	0.05–0.09	5.1–6.5	Low.
95–100	90–100	80–90	30–40	0.6–2.0	0.10–0.14	4.5–5.5	Low.
95–100	90–100	80–90	30–40	0.06–0.2	0.09–0.12	4.5–5.5	Low.
95–100	90–100	65–75	30–40	0.06–0.2	0.09–0.12	4.5–5.5	Low.
100	100	90–100	60–80	2.0–6.0	0.12–0.15	5.1–6.0	Low.
100	100	90–100	40–80	0.06–0.2	0.12–0.15	4.5–5.5	Moderate.
100	100	90–98	36–60	0.06–0.2	0.12–0.15	4.5–5.5	Moderate.
95–100	95–100	75–90	20–35	2.0–6.0	0.07–0.11	5.1–6.5	Low.
95–100	95–100	75–90	20–40	0.6–2.0	0.10–0.12	5.1–6.5	Low.
95–100	95–100	75–90	30–60	0.6–2.0	0.12–0.15	4.5–5.5	Low.
95–100	95–100	75–90	30–60	0.2–0.6	0.10–0.13	4.5–5.5	Low.
90–100	90–100	95–100	70–80	0.6–2.0	0.13–0.15	5.6–6.5	Low.
80–98	80–90	70–90	65–80	0.06–0.2	0.13–0.15	6.1–7.3	High.
50–90	50–90	40–80	30–70	0.06–0.2	0.08–0.12	6.6–8.4	Moderate.
100	100	70–95	55–80	0.6–2.0	0.14–0.18	5.1–6.0	Low.
100	100	50–95	15–75	0.6–2.0	0.11–0.15	5.1–6.5	Low.
100	100	70–90	8–20	6.0–20	0.03–0.05	5.1–6.5	Low.
100	100	60–70	13–20	6.0–20	0.05–0.10	4.5–5.5	Low.
100	100	60–70	30–49	0.6–2.0	0.13–0.15	4.5–5.5	Low.
100	100	60–70	40–55	0.06–0.2	0.12–0.14	4.5–5.5	Low.

TABLE 6.—*Estimated soil properties*

Soil series and map symbols	Depth to—		Depth from surface of typical profile	USDA texture	Classification	
	Bedrock	Seasonal high water table				
	Feet	*Feet*	*Inches*		*Unified*	*AASHTO*
Georgeville: GeB, GeC, GeD	>10	>6	0–9	Very fine sandy loam	ML, CL–ML	A–4
			9–45	Clay, silty clay	MH, CL	A–7
			45–65	Silt loam, loam, silty clay loam.	MH, ML, CL–ML	A–7, A–4
Goldsboro: GoA	>10	2–3	0–13	Sandy loam	SM	A–4, A–2
			13–54	Sandy clay loam	SC, CL	A–6, A–2
Helena: HeB, HeC	>4	>6	0–15	Sandy loam	SM	A–2, A–4
			15–50	Sandy clay, clay	CL–ML, CL, CH, MH	A–6, A–7
			50–70	Sandy clay loam, sandy loam	SC, CL, SM	A–4, A–6
Herndon: HrB	>10	>6	0–7	Silt loam	ML	A–4
			7–53	Silty clay loam, clay, silty clay	CL, CL–ML, MH	A–7, A–6
			53–70	Silt loam, silty clay loam, clay loam.	MH, ML, CL–ML	A–7, A–4
Johnston: JO	>10	0–1	0–13	Mucky loam, loam, sandy loam.	OL, ML, SM, CL	A–2, A–4
			13–36	Mucky sandy loam, loamy sand.	SM, SM–SC	A–2, A–4
			36–70	Sandy loam, loamy sand	SM, ML, CL–ML, SM–SC	A–2, A–4
			36–70	Loamy sand, sand	SM, SP–SM	A–2
Kershaw: KeC	>10	>6	0–72	Sand	SP	A–3, A–1
Lakeland: LAB, LkD	>10	>6	0–90	Sand	SP–SM, SM	A–2, A–3
Lignum: LnB	3–8	1–3	0–12	Silt loam	ML	A–4
			12–20	Silty clay loam	CL–ML, CL, MH	A–6, A–7
			20–30	Clay	MH, CL	A–7
Lucy: LuB, LuC	>10	>6	0–24	Loamy sand	SM	A–2
			24–40	Sandy loam	SM	A–2, A–4
			40–72	Sandy clay loam	SC	A–4, A–6
Lumbee: Lw	>10	0–1	0–9	Sandy loam	SM–SC, SM	A–4, A–2
			9–15	Sandy loam, loamy sand	SM, SM–SC	A–2
			15–36	Sandy loam, sandy clay loam	SC, SM	A–2, A–6, A–4
			36–50	Loamy sand, sand	SM, SC, SP–SM	A–2
Lynn Haven: Ly	>10	0–1	0–11	Loamy sand	SP–SM, SM	A–2
			11–24	Sand	SP–SM, SM	A–2
			24–60	Sand	SP–SM	A–2
Mecklenburg: MeC	>4	>6	0–5	Silt loam	ML, CL–ML	A–4
			5–28	Clay	MH, CL	A–7
			28–39	Clay	MH, CL	A–7
Nason: NaB, NaD	2–4	>6	0–11	Silt loam	ML	A–4
			11–33	Silty clay loam, silty clay	CL, MH, CL–ML	A–7
Orangeburg: OrA, OrB, OrC, OwB	>10	>6	0–12	Loamy sand	SM	A–2
			12–77	Sandy clay loam, sandy loam, clay loam.	SC, SM, CL, CL–ML	A–4, A–6
Paleaquults, sandy: Pa	>10	0–1	0–34	Loam, sandy loam	SM, ML, CL–ML, SC, OH	A–4, A–6, A–7
			34–72	Clay loam, sandy clay loam	SC, CL, MH, CL–ML	A–6, A–7

See footnotes at end of table.

significant to engineering—Continued

Percentage less than 3 inches passing sieve—				Permeability	Available water capacity	Reaction	Shrink-swell potential
No. 4 (4.7 mm)	No. 10 (2.0 mm)	No. 40 (0.42 mm)	No. 200 (0.074 mm)				
				In/hr.	*In/in of soil*	*pH*	
90–100	90–100	80–95	55–80	0.6–2.0	0.15–0.20	5.1–6.0	Low.
95–100	95–100	95–100	76–95	0.6–2.0	0.13–0.18	4.5–5.5	Moderate.
100	100	65–95	55–95	0.6–2.0	0.13–0.18	4.5–5.5	Low.
100	100	60–70	20–45	2.0–6.0	0.10–0.12	4.5–6.0	Low.
100	100	65–75	30–55	0.6–2.0	0.12–0.15	4.5–5.5	Low.
98–100	98–100	51–86	20–46	2.0–6.0	0.10–0.12	4.5–5.5	Low.
98–100	98–100	75–95	51–75	0.06–0.2	0.13–0.15	4.5–5.5	High.
98–100	98–100	70–90	36–70	0.2–0.6	0.11–0.13	4.5–5.5	Moderate.
90–100	90–100	90–100	65–85	0.6–2.0	0.10–0.15	4.5–6.0	Low.
100	100	95–100	65–95	0.6–2.0	0.13–0.18	4.5–5.5	Low.
100	100	95–100	55–90	0.6–2.0	0.12–0.16	4.5–5.5	Low.
100	100	60–95	30–80	0.6–2.0	0.10–0.20	4.5–5.5	Low.
100	100	60–80	15–49	0.6–2.0	0.10–0.14	4.5–5.5	Low.
100	100	60–90	25–55	2.0–6.0	0.08–0.14	4.5–5.5	Low.
100	100	50–75	5–30	6.0–20	0.03–0.08	4.5–5.5	Low.
100	100	51–70	2–4	>20	0.02–0.03	4.5–5.5	Low.
100	100	70–85	5–15	6.0–20	0.03–0.05	4.5–6.0	Low.
95–100	90–100	85–95	70–90	2.0–6.0	0.10–0.15	4.5–5.5	Low.
100	100	90–100	75–95	0.2–0.6	0.15–0.20	4.5–5.5	Moderate.
100	100	90–100	75–95	0.06–0.2	0.15–0.20	4.5–5.5	Moderate.
100	100	85–90	13–25	6.0–20	0.04–0.08	4.5–5.5	Low.
100	100	75–85	25–45	2.0–6.0	0.08–0.12	4.5–5.5	Low.
100	100	85–95	36–45	0.6–2.0	0.12–0.15	4.5–5.5	Low.
100	100	60–75	15–42	2.0–6.0	0.08–0.12	4.5–5.5	Low.
100	100	60–75	13–30	2.0–6.0	0.06–0.10	4.5–5.5	Low.
100	100	60–70	25–45	0.6–2.0	0.12–0.15	4.5–5.5	Low.
100	100	55–70	10–30	2.0–6.0	0.03–0.06	4.5–5.5	Low.
100	100	70–95	8–15	2.0–6.0	0.02–0.05	4.5–5.5	Low.
100	100	70–95	8–20	2.0–6.0	0.02–0.08	4.5–5.5	Low.
100	100	70–95	8–12	6.0–20	0.02–0.05	4.5–5.5	Low.
90–100	80–100	70–90	60–85	0.6–2.0	0.14–0.19	5.6–6.5	Low.
90–100	85–100	80–100	75–95	0.06–0.2	0.12–0.14	5.6–6.5	Moderate.
90–100	85–100	80–100	75–95	0.06–0.2	0.10–0.12	5.6–6.5	Low.
90–100	90–100	80–90	60–80	2.0–6.0	0.10–0.15	4.5–5.5	Low.
100	100	90–95	80–90	0.6–2.0	0.15–0.20	4.5–5.5	Low.
100	100	70–90	15–25	2.0–6.0	0.05–0.10	4.5–6.0	Low.
100	95–100	80–90	36–70	0.6–2.0	0.10–0.15	4.5–5.5	Low.
100	100	60–80	36–85	0.6–6.0	0.10–0.15	4.2–5.5	Low.
100	100	60–90	36–80	0.2–0.6	0.12–0.15	4.5–5.5	Low.

TABLE 6.—*Estimated soil properties*

Soil series and map symbols	Depth to—		Depth from surface of typical profile	USDA texture	Classification	
	Bedrock	Seasonal high water table				
	Feet	*Feet*	*Inches*		*Unified*	*AASHTO*
Pelion: PeA, PeB, PeC	>10	1½–3	0–10	Loamy sand	SM	A–2
			10–22	Sandy clay loam	SC, CL, SM, ML	A–2, A–4, A–6
			22–39	Sandy clay, sandy clay loam	CL, SC	A–7, A–6
			39–65	Sandy loam, sandy clay loam	SM, SC	A–2, A–6
Pickens: PkD	1–1½	>6	0–4	Slaty silt loam	ML, CL	A–4
			4–18	Slaty silt loam, slaty silty clay loam.	GM	A–4, A–2
Rains: Ra	>10	0–1	0–11	Sandy loam	SM	A–2, A–4
			11–60	Sandy clay loam, clay loam	SC, CL, ML	A–4, A–6, A–7
Tatum: TaE	2–4	>6	0–5	Silt loam	ML	A–4
			5–26	Silty clay loam, silty clay	CL, CL–ML	A–7
			26–44	Silty clay loam, silt loam	ML, CL	A–7, A–4
Toccoa: To	>5	2½–3	0–10	Fine sandy loam	SM, ML	A–4, A–2
			10–41	Fine sandy loam, sandy loam, silt loam.	SM, ML, CL–ML	A–2, A–4
			41–111	Stratified sandy loam, fine sandy loam, silty clay loam, clay loam, silt loam, sand, and loamy sand.	SM, SP–SM, ML, CL	A–2, A–4, A–6, A–7
Troup: TrB, TuB	>10	>6	0–62	Sand	SP–SM, SM	A–2, A–3
			62–84	Sandy loam, sandy clay loam	SC, SM	A–2, A–6, A–4
Vaucluse: VaB, VaC, VaE	>10	>6	0–10	Loamy sand	SM	A–2
			10–24	Sandy clay loam, sandy loam	SM, SC	A–2, A–4, A–6
			24–60	Sandy clay loam, sandy loam	SM, SC	A–6, A–4
Wahee: WaB	>10	2–3	0–11	Sandy loam	SM	A–2
			11–44	Clay, sandy clay, clay loam	MH, CL, CL–ML	A–6, A–7
			44–75	Sandy loam, clay loam, sandy clay loam.	SM, CL, CL–ML	A–6, A–7, A–4

[1] Perched water table for very brief periods after heavy rains.

Table 5 also gives compaction (moisture-density) data for the tested soils. If the soil material is compacted at a successively higher moisture content, and the compactive effort remains constant, the density decreases as the moisture content increases. The highest dry density obtained in the compaction test is termed maximum dry density. Moisture-density data are important in earthwork, because the soil is generally most stable if it is compacted to about its maximum dry density when it is at the approximate optimum moisture content.

Estimated properties of the soils

Several estimated soil properties significant in engineering are given in table 6. The estimates are based on field observations made in the course of mapping, on test data for these and similar soils, and on experience with the same kinds of soil in other counties. Following are explanations of some of the columns in table 6.

Depth to bedrock is the distance from the surface of the soil to the upper surface of the rock layer.

Depth to seasonal high water table is the distance from the surface of the soil to the highest level that ground water reaches in the soil in most years.

Soil texture is described in table 6 in the standard terms used by the Department of Agriculture (*9*). These terms take into account relative percentages of sand, silt, and clay material less than 2 millimeters in diameter. "Loam," for example, is soil material that contains 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the soil contains gravel or other particles coarser than sand, an appropriate modifier is added, as for example, "gravelly loamy sand." "Sand," "silt," "clay," and some of the other terms used in USDA textural classification are defined in the Glossary of this soil survey.

Permeability (*7*) is the rate at which water is transmitted by soils. This is expressed as a given volume passing a given area in a period of time (number

significant to engineering—Continued

Percentage less than 3 inches passing sieve—				Permeability	Available water capacity	Reaction	Shrink-swell potential
No. 4 (4.7 mm)	No. 10 (2.0 mm)	No. 40 (0.42 mm)	No. 200 (0.074 mm)				
					In/in of soil	*pH*	
95–100	90–100	50–80	13–30	6.0–20	0.03–0.05	4.5–6.0	Low.
95–100	92–100	50–90	30–55	0.6–2.0	0.12–0.16	4.2–5.5	Low.
98–100	92–100	50–90	36–60	0.06–0.2	0.06–0.10	4.2–5.5	Low.
98–100	92–100	50–90	25–49	0.6–2.0	0.08–0.12	4.2–5.5	Low.
51–70	51–70	51–70	51–70	0.6–2.0	0.08–0.10	4.5–5.5	Low.
30–50	30–50	30–50	20–40	0.6–2.0	0.08–0.10	5.1–6.0	Low.
100	100	70–85	20–49	2.0–6.0	0.10–0.15	4.5–5.5	Low.
100	100	80–90	36–70	0.6–2.0	0.12–0.15	4.5–5.5	Low.
90–100	90–100	80–90	60–80	2.0–6.0	0.10–0.15	4.5–5.5	Low.
100	100	90–100	80–90	0.6–2.0	0.15–0.20	4.5–5.5	Low.
90–100	90–100	90–100	65–90	0.6–2.0	0.10–0.15	4.5–5.5	Low.
100	95–100	80–95	30–55	2.0–6.0	0.07–0.10	5.0–6.5	Low.
100	95–100	80–95	30–80	2.0–6.0	0.07–0.10	5.6–6.5	Low.
100	95–100	70–95	11–80	2.0–20	0.05–0.15	5.6–6.5	Low.
100	100	70–80	8–15	6.0–20	0.04–0.07	4.5–6.0	Low.
100	100	70–90	25–49	0.6–2.0	0.10–0.15	4.5–5.5	Low.
100	90–100	40–70	13–20	6.0–20	0.04–0.06	4.5–5.5	Low.
100	95–100	50–70	25–49	0.6–2.0	0.10–0.15	4.5–5.5	Low.
100	95–100	60–75	36–49	0.06–0.2	0.05–0.08	4.5–5.5	Low.
100	95–100	60–75	20–35	2.0–6.0	0.08–0.12	5.1–5.5	Low.
100	100	85–95	60–75	0.06–0.2	0.12–0.16	4.5–5.5	High.
100	100	70–80	36–80	0.6–2.0	0.10–0.14	4.5–5.5	Moderate.

of cubic inches passing one square inch per hour). In table 6 this is given in inches of water per hour and is based on the movement of water through the undisturbed soil material. The rate depends largely on the texture and structure of the soil.

Available water capacity, measured in inches per inch of soil depth, is the approximate amount of capillary water in a soil when the downward flow by gravity has practically stopped. In table 6 it is the water held in the range between field capacity and the wilting point and is expressed in inches of water per inch of soil.

Reaction is shown in numerical terms of pH. A pH value of less than 7.0 indicates that the soil is acid. If pH is more than 7.0, the soil is alkaline. Extreme acidity or alkalinity can have a significant effect on structure or on the treatment needed to stabilize the soils.

Shrink-swell potential is the relative change in volume to be expected of soil material with changes in moisture content, that is, the extent to which the soil shrinks as it dries out or swells when it gets wet. Extent of shrinking and swelling is influenced by the amount and kind of clay in the soil. Shrinking and swelling of soils causes much damage to building foundations, roads, and other structures. A *high* shrink-swell potential indicates a hazard to maintenance of structures built in, on, or with material having this rating. Clean sands and gravels (single-grained structure) and those having small amounts of nonplastic to slightly plastic fines, as well as most other nonplastic to slightly plastic soils material, have a low shrink-swell potential.

Engineering interpretations

The estimated interpretations in table 7 are based on the engineering properties of soils shown in table 6, on test data for soils in this county and others nearby or adjoining, and on the experience of engineers and soil scientists with the soils of Lexington County. The table lists those soil features not to be

TABLE 7.—*Interpretations of*

[An asterisk in the first column indicates that at least one mapping unit in that series is made up of two or more kinds of soil. The soils in other series that appear in

Soil series and map symbols	Suitability as a source of—			Soil features affecting—
	Topsoil	Sand	Road fill	Highway location
Alaga: AgB	Poor: texture	Fair: excessive fines.	Good: soil binder needed in places.	Slope
Alamance: AmB	Fair: layer of suitable material not thick enough.	Unsuited	Fair: fair traffic-supporting capacity.	Fair traffic-supporting capacity.
Appling: ApB, ApC, ApD	Fair: layer of suitable material not thick enough.	Unsuited	Fair: fair traffic-supporting capacity.	Fair traffic-supporting capacity; severe erodibility where slopes are more than 10 percent.
*Blaney: BnC, BoE For interpretations of Vaucluse soils in unit BoE, see the Vaucluse series.	Poor: texture	Fair: excessive fines.	Fair: fair traffic-supporting capacity.	Slope; possible seepage areas; fair traffic-supporting capacity.
Brogdon: BrA	Poor: texture	Unsuited	Good	(1)
Cecil sandy loam: CeB, CeC, CeD, CfC, CfD	Fair: texture; layer of suitable material not thick enough.	Unsuited	Fair: fair traffic-supporting capacity.	Fair traffic-supporting capacity; severe erodibility of cut banks; slope.
Chenneby: Ch, Ck	Good	Unsuited	Fair: shear strength; somewhat poorly drained.	Floods at least once each year; seasonal high water table; traffic-supporting capacity.
Congaree: Co	Good	Unsuited	Fair: stratified materials; fair traffic-supporting capacity.	Fair traffic-supporting capacity; floods at least once each year.
Cowarts: CsB	Fair: layer of suitable material not thick enough.	Unsuited	Good	(1)
Craven: CvA	Poor: layer of suitable material not thick enough.	Unsuited	Poor: traffic-supporting capacity.	Seasonal high water table; moderate shrink-swell potential.
Dothan: DoA, DoB, DwB	Fair: layer of suitable material not thick enough.	Unsuited	Good	(1)
Enon: EnB	Fair: layer of suitable material not thick enough.	Unsuited	Poor: high plasticity; high shrink-swell potential; poor traffic-supporting capacity.	Poor traffic-supporting capacity; high shrink-swell potential.

engineering properties

such mapping units may have different interpretations, and for that reason it is necessary to follow carefully the instructions for referring to the first column of this table]

Soil features affecting—Continued					
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions	Grassed waterways
Reservoir area	Embankment				
Rapid permeability	Rapid permeability; soil binder needed in places.	Somewhat excessively drained.	Low available water capacity; rapid intake rate and permeability.	Fair stability	Low productivity; low available water capacity.
Moderate permeability.	Fair stability	Well drained	Slow intake rate	(1)	Medium available water capacity; medium fertility.
Moderate permeability; slope.	Fair stability and compaction characteristics; medium to high compressibility.	Well drained	Slope	Severe erodibility where slopes are more than 10 percent; occasional boulders present.	Severe erodibility where slopes are more than 10 percent.
Thick, pervious surface layer; slope.	Fair stability and compaction characteristics; rapid permeability in upper 25 inches.	Well drained	High intake rate; rapid permeability in surface layer; slow permeability in subsoil.	Thick sandy surface layer; sedimentation of channels; slope.	Low fertility; low available water capacity in surface layer; slope.
Moderately rapid permeability; sand strata in places.	Moderate to high strength and stability; moderately rapid permeability.	Well drained	Medium available water capacity; moderate intake rate.	Nearly level	(1).
Moderate permeability; slopes.	High compressibility; severe erodibility.	Well drained	Moderate intake rate; slope.	Slope; severe erodibility.	Severe erodibility.
Moderate permeability.	Poor stability and compaction characteristics; low shear strength.	Seasonal high water table; sandy strata in places; floods at least once each year.	Drainage needed; seasonal high water table; floods at least once each year.	Nearly level	Floods at least once each year.
Pervious strata in places; moderate permeability.	Fair to poor stability; low shear strength.	Well drained	Moderate intake rate; floods at least once each year.	Nearly level	Floods at least once each year.
Slow permeability in plinthitic horizons.	Moderate resistance to piping.	Well drained	Slow permeability in plinthitic horizons.	Moderate erodibility.	Moderate erodibility.
(1)	Fair stability; slow permeability.	Seasonal high water table; slow permeability.	Slow intake rate; slow permeability; seasonal high water table.	Nearly level	(1).
Moderately slow permeability in plinthitic horizons.	Good compaction characteristics.	Well drained	(1)	Moderate erodibility.	Moderate erodibility.
Rock at a depth of 30 inches in places.	Poor compaction characteristics; high plasticity and shrink-swell potential; high compressibility.	Slow permeability	Slow permeability; slow intake rate.	Severe erodibility	Severe erodibility.

TABLE 7.—*Interpretations of*

Soil series and map symbols	Suitability as a source of—			Soil features affecting—
	Topsoil	Sand	Road fill	Highway location
Enoree: Eo	Poor: poorly drained.	Unsuited	Poor: poorly drained; poor stability.	Seasonal high water table; floods at least once each year.
Fuquay: FaB, FaC	Poor: texture	Fair: excessive fines.	Fair: fair traffic-supporting capacity.	Fair traffic-supporting capacity; slope.
Georgeville: GeB, GeC, GeD	Poor: layer of suitable material not thick enough.	Unsuited	Poor: poor traffic-supporting capacity; high percent of fines.	Poor traffic-supporting capacity; slope.
Goldsboro: GoA	Poor: texture	Unsuited	Fair: moderately well drained.	Seasonal high water table; seepage areas in places.
Helena: HeB, HeC	Fair: layer of suitable material not thick enough.	Unsuited	Poor: poor traffic-supporting capacity; high shrink-swell potential; poor stability; high erodibility.	Poor traffic-supporting capacity; severe erodibility on cuts; poor stability; high shrink-swell potential.
Herndon: HrB	Fair: layer of suitable material not thick enough.	Unsuited	Poor: poor traffic-supporting capacity.	Poor traffic-supporting capacity; moderate to severe erodibility.
Johnston: JO	Poor: very poorly drained.	Unsuited	Poor: very poorly drained; very unstable material; organic material present.	Seasonal high water table; floods more than once each year; very poor stability; organic material present.
Kershaw: KeC	Poor: low productivity; very low available water capacity.	Fair: optimum grain size lacking in places.	Good if soil binder is added.	Loose dry sand hinders hauling; erodible where exposed on cuts; slope.
Lakeland: LAB, LkD	Poor: low productivity; very low available water capacity; texture.	Good for poorly graded sands.	Good: soil binder needed in places.	Loose dry sand hinders hauling in places; erodible where exposed on cuts of more than 5 feet; slope.
Lignum: LnB	Poor: layer of suitable material not thick enough.	Unsuited	Poor: poor traffic-supporting capacity; moderate shrink-swell potential; poor stability; high erodibility.	Poor traffic-supporting capacity; severe erodibility on cuts; poor stability; moderate plasticity; seasonal high water table.

engineering properties—Continued

Soil features affecting—Continued					
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions	Grassed waterways
Reservoir area	Embankment				
Moderate permeability; pervious; substratum in places.	Moderate resistance to piping.	Seasonal high water table; floods at least once each year.	Drainage needed; seasonal high water table; floods at least once each year.	Nearly level	Floods at least once each year.
Rapid permeability in upper 20 to 40 inches.	Susceptible to piping.	Well drained	Low available water capacity in upper 20 to 40 inches.	Poor stability of sandy surface layer.	Low to medium fertility; low available water capacity in upper 20 to 40 inches.
Moderate permeability; slope.	Fair to poor stability and compaction characteristics; severe erodibility.	Well drained	Slope	Severe erodibility where slopes are more than 10 percent.	Severe erodibility where slopes are more than 10 percent.
Moderate permeability.	Fair stability and compaction characteristics; moderate permeability.	Moderate permeability; seasonal high water table.	Seasonal high water table.	Nearly level	(1).
Slow permeability; slope.	Poor compaction characteristics; high shrink-swell potential; severe erodibility; moderate compressibility.	Slow permeability	Slow permeability	Severe erodibility	Severe erodibility.
Moderate permeability.	Severe erodibility; high compressibility.	Well drained	Slow intake rate; slope.	(1)	Medium fertility; severe erodibility.
Moderate permeability.	Very unstable material; susceptible to piping.	Seasonal high water table; very unstable material; floods more than once each year.	Seasonal high water table; floods more than once each year.	Nearly level	Floods more than once each year.
Excessive seepage; very rapid permeability.	Very rapid permeability; soil binder needed.	Excessive drainage	Very low available water capacity; very rapid permeability.	Loose sand; susceptible to soil blowing.	Very low available water capacity; low fertility.
Excessive seepage; slope; rapid permeability.	Rapid permeability; soil binder needed; poor slope stability.	Excessively drained	Very low available water capacity; rapid permeability.	Poor stability for concentration of water.	Low fertility; very low available water capacity; slopes are more than 10 percent.
Possible rock at a depth of 3 feet; subject to seepage.	Poor compaction characteristics; moderate shrink-swell potential; severe erodibility; medium to high compressibility.	Moderately slow to slow permeability; seasonal high water table.	Slow intake rate; moderately slow to slow permeability; seasonal high water table.	Severe erodibility	Severe erodibility.

TABLE 7.—*Interpretations of*

Soil series and map symbols	Suitability as a source of—			Soil features affecting—
	Topsoil	Sand	Road fill	Highway location
Lucy: LuB, LuC	Poor: low productivity; texture.	Fair to a depth of 20 to 40 inches; excessive fines; poor for concrete.	Fair: fair traffic-supporting capacity.	Fair traffic-supporting capacity; moderate erodibility on cuts; slope.
Lumbee: Lw	Poor: texture; poorly drained.	Good below a depth of about 4 feet.	Poor: poorly drained.	Seasonal high water table; poorly drained.
Lynn Haven: Ly	Poor: texture; poorly drained.	Fair: excessive fines.	Poor: poorly drained.	Seasonal high water table; subject to flooding.
Mecklenburg: MeC	Poor: layer of suitable material not thick enough; texture.	Unsuited	Poor: poor traffic-supporting capacity; moderate shrink-swell potential.	Poor traffic-supporting capacity; moderate shrink-swell potential; slope.
Nason: NaB, NaD	Fair: layer of suitable material not thick enough.	Unsuited	Poor: poor traffic-supporting capacity; high percent of fines; bedrock at a depth of 2 to 4 feet.	Poor traffic-supporting capacity; bedrock at a depth of 2 to 4 feet; slope.
Orangeburg: OrA, OrB, OrC, OwB	Fair: layer of suitable material not thick enough.	Unsuited	Good	Moderate erodibility; slope.
Paleaquults, sandy: Pa	Poor: very poorly drained.	Unsuited	Poor: very poorly drained.	Seasonal high water table; organic material.
Pelion: PeA, PeB, PeC	Poor: layer of suitable material not thick enough.	Unsuited	Fair: fair traffic-supporting capacity.	Fair traffic-supporting capacity; seasonal seepage in cuts; slope.
Pickens: PkD	Poor: shallow to rock; more than 10 percent coarse fragments.	Unsuited	Poor: slate rock at a depth of 1 to 1½ feet; high percentage of coarse fragments.	Slate rock at a depth of 1 to 1½ feet.
Rains: Ra	Poor: poorly drained.	Unsuited	Poor: poorly drained.	Seasonal high water table; subject to ponding.
Tatum: TaE	Poor: layer of suitable material not thick enough.	Unsuited	Poor: poor traffic-supporting capacity; rock fragments; bedrock at a depth of 2 to 4 feet.	Slope; presence of rock in cuts; possible seepage in cuts; poor traffic-supporting capacity.
Toccoa: To	Good	Poor: poorly graded sand; excessive fines.	Good	Floods at least once each year.

engineering properties—Continued

Soil features affecting—Continued					
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions	Grassed waterways
Reservoir area	Embankment				
Rapid permeability in upper 20 to 40 inches; slope.	Rapid permeability in upper 20 to 40 inches.	Well drained	Low available water capacity in upper 20 to 40 inches.	Poor stability of sandy surface layer.	Low available water capacity in upper 20 to 40 inches; low fertility.
Moderate permeability; pervious substratum in places.	Fair strength and stability; moderate permeability.	Seasonal high water table; poorly drained.	Seasonal high water table; needs drainage.	Nearly level	Seasonal high water table; needs drainage.
Excessive seepage; moderately rapid permeability.	Moderately rapid permeability.	Poorly drained; seasonal high water table.	Seasonal high water table; needs drainage.	Nearly level	Seasonal high water table; needs drainage.
Slope	Poor compaction characteristics; high plasticity; moderate shrink-swell potential; high compressibility.	Well drained	Slow permeability	Severe erodibility	Severe erodibility.
Moderate permeability; slope.	Fair stability; high compressibility; severe erodibility.	Well drained	Slow intake rate	Severe erodibility	Severe erodibility.
Moderate permeability; slope.	(1)	Well drained	(1)	(1)	Moderate erodibility.
(1)	Poor stability; organic material.	Seasonal high water table; moderately slow permeability.	Seasonal high water table.	Nearly level	Ponding.
(1)	Fair stability; high compressibility.	Slow permeability	Slow permeability; slow intake rate.	Firm subsoil	Low fertility.
Slope; shallow to rock	Limited borrow material; shallow to rock.	Somewhat excessively drained.	Low available water capacity; shallow soil.	Shallow soil; slopes are more than 10 percent; severe erodibility.	Severe erodibility; slopes are more than 10 percent.
Moderate permeability.	Fair compaction characteristics; moderate permeability.	Seasonal high water table.	Seasonal high water table.	Nearly level	Poorly drained; ponding.
Slope; jointed rock or pervious material.	Fair stability; rock fragments; fair compaction characteristics; limited amount of material.	Well drained	Slope	Slopes are more than 10 percent; severe erodibility.	Slopes are more than 10 percent; severe erodibility.
Moderately rapid permeability.	Moderately rapid permeability; floods at least once each year.	Well drained	Floods at least once each year.	Nearly level	Floods at least once each year.

TABLE 7.—*Interpretations of*

Soil series and map symbols	Suitability as a source of—			Soil features affecting—
	Topsoil	Sand	Road fill	Highway location
Troup: TrB, TuB	Poor: texture; low productivity.	Fair: poorly graded sand to a depth of 62 inches.	Good	Good stability
Vaucluse: VaB, VaC, VaE	Poor: texture; low productivity.	Unsuited	Fair: fair stability and compaction characteristics; hard to excavate when dry.	Fair traffic-supporting capacity; slope.
Wahee: WaB	Poor: layer of suitable material not thick enough.	Unsuited	Poor: poor traffic-supporting capacity; poor stability; high shrink-swell potential.	Poor stability; seasonal high water table; poor traffic-supporting capacity; high shrink-swell potential.

[1] Features generally favorable.

overlooked in planning, installation, and maintenance, and it rates the soils for suitability as a source of topsoil, sand, and road fill. Soil features that affect highway location, agricultural drainage, irrigation, and the construction of farm ponds, terraces and diversions, and grassed waterways are presented in table 7.

Soil suitability is rated by the terms *good, fair,* and *poor,* which have, respectively, meanings approximately parallel to the terms *slight, moderate,* and *severe.* The term *unsuited* is also used in rating sand in table 7. It means the soil is unsuited as a source for sand. The soils have too much silt and clay throughout to be used as a source for sand.

Topsoil in table 7 is topdressing to be used in an area where vegetation is to be established and maintained. Suitability is affected mainly by ease of working and spreading the soil material, as when preparing a seedbed; natural fertility of the material, or its response of plants when fertilizer is applied; and absence of substances toxic to plants. Texture of the soil material and its content of stone fragments are characteristics that affect suitability, but also considered in the ratings is damage that will result to the area from which topsoil is taken.

Sand is used in great quantities in many kinds of construction. The ratings in table 7 provide guidance about where to look for probable sources. A soil rated as a *good* or *fair* source of sand generally has a layer at least 3 feet thick, the top of which is within a depth of 6 feet. The ratings do not take into account thickness of overburden, location of the water table, or other factors that affect mining of the materials; and they do not indicate the quality of the deposit.

Road fill is soil material used in embankments for roads. The suitability ratings reflect the predicted performance of soil after it has been placed in an embankment that has been properly compacted and provided with adequate drainage, and it also indicates the relative ease of excavating the material at the borrow area.

Highway-location characteristics considered are slope, water table, flooding, erodibility, rock, and shrink-swell potential of the soil material. Where a characteristic is listed in the column, it should be considered a factor that affects the location of a highway on the soil.

Slopes on cuts and fills should be flat enough to allow for proper stabilization and maintenance. All cuts and fills should be seeded to suitable plants as soon after construction as possible.

Conservation engineering in Lexington County includes the construction of farm ponds, the establishment of drainage and irrigation systems, and the construction of terraces, diversions, and waterways.

Reservoir areas hold water behind a dam or embankment. Soils suitable for pond reservoir areas have low seepage rates. These rates relate to their permeability and depth to fractured or permeable bedrock or other permeable materials.

Embankments require soil material resistant to seepage and piping and of favorable stability, shrink-swell potential, shear strength, and compaction characteristics. Presence of stones or organic material in a soil are among factors that are unfavorable.

Lexington County has numerous sites suitable for farm ponds. More than 1,100 ponds have been built and are a major source of water for irrigation and livestock. Nearly all ponds are stocked with fish.

Problems in constructing a farm pond include selecting a site for maximum impoundment at minimum

engineering properties—Continued

Soil features affecting—Continued					
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions	Grassed waterways
Reservoir area	Embankment				
Rapid permeability to a depth of about 62 inches.	Rapid permeability to a depth of about 62 inches; subject to piping.	Well drained	Rapid permeability; low available water capacity to a depth of 62 inches.	Poor stability for concentration of water.	Low fertility; low available water capacity.
Slope	Fair stability; severe erodibility.	Well drained	Severe erodibility; slow permeability.	Fair subsoil; short, steep, and irregular slopes; slopes are more than 10 percent.	Severe erodibility; low available water capacity; slopes are more than 10 percent.
(1)	Fair compressibility	Slow permeability; slow surface drainage; seasonal high water table.	Slow permeability; moderate intake rate; high water table.	Nearly level	Dense clayey subsoil; low fertility.

cost, preventing excessive seepage under or through the dam or along the abutments, providing adequate spillways to carry off storm water, and stabilizing embankments and emergency spillways with suitable plants.

Agricultural drainage of cropland and pasture is affected by such soil properties as permeability, texture, and structure; depth to claypan, rock, or other layers that influence rate of water movement; depth to the water table; slope and stability in ditchbanks; susceptibility to stream overflow; and availability of outlets for drainage.

Most of the soils on the flood plains of the rivers and creeks either have a high water table or are subject to frequent overflow, or have both of these undesirable traits. For highest production, most areas of these soils need some type of open drainage ditch. Depending on the use of the land, either a trapezoidal ditch or a shallow V-ditch or W-ditch generally is needed. Pasture, for example, can withstand more flooding than row crops and does not need as elaborate a drainage system as that generally needed for row crops. A limited amount of tile is used for drainage in Lexington County.

Irrigation in Lexington County is generally limited to peach orchards and various truck crops. The major soil features and quantities considered in determining suitable irrigation practices for a soil are available water capacity, depth of soil, rate of water intake, and the need for drainage.

Terraces and diversions are embankments or ridges constructed across the slope to intercept runoff so that it soaks into the soil or flows slowly to a prepared outlet. Features that affect suitability of a soil for terraces are uniformity and steepness of slope; depth to bedrock or other unfavorable material; presence of stones; permeability; and resistance to water erosion, soil slipping, and soil blowing. A soil suitable for these structures provides outlets for runoff and will establish plant cover without excessive management. Terraces and diversions can be constructed on most soils that have slopes of 2 to 10 percent.

Grassed waterways are constructed in many natural draws to serve as outlets for terraces. All natural draws and depressions need to be seeded or sodded to adapted perennial grasses. Shallow depressions have to be shaped and deepened in places to provide adequate drainage for terraces and for row crop drainage.

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In table 8 the soils are rated for limitations when they are used as sites for foundations for dwellings and light industries, local roads and streets, septic-tank absorption fields, sewage lagoons, camp areas, picnic areas, playgrounds, and paths and trails. The ratings are slight, moderate, and severe. Also given for all ratings except slight are the soil properties that mainly determine the rating. *Slight* means soil properties generally favorable for the rated use, or in other words, limitations that are minor and easily overcome. *Moderate* means that some soil properties are unfavorable but can be overcome or modified by special planning and design. *Severe* means soil properties are so unfavorable and so difficult to correct or overcome as to require major soil reclamation, special designs, or intensive maintenance.

Foundations for dwellings and sites for light industries in table 8 refers to buildings not more than three stories high that are supported by foundation footings

TABLE 8.—*Limitations of the soils for*

[An asterisk in the first column indicates that at least one mapping unit in that series is made up of two or more kinds of soil. The soils in other series that appear in

Soil series and map symbols	Foundations for dwellings	Sites for light industries	Local roads and streets
Alaga: AgB	Slight	Slight	Slight
Alamance: AmB	Moderate: fair bearing strength.	Moderate: fair bearing strength.	Moderate: fair traffic-supporting capacity.
Appling: ApB, ApC, ApD	Moderate: texture; slope.	Moderate where slopes are 2 to 8 percent; texture. Severe where slopes are 8 to 15 percent.	Moderate: fair traffic-supporting capacity.
*Blaney: BnC, BoE. For limitations of Vaucluse soils in unit BoE, see Vaucluse series.	Slight where slopes are 2 to 8 percent. Moderate where slopes are 8 to 15 percent. Severe where slopes are 15 to 25 percent.	Moderate: where slopes are 4 to 8 percent; corrosivity. Severe where slopes are 8 to 25 percent.	Moderate: fair traffic-supporting capacity.
Brogdon: BrA	Moderate: fair bearing strength.	Moderate: fair bearing strength.	Slight
Cecil sandy loam: CeB, CeC, CeD, CfC, CfD	Moderate: fair bearing strength.	Slight where slopes are 2 to 4 percent. Moderate where slopes are 4 to 8 percent. Severe where slopes are 8 to 15 percent.	Moderate: fair traffic-supporting capacity.
Chenneby: Ch, Ck	Severe: seasonal high water table; floods at least once each year; low shear strength.	Severe: floods at least once each year; seasonal high water table.	Severe: floods at least once each year.
Congaree: Co	Severe: floods at least once each year; low shear strength.	Severe: floods at least once each year; low shear strength.	Severe: floods at least once each year.
Cowarts: CsB	Slight	Slight where slopes are 2 to 4 percent. Moderate where slopes are 4 to 6 percent.	Slight
Craven: CvA	Severe: seasonal high water table; moderate shrink-swell potential; low bearing strength.	Severe: seasonal high water table; moderate shrink-swell potential.	Severe: moderate shrink-swell potential; poor traffic-supporting capacity.
Dothan: DoA, DoB, DwB	Slight	Slight where slopes are 0 to 4 percent. Moderate where slopes are 4 to 6 percent.	Slight

town and country planning

such mapping units may have different interpretations, and for this reason it is necessary to follow carefully the instructions for referring to the first column of this table]

Sewage disposal		Selected recreational uses			
Septic-tank absorption fields	Sewage lagoons	Camp areas	Picnic areas	Playgrounds	Paths and trails
Slight Severe in places because of contamination of shallow water supplies.	Severe: rapid permeability.	Moderate: sandy surface layer.	Moderate: sandy surface layer.	Moderate: sandy surface layer; slope.	Moderate: sandy surface layer.
Moderate: moderate permeability.	Moderate: moderate permeability.	Slight	Slight	Moderate: slope	Slight.
Moderate: moderate permeability; slope.	Moderate where slopes are 2 to 7 percent; moderate permeability. Severe where slopes are 7 to 15 percent.	Slight where slopes are 2 to 8 percent. Moderate where slopes are 8 to 15 percent.	Slight where slopes are 2 to 8 percent. Moderate where slopes are 8 to 15 percent.	Moderate where slopes are 2 to 6 percent. Severe where slopes are 6 to 15 percent.	Slight.
Severe: rapid permeability in upper 25 inches; slow permeability below a depth of 25 inches.	Moderate where slopes are 2 to 7 percent. Severe where slopes are 7 to 25 percent.	Moderate where slopes are 2 to 15 percent; sandy surface layer. Severe where slopes are 15 to 25 percent.	Moderate where slopes are 2 to 15 percent; sandy surface layer. Severe where slopes are 15 to 25 percent.	Severe: sandy surface layer.	Severe: sandy surface layer.
Slight	Severe: moderately rapid permeability.	Moderate: sandy surface layer.	Moderate: sandy surface layer.	Moderate: sandy surface layer.	Moderate: sandy surface layer.
Moderate: moderate permeability.	Moderate where slopes are 2 to 7 percent; moderate permeability. Severe where slopes are 7 to 15 percent.	Slight where slopes are 2 to 8 percent. Moderate where slopes are 8 to 15 percent.	Slight where slopes are 2 to 8 percent. Moderate where slopes are 8 to 15 percent.	Moderate where slopes are 2 to 6 percent. Severe where slopes are 6 to 15 percent.	Slight.
Severe: seasonal high water table; floods at least once each year.	Moderate: moderate permeability where protected from flood damage.	Severe: high water table; floods at least once each year.	Moderate: seasonal high water table; floods at least once each year.	Severe: seasonal high water table; floods at least once each year.	Moderate: seasonal high water table; floods at least once each year.
Severe: floods at least once each year.	Severe: moderate permeability; floods at least once each year.	Severe: floods at least once each year.	Moderate: floods at least once each year.	Severe: floods at least once each year.	Moderate: floods at least once each year.
Severe: slow permeability in plinthitic horizons.	Moderate where slopes are 2 to 6 percent.	Slight	Slight	Moderate where slopes are 2 to 6 percent.	Slight.
Severe: slow permeability; seasonal high water table.	Slight	Moderate: seasonal high water table; slow permeability.	Slight	Moderate: seasonal high water table; slow permeability.	Slight.
Severe: moderately slow permeability in plinthitic horizons.	Moderate: possible lateral seepage.	Slight	Slight	Moderate: moderately slow permeability.	Slight.

TABLE 8.—*Limitations of the soils for*

Soil series and map symbols	Foundations for dwellings	Sites for light industries	Local roads and streets
Enon: EnB	Severe: low bearing strength; high shrink-swell potential.	Severe: high shrink-swell potential; low bearing strength.	Severe: poor traffic-supporting capacity; high shrink-swell potential.
Enoree: Eo	Severe: seasonal high water table; floods at least once each year.	Severe: floods at least once each year; seasonal high water table.	Severe: floods at least once each year; seasonal high water table.
Fuquay: FaB, FaC	Moderate: fair bearing strength.	Moderate: fair bearing strength.	Moderate: fair traffic-supporting capacity.
Georgeville: GeB, GeC, GeD	Moderate: fair bearing strength; moderate shrink-swell potential.	Moderate where slopes are 2 to 8 percent; fair bearing strength; moderate shrink-swell potential. Severe where slopes are 8 to 15 percent.	Severe: poor traffic-supporting capacity.
Goldsboro: GoA	Moderate: seasonal high water table.	Moderate: seasonal high water table.	Moderate: seasonal high water table.
Helena: HeB, HeC	Severe: high shrink-swell potential.	Severe: high shrink-swell potential.	Severe: poor traffic-supporting capacity; high shrink-swell potential.
Herndon: HrB	Moderate: fair bearing strength.	Moderate: fair bearing strength; corrosivity.	Severe: poor traffic-supporting capacity.
Johnston: JO	Severe: seasonal very high water table; floods more than once each year.	Severe: very poorly drained; floods more than once each year; seasonal very high water table.	Severe: very poorly drained; floods more than once each year.
Kershaw: KeC	Moderate: needs binder to improve stability in places.	Moderate where slopes are 4 to 8 percent; needs binder to improve stability in places. Severe where slopes are 8 to 10 percent.	Moderate: needs binder to improve stability in places.
Lakeland: LAB, LkD	Moderate: fair bearing strength.	Moderate where slopes are 0 to 8 percent; fair bearing strength. Severe where slopes are 8 to 15 percent.	Slight where slopes are 0 to 8 percent. Moderate where slopes are 8 to 15 percent; fair traffic-supporting capacity.
Lignum: LnB	Severe: poor bearing strength; seasonal high water table.	Severe: poor bearing strength; seasonal high water table; poor stability.	Severe: poor traffic-supporting capacity; rock at a depth of 3 feet; seasonal high water table.

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Sewage disposal		Selected recreational uses			
Septic-tank absorption fields	Sewage lagoons	Camp areas	Picnic areas	Playgrounds	Paths and trails
Severe: slow permeability.	Moderate where depth to bedrock is 40 to 60 inches. Severe where depth to bedrock is less than 40 inches.	Moderate: slow permeability.	Slight	Moderate: slow permeability.	Slight.
Severe: floods at least once each year; seasonal high water table.	Severe: floods at least once each year; moderate permeability.	Severe: seasonal high water table; floods at least once each year.	Severe: seasonal high water table; floods at least once each year.	Severe: seasonal high water table; floods at least once each year.	Severe: seasonal high water table; floods at least once each year.
Moderate: slow permeability below a depth of 40 inches.	Severe: rapid permeability in upper 20 to 40 inches.	Moderate: sandy surface layer.	Moderate: sandy surface layer.	Severe: sandy surface layer.	Severe: sandy surface layer.
Moderate: moderate permeability.	Moderate where slopes are 2 to 7 percent. Severe where slopes are 7 to 15 percent.	Slight where slopes are 2 to 8 percent. Moderate where slopes are 8 to 15 percent.	Slight where slopes are 2 to 8 percent. Moderate where slopes are 8 to 15 percent.	Moderate where slopes are 2 to 6 percent. Severe where slopes are 6 to 15 percent.	Slight.
Severe: seasonal high water table.	Severe: seasonal high water table.	Slight	Slight	Slight	Slight.
Severe: slow permeability.	Moderate where slopes are 2 to 7 percent. Severe where slopes are 7 to 10 percent.	Moderate: slow permeability.	Slight where slopes are 2 to 8 percent. Moderate where slopes are 8 to 10 percent.	Moderate where slopes are 2 to 6 percent. Severe where slopes are 6 to 10 percent.	Slight.
Moderate: moderate permeability.	Moderate: moderate permeability.	Slight	Slight	Moderate: slope	Slight.
Severe: seasonal very high water table; floods more than once each year.	Severe: seasonal very high water table; unstable organic material; floods more than once each year.	Severe: seasonal very high water table; unstable organic material; floods more than once each year.	Severe: seasonal very high water table; unstable organic material; floods more than once each year.	Severe: seasonal very high water table; unstable organic material; floods more than once each year.	Severe: seasonal very high water table; unstable organic material; floods more than once each year.
Severe: poor filtering properties; possible contamination of shallow water supplies.	Severe: very rapid permeability; needs sealer.	Severe: loose sand surface layer.	Severe: loose sand surface layer.	Severe: loose sand surface layer.	Severe: loose sand surface layer.
Slight where slopes are 0 to 8 percent. Moderate where slopes are 8 to 15 percent; possible contamination of shallow water supplies.	Severe: rapid permeability.	Severe: sandy surface layer.	Severe: sandy surface layer.	Severe: sandy surface layer.	Severe: sandy surface layer.
Severe: moderately slow to slow permeability; rock hazard in places; seasonal high water table.	Moderate where slopes are 2 to 6 percent; rock hazard in places.	Moderate: moderately slow to slow permeability; seasonal high water table.	Moderate: seasonal high water table.	Moderate: slope; seasonal high water table.	Moderate: seasonal high water table.

TABLE 8.—*Limitations of the soils for*

Soil series and map symbols	Foundations for dwellings	Sites for light industries	Local roads and streets
Lucy: LuB, LuC	Slight where slopes are 0 to 8 percent. Moderate where slopes are 8 to 10 percent.	Moderate where slopes are 0 to 8 percent; fair bearing strength. Severe where slopes are 8 to 10 percent.	Slight where slopes are 0 to 8 percent. Moderate where slopes are 8 to 10 percent.
Lumbee: Lw	Severe: seasonal high water table.	Severe: seasonal high water table.	Severe: seasonal high water table.
Lynn Haven: Ly	Severe: seasonal high water table.	Severe: seasonal high water table.	Severe: seasonal high water table.
Mecklenburg: MeC	Moderate: moderate shrink-swell potential.	Moderate: moderate shrink-swell potential.	Severe: poor traffic-supporting capacity; moderate shrink-swell potential.
Nason: NaB, NaD	Moderate: bedrock at a depth of 2 to 4 feet; slope.	Moderate where slopes are 2 to 8 percent; bedrock at a depth of 2 to 4 feet. Severe where slopes are 8 to 15 percent.	Severe: poor traffic-supporting capacity; rock at a depth of 2 to 4 feet.
Orangeburg: OrA, OrB, OrC, OwB	Slight where slopes are 0 to 8 percent. Moderate where slopes are 8 to 10 percent.	Slight where slopes are 0 to 4 percent. Moderate where slopes are 4 to 8 percent. Severe where slopes are 8 to 10 percent.	Slight where slopes are 0 to 8 percent. Moderate where slopes are 8 to 10 percent.
Paleaquults, sandy: Pa	Severe: seasonal high water table; very poorly drained.	Severe: seasonal high water table; very poorly drained.	Severe: seasonal high water table; very poorly drained.
Pelion: PeA, PeB, PeC	Moderate: fair bearing strength; some seepage in places.	Moderate where slopes are 0 to 8 percent; fair bearing strength. Severe where slopes are 8 to 10 percent.	Severe: poor traffic-supporting capacity.
Pickens: PkD	Severe: rock at a depth of 1 to 1½ feet.	Severe: rock at a depth 1 to 1½ feet.	Severe: rock at a depth of 1 to 1½ feet.
Rains: Ra	Severe: seasonal high water table; subject to ponding.	Severe: poorly drained; seasonal high water table; corrosibility; subject to ponding.	Severe: poorly drained; seasonal high water table; subject to ponding.
Tatum: TaE	Severe: slope; bedrock at a depth of 2 to 4 feet.	Severe: slope; bedrock at a depth of 2 to 4 feet.	Severe: slope; poor traffic-supporting capacity.

town and country planning—Continued

Sewage disposal		Selected recreational uses			
Septic-tank absorption fields	Sewage lagoons	Camp areas	Picnic areas	Playgrounds	Paths and trails
Slight where slopes are 0 to 8 percent. Moderate where slopes are 8 to 10 percent.	Severe: rapid permeability in the upper 20 to 40 inches.	Moderate: sandy surface layer.	Moderate: sandy surface layer.	Moderate where slopes are 2 to 6 percent; sandy surface layer. Severe where slopes are 6 to 10 percent.	Moderate: sandy surface layer.
Severe: seasonal high water table.	Severe: seasonal high water table.	Severe: seasonal high water table.	Severe: seasonal high water table.	Severe: seasonal high water table.	Moderate: seasonal high water table.
Severe: subject to flooding; seasonal high water table.	Severe: moderately rapid permeability; excess fluctuation of water table.	Severe: subject to flooding; seasonal high water table.	Severe: subject to flooding; seasonal high water table.	Severe: seasonal high water table; subject to flooding.	Severe: seasonal high water table; subject to flooding.
Severe: slow permeability.	Severe: slope	Moderate: slow permeability; slope.	Slight where slopes are 6 to 8 percent. Moderate where slopes are 8 to 10 percent.	Severe: slope	Slight.
Severe: bedrock at a depth of 2 to 4 feet.	Severe: bedrock at a depth of 2 to 4 feet.	Slight where slopes are 2 to 8 percent. Moderate where slopes are 8 to 15 percent.	Slight where slopes are 2 to 8 percent. Moderate where slopes are 8 to 15 percent.	Moderate where slopes are 2 to 6 percent. Severe where slopes are 6 to 15 percent.	Slight.
Slight where slopes are 0 to 8 percent. Moderate where slopes are 8 to 10 percent.	Moderate where slopes are 0 to 7 percent; moderate permeability. Severe where slopes are 7 to 10 percent.	Slight where slopes are 0 to 8 percent. Moderate where slopes are 8 to 10 percent.	Slight where slopes are 0 to 8 percent. Moderate where slopes are 8 to 10 percent.	Slight where slopes are 0 to 2 percent. Moderate where slopes are 2 to 6 percent. Severe where slopes are 6 to 10 percent.	Slight.
Severe: seasonal high water table.	Severe: seasonal high water table.	Severe: very poorly drained; seasonal high water table.	Severe: very poorly drained; seasonal high water table.	Severe: very poorly drained; seasonal high water table.	Severe: very poorly drained; seasonal high water table.
Severe: slow permeability.	Slight where slopes are 0 to 2 percent. Moderate where slopes are 2 to 7 percent. Severe where slopes are 7 to 10 percent.	Moderate: slow permeability.	Slight where slopes are 0 to 8 percent. Moderate where slopes are 8 to 10 percent.	Moderate where slopes are 0 to 6 percent; slow permeability. Severe where slopes are 6 to 10 percent.	Slight.
Severe: rock at a depth of 1 to 1½ feet.	Severe: rock at a depth of 1 to 1½ feet.	Slight where slopes are 6 to 8 percent. Moderate where slopes are 8 to 15 percent.	Slight where slopes are 6 to 8 percent. Moderate where slopes are 8 to 15 percent.	Severe: rock at a depth of 1 to 1½ feet.	Slight.
Severe: seasonal high water table; subject to ponding.	Moderate: moderate permeability; subject to ponding.	Severe: seasonal high water table; subject to ponding.	Severe: seasonal high water table; subject to ponding.	Severe: seasonal high water table; subject to ponding.	Severe: seasonal high water table; subject to ponding.
Severe: slope; depth to bedrock.	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Moderate: slope.

TABLE 8.—*Limitations of the soils for*

Soil series and map symbols	Foundations for dwellings	Sites for light industries	Local roads and streets
Toccoa: To	Severe: floods at least once each year.	Severe: floods at least once each year.	Severe: floods at least once each year.
Troup: TrB, TuB	Slight	Slight where slopes are 0 to 4 percent. Moderate where slopes are 4 to 6 percent.	Slight
Vaucluse: VaB, VaC, VaE	Slight where slopes are 2 to 8 percent. Moderate where slopes are 8 to 15 percent. Severe where slopes are 15 to 25 percent.	Slight where slopes are 2 to 4 percent. Moderate where slopes are 4 to 8 percent. Severe where slopes are 8 to 25 percent.	Slight where slopes are 2 to 8 percent. Moderate where slopes are 8 to 15 percent. Severe where slopes are 15 to 25 percent.
Wahee: WaB	Severe: seasonal high water table; high shrink-swell potential; somewhat poorly drained.	Severe: seasonal high water table; somewhat poorly drained; high shrink-swell potential.	Severe: seasonal high water table; poor traffic-supporting capacity.

placed in undisturbed soil. The features that affect the rating of a soil for dwellings and light industries are those that relate to capacity to support a load and resist settlement under that load and those that relate to ease of excavation. Soil properties that affect capacity to support load are wetness, susceptibility to flooding, density, plasticity, texture, and shrink-swell potential. Those that affect excavation are wetness, slope, depth to bedrock, and content of stones and rocks.

Local roads and streets rated in table 8 have an all-weather surface expected to carry automobile traffic all year. They have a subgrade of underlying soil material; a base consisting of gravel, crushed rock, or soil material stabilized with lime or cement; and a flexible or rigid surface, commonly asphalt or concrete. These roads are graded to shed water and have ordinary provisions for drainage. They are built mainly from soil at hand, and most cuts and fills are less than 6 feet deep.

Soil properties that most affect design and construction of roads and streets are load-supporting capacity and stability of the subgrade and the workability and quantity of cut and fill material available. The AASHTO and Unified classifications of the soil material, and also the shrink-swell potential, indicate traffic-supporting capacity. Wetness and flooding affect stability of the material. Slope, depth to hard rock, content of stones and rocks, and wetness affect ease of excavation and amount of cut and fill needed to reach an even grade.

Septic-tank absorption fields are subsurface systems of tile or perforated pipe that distribute effluent from a septic tank into natural soil. The soil material from a depth of 18 inches to 6 feet is evaluated. The soil properties considered are those that affect both absorption of effluent and construction and operation of the system. Properties that affect absorption are permeability, depth to water table or rock, and susceptibility to flooding. Slope is a soil property that affects difficulty of layout and construction and also the risk of soil erosion, lateral seepage, and downslope flow of effluent. Large rocks or boulders increase construction costs.

Sewage lagoons are shallow ponds constructed to hold sewage within a depth of 2 to 5 feet long enough for bacteria to decompose the solids. A lagoon has a nearly level floor and sides, or embankments, of compacted soil material. The assumption is made that the embankment will be compacted to medium density and the pond will be protected from flooding. Properties are considered that affect the pond floor and the embankment. Those that affect the pond floor are permeability, content of organic matter, slope, and, where the floor needs to be leveled, depth to bedrock. The soil properties that affect the embankment are the engineering properties of the embankment material as interpreted through the Unified Soil Classification System (*10*), and the amounts of stones, if any, that influence the ease of excavation and compaction of the embankment material.

town and country planning—Continued

Sewage disposal		Selected recreational uses			
Septic-tank absorption fields	Sewage lagoons	Camp areas	Picnic areas	Playgrounds	Paths and trails
Severe: floods at least once each year.	Severe: moderately rapid permeability; floods at least once each year; probable flood damage to embankments.	Severe: floods at least once each year.	Moderate: floods at least once each year.	Severe: floods at least once each year.	Moderate: floods at least once each year.
Slight	Severe: rapid permeability to a depth of about 62 inches.	Moderate: sandy surface layer.	Moderate: sandy surface layer.	Severe: sandy surface layer.	Severe: sandy surface layer.
Severe: slow permeability.	Moderate where slopes are 2 to 7 percent; possible pervious layers. Severe where slopes are 7 to 25 percent.	Moderate where slopes are 2 to 15 percent; slow permeability; sandy surface layer. Severe where slopes are 15 to 25 percent.	Moderate where slopes are 2 to 15 percent; sandy surface layer. Severe where slopes are 15 to 25 percent.	Moderate where slopes are 2 to 6 percent; slow permeability; sandy surface layer. Severe where slopes are 6 to 25 percent.	Moderate: sandy surface layer.
Severe: slow permeability; seasonal high water table.	Slight where slopes are 0 to 2 percent. Moderate where slopes are 2 to 4 percent.	Severe: seasonal high water table; floods at least once each year.	Severe: seasonal high water table; floods at least once each year.	Severe: seasonal high water table; floods at least once each year.	Severe: seasonal high water table; floods at least once each year.

In all ratings for *Selected recreational uses* in table 8, it is assumed that a good cover of vegetation can be established and maintained. These ratings combined with the explanations that follow can be used in planning, developing, and maintaining areas used for recreation.

Camp areas are used intensively for tents and small camp trailers and the accompanying activities of outdoor living. Little preparation of the site is required, other than shaping and leveling for tent and parking areas. Camp areas are subject to heavy foot traffic and limited vehicular traffic. The best soils have mild slopes, good drainage, a surface free of rocks and coarse fragments, freedom from flooding during periods of heavy use, and a surface that is firm after rains but not dusty when dry.

Picnic areas are attractive natural or landscaped tracts used mainly for preparing meals and eating outdoors. These areas are subject to heavy foot traffic. Most of the vehicular traffic, however, is confined to access roads. The best soils are firm when wet but not dusty when dry. They do not become flooded during the season of use, and they do not have slopes or stoniness that greatly increase cost of leveling sites or of building access roads.

Playgrounds are areas used intensively for baseball, football, badminton, and similar organized games. Soils suitable for this use need to withstand intensive foot traffic. The best soils have a nearly level surface free of coarse fragments and rock outcrops, have good drainage, are free from flooding during periods of heavy use, and have a surface that is firm after rains but not dusty when dry. If grading and leveling are required, depth to rock is important.

Paths and trails are used for local and cross country travel by foot or horseback. Design and layout should require little or no cutting and filling. The best soils are at least moderately well drained, are firm when wet but not dusty when dry, are flooded not more than once during the season of use, have slopes of less than 15 percent, and have few or no rocks or stones on the surface.

Formation and Classification of the Soils

In this section the factors that affected the formation and morphology of the soils in Lexington County are discussed. The current system of classification is then explained, and the classification of the soil series by families, subgroup, and order is shown (table 9).

Factors of Soil Formation

Soil is the product of soil-forming processes acting upon materials formed, deposited, or accumulated by geologic forces. The five major factors of soil formation are parent material, climate, relief, plants and animals, and time. Climate and plants and animals,

particularly plants, are the active forces in soil formation. Their effect on parent material is modified by relief and by the length of time the parent material has been in place. The relative importance of each factor differs from place to place. In some places one factor may dominate in the formation of a soil and determine most of its properties. Generally, however, the interaction of all the factors determines the kind of soil that forms in any given place.

Parent material

Parent material is the unconsolidated mass in which a soil forms. Since Lexington County is located in both the Piedmont Plateau and the Atlantic Coastal Plain Sandhills, the parent material accounts for many differences among the soils.

In the Piedmont Plateau about one-third of the soils have parent materials of saprolite of gneissic granite which contains such minerals as quartz, mica, and feldspar. Appling and Cecil soils formed in material derived from these rocks. Enon and Helena soils formed in material that weathered from acidic and basic rocks. The remaining two-thirds of the soils in the Piedmont Plateau part of Lexington County formed in saprolite that weathered from rocks known locally as "Carolina slates" (fig. 16). These are metamorphosed shale, dominantly argillite, fine-grained sandstone, and muscovite mica. Weathered products of these rocks are high in silt and very fine sands. Soil textures are silt loam, silty clay loam, silty clay, and clay. Soils derived from these rocks are in the Georgeville, Nason, Herndon, Lignum, Alamance, and Tatum series.

Figure 16.—**Bedrock of the "Carolina slates." Georgeville, Nason, Herndon, Tatum, and Alamance soils formed in material weathered from these rocks.**

Soils on stream flood plains formed in silty, loamy, or sandy sediment that washed from the Piedmont Plateau. These soils are in the Congaree, Toccoa, and Enoree series. They have little genetic development and are classed as Entisols. Soils of the Chenneby series are also on flood plains. They have some genetic development and are classed as Inceptisols.

The parent material in the Sandhills consists of marine-deposited sediment (fig. 17). Proportions of quartz sand, kaolinitic clays, and silt vary in this material. Soils of the Lakeland, Kershaw, Alaga, Troup, Lynn Haven, and Blaney series are typical of those that formed in materials consisting mainly of sand and only small and variable amounts of clay and silt. Soils of the Wahee, Craven, and Pelion series formed in material in which clay is dominant along with only small amounts of sand and silt. Soils of other series, such as Dothan, Orangeburg, Lucy, Fuquay, and Vaucluse, formed in material in which sand, clay, or silt are in more nearly equal percentages, although silt content is generally low in the Sandhills. Soils of the Johnston series formed in recent alluvium from the Sandhills.

Climate

Lexington County has a temperate climate and has mild winters and very warm summers. Rainfall is ample throughout the growing season. Summer is the wettest season. More detailed information about climate is given in the section "Additional Facts About the County."

Climate, particularly precipitation and temperature, affects the physical, chemical, and biological relationship in the soil. The growth and activity of living organisms and also the chemical and physical decomposition or weathering of parent material are accelerated by moisture and warm temperatures. Water dissolves and transports minerals and organic matter down through the layers of soil. It causes the leaching of soluble bases down through the soil and the translocation or redistribution of less soluble, finer textured, and highly weathered materials. The amount of water that percolates through the soil depends on the rainfall, relief, permeability of the soil material, and the frost-free season.

Rainfall and the temperate climate of Lexington County are responsible for the leaching and removal of soluble materials released through weathering of the rocks that were originally present in the marine sediment. For this reason the soils are strongly acid and have low base saturation. Water movement through the soil is responsible for the clayey and fine loamy subsoils characteristic of such upland soils as Cecil, Appling, Georgeville, and Dothan soils, and for the excessive leaching and clay removal of such coarse-textured soils as Lakeland soil and the clay

Figure 17.—**A deep sand pit in the Sandhills. Lakeland and Kershaw soils formed in this type of deep sediment of marine sands.**

accumulation in the deep subsoil of Fuquay and Troup soils.

Relief

Relief is lay of the land. It has been determined largely by geologic history and the effects of dissection by streams as they have developed. It influences the formation of soils chiefly by its effects on water movement, erosion, and plant cover. In the Piedmont Plateau runoff is less rapid on the gentle slopes and more soil material forms on the surface. Here where soil development has exceeded geologic erosion, the soils are thicker than soils that formed on moderate to steep slopes where soil removal by geologic erosion has more closely kept pace with soil development.

In the Sandhills the broad ridgetops or plains are nearly level or gently undulating. Few streams dissect the plains. Runoff is slight, and most of the rainfall passes down through the permeable soil material, thus leaching bases and transporting clays to greater depths. This same process takes place, but is modified by increased runoff, in the more sloping part of the Sandhills where drainageways have developed.

On the nearly level flood plains of the streams, soil-forming materials deposited by stream overflow accumulate on the surface at rates exceeding other soil-forming processes. Most soils in this relief are classed in the order of Entisols or Inceptisols and have not developed genetic horizons. In areas of level or depressional relief, where stream and surface drainage are not well established, the water table is close to the surface and soils are permanently wet. Soils classed in the great groups as Paleaquults, Ochraquults, and Haplaquods formed in this environment.

Plants and animals

The number and kinds of plants and animals that live in and on the soil are determined mainly by the climate but to a lesser extent by parent material, relief, and age of the soils.

Bacteria, fungi, and other micro-organisms are indispensable in soil formation. They hasten the weathering of minerals and the decomposition of organic matter, and they release nutrients for plant use. Larger plants alter the soil microclimate, furnish organic matter, and transfer chemical elements from the subsoil to the surface soil. Most of the bacteria and fungi in the soils of Lexington County are in the upper few inches of the A horizon.

Earthworms and other small invertebrates are chiefly active in the surface layers and in the upper part of the subsoil in the soils of Lexington County.

They slowly but continually mix the soil material of these horizons.

Animals also play a role in soil formation. By eating plants they perform a step in returning and distributing plant nutrients to the soil. Also, burrowing animals mix soil material.

Large trees affect soil formation by bringing nutrients up from deep within the soil and bringing soil material up from varying depths when they are overturned by wind. Also, they provide large openings to be filled by material from above as large roots decay. Trees are the native vegetation in Lexington County. In the Sandhills trees were chiefly oaks and longleaf pines. In the Piedmont Plateau various oaks, hickory, sweetgum, and loblolly and shortleaf pines were dominant. Water-tolerant oaks, maple, sweetgum, blackgum, and cypress were common in areas of wet soils.

Time

The length of time required for a soil to form depends largely on the intensity of other soil-forming factors. The soils of Lexington County range from young to mature. On the uplands of the Piedmont Plateau, and also in the Sandhills, many of the soils have well-developed genetic horizons (layers) that are easily recognized. Here, below the surface layer, the layers of the subsoil (B horizon) have an accumulation of clay. Where the parent material is sandy, little horizonation has taken place. In areas of level or depressional relief, the soils are saturated, and in these areas horizons are only moderately distinct. On the stream flood plains, the soils are young because the soil material is still being deposited as alluvium and well-defined horizons have not had time to form.

Classification of Soils

Soils are classified so that we can more easily remember their significant characteristics. Classification enables us to assemble knowledge about the soils, to see their relationship to one another and to the whole environment, and to develop principles that help us to understand their behavior and their response to manipulation. First through classification, and then through use of soil maps, we can apply our knowledge of soils to specific fields and other tracts of land.

The narrow categories of classification, such as those used in detailed soil surveys, allow us to organize and apply knowledge about soils in managing farms, fields, and woodlands; in developing rural areas; in engineering work; and in many other ways. Soils are placed in broad classes to facilitate study and comparison in large areas such as countries and continents.

The system of soil classification currently used was adopted by the National Cooperative Soil Survey in 1965. Because this system is under continual study, readers interested in developments of the current system should search the latest literature available.[6]

The current system of classification has six categories. Beginning with broadest, these are order, suborder, great group, subgroup, family, and series. In this system the criteria used as a basis for classification are soil properties that are observable and measurable. The properties are chosen, however, so that the soils of similar genesis, or mode of origin, are grouped. In table 9 the soil series of Lexington County are placed in four categories of the current system. Classes of the current system are briefly defined in the following paragraphs.

ORDER. Ten soil orders are recognized. The properties used to differentiate among soil orders are those that tend to give broad climatic groupings of soils. The two exceptions to this are the Entisols and Histosols, which occur in many different climates. Each order is named with a word of three or four syllables ending in *sol* (Ent-i-sol). Table 9 lists five orders for Lexington County: Alfisols, Entisols, Inceptisols, Spodosols, and Ultisols.

SUBORDER. Each order is subdivided into suborders that are based mainly on those soil characteristics that seem to produce classes with the greatest genetic similarity. The suborders narrow the broad climatic range permitted in the orders. The soil properties used to separate suborders are mainly those that reflect either the presence or absence of waterlogging or soil differences resulting from the climate or vegetation. The names of suborders have two syllables. The last syllable indicates the order. An example is *Aquent* (Aqu, meaning water or wet, and *ent,* from Entisol). The suborder is not shown in table 9.

GREAT GROUP. Soil suborders are separated into great groups on the basis of uniformity in the kinds and sequence of major soil horizons and features. The horizons used to make separations are those in which clay, iron, or humus have accumulated; those that have pans that interfere with growth or roots, movement of water, or both; and thick, dark-colored surface horizons. The features used are the self-mulching properties of clay, soil temperature, major differences in chemical composition (mainly calcium, magnesium, sodium, and potassium), dark-red and dark-brown colors associated with basic rocks, and the like. The names of great groups have three or four syllables and are made by adding a prefix to the name of the suborder. An example is *Haplaquents* (*Hapl,* meaning simple horizons, *aqu* for wetness or water, and *ent,* from Entisols). The name of the great group is not shown separately in table 9, but it is the last word in the name of the subgroup.

SUBGROUP. Great groups are subdivided into subgroups, one representing the central (typic) segment of the group, and others, called intergrades, that have properties of the group and also one or more properties of another great group, suborder, or order. Subgroups may also be made in those instances where soil properties intergrade outside of the range of any other great group, suborder, or order. The names of subgroups are derived by placing one or more adjectives before the name of the great group. An example is *Typic Hapludults* (a typical Hapludult).

FAMILY. Soil families are separated within a subgroup mainly on the basis of properties important to the growth of plants or on the behavior of soils when

[6] "Latest literature" includes "Soil taxonomy of the national cooperative soil survey," U.S. Dept. Agr., Soil Conservation Service. This manuscript is presently being edited, and will be published in the near future.

TABLE 9.—*Soil series classified by higher categories*

Series	Family	Subgroup	Order
Alaga	Thermic, coated	Typic Quartzipsamments	Entisols.
Alamance	Fine-silty, siliceous, thermic	Typic Hapludults	Ultisols.
Appling	Clayey, kaolinitic, thermic	Typic Hapludults	Ultisols.
Blaney	Sandy, siliceous, thermic	Arenic Fragiudults	Ultisols.
Brogdon	Coarse-loamy, siliceous, thermic	Typic Paleudults	Ultisols.
Cecil	Clayey, kaolinitic, thermic	Typic Hapludults	Ultisols.
Chenneby	Fine-silty, mixed, thermic	Fluvaquentic Dystrochrepts	Inceptisols.
Congaree	Fine-loamy, mixed, nonacid, thermic	Typic Udifluvents	Entisols.
Cowarts	Fine-loamy, siliceous, thermic	Fragic Paleudults	Ultisols.
Craven	Clayey, mixed, thermic	Aquic Hapludults	Ultisols.
Dothan	Fine-loamy, siliceous, thermic	Plinthic Paleudults	Ultisols.
Enon	Fine, mixed, thermic	Ultic Hapludalfs	Alfisols.
Enoree	Coarse-loamy, mixed, nonacid, thermic	Aeric Fluvaquents	Entisols.
Fuquay	Loamy, siliceous, thermic	Arenic Plinthic Paleudults	Ultisols.
Georgeville	Clayey, kaolinitic, thermic	Typic Hapludults	Ultisols.
Goldsboro	Fine-loamy, siliceous, thermic	Aquic Paleudults	Ultisols.
Helena	Clayey, mixed, thermic	Aquic Hapludults	Ultisols.
Herndon	Clayey, kaolinitic, thermic	Typic Hapludults	Ultisols.
Johnston	Coarse-loamy, siliceous, acid, thermic	Cumulic Humaquepts	Inceptisols.
Kershaw	Thermic, uncoated	Typic Quartzipsamments	Entisols.
Lakeland	Thermic, coated	Typic Quartzipsamments	Entisols.
Lignum	Clayey, mixed, thermic	Aquic Hapludults	Ultisols.
Lucy	Loamy, siliceous, thermic	Arenic Paleudults	Ultisols.
Lumbee	Fine-loamy over sandy or sandy skeletal, siliceous, thermic	Typic Ochraquults	Ultisols.
Lynn Haven	Sandy, siliceous, thermic	Typic Haplaquods	Spodosols.
Mecklenburg	Fine, mixed, thermic	Ultic Hapludalfs	Alfisols.
Nason	Clayey, mixed, thermic	Typic Hapludults	Ultisols.
Orangeburg	Fine-loamy, siliceous, thermic	Typic Paleqults	Ultisols.
Pelion	Fine-loamy, siliceous, thermic	Glossaquic Fragiudults	Ultisols.
Pickens	Loamy-skeletal, mixed, thermic	Lithic Dystrochrepts	Inceptisols.
Rains	Fine-loamy, siliceous, thermic	Typic Paleaquults	Ultisols.
Tatum	Clayey, mixed, thermic	Typic Hapludults	Ultisols.
Toccoa	Coarse-loamy, mixed, nonacid, thermic	Typic Udifluvents	Entisols.
Troup	Loamy, siliceous, thermic	Grossarenic Paleudults	Ultisols.
Vaucluse	Fine-loamy, siliceous, thermic	Typic Fragiudults	Ultisols.
Wahee	Clayey, kaolinitic, thermic	Aeric Ochraquults	Ultisols.

used for engineering. Among the properties considered are texture, mineralogy, reaction, soil temperature, permeability, thickness of horizons, and consistence. A family name consists of a series of adjectives preceding the subgroup name. The adjectives are the class names for texture, mineralogy, and so on, that are used as family differentia (table 9). An example is the fine-loamy, siliceous, thermic family of Plinthic Paleudults.

SERIES. The series consists of a group of soils that formed from a particular kind of parent material and has genetic horizons that, except for texture of the surface soil layer, are similar in differentiating characteristics and in arrangement in the soil profile. Some of these characteristics are color, texture, thickness, structure, reaction, consistence, and mineralogical and chemical composition.

Additional Facts About the County

Information on the physiography, geology, and climate of Lexington County is presented in this section.

Physiography and Geology

Lexington County lies in two physiographic provinces. These are the Piedmont Plateau and the Sandhills, which are the westernmost part of the Atlantic Coastal Plain. About one-fourth of the county is in the Piedmont Plateau and about three-fourths of the county is in the Sandhills. These two provinces join along a line called the "Fall Line." In Lexington County, this line trends easterly across the county and is roughly parallel to and just north of U.S. Highway 1. The Piedmont Plateau is north of this line, and the Sandhills are south of it.

Streams and drainageways are numerous in the Piedmont Plateau, and they have cut into it in a dendritic pattern. The main divides form fairly broad ridgetops that have erodible surfaces. Slope is toward the streams. These ridges are gently sloping to moderately sloping. The stream flood plains are narrow and are lacking along the small branches which have not eroded to grade. Along the major branches and creeks the land is strongly sloping to moderately steep. Common elevations on the ridgetops and main divides are 350 to 500 feet. Along the main streams they are 200 to 300 feet.

All of the rocks in the Piedmont Province in Lexington County are grouped in a geologic belt locally known as the Caroline Slate Belt (*4*). These rocks are not true slates but are shales and schists. The principal rock type in this slate belt is argillite. It is fine grained and is high in silica and alumina. Many similar rock types and volcanic intrusions are included. These rocks underlie the soils in the Georgeville-Nason

association (general soil map), and the parent material of soils in this association weathered from them.

From Hollow Creek and Lake Murray south to the fall line is a narrow zone of a quartz-microline gneiss rock. These granites and gneisses contain much quartz and mica. They underlie the Cecil-Appling association, and the parent material of soils in this association weathered from these rocks.

Within the Sandhill Province are four geologic formations (*2*) of unconsolidated marine deposits. These are, from the oldest to the youngest, the Tuscaloosa, Barnwell Sand, McBean, and Sunderland Terrace.

The Tuscaloosa formation is the most extensive. It consists of light-colored sand and lenses of kaolin clay. The relief is gently undulating to rolling, and slopes are commonly 2 to 15 percent. Many streams dissect the formation. Except for large creeks, the valley and stream flood plains are narrow. Common elevations are 150 to 250 feet along the streams and 300 to 500 feet on the ridges. Most of this formation underlies the Lakeland-Blaney association.

The Barnwell Sand formation in Lexington County is a nearly level to gently undulating plain at elevations of 500 to 550 feet. It consists mostly of yellow and reddish fine sands and sands that contain various amounts of clay. A few undrained wet depressions are on the plain, and outcroppings of sandstone are common on the eroded edges of it. This formation underlies most of the Lakeland-Fuquay association and parts of the Dothan-Troup-Fuquay association.

The McBean formation forms a gently rolling plain which is moderately dissected by streams and draws. Slopes range from 2 to 10 percent. The formation consists of medium-grained sand and sandy clay loams, thin beds of clay, and fuller's earth. Elevation on the ridgetops ranges from 300 to 400 feet. This formation underlies most of the Dothan-Troup-Fuquay association and a small part of the Lakeland-Blaney association.

The Sunderland formation is a nearly level marine estuary terrace which extends inland in the Congaree River Valley. It consists chiefly of sand and gravel. Elevations range from 120 to 160 feet. This formation underlies the soils of the Congaree-Toccoa-Brogdon association.

Climate [7]

The climate of Lexington County is temperate and is characterized by mild winters and warm summers. The day-to-day weather in the fall, winter, and spring is caused largely by the west to east motion of fronts, cyclones, and airmasses. Airmass exchanges are infrequent in summer, and maritime tropical air persists in the area for extended periods. Rainfall is ample, measuring from 46 to 48 inches per year. The annual distribution shows a major maximum of about 6 inches in July and a major minimum of about 2½ inches in both October and November. Less pronounced wet and dry periods occur in March when precipitation is about 4½ inches and in May when it is about 3½ inches. Temperature and precipitation data are presented in table 10.

The prevailing wind is from the southwest most of the year, but it is from the northeast in September and October. The average wind velocity is highest in spring and lowest in autumn. The highest windspeed

[7] By HOLBROOK LANDERS, climatologist for South Carolina, National Weather Service, U.S. Department of Commerce.

TABLE 10.—*Temperature and precipitation*

Month	Temperature				Precipitation				
	Average daily maximum	Average daily minimum	Two years in 10 will have at least 4 days with—		Average total	One year in 10 will have—		Days with snow cover of 1 inch or more	Average depth of snow on days with snow cover
			Maximum temperature equal to or higher than—	Minimum temperature equal to or lower than—		More than—	Less than—		
	°F	°F	°F	°F	*Inches*	*Inches*	*Inches*	*Number*	*Number*
January	58	36	75	19	3.0	6.3	1.2	(1)	0.4
February	61	36	76	21	3.7	6.3	1.0	(1)	0.4
March	67	42	82	28	4.3	6.8	1.9	(1)	0.3
April	76	52	88	37	4.0	6.4	1.8	0	0
May	85	60	94	47	3.5	5.5	1.5	0	0
June	91	68	100	56	3.9	6.4	1.5	0	0
July	92	71	99	65	6.1	10.3	1.5	0	0
August	91	70	99	62	5.7	11.9	1.8	0	0
September	86	64	95	54	4.3	8.7	1.3	0	0
October	77	52	88	34	2.4	4.7	0.5	0	0
November	67	41	80	27	2.4	6.8	0.7	0	0
December	58	35	72	20	3.5	6.0	1.0	(1)	0.6
Year	76	52	[2] 102	[3] 13	46.8	60.0	31.4	1	0.4

[1] Less than half a day.
[2] Average annual maximum.
[3] Average annual minimum.

ever measured at the Columbia Airport was 60 miles per hour in March 1954. Average relative humidity readings at 1:00 p.m. are 65 percent in winter, 55 percent in spring, 70 percent in summer, and 72 percent in autumn. Corresponding readings at 7:00 a.m. are 83 percent, 86 percent, 92 percent, and 92 percent, respectively. The sun is visible about 65 percent of the daylight hours, ranging from 60 percent in January to 69 percent in August. Precipitation measuring one-tenth inch or more falls about 75 days each year. Annual rainfall has varied from 71 inches in 1964 to 27 inches in 1933 and 1954. There are 125 clear days per year, 53 days that have thunderstorms, and 25 days that have heavy fog.

Summers are warm and long. Temperatures reach 90 degrees or higher on an average of 49 days, and they reach 100 degrees on 2 or 3 days each year. Summer is the wettest season, and about one-third of the annual rain falls at this time. Showers and thunderstorms are common because of the frequent presence of warm, moist, and relatively unstable maritime tropical air. Tropical storm precipitation occurs occasionally.

Autumn is warm and pleasant, and "Indian Summer" weather prevails. It is the driest season, and only 19 percent of the annual rain falls in this period. Tropical storms or hurricanes, however, occasionally occur in the county in autumn. The average date of the first freezing temperature is about November 3, but in 1 year out of 10 the first freezing temperature is as early as October 26. Probabilities of last freezing temperatures in spring and first in fall are presented in table 11.

Winters are mild, and temperatures are as low as 32 degrees on 60 percent of the days. Snow falls nearly every winter, but significant amounts fall only about once every 4 years and seldom remain more than 1 day. Temperature is 20 degrees or less 6 days of the year and 15 degrees or less 1 or 2 days. Winter rainfall is about 22 percent of the annual total and is associated with fronts and traveling cyclones.

Spring is a period of change between the end of a rather uniform winter and the beginning of a rather uniform summer. March is a month of heavy rain. Rainfall decreases with time, however, and a dry period begins late in April and ends early in June. Winter-type steady rains are likely to occur early in spring. Scattered thunderstorm activity begins late in spring as winter gives way to summer. Tornadoes and violent thunderstorms occur more often in spring than in the other seasons. The average date of the last freezing temperature in spring is March 22.

Severe weather occurs in the form of tornadoes and as tropical storms and hurricanes. The tornado season is mainly March through August. April is the month of peak activity. The hurricane and tropical storm season is in summer and early in autumn. Only six tornadoes have occurred in Lexington County in the past 55 years. A storm fully qualifying as a hurricane has not occurred in this county in 50 years. The less violent tropical storms affect the area about once every 2 years, however, and bring heavy rain and minor wind damage.

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TABLE 11.—*Probabilities of last freezing temperatures in spring and first in fall*

Probability	Dates for given probability and temperature—		
	24° F or lower	28° F or lower	32° F or lower
Spring:			
1 year in 10 later than	March 20	March 29	April 20
2 years in 10 later than	March 15	March 22	April 10
5 years in 10 later than	February 22	March 18	March 22
Fall:			
1 year in 10 earlier than	November 8	October 28	October 26
2 years in 10 earlier than	November 21	October 31	October 28
5 years in 10 earlier than	December 1	November 10	November 3

Glossary

Acid soil. A soil that has a pH value of less than 7.0 (neutral). See "pH value."

Alluvium. Soil material, such as sand, silt, or clay, that has been deposited on land by streams.

Available water capacity Also termed 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 capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bisequel soil. See "Sequum."

Buried soil. A developed soil, once exposed but now overlain by more recently formed soil.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clayey soil. A soil that has a texture of sandy clay, silty clay, or clay.

Colluvium. Soil material, rock fragments, or both, moved by creep, slide, or local wash and deposited at the bases of steep slopes.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrations of compounds, or of soil grains cemented together. The composition of some concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are examples of material commonly found in concretions.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material, and tends to stretch somewhat and pull apart, rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard and brittle; little affected by moistening.

Erosion. The wearing away of the land surface by wind (sandblast), running water, and other geological agents.

Fertility, soil. The quality of a soil that enables it to provide compounds, in adequate amounts and in proper balance, for the growth of specified plants, when other growth factors such as light, moisture, temperature, and the physical condition of the soil are favorable.

Flood plain. Nearly level land, consisting of stream sediments, that borders a stream and is subject to flooding unless protected artificially.

Fragipan. A loamy, brittle, subsurface horizon that is very low in organic-matter content and clay but is rich in silt or very fine sand. The layer is seemingly cemented. When dry, it is hard or very hard and has a high bulk density in comparison with the horizon or horizons above it. When moist, the fragipan tends to rupture suddenly if pressure is applied, rather than to deform slowly. The layer is generally mottled, is slowly or very slowly permeable to water, and has few or many bleached fracture planes that form polygons. Fragipans are a few inches to several feet thick; they generally occur below the B horizon, 15 to 40 inches below the surface.

Friability. Term for the ease with which soil crumbles. A friable soil is one that crumbles easily.

Friable. See "Friability."

Horizon, soil. A layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil-forming processes. These are the major horizons:

O horizon.—The layer of organic matter on the surface of a mineral soil. This layer consists of decaying plant residues.

A horizon.—The mineral horizon at the surface or just below an O horizon. This horizon is the one in which living organisms are most active and therefore is marked by the accumulation of humus. The horizon may have lost one or more of soluble salts, clay, and sesquioxides (iron and aluminum oxides).

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of change from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics caused (1) by accumulation of clay, sesquioxides, humus, or some combination of these; (2) by prismatic or blocky structure; (3) by redder or stronger colors than the A horizon; or (4) by some combination of these. Combined A and B horizons are usually called the solum, or true soil. If a soil lacks a B horizon, the A horizon alone is the solum.

C horizon.—The weathered rock material immediately beneath the solum. In most soils this material is presumed to be like that from which the overlying horizons were formed. If the material is known to be different from that in the solum, a Roman numeral precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock usually underlies a C horizon but may be immediately beneath an A or B horizon.

Munsell notation. A system for designating color by degrees of the three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with a hue of 10YR, a value of 6, and a chroma of 4.

Parent material. Disintegrated and partly weathered rock from which soil has formed.

Ped. An individual natural soil aggregate, such as a crumb, a prism, or a block, in contrast to a clod.

Percolation. The downward movement of water through the soil.

Permeability. The quality that enables the soil to transmit water or air. Terms used to describe permeability are as follows: *very slow, slow, moderately slow, moderate, moderately rapid, rapid,* and *very rapid.*

pH value. A numerical means for designating acidity and alkalinity in soils. A pH value of 7.0 indicates precise neutrality; a higher value, alkalinity; and a lower value, acidity.

Plastic (soil consistence). See "Consistence, soil."

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluent that commonly shows as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to hardpan or to irregular aggregates upon repeated wetting and drying.

Profile, soil. A vertical section of the soil through all its horizons and extending into the parent material.

Reaction, soil. The degree of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is precisely neutral in reaction because it is neither acid nor alkaline. An acid, or "sour," soil is one that gives an acid reaction; an alkaline soil is one that is alkaline in reaction. In words, the degrees of acidity or alkalinity are expressed thus:

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock. Only the upper part of this, modified

by organisms and other soil-building forces, is regarded by soil scientists as soil. Most American engineers speak of the whole regolith, even to great depths, as "soil."

Runoff (hydraulics). The part of the precipitation upon a drainage area that is discharged from the area in stream channels. The water that flows off the land surface without sinking in is called surface runoff; that which enters the ground before reaching the surface streams is called ground-water runoff or seepage flow from ground water.

Sand. Individual rock or mineral fragments in a soil that range in diameter from 0.05 to 2.0 millimeters. Most sand grains consist of quartz, but they may be of any mineral composition. The textural class name of any soil that contains 85 percent or more sand and not more than 10 percent clay.

Sequum. A sequence in a soil profile consisting of an eluvial horizon and its related illuvial horizon, if present. Two sequa may be present in a single profile, and that soil could then be called a "bisequal" soil.

Silt. Individual mineral particles in a soil that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). Soil of the silt textural class is 80 percent or more silt and less than 12 percent clay.

Soil. A natural, three-dimensional body on the earth's surface that supports plants and that has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Solum. The upper part of a soil profile, above the parent material, in which the processes of soil formation are active. The solum in mature soil includes the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and other plant and animal life characteristic of the soil are largely confined to the solum.

Stratified. Composed of, or arranged in, strata, or layers, such as stratified alluvium. The term is confined to geological material. Layers in soils that result from the processes of soil formation are called horizons; those inherited from the parent material are called strata.

Structure, soil. The arrangement of primary soil particles into compound particles or clusters that are separated from adjoining aggregates and have properties unlike those of an equal mass of unaggregated primary soil particles. 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 together without any regular cleavage, as in many claypans and hardpans).

Surface soil. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, about 5 to 8 inches in thickness. The plowed layer.

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."

Tilth, soil. The condition of the soil in relation to the growth of plants, especially soil structure. Good tilth refers to the friable state and is associated with high noncapillary porosity and stable, granular structure. A soil in poor tilth is nonfriable, hard, nonaggregated, and difficult to till.

Topsoil. A presumed fertile soil or soil material, or one that responds to fertilization, ordinarily rich in organic matter, used to topdress roadbanks, lawns, and gardens.

Water table. The highest part of the soil or underlying rock material that is wholly saturated with water. In some places an upper, or perched, water table may be separated from a lower one by a dry zone.

Water table, perched. See "Water table."

Weathering. All physical and chemical changes produced in rocks at or near the earth's surface by atmospheric agents. These changes result in more or less complete disintegration and decomposition of the rock.

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GUIDE TO MAPPING UNITS

For complete information about a mapping unit, read both the description of the mapping unit and that of the soil series to which it belongs. A technical description of a representative profile is given in the description of each soil series. In referring to a capability unit or a woodland group, read the introduction to the section it is in for general information about its management. Dashes in columns mean that the mapping unit was not placed in a capability unit or a woodland group. Other information is given in tables as follows:

Acreage and extent, table 1, page 6.
Estimated yields and suitability for crops, table 2, page 45.
Woodland, table 3, page 47.
Wildlife, table 4, page 50.
Engineering uses of the soils, tables 5, 6, and 7, pages 54 through 69.
Town and country planning, table 8, page 70.

Map symbol	Mapping unit	Described on page	Capability unit		Woodland group
			Symbol	Page	Number
AgB	Alaga loamy sand, 0 to 4 percent slopes	7	IIIs-1	42	3s2
AmB	Alamance very fine sandy loam, 2 to 6 percent slopes	7	IIe-1	40	3o7
ApB	Appling sandy loam, 2 to 6 percent slopes	8	IIe-1	40	3o7
ApC	Appling sandy loam, 6 to 10 percent slopes	8	IIIe-1	41	3o7
ApD	Appling sandy loam, 10 to 15 percent slopes	9	IVe-1	43	3o7
BnC	Blaney sand, 2 to 10 percent slopes	9	IIIs-2	43	4s2
BoE	Blaney-Vaucluse complex, 10 to 25 percent slopes	9	VIe-1	43	---
	Blaney part	--	-----	--	4s2
	Vaucluse part	--	-----	--	4r2
BrA	Brogdon loamy sand, 0 to 2 percent slopes	11	IIs-3	41	2o1
CeB	Cecil fine sandy loam, 2 to 6 percent slopes	12	IIe-1	40	3o7
CeC	Cecil fine sandy loam, 6 to 10 percent slopes	12	IIIe-1	41	3o7
CeD	Cecil fine sandy loam, 10 to 15 percent slopes	12	IVe-1	43	3o7
CfC	Cecil-Urban land complex, 0 to 8 percent slopes	12	-----	--	3o7
CfD	Cecil-Urban land complex, 8 to 15 percent slopes	12	-----	--	3o7
Ch	Chenneby silty clay loam	13	IIIw-1	42	1w8
Ck	Chenneby soils	13	IIIw-1	42	1w8
Co	Congaree silt loam	13	IIw-7	41	1o7
CsB	Cowarts loamy sand, 2 to 6 percent slopes	14	IIe-5	40	2o1
CvA	Craven fine sandy loam, 0 to 2 percent slopes	15	IIw-5	40	3w2
DoA	Dothan loamy sand, 0 to 2 percent slopes	16	IIs-2	41	2o1
DoB	Dothan loamy sand, 2 to 6 percent slopes	16	IIe-5	40	2o1
DwB	Dothan-Urban land complex, 0 to 6 percent slopes	17	-----	--	2o1
EnB	Enon silt loam, 2 to 6 percent slopes	17	IIe-3	40	4o1
Eo	Enoree soils	18	Vw-1	43	2w9
FaB	Fuquay loamy sand, 0 to 6 percent slopes	19	IIs-4	41	3s2
FaC	Fuquay loamy sand, 6 to 10 percent slopes	19	IIIs-4	43	3s2
GeB	Georgeville very fine sandy loam, 2 to 6 percent slopes	21	IIe-1	40	3o7
GeC	Georgeville very fine sandy loam, 6 to 10 percent slopes	21	IIIe-1	41	3o7
GeD	Georgeville very fine sandy loam, 10 to 15 percent slopes	21	IVe-1	43	3o7
GoA	Goldsboro sandy loam, 0 to 2 percent slopes	22	IIw-2	40	2w8
HeB	Helena sandy loam, 2 to 6 percent slopes	23	IIe-3	40	3w8
HeC	Helena sandy loam, 6 to 10 percent slopes	23	IIIe-3	41	3w8
HrB	Herndon silt loam, 2 to 6 percent slopes	24	IIe-1	40	3o7
JO	Johnston soils	24	VIIw-1	43	1w9
KeC	Kershaw sand, 0 to 10 percent slopes	25	VIIs-1	44	5s3
LAB	Lakeland soils, undulating	25	IVs-1	43	4s2
LkD	Lakeland sand, 6 to 15 percent slopes	26	VIs-1	43	4s2
LnB	Lignum silt loam, 2 to 6 percent slopes	27	IIe-3	40	3w8
LuB	Lucy loamy sand, 0 to 6 percent slopes	27	IIs-4	41	3s2
LuC	Lucy loamy sand, 6 to 10 percent slopes	28	IIIs-4	43	3s2
Lw	Lumbee sandy loam	28	IIIw-4	42	2w9
Ly	Lynn Haven loamy sand	29	IVw-4	43	4w3
MeC	Mecklenburg silt loam, 6 to 10 percent slopes	29	IIIe-3	41	4o1
NaB	Nason silt loam, 2 to 6 percent slopes	30	IIe-1	40	3o7

Map symbol	Mapping unit	Described on page	Capability unit		Woodland group
			Symbol	Page	Number
NaD	Nason silt loam, 6 to 15 percent slopes	30	IIIe-1	41	3o7
OrA	Orangeburg loamy sand, 0 to 2 percent slopes	31	I-1	40	2o1
OrB	Orangeburg loamy sand, 2 to 6 percent slopes	31	IIe-6	40	2o1
OrC	Orangeburg loamy sand, 6 to 10 percent slopes	32	IIIe-7	41	2o1
OwB	Orangeburg loamy sand, overwash, 0 to 4 percent slopes	32	IIe-6	40	2o1
Pa	Paleaquults, sandy	32	IIIw-4	42	1w9
PeA	Pelion loamy sand, 0 to 2 percent slopes	33	IIw-6	41	3w2
PeB	Pelion loamy sand, 2 to 6 percent slopes	33	IIe-4	40	3w2
PeC	Pelion loamy sand, 6 to 10 percent slopes	33	IVe-4	43	3w2
PkD	Pickens slaty silt loam, 6 to 15 percent slopes	34	VIIs-4	44	5d3
Ra	Rains sandy loam	34	IIIw-4	42	2w3
TaE	Tatum silt loam, 15 to 25 percent slopes	35	VIe-6	43	4r2
To	Toccoa fine sandy loam	36	IIw-7	41	1o7
TrB	Troup sand, 0 to 6 percent slopes	36	IIIs-1	42	3s2
TuB	Troup-Urban land complex, 0 to 6 percent slopes	36	-----	--	3s2
VaB	Vaucluse loamy sand, 2 to 6 percent slopes	37	IIIe-4	41	3o1
VaC	Vaucluse loamy sand, 6 to 10 percent slopes	37	IVe-4	43	3o1
VaE	Vaucluse loamy sand, 10 to 25 percent slopes	37	VIe-1	43	3o1
WaB	Wahee sandy loam, 0 to 4 percent slopes	38	IIIw-3	42	2w8

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