Major fieldwork for this soil survey was done in the period 1954–66. Soil names and descriptions were approved in 1967. Unless otherwise indicated, statements in the publication refer to conditions in the county in 1966. This survey was made cooperatively by the Soil Conservation Service, U.S. Forest Service, and the South Carolina Agricultural Experiment Station. It is part of the technical assistance furnished to the Charleston Soil and Water Conservation District.

Either enlarged or reduced copies of the soil map in this publication can be made by commercial photographers, or they can be purchased on individual order from the Cartographic Division, Soil Conservation Service, USDA, Washington, D.C. 20250

HOW TO USE THIS SOIL SURVEY

THIS SOIL SURVEY contains information that can be applied in managing farms and woodlands; in selecting sites for roads, ponds, buildings, or other structures; and in judging suitability of

For example, soils that have slight limitations for a given use can be colored green, those with moderate limitations can be colored yellow, and those with severe limitations can be colored red.

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harleston County, South Carolina

LLER, JR., SOIL CONSERVATION SERVICE

NALD, W. M. STEEDLY, W. M. STUCK, AND C. B. WARE, SOIL CONSERVATION
AND L. E. ANDREW, UNITED STATES FOREST SERVICE

ICULTURE, SOIL CONSERVATION SERVICE AND FOREST SERVICE, IN
OUTH CAROLINA AGRICULTURAL EXPERIMENT STATION

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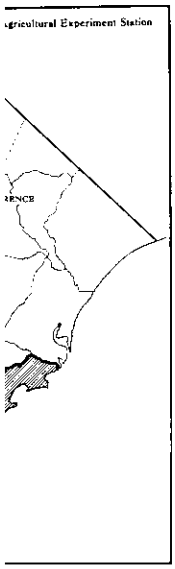

th Carolina.

General Soil Map

The general soil map at the back of this survey shows, in color, the soil associations in Charleston 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 soil associations in Charleston County are discussed in the following pages.

1. Seewee-Rutlege Association

Somewhat poorly drained to moderately well drained, nearly level, sandy soils on ridges and poorly drained to very poorly drained, sandy soils in depressions

This association occurs in long, narrow troughs, on broad ridges, and on long, narrow ridges in areas roughly parallel with the coastline. The troughs are 150 to 300 feet in width; the broad ridges, next higher in elevation than the troughs, are 150 to 1,000 feet in width; and the narrow ridges, at elevations 3 to 5 feet above the troughs, are 300 to 600 feet in width. Most of this association is less than 15 feet above sea level, but the range of elevation is from 5 to 25 feet.

This association occupies about 5 percent of the county. Seewee soils, on the broad ridges, make up about 68 percent of it; Rutlege soils, in the troughs, 17 percent; and Lakeland, Chipley, Leon, and St. Johns, the remaining 15 percent.

.re poorly to moderately
d, and wildlife produc-

ciation

nd excessively drained,
ndy soils

narrow depressions, on
ges. The depressions are
d ridges, next higher in
re 300 to 1,500 feet in
t elevations 2 to 4 feet
500 feet in width.
7 percent of the county.
es, make up 66 percent
row ridges, 23 percent;
soils, the remaining 11

ell drained to somewhat
rface layer is very dark
in by a layer of yellow-
epth below the surface
al becomes coarser and
rown. Then, at a depth
ht brownish-gray sand.
rained. Typically, their
h brown sand, and it is
wn to yellow sand that
or more.
ood forest, 500 to 1,000
cent of this association.
of the Francis Marion
ll farms, 10 to 30 acres
m products. The wood-
p and timber products,

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development. The domi-
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ght limitations as sites

ico Association

poorly drained, nearly
mucky soils

ng, broad, wooded area
rancis Marion National
w, broad flats and long,
ts are flooded areas that
er than the ridges. The
lth. Most of the associa-
level, but the range of

6 percent of the county.
p about 60 percent of it;
percent; Pamlico mucks,
at are covered by water,
and Lakeland soils, the

Kiawah-Seabrook-Dawhoo Association

oderately well drained to very poorly drained, nearly el to depressional, sandy soils

This association occurs on low, broad ridges and long, row-to-broad depressions in areas roughly parallel th the coastline. The ridges are 300 to 1,000 feet in dth and are at elevations 2 to 4 feet above the depres- ns. The depressions are 150 to 600 feet in width. Most this association is less than 15 feet above sea level, but e range of elevation is 5 to 25 feet.

This association occupies about 6 percent of the county. awah soils, on the lower parts of the higher sandy lges and on the ridges that are at intermediate eleva- ns, make up 48 percent of it; Seabrook soils in the gher areas on the ridges, 19 percent; Dawhoo soils, in depressions, 17 percent; and Rutlege, Wando, Edisto, d Yonges soils, the remaining 16 percent.

Kiawah soils are somewhat poorly drained. Their ter table is at a depth of about 18 inches. These soils e sandy throughout. Typically, their surface layer is ry dark grayish brown. Their subsoil is grayish brown a depth of about 32 inches, and mottled light gray, ong brown, and yellowish brown at depths of about to 48 inches.

Seabrook soils are moderately well drained. They are ndy throughout. Typically, their surface layer is very rk grayish-brown loamy fine sand, and the underlying terial is dark-brown to dark yellowish-brown loamy e sand.

Dawhoo soils are very poorly drained. They, too, are ndy throughout, and typically, they have a black sur- ce layer that is underlain by a very dark grayish-brown bsurface layer. Below this, at a depth of about 18 to 30 ches, there is a layer that is dark grayish brown.

Pine and hardwood forest occupies about 60 percent of is association. The rest of the acreage is used mainly r farming. The farms are mostly truck farms and are ually 15 to 200 acres in size, but some exceed 500 acres. me livestock is produced, and some general farming curs.

If the dominant soils of the association are adequately ained, they are suited to farming. However, as sites for uses, recreation, and industrial buildings, the Kiawah ils have moderate limitations, the Seabrook soils have ght limitations, and the Dawhoo soils have severe or ry severe limitations. If they are adequately drained, e dominant soils are well suited to pine. These soils e suitable for deer and wild turkey. When they are ed as a habitat for quail, the soils usually need drain- g.

Yonges-Hockley-Edisto Association

oderately well drained to poorly drained, nearly level ils that have a sandy surface layer and a predominantly my subsoil

This association occurs on a low, broad plain. It con- ins randomly spaced drainageways that lead to tidal eams. Most of the association is 12 feet or less above level, but elevations range from 5 to 25 feet. Surface egularities are slight.

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or brown loam,
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edium to high.
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Land

een changed by
by land filling.
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osphate mining.

The nearly level areas were made by land smoothing and by land filling, mainly as a part of urban development.

This association occupies about 2 percent of the county. The pits and dumps left by phosphate mining make up about 70 percent of the association, and Made land, the remaining 30 percent.

About 66 percent of this association, mainly on the land mined for phosphate, is wooded. Where drainage is adequate, phosphate left after mining encourages a good growth of pines. Most of the mined areas, however, are poorly drained.

Urban development has taken place mainly on those areas of smoothed or filled land that are moderately well drained.

How This Survey Was Made

This survey was made to learn what kinds of soils are in Charleston County, where they are located, and how they can be used. Soil scientists went into the county knowing they likely would find many soils they had already seen and perhaps some they had not. As they traveled over the county, 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 categories of their classification most used in a local survey are the *soil series* and the *soil phase*.

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. Edisto and Kiawah, 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 soil 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, Hockley loamy fine sand, 2 to 6 percent slopes, is one of several phases within the Hockley series.

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

of the Soils

ıe soils of Charleston County are de-
he procedure is to describe first a soil
mapping units in that series. To get
any one mapping unit, it is necessary
scription of that unit and the descrip-
es to which it belongs.
of each soil series contains a short de-
cal soil profile and a much more de-
of the same profile that scientists, en-
can use in making highly technical

of mapping units contain a brief
use of the mapping unit for crops,
ınd. Following the name of each map-
ol in parentheses. This symbol identi-
it on the detailed soil map. At the end
of each mapping unit are listed the
l woodland suitability in which the
been placed. The page where each
woodland group is described can be
referring to the "Guide to Mapping
ximate acreage and proportionate ex-
ng unit are shown in table 1.

s consists of somewhat poorly drained,
oils that are clayey in the major part

le the surface layer is black fine sandy
in thickness. The subsurface layer is
ly loam and is about 6 inches in thick-
which is about 37 inches in thickness,
fine sandy loam and clay loam in the
y sandy clay to clay in the lower part.
tains 10 to 20 percent plinthite. Weak
the lower horizons. The substratum is
vnish-yellow sandy loam that contains
ay loam.
capacity and infiltration are moderate
permeability is slow. Surface runoff
organic matter is low, and the inherent
e.
vooded, but these soils are suited to
ond to good management.
n woodland about 4 miles north of
Mill Branch Road, 0.2 mile northeast
45:

black (N 2/0) fine sandy loam; weak, fine,
cture; friable; abundant fine and medium
; clear, wavy boundary.
pale-brown (10YR 6/3) fine sandy loam;
distinct, olive-brown mottles; weak, fine,
ture; friable; abundant fine roots; pH 5.3;
boundary.
es, light olive-brown (2.5Y 5/4) fine sandy
n, fine, distinct, yellowish-brown mottles;
ıbangular blocky structure; firm, slightly
y sticky; patchy clay films on ped faces;
s; abundant fine roots; pH 5.0; clear, wavy

scriptions of soil profiles, colors given are

Extent
Percent
. 2
. 8
. 2
. 4
. 3
4. 6
. 4
1. 9
. 8
1. 2
. 9
3. 6
2. 7
2. 6
. 3
19. 8
6. 4
1. 3
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ıd Dothan

soils that
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moderate,
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ndary.
n; moder-
m; many
undary.
ndy clay;
mottles;
re; firm;

;—40 to 50 inches+, light olive-gray (5Y 6/2), grayish-brown (2.5Y 5/2), and in places greenish-gray (5BG 6/1) sandy clay loam; very dark-gray sandy clay loam material filling root channels; massive; pH 4.7.

The A horizon ranges from black to very dark gray in color d from loam to clay loam in texture. It is 10 to 15 inches thickness. The B horizon ranges from clay loam to clay and 20 to 38 inches in thickness. The solum is 40 inches or ss in thickness in most places.

Cape Fear soils occur with Rutlege and Stono soils. The ıy accumulation in the B horizon of Cape Fear soils is not esent in the sandy Rutlege soils. Cape Fear soils are very rongly acid throughout the B horizon, but Stono soils are rongly acid in the upper part of the B horizon and medium id in the lower part.

pe Fear loam (Cf).—This nearly level soil has a y layer in the subsoil.

all areas of Rutlege, Santee, Portsmouth, Bayboro, Rains soils are mapped within the boundaries of this They total less than 8 percent of the total acreage. st of Cape Fear loam is woodland. Truck crops, and pasture do well when this soil is adequately ed, fertilized, and managed. (Capability unit IIIw–odland suitability group 1w3)

ers Series

ls of the Capers series formed in silty clay to silty loam sediments on tidal flats that are inundated by inches of sea water once or more each month. They very poorly drained and are saturated with salt .

a typical profile the surface layer is dark-gray silty loam about 5 inches in thickness. Below this to a ı of 50 inches is dark grayish-brown to dark-gray ly silty clay. Strong, fine, angular blocky micro-ure and prismatic macrostructure are present in all ons when the soils are dry. Pale-yellow sulfur com-ds are common on faces of the dry soil material.

iltration is moderate and permeability slow, as they npeded by a high saline water table. Surface runoff ry slow. Available water capacity is moderate to inherent fertility is moderate, and organic-matter nt is high. Reaction is medium to slightly acid when oils are wet and extremely acid when they are ed. (Reaction is less than pH 4.0 after air drying 0 days.)

cause of their salt and sulfur content, Capers soils ot suited to cultivation. They can be used for range re and wildlife, however.

pical profile of Capers silty clay loam in a tidal ı, one-eighth mile west of the Santee River and 8 east of McClellanville:

1—0 to 5 inches, dark-gray (5Y 4/1) silty clay loam; weak, fine, granular structure; slightly sticky to sticky; few to many fine and medium roots; medium acid; gradual, wavy boundary.

1g—5 to 18 inches, dark grayish-brown (2.5Y 4/2) silty clay to silty clay loam; massive, sticky; few to many fine and medium roots; slightly acid; gradual, wavy boundary.

2g—18 to 50 inches, dark-gray (5Y 4/1) silty clay; massive; soft, sticky; few fine roots; slightly acid.

The A1 horizon ranges from very dark grayish brown to ırk gray in hue of 2.5Y and 5Y, value of 3 and 4, and ıroma of 2 or less. Its texture ranges from silt loam to silty ay loam.

/4) fine sandy
r blocky struc-
cal ped faces;
ft, dark-brown
ndary.
5/4) fine sandy
brownish-gray
sh-red mottles;
e; friable; few
ores; few, fine,
part; pH 4.8;

/6) fine sandy
rown and light
angular blocky
ine, soft, dark-
ry boundary.
and pale-olive
few fine pores;
, strong-brown

n thickness and
10YR. In areas
thick. The A2
ess, from dark
color, and from
n plowed areas,
e A1 horizon.
dark brown to
o common, fine
-brown mottles.
ellowish brown
few to common,
brown, yellow-

thickness, from
nd from sandy
andy loam tex-
are common to
Their colors are
wn, and light
from 4.5 to 5.0.
inches. Its tex-
Mottles in this
owish brown.
ls of the Hock-
eston is coarser
eston soils have
oils do not con-

rcent slopes)
, deep, sandy
subsoil.
l are areas of
acres in size
and Kiawah
is less than 8

n loamy fine
t, 40 percent
is residential.
, snap beans,
it needs to be
nd suitability

orly drained,
oderately fine

ies consists of nearly level, moderately
newhat poorly drained, deep, acid soils
oughout.

n the Chipley series has a very dark
sand surface layer about 6 inches in
his is yellowish-brown loamy fine sand.
he surface layer increases, the sandy
coarser, and color changes to light
hen, below a depth of about 40 inches,
rownish-gray sand.

capacity, inherent fertility, and or-
nt are low in Chipley soils. Infiltration
are rapid, but are impeded by a fluctu-
Surface runoff is slow.

y soils can be used for cultivation, they
anagement for crop production.

in nearly level woodland on dirt road,
utheast of County Line Road No. 317,
nwest of Ravenel, and 1¼ miles east of
ls:

es, very dark gray (10YR 3/1) loamy fine
fine, granular structure; very friable; many
d few medium roots; few small pores; pH
avy boundary.

es, yellowish-brown (10YR 5/4) loamy fine
fine, granular structure; very friable; abun-
and medium roots; pH 5.2; gradual, wavy

hes, light yellowish-brown (2.5Y 6/4) loamy
on, medium, faint, yellowish-brown and a
stinct, brownish-yellow mottles; weak, fine,
ucture; loose; few small and medium roots;
dual, wavy boundary.

hes, light yellowish-brown (2.5Y 6/4) loamy
medium, faint, light brownish-gray mottles
dium, distinct, strong-brown mottles; single
; few small roots and pores; pH 5.1.

ches, light brownish-gray (3.5Y 6/2) sand;
, yellow and few strong-brown mottles; sin-
oose; few small roots and pores; pH 5.6.

n ranges from loamy fine sand to loamy sand
om very dark gray to dark gray, or occasion-
color. It is 4 to 8 inches in thickness.

n ranges from light yellowish brown to dark
in hue of 10YR, value of 4 to 6, and chroma
exture of this horizon ranges from light yel-
yellowish brown in color and from loamy
sand in texture. The C3 horizon ranges from
to very pale brown and has few to common
llowish-brown, light brownish-gray, or light-
e texture of this horizon ranges from loamy
d. The C4 horizon is sand; it ranges from
ght brownish gray and has few to common
ng-brown mottles.

ccur with Rutlege and Seewee soils. They are
nd have a much thinner surface layer than
ey are yellowish brown in the upper part of
stead of grayish brown as in Seewee soils.

fine sand (Cm).—This is a deep, nearly
well drained to somewhat poorly
is sandy throughout.

the boundaries of this soil are areas of
on, Rutlege, and Seewee soils 1 to 4
combined extent of these included areas
ent of the total acreage.

y friable and easy to work. Most areas
leared areas are used for tomatoes, cu-

nes, yellowish-brown (10YR 5/6) clay; ominent, red mottles and few, fine, dis- ish-gray and strong-brown mottles; mod- edium, subangular blocky structure; firm, hiny ped faces; few fine roots; pH 5.0; oundary.

nes, light olive-brown (2.5Y 5/4) clay; minent, red mottles, common, fine, dis- nish-gray mottles, and few, fine, distinct, ottles; moderate, fine and medium, sub- structure; firm, sticky, plastic; discon- s on ped faces; common small pores and 4.8; gradual, wavy boundary.

es, gray (10YR 6/1) clay; many, fine and ent, red mottles, few, fine, distinct, light ottles, and common, fine, distinct, strong- veak to moderate, medium to coarse, sub- structure; very firm, sticky, plastic; us clay films on ped faces; pH 4.5; clear,

, brownish-yellow (10YR 6/6) fine sandy mon, medium to coarse, distinct, light- few, fine, distinct, strong-brown mottles; lightly sticky, slightly plastic; pH 4.8.

ges from sandy loam to fine sandy loam horizon is dark gray to very dark gray, yellowish brown to pale brown. The A1 hes in thickness.

nges from clay to clay loam but is predomi- n this horizon range from light yellowish brown and gray, with mottles of red, brown, and olive brown. The B3t horizon fine sandy clay loam in texture; its color n yellow, with strong-brown, yellowish- y mottles.

with Faceville, Myatt, and Dunbar soils. drained as Faceville soils, but are better att soils or the Dunbar soils.

loam (0 to 6 percent slopes) (Cr).— level to gently sloping, moderately ewhat poorly drained soil that is

soil in mapping were areas of Face- , and Wagram soils that together percent of the acreage. The areas of nd Myatt soils are 2 to 4 acres in gram soils are 1 to 3 acres.

f this soil is wooded. The rest is in idle. The principal crops are corn, ns, and tame grasses for pasture. -5; woodland suitability group 3o1)

es consists of excessively drained, lerately steep, sandy soils that occur es.

soil has a grayish-brown fine sand inches in thickness. Below this and n of about 60 inches is brownish- rown fine sand that is slightly acid

ermeability are rapid in Crevasse le water capacity is low. Content of nherent fertility are low.

f the acreage is wooded. The rest is urposes.

Crevasse soil on Oak Island, 0.8 mile and 0.5 mile east of South Carolina

The surface layer of a typical Dawhoo soil is loamy fine sand and is about 18 inches in thickness. It is black in the upper part and very dark grayish brown in the lower part. Below this layer, to a depth of about 52 inches, is dark grayish-brown to light brownish-gray loamy fine sand to sand.

In the Dawhoo soils infiltration and permeability are rapid, but both are impeded several months of the year when the water is at the surface. These soils are low in available water capacity.

About 90 percent of the acreage of these soils is wooded. The rest is used for residences. Although Dawhoo soils are not suited to cultivation, they can be used for range pasture and recreation.

Typical profile of Dawhoo soil on Johns Island, three-fourths mile south of County Road 20 and Andell Creek bridge intersection and 1 mile west of Kiawah River:

Ap—0 to 11 inches, black (10YR 2/1) loamy fine sand; weak, fine, granular structure; very friable; numerous grains of shiny quartz; high organic-matter content; slightly acid; abrupt, smooth boundary.

A12—11 to 18 inches, very dark grayish-brown (10YR 3/2) loamy fine sand; structureless to weak, fine, angular blocky structure; high organic-matter content; slightly acid; gradual, smooth boundary.

C1—18 to 30 inches, dark grayish-brown (10YR 4/2) loamy fine sand; single grain; slightly acid; gradual, smooth boundary.

C2—30 to 52 inches, light brownish-gray (10YR 6/2) fine sand; single grain; numerous grains of shiny quartz; slightly acid; free water in places; clear, smooth boundary.

C3—52 to 60 inches, greenish-gray (5GY 6/1) to gray sand with common, medium, prominent, yellowish-brown mottles; shiny quartz crystals in places and many dark-colored minerals; slightly acid.

The A horizon is mainly loamy fine sand but in a few places is fine sand. The Ap horizon is black or very dark gray. The A12 horizon is mainly very dark grayish brown but ranges from very dark gray to very dark brown in hue of 10YR, value of 2 or 3, and chroma of 1 or 2.

The C1 horizon is mainly loamy fine sand but ranges from loamy fine sand to sand. Its color ranges from dark grayish brown to very dark grayish brown in hue of 10YR, value of 3 or 4, and chroma of 2. The C2 horizon is fine sand to loamy fine sand and is very dark grayish brown to light brownish gray in hue of 10YR, value of 3 to 6, and chroma of 1 or 2. The C3 horizon is sand to fine sand and is greenish gray (5GY) and gray (10YR), value of 5 or 6, and chroma of 1. Firm to hard dark-brown concretions are few to common in some places.

The troughs that the Dawhoo soils occupy range from 10 to 40 feet in width and from 300 to 1,000 feet in length.

Since the Dawhoo soils are intricately mixed with the Crevasse soils, the two are mapped together as the Crevasse-Dawhoo complex. (See Crevasse series.) The Dawhoo soils are very poorly drained, as compared to the excessively drained Crevasse soils. They have a water table at the surface several months of the year that the Crevasse soils do not have. The Dawhoo soils also occur with the Rutlege soils, and in these instances the two kinds of soils are mapped as Dawhoo and Rutlege loamy fine sands.

Dawhoo and Rutlege loamy fine sands (Da).—These are nearly level, poorly to very poorly drained, sandy soils. Any delineated area may be Dawhoo, Rutlege, or some combination of the two.

The Dawhoo soil has a black to very dark grayish-brown loamy fine sand surface layer underlain by very dark grayish-brown to gray sandy material. The Rutlege soil has a black to very dark brown loamy fine sand surface layer underlain by very dark brown to gray sandy material.

ndy clay loam;
es and distinct
ottles; weak to
structure; firm,
faces; about 15
boundary.
ndy clay loam;
n mottles and
-brown mottles;

hickness. Depth
from 20 to 35
sandy loam but
d. In cultivated
ckness and is a
horizon. The A1
in hue of 10YR

e sandy loam to
wn to yellowish
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h brown to yel-
zon is clay loam
n to pale brown
-yellow mottles
dy clay loam to
d, brownish-yel-

erentiated units
here are Dunbar
well drained as
nbar and Ports-
not so gray as
ccurs in Dothan
rtsmouth soils.

poorly drained,
y layer in the

lack fine sandy
urface layer is
ut 6 inches in
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ay. It is light
per part, light
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n are moderate
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ganic matter is
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soils are suited
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miles north of
nch Road, and

ndy loam; weak,
fine roots; pH

6/2) fine sandy
(2.5Y 5/4) mot-
iable; many fine

(2.5Y 6/4) sandy
olive-brown (2.5Y
ottles; weak, fine,
aint patchy clay
oth boundary.

of nearly level, somewhat
ils that have a loamy sub-

al Edisto soil is very dark
d about 10 inches in thick-
pale-brown loamy fine sand
e upper part of the subsoil
brownish-gray fine sandy
as gray to light brownish-
verlies a weakly expressed
hottled fine sandy loam to
depth the subsoil is light-
begins at a depth of about
th of about 70 inches.
ately low available water
nfiltration and moderately
impeded by a high water
These soils are moderate to
low in content of organic

are cultivated. These soils
ment, are friable, and are

area on the north side of
ast of Hollywood, 650 feet
Line Railroad, and 950 feet

k grayish-brown (10YR 3/2)
fine, granular structure; very
rk reddish-brown concretions;
ndary.
(10YR 6/3) loamy fine sand;
ture; very friable; few, fine,
clear, wavy boundary.
-brown (2.5Y 5/4) fine sandy
nct, yellowish-brown mottles;
r blocky structure; friable;
ot channels with strong-brown
; common, medium, firm con-
, wavy boundary.
ht brownish-gray (10YR 6/2)
medium, faint, yellowish-brown
, faint, brown mottles; weak,
structure; friable; many fine
ng brown; few, fine, firm con-
wavy boundary.
nish-gray (10 YR 6/2) to gray
nd; common, fine, brown mot-
brown-stained root channels;
small, irregularly shaped, soft,
few very fine vesicular pores;

pale-brown (10YR 6/3), yel-
and gray (10YR 6/1) fine
lium, subangular blocky struc-
brown-stained root channels;
of A'2 horizon penetrate this
wavy boundary.
d light-gray (10YR 7/1) and
fine sandy loam; moderate,
y structure; brittle, very fri-
on penetrate this horizon; clay
; gradual, wavy boundary.
brownish-yellow (10 YR 6/8),
6/2), strong-brown (7.5YR
/2) fine sandy clay loam; mod-
blocky structure; brittle, fri-
on in this horizon; clay film
dual, wavy boundary.

sand; com-
3) mottles;

ı thickness.
ly loam but
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2. The A1
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Typical profile from a cultivated field 600 feet east of Sawmill Branch on U. S. Highway 78:

Ap—0 to 7 inches, dark grayish-brown (10YR 4/2) fine sandy loam; weak, medium, granular structure; very friable; abundant small and medium roots; few fine pores; pH 5.6; clear, smooth boundary.

A2—7 to 11 inches, light-brown (7.5YR 6/4) fine sandy loam; weak, medium, granular structure; very friable; few fine roots; few small pores; pH 5.3; clear, smooth boundary.

B21t—11 to 24 inches, yellowish-red (5YR 4/8) clay loam; moderate, fine, subangular blocky structure; firm patchy clay films on peds, but films cover more of ped with increase in depth; pH 5.0; clear, smooth boundary.

B22t—24 to 36 inches, yellowish-red (5YR 5/8) clay loam to clay; few, fine, prominent, brownish-yellow (10YR 6/6) mottles and few, fine, prominent, light olive-brown (2.5Y 5/6) mottles; moderate subangular blocky structure; sticky and slightly plastic, firm; continuous clay films; few small roots; pH 4.9; gradual, wavy boundary.

B23t—36 to 50 inches, yellowish-red (5YR 5/6) clay; many, fine, prominent, brownish-yellow (10YR 6/6) mottles and common, medium, distinct, red (10R 4/8) mottles; moderate, fine and medium, subangular blocky structure; sticky, slightly plastic, firm when moist; continuous clay films; pH 5.1; gradual, smooth boundary.

B24t—50 to 57 inches +, mottled red, brownish-yellow, and light-gray clay; spheroidal pockets of clean sand grains; pH 5.0.

In areas of virgin forest, a horizon of loose, partly decomposed forest litter 1 to 2 inches thick abruptly overlies the A1 horizon. The A1 horizon is very dark grayish-brown (10YR) loamy fine sand to fine sandy loam. The A2 horizon ranges from pale brown to light brown, mainly in hue of 7.5YR or 10YR. Its texture ranges from loamy fine sand to fine sandy loam. In plowed areas the Ap horizon is a mixture of the A1 and the upper part of the A2 horizon and is very dark grayish brown to dark grayish brown.

In the B horizon textures range from clay loam to clay; colors range from strong brown to red, but yellowish red is dominant.

Faceville soils occur with Craven, Dunbar, Ardilla, Hockley, and Norfolk soils. They are redder and better drained than all except the Norfolk soils. Faceville soils are finer textured throughout than the Norfolk soils, which are also well drained.

Faceville fine sandy loam, 2 to 6 percent slopes (FvB).—This is a deep, well-drained soil that is mainly clayey in the subsoil.

Included with this soil in mapping were small areas of Craven, Dunbar, and Ardilla soils. Together these soils make up less than 5 percent of the total acreage.

Most of this Faceville soil is in pines and hardwoods. Corn, small grains, soybeans, and pasture are the main crops. Erosion is a hazard where this soil is cultivated. (Capability unit IIe-2; woodland suitability group 3o1)

Hockley Series

The Hockley series consists of nearly level, moderately well-drained, acid soils that have a loamy subsoil.

A typical Hockley soil has a dark grayish-brown loamy fine sand surface layer about 9 inches in thickness. The subsurface layer is light yellowish-brown loamy fine sand about 4 inches in thickness. The subsoil, which extends to a depth of 60 inches, is yellowish-brown fine sandy clay loam that has strong-brown, red, and light brownish-gray mottles. The lower part contains 5 to 10 percent plinthite.

Hockley soils have slow runoff, moderately low available water capacity, rapid infiltration, and moderate permeability. Inherent fertility is moderate, and organic-matter content is low in these soils. At a depth of 50

inches below the top of the clay-enriched horizon, base saturation is more than 35 percent.

Hockley soils respond to good management, and about 40 percent of the acreage in Charleston County is cultivated. The rest, except for a small percentage that is used for residential purposes, is woodland.

Typical profile of Hockley loamy fine sand in a cultivated area, 4 miles southwest of Charleston, 900 feet west of Stono River Road, and 1¼ miles south of James Island Creek Bridge:

Ap—0 to 9 inches, dark grayish-brown (10YR 4/2) loamy fine sand; weak, fine, granular structure; very friable; pH 5.5; clear, smooth boundary.

A2—9 to 13 inches, light yellowish-brown (10YR 6/4) loamy fine sand; weak, fine, granular structure; very friable; pH 5.6; clear, smooth boundary.

B21t—13 to 20 inches, yellowish-brown (10YR 5/6) fine sandy clay loam; few, fine, distinct, strong-brown mottles that become more numerous with depth; weak, medium, subangular blocky structure; friable; few clay films; many fine and few large pores; pH 5.0; gradual, wavy boundary.

B22t—20 to 29 inches, yellowish-brown (10YR 5/6) fine sandy clay loam; common, medium, prominent, red mottles; weak, medium, subangular blocky structure; clay films on ped faces; firm; few small and large pores; pH 4.9; gradual, wavy boundary.

B23—29 to 60 inches, yellowish-brown (10YR 5/6) fine sandy clay loam; common, medium, prominent, red and light brownish-gray mottles; 5 to 10 percent plinthite; weak, medium, subangular blocky structure; sticky, friable; lenses of sand and sandy clay at lower depths; pH 4.6.

The thickness of the solum ranges from 33 to 60 inches in Hockley soils. The A1 horizon and the upper part of the A2 horizon are mixed to form the Ap horizon. The dominant texture of the Ap horizon is loamy fine sand, but fine sandy loam occurs in a few places. The Ap horizon ranges from very dark grayish brown to grayish brown in hue of 10YR or 2.5Y. The A2 horizon ranges from light yellowish brown to pale brown in a hue of 10YR.

The B1 horizon (where present) is 3 to 5 inches of yellowish-brown fine sandy loam that in places has a few strong-brown, pale-brown, or red mottles. The B21t horizon is yellowish brown to grayish brown in a hue of 10YR. In this horizon red mottles are few to common. Color of the B22t horizon ranges from yellowish brown to grayish brown. Gray, red, and yellowish-brown mottles are common to few in this horizon. The B23 horizon is yellowish brown to light yellowish brown. It has a few to many mottles of red, yellowish red, strong brown, light brownish gray, and gray. The dark-red mottles in this horizon are plinthite.

Hockley soils occur with Yonges and Seabrook soils. They are better drained than Yonges soils, but lower in base saturation. The Hockley soils have a fine sandy clay loam B horizon in contrast to the Seabrook soils, which are sandy throughout.

Hockley loamy fine sand, 0 to 2 percent slopes (HoA).—This is a moderately well drained, friable, acid soil that contains a moderately fine textured subsoil. It has a high water table.

This soil has the profile described as typical for the series.

Mapped within the boundaries of this soil are areas of Yonges, Meggett, Stono, Charleston, and Orangeburg soils 2 to 5 acres in size. The combined extent of these included areas is less than 6 percent of the total acreage.

About 40 percent of this soil is cultivated. The remaining 60 percent is woodland, except for a small amount used for residential purposes. Irish potatoes, cabbage, snap beans, cucumbers, soybeans, and tomatoes are the principal crops. Corn and small grains are the minor ones. Where this soil is drained and intensively managed, crops grow moderately well or well. (Capability unit IIw–2; woodland suitability group 3o1)

Hockley loamy fine sand, 2 to 6 percent slopes (HoB).—This is a moderately well drained, friable, acid soil.

The surface layer is dark grayish-brown loamy fine sand. The subsoil is yellowish-brown fine sandy clay loam with red and yellowish-red mottles.

Areas of 2 to 4 acres of Orangeburg, Charleston, Chipley, and Wando soils are mapped within the boundaries of this soil. The combined extent of these included areas is less than 5 percent of the total acreage.

Most of this soil is woodland. Principal crops in cultivated areas are Irish potatoes, cabbage, and soybeans. The soil is easy to work, and crops grow moderately well. Erosion is not a serious problem if good management practices are exercised. Intensive drainage is not required. (Capability unit IIe–3; woodland suitability group 3o1)

Kiawah Series

The Kiawah series consists of deep, somewhat poorly drained, acid soils that are sandy throughout.

The surface layer and subsoil of a typical Kiawah soil are loamy fine sand. The surface layer is very dark grayish brown to grayish brown and is about 18 inches in thickness. The subsoil, which is about 30 inches in thickness, is grayish brown and dark grayish brown in the upper part and mottled light gray, strong brown, and yellowish brown in the lower part. The substratum is light-gray, pale-brown, brown, and yellowish-brown fine sand. Soft to hard, small to medium-sized concretions are few to common in the profile.

Surface runoff is slow, and the soils are ponded for short periods after heavy rainfall. Infiltration and permeability are rapid but are impeded by a high water table. Available water capacity is low. Content of organic matter is low, and inherent fertility is moderately low.

Kiawah soils are suitable for cultivation when adequately drained and managed.

Typical profile in nearly level cropland opposite Westchester subdivision on the west side of State Highway 171, 3 miles southwest of Charleston:

Ap—0 to 8 inches, very dark grayish-brown (10YR 3/2) loamy fine sand; weak, fine, granular structure; very friable; many small crop roots; few, medium and coarse, hard, strong-brown concretions; pH 5.6; clear, smooth boundary.

A2—8 to 15 inches, dark grayish-brown (10YR 4/2) loamy fine sand; weak, fine, granular structure; very friable; many small crop roots; few, coarse, soft, yellowish-brown concretions; less than 10 percent clean sand grains; pH 5.0; gradual, smooth boundary.

A3—15 to 18 inches, grayish-brown (10YR 5/2) loamy fine sand; many, fine, distinct mottles of yellowish brown; weak, fine, granular structure; very friable; few small plant roots and few small pores; few, fine, firm, strong-brown concretions; pH 5.5; sand grains are coated; gradual, smooth boundary.

B21t—18 to 32 inches, grayish-brown (10YR 5/2) and dark grayish-brown (10YR 4/2) loamy fine sand; common, medium, faint mottles of yellowish brown; weak, fine, granular structure; very friable; sand grains are coated and bridged; common, medium and coarse, dark reddish-brown, hard concretions; few small roots; pH 5.8; gradual, wavy boundary.

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(R 3/2) sand;
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R 4/4) sand;
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6) sand; sin-
oots; pH 4.9;

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ot occur are suitable for growing
ity unit VIIs–2; not classified for

onsists of poorly drained soils that
clayey subsoil. The surface layer
ut the lower part of the subsoil is
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a typical soil in the Meggett series
own loam about 4 inches in thick-
ay and dark-gray clay loam and
epth of about 55 inches. The sub-
ay, light-gray, strong-brown and
hat contains many calcareous con-

ltration is moderate to slow, per-
available water capacity is mod-
ater table is present in these soils.
and the surface is ponded during
tent of organic matter is low, and
in inherent fertility.
the acreage of these soils is wood-
nd and pasture. The soils are suit-
e adequately drained and properly

odland three-fourths mile north of
miles east of Guerin Creek on
d 300 feet north of the Fairlawn
:

dark grayish-brown (10YR 3/2) loam;
nular structure; friable; many fine and
ts; pH 4.7; clear, smooth boundary.
gray (10YR 5/1) clay loam; common,
dark-brown mottles; weak, fine, sub-
ucture; sticky, very plastic; many fine
ar, smooth boundary.
s, dark-gray (10YR 4/1) clay; common,
owish-brown mottles; weak, fine, sub-
ucture; sticky, very plastic; clay films
ces; few fine roots; pH 5.4; gradual,

s, dark-gray (10YR 4/1) clay; many,
ellowish-brown mottles; weak, medium,
structure; sticky, very plastic; clay
; pH 6.0; gradual, smooth boundary.
s, dark-gray (5Y 4/1) clay; many me-
lowish-brown mottles; moderate, medi-
locky structure; sticky, very plastic;
smooth boundary.
ray (10YR 6/1) clay with many, coarse,
-brown (10YR 5/8) mottles; moderate,
lar blocky structure; plastic, sticky;

ttled gray, light-gray, strong-brown, and
lay; many dark-brown and white calcic
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soil is black fine
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sh-gray sand. The
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most of the year.
fertility are low.
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of McClellanville
17 at the electric
Shellmore oyster

e sand; weak, very
ain; very friable to
acid; clear, smooth

R 5/2) sand mingled
rains; single grain;
ooth boundary.
2) sand; white mot-
gly acid; clear, wavy

y (10YR 6/2) sand;
nd white (10YR 8/1)
y acid.

The A1 horizon in Osier soils ranges from fine sand to loamy ne sand in texture. The C1 horizon is grayish-brown to dark-ray sand to loamy sand. The C2 horizon ranges from light ray to dark gray, and the C3 horizon, from light brownish ray to gray.

Osier soils occur with the Rutlege and Chipley soils. The horizon in Osier soils is not so thick as the A horizon in utledge soils. Osier soils are more poorly drained than the omewhat poorly drained Chipley soils.

sier fine sand (Os).—This is a level, deep, poorly to poorly drained, sandy soil.

eas of Rutlege, Seewee, and Scranton soils 1 to 4 in size are mapped within the boundaries of this The combined extent of the included areas is less 5 percent of the total acreage.

out 90 percent of this soil is in woodland. Pasture es are grown not too successfully in cleared areas. bability unit Vw–2; woodland suitability group 2w3)

lico Series

e Pamlico series consists of very dark, very poorly ed, organic soils that formed in woody materials in water.

a typical profile the upper 41 inches consists of very brown to black muck. Below this is very dark gray sand.

ailable water capacity is high in Pamlico soils. In-tion and permeability are moderate but are impeded continuous high water table. Surface runoff is very in these soils, and ponding occurs throughout the Although the content of organic matter is high, the are low in inherent fertility.

st of the acreage is woodland, but about 5 percent sture or is idle.

pical profile in Big Wambaw Swamp off Whilden , about 8 miles west of McClellanville and 0.2 mile of Murrell Road:

1—3 inches to 0, leaves, twigs, roots, and partially decayed organic matter.

—0 to 10 inches, very dark brown (10YR 2/2) muck; common small fibers and many small roots; extremely acid.

—10 to 28 inches, very dark brown (10YR 2/2) to black (N 2/0) muck; many, very fine, white sand grains are visible when dry; few to common fine roots and few to common small fibers; extremely acid.

—28 to 41 inches, very dark brown (10YR 2/2) muck; numerous, very fine, white sand grains are visible when dry; common, medium, partially decayed roots and woody material; medium to slightly acid.

—41 to 52 inches +, very dark gray (10YR 3/1) fine sand stained from organic material; single grain; very friable to loose; few to common, fine, decayed roots; medium acid.

The organic layer of muck from the surface to the sand is ery dark brown or dark reddish brown and, in a few places, lack. It ranges from 20 to 41 inches in thickness. When the il is dry, numerous, very fine, white sand grains are visible the muck. Reaction in these soils ranges from extremely cid in the upper part to slightly acid in the lower part.

The Pamlico soils occur in intricate patterns with the Rut-ge soils. The two soils are mapped together in the Rutlege-amlico complex. (See Rutlege series.) Pamlico soils occur in acts where there are St. Johns and Leon soils. The St. ohns and Leon soils are deep sands that do not contain an rganic layer.

mlico muck (Pa).—This is a level, very poorly drained ic soil that formed in woody materials in fresh r.

Areas of Rutlege and Osier soils 5 to 15 acres in size are mapped within the boundaries of this soil. The combined extent of the included areas is less than 10 percent of the total acreage.

About 95 percent of the acreage of this soil is woodland. The rest is either pasture or is idle. This soil is not suitable for cultivation. (Capability unit VIIw–2; not classified for woodland suitability)

Portsmouth Series

The Portsmouth series consists of nearly level, very poorly drained, acid soils that are loamy throughout.

The surface and subsurface layers of a typical Portsmouth soil are fine sandy loam. The surface layer is black and about 10 inches in thickness. The subsurface layer is gray and about 3 inches in thickness. The subsoil, which is about 39 inches in thickness, is dark-gray fine sandy loam in the upper part and gray fine sandy clay loam and fine sandy loam in the lower part. Pockets and lenses of gray loamy sand occur in the lower layers.

Available water capacity is moderate in Portsmouth soils. Infiltration and permeability are also moderate. Surface runoff is slow, and surfaces are ponded most of the year. Inherent fertility is moderate.

Most of these soils are woodland. A small percentage is cultivated. Cultivated areas require intensive drainage. The soils respond well to good management.

Typical profile in woodland 3 miles southeast of Ladson, 1¼ miles southwest of the junction of U.S. Highway 52 and U.S. Highway 78, and 500 feet west of hard-surfaced road:

01—2 inches to 1 inch, largely undecomposed loose leaves (gum, maple, and shrubs).

02—1 inch to 0, largely decomposed organic debris.

A1—0 to 10 inches, black (10YR 2/1) fine sandy loam; weak, medium, granular structure; friable, slightly sticky; many small roots and abundant medium roots; few small and medium pores; pH 4.2; clear, smooth boundary.

A2—10 to 13 inches, gray (10YR 6/1) fine sandy loam; weak, fine, granular structure; friable, nonsticky, nonplastic; few small and few medium roots; few small pores; pH 5.4; clear, smooth boundary.

B1g—13 to 18 inches, dark-gray (10YR 4/1) fine sandy loam; common, medium, distinct, yellowish-brown mottles and common, medium, faint, gray mottles; weak, medium, subangular blocky structure; friable, slightly sticky; few small roots; few small pores; pH 5.1; clear, smooth boundary.

B21tg—18 to 28 inches, gray (10YR 6/1) fine sandy clay loam; common, medium, distinct, dark-brown mottles; moderate, medium, subangular blocky structure; slightly sticky, firm, slightly plastic; few small roots and pores; clay films on ped faces; pH 5.8; gradual, wavy boundary.

B22tg—28 to 41 inches, gray (10YR 5/1) fine sandy loam; pockets and lenses of gray loamy sand; common, medium, distinct, strong-brown mottles; weak, fine, subangular blocky structure; nonsticky, slightly plastic, friable; few small roots and pores; pH 5.6; gradual, wavy boundary.

B23tg—41 to 52 inches +, gray (10YR 6/1) fine sandy clay loam; pockets and lenses of gray loamy sand; few, fine, distinct, yellowish-brown mottles; nonsticky, slightly plastic; few small roots and pores; pH 5.6.

The solum ranges from 50 to 72 inches in thickness. The A1 and Ap horizons are black fine sandy loam, but areas of loam occur in a few places. Color in the A2 horizon is black to gray in hue of 10YR.

6/1) sandy
brown and
structure;
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sons. Surface runoff is slow, and pond-
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ent of the acreage of these soils is wood-
ing 10 percent is cropland and pasture.

e in woodland 1½ miles northwest of
feet southeast of a dirt road paralleling
ilroad:

p 1 inch, largely undecomposed loose oak and
s, pine needles, and organic debris.

, largely decomposed leaves and organic debris.

ches, black (10YR 2/1) sandy loam; weak,
granular structure; very friable; abundant,
lium, and large roots; abundant small pores;
ear, wavy boundary.

ches, light-gray (10YR 7/2) fine sandy loam;
dium, granular structure; very friable; few
medium roots; abundant small pores; pH 5.0;
y boundary.

inches, gray (10YR 6/1) fine sandy loam;
nedium, distinct, light yellowish-brown mottles
fine, prominent, strong-brown mottles; weak,
ubangular blocky structure; friable; few small
ndant small pores; gradual, wavy boundary.

32 inches, gray (10YR 6/1) fine sandy loam;
nedium, distinct, yellow and yellowish-brown
id few, fine, prominent, strong-brown mottles;
dium, subangular blocky structure; friable;
ay clay films; few small roots; abundant small
undant small pores; pH 4.4; clear, wavy

0 inches, light brownish-gray (10YR 6/2) fine
m; common, coarse, distinct, yellowish-brown
6) mottles and few, fine, prominent, strong-
ttles; weak, medium, subangular blocky struc-
ıtly sticky, slightly plastic in clay areas but fri-
ndy areas; faint patchy clay films; few fine
small pores; pockets of weakly cemented loamy
are predominantly yellowish brown (10YR 5/8);
radual, wavy boundary.

inches +, light-gray, yellow, and brown silty
ring as pockets of clays and loamy sands; pH

anges from 42 to 72 inches in thickness. The Ap
present, ranges from fine sandy loam to loamy
is black to very dark gray. The A2 horizon is
gray in hue of 10YR; its texture is fine sandy
fine sand.

rizon is gray fine sandy loam in hue of 10YR,
3, and chroma of 1. Mottles are few to common
. The B21tg horizon is gray (10YR) fine sandy
y clay loam. Yellow, yellowish-brown, strong-
ay mottles are few to common. The B22tg hori-
ownish-gray to gray in hue of 10YR; its texture
to sandy clay loam. The B3g horizon, where
y sandy loam to sandy clay loam that in places
ts of sandy material.

zon normally ranges from fine sandy loam to
it is made up of pockets and lenses of sand and

ıre less well drained than Hockley and Quitman
a more grayish subsoil than either of these

loam (Rc).—This is a poorly drained acid
oamy surface layer and subsoil.

man, Myatt, and Portsmouth soils 2 to 4
e mapped within the boundaries of this
ned extent of the included areas is less
of the total acreage.

cent of this soil is woodland. The rest is
asture. The principal crops are corn and
The soil needs to be intensively drained
and managed to grow these crops well. (Capability unit IIIw–4; woodland suitability group 1w3)

Rutlege Series

The Rutlege series consists of nearly level to depressional, poorly drained to very poorly drained, deep, acid soils that are sandy throughout.

In a typical Rutlege soil the surface layer is black to very dark brown loamy fine sand about 20 inches in thickness. The underlying material is very dark grayish-brown and gray loamy fine sand.

Available water capacity is low in Rutlege soils. Infiltration and permeability are rapid but are impeded by a high water table most of the year. Surface runoff is slow, and these soils are frequently ponded. Inherent fertility is low to moderate.

About 70 percent of the Rutlege acreage is woodland. The rest is either pasture or is idle. Intensive drainage is needed for growing grasses.

Typical profile of Rutlege soil in cropland 3 miles southwest of Charleston on James Island and about 0.8 mile west-southwest of the intersection of Harbor View Road and Fort Johnson Road:

Ap—0 to 8 inches, black (10YR 2/1) loamy fine sand; weak, fine, granular structure; very friable; few white sand grains on surface; pH 5.0; clear, smooth boundary.

A1—8 to 20 inches, very dark brown (10YR 2/2) loamy fine sand; week, fine granular structure; very friable; many fine roots; old root holes filled with black material from Ap horizon; many fine and few medium pores; pH 5.4; clear, smooth boundary.

C1g—20 to 42 inches, very dark grayish-brown (10YR 3/2) loamy fine sand; weak, fine, granular structure to single grain; very friable; few thin roots; many fine and few medium pores; pH 5.2; gradual, wavy boundary.

C2g—42 to 54 inches +, gray (10YR 5/1) loamy fine sand; few light brownish-gray and very pale brown mottles; very friable to loose; pH 5.5; few, fine, firm concretions.

The Ap horizon is loamy fine sand, but fine sand occurs in a few places. The A1 horizon is very dark brown to black loamy fine sand. Some areas of fine sand occur.

The C1g horizon is very dark brown to dark gray in hue of 10YR, value of 2 to 5, and chroma of 1 to 2. A chroma of 2 is predominant in the Sea Island areas of the county. Elsewhere it is usually 1. The C2g horizon is light gray and pale brown to dark gray in hue of 10YR, value of 4 to 7, and chroma of 1 to 3.

The Rutledge soils occur in intricate patterns with Pamlico muck. The soils are mapped together in the Rutledge-Pamlico complex for this reason. They also occur with the separately mapped Chipley and Wando soils. Rutledge soils are poorly to very poorly drained, as compared to the excessively drained to well drained Wando soils and the moderately well drained to somewhat poorly drained Chipley soils.

Rutlege loamy fine sand (Rg).—This is a poorly drained to very poorly drained deep soil that is sandy throughout. It has the profile described as typical for the Rutlege series.

Areas of Seewee, Chipley, St. Johns, Leon, and Scranton soils 1 to 8 acres in size are mapped within the boundaries of this soil. The combined extent of the included areas is less than 6 percent of the total acreage.

About 70 percent of the acreage of this soil is in woodland. Pasture grasses are the principal crops in cleared areas. Intensive drainage and other effective management techniques are needed. (Capability unit Vw–2; woodland suitability group 2w3)

to black (10YR hue)
n is weakly to moder-
21h and B22h horizons
The B21h horizon is
to loamy sand; the
ly cemented fine sand.
or more separate Bh

n to gray fine sand.
d Rutlege soils. They
and have a hardpan
Rutlege.

ep, poorly drained,

tlege, Chipley, and
ndaries of this soil.
areas is less than

odland. The soil is
d pasture, but such
beans, and pasture
not too favorable
odland suitability

level very poorly
er in the subsoil.
er but are slightly
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s the surface layer
ness. The subsoil,
nd very dark gray
rk-gray clay loam
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ildly alkaline. The
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e runoff and fre-
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d for rice, Santee

n the west side of
of McClellanville,
ne, and one-fourth

weak, fine, granular
any coarse roots; me-

clay loam; moderate,
icky, slightly plastic;
smooth boundary.
10YR 3/1) clay loam;
s; moderate, medium,
stic, slightly sticky;
slightly acid; gradual,

1) clay loam to clay;
s; moderate, medium,
, slightly sticky; thin
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1) clay; few, fine and
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e phosphorus is higher
county.
ook acreage is woodland.
d residential areas.
el cropland on James
nson and three-fourths
Camp Road and Dills

sh-brown (10YR 3/2) loamy
ar structure; very friable;
mon, strong-brown to dark-
5.7; clear, smooth boundary.
0YR 4/3) to dark yellowish-
sand; common, fine, distinct
4/8); weak, fine, granular
to common, small to large,
d dark-brown (7.5YR 3/2),
h in size; pH 4.7; gradual,

low (10YR 6/6) loamy fine
t mottles of brown (10YR
iable; common, large, dark
ard concretions, ¾ to 1¼
, strong-brown, soft concre-
H 5.2; gradual, wavy bound-

(5Y 7/2) and gray (5Y 5/1)
; many fine root channels;
d the channels; common,
3.

ss of loamy fine sand, loamy
very dark grayish brown to

wn to dark-brown loamy fine
horizon is light olive-brown,
or brown loamy fine sand,
zon is light-gray and gray to
sand.
⅛ inch to 2 inches in diam-
t the profile. They constitute
naterial. The content of silt
lepth of 10 to 40 inches. The
during prolonged rainy pe-
re strongly to very strongly

do and Rutlege soils. They
compared to the excessively
soils and the poorly to very
ir reaction is more strongly
do soils.

(0 to 2 percent slopes)
moderately well drained

utlege, Charleston, and
are mapped within the
ombined extent of the
ent of the total acreage.
l acreage of this soil is
pasture, and residential
tomatoes, soybeans, and
potatoes, small grains,
legumes are also grown.
ther good management,
ility unit IIIw–1; wood-

somewhat poorly drained
id soils that are sandy

throughout. These soils contain an old buried surface layer.

In a typical profile the surface layer is black to dark grayish-brown loamy fine sand about 11 inches in thickness. The subsurface layer is brown loamy fine sand about 10 inches in thickness. Below this layer is a buried surface layer of dark-brown fine sand about 9 inches in thickness. The substratum is grayish-brown to light brownish-gray fine sand.

Available water capacity is low in Seewee soils. Infiltration and permeability are rapid but are impeded by a high water table. Surface runoff is slow. Content of organic matter and inherent fertility are low.

Most of the areas of Seewee soils are woodland. A part of the acreage is used for cropland and pasture. These soils are suited to cultivation, and they respond to good management.

Typical profile of Seewee loamy fine sand in nearly level woodland, 3 miles west of McClellanville, 100 feet west of the road built by the International Pulp and Paper Company, and 500 feet north of U.S. Highway 17:

A11—0 to 6 inches, black (10YR 2/1) loamy fine sand; weak, fine, granular structure; very friable; many small and medium roots; pH 5.1; clear, smooth boundary.

A12—6 to 11 inches, dark grayish-brown (10YR 4/2) loamy fine sand; weak, fine, granular structure; very friable; abundant small and few medium roots; pH 5.0; clear, smooth boundary.

A3—11 to 21 inches, brown (10YR 5/3) loamy fine sand; common, medium, faint, yellowish-brown mottles and few, medium, faint, pale-brown mottles; weak, fine, granular structure; few small roots; pH 5.1; clear, smooth boundary.

A1b—21 to 30 inches, dark-brown (10YR 3/3) fine sand; few, fine, faint, dark grayish-brown and grayish-brown mottles; structureless; firm in place, brittle and loose when crushed; few small roots; few fine pores; old root holes and pores stained red (2.5YR 5/6); pH 5.2; gradual, wavy boundary.

C1g—30 to 48 inches, grayish-brown (10YR 5/2) fine sand; common, medium, faint, dark-brown and yellowish-brown mottles; structureless; loose; pH 5.7; gradual, wavy boundary.

C2g—48 to 65 inches, light brownish-gray (2.5Y 6/2) fine sand; common, medium, distinct, yellowish-brown mottles; structureless; loose; strongly acid.

The combined thickness of the A11, A12, and A3 horizons ranges from 15 to 34 inches. The texture of these horizons is mainly loamy fine sand, but loamy sand and fine sand occur in places. The A11 and A12 horizons are black to dark grayish brown. The A3 horizon is pale brown to grayish brown or dark yellowish brown. The content of quartz is less than 90 percent in the A3 horizon. The A1b horizon and all horizons below it are fine sand to sand. Color in the A1b horizon is mainly dark brown but ranges to dark reddish brown, very dark brown, black, and very dark grayish brown. Faint to distinct mottles that have higher values than the matrix and higher or lower chromas occur in the A1b horizon in places. Where it is more than 10 inches in thickness, the lower part of this horizon has color values 1 unit higher than those in the upper part. The total content of iron, aluminum, and organic carbon in the A1b horizon is less than 1 percent.

The C horizons are light gray to brown to light olive brown. They have few to common yellowish-red and brownish-yellow mottles in places.

About 35 percent of the minerals in these soils are weatherable. More than 25 percent of the medium and fine sand grains are considered weatherable. At depths of 10 to 40 inches, the content of fines is 5 to 15 percent.

Seewee soils occur with the deep, sandy Chipley and Rutlege soils. They are not so well drained as Chipley soils, and they are darker colored. They are better drained than Rut-

lly the A2 horizon is black to dark-gray fine
amy fine sand. In a few areas it is grayish
10YR.
zon is very dark gray to dark gray in hue of
n is usually strongly acid, but it ranges to
reas. The B22tg horizon is dark gray to dark
hue of 10YR. Its texture is fine sandy loam
y loam. The reaction in the B22tg horizon is
eutral. Concretions are few to common in the
ccur on the Sea Islands. Elsewhere they are

n ranges from sand to sandy clay loam or to
d sandy loam. The reaction ranges from 5.3
linarily is 6.0 or higher.
cur with soils of the Meggett, Edisto, and
ey are coarser textured throughout the pro-
soils. They are more poorly drained than
ges soils. The Stono soils typically have a
er about 17 inches in thickness, whereas the
the Edisto and Yonges soils is not so dark
inner.

ly loam (St).—This is a level and very
l that has a thick black surface layer
il.
Yonges, Hockley, Scranton, and Meg-
acres in size are mapped within the
soil. The combined extent of the in-
s than 8 percent of the total acreage.
l is woodland. When it is adequately
vise properly managed the soil is suit-
Irish potatoes, cabbage, corn, and soy-
y unit IIw-3; woodland suitability

Firm

m (Tf) is a level, very poorly drained
that formed in woody material. It is
water, and the surface is covered by
nonth or oftener. The muck that is in
bably developed in fresh water during
en the coastline was east of its present
ean levels evidently have changed to
was once fresh-water muck. Logs and
cur under the surface in places.
capacity is moderate in this land type.
ermeability are moderate but are im-
uous high water table. Surface runoff
content of organic matter is high, but
s low. Small areas of Capers soils and
sandy loam to sandy clay loam are
e boundaries of this land type. The
the included areas is less than 5 per-
reage.
nts, such as black rush and smooth
this land type. It is unsuitable for
es. It can be used for range pasture.
Vw-4; not classified for woodland

oft

oft (Ts) is a miscellaneous land type
ast and along tidal streams and rivers
and the uplands. It is in broad, level,
covered by 6 to 24 inches of salt water

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and is easy to work.
ıcreage is woodland.
ɔ principal crops are
d corn. (Capability
up 3s2)

ɔessively drained to
ainly slightly acid.
rofile.
brown surface layer
hickness. The under-
51 inches, is brown
Below this is yellow

oils. Infiltration and
ɜr table is more than
.t of organic matter
ɜe soils.
.do acreage is wood-
d, or pasture. These
suited to cultivation
y and droughtiness.
land about 2 miles
Road, one-half mile
iew Road and Fort

4/3) loamy fine sand;
ery friable; few, fine,
ı concretions; pH 6.1;

loamy fine sand; single
ll to medium (¼ to ¾
concretions; pH 6.3;

.5YR 5/6) loamy fine
n, medium and coarse
concretions; pH 6.5;

: 7/8) fine sand; few,
6/1) mottles and few,
5/4) mottles; single
and hard, dark-brown

rown to dark grayish-
less than 10 inches in

ure ranges from loamy
trong brown in the C1
rown in the C2 horizon.
nary material occurs in
is about 3 percent iron
Concretions are few to
rofile.
hat is yellow to brown-
values are greater with
ıcrease to 6 or more 40
nes reach 5 or more at
cent at depths of 10 to
percent.
ındo soils contain more
ıt similar soils located

pley and Rutlege soils.
o well drained, as op-
poorly drained Rutlege
newhat poorly drained

ıy fine sand, 0 to 6 percent slopes (WnB).—
, excessively drained to well drained soil
hroughout.
ıin the boundaries of this soil are areas of
ge, Scranton, Edisto, and Wagram soils
ı size. The combined extent of these in-
nounts to less than 3 percent of the total

rcent of the acreage of this soil is wood-
is used for crops, pasture, or urban pur-
of the very rapid infiltration rate of this
ınoff seldom occurs. The principal crops
, snap beans, soybeans, small grains, and
this soil is irrigated and properly man-
ow fairly well. (Capability unit IVs–1;
bility group 4s2)

Series

ırg series consists of nearly level to gently
rained, acid soils that have a thick sandy
nd a mainly clayey subsoil.
layer of a typical Wicksburg soil is very
rown loamy fine sand and is about 7 inches
he subsurface layer is pale brown loamy
is about 14 inches in thickness. The sub-
h red, red, and strong-brown in color and
y clay. It extends to a depth of 52 inches

ıter capacity is low in the surface layer of
s and moderate in the subsoil. Surface run-
ıoderate. Infiltration is rapid in these soils,
ty is moderately slow. Content of organic
and inherent fertility is moderately low.
of the acreage is woodland. The other half
y for crops and pasture, but partly for

ile of Wicksburg loamy fine sand, 700 feet
J.S. Highway 17 on dirt road, 2.87 miles
ction of U.S. Highway 17 and State High-

ıches, very dark grayish-brown (10YR 3/2) loamy
l; weak, fine, granular structure; very friable;
t small roots; pH 6.1; clear, smooth boundary.
inches, pale-brown (10YR 6/3) loamy fine sand;
, prominent, reddish-yellow mottles; weak, fine,
structure; very friable; few small roots; pH 6.1;
wavy boundary.
inches, yellowish-red (5YR 5/8) sandy clay loam;
, prominent, pale-brown mottles; weak, moderate,
lar blocky structure; friable; few small roots;
clear, smooth boundary.
32 inches, red (2.5YR 4/8) sandy clay; weak,
, angular blocky structure; firm; clay films on
s; few small roots and pores; pH 5.7; clear,
oundary.
43 inches, red (10YR 4/8) sandy clay; moderate,
gular blocky structure; firm; clay films on ped
w small roots and pores; pH 4.5; clear, smooth
y.
2 inches +, strong-brown (7.5YR 5/8) sandy clay;
medium, distinct, reddish-yellow mottles, few,
minent, red mottles, and few, medium, distinct,
y mottles; moderate, medium, angular blocky
; friable; patchy clay films on ped faces; pH 4.6.

ranges from 45 to 60 inches in thickness. The A
0 to 32 inches in thickness. The Ap horizon is
nd to sand in texture and very dark gray to very

dark grayish brown in color. In undisturbed areas the A1 horizon is 4 to 6 inches in thickness and pale brown to yellowish brown in color. The A2 horizon is pale-brown to yellowish-brown loamy fine sand to loamy sand.

The B1 horizon is sandy clay loam to sandy loam. The B21t horizon is sandy clay to sandy clay loam. The B22t horizon is strong brown to red, mottled with reddish yellow and red.

Wicksburg soils occur with the Edisto and Yonges soils. They are better drained than the Edisto and Yonges soils, and they have a red subsoil that does not occur in either of the two associated soils. Wicksburg soils have a lower base saturation than the Edisto and Yonges soils.

Wicksburg loamy fine sand, 0 to 6 percent slopes (WoB).—This is a nearly level to gently sloping, well-drained soil that has a thick sandy surface layer and a mainly clayey subsoil.

Orangeburg, Charleston, Edisto, and Hockley soils are mapped within the boundaries of this soil. The combined extent of the included soils is less than 5 percent of the total acreage.

About half of this soil is woodland. The principal crops grown in cultivated areas are tomatoes, cucumbers, snap beans, soybeans, and corn. Minor uses are for pasture and residences. Crops are moderately well suited to this soil if it is properly fertilized and managed. (Capability unit IIe–3; woodland suitability group 4s2)

Yonges Series

This series consists of level, poorly drained soils that have a moderately fine textured and fine textured subsoil. The reaction of these soils ranges from acid in the upper part to moderately alkaline in the lower part.

In a typical soil of the Yonges series the surface and subsurface layers are loamy fine sand and have a combined thickness of about 14 inches. The surface layer is dark grayish brown, and the subsurface layer is light brownish gray. The subsoil, which is about 46 inches in thickness, is gray fine sandy clay loam and fine sandy clay. The substratum is gray and light-brownish gray fine sandy loam.

Base saturation is more than 35 percent in Yonges soils. Available water capacity is moderate, infiltration is moderately rapid, and permeability is moderately slow and impeded by a high water table. Surface runoff is slow in these soils, and ponding occurs during rainy seasons. Inherent fertility is moderate.

Most Yonges soils are woodland. Cleared areas are used for Irish potatoes, cabbage, soybeans, corn, and pasture. The soils are suitable for these crops if they are adequately drained and otherwise well managed.

Typical profile in nearly level cropped area 1¼ miles southeast of Hollywood, one-fourth mile south of the Seaboard Coast Line Railroad, and one-fourth mile west of County Road 79:

Ap—0 to 10 inches, dark grayish-brown (10YR 4/2) loamy fine sand; weak, fine, crumb structure; very friable; many fine roots; pH 6.4; abrupt, smooth boundary.

A2—10 to 14 inches, light brownish-gray (10YR 6/2) loamy fine sand; few, distinct, medium, yellowish-brown mottles; weak, fine, crumb structure; very friable; few fine crop roots; few, fine, soft, dark reddish-brown concretions; pH 5.8; abrupt, smooth boundary.

B21tg—14 to 34 inches, gray (10YR 5/1) fine sandy clay loam; many, medium, distinct mottles of yellowish brown and few, fine, distinct mottles of red; weak, coarse, subangular blocky structure; firm when moist, hard when dry; clay

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The letter *e*

shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is too cold or too dry.

In class I there are no subclasses, because the soils of this class have few limitations. Class V 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, though they have other limitations that restrict their use largely to pasture, range, woodland, wildlife, or recreation. In Charleston County these soils are all in the *w* category—Vw-2, Vw-3, Vw-4.

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-3, or IIIw-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 Charleston County are described and suggestions for the use and management of the soils are given.

Management by capability units

In this subsection each capability unit is described and some suggestions for use and management of the soils in the unit are given. To save space, the names of soil series, rather than the names of mapping units, are given in the description of many of the capability units. Listing a series name in a capability unit does not imply that all soils of that series are in the unit. Refer to the guide at the back of this publication for the names of all mapping units and the capability unit in which they have been placed.

CAPABILITY UNIT I-1

This unit consists of deep, friable, nearly level, well-drained soils of the Orangeburg and Norfolk series.

The surface layer is loamy fine sand 8 to 16 inches in thickness. The subsoil is mainly sandy clay loam.

The available water capacity is moderate but adequate for most crops. Infiltration is moderately rapid, and permeability is moderate. Runoff is very slow, and there is little or no erosion hazard. Fertility is medium in these soils, and the content of organic matter is low. Acidity is medium.

These soils occupy less than 1 percent of the county. They are mostly wooded. A small part of the acreage is cultivated or is used for pasture. Cotton, corn, vegetables, and small grains are the principal crops. Bahiagrass and Coastal bermudagrass are well suited. Row crops can be grown every year, and fertility can be maintained by fertilizing the soils heavily. Legumes and certain other crops respond to lime.

These soils are easy to till, and they can be worked within a wide range of moisture content. The root zone is deep. Since the soils are nearly level, modern farm machinery is easy to use. Early in the spring, winds cause considerable soil blowing in areas that are dry and freshly plowed. Stripcropping is an effective means of combating the loss of soil and the damage to crops.

CAPABILITY UNIT IIe-2

Faceville fine sandy loam, 2 to 6 percent slopes, is the only soil in this unit. It is a deep, well-drained, friable soil that occurs on gently sloping uplands.

The surface layer is fine sandy loam that ranges from 8 to 12 inches in thickness. The subsoil is slightly sticky clay loam to clay.

The available water capacity in this soil is moderate, but it is ample for crops. Infiltration and permeability are moderate. Surface runoff is medium, and the erosion hazard is slight. The content of organic matter is medium. Fertility is usually high, and the soil retains plant nutrients well. Acidity is medium.

This soil makes up about 0.2 percent of Charleston County. It is mostly in pine and hardwood forests. The principal crops are corn, small grains, and soybeans. Bahiagrass and Coastal bermudagrass for hay and pasture are well suited.

This soil is usually easy to till. It can be worked within a fairly wide range of moisture content but should not be worked too soon after rains. It has a thick root zone.

Erosion is a moderate hazard when this soil is cultivated. If crops that can be planted close together are grown half of the time, this restricts erosion. Contour tillage, planting grass or similar protective cover in waterways, and the conserving of crop residues are other effective controls.

CAPABILITY UNIT IIe-3

This unit consists of deep, acid, well-drained to moderately well drained soils that occur on gently sloping uplands. It contains soils of the Hockley, Orangeburg, and Wicksburg series.

The surface layer is loamy fine sand that ranges from 8 to 24 inches in thickness. The subsoil is sandy clay loam to sandy clay.

The available water capacity is moderate to moderately low in these soils. Infiltration and permeability are moderate. The content of organic matter is low to medium, and fertility is medium.

These soils make up about 1 percent of the county. About 60 percent of their acreage is wooded. These soils are well suited to commonly grown crops. The ones most frequently grown are corn, snap beans, soybeans, and small grains. Bahiagrass and Coastal bermudagrass are suitable for pasture and hay. Contour tillage and waterways that are protected by close-growing, fibrous-rooted plants are needed to control erosion. Crops respond to lime and fertilizer.

CAPABILITY UNIT IIw-2

This unit consists mainly of deep, nearly level, moderately well drained to somewhat poorly drained, strongly acid soils. It contains soils of the Charleston, Dothan, Dunbar, Quitman, and Hockley series.

Typical soils have a loamy fine sand surface layer and a friable to firm sandy loam to clay subsoil.

Available water capacity is moderate to low in these soils, but because of the high water table, moisture is ample for crops. Infiltration is moderate to rapid, and permeability is moderate to slow. Surface runoff is slow, and water stands for long periods of time on areas that are not drained. Fertility and content of organic matter are medium.

These soils make up about 5.4 percent of Charleston County. About 50 percent of their acreage is cultivated. The rest is woodland, roads, businesses, and residential areas.

Soils in this unit are well suited to soybeans, corn, small grains, and vegetables. Among the plants that are well suited to hay and pasture are dallisgrass, bahiagrass, bermudagrass, white clover, and annual lespedeza. Row crops can be grown each year. The cropping system should keep close-growing crops on the soils half of the time. Irrigation is needed [redacted]

Fertility and the content of organic matter are low to moderate. The soils are strongly acid to neutral.

These soils make up about 6.9 percent of Charleston County. They are usually in good tilth, and they have a thick root zone. About 50 percent of their acreage is cultivated. They are suited to Irish potatoes, cabbage, snap beans, soybeans, corn, tomatoes, cucumbers, small grains, and pasture. Bahiagrass and Coastal bermudagrass are adapted to these soils and are suitable for pasture and hay (fig. 3). The suitability of high-value crops is improved by irrigating the soils during prolonged dry periods. Water is supplied by manmade ponds.

CAPABILITY UNIT IIw-5

Craven fine sandy loam is the only soil in this capability unit. It is a moderately well drained to somewhat poorly drained, acid soil.

The surface layer is a thin, friable, very dark gray to dark-gray fine sandy loam. The subsoil is mainly firm,

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consistence of the soil material,
materials, and the depth to the
ant characteristics are the sup-
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ration depend on the character-
and the slope and irregularities

harleston County differ greatly
d use, they are also very much
ions of species they will grow.
oods; others are suited to pine;
oth hardwoods and pine.

pecified crops

poorly suited]

Bermudagrass and bahiagrass	Ryegrass	White clover	Lespedeza	
			Annual	Sericea
2	2	1	2	4
1	2	2	2	2
3	3	2	2	4
2	2	3	2	3
1	1	1	2	3
2	2	1	1	3
1	1	2	1	3
1	1	2	2	2
1	1	2	2	2
1	1	2	2	2
2	2	3	2	3
2	3	4	4	2
2	2	2	2	4
2	2	1	1	4
1	1	4	3	1
2	2	3	3	2
2	2	3	3	2
2	2	1	1	4
3	2	2	1	4
4	3	2	2	4
4	1	1	2	4
4	2	3	2	3
3	2	3	3	3
4	2	3	2	3
3	2	1	1	3
4	2	2	2	4
2	2	4	4	2
4	3	4	4	2
3	2	3	3	2
2	1	1	2	3

ditions determine the degree of limitation. If no restrictions on the kind of equipment that ed and if the equipment can be used during all ne limitations are *slight*. Limitations are *mod-* ne kind of equipment or its operation is limited pe, stones, or obstruction; (2) seasonal wetness; cal characteristics of the soil; and (4) possible tree roots or to the structure or stability of the tations are *severe* if special equipment must be that use is restricted by safety of operation and more of the controlling factors listed for a limitation.

ne hazard of plant competition is considered se- most soils in Charleston County, this hazard is ed in each individual description. By the same osion and windthrow hazards are considered oughout the county, so they are not described . Also, material on special ratings and inter- for urban use has already been documented his information is not supplied here. Thus, limitations and seedling mortality are the only hat are individually rated in the group descrip- follow. These two limitations are placed in one ree categories previously mentioned — *slight*, or *severe*.

WOODLAND SUITABILITY GROUP 1o1

ton loamy fine sand is the only mapping unit oup. It is very highly productive and has slight tations for woodland use. It is suitable for pines d hardwoods.

WOODLAND SUITABILITY GROUP 1w2

this group are very highly productive, but seed- ality is moderate. Because of poor and some- r drainage they are moderate in equipment s.

nd wetland hardwoods are suitable for soils in . Management of water is needed for maximum n and access.

oup contains soils of the Edisto and Yonges

WOODLAND SUITABILITY GROUP 1w3

this group are very highly productive, but nortality is severe. Equipment limitations are ause of the very poor to poor drainage.

water is not managed, wetland hardwoods are soils in this group. Where it is managed, both ardwoods and pines are suited.

oup contains soils of the Bayboro, Cape Fear, Meggett, Portsmouth, Rains, Santee, Stono, and w series.

WOODLAND SUITABILITY GROUP 2o1

k loamy fine sand is the only mapping unit in . It is highly productive and has slight or no s for woodland use. It is suitable for pines and rdwoods.

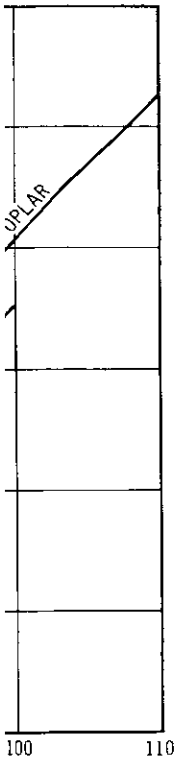
WOODLAND SUITABILITY GROUP 2w2

and Ardilla fine sandy loams, 0 to 2 percent he only mapping unit in this group. It is high- ive but has moderate equipment limitations be- omewhat poor drainage. Seedling mortality is

moderate in this soil. It is suitable for pines and wetland hardwoods, but water management is needed for maximum

WOODLAND SUITABILITY GROUP 3o1

Soils in this group are moderate



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s of wildlife

	Kinds of wildlife		
s	Open-land wildlife	Wood-land wildlife	Wet-land wildlife
4	3	4	1
4	3	4	1
4	4	4	1
3	2	2	4
4	3	1	1
4	2	2	4
4	4	4	4
3	2	1	4
4	3	2	3
4	3	2	3
3	1	1	3
4	2	2	2
2	1	1	4
4	1	1	3
3	1	1	4
4	2	2	3
4	3	3	4
4	3	2	3
4	4	2	1
4	3	2	3
4	3	1	3
3	1	1	4
3	1	1	4
2	1	1	4
4	4	2	3
4	4	3	3
4	3	2	2
4	2	2	3
4	3	2	3
4	3	2	3
4	4	4	1
4	4	3	3
4	4	3	1
4	2	2	2
4	2	2	3
4	2	2	4
4	2	2	4
4	1	1	3
4	4	4	2
4	4	4	2
4	3	2	3
3	1	2	4
3	3	3	4
3	1	1	4
4	1	1	3

n table 5 under
ıds of wildlife"

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ıum, millet, and

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lespedeza, shrub

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Engineering Behavior of Soils [5]

The properties of soils that are of special interest to engineers are those that affect design, construction, and maintenance of roads, airports, foundations for buildings, drainage systems, and farm ponds. Among such properties are size of soil particles, plasticity, permeability, depth to water table, and reaction (pH). Data on these and related properties are presented in tables 6, 7, and 8 in this section. Information in these tables can be helpful in —

1. Making soil and land-use studies that aid in selecting and developing sites for industries, businesses, residences, and recreational areas.
2. Making preliminary estimates of the engineering properties of soils for planning agricultural drainage systems, farm ponds, and irrigation systems.
3. Making preliminary evaluations of soil and ground conditions that aid in selecting locations for highways, airports, and pipelines and in planning detailed investigations at the selected sites.
4. Determining the suitability of soils for cross-country movement of vehicles and construction equipment.
5. Correlating performance of engineering structures with soil mapping units and thus developing information that can be used in designing and maintaining such structures.
6. Supplementing information obtained from published maps, reports, and photographs for the purpose of developing soil maps and reports that can be used readily by engineers.
7. Developing other preliminary estimates for construction purposes pertinent to the particular area.

Much useful knowledge about the behavior of soils is available in this section, but it is not intended as a substitute for the detailed sampling and testing ordinarily done at the site chosen for major construction. The information in tables 6, 7, and 8 can be used mainly in selecting sites suitable for more detailed field investigation. Engineers can find additional information about the soils in the sections "How This Survey Was Made," "Descriptions of the Soils," and "Formation and Classification of Soils."

Some of the terms used in this section and elsewhere in this soil survey may not be familiar to engineers. Others, though they appear familiar, have special meaning in soil science. Many such terms are defined in the Glossary.

Engineering test data and classification

Engineering data in table 6 were obtained by testing samples of principal soils in six extensive series. The soils were sampled and analyzed to a depth of 6 feet or less, so the data are not adequate for evaluating the engineering characteristics of the soils at greater depths. The data are not applicable to specific locations other than those tested, and onsite inspections are therefore necessary where individual projects are planned.

The engineering test data and the engineering soil classifications in table 6 are based on tests to determine liquid and plastic limits and on mechanical analyses. Mechanical

[5] By T. E. AYERS, agricultural engineer, Soil Conservation Service.

combined sieve and hydrom- were obtained by determining n the soil passed from a semi- liquid limits by determining ich the soil passed from a e plasticity index was then the numerical difference be- iid limits (*10*).

lassify soil materials accord- by the American Association *1*). In this system, soil materials are classified in seven principal groups, A–1 through A–7. A–1 materials are the best for road subgrades, A–2 are next best, and so on down to A–7, the poorest material for subgrades.

Within each group the relative engineering value of the soil material is indicated by a group index number. Numbers range from 0 for the best materials to 20 for the poorest. The group index number, when present, is in parentheses at the right of the group symbol.

Some engineers prefer to use the Unified system (*21*) to classify soil materials. In this system soil materials are

TABLE 6.—*Engineering*

oil name and location	Parent material	Depth
		Inches
northwest of intersection of James Island Creek Bridge 28 and 1,600 feet west of County Road 53 on south side lc)	Coastal Plain sandy loams	0–9 14–30 38–53
e of State Highways 10 and 89, about 2¾ miles southeast ghways 89 and 174, 7 miles southwest of Hollywood, and un. (Thicker A horizon and coarser textured substratum	Coastal Plain sandy loams	0–9 21–30 43–52
State Highway 41 and 2 miles from intersection of State hway 17. (Modal profile)	Coastal Plain sands and sandy loams.	0–7 11–19 24–43 43–58
east of Hollywood on north side of field road, 650 feet Line Railroad and 950 feet west of County Road 79. bstratum than in modal profile)	Coastal Plain sands and sandy loams.	0–10 14–19 36–46
66 feet west of State Highway 171 and 1,600 feet north oarser textured substratum than in modal profile)	Coastal Plain sands and sandy loams.	0–9 12–26 40–50
Stono River Road and 1½ miles south of James Island file)	----------	0–9 13–20 29–40
tate Highway 165 and 1¼ miles south of Meggett. (Finer le)	Coastal Plain sandy clay loams and sandy clays.	0–10 14–30 50–60
State Highway 171 and ½ mile south of intersection of ings Highway (State Highway 94). (Modal profile)	Coastal Plain sands.	0–10 20–32 32–43
eet east of dirt road and 435 feet north of U.S. Highway ice. (Finer textured surface layer than in modal profile)	Acid Coastal Plain sands.	0–6 19–25 25–33 33–48

placed in one of eight classes of coarse-grained materials, or in one of six classes of fine-grained materials, or are classified as highly organic.

Both the Unified and the American Association of State Highway Officials (AASHO) systems were used to classify soils in table 6.

Soil properties significant to engineering

The soils in this county and estimates of their physical and chemical properties are shown in table 7. In this table, the texture of each layer is listed according to the textural classification of the United States Department of Agriculture (*13*). Also listed for each layer is the estimated percentage of soil material that passes a No. 10, 40, and 200 sieve.

Permeability of each layer was estimated for material that had not been compacted. Permeability refers to the rate at which water moves through the soil material and depends largely on the texture and structure of the soil (*16*).

Available water capacity is approximately the amount of capillary water in the soil when downward flow by

test data for soils [1]

Mechanical analysis [2]					Liquid limit	Plasticity index (*10*)	Classification	
Percentage passing sieve—				Percentage smaller than 0.005 mm.			AASHO [3]	Unified [4]
No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 60 (0.25 mm.)	No. 200 (0.074 mm.)					
100	98	92	22	12	(5)	(5)	A-2-4(0)	SM
100	98	92	25	17	(5)	(5)	A-2-4(0)	SM
100	94	83	16	15	(5)	(5)	A-2-4(0)	SM
100	100	99	30	10	(5)	(5)	A-2-4(0)	SM
100	100	100	42	24	24	4	A-4(1)	SM-SC
100	100	99	22	13	(5)	(5)	A-2-4(0)	SM
100	99	98	29	7	(5)	(5)	A-2-4(0)	SM
100	100	99	49	29	23	5	A-4(3)	SM-SC
100	100	100	41	26	25	4	A-4(1)	SM-SC
100	100	99	43	25	(5)	(5)	A-4(2)	SM
100	99	98	33	5	(5)	(5)	A-2-4(0)	SM
100	100	99	48	23	(5)	(5)	A-4(3)	SM
100	100	100	52	24	(5)	(5)	A-4(3)	ML
100	99	97	29	13	(5)	(5)	A-2-4(0)	SM
100	98	97	35	22	(5)	(5)	A-2-4(0)	SM
100	97	94	16	11	(5)	(5)	A-2-4(0)	SM
100	99	95	17	8	(5)	(5)	A-2-4(0)	SM
100	100	98	41	32	25	7	A-4(1)	SM-SC
100	100	98	26	23	(5)	(5)	A-2-4(0)	SM
100	99	98	31	9	(5)	(5)	A-2-4(0)	SM
100	100	100	50	26	32	12	A-6(4)	SC
100	100	100	41	18	(5)	(5)	A-4(1)	SM
100	86	75	11	8	(5)	(5)	A-2-4(0)	SP-SM
100	81	68	11	9	(5)	(5)	A-2-4(0)	SP-SM
100	78	49	5	5	(5)	(5)	A-3(0)	SP-SM
100	91	69	25	16	(5)	(5)	A-2-4(0)	SM
100	91	66	12	9	(5)	(5)	A-2-4(0)	SP-SM
100	92	61	10	5	(5)	(5)	A-3(0)	SP-SM
100	89	52	5	4	(5)	(5)	A-3(0)	SP

TABLE 6.—*Engineering*

Parent material	Depth
	Inches
Alkaline Coastal Plain clays to sandy clays.	0–5 13–25 52–60
Alkaline Coastal Plain clays to sandy clays.	0–5 9–27 27–48
Alkaline Coastal Plain clays to sandy clays.	0–6 22–38 38–48
Nonacid Coastal Plain sandy clay loams.	0–10 14–34 42–60
Nonacid Coastal Plain sandy clay loams.	0–3 25–43 50–69

a the U.S. Department of Commerce, Bureau
ate Highway Officials (AASHO) (*1*).
frequently may differ somewhat from results
. In the AASHO procedure, the fine material
he basis of all material, including that coarser
zed by the pipette method and the material
The mechanical analyses used in this table

TABLE 7.—*Estimated*

nd (Ma) and Mine pits and dumps (Mp) are

Classification
Dominant USDA texture
Fine sandy loam
Clay loam
Clay to sandy clay
Sandy loam
Sandy clay loam
Sandy clay
Sandy clay loam
Loam
Clay loam
Clay
Clay loam and sandy clay loam
Silty clay loam
Silty clay
Loamy fine sand
Fine sandy loam

ercentage naller than .005 mm.	Liquid limit	Plasticity index (*10*)	Classification	
			AASHO [3]	Unified [4]
18	(5)	(5)	A-4(3)	ML
41	32	12	A-6(9)	CL
43	43	27	A-7-6(14)	CL
11	(5)	(5)	A-4(6)	ML
61	65	41	A-7-6(20)	CH
56	56	34	A-7-6(19)	CH
8	(5)	(5)	A-2-4(0)	SM
35	34	17	A-6(6)	CL
33	38	20	A-6(7)	CL
5	(5)	(5)	A-4(3)	ML
29	26	8	A-4(6)	CL
27	26	5	A-4(6)	ML-CL
10	(5)	(5)	A-4(3)	SM
43	44	25	A-7-6(14)	CL
35	38	19	A-6(9)	CL

ls and Methods of Sampling and Testing (Pt. 1, Ed. 8): AASHO Designa-

ways Experiment Station, Corps of Engineers, March 1953 (*21*). The Soil d to consider that all soils having a plasticity index within 2 points from the of borderline classifications obtained by this use are SP-SM, ML-CL, and

ted]

200 mm.)	Permeability	Available water capacity	Reaction	Shrink-swell potential
	Inches per hour	*Inches per inch of soil*	*pH value*	
0-55	0. 63-2. 0	0. 15-0. 11	5. 1-5. 5	Low.
0-80	<0. 2	0. 13-0. 15	4. 5-5. 0	Moderate.
5-95	<0. 2	0. 15-0. 17	4. 5-5. 0	High.
0-40	<0. 2	0. 13-0. 15	4. 5-5. 0	Moderate to high.
5-55	0. 63-2. 0	0. 13-0. 15	5. 1-5. 5	Low.
5-60	<0. 2	0. 15-0. 17	4. 5-5. 0	High.
5-55	<0. 2	0. 15-0. 17	4. 5-5. 0	Low.
0-75	0. 63-2. 0	0. 13-0. 15	4. 5-5. 0	High.
0-80	<0. 2	0. 15-0. 17	4. 5-5. 0	High.
5-95	<0. 2	0. 15-0. 17	4. 5-5. 0	Very high.
5-80	<0. 2	0. 15-0. 17	4. 5-5. 0	High.
5-95	0. 2-0. 63	0. 15-0. 17	5. 6-6. 0	High.
0-95	<0. 2	0. 13-0. 15	6. 1-6. 5	High.
5-35	>6. 3	0. 05-0. 07	5. 1-5. 5	Low.
5-45	2. 0-6. 3	0. 10-0. 13	4. 5-5. 0	Low.

TABLE 7.—*Estimated*

Soil series and map symbols	Depth to seasonal high water table	Depth from surface in a typical profile	Classification: Dominant USDA texture
	Feet	*Inches*	
hastain (Ck)	[1] 0–2	0–7	Silt loam
		7–14	Silty clay loam
		14–42	Clay loam
hipley (Cm)	2–5	0–10	Loamy fine sand
		10–40	Loamy sand
		40–50	Sand
oastal beaches and Dune land (Co)	[2] 0–2	0–50	Sand
raven (Cr)	2–5	0–9	Fine sandy loam
		9–12	Loam
		12–44	Clay
		44–56	Sandy clay loam
revasse (CvC) (For properties of Dawhoo soils, refer to the Dawhoo series.)	0–2	0–60	Fine sand
awhoo (Da) (For properties of Rutlege soils, refer to the Rutlege series.)	[1] 0–2	0–30	Loamy fine sand
		30–60	Fine sand
othan (Mapped only with soils of Norfolk series.)	2–3	0–15	Fine sandy loam
		15–20	Sandy clay loam
		20–29	Clay loam
		29–40	Sandy clay
		40–68	Sandy clay loam
unbar (DdA) (For properties of the Ardilla soils, refer to the Ardilla series.)	1–3	0–9	Fine sandy loam
		9–28	Sandy clay
		28–60	Sandy clay loam
disto (Ed)	2–3	0–14	Loamy fine sand
		14–27	Fine sandy loam
		27–36	Loamy fine sand
		36–62	Fine sandy loam (fragipan)
		62–70	Fine sandy clay loam (fragipan)
		70–84	Fine sand
aceville (FvB)	5+	0–11	Fine sandy loam
		11–36	Clay loam to clay
		36–50	Clay
ockley (HoA, HoB)	2–5	0–13	Loamy fine sand
		13–60	Fine sandy clay loam
iawah (Ka)	1–2	0–48	Loamy fine sand
		48–72	Fine sand
akeland (LaB)	5+	0–60	Sand
con (Le)	1–2+	0–48	Sand
leggett:			
Loam (Mg)	[1] 0–2	0–4	Loam
		4–14	Clay loam
		14–72	Clay
Clay loam (Me)	0–2	0–14	Clay loam
		14–72	Clay
lyatt (My)	[1] 0–2	0–17	Loam
		17–53	Clay loam
orfolk (NdA) (For properties of Dothan soils, refer to the Dothan series.)	5+	0–16	Loamy fine sand
		16–19	Fine sandy loam
		19–54	Sandy clay loam
		54–66	Fine sandy loam

See footnotes at end of table.

lity	Available water capacity	Reaction	Shrink-swell potential
sour	*Inches per inch of soil*	*pH value*	
). 63	0. 14–0. 16	5. 1–5. 5	Moderate.
). 2	0. 14–0. 16	5. 1–5. 5	High.
). 2	0. 15–0. 17	5. 1–5. 5	High.
). 3	----------	5. 1–5. 5	Low.
). 3	0. 06–0. 1	5. 1–5. 5	Low.
). 3	0. 03–0. 08	5. 6–6. 0	Low.
). 3	0. 03–0. 08	5. 6–6. 0	Low.
2. 0	0. 13–0. 15	5. 1–5. 5	Moderate.
2. 0	0. 13–0. 15	5. 1–5. 5	High.
). 2	0. 15–0. 17	4. 5–5. 0	High.
). 2	0. 15–0. 17	4. 5–5. 0	Moderate.
). 0	0. 05–0. 1	5. 1–5. 5	Low.
20. 0	0. 05–0. 1	6. 1–6. 5	Low.
20. 0	0. 05–0. 1	6. 1–6. 5	Low.
). 3	0. 13–0. 15	5. 1–5. 5	Low.
2. 0	0. 13–0. 15	5. 1–5. 5	Moderate.
2. 0	0. 13–0. 15	5. 1–5. 5	High.
2. 0	0. 13–0. 15	4. 5–5. 0	Moderate.
). 63	0. 13–0. 15	5. 1–5. 5	Moderate.
2. 0	0. 13–0. 15	5. 1–5. 5	Low.
2. 0	0. 13–0. 15	4. 5–5. 0	Moderately high.
). 63	0. 13–0. 15	4. 5–5. 0	Moderate.
20. 0	0. 05–0. 08	5. 1–5. 5	Low.
). 3	0. 13–0. 15	5. 1–5. 5	Low.
20. 0	0. 05–0. 08	4. 5–5. 0	Low.
). 3	0. 13–0. 15	4. 5–5. 0	Low.
). 63	0. 10–0. 15	4. 5–5. 0	Moderate.
20. 0	0. 03–0. 08	4. 5–5. 0	Low.
). 3	0. 13–0. 15	5. 1–5. 5	Low.
2. 0	0. 13–0. 15	4. 5–5. 0	Moderate.
2. 0	0. 15–0. 17	5. 1–5. 5	Moderate.
). 3	0. 08–0. 12	5. 1–5. 5	Low.
2. 0	0. 10–0. 14	4. 5–5. 0	Moderate.
20. 0	0. 08–0. 12	5. 1–5. 5	Low.
20. 0	0. 05–0. 08	5. 6–6. 0	Low.
20. 0	0. 03–0. 08	4. 5–5. 5	Low.
20. 0	0. 03–0. 08	4. 2–6. 2	Low.
). 63	0. 15–0. 17	4. 5–5. 0	Moderate.
). 2	0. 15–0. 17	4. 5–5. 0	High.
). 2	0. 15–0. 17	6. 6–7. 3	High.
). 63	0. 15–0. 17	4. 5–5. 0	High.
). 2	0. 15–0. 17	6. 6–7. 3	High.
2. 0	0. 15–0. 17	4. 5–5. 0	Moderate.
). 2	0. 15–0. 17	4. 5–5. 0	Moderate.
). 3	0. 10–0. 14	5. 6–6. 0	Low.
). 3	0. 13–0. 15	5. 1–5. 5	Low.
2. 0	0. 13–0. 15	5. 1–5. 5	Moderate.
). 3	0. 13–0. 15	4. 5–5. 0	Low.

TABLE 7.—*Estimated*

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ility	Available water capacity	Reaction	Shrink-swell potential
hour	*Inches per inch of soil*	*pH value*	
6. 3	0. 10–0. 15	5. 1–5. 5	Low.
6. 3	0. 13–0. 15	4. 5–5. 0	Low.
2. 0	0. 13–0. 15	4. 5–5. 0	Moderate.
6. 3	0. 10–0. 15	4. 5–5. 0	Low to moderate.
0. 0	0. 03–0. 08	4. 5–5. 0	Low.
2. 0	0. 08–0. 10	<4. 5	Low.
2. 0	0. 05–0. 08	5. 6–6. 0	Low.
6. 3	0. 13–0. 15	<4. 5	Low.
2. 0	0. 12–0. 16	5. 6–6. 0	Moderate.
6. 3	0. 10–0. 14	4. 5–5. 0	Low.
2. 0	0. 13–0. 15	4. 5–5. 0	Moderate.
2. 0	0. 13–0. 15	5. 1–5. 5	Moderate.
2. 0	0. 10–0. 14	4. 5–5. 0	Low.
2. 0	0. 05–0. 08	5. 1–5. 5	Low.
0. 0	0. 03–0. 08	4. 5–5. 0	Low.
0. 63	0. 14–0. 16	5. 1–5. 5	High.
0. 2	0. 12–0. 14	6. 1–6. 5	High.
2. 0	0. 15–0. 17	5. 6–6. 0	Moderate.
0. 2	0. 15–0. 17	6. 1–6. 5	High.
0. 2	0. 15–0. 17	7. 4–7. 8	High.
0. 0	0. 08–0. 12	5. 1–5. 5	Low.
0. 0	0. 05–0. 08	4. 3–5. 5	Low.
0. 0	0. 05–0. 08	5. 1–6. 0	Low.
6. 3	0. 05–0. 08	5. 1–5. 5	Low.
0. 0	0. 03–0. 05	5. 6–6. 0	Low.
6. 3	0. 12–0. 16	5. 1–5. 5	Low.
2. 0	0. 15–0. 17	5. 6–6. 0	Low to moderate.
2. 0	0. 12–0. 16	5. 6–6. 0	Low.
2. 0	0. 12–0. 16	<4. 5–7. 0	Low.
6. 3	0. 12–0. 16	<4. 5–7. 0	High.
2. 0	0. 15–0. 17	4. 5–5. 0	Moderate to low.
0. 2	0. 15–0. 17	7. 9–8. 4	Moderate.
0. 0	0. 05–0. 08	5. 1–5. 5	Low.
2. 0	0. 15–0. 17	5. 1–5. 5	Low.
0. 0	0. 05–0. 08	6. 1–6. 5	Low.
0. 0	0. 03–0. 08	6. 1–6. 5	Low.
6. 3	0. 05–0. 08	6. 1–6. 5	Low.
0. 63	0. 15–0. 17	4. 5–5. 0	Low to moderate.
6. 3	0. 10–0. 12	5. 6–6. 0	Low.
0. 63	0. 12–0. 15	4. 5–5. 0	Low to moderate.
2. 0	0. 14–0. 16	5. 1–5. 5	Moderate.
0. 63	0. 14–0. 16	6. 6–7. 3	Moderate.
2. 0	0. 14–0. 16	7. 9–8. 4	Moderate.

gravity has practically stopped. In table 7 it is the amount of 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 form expressing pH value. A soil having a pH of less than 7.0 is acid, and one having a pH of more than 7.0 is alkaline. Extreme acidity or alkalinity can have an important effect on the engineering structures or on the treatment needed to stabilize soils.

Shrink-swell potential indicates how much a soil changes in volume when its moisture content changes. In general, soils having a high clay content (CH and A-7) have a high shrink-swell potential.

Depth to bedrock is not shown in table 7. Bedrock is at such depth under most soils of this county that it has little effect on most uses of the soils.

Sanitary, highway, and conservation engineering

This subsection summarizes general information about suitability of soils for sanitary, highway, and conservation engineering that is pertinent but cannot conveniently be presented in tables.

Sanitary engineering.—Suitability of a soil for septic tanks and sewage-disposal fields depends mainly on its permeability, its depth to water table, and the hazard of flooding. Slope and depth to bedrock also are important, but these are not problems in Charleston County. Soils that have a high water table or are likely to be flooded have severe limitations as sites for sewage-disposal fields (table 8). Examples of such soils in this county are Portsmouth fine sandy loam, Quitman loamy sand, Rains sandy loam, and St. Johns fine sand (fig. 13).

Among soils having slow permeability are those of the Bayboro, Chastain, and Meggett series, and soils with very slow permeability are those of the Cape Fear series. Soils having slow or very slow permeability are severely limited as sites for sewage-disposal fields.

Soils that have low filtering action, as for example Lakeland sand and Wando loamy fine sand, are severely limited as sites for sewage-disposal fields because of the possibility of pollution of nearby water sources.

The soils mentioned in the foregoing paragraphs are those having more serious limitations as sites for sewage-disposal systems. On many other soils of the county limitations are less critical, but onsite investigation is still necessary to determine whether it is feasible to use them for disposal fields. For example, a soil may be rated as having a slight limitation as a site for a disposal field, but the site chosen for construction may be of such limited extent that it will not provide a disposal field of sufficient size to serve the structure that is to be built.

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TABLE 8.—*Engineering*

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Soil series and map symbols	Suitability as source of—		Limitations for septic tank filter fields	Soil features adversely affecting—
	Topsoil	Road fill		Sewage lagoons
Ardilla (Mapped only with soils of Dunbar series.)	Fair	Poor	Severe: frequent flooding, high water table, slow permeability.	Frequent flooding
Bayboro (Bc)	Fair	Poor	Severe: very frequent flooding, very high water table, slow permeability, percolation rate of more than 75 minutes per inch.	Very frequent flooding, high shrink-swell potential.
Cape Fear (Cf)	Fair	Poor	Severe: very frequent flooding, very high water table, slow permeability, percolation rate of more than 75 minutes per inch.	Very frequent flooding, high shrink-swell potential.
Capers (Cg)	Unsuitable	Unsuitable	Severe: very frequent flooding, continuous high saline water table.	Very frequent flooding, high shrink-swell potential.
Charleston (Ch)	Fair	Good	Moderate: moderately high water table.	Moderate permeability
Chastain (Ck)	Poor	Poor	Severe: very frequent flooding, very high water table, percolation rate slower than 75 minutes per inch.	Very frequent flooding
Chipley (Cm)	Poor	Good	Moderate: moderately high water table, percolation rate of 45 to 75 minutes per inch.	Rapid permeability
Coastal beaches and Dune land (Co).	Poor	Good	Severe: low filtering action, very frequent flooding, high water table.	Rapid permeability, very frequent flooding.
Craven (Cr)	Fair	Poor	Severe: percolation rate slower than 75 minutes per inch.	None
Crevasse (CvC) (For interpretations of Dawhoo soils, refer to Dawhoo series.)	Poor	Good	Severe: low filtering action	Rapid permeability
Dawhoo (Da) (For interpretations of Rutlege soil, refer to Rutlege series.)	Poor	Fair	Severe: very frequent flooding, high water table.	Rapid permeability
Dothan (Mapped only with soils of Norfolk series.)	Fair	Fair	Moderate: percolation rate of 45 to 75 minutes per inch.	Moderate permeability
Dunbar (DdA) (For interpretations of Ardilla soil, refer to Ardilla series.)	Fair	Fair	Severe: percolation rate of more than 75 minutes per inch, frequent flooding, high water table.	Moderately slow permeability.

(Mp)]

rcs adversely affecting—Continued

Farm ponds		Agricultural drainage	Sprinkler irrigation
	Embankment		
------	Low to high shrink-swell potential.	High water table, slow permeability, frequent flooding.	Slow infiltration.
------	High shrink-swell potential.	Slow permeability, very high water table, very frequent flooding.	Slow infiltration.
------	High shrink-swell potential.	High water table, very slow permeability, very frequent flooding.	Slow infiltration.
------	High shrink-swell potential.	Continuous high saline water table, very frequent flooding, slow permeability.	Slow infiltration.
rom ches.	Rapid permeability from depth of 0 to 16 inches.	Moderately high water table.	None.
------	High shrink-swell potential.	Flooding, high water table.	None.
------	Rapid permeability------	Moderately high water table.	None.
------	Rapid permeability, severe erodibility.	Not needed----------	Low water-holding capacity.
------	High shrink-swell potential.	Slow permeability------	Moderate infiltration.
------	Rapid permeability, severe erodibility.	Not needed----------	Low water-holding capacity.
------	Rapid permeability------	Very frequent flooding, high water table.	Low water-holding capacity.
ty-----	Moderate permeability---	High water table------	None.
me-	Moderately slow permeability, moderately high shrink-swell potential.	Frequent flooding, high water table.	Moderate infiltration.

TABLE 8.—*Engineering*

Soil series and map symbols	Suitability as source of—		Limitations for septic tank filter fields	Soil features adversely affecting—
	Topsoil	Road fill		Sewage lagoons
Edisto (Ed)	Good	Good	Severe: flooding, high water table.	Moderately rapid permeability.
Faceville (FvB)	Fair	Poor	Severe: percolation rate of more than 75 minutes per inch.	None
Hockley (HoA, HoB)	Fair	Good	Slight: percolation rate of less than 45 minutes per inch.	Moderate permeability
Kiawah (Ka)	Poor	Good	Moderate: high water table	Rapid permeability
Lakeland (LaB)	Poor	Good	Severe: low filtering action	Rapid permeability
Leon (Le)	Poor	Good	Severe: high water table	Rapid permeability
Meggett (Me, Mg)	Fair	Poor	Severe: very frequent flooding, high water table, percolation rate of more than 75 minutes per inch.	Very frequent flooding, high shrink-swell potential.
Myatt (My)	Fair	Poor	Severe: very frequent flooding, high water table, percolation rate of more than 75 minutes per inch.	Very frequent flooding
Norfolk (NdA) (For interpretations of Dothan soil, refer to the Dothan series.)	Fair	Good	Slight	Moderate permeability
Orangeburg (OrA, OrB)	Fair	Poor	Moderate: percolation rate of 45 to 75 minutes per inch.	Moderate permeability
Osier (Os)	Poor	Good	Severe: very frequent flooding, high water table.	Very frequent flooding, rapid permeability.
Pamlico (Pa)	Poor	Poor	Severe: very frequent flooding, continuous high water table.	Very frequent flooding, rapid permeability.
Portsmouth (Po)	Good	Fair	Severe: very frequent flooding, high water table.	Very frequent flooding, moderate permeability.
Quitman (Qu)	Fair	Good	Severe: frequent flooding, high water table.	Frequent flooding, moderate permeability.
Rains (Ra)	Fair	Fair	Severe: very frequent flooding, high water table.	Very frequent flooding

rpretations of soils—Continued

Soil features adversely affecting—Continued				
Highway location	Farm ponds		Agricultural drainage	Sprinkler irrigation
	Reservoir areas	Embankment		
ooding, high water table	Moderately rapid permeability.	Moderately rapid permeability.	Flooding, high water table.	None.
or traffic-supporting capacity; moderate shrink-swell potential.	None	Poor stability, moderate shrink-swell potential.	Not needed	Moderate infiltration.
ir traffic-supporting capacity.	Moderate permeability	Moderate permeability	Moderately high water table.	None.
vere erodibility	Rapid permeability	Rapid permeability, severe erodibility.	High water table	Low water-holding capacity.
vere erodibility	Rapid permeability	Rapid permeability, severe erodibility.	Not needed	Low water-holding capacity.
gh water table	Rapid permeability	Rapid permeability	High water table	Low water-holding capacity.
or traffic-supporting capacity; very frequent flooding, high water table, high shrink-swell potential.	None	High shrink-swell potential.	Very frequent flooding, high water table, slow permeability.	Slow infiltration.
or traffic-supporting capacity; very frequent flooding, high water table, moderate shrink-swell potential.	None	Moderate shrink-swell potential.	Very frequent flooding, high water table, slow permeability.	Slow infiltration.
one	Moderate permeability	Moderate permeability	None	None.
or traffic-supporting capacity; moderate to high shrink-swell potential.	Moderate permeability	Moderate permeability, moderate shrink-swell potential.	Moderate permeability	Moderate infiltration.
ry frequent flooding, high water table.	Rapid permeability	Rapid permeability	Very frequent flooding, high water table.	Low water-holding capacity.
or traffic-supporting capacity; very frequent flooding, continuous high water table.	Rapid permeability	Rapid permeability	Very frequent flooding, continuous high water table.	Not suited.
ir traffic-supporting capacity; very frequent flooding, high water table.	Moderate permeability	Moderate permeability	Very frequent flooding, high water table.	None.
equent flooding, high water table.	Moderate permeability	Moderate permeability	Frequent flooding, high water table.	None.
ir traffic-supporting capacity; very frequent flooding, high water table.	Moderate permeability	Moderate permeability	Very frequent flooding, high water table.	None.

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TABLE 8.—*Engineering*

Soil series and map symbols	Suitability as source of—		Limitations for septic tank filter fields	Soil features adversely affecting—
	Topsoil	Road fill		Sewage lagoons
Rutlege (Rg, Rp) (For interpretations of Pamlico soil, refer to the Pamlico series.)	Poor	Fair	Severe: very frequent flooding, high water table.	Very frequent flooding, rapid permeability.
St. Johns (Sa)	Poor	Fair	Severe: frequent flooding, high water table.	Frequent flooding, rapid permeability.
Santee:				
Clay loam (Sc)	Poor	Poor	Severe: very frequent flooding, high water table, percolation rate of more than 75 minutes per inch.	Very frequent flooding
Loam (Se)	Fair	Poor	Severe: very frequent flooding, high water table, percolation rate of more than 75 minutes per inch.	Very frequent flooding, moderate permeability to a depth of 16 inches.
Scranton (Sf)	Poor	Good	Severe: high water table	Rapid permeability
Seabrook (Sk)	Poor	Good	Moderate: moderately high water table.	Rapid permeability
Seewee (Sm)	Poor	Good	Severe: frequent flooding, high water table.	Rapid permeability
Stono (St)	Good	Fair	Severe: frequent flooding high water table.	Moderate permeability
Tidal marsh:				
Firm (Tf)	Unsuitable	Unsuitable	Severe: very frequent flooding, continuous high water table, flooded daily by salt water.	Very frequent flooding, rapid permeability.
Soft (Ts)	Unsuitable	Unsuitable	Severe: very frequent flooding, continuous high water table, flooded daily by salt water.	Very frequent flooding, moderate permeability.
Wadmalaw (Wa)	Fair	Fair	Severe: very frequent flooding, high water table, percolation rate of more than 75 minutes per inch.	Very frequent flooding
Wagram (WgB)	Fair	Good	Slight: moderate permeability at a depth of 24 to 60 inches.	Rapid permeability to depth of 24 inches.
Wando (WnB)	Poor	Good	Slight: low filtering action	Rapid permeability
Wicksburg (WoB)	Poor	Good	Slight: moderately slow permeability.	Moderately slow permeability.
Yonges (Yo)	Fair	Fair	Severe: percolation rate of more than 75 minutes per inch.	None

Agricultural drainage	Sprinkler irrigation
Very frequent flooding, high water table.	Low water-holding capacity.
Frequent flooding, high water table.	Low water-holding capacity.
Very frequent flooding, high water table, slow permeability.	Slow infiltration.
Very frequent flooding, high water table, slow permeability.	Slow infiltration.
High water table	Low water-holding capacity.
Moderately high water table.	None.
Frequent flooding, high water table.	Low water-holding capacity.
Frequent flooding, high water table.	Low water-holding capacity.
Very frequent flooding, continuous high water table, flooded daily by tide.	Unsuitable.
Very frequent flooding, continuous high water table, flooded daily by tide.	Unsuitable.
Very frequent flooding, high water table, slow permeability.	Slow infiltration.
Not usually needed	Low water-holding capacity.
Not needed	Low water-holding capacity.
None	None.
Moderately slow permeability.	Slow infiltration.

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TABLE 9.—*Estimated limitations of soils*

Soil series and map symbols	Foundations for dwellings	Recreational sites	
		Campsites	Intensive play areas
Norfolk (NdA) (For limitations of Dothan soil, refer to the Dothan series.)	Moderate: fair presumptive bearing value.	Slight	Slight
Orangeburg (OrA, OrB)	Slight	Slight	Slight
Osier (Os)	Severe: very frequent flooding, high water table.	Severe: poor trafficability	Severe: poor trafficability
Pamlico (Pa)	Very severe: low presumptive bearing value, very frequent flooding, high water table.	Very severe: very poor trafficability.	Very severe: very poor trafficability.
Portsmouth (Po)	Severe: moderate presumptive bearing value, very frequent flooding, high water table.	Severe: very poor trafficability.	Severe: very poor trafficability.
Quitman (Qu)	Moderate: frequent flooding, high water table.	Moderate: poor trafficability	Moderate: poor trafficability
Rains (Ra)	Severe: very frequent flooding, high water table, low presumptive bearing value.	Severe: poor trafficability	Severe: poor trafficability
Rutlege (Rg, Rp) (For limitations of Pamlico soil in Rp, refer to the Pamlico series.)	Severe: very frequent flooding, high water table.	Severe: poor trafficability	Severe: poor trafficability
St. Johns (Sa)	Severe: frequent flooding, high water table.	Severe: poor trafficability	Severe: poor trafficability
Santee:			
Clay loam (Sc)	Severe: very frequent flooding, high water table, low presumptive bearing value, high shrink-swell potential.	Severe: poor trafficability	Severe: poor trafficability
Loam (Se)	Severe: very frequent flooding, high water table, low presumptive bearing value, high shrink-swell potential.	Severe: poor trafficability	Severe: poor trafficability
Scranton (Sf)	Moderate: infrequent flooding, high water table.	Moderate: fair trafficability	Moderate: fair trafficability
Seabrook (Sk)	Slight	Slight	Slight
Seewee (Sm)	Moderate: frequent flooding, high water table.	Moderate: poor trafficability	Moderate: poor trafficability
Stono (St)	Moderate: high water table, frequent flooding.	Moderate: poor trafficability	Moderate: poor trafficability
Tidal marsh:			
Firm (Tf)	Very severe: very frequent flooding, continuous high water table, low presumptive bearing value.	Very severe: very poor trafficability.	Very severe: very poor trafficability.
Soft (Ts)	Very severe: very frequent flooding, continuous flooding, poor presumptive bearing value, high shrink-swell potential.	Very severe: very poor trafficability.	Very severe: very poor trafficability.
Wadmalaw (Wa)	Severe: very frequent flooding, high water table, low presumptive bearing value, moderate shrink-swell potential.	Severe: poor trafficability	Severe: poor trafficability.
Wagram (WgB)	Slight	Slight	Slight
Wando (WnB)	Slight	Slight	Slight
Wicksburg (WoB)	Slight	Slight	Slight
Yonges (Yo)	Moderate: high water table, infrequent flooding.	Moderate: fair trafficability	Moderate: fair trafficability

inued

Continued		
Picnic areas	Sites for light industries	Trafficways
Slight	Moderate: fair presumptive bearing value.	Slight.
Slight	Slight	Slight.
Severe: poor trafficability	Severe: very frequent flooding, high water table.	Severe: very frequent flooding, high water table.
Very severe: very poor trafficability.	Very severe: very frequent flooding, continuous high water table, low presumptive bearing value, high corrosion potential.	Very severe: poor traffic supporting capacity; very frequent flooding, continuous high water table.
Severe: very poor trafficability.	Severe: moderate presumptive bearing value, very frequent flooding, high water table.	Severe: fair traffic supporting capacity; very frequent flooding, high water table.
Moderate: poor trafficability	Moderate: frequent flooding, high water table.	Moderate: frequent flooding, high water table.
Severe: poor trafficability	Severe: very frequent flooding, high water table, low presumptive bearing value.	Severe: very frequent flooding, high water table.
Severe: poor trafficability	Severe: very frequent flooding, high water table.	Severe: very frequent flooding, high water table.
Severe: poor trafficability	Severe: frequent flooding, high water table.	Severe: frequent flooding, high water table.
Severe: poor trafficability	Severe: very frequent flooding, high water table, low presumptive bearing value, high shrink-swell potential.	Severe: poor traffic supporting capacity; very frequent flooding, high water table.
Severe: poor trafficability	Severe: very frequent flooding, high water table, low presumptive bearing value, high shrink-swell potential.	Severe: poor traffic supporting capacity; very frequent flooding, high water table.
Moderate: fair trafficability	Moderate: infrequent flooding, high water table.	Moderate: infrequent flooding, high water table.
Slight	Slight	Slight.
Moderate: poor trafficability	Moderate: frequent flooding, high water table.	Moderate: frequent flooding, high water table.
Moderate: poor trafficability	Moderate: frequent flooding, high water table.	Moderate: frequent flooding, high water table.
Very severe: very poor trafficability.	Very severe: very frequent flooding, continuous high water table, low presumptive bearing value.	Very severe: poor traffic supporting capacity; very frequent flooding, continuous high water table.
Very severe: very poor trafficability.	Very severe: very frequent flooding continuous high water table, low presumptive bearing value, high shrink-swell potential.	Very severe: poor traffic supporting capacity; very frequent flooding, continuous high water table.
Severe: poor trafficability	Severe: very frequent flooding, high water table, low presumptive bearing value, moderate shrink-swell potential.	Severe: very poor traffic supporting capacity; very frequent flooding, high water table.
Slight	Slight	Slight.
Slight	Slight	Slight.
Slight	Slight	Slight.
Moderate: fair trafficability	Moderate: infrequent flooding, high water table.	Moderate: infrequent flooding, high water table.

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Rains	Fine-loamy, siliceous, thermic	Typic Paleaquults	Ultisols.
Rutlege	Sandy, siliceous, thermic	Typic Humaquepts	Inceptisols.
St. Johns	Sandy, siliceous, hyperthermic	Typic Haplaquods	Spodosols.
Santee	Fine, mixed, noncalcareous, thermic	Typic Hapalquolls	Mollisols.
Scranton	Siliceous, thermic	Mollic Psammaquents	Entisols.
Seabrook	Siliceous, thermic, coated	Aquic Quartzipsamments	Entisols.
Seewee	Mixed, thermic	Aquic Udipsamments	Entisols.
Stono	Fine-loamy, mixed, noncalcareous, thermic.	Typic Argiaquolls	Mollisols.
Wadmalaw	Fine-loamy, mixed, thermic	Umbric Ochraqualfs	Alfisols.
Wagram	Loamy, siliceous, thermic	Arenic Paleudults	Ultisols.
Wando	Siliceous, thermic, coated	Typic Quartzipsamments	Entisols.
Wicksburg	Clayey, kaolinitic, thermic	Arenic Paleudults	Ultisols.
Yonges	Fine-loamy, mixed, thermic	Typic Albaqualfs	Alfisols.

[1] Placement of some soils in the current system of classification is based on the best information available at the time of publication.

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y an automatic rain gauge at
harleston. Maximum intensity
the following list:

	Inches
	4.11
	6.64
	7.42
	8.62
	9.03
	10.57

in fall (5, 7)

probability and temperature [1]

28° F. or less	32° F. or less
March 10	April 2
March 2	March 25
February 15	March 11
November 24	November 15
December 1	November 21
December 14	December 2

er in fall; temperatures of 28° F. or
22 days earlier in spring and 4 days

Precipitation		
One year in 10 will have—		Average snowfall
Less than—	More than—	
Inches	*Inches*	*Inches*
0.8	4.2	(1)
.9	5.9	(1)
1.5	6.8	(1)
.9	4.8	0
.8	6.0	0
1.5	7.6	0
3.5	11.9	0
2.0	10.2	0
1.5	10.2	0
.6	5.7	0
.6	3.9	(1)
1.0	4.5	.1
31.5	62.6	.1

; on soils of five different moisture-storage capacities (20)

oility	Minimum number of drought days if soil has moisture-storage capacity of [2]—				
	1 inch	2 inches	3 inches	4 inches	5 inches
)-----	17	0	0	0	0
)-----	15	0	0	0	0
)-----	13	0	0	0	0
)-----	11	0	0	0	0
)-----	29	27	24	17	10
)-----	26	23	20	13	6
)-----	23	20	16	10	0
)-----	20	16	11	0	0
)-----	22	21	20	20	17
)-----	19	18	17	16	13
)-----	19	15	14	13	10
)-----	14	11	10	8	0
)-----	18	14	12	11	11
)-----	15	10	8	8	7
)-----	13	8	6	6	5
)-----	10	0	0	0	0
)-----	18	14	10	8	7
)-----	15	9	0	0	0
)-----	13	5	0	0	0
)-----	9	0	0	0	0
)-----	21	15	12	9	7
)-----	18	11	7	0	0
)-----	15	8	0	0	0
)-----	14	0	0	0	0
)-----	28	25	22	18	13
)-----	24	19	15	10	0
)-----	21	15	10	0	0
)-----	16	8	0	0	0

ecember are not shown because crops are rarely damaged by drought in these

e to plants.

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There are three distinct terrace formations in the county: the Recent, the Pamlico, and the Talbot (*3*).

The Recent terrace ranges from about sea level to 6 feet above and occurs along the coast and inland a few miles up major streams. The soils on it are primarily those of the Capers series and Tidal marsh lands.

The Pamlico terrace ranges from about 6 to 25 feet above sea level. It covers most of the county that is not covered by the Recent terrace.

The Talbot terrace ranges from about 25 to 42 feet above sea level. It occurs on the small panhandle southeast of Ladson, in some places in the western part of the county, and in a narrow strip running along the Berkeley County line from southwest of Wambaw Creek almost to the Wando River.

History of Crop Production

The first colonists settled in Charleston County in 1670 near the present city of Charleston. These were English to whom King Charles had granted the territory known as Carolina. Many French Huguenots joined the new settlers after the Edict of Nantes was revoked in 1685.

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ary

ı. Soil material, such as sand, silt, or clay, that has been sited on land by streams.

e water capacity. The capacity of a soil to hold water in a available to plants. Amount of moisture held in soil een field capacity, or about one-third atmosphere of ten- and the wilting coefficient, or about 15 atmospheres of ion.

turation. The degree to which material that has base- ange properties is saturated with exchangeable cations r than hydrogen, expressed as a percentage of the cation- ange capacity.

us soil. A soil containing enough lime or calcium carbonate en with magnesium carbonate) to effervesce (fizz) visibly n treated with cold, dilute hydrochloric acid.

a soil separate, the mineral soil particles less than 0.002 meter in diameter. As a soil textural class, soil material is 40 percent or more clay, less than 45 percent sand, and than 40 percent silt.

ı. A thin coating of clay on the surface of a soil aggregate. onyms: clay coat, clay skin.

nce, soil. The feel of the soil and the ease with which a can be crushed by the fingers. Terms commonly used to ribe consistence are—

—Noncoherent when dry or moist; does not hold together a mass.

e.—When moist, crushes easily under gentle pressure be- een thumb and forefinger and can be pressed together to a lump.

—When moist, crushes under moderate pressure between umb and forefinger, but resistance is distinctly noticeable.

.—When wet, readily deformed by moderate pressure but n be pressed into a lump; will form a "wire" when rolled tween thumb and forefinger.

.—When wet, adheres to other material, and tends to retch somewhat and pull apart, rather than to pull free om other material.

o pressure; can be
nd forefinger.
ividual grains under

y moistening.
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l agents.
ables it to provide
per balance, for the
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that is very low in
t or very fine sand.
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he fragipan tends to
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lowly or very slowly
y bleached fracture
a few inches to sev-
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lack of oxygen have
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rent colors that vary
sually indicate poor
erms are as follows:
—*fine*, *medium*, and
prominent. The size
millimeters (about
dimension; *medium*,
ers (about 0.2 to 0.6
ension; and *coarse*,
) in diameter along

Munsell notation. A system for designating color by degrees of the three simple variable—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.

Natural soil drainage. Refers to the conditions of frequency and duration of periods of saturation or partial saturation that existed during the development of the soil, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven different classes of natural soil drainage are recognized.

Excessively drained soils are commonly very porous and rapidly permeable and have a low water-holding capacity.

Somewhat excessively drained soils are also very permeable and are free from mottling throughout their profile.

Well-drained soils are nearly free from mottling and are commonly of intermediate texture.

Moderately well drained soils commonly have a slowly permeable layer in or immediately beneath the solum. They have uniform color in the A and upper B horizons and have mottling in the lower B and the C horizons.

Somewhat poorly drained soils are wet for significant periods but not all the time, and in Podzolic soils commonly have mottlings below 6 to 16 inches in the lower A horizon and in the B and C horizons.

Poorly drained soils are wet for long periods and are light gray and generally mottled from the surface downward, although mottling may be absent or nearly so in some soils.

Very poorly drained soils are wet nearly all the time. They have a dark-gray or black surface layer and are gray or light gray, with or without mottling, in the deeper parts of the profile.

Nutrient, plant. Any element taken in by a plant that is essential to its growth and used by it in the production of food and tissue. Nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, zinc, and perhaps other elements obtained from the soil, and carbon, hydrogen, and oxygen, obtained largely from the air and water, are plant nutrients.

Pan. A layer in a soil that is firmly compacted or very rich in clay. Frequently the word "pan" is combined with other words that more explicitly indicate the nature of the layers; for example, *hardpan, fragipan, claypan,* and *organic pan.*

Parent material. The disintegrated and partly weathered rock from which soil has formed.

Permeability. The quality of a soil horizon that enables water or air to move through it. Terms used to describe permeability are as follows: *very slow, slow, moderately slow, moderate, moderately rapid, rapid,* and *very rapid.*

Phase, soil. A subdivision of a soil, series, or other unit in the soil classification system made because of differences in the soil that affect its management but do not affect its classification in the natural landscape. A soil type, for example, may be divided into phases because of differences in slope, stoniness, thickness, or some other characteristic that affects its management but not its behavior in the natural landscape.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other dilutents that commonly shows as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to hardpan or to irregular aggregates on repeated wetting and drying, or it is the hardened relicts of the soft, red mottles. It is a form of the material that has been called laterite.

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		*pH*
Extremely acid	Below 4.5	Neutral	6.6 to 7.3
Very strongly acid	4.5 to 5.0	Mildly alkaline	7.4 to 7.8
Strongly acid	5.1 to 5.5	Moderately alkaline	7.9 to 8.4
Medium acid	5.6 to 6.0	Strongly alkaline	8.5 to 9.0
Slightly acid	6.1 to 6.5	Very strongly alkaline	9.1 and higher

The principal
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UNITS

ription of the mapping unit and the soil series to
ity unit or a woodland suitability group, read the
lon about its management. Lack of information in
is not used as woodland. Other information is

se of soils for wildlife habitat, table 5, p. 48.
gineering uses of the soils, tables 6 and 7,
pp. 50 to 57 and table 8, pp. 60 to 65.

	Described on page	Capability unit		Woodland suitability group	
		Symbol	Page	Number	Page
--------	8	VIw-1	39	1w3	44
--------	8	IIIw-2	35	1w3	44
--------	9	Vw-4	38	---	--
--------	9	IIw-2	33	1o1	44
--------	10	IVw-1	36	1w3	44
--------	10	IIIw-1	34	3o1	45
--------	11	VIIIs-1	40	---	--
--------	11	IIw-5	34	3o1	45
--------	12	VIIs-1	39	4s2	45
--------	12	Vw-2	37	2w3	45
lopes----	14				
--------	--	IIw-2	33	2w2	44
--------	--	IIIw-6	36	2w2	44
--------	15	IIw-3	34	1w2	44
--------	15	IIe-2	33	3o1	45
--------	16	IIw-2	33	3o1	45
--------	16	IIe-3	33	3o1	45
--------	17	IIIw-1	34	3w2	45
--------	17	IVs-1	37	4s2	45
--------	18	Vw-3	38	4w2	45
--------	18	VIIs-2	40	---	--
--------	19	VIw-1	39	1w3	44
--------	19	IIIw-2	35	1w3	44
--------	19	VIIs-2	40	---	--
--------	20	IVw-1	36	2w3	45
--------	20				
--------	--	I-1	33	3o1	45
--------	--	IIw-2	33	3o1	45
--------	21	I-1	33	3o1	45
--------	21	IIe-3	33	3o1	45
--------	22	Vw-2	37	2w3	45
--------	22	VIIw-2	39	---	--
--------	23	IIIw-4	35	1w3	44
--------	23	IIw-2	33	3w2	45
--------	24	IIIw-4	35	1w3	44
--------	24	Vw-2	37	2w3	45
--------	25				
--------	--	VIIw-2	39	2w3	45
--------	--	VIIw-2	39	---	--
--------	25	Vw-3	38	4w3	45
--------	26	VIw-1	39	1w3	44
--------	26	IIIw-2	35	1w3	44
--------	26	IIIw-1	34	3w2	45
--------	27	IIIw-1	34	2o1	44
--------	28	IIIw-1	34	3w2	45
--------	28	IIw-3	34	1w3	44
--------	28	Vw-4	38	---	--
--------	28	VIIIw-2	40	---	--
--------	29	IIIw-2	35	1w3	44
--------	30	IIs-1	34	3s2	45
--------	31	IVs-1	37	4s2	45
--------	31	IIe-3	33	4s2	45
--------	32	IIw-3	34	1w2	44