

DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY

Detailed sections from auger holes and outcrops in the
Pringletown, Ridgeville, Summerville Northwest, and
Summerville quadrangles, South Carolina

by

Robert E. Weems¹, Earl M. Lemon, Jr.¹, M. Sandra Nelson¹,
Gregory S. Gohn¹, and Brenda B. Houser¹

Open-File Report 87-524

Prepared in cooperation with
the Nuclear Regulatory Commission

This report is preliminary and has not been reviewed
for conformity with U.S. Geological Survey editorial
standards and stratigraphic nomenclature

¹ U. S. Geological Survey, Reston, VA 22092

Contents

	<u>Page</u>
Introduction.....	ii
Ages and sequence of regionally recognized geologic units.....	vi
Locality descriptions and detailed sections:	
Pringletown quadrangle.....	1
Ridgeville quadrangle.....	23
Summerville Northwest quadrangle.....	42
Summerville quadrangle.....	66

Introduction

In the course of preparing detailed geologic maps for the Pringletown, Ridgeville, Summerville Northwest, and Summerville quadrangles, sediments from numerous auger holes and outcrops were studied to determine their lithologic characteristics, spatial distribution, and temporal framework. While the major geologic boundaries will be summarized on a forthcoming geologic map of these quadrangles (Weems, Lemon, and Nelson in preparation), much of the more detailed stratigraphic information could not be shown easily on a map and therefore is included in this Open-File Report. Information is included for 105 localities within these four quadrangles.

A few of the localities (so indicated) were natural outcrops, excavation pits, or ditch banks, but because exposures are rare the majority of the localities were logged by augering. These auger holes were drilled with a truck-mounted, Mobile Drill B-40 power auger, using 5-foot stem sections. One stem was augered into the ground and then pulled to describe the soil profile. After this, a second run was made in which additional stems were added until either a chattering sound followed by a sudden tightening of the drill string occurred (penetration of the Ashley Formation) or until the vacated 5 feet of the first auger run was filled by rising sediment from the newly

penetrated section. In the latter case (usually 4-6 flights, depending on the density of the material being augered), the stems were pulled and described (allowing for 5 feet of total rise during drilling). In most cases the base of the Pleistocene section was penetrated by the third run; in exceptionally thick sections, the rest of the section was augered in 20 to 30 foot runs.

Although the outcrop and auger hole sections vary considerably in thickness, from 2 feet (SN-4) to 145 feet (RI-15, SU-5) most fall in the range of 30-50 feet. Most of the Quaternary and upper Tertiary shallow subsurface units are thin (less than 50 feet total thickness) and poorly consolidated down to the upper Oligocene Ashley Formation of the Cooper Group (locally called the "Cooper Marl"). In contrast, the Ashley is often 100 feet or more thick and firmly compacted. It was impractical in many instances to try to drill through the Ashley with the power auger, so those drill holes were filled and abandoned as soon as we penetrated this unit. In the northern parts of the Pringletown and Summerville Northwest quadrangles, however, the Ashley begins to pinch out updip and penetration in that area was often to the top of the Cross Limestone of the Santee Limestone Group.

No attempt was made to describe sediments in any great detail. Grain sizes and sediment colors were estimated visually without aid of grain-size or color charts. It is

possible, therefore, that units described as "clays" may include clayey silts or clayey sands. Unit names conform to those used by Weems and Lemon (1984a, 1984b). Three units, present within these four quadrangles but not in other parts of the Charleston region, are the "Pringletown beds", the "Salkehatchie beds", and the "Rudd Branch beds".

The "Pringletown beds" are composed of blue, sandy, micaceous clay to clayey sand which was encountered in three holes in the Pringletown and Summerville Northwest quadrangles. It is not readily confused with any other unit in the area, being only similar to bluish parts of the Daniel Island beds and the Parkers Ferry Formation (the latter being distinguished readily because it is very calcareous). It unconformably underlies, and therefore is older than, the early Pleistocene Waccamaw Formation; it unconformably overlies, and therefore is younger than, the Pliocene "Salkehatchie beds". A more precise age determination is not possible at the present time. It could be a nearshore equivalent of the Goose Creek Limestone, but positive evidence for this is lacking. Possibly it represents a transgression otherwise unknown in the Charleston region.

The "Salkehatchie beds" are Pliocene in age, and correspond in their description (soft, dark-gray-green, glauconitic and phosphatic sand) and their stratigraphic position (beneath the seaward edge of the Wicomico terrace)

to the "Salkehatchie Phase" of Sloan (1908). This unit might be equivalent to the early Pliocene Raysor Formation of Blackwelder and Ward (1979), but its color and lower calcium carbonate content are strikingly different.

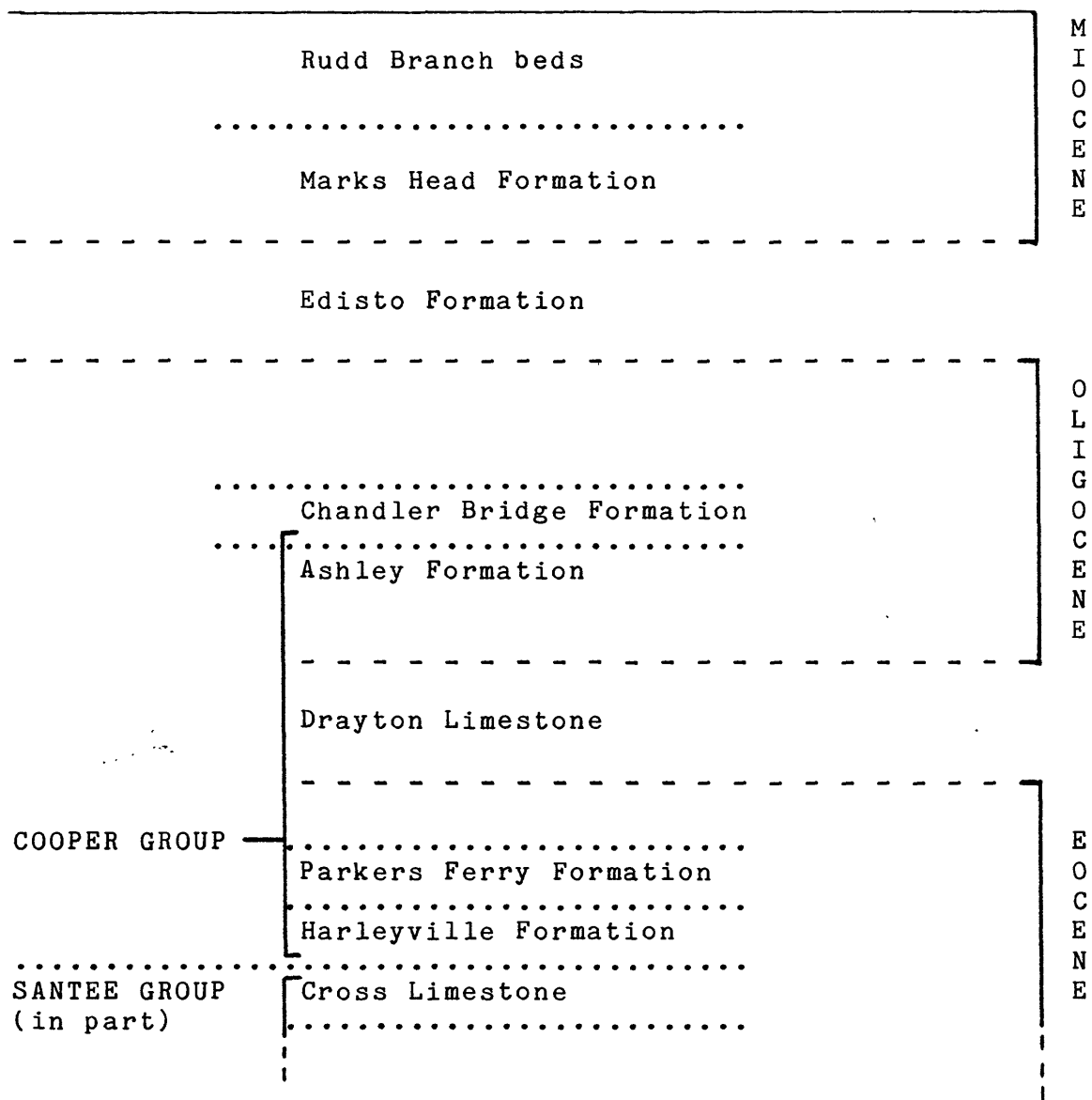
The "Rudd Branch beds", named informally for Rudd Branch Creek in the vicinity of auger holes SN-14 and SN-20, contains dinoflagellates which indicate this unit falls in the vicinity of the middle/upper Miocene boundary (Lucy Edwards, USGS, written communication, Report on Shipment Number ERG-84-12, 1984). Based on the dinoflagellates, it is too young to be a facies of the Marks Head Formation or the Chandler Bridge Formation, and too old to be a facies of the Raysor Formation. These are the only local units which lithologically resemble it. So far, it differs from the Chandler Bridge in that it usually has a basal phosphate bed and lacks a basal clay bed, from the Marks Head in that it lacks the brown hues and dense, sticky clay beds typical of that unit, and from the Raysor in that it is denser and usually less shelly. Possibly it is an updip equivalent of the middle Miocene Coosawhatchie Clay, present in southern South Carolina.

References cited

- Blackwelder, B.W., and Ward, L.W., 1979, Stratigraphic revision of the Pliocene deposits of North and South Carolina: Geologic Notes, v. 23, no. 1, p. 33-49
- Sloan, Earle, 1908, Catalogue of the mineral localities of South Carolina: South Carolina Geological Survey Bulletin 2 (reprinted 1958)
- Weems, Robert E., and Lemon, E. M., Jr., 1984a, Geologic map of the Mount Holly quadrangle, Berkeley and Charleston Counties, South Carolina: U. S. Geological Survey Geologic Quadrangle Map GQ-1579, scale 1:24,000
- Weems, Robert E., and Lemon, E. M. Jr., 1984b, Geologic map of the Stallville quadrangle, Charleston and Dorchester Counties, South Carolina: U. S. Geological Survey Geologic Map GQ-1581, scale 1:24,000.
- Weems, Robert E., Lemon, E. M., Jr., and Nelson, M. S., in preparation, Geologic map of the Pringletown, Ridgeville, Summerville, and Summerville Northwest quadrangles, Berkeley and Dorchester Counties, South Carolina: U. S. Geological Survey Geologic Map I-_____, scale 1:24,000.

Ages and Sequence of Regionally Recognized Geologic Units
 (in any given section, many units will be missing due to erosion)

(Unnamed)	H O L O C E N E
<p>Silver Bluff beds</p> <p>.....</p> <p>Wando Formation — [upper member middle member lower member </p> <p>Ten Mile Hill beds</p> <p>.....</p> <p>Ladson Formation</p> <p>.....</p> <p>Penholoway Formation</p> <p>.....</p> <p>Daniel Island beds</p> <p>.....</p> <p>Waccamaw Formation</p>	P L E I S T O C E N E
<p>-----</p> <p>Pringletown beds</p> <p>.....</p> <p>Goose Creek Limestone</p> <p>.....</p> <p>Salkehatchie beds (= Raysor Formation?)</p>	P L I O C E N E



PRINGLETOWN QUADRANGLE

(depths in feet)

PR-1: 2.15 mi. E of west quad. border, 0.9 mi. N of south quad.
border. Surface elevation 50 feet.

FILL	0-4	Sand, road fill
.....		
HOLOCENE	4-5	Clay, dark-gray, soft, contains roots
.....		
LADSON FM	5-11	Sand, very fine-grained, medium-gray, silty, clayey, wood fragments present
	11-16	Sand, medium-grained, medium-gray, well- sorted, contains very fine-grained heavies
.....		
ASHLEY FM	16-25	Calcarenite, fine-grained, light-brown grading down to olive-green, thin shells present

Base of Holocene: +45 feet above sea level
Base of Ladson Formation: +34 feet above sea level
Bottomed in Ashley Formation

PR-2: 0.5 mi. E of west quad. border, 2.3 mi. S of north quad.
border. Surface elevation 87 feet.

WACCAMAW FM	0-7	Sand, fine-grained, medium-orange and medium-gray, well sorted, clayey, grades downward to sandy clay
	7-17	Sand, fine-grained, white grading down to pale-yellow, gets poorly sorted with some medium- and coarse-grained fraction by base
	17-19	Clay, medium-gray and reddish-orange mottled
	19-24	Sand, medium-grained, bright-orange, silty, well-sorted, medium-gray clay beds interspersed, grades to coarse-grained by base

SALKEHATCHIE BEDS	24-26	Clay, dark-green
----------------------	-------	------------------

ASHLEY FM	26-30	Calcarenite, fine-grained, olive-brown, contains quartz grains and large forams, recrystallized calcareous nodules in upper two feet, shell fragments in basal foot
-----------	-------	---

Base of Waccamaw Formation: +63 feet above sea level
Base of Salkehatchie beds: +61 feet above sea level
Bottomed in Ashley Formation

PR-3: 0.15 mi. W of east quad. border, 2.05 mi. N of south quad.
border. Surface elevation 70 feet.

FILL 0-1 Road fill

PENHOLOWAY 1-6 Clay, medium-orange and medium-gray mottled
FM

6-17 Sand, medium-grained, medium-orange and
medium-gray mottled grading down to medium-
orange, very clayey and micaceous, poorly
sorted, contains sparse quartz pebbles and
coarse feldspar grains, better sorted
downward, phosphate pebbles at base

ASHLEY FM 17-30 Calcarenite, very fine-grained grading
down to fine-grained, light-gray grading
down to light-brown, contains quartz and
phosphate sand

Base of Penholoway Formation: +53 feet above sea level
Bottomed in Ashley Formation

PR-4: 2.2 mi. W of east quad. border, 2.35 mi. S of north quad.
border. Surface elevation 95 feet.

WACCAMAW FM	0-6	Sand, fine-grained, brownish-orange grading down to reddish-orange and medium-gray mottled
	6-19	Sand, medium-grained, white, well-sorted, contains abundant very fine-grained heavies, interbedded with thin light-gray clay laminae, sand turns medium-orange below 15 feet
	19-26	Clay, medium-bluish-gray, soft, greasy
	26-32	Silt, sandy, grading to sand, fine-grained, silty, medium-yellowish-brown
	32-34	Sand, coarse-grained, medium-orange, contains subangular quartz pebbles, sharp basal contact

PRINGLETOWN BEDS	34-42	Sand, fine-grained, light-orange grading by 35 feet to medium-blue, silty, clayey, grades downward to medium-grained and micaceous
---------------------	-------	---

ASHLEY FM	42-60	Calcarenite, fine-grained, medium-brown, contains quartz and phosphate sand
-----------	-------	--

Base of Waccamaw Formation:	+61 feet above sea level
Base of Pringletown beds:	+53 feet above sea level
Bottomed in Ashley Formation	

PR-5: 2.8 mi. E of west quad. border, 0.5 mi. S of north quad.
border. Surface elevation 81 feet.

WACCAMAW FM	0-6	Sand, medium-grained, medium-brown, medium- orange, and light-gray mottled, poorly sorted, very clayey
	6-7	Clay, light-gray and medium-red mottled
	7-12	Sand, coarse-grained, medium-brown, medium- orange and light-gray mottled, poorly sorted, subangular
	12-17	Sand, dominantly medium-grained, pale- brownish-orange, poorly sorted, silty, thin bed of medium-orange clay at base

.....

SALKEHATCHIE BEDS	17-22	Sand, medium-grained, dark-greenish-gray, silty, very abundant sand-size phosphate, subangular
----------------------	-------	--

.....

ASHLEY FM	22-29	Calcarenite, fine- to medium-grained, light-brown, contains shell fragments including small pectens
-----------	-------	---

.....

CROSS LS	29-35	Calcarenite, fine-grained, white, glaucconitic
----------	-------	---

Base of Waccamaw Formation:	+64 feet above sea level
Base of Salkehatchie beds:	+59 feet above sea level
Base of Ashley Formation:	+52 feet above sea level
Bottomed in Cross Limestone	

PR-6: 0.3 mi. E of west quad. border, 0.6 mi. N of south quad.
border. Surface elevation 94 feet.

WACCAMAW FM	0-4.5	Sand, fine-grained, light-orange, very fine grained heavies present below 3 feet and some feldspar grains
	4.5-5	Clay, light-gray with light-orange mottles, rapid gradation from above
	5-25	Sand, fine-grained, light-yellowish-brown, contains abundant very fine-grained heavies, slightly micaceous, silty, grades to
	25-29	Sand, fine-grained, bright medium-orange, more angular than above, some coarse-grains present, contains abundant very fine-grained heavies

.....

SALKEHATCHIE BEDS	29-40	Sand, fine- to medium-grained, dark-brown grading to dark-greenish-gray by 32 feet, very fine-grained heavies abundant, sparse aragonitic shells present, sparse phosphate pebbles at base, burrows in unit below filled with this lithology
----------------------	-------	--

.....

ASHLEY FM	40-50	Calcarenite, very fine-grained, light-olive-gray grading down to medium-olive, phosphate sand content increases downward, a few phosphate and calcite-cemented lumps present
-----------	-------	--

Base of Waccamaw Formation:	+65 feet above sea level
Base of Salkehatchie beds:	+54 feet above sea level
Bottomed in Ashley Formation	

PR-7: 1.9 mi. E of west quad. border, 3.15 mi. N of south quad. border. Surface elevation 102 feet.

WACCAMAW 0-23 Sand, fine-grained, medium-yellowish-orange
FM grading through medium-brownish-orange to
 light-brownish-gray by 5 feet, well-sorted,
 very slightly silty, very fine-grained
 heavies abundant, slightly micaceous (2-3
 mm flakes)

 at 23 Clay, light-gray, present in thin lense

 23-36 Sand, fine-grained, light-brownish-gray,
 silty

.....
SALKEHATCHIE 36-41 Sand, fine- to medium-grained, medium-gray
BEDS (36-37 feet) grading to dark-brownish-gray,
 sparse quartz and phosphate pebbles at base
 (mostly 1 cm, but one vein quartz pebble
 had 2 cm long axis)

.....
ASHLEY FM 41-50 Calcarenite, very fine-grained, medium-
 olive, contains sparse shell fragments and
 phosphate sand

Base of Waccamaw Formation: +66 feet above sea level
Base of Salkehatchie beds: +61 feet above sea level
Bottomed in Ashley Formation

PR-8: 0.35 mi. E of west quad. border, 3.35 mi. N of south quad.
border. Surface elevation 102 feet.

WACCAMAW FM	0-5	Sand, fine- to medium-grained, medium- orange grading to light-orangish-gray, well-sorted, slightly silty, grades to
	5-18	Sand, fine- to medium-grained, light-brown, micaceous (1-2 mm flakes), grades to
	18-24	Sand, medium-grained, light-gray, more micaceous than above and contains abundant quartz granules
	24-25	Clay, light-gray, fine- to coarse-grained sandy

SALKEHATCHIE BEDS	25-39	Sand, medium-grained, light-greenish-gray, very calcareous and contains quartz and phosphate sand, calcareous shell fragments (including <u>Amusium mortoni</u>) present, quartz and phosphate pebbles (about 1 cm diameter) present at base
----------------------	-------	--

ASHLEY FM	39-40	Calcarenite, fine-grained, medium-olive- brown, contains abundant phosphate sand
-----------	-------	---

Base of Waccamaw Formation: +77 feet above sea level
Base of Salkehatchie beds: +63 feet above sea level
Bottomed in Ashley Formation

PR-9: 1.35 mi. W of east quad. border, 3.45 mi. N of south quad. border. Surface elevation about 80 feet.

WACCAMAW FM	0-5	Sand, dominantly medium-grained, light-yellowish-orange with light-brownish-gray mottles grading down to medium-orange with light-gray mottles, very poorly sorted, silty and clayey, grades to
	5-15	Sand, dominantly fine-grained, light-orange grading down to light-yellowish-orange, very poorly sorted, silty and clayey, grades to
	15-20	Silt, light-yellowish-orange, clayey and sandy (fine- to coarse-grained), grades to
	20-27	Sand, fine-grained grading down to medium-grained, medium-yellow (lepidochrosite?), silty, phosphate pebbles at base

SALKEHATCHIE BEDS	at 27	Clay, dark-yellowish-brown, silty, 5 cm thick
----------------------	-------	---

ASHLEY FM	27-32	Calcarenite, fine-grained, medium-olive-brown, abundant sand-size phosphate, contains thin shell fragments, sparse phosphate pebbles at base
-----------	-------	--

HARLEYVILLE FM	32-35	Calcarenite, very fine-grained, light-bluish-green, grainy, semi-lithified; contains sparse quartz and phosphate sand; burrows at top of unit are filled with Ashley matrix from above unit
-------------------	-------	---

Base of Waccamaw Formation: +53 feet above sea level
Base of Salkehatchie beds: +53 feet above sea level
Base of Ashley Formation: +48 feet above sea level
Bottomed in Harleyville Formation

PR-10: 2.2 mi. W of east quad. border, 3.9 mi. S of north quad.
border. Surface elevation 78 feet.

WACCAMAW FM	0-7	Sand, fine-grained, light-brownish-gray grading down to medium-orange and light- gray mottled, well-sorted, slightly clayey and silty
	7-10	Clay, bright medium-red with medium-gray to light-gray mottles grading down to light- orange and light-gray mottled, micaceous, slightly sandy grading down to abundantly sandy and subangular, quartz pebbly
	10-23	Sand, dominantly medium-grained, grading down to dominantly fine-grained by 18 feet, light-brownish-gray grading to medium-gray by 15 feet and to dark-gray by 18 feet, very poorly sorted, very fine-grained heavies present, slightly silty, phosphate pebbles and rounded lumps of calcarenite, (1-2 cm diameter) at base

.....

ASHLEY FM	23-30	Calcarenite, very fine-grained, light- olive-brown, silty
-----------	-------	--

Base of Waccamaw Formation: +55 feet above sea level
Bottomed in Ashley Formation

PR-11: 3.15 mi. E of west quad. border, 1.9 mi. S of north quad.
border. Surface elevation 93 feet.

WACCAMAW FM	0-9	Sand, fine- grading down to medium-grained, medium-orange grading through light-orange to light-gray, very silty, quartz granules present near base
----------------	-----	--

	9-22	Clay, light-gray (grading to dark-gray in basal 0.5 foot), massive
--	------	---

SALKEHATCHIE BEDS	22-23	Sand, fine-grained to medium-grained, dark- greenish-gray, contains sparse soft aragonitic shells
----------------------	-------	---

ASHLEY FM	23-25	Calcarenite, very fine-grained, light- brownish-gray, contains numerous calcite- cemented lumps
-----------	-------	---

Base of Waccamaw Formation: +71 feet above sea level
Base of Salkehatchie beds: +70 feet above sea level
Bottomed in Ashley Formation

PR-12: 2.8 mi. W of east quad. border, 1.25 mi. S of north quad. border. Surface elevation 90 feet.

WACCAMAW 0-5 Sand, fine-grained, light-orange with
FM light-gray mottles near base, silty grading
 down to clayey and silty, rounded lumps of
 plinthite present at about 2 feet, grades
 to

 5-14 Sand, fine-grained, light-brownish-orange
 grading through light-orange to light-
 reddish-orange by 10 feet, poorly sorted
 with some medium and coarse grains, silty,
 coarsens downward to

 14-28 Sand, medium-grained, light-red grading to
 light-orange by 22 feet, poorly sorted,
 coarse grains subangular

.....

SALKEHATCHIE 28-29 Clay, dark-olive-green (about 5 GY 2/2),
BEDS sandy, no basal pebble bed

.....

ASHLEY FM 29-31 Calcarenite, fine-grained, medium-olive-
 brown, phosphatic, grades to

 31-32 Calcarenite, light-brownish-gray grading to
 light-yellowish-olive, phosphate sand
 abundant

Base of Waccamaw Formation: +62 feet above sea level
Base of Salkehatchie beds: +61 feet above sea level
Bottomed in Ashley Formation

PR-13: 1.1 mi. W of east quad. border, 1.4 mi. S of north quad. border. Surface elevation 94 feet.

WACCAMAW 0-18 Sand, fine-grained, light-yellowish-gray
FM (0-2 feet) grading to light-gray, very
 fine-grained heavies present, very
 kaolinitic (?), silty, grades to

 18-26 Sand, medium-grained, medium-gray,
 scattered thin lenses of medium-gray clay

 26-35 Sand, medium-grained grading down to
 coarse-grained by base, medium-gray,
 calcareous and aragonitic shells present

ASHLEY FM 35-40 Calcarenite, fine-grained, medium-
 yellowish-olive, contains phosphate sand

Base of Waccamaw Formation: +59 feet above sea level
Bottomed in Ashley Formation

PR-14: 0.65 mi. W of east quad. border, 0.8 mi. N of south quad. border. Surface elevation 65 feet.

PENHOLOWAY 0-6 Clay, light-brown and medium-gray mottled
FM grading through light-orange and medium-
 gray mottled to light-gray, slightly fine-
 grained sandy, basal contact sharp

WACCAMAW 6-9 Sand, fine-grained grading down to fine-
FM and medium-grained, medium-gray, 1 cm
 phosphate pebbles abundant at base

ASHLEY FM 9-15 Calcarenite, very fine-grained, light-gray
 grading down to light-orange, silty

Base of Penholoway Formation: +59 feet above sea level
Base of Waccamaw Formation: +56 feet above sea level
Bottomed in Ashley Formation

PR-15: 1.9 mi. W of east quad. border, 2.3 mi. N of south quad.
border. Surface elevation 64 feet.

PENHOLLOWAY FM	0-6	Sand, dominantly fine-grained grading down to dominantly medium-grained, mottled light-brown, light-orange and light-gray, poorly sorted, coarse fraction subangular, basal 2 feet clayey, 1-3 cm phosphate pebbles at base
-------------------	-----	--

ASHLEY FM	6-15	Calcarenite, very fine-grained, light- brown, contains calcite-cemented lumps
-----------	------	--

Base of Penholoway Formation: +58 feet above sea level
Bottomed in Ashley Formation

PR-16: 0.2 mi. E of west quad. border, 3.6 mi. S of north quad. border. Surface elevation 90 feet.

WACCAMAW FM	0-7	Clay, light-brown and light-gray mottled with a few medium-reddish-orange mottles grading down to light-red and medium-red mottled, silty and slightly sandy, grades to
	7-10	Silt, bright light-orange, sandy, grades rapidly to
	10-10.5	Clay, light-purple, silty to sandy, grades rapidly to
	10.5-14	Silt, bright light-orange, sandy, grades rapidly to
	14-14.5	Clay, light-purplish-gray, sandy, grades rapidly to
	14.5-21	Silt, sandy grading down to sand, fine-grained, silty, light-orange
	21-23.5	Clay, light-gray, contains poorly sorted sand and quartz granules

SALKEHATCHIE BEDS	23.5-24	Clay, dark-brown
----------------------	---------	------------------

ASHLEY FM	24-25	Calcarenite, very fine-grained, light-gray
-----------	-------	--

Base of Waccamaw Formation: +67 feet above sea level
 Base of Salkehatchie beds: +66 feet above sea level
 Bottomed in Ashley Formation

PR-17: 0.3 mi. E of west quad. border, 0.15 mi. S of north quad. border. Surface elevation 76 feet.

WACCAMAW FM	0-9	Silt, medium-orange with light-gray mottles below 4 feet, slightly clayey, fine-grained sandy
	9-10	Clay, light-gray, sandy
	10-14	Sand, fine- to medium-grained, light-reddish-orange, very fine-grained black heavies abundant, grades to
	14-26	Sand, coarse-grained, light-reddish-orange, contains granules of quartz and feldspar and scattered laminae of light-gray clayey sand, grades to
	26-38	Gravel, granular, light-reddish-orange, well-sorted, subrounded to subangular, dominantly quartz, clayey from 32-38

CROSS LS	38-50	Calcarenite, very fine-grained, light-yellow grading through very-light-brown to light-gray in basal foot, silty, contains shell and sand dollar fragments
----------	-------	--

Base of Waccamaw Formation: +38 feet above sea level
Bottomed in Cross Limestone

PR-18: 1.65 mi. E of west quad. border, 2.0 mi. N of south quad. border. Surface elevation about 87 feet.

WACCAMAW FM	0-5	Sand, fine-grained, light-orange grading down to white, well-sorted, very fine-grained heavies present
	5-16	Sand, fine-grained, light-brown, silty, more poorly sorted downward with some coarse-grained fraction coming in by 13 feet, light-gray clay laminae scattered throughout
	16-18	Sand, dominantly fine-grained, medium-orange, clayey
	18-24	Sand, fine-grained, dark-brownish-green, very clayey, 1 cm phosphate pebbles at base

.....

SALKEHATCHIE BEDS	24-30	Sand, fine-grained, dark-brownish-green, rich in phosphate sand, calcite-cemented lumps present, much denser than above
----------------------	-------	---

Base of Waccamaw Formation: +63 feet above sea level
Bottomed in Salkehatchie beds

PR-19: 1.05 mi. E of west quad. border, 1.15 mi. N of south
quad. border. Surface elevation 82 feet.

WACCAMAW 0-14 Sand, fine-grained, light-brown (0-2 feet)
FM grading through light-orange (2-5 feet) to
 light-yellowish-brown by 4 feet, clean,
 well-sorted, very fine-grained heavies
 present, sparsely scattered light-gray clay
 laminae present, grades to

 14-25 Sand, medium-grained, light-yellowish-brown
 (14-18 feet) grading through medium-orange
 (18-20 feet) to dark-green, clayey (20-25
 feet), sharp basal contact

SALKEHATCHIE 25-27 Sand, fine-grained, light-gray, very
BEDS calcareous, sparse oyster fragments
 present, abundant phosphate pebbles at base

ASHLEY FM 27-30 Calcarenite, very fine-grained, medium-
 olive-brown, slightly quartz and phosphate
 sandy

Base of Waccamaw Formation: +57 feet above sea level
Base of Salkehatchie beds: +55 feet above sea level
Bottomed in Ashley Formation

PR-20: 2.45 mi. W of east quad. border, 3.85 mi. N of south
quad. border. Surface elevation about 65 feet.
(=RID-NE-1-H of Houser)

WACCAMAW FM	0-5	Sand, medium-grained, medium-brown
	5-9	Clay, sandy, and sand, medium-grained, clayey, medium-orangish-brown
.....		
ASHLEY FM	9-49	Calcarenite, fine-grained, light-olive- brown, contains quartz and phosphate sand, phosphate content increases toward base
.....		
HARLEYVILLE FM	49-56	Calcsiltite, medium-olive-gray, very hard, not plastic

Base of Waccamaw Formation: +56 feet above sea level
Base of Ashley Formation: +16 feet above sea level
Bottomed in Harleyville Formation

PR-21: 3.25 mi. W of east quad. border, 1.45 mi. N of south quad. border. Surface elevation 60 feet. (=RID-NE-2-H of Houser)

PENHOLOWAY 0-6 Clay, medium-red, medium-orange, and
FM medium-gray, sandy, phosphate pebbles at
 base

ASHLEY FM 6-95 Calcarenite, fine-grained, light-olive-
 green grading down to olive-green by 50
 feet, contains quartz and phosphate sand,
 phosphate content increases downward,
 phosphate pebble bed at about 95 feet

HARLEYVILLE 95-103 Calcilutite, olive-green, and calcarenite,
FM fine-grained, olive-gray, interbedded

CROSS LS 103-105 Calcarenite, fine-grained, light-grayish-
 white

Base of Penholoway Formation: +54 feet above sea level
Base of Ashley Formation: -35 feet below sea level
Base of Harleyville Formation: -43 feet below sea level
Bottomed in Cross Limestone

PR-22: 2.6 mi. E of west quad. border, 4.0 mi. S of north quad. border. Surface elevation about 90 feet (=RID-NE-3-H of Houser).

WACCAMAW FM	0-5	Sand, medium-grained, medium-gray and medium-orange, clayey, slightly micaceous
	5-8.5	Sand, medium- to coarse-grained, yellowish-brown, muddy, slightly micaceous
	8.5-26	Sand, medium-grained grading down to coarse-grained, white grading down to medium-gray (23-26 feet), muddy, slightly micaceous
	26-28	Sand, fine- to medium-grained, dark-gray, sparse phosphate pebbles at base
SALKEHATCHIE BEDS	28-30	Sand, fine- to medium-grained, dark-olive-green
ASHLEY FM	30-81	Calcarenite, fine-grained, olive-green to olive-brown, sand-size phosphate mostly rare but increases to abundant near base
HARLEYVILLE FM	81-86	Calcilutite, olive-green to olive-brown, stiff
CROSS LS	86-125	Calcarenite, fine-grained, white to pale-yellowish-brown

Base of Waccamaw Formation:	+62 feet above sea level
Base of Salkehatchie beds:	+60 feet above sea level
Base of Ashley Formation:	+9 feet above sea level
Base of Harleyville Formation:	+4 feet above sea level
Bottomed in Cross Limestone	

PR-23: 0.95 mi. E of west quad. border, 1.8 mi. N of south quad. border. Surface elevation 52 feet.

FILL	0-6	Road fill
.....		
HOLOCENE	6-7	Sand, medium- to coarse-grained, medium-brownish-orange, subangular
.....		
LADSON FM	7-15	Sand, dominantly fine-grained, light-brown, poorly sorted, grading to dominantly medium-grained, poorly sorted, woody and peaty brown in basal foot
.....		
ASHLEY FM	15-20	Calcarenite, very fine-grained, light-yellowish-brown grading down to light-olive

Base of Holocene: +45 feet above sea level
Base of Ladson Formation: +37 feet above sea level
Bottomed in Ashley Formation

RIDGEVILLE QUADRANGLE--

(depths in feet)

RI-1: 0.35 mi. W of east quad. border, 3.45 mi. N of south quad.
border. Surface elevation 57 feet.

PENHOLOWAY 0-14 Clay, medium-gray and medium-orange mottled
FM (0-5 feet) grading through medium-gray (5-
 6 feet) to light-yellowish-orange, massive,
 silty at top and more sandy downward

EDISTO 14-20 Sand, fine-grained grading down to medium-
FM grained, light-yellowish-gray, silty, no
 basal pebble bed

ASHLEY 20-30 Calcarenite, fine-grained, light-brown
FM grading down to olive-green, contains
 quartz sand

Base of Penholoway Formation: +43 feet above sea level
Base of Edisto Formation: +37 feet above sea level
Bottomed in Ashley Formation

RI-2: 0.9 mi. W of east quad. border, 2.65 mi. S of north quad.
border. Surface elevation 23 feet.

FILL 0-3 Road fill

WANDO FM 3-6 Clay, medium-gray, tough
(LOWER MEM)

PENHOLOWAY 6-11 Sand, medium-grained, light-gray, rather
FM well-sorted, grading down to coarse-grained
 and sparsely pebbly, wood fragments at base

ASHLEY 11-20 Calcarenite, fine-grained, light-brown
FM grading down to medium-brown

Base of Wando Formation (Lower Member): +17 feet above sea level
Base of Penholoway Formation: +12 feet above sea level
Bottomed in Ashley Formation

RI-3: 2.4 mi. E of west quad. border, 2.5 mi. S of north quad.
border. Surface elevation 82 feet.

PENHOLLOWAY FM	0-3	Sand, medium-grained, medium-orange, silty
	3-6	Clay, medium-orange, medium-gray and brownish-orange mottled, sandy
	6-10	Sand, fine- to medium-grained, light orange, contains a subordinate coarse-grained fraction
	10-12	Sand, fine-grained, light-orange and medium-orange mottled, contains numerous very fine-grained heavies
	12-32	Clay, medium-gray, medium-red and orangish-brown mottled, grading to medium-blue by 23 feet
	32-33	Sand, fine-grained, dark-gray, micaceous, silty
	33-39	Sand, medium-grained, medium-green, poorly sorted, shell fragments present (mostly oyster), phosphate pebbles at base

ASHLEY FM	39-50	Calcarenite, fine-grained, light-brown rapidly grading to olive-brown
--------------	-------	---

Base of Penholoway Formation: +43 feet above sea level
Bottomed in Ashley Formation

RI-4: 2.6 mi. E of west quad. border, 3.25 mi. N of south quad.
border. Surface elevation 57 feet.

PENHOLLOWAY FM	0-5	Clay, reddish-orange, medium-orange and medium-gray mottled, slightly sandy
	5-7	Sand, fine- to coarse-grained, white, poorly sorted, silty, pebbly
	7-16	Clay, light-gray, dense
	16-31	Sand, fine-grained grading through medium- to coarse-grained by base, light-gray, well-sorted, silty, contains abundant very fine-grained heavies
	31-34	Sand, coarse-grained, dark-greenish-gray, subangular, poorly sorted, discoidal phosphate pebbles in basal foot

CHANDLER BRIDGE FM	34-35	Sand, fine-grained, dark-greenish-gray, dense (22 cm) overlying clay, dark brown (8 cm)
-----------------------	-------	---

ASHLEY FM	35-50	Calcarenite, fine-grained, olive-brown, abundant sand-size phosphate, phosphate pebbles and bone fragments in basal foot
--------------	-------	--

Base of Penholoway Formation: +23 feet above sea level
Base of Chandler Bridge Formation: +22 feet above sea level
Bottomed in Ashley Formation

RI-5: 3.65 mi. W of east quad border, 3.3 mi. S of north quad.
border. Surface elevation 62 feet.

PENHOLOWAY FM	0-5	Clay, medium-orange grading down to medium- orange and medium-gray mottled, stiff, dense
	5-8	Sand, fine-grained, medium-orange, silty
	8-12	Clay, light-gray with medium-purple mottles, dense, stiff
	12-24	Sand, fine-grained, light-yellow, silty, contains abundant very fine-grained heavies, phosphate pebble bed at base

CHANDLER BRIDGE FM	24-25	Sand, fine-grained, dark-greenish-gray, contains abundant sand-size phosphate
-----------------------	-------	--

ASHLEY FM	25-35	Calcarenite, fine-grained, olive-green, contains abundant sand-size phosphate
--------------	-------	--

Base of Penholoway Formation: +38 feet above sea level
Base of Chandler Bridge Formation: +37 feet above sea level
Bottomed in Ashley Formation

RI-7: 0.15 mi. E of west quad. border, 1.1 mi. N of south quad.
border. Surface elevation 64 feet.

PENHOLLOWAY FM	0-3	Silt, dull medium-orange, fine-grained sandy, sand well-rounded and well sorted,
	3-6	Clay, light-gray with medium-red mottles abundant
	6-17	Sand, very fine-grained, light-reddish- orange grading down to light-brown, silty
	17-24	Clay, light-gray rapidly grading down to light-bluish-gray
	24-25	Sand, very fine-grained, light-yellowish- gray, silty
	25-26	Clay light-yellowish-gray, silty, contains sparse lumps of clay

.....

ASHLEY FM	26-30	Calcarenite, very fine-grained, light-brown
--------------	-------	---

Base of Penholoway Formation: +38 feet above sea level
Bottomed in Ashley Formation

RI-8: 0.45 mi. E of west quad. border, 4.0 mi. N of south quad.
border. Surface elevation 58 feet.

PENHOLOWAY FM	0-5	Clay, light- to medium-orange with sparse light-gray mottles, sandy (mostly fine- but some medium-grained)
	5-10	Clay, light-greenish-gray with sparse light-orange mottles, thinly layered in sheets that tear apart, sparse fine-grained sand present, medium-bluish-green mottles present below 8 feet, no basal pebble bed

ASHLEY FM	10-20	Calcarenite, very fine-grained, pale-gray (10-16 feet) grading through light- yellowish-olive (16-18 feet) and light- brownish-gray (18-19 feet) to medium-brown, large forams present in basal foot
--------------	-------	--

Base of Penholoway Formation: +48 feet above sea level
Bottomed in Ashley Formation

RI-9: 3.4 mi. E of west quad. border, 2.7 mi. N of south quad.
border. Surface elevation 48 feet.

LADSON FM(?)	0-4	Silt, medium-orange, sparsely fine-grained sandy
-----------------	-----	---

PENHOLOWAY FM	4-25	Clay, light-gray with medium-red mottles in upper foot, fine- to coarse-grained sandy, contains scattered laminae of fine-grained sand, sparse quartz and phosphate pebbles at base
------------------	------	---

ASHLEY FM	at 25	Calcarenite, very fine-grained, light-gray
-----------	-------	--

Base of Ladson Formation?: +44 feet above sea level
Base of Penholoway Formation: +23 feet above sea level
Bottomed in Ashley Formation

RI-12: 1.9 mi. W of east quad. border, 2.3 mi. N of south quad. border. Surface elevation 52 feet.

PENHOLOWAY FM	0-6	Clay, bright medium-red with light-gray and light-orange mottles, dense and massive
	6-8	Clay, bright medium-orange, silty, fine-grained sandy
	8-16	Clay, light-orangish-gray, contains medium-to coarse-grained quartz sand, white phosphate lumps and smears of carbon in basal 4 inches

.....

CHANDLER BRIDGE FM	16-20	Sand, very fine-grained, light-gray, silty, white grains of phosphate present, 3 cm of greasy medium-brown clay at base
-----------------------	-------	---

.....

ASHLEY FM	20-35	Calcarenite, very fine-grained, light-brown grading down to medium-brown
--------------	-------	--

Base of Penholoway Formation: +36 feet above sea level
Base of Chandler Bridge Formation: +32 feet above sea level
Bottomed in Ashley Formation

RI-13: On west quad. border, 2.8 mi. S of north quad. border.
Surface elevation 40 feet.

LADSON FM	0-5	Sand, fine-grained, dark-gray and light-brown mottled grading down to medium-gray, well-sorted, slightly clayey in upper 3 feet
--------------	-----	---

WACCAMAW FM	5-15	Sand, medium-grained, dark-gray, contains a feldspathic coarse-grained fraction, grades to
----------------	------	--

	15-19	Sand, medium- to coarse-grained, dark-brown, contains wood fragments, grades to
--	-------	---

	19-23	Sand, medium-grained, dark-brown, grades to
--	-------	---

	23-29	Sand, medium- to coarse-grained, dark-brown, phosphate pebbles and quartz granules present in basal foot
--	-------	--

ASHLEY FM	29-35	Calcarenite, very fine-grained, light-yellowish-green, fragments of thin bivalve shells present
--------------	-------	---

Base of Ladson Formation: +35 feet above sea level

Base of Waccamaw Formation: +11 feet above sea level

Bottomed in Ashley Formation

RI-14: 1.4 mi. E of west quad. border, 3.0 mi. S of north quad. border. Surface elevation 79 feet (=CRVSE-1-D of McCartan).

PENHOLOWAY FM	0-14	Sand, fine- to medium-grained, light-brown grading through light-olive-gray to medium-reddish-orange, clay laminae present near base
	14-23	Clay, medium-greenish-gray, silty, sandy
	23-28	Sand, fine-grained to coarse-grained, medium-greenish-gray, clayey, micaceous, pebbly at base

ASHLEY FM	28-32	Calcarenite, fine-grained, light-olive-green grading through medium-brown and dark-brown to dark-olive-brown
--------------	-------	--

Base of Penholoway Formation: +51 feet above sea level
Bottomed in Ashley Formation

RI-15: 3.25 mi. W of east quad. border, 0.6 mi. S of north quad. border. Surface elevation 55 feet. (=RID-SE-2-H of Houser)

FILL 0-3 Mottled clay and sand

.....

PENHOLOWAY 3-10 Clay, fine-grained sandy, medium-orange (3-8 feet) grading down to light-gray and medium-brownish-green, phosphate pebbles at base

.....

ASHLEY 10-119 Calcarenite, fine-grained, light-brown (10-12 feet) grading down to medium- to dark-olive-green, contains quartz, phosphate, and glauconite sand; phosphate pebble bed at base

.....

PARKERS 119-126 Calcarenite, fine-grained, medium-bluish-olive, stiff, phosphate sand abundant

.....

HARLEYVILLE 126-145 Calcarenite, very fine-grained, very light-greenish-gray

FM

Base of Penholoway Formation: +45 feet above sea level

Base of Ashley Formation: -64 feet below sea level

Base of Parkers Ferry Formation: -71 feet below sea level

Bottomed in Harleyville Formation

RI-16: 3.35 mi. E of west quad. border, 1.8 mi. N of south quad.
border, surface elevation 33 feet.

TEN MILE HILL BEDS	0-5	Clay, medium-gray with medium-orange and medium-olive-gray mottles, stiff, basal foot has 1-3 cm rounded phosphate pebbles and 0.5 cm subrounded quartz pebbles
-----------------------	-----	--

.....

PENHOLLOWAY FM	5-8	Sand, fine-grained, light-bluish-gray, well sorted, 2 cm-thick layer of dark-brown sandy clay at base
-------------------	-----	---

.....

EDISTO FM	8-15	Calcarenite, fine-grained, light- yellowish-brown grading down to light- yellowish-gray, bryozoan fragments abundant, partly medium-grained in basal foot
--------------	------	---

.....

ASHLEY FM	15-20	Calcarenite, very fine-grained, medium- olive-brown, slightly clayey
--------------	-------	---

Base of Ten Mile Hill beds:	+28 feet above sea level
Base of Penholoway Formation:	+25 feet above sea level
Base of Edisto Formation:	+18 feet above sea level
Bottomed in Ashley Formation	

RI-17: 1.95 mi. W of east quad. border, 2.25 mi. S of north
quad. border. Surface elevation 56 feet.

PENHOLWAY FM	0-2	Sand, fine-grained but poorly sorted, medium-yellowish-orange, silty, grading to
	2-5	Clay, medium-orange mottled dark-red, dark- pink, and light-gray, fine-grained sandy
	5-8	Clay, light-gray, coarse-grained sandy grading down to fine-grained sandy
	8-13	Sand, fine-grained, light-yellowish-gray, silty, with interbeds of sandy light-gray clay
	13-25	Sand, medium-grained, light-yellowish-gray, poorly sorted, micaceous, silty, very fine- grained heavies present grading down to coarse-grained, poorly sorted, subrounded, quartz pebbly; 15 cm of light-brownish-gray clay with olive-brown mottles at base

.....

ASHLEY FM	25-30	Calcarenite, very fine-grained, medium- olive-brown grading down to dark-olive- green, phosphate and glauconite sand abundant
--------------	-------	--

Base of Penholoway Formation: +31 feet above sea level
Bottomed in Ashley Formation

RI-18: 0.5 mi. W of east quad. border, 3.3 mi. S of north quad.
border. Surface elevation 55 feet.

PENHLOWAY FM	0-13	Clay, bright medium-orange and light-gray mottled grading down to bright medium- orange with light-gray, dark-red, and dark- pink mottles
-----------------	------	--

EDISTO FM	13-20	Sand, fine-grained, light-yellowish-gray, silty, very fine-grained black heavies present and sparse shell fragments, a single calcite-cemented lump present near basal contact
--------------	-------	--

ASHLEY FM	20-25	Calcarenite, very fine-grained, light- brownish-gray with calcite cemented lumps grading through medium-brown (22-23 feet) to medium-olive-brown
--------------	-------	---

Base of Penholoway Formation: +42 feet above sea level
Base of Edisto Formation: +35 feet above sea level
Bottomed in Ashley Formation

RI-19: 2.15 mi. E of west quad. border, 0.1 mi. N of south quad. border. Surface elevation 57 feet.

PENHOLOWAY FM	0-8	Clay, medium-orange, basal foot medium-orange with dark-pink, dark-red, and light-gray mottles, dense, slightly sandy
	8-19	Sand, very fine-grained, light-orange, very silty grading down to fine-grained, light-yellowish-orange, silty, calcite-cemented lumps (1-2 cm diameter) common in basal foot

EDISTO FM	19-30	Calcarenite, fine-grained, light-yellowish-brown, shell fragments and bryozoan fragments abundant to very abundant at base, small phosphate pebbles (0.25-0.50 cm) concentrated in basal burrows, medium-yellow subangular 2-3 cm diameter calcite lumps in basal two feet
--------------	-------	--

ASHLEY FM	at 30	About 8 cm of calcarenite, very fine-grained, medium-olive-brown, burrowed from above
--------------	-------	---

Base of Penholoway Formation: +38 feet above sea level
Base of Edisto Formation: +27 feet above sea level
Bottomed in Ashley Formation

RI-21: 1.0 mi. W of east quad. border, 3.05 mi. S of north quad.
border. Surface elevation 19 feet.

HOLOCENE 0-0.5 Muck, dark-gray

WANDO FM 0.5-5 Sand, fine-grained grading down to medium-
(LOWER MEM) grained, medium-gray and medium-orange
 mottled, phosphate pebbles at base

ASHLEY at 5 Calcarenite, fine-grained, medium-olive-
FM brown, only 2 cm penetrated

Base of Holocene: +18 feet above sea level
Base of Wando Formation (Lower Member): +14 feet above sea level
Bottomed in Ashley Formation

RI-22: 0.9 mi. W of east quad. border, 3.1 mi. S of north quad.
border. Surface elevation 20 feet.

WANDO FM 0-5 Clay, fine-grained sandy, medium-gray and
(LOWER MEM) medium-orange mottled

Bottomed in Wando Formation (Lower Member)

RI-23: 1.05 mi. W of east quad. border, 3.0 mi. S of north quad.
border. Surface elevation 21 feet.

WANDO FM 0-5 Sand, fine-grained, medium-gray and medium-
(LOWER MEM) orange mottled

Bottomed in Wando Formation (Lower Member)

SUMMERVILLE NORTHWEST QUADRANGLE

(depths in feet)

SN-1: 2.8 mi. E of west quad. border, 0.35 mi. S of north quad.
border. Surface elevation 86 feet.

WACCAMAW 0-10 Sand, medium-grained (0-7 feet) grading to
FM coarse-grained (7-9 feet) and then back to
 medium-grained, light-brownish-gray with
 sparse medium-orangish-red mottles, coarse
 fraction angular, slightly clayey, grades
 to

 10-16 Sand, fine-grained, light-brownish-gray,
 silty, poorly sorted, a few coarse grains
 and very fine-grained heavies present

 16-20 As above but with a few clayey sand layers;
 one layer at 20 feet medium-bluish-gray

 20-24 Sand, fine-grained, dark-gray, silty and
 clayey, better sorted than above but some
 quartz pebbles present

.....

SALKEHATCHIE 24-32 Sand, fine-grained, dark-greenish-brown,
BEDS calcareous

.....

CROSS LS 32-42 Calcarenite, fine-grained, light-gray
 grading down to pale-yellowish-brown,
 stiff, contains sand-size phosphate

Base of Waccamaw Formation: +62 feet above sea level
Base of Salkehatchie beds: +54 feet above sea level
Bottomed in Cross Limestone

SN-2: On west quad. border, 2.45 mi. S of north quad. border.
Surface elevation 88 feet.

WACCAMAW FM	0-5	Sand, medium- to coarse-grained, medium-reddish-orange grading down to pinkish-red and light-gray mottled, clayey
	5-8	Sand, coarse-grained, bright pinkish-orange, poorly sorted, silty, pebbly, grains subangular to angular
	at 8	Clay, light-gray, sticky, 8 cm thick
	8-28	Sand, fine- to medium-grained, light-orangish-brown, clean, very fine-grained heavies sprinkled throughout, pebbly at base
<hr/>		
PRINGLETOWN BEDS	28-29	Clay, medium-blue, sticky, contains quartz and phosphate pebbles, burrows filled with sand from above
<hr/>		
SALKEHATCHIE BEDS	29-35	Sand, black, medium-grained, contains sparse shell fragments and abundant sand-size phosphate; contains dinoflagellates which collectively indicate a Pliocene age for this unit
<hr/>		
ASHLEY FM	35-61	Calcarenite, very fine-grained, olive-brown, sparse thin shells present, phosphate pebbles in basal foot
<hr/>		
PARKERS FERRY FM	61-75	Calcilutite, medium-greenish-gray, dense, sticky, phosphate pebbles and bones in basal foot
<hr/>		
CROSS LS	75-90	Calcarenite, fine-grained, white to pale-yellowish-brown, contains abundant sand-size phosphate

Base of Waccamaw Formation:	+60 feet above sea level
Base of Pringletown beds:	+59 feet above sea level
Base of Salkehatchie beds:	+53 feet above sea level
Base of Ashley Formation:	+27 feet above sea level
Base of Parkers Ferry Formation:	+13 feet above sea level
Bottomed in Cross Limestone	

SN-3: 1.55 mi. E of west quad. border, 1.35 mi. S of north quad. border. Surface elevation 86 feet.

WACCAMAW FM	0-7	Sand, medium-grained, medium-brown (0-1 foot) grading through medium-orangish-brown and medium-gray mottled (1-4 feet) to light-gray, subangular, poorly sorted, grading to
	7-10	Sand, fine-grained, white, poorly sorted silty
	10-11	Clay, light-gray
	11-22	Sand, fine-grained, white (11-17 feet) grading through medium-orange (17-19 feet) to light-brown (19-22 feet), silty, better sorted than above, grades to
	22-29	Sand, medium-grained, medium-gray, subangular, contains subangular quartz pebbles

SALKEHATCHIE BEDS	29-32	Sand, fine-grained, dark-brownish-green, well sorted, fish scales and teeth present near base; dries to light-gray
----------------------	-------	--

ASHLEY FM	32-35	Calcarenite, very fine-grained, light-olive-brown, contains large forams
-----------	-------	--

Base of Waccamaw Formation: +57 feet above sea level
Base of Salkehatchie beds: +54 feet above sea level
Bottomed in Ashley Formation

SN-4: 2.95 mi. W of east quad. border, 1.75 mi. N of south quad. border. Surface elevation about 30 feet (outcrop).

ALLUVIUM	0-2	Sand, medium-grained, light-gray, subangular, very clean, sparse carbon in upper 3 inches, no soil profile
----------	-----	--

Base of section in Alluvium

SN-5: 0.4 mi. E of west quad. border, 0.4 mi. S of north quad.
border. Surface elevation about 95 feet.

WACCAMAW FM	0-9	Sand, fine- to medium-grained, light-orange grading down to light-gray by 5 feet, well sorted, micaceous
	9-33	Clay, light-gray, grading to medium-gray by 15 feet, silty, sandy, slick, medium- to coarse-grained subangular sand grains present from 30-33 feet, quartz (1 cm) and phosphate (1-2 cm) pebbles at base.

.....

ASHLEY FM	33-40	Calcarenite, very fine-grained, light- greenish-gray grading down to medium-olive- brown, phosphate sand and large forams present
-----------	-------	--

Base of Waccamaw Formation: +62 feet above sea level
Bottomed in Ashley Formation

=====

SN-6: 1.5 mi. E of west quad. border, 1.9 mi. S of north quad.
border. Surface elevation 81 feet.

PENHOLWAY FM	0-5	Clay, medium-orange with light-gray mottles, silty, contains poorly sorted sand grains
	5-16	Clay grading down to silt; sandy, light- orange
	16-18	Clay, medium-gray, massive

.....

WACCAMAW FM	18-26	Sand, coarse-grained, light-greenish-gray, poorly sorted (fine to granules), silty
----------------	-------	---

.....

ASHLEY FM	26-30	Calcarenite, very fine-grained, dark-olive- brown grading rapidly to medium-olive- brown, phosphate sand and large forams present
--------------	-------	--

Base of Penholoway Formation: +63 feet above sea level
Base of Waccamaw Formation: +55 feet above sea level
Bottomed in Ashley Formation

SN-7: 2.85 mi. E of west quad. border, 3.55 mi. S of north quad. border. Surface elevation 63 feet.

FILL 0-2 Road fill

PENHOLOWAY 2-7 Clay, medium-reddish-orange with light-gray
FM mottles, fine- to coarse-grained sandy,
quartz (1 cm) pebbles at base

WACCAMAW 7-13 Sand, very fine- to medium-grained, light-
FM gray, clayey, grading down to medium-gray
and clean

13-16 Sand, fine-grained, light-brownish-gray,
very calcareous, contains pecten fragments
phosphate sand and sparse phosphate pebbles
at base

ASHLEY 16-20 Calcarenite, very fine-grained, medium-
FM olive-brown, much denser than above,
contains phosphate sand and large forams

Base of Penholoway Formation: +56 feet above sea level

Base of Waccamaw Formation: +47 feet above sea level

Bottomed in Ashley Formation

SN-8: 2.0 mi. W of east quad. border, 2.3 mi. S of north quad. border. Surface elevation 50 feet.

FILL 0-1 Road fill

LADSON 1-6 Sand, medium- to coarse-grained, clayey,
FM grading down to clay, medium- to coarse-
grained sandy, dark-gray grading down to
light-gray and light-orange mottled

ASHLEY 6-15 Calcarenite, very fine-grained, light-brown
FM grading through medium-brown to medium-
olive-green

Base of Ladson Formation: +44 feet above sea level

Bottomed in Ashley Formation

SN-11: 1.95 mi. W of east quad. border, 0.6 mi. S of north quad. border. Surface elevation 59 feet.

FILL 0-1 Road fill

.....

PENHOLOWAY 1-6 Clay, medium-orange, bright-medium-red and
FM light-gray mottled, very sandy (fine- to
 coarse-grained, subangular), some sand
 laminae present

.....

ASHLEY FM 6-20 Calcarenite, very fine-grained, light-brown
 grading to medium-olive-green, contains
 phosphate sand

Base of Penholoway Formation: +53 feet above sea level
Bottomed in Ashley Formation

=====

SN-12: 3.4 mi. W of east quad. border, 2.4 mi. S of north quad. border. Surface elevation 62 feet. (See SN-7 for nearly identical section)

PENHOLOWAY 0-5 Sand, mostly medium-grained, poorly sorted,
FM grading down to clay, sandy (fine- to
 coarse-grained), medium-orange and light-
 gray mottled

 5-7 Sand, mostly medium-grained, poorly sorted,
 light-gray, slightly clayey and silty,
 subrounded quartz pebbles (0.5 cm) at base

.....

WACCAMAW 7-11 Sand, fine-grained, light-gray, very
FM calcareous, phosphate sand abundant,
 pectenid fragments present, sparse
 phosphate pebbles (0.25-0.50 cm) at base,
 sharp contact with below

.....

ASHLEY 11-15 Calcarenite, very fine-grained, olive-
FM brown, much denser than above

Base of Penholoway Formation: +55 feet above sea level
Base of Waccamaw Formation: +51 feet above sea level
Bottomed in Ashley Formation

SN-14: 2.75 mi. E of west quad. border, 3.6 mi. N of south quad. border. Surface elevation 63 feet.

FILL 0-1 Road fill

PENHOLOWAY 1-7 Clay, light-orange and light-gray mottled,
FM grading down to light-gray, sandy (fine- to
 medium-grained), micaceous, a few quartz
 pebbles to base

WACCAMAW 7-15 Sand, mostly fine- to medium-grained, dark-
FM gray, slightly silty, upper foot contains
 burrows filled with light-gray sand from
 above, sparse phosphate pebbles at base

RUDD BRANCH 15-24 Sand, fine-grained, dark-green, sparse
BEDS rotten shells present, grades to medium-
 grained by base and a 2 cm diameter
 phosphate pebble present

ASHLEY FM 24-30 Calcarenite, very fine-grained, light-
 yellowish-olive

Base of Penholoway Formation: +56 feet above sea level
Base of Waccamaw Formation: +48 feet above sea level
Base of Rudd Branch beds: +39 feet above sea level
Bottomed in Ashley Formation

SN-15: 1.05 mi. E of west quad. border, 4.05 mi. S of north
quad. border. Surface elevation 70 feet.

PENHOLOWAY FM	0-6	Sand, fine-grained, dark-brown grading down to dark-gray, clayey and silty, sharp basal contact
------------------	-----	---

WACCAMAW FM	6-22	Sand, medium-grained, light-gray, some quartz granules present, silty, large phosphate nodule (about 3 cm) at base
----------------	------	--

ASHLEY FM	22-35	Calcarenite, very fine-grained, medium- olive-brown, contains fragments of thin- shelled bivalves
--------------	-------	---

Base of Penholoway Formation:	+64 feet above sea level
Base of Waccamaw Formation:	+48 feet above sea level
Bottomed in Ashley Formation	

SN-16: 1.65 mi. W of east quad. border, 1.85 mi. N of south quad. border. Surface elevation 69 feet.

PENHOLOWAY FM	0-3	Sand, fine-grained, light-brownish-orange, silty and slightly clayey, grading to
	3-5	Sand, fine-grained, light-orange and light-gray mottled, clayey and slightly silty
	5-14	Clay, light-gray (5-6 feet) grading to light-pink, silty and sandy
	14-14.5	Clay, light-gray, denser than above, sandy
	14.5-15	Sand, fine- to medium-grained, light-yellowish-orange, poorly sorted, slightly silty
	15-18	Clay, light-pink, sandy and silty
	18-18.5	Clay, light-gray, stiff
	18.5-22	Silt, light-brown, sandy; coarse grains, quartz pebbles and phosphate lumps in basal foot

.....

ASHLEY FM	22-25	Calcarenite, very fine-grained, light-brown, contains phosphate sand
--------------	-------	--

Base of Penholoway Formation: +47 feet above sea level
Bottomed in Ashley Formation

SN-17: 3.0 mi. E of west quad. border, 4.35 mi. S of north quad. border. Surface elevation 63 feet.

PENHOLOWAY 0-7 Sand, fine- to medium-grained, light-
FM brownish-orange and light-gray mottled
 grading down to light-gray, clay content
 increases downward

.....

WACCAMAW 7-16 Sand, fine-grained, light-gray, very
FM calcareous, phosphate sand abundant, one
 foot thick bed of phosphate pebbles at base

.....

ASHLEY 16-20 Calcarenite, very fine-grained, light-
FM olive-green

Base of Penholoway Formation: +56 feet above sea level
Base of Waccamaw Formation: +47 feet above sea level
Bottomed in Ashley Formation

SN-18: 2.05 mi. E of west quad. border, 2.6 mi. N of south quad. border. Surface elevation 65 feet.

FILL 0-2 Road fill

.....

PENHOLOWAY 2-6 Clay, medium-orange and light-gray mottled,
FM sandy (fine-grained)

 6-16 Sand, medium-grained with quartz granules
 grading down to coarse-grained and better
 sorted but sparsely pebbly, light-orange,
 very pebbly at base

.....

PRINGLETOWN 16-18 Clay, medium-blue, dense, micaceous, lumpy
BEDS

.....

ASHLEY FM 18-20 Calcarenite, very fine-grained, light-
 brown, upper foot contains burrows filled
 with blue clay and phosphate pebbles (2 cm)

Base of Penholoway Formation: +49 feet above sea level
Base of Pringletown beds: +47 feet above sea level
Bottomed in Ashley Formation

SN-19: 0.9 mi. E of west quad. border, 1.1 mi. N of south quad.
border. Surface elevation 69 feet.

PENHOLOWAY FM	0-8	Clay, medium-gray (0-1 feet) grading through medium-orange (1-3 feet) and medium-orange with light-gray mottles (3-5 feet) to light-gray (5-8 feet), fine-grained sandy
	8-9	Sand, fine- to medium-grained, light-gray
	9-14	Sand, fine-grained, medium-gray, well sorted, clayey, grades to
	14-18	Sand, fine-grained, medium-gray, well sorted, silty, rounded clay lumps present near base

.....

WACCAMAW FM	18-25	Calcarenite, fine-grained, light-yellowish-brown, contains some shell fragments, grades rapidly down to
	25-32	Sand, fine-grained, light-bluish-gray, well sorted, phosphatic, contains rounded, 0.25-0.50 cm diameter stiff clay lumps; grades to medium-grained at base with 1-5 cm diameter black, rounded phosphate pebbles and a skates tooth

.....

ASHLEY FM	32-35	Calcarenite, very fine-grained, light-yellowish-brown
--------------	-------	---

Base of Penholoway Formation: +51 feet above sea level
Base of Waccamaw Formation: +37 feet above sea level
Bottomed in Ashley Formation

SN-20: 0.15 mi. E of west quad. border, 0.1 mi. N of south quad. border. Surface elevation 71 feet.

PENHOLWAY FM	0-1	Sand, fine-grained, light-brown, well sorted
	1-5	Clay, medium-orange and light-gray mottled, silty and fine-grained sandy
	5-13	Clay, light-gray (5-9 feet) grading to medium-gray (9-13 feet), massive, dense, lumpy
.....		
WACCAMAW FM	13-19	Silt, light-greenish-gray, contains phosphate sand and shell fragments, grading to
	19-29	Sand, fine-grained, light-greenish-gray, sparsely shelly
.....		
RUDD BRANCH BEDS	29-33	Sand, fine-grained, dark-green, phosphate pebbles in basal foot
.....		
ASHLEY FM	33-35	Calcarenite, very fine-grained, light-brown

Base of Penholoway Formation: +58 feet above sea level
Base of Waccamaw Formation: +42 feet above sea level
Base of Rudd Branch beds: +38 feet above sea level
Bottomed in Ashley Formation

SN-21: 2.85 mi. W of east quad. border, 4.05 mi. N of south quad. border. Surface elevation 43 feet. (=SUM-NW-1-H of Houser)

PENHOLOWAY FM	0-8	Sand, medium-grained, light-purplish-brown, clean, grading down to clay, medium-gray with medium-orange mottles, medium-grained sandy, stiff
---------------	-----	--

ASHLEY FM	8-16	Calcarenite, very fine-grained, olive-brown, phosphate sand abundant
-----------	------	--

PARKERS FERRY FM	16-20	Calcilutite, medium-greenish-gray, very stiff
------------------	-------	---

Base of Penholoway Formation: +35 feet above sea level
Base of Ashley Formation: +27 feet above sea level
Bottomed in Parkers Ferry Formation

SN-22: 2.7 mi. W of east quad. border, 1.55 mi. N of south quad. border. Surface elevation about 44 feet (=SUM-NW-2-H of Houser).

PENHOLOWAY FM	0-3	Sand, medium-grained, medium-brown, clean
	3-8	Clay, medium-greenish-gray and medium-orange inter-layered, stiff, contains white, noncalcareous chips and grains, wood and twigs present near top

ASHLEY FM	8-46	Calcarenite, very fine-grained, medium-brown (8-11 feet) grading down to olive-brown, sand-size phosphate increasingly abundant downward
-----------	------	--

PARKERS FERRY FM	46-63	Calcilutite, medium-greenish-gray, stiff
------------------	-------	--

Base of Penholoway Formation: +36 feet above sea level
Base of Ashley Formation: -2 feet below sea level
Bottomed in Parkers Ferry Formation

SN-23: 1.75 mi. W of east quad. border, 0.95 mi. N of south quad. border. Surface elevation 76 feet (=CSVNW-1-D of McCartan).

PENHOLOWAY FM	0-26	Sand, medium-grained grading down to coarse-grained, gray, red, and yellow, with clay layers at 8, 13, and 18 feet, phosphate at base
------------------	------	---

ASHLEY FM	26-27	Calcarenite, very fine-grained, yellowish-gray
--------------	-------	--

Base of Penholoway Formation: +50 feet above sea level
Bottomed in Ashley Formation

SN-24: 3.45 mi. W of east quad. border, 2.2 mi. N of south quad. border. Surface elevation 66 feet (=CSVNW-2-D of McCartan).

PENHOLOWAY FM	0-10	Sand, medium-grained, and clay, sandy, interbedded, medium-orange grading down through yellowish-orange
	10-18	Sand, medium- to coarse-grained, white, clean

ASHLEY FM	18-22	Calcarenite, very fine-grained, yellowish-orange; large forams and shell fragments abundant
-----------	-------	---

Base of Penholoway Formation: +48 feet above sea level
Bottomed in Ashley Formation

SN-25: 0.35 mi. E of west quad. border, 3.5 mi. S of north quad. border. Surface elevation about 75 feet. (=CSVNW-3-D of McCartan)

FILL 0-5 Fill

.....

PENHOLOWAY 5-14 Sand, medium-grained, light-green, clayey,
FM grading down to clay, sandy, dark-
 yellowish-brown, woody near base

 14-17 Sand, medium- to coarse-grained, greenish-
 gray, clean, woody; contains obvious
 biotite, rutile and blue quartz

.....

ASHLEY FM 17-20 Calcarenite, very fine-grained, light-
 yellow grading down to olive-brown

Base of Penholoway Formation: +58 feet above sea level
Bottomed in Ashley Formation

SN-26: 3.6 mi. E of the west quad. border, 1.0 m. S of north quad. border. Surface elevation 63 feet.

PENHOLOWAY 0-1 Sand, fine- to medium-grained, medium-
FM brownish-orange, subangular, poorly sorted

 1-3 Sand, fine- to medium-grained, medium-gray,
 subangular, poorly sorted, clayey

 3-5 Sand, fine- to medium-grained, bright
 medium-yellowish-orange, subangular, poorly
 sorted, clayey

 5-7 Sand, dominantly fine-grained, light-
 greenish-gray, poorly sorted, pebbles of
 quartz, phosphate and calcarenite present

.....

ASHLEY 7-25 Calcarenite, fine-grained, olive-brown,
FM sand-size phosphate abundant

Base of Penholoway Formation: +56 feet above sea level
Bottomed in Ashley Formation

SN-27: 2.25 mi. E of west quad. border, 2.6 mi. S of north quad. border. Surface elevation 71 feet.

PENHOLOWAY FM	0-4	Sand, fine-grained, dark-brown grading through dark-gray to light-gray, clayey toward base
	4-6	Clay, bright medium-yellowish-orange with streaks of light-gray, fine-grained sandy; sand laminae present in lower foot
	6-15	Sand, fine-grained, light-gray (6-9 feet) grading through light-yellowish-gray (9-12 feet) to light-orangish-gray and medium-grained (12-15 feet), poorly sorted, silty; some quartz pebbles scattered throughout

WACCAMAW FM	15-19	Sand, fine-grained, medium-yellowish-gray grading down to medium-yellowish-brown; better sorted than above but still sparsely quartz pebbly; very fine-grained heavies abundant; lumps of calcarenite present on basal contact
----------------	-------	--

ASHLEY FM	19-25	Calcarenite, very fine-grained, light-brownish-gray grading down to medium-yellowish-olive-gray
--------------	-------	---

Base of Penholoway Formation: +56 feet above sea level
Base of Waccamaw Formation: +52 feet above sea level
Bottomed in Ashley Formation

SN-28: 3.05 mi. W of east quad. border, 3.6 mi. S of north quad.
border. Surface elevation 64 feet.

PENHLOWAY 0-8 Clay, medium-orange with medium-yellow
FM streaks (0-4 feet) grading to medium-gray
 with medium-yellow streaks (4-5 feet) to
 light-brown (5-6 feet) to medium-yellowish-
 orange (6-7 feet) to medium-bluish-gray
 with white lumps, very fine- to medium-
 grained sandy, grades to

 8-9 Sand, medium-grained, light-brown, sand-
 size phosphate abundant; lumps of indurated
 calcareous sand at base

.....

WACCAMAW 9-15 Sand, very fine-grained, light-yellowish-
FM brown, very calcareous; sand-size phosphate
 abundant; fragments of Amusium mortoni
 present; phosphate pebble bed at base

.....

ASHLEY at 15 Calcarenite, very fine-grained, olive-
FM brown, 10 cm present on end of stem

Base of Penholoway Formation: +55 feet above sea level
Base of Waccamaw Formation: +49 feet above sea level
Bottomed in Ashley Formation

SN-29: 1.2 mi. W of east quad. border, 4.0 mi. S of north quad.
border. Surface elevation about 55 feet.

LADSON FM	0-4	Sand, fine- to coarse-grained, dark- brownish-orange grading to medium-orange and light-gray mottled, contains scattered quartz pebbles, about 1 cm subrounded white phosphate pebbles at base
--------------	-----	--

.....

PENHOLOWAY FM	4-6	Clay, medium-gray with white sand-size lumps and fine-to coarse- grained quartz, breaks into greasy sheets
------------------	-----	--

.....

ASHLEY FM	6-10	Calcarenite, very fine-grained, light- yellow grading to light-brown, very tough drilling
-----------	------	---

Base of Ladson Formation:	+51 feet above sea level
Base of Penholoway Formation:	+49 feet above sea level
Bottomed in Ashley Formation	

SN-30: 0.85 mi. E of west quad. border, 2.65 mi. N of south
quad. border. Surface elevation 71 feet.

PENHOLWAY FM	0-1	Soil, sandy and clayey, dark-gray
	1-10	Sand, fine-grained, medium-gray grading down to medium-brownish-orange (1-5 feet) then back to medium-gray and to light-gray (5-6 feet) then back to medium-brownish- orange (6-10 feet), clayey, grades rapidly to
	10-15	Clay, medium-bluish-gray with medium-green mottles grading down to medium-green with medium-gray mottles, very dense, sandy laminae present in basal 15 cm
	15-19	Sand, fine- to medium-grained, medium- greenish-gray, black phosphate pebbles (1-2 cm diam) in basal foot

ASHLEY FM	19-25	Calcarenite, very fine-grained, light- yellowish-gray (19-22 feet) grading through medium-yellowish-brown (22-23 feet) back to light-yellowish-gray (23-25 feet), very tough to drill
--------------	-------	---

Base of Penholoway Formation: +52 feet above sea level
Bottomed in Ashley Formation

SN-31: 2.3 mi. E of west quad. border, 0.6 mi. N of south quad. border. Surface elevation 74 feet.

PENHLOWAY FM	0-8	Sand, fine-grained, medium-orange (0-4 feet) grading down through medium-orange with light-gray mottles (4-5 feet) through medium-red and light-gray mottled (5-7 feet) to medium-orange (7-8 feet), silty
	8-18	Clay, light-gray (with medium-orange mottles from 8-12 feet), stiff, grades to
	18-25	Sand, fine-grained, light-yellowish-gray, silty, some laminae clay-rich
	25-27	Sand, fine-grained, medium-gray, silty, 1-2 cm diameter black phosphate lumps and discoids present

ASHLEY FM	27-30	Calcarenite, very fine-grained, medium-olive-gray, dense
--------------	-------	--

Base of Penholoway Formation: +47 feet above sea level
Bottomed in Ashley Formation

SN-32: 1.75 mi. W of east quad. border, 3.4 mi. N of south quad. border. Surface elevation about 55 feet.

LADSON FM	0-6	Sand, dominantly fine-grained but contains medium- and coarse-grains and some subrounded quartz pebbles, light-orangish-gray and light-gray mottled, silty
--------------	-----	--

PENHLOWAY FM	6-9	Clay, bright medium-orangish-yellow with streaks of medium-gray, sandy and pebbly (0.5 to 2 cm, subangular, quartz), platey grains (gibbsite?) present
-----------------	-----	--

ASHLEY FM	9-10	Calcarenite, very fine-grained, light-yellow, partially recrystallized
--------------	------	--

Base of Ladson Formation: +49 feet above sea level
Base of Penholoway Formation: +46 feet above sea level
Bottomed in Ashley Formation

SN-33: 1.95 miles E of west quad. border, 0.3 mile N of south quad. border. Surface elevation 74 feet.

PENHOLOWAY FM	0-0.5	Sand, fine-grained, dark-brown, well sorted
	0.5-5	Sand, fine-grained, clayey, dark-gray, medium-gray, light-gray and medium-reddish-orange mottled, grades rapidly to
	5-6	Sand, fine-grained, clayey, light-pink, micaceous, grades rapidly to
	6-18	Clay, light-gray, stiff, grades to
	18-20	Silt, light-gray to medium-gray, soft, grades to
	20-26	Sand, fine-grained, silty, medium-gray grading down to dark-gray
	at 26	Clay, white, dense, stiff

.....

ASHLEY FM	26-30	Calcarenite, fine-grained, light-olive-brown, phosphatic
--------------	-------	--

Base of Penholoway Formation: +48 feet above sea level
Bottomed in Ashley Formation

SN-34: 3.2 miles E of west quad. border, 1.5 miles N. of south quad. border. Surface elevation 53 feet.

LADSON FM	0-5	Sand, fine- to medium-grained, light-yellowish-brownish-orange grading down to medium-gray, medium-orange, medium-yellow, and dark-reddish-orange mottled, stiff, clayey below 2 feet
	5-7	Sand, stiff, clayey, coarse-grained with subangular to subrounded 0.25-1.0 cm diameter quartz pebbles

PENHLOWAY FM	7-10	Clay, medium-orangish-gray; contains numerous grains and lumps of phosphate weathered to a white color, scattered throughout the layer and not concentrated at its base
-----------------	------	---

ASHLEY FM	10-15	Calcarenite, fine-grained, light-brown grading down to medium-brown
--------------	-------	---

Base of Ladson Formation: +46 feet above sea level
Base of Penholoway Formation: +43 feet above sea level
Bottomed in Ashley Formation

SN-35: 3.0 miles E of west quad. border, 1.0 miles N of south quad. border. Surface elevation about 45 feet (outcrop).

ASHLEY FM	0-3	Calcarenite, fine-grained, light-yellowish-brown, massive
--------------	-----	---

Exposed section entirely of Ashley Formation

SUMMERVILLE QUADRANGLE

(Depths in feet)

SU-1: 1.15 miles W of east quad. border, 2.5 miles N of south quad. border. Surface elevation about 60 feet (excavation pit).

FILL	0-4	Filled earth, roots and stumps at base
.....		
PENHOLOWAY	4-9	Sand, medium-grained, medium-gray to medium-bluish-gray, very clean, angular, clay clasts churned into basal few inches
FM	9-11	Clay, medium-gray, laminated
	11-13	Clay, medium-brown grading down to medium-bluish-gray, silty, very shelly (<u>Mercenaria</u> , <u>Olivella</u> , etc., plus barnacles and echinoid spines)

Bottom of pit in Penholoway Formation

SU-2: 3.4 miles E of west quad. border, 2.95 miles S of north quad. border. Surface elevation 71 feet.

PENHOLWAY FM	0-2	Sand, fine-grained, medium-orange, clayey
	2-17	Clay, medium-gray and medium-purple mottled (2-5 feet) grading to medium-gray and medium-orange mottled (5-17 feet); micaceous below five feet; iron-hydroxide cemented lumps present below 10 feet
	17-25	Sand, mostly fine-grained with sparse medium and coarse grains, medium-gray and medium-orange mottled, silty
	25-29	Clay, medium-gray, stiff, dense, lumpy grading down to greasy and micaceous; lumps of reworked Ashley present along basal contact

.....

ASHLEY FM	29-35	Calcarenite, fine-grained, olive-brown grading down to olive-green
--------------	-------	--

Base of Penholoway Formation: +42 feet above sea level
Bottomed in Ashley Formation

SU-3: 0.3 miles E of west quad. border, 2.0 miles N of south quad. border. Surface elevation 35 feet (=RID-SE-1-H of Houser).

PENHOLOWAY 0-10 Clay, medium-gray and light-olive-brown (0-5 feet) grading down to light-olive-brown (5-10 feet), stiff

10-13 Sand, fine-grained, yellowish-brown, muddy,

ASHLEY 13-112 Calcarenite, fine-grained, olive-brown to FM olive-green, scattered intervals have abundant quartz and phosphate sand, phosphate pebble conglomerate at base

PARKERS 112-130 Calcilutite, medium-greenish-gray, stiff FERRY FM

Base of Penholoway Formation: +22 feet above sea level

Base of Ashley Formation: -77 feet below sea level

Bottomed in Parkers Ferry Formation

SU-4: 0.35 miles E of west quad. border, 3.4 miles S of north quad. border. Surface elevation 31 feet. (=SUMM-1-H of Houser)

FILL 0-5 Road fill

PENHOLOWAY 5-8 Clay, light-gray, medium-grained, sandy FM

ASHLEY 8-105 Calcarenite, fine-grained, olive-brown to FM olive-green, sand-size phosphate locally abundant

Base of Penholoway Formation: +23 feet above sea level

Bottomed in Ashley Formation

SU-5: 0.8 miles W of east quad. border, 2.9 miles N of south quad. border. Surface elevation 64 feet. (=SUMM-2-H of Houser)

```

-----
ALLUVIUM      0-1    Sandy swamp muck
.....

PENHOLLOWAY   1-5    Clay, medium-gray and medium-orange, stiff,
FM            sandy

              5-15   Clay, sandy, grading down to sand, fine-
                  grained, silty, light-brownish-gray grading
                  through medium-greenish-gray to dark-olive-
                  gray, contains angular fragments of
                  opalized clay

              15-32  Clay, medium-greenish-gray grading down to
                  medium-gray, sandy, shelly, phosphate
                  pebble bed at base
.....

ASHLEY        32-145  Calcarenite, fine-grained, olive-brown to
FM            olive-green, abundant sand-size phosphate
  
```

```

-----
Base of alluvium (Holocene):  +63 feet above sea level
Base of Penholoway Formation: +32 feet above sea level
Bottomed in Ashley Formation
  
```

SU-6: 0.8 miles S of north quad. border, 2.4 miles E of west quad. border. Surface elevation 30 feet (= SUMM-3-H of Houser).

TEN MILE HILL BEDS	0-7	Clay, medium-gray and medium-orange, fine-grained sandy
-----------------------	-----	---

ASHLEY FM	7-85	Calcarenite, fine-grained, olive-brown to olive-green, sand-size phosphate sparse to abundant
--------------	------	---

PARKERS FERRY FM	85-105	Calcilutite, medium-greenish-gray, stiff, dry
---------------------	--------	---

Base of Ten Mile Hill beds: +23 feet above sea level
Base of Ashley Formation: -55 feet below sea level
Bottomed in Parkers Ferry Formation

SU-7: 0.6 miles W of east quad. border, 0.75 miles S of north quad. border. Surface elevation 85 feet. (=CSV-1-0 of McCartan)

PENHOLWAY FM	0-33	Sand, fine- to medium-grained, clayey grading down to fine-grained sandy silt and fine-grained silty sand, light-greenish-gray grading down to dark-greenish-gray, micaceous below 12 feet
-----------------	------	--

	33-40	Sand, fine-grained, dark-greenish-gray, shelly
--	-------	--

ASHLEY FM	40-45	Calcarenite, fine-grained, olive-green
--------------	-------	--

Base of Penholoway Formation: +45 feet above sea level
Bottomed in Ashley Formation

SU-8: 2.8 miles E of west quad. border, 0.1 miles N of south quad. border. Surface elevation about 75 feet. (=CSV-2-D of McCartan)

PENHOLLOWAY FM	0-27	Sand, fine-grained, clayey, and clay, fine-grained, sandy, interbedded, dark-yellowish-orange, light-yellowish-orange, light-greenish-gray, and medium-red (0-20 feet) grading down to medium-bluish-gray and medium-greenish-gray
-------------------	------	--

.....

SALKEHATCHIE BEDS	28-32	Clay, dark-greenish-gray, shelly, sandier downward, phosphate pebble bed at base
----------------------	-------	--

.....

ASHLEY FM	32-35	Calcarenite, fine-grained, light-olive-gray, abundant sand-size phosphate and large foraminifera
--------------	-------	--

Base of Penholoway Formation:	+48 feet above sea level
Base of Salkehatchie beds:	+43 feet above sea level
Bottomed in Ashley Formation	

SU-9: 2.15 miles E of west quad. border, 2.25 miles N of south quad. border. Surface elevation 65 feet.

PENHOLOWAY FM	0-7	Clay, light-gray and medium-orange mottled with a few medium-red mottles, stiff and massive, lumps of light-bluish-gray to light-greenish-gray clay present in basal 2 feet
	7-20	Sand, fine-grained, light-greenish-gray grading down to light-bluish-gray, very fine-grained heavies abundant; lower part contains oyster fragments
	20-25	Clay, medium-bluish-gray, lumpy, contains oyster fragments
	25-31	Sand, fine-grained grading down to medium-grained, medium-gray, phosphate sand and pebbles at base
.....		
ASHLEY FM	31-35	Calcarenite, very fine-grained, light-brown grading down to medium-brown, contains large foraminifera

Base of Penholoway Formation: +34 feet above sea level
Bottomed in Ashley Formation

SU-10: 3.35 miles E of west quad. border, 3.85 miles N of south quad. border. Surface elevation 74 feet.

PENHOLOWAY FM	0-5	Sand, fine-grained with some medium-grained fraction, light-gray sparsely mottled light-orange, silty grading down to clayey
	5-9	Clay, light-gray with medium-orange fine-grained sandy and micaceous streaks, grades to
	9-25	Clay, medium-bluish-gray, contains 1 mm flakes of mica, grades to
	25-30	Clay, medium-bluish-gray, silty, shelly (<u>Mulinia</u> , etc.), not as sticky as above, grades to
	30-34	Clay, medium-bluish- to medium-greenish-gray, lumpy, massive, very sticky, basal foot full of phosphate pebbles

ASHLEY FM	34-35	Ashley, fine-grained, light-brown, contains abundant phosphate sand
--------------	-------	---

Base of Penholoway Formation: +40 feet above sea level
Bottomed in Ashley Formation

SU-11: 2.85 miles W of east quad. border, 1.4 miles S of north quad. border. Surface elevation 64 feet.

1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1041 1042 1043 1044 1045 1046 1047 1048 1049 1050 1051 1052 1053 1054 1055 1056 1057 1058 1059 1060 1061 1062 1063 1064 1065 1066 1067 1068 1069 1070 1071 1072 1073 1074 1075 1076 1077 1078 1079 1080 1081 1082 1083 1084 1085 1086 1087 1088 1089 1090 1091 1092 1093 1094 1095 1096 1097 1098 1099 1100 1101 1102 1103 1104 1105 1106 1107 1108 1109 1110 1111 1112 1113 1114 1115 1116 1117 1118 1119 1120 1121 1122 1123 1124 1125 1126 1127 1128 1129 1130 1131 1132 1133 1134 1135 1136 1137 1138 1139 1140 1141 1142 1143 1144 1145 1146 1147 1148 1149 1150 1151 1152 1153 1154 1155 1156 1157 1158 1159 1160 1161 1162 1163 1164 1165 1166 1167 1168 1169 1170 1171 1172 1173 1174 1175 1176 1177 1178 1179 1180 1181 1182 1183 1184 1185 1186 1187 1188 1189 1190 1191 1192 1193 1194 1195 1196 1197 1198 1199 1200 1201 1202 1203 1204 1205 1206 1207 1208 1209 1210 1211 1212 1213 1214 1215 1216 1217 1218 1219 1220 1221 1222 1223 1224 1225 1226 1227 1228 1229 1230 1231 1232 1233 1234 1235 1236 1237 1238 1239 1240 1241 1242 1243 1244 1245 1246 1247 1248 1249 1250 1251 1252 1253 1254 1255 1256 1257 1258 1259 1260 1261 1262 1263 1264 1265 1266 1267 1268 1269 1270 1271 1272 1273 1274 1275 1276 1277 1278 1279 1280 1281 1282 1283 1284 1285 1286 1287 1288 1289 1290 1291 1292 1293 1294 1295 1296 1297 1298 1299 1300 1301 1302 1303 1304 1305 1306 1307 1308 1309 1310 1311 1312 1313 1314 1315 1316 1317 1318 1319 1320 1321 1322 1323 1324 1325 1326 1327 1328 1329 1330 1331 1332 1333 1334 1335 1336 1337 1338 1339 1340 1341 1342 1343 1344 1345 1346 1347 1348 1349 1350 1351 1352 1353 1354 1355 1356 1357 1358 1359 1360 1361 1362 1363 1364 1365 1366 1367 1368 1369 1370 1371 1372 1373 1374 1375 1376 1377 1378 1379 1380 1381 1382 1383 1384 1385 1386 1387 1388 1389 1390 1391 1392 1393 1394 1395 1396 1397 1398 1399 1400 1401 1402 1403 1404 1405 1406 1407 1408 1409 1410 1411 1412 1413 1414 1415 1416 1417 1418 1419 1420 1421 1422 1423 1424 1425 1426 1427 1428 1429 1430 1431 1432 1433 1434 1435 1436 1437 1438 1439 1440 1441 1442 1443 1444 1445 1446 1447 1448 1449 1450 1451 1452 1453 1454 1455 1456 1457 1458 1459 1460 1461 1462 1463 1464 1465 1466 1467 1468 1469 1470 1471 1472 1473 1474 1475 1476 1477 1478 1479 1480 1481 1482 1483 1484 1485 1486 1487 1488 1489 1490 1491 1492 1493 1494 1495 1496 1497 1498 1499 1500 1501 1502 1503 1504 1505 1506 1507 1508 1509 1510 1511 1512 1513 1514 1515 1516 1517 1518 1519 1520 1521 1522 1523 1524 1525 1526 1527 1528 1529 1530 1531 1532 1533 1534 1535 1536 1537 1538 1539 1540 1541 1542 1543 1544 1545 1546 1547 1548 1549 1550 1551 1552 1553 1554 1555 1556 1557 1558 1559 1560 1561 1562 1563 1564 1565 1566 1567 1568 1569 1570 1571 1572 1573 1574 1575 1576 1577 1578 1579 1580 1581 1582 1583 1584 1585 1586 1587 1588 1589 1590 1591 1592 1593 1594 1595 1596 1597 1598 1599 1600 1601 1602 1603 1604 1605 1606 1607 1608 1609 1610 1611 1612 1613 1614 1615 1616 1617 1618 1619 1620 1621 1622 1623 1624 1625 1626 1627 1628 1629 1630 1631 1632 1633 1634 1635 1636 1637 1638 1639 1640 1641 1642 1643 1644 1645 1646 1647 1648 1649 1650 1651 1652 1653 1654 1655 1656 1657 1658 1659 1660 1661 1662 1663 1664 1665 1666 1667 1668 1669 1670 1671 1672 1673 1674 1675 1676 1677 1678 1679 1680 1681 1682 1683 1684 1685 1686 1687 1688 1689 1690 1691 1692 1693 1694 1695 1696 1697 1698 1699 1700 1701 1702 1703 1704 1705 1706 1707 1708 1709 1710 1711 1712 1713 1714 1715 1716 1717 1718 1719 1720 1721 1722 1723 1724 1725 1726 1727 1728 1729 1730 1731 1732 1733 1734 1735 1736 1737 1738 1739 1740 1741 1742 1743 1744 1745 1746 1747 1748 1749 1750 1751 1752 1753 1754 1755 1756 1757 1758 1759 1760 1761 1762 1763 1764 1765 1766 1767 1768 1769 1770 1771 1772 1773 1774 1775 1776 1777 1778 1779 1780 1781 1782 1783 1784 1785 1786 1787 1788 1789 1790 1791 1792 1793 1794 1795 1796 1797 1798 1799 1800 1801 1802 1803 1804 1805 1806 1807 1808 1809 1810 1811 1812 1813 1814 1815 1816 1817 1818 1819

PENHOLOWAY	0-6	Silt, medium-orange, clayey grading down to
FM		clay, medium-orange and light-gray mottled
		grading down to light-gray, silty

6-13 Sand, fine-grained, light-yellowish-brown,
silty, grades to

13-22 Silt, light-greenish-gray, slightly clayey,
contains a bimodal medium- and fine-grained
sand fraction, some coarse-grains present
near base, sharp basal contact

.....

CHANDLER	22-23	Clay, dark-yellowish-brown, silty, contains
BRIDGE FM		small forams and a calcareous sponge
		spicule, dense, very sticky

.....

ASHLEY FM	23-25	Calcarenite, very fine-grained, light-brown, contains burrows filled with clay from unit above
-----------	-------	--

Base of Penholoway Formation: +42 feet above sea level
Base of Chandler Bridge Formation: +41 feet above sea level
Bottomed in Ashley Formation

SU-12: 1.1 miles W of east quad. border, 1.8 miles N of south quad. border. Surface elevation 79 feet.

PENHOLLOWAY FM	0-2	Sand, fine- to medium-grained, dark-brown, humic
	2-7	Sand, fine- to medium-grained, medium-orange and light-brownish-gray, slightly clayey (possibly in thin laminae)
	7-35	Silt, light-gray, clayey, sandy in upper 4 feet and occasional sandy horizons farther down, grades to
	35-38	Sand, medium-grained, dark-gray, contains phosphatized shell molds and lumps of phosphate, grades to
	38-51	Sand, fine-grained, dark-gray with some white layers, shelly, 2-3 mm muscovite in white fraction, phosphate pebble bed at base

.....

ASHLEY FM	51-55	Calcarenite, very fine-grained, medium-olive-green, sparse shell fragments and large foraminifera present, some calcite-cemented lumps
--------------	-------	--

Base of Penholoway Formation: +28 feet above sea level
Bottomed in Ashley Formation

SU-13: 1.65 miles W of east quad. border, 3.45 miles S of north quad. border. Surface elevation 90 feet.

PENHLOWAY FM	0-8	Sand, mostly fine-grained, medium-orangish-brown (0-1 foot) grading through medium-yellowish- to orangish-brown (1-3 feet) and medium-orange and light-gray banded (3-4 feet) and bright dark-orange and light-gray banded (4-5 feet) to light-yellowish-brown (5-8 feet)
	8-31	Clay, medium-orange in upper 2 inches and medium-bluish-gray below that, silty and sandy, very micaceous (2-4 mm flakes) in upper few feet, sticky and not sandy or micaceous between 11 feet and 29 feet, micaceous, sandy, and shelly below 29 feet, grades to
	31-47	Sand, fine-grained, medium-gray, shelly (snails, bivalves including <u>Mulinia</u>), clayey and contains oyster fragments between 36 and 38 feet
	47-49	Sand, medium- to coarse-grained, bright medium-orange to medium-yellow, phosphate lumps, quartz pebbles (about 0.5 cm diameter) and a quartz discoid (about 1 x 2 x 0.25 cm) present

ASHLEY FM	49-50	Calcarenite, very fine-grained, light-brownish-gray
--------------	-------	---

Base of Penholoway Formation: +41 feet above sea level
Bottomed in Ashley Formation

SU-14: 0.65 miles E of west quad. border, 1.3 miles S of north quad. border. Surface elevation about 35 feet.

TEN MILE HILL BEDS	0-1	Sand, fine-grained, light-gray grading down to light-gray with medium-reddish-brown mottles; discoidal, flat, rounded quartz pebble present near base
-----------------------	-----	---

.....

LADSON FM	1-5	Clay, sandy, stiff, medium-gray and dark-reddish-brown mottled, white phosphate grains present near base, grades down to
	5-8	Sand, medium-grained, clayey, subangular; shell casts and rock lumps at base (lithified Ashley Formation or Edisto Formation); basal contact sharp

.....

PENHOLOWAY FM	8-10	Clay, sandy, medium-gray and medium-orange mottled, rock lumps abundant at base
------------------	------	---

.....

ASHLEY FM	10-18	Calcarenite, fine-grained, light-yellowish-gray, phosphatic; contains numerous cemented lumps, grades to
	18-70	Calcarenite, fine-grained, light-brown grading down to medium-olive-gray; contains calcite-cemented lumps in upper foot

Base of Ten Mile Hill beds:	+34 feet above sea level
Base of Ladson Formation:	+27 feet above sea level
Base of Penholoway Formation:	+25 feet above sea level

Bottomed in Ashley Formation

SU-15: 1.65 miles E of west quad. border, 1.7 miles S of north quad. border. Surface elevation 48 feet.

LADSON FM	0-4	Sand, fine-grained, dark-gray (0-2 feet) grading through light-gray (2-3 feet) to medium-orange (3-4 feet), clean, well sorted, grades rapidly to
	4-6	Sand, clayey, light-gray, medium-orange and dark-reddish-brown mottled, stiff and dense; subrounded to subangular quartz granules abundant at base

PENHLOWAY FM	6-12	Clay, silty and sandy, light-yellowish-brown, dense, stiff, grades to clayey and silty sand, fine-grained, medium-brownish-gray; some quartz granules present near base
-----------------	------	---

EDISTO FM	12-20	Calcarenite, fine-grained, light-brown grading through medium-brown to medium-brownish-olive, sparsely phosphatic; calcite-cemented lumps abundant
--------------	-------	--

Base of Ladson Formation: +42 feet above sea level
Base of Penholoway Formation: +36 feet above sea level
Bottomed in Edisto Formation

SU-16: 2.1 miles W of east quad. border, 2.4 miles S of north quad. border. Surface elevation 76 feet.

PENHOLOWAY FM	0-5	Sand, fine-grained, medium-reddish-orange, clayey, dense, stiff; medium-gray streaks present in basal foot; grades to:
	5-15	Clay, fine-grained sandy, dark-reddish-orange and medium gray mottled (5-8 feet) grading through medium-orange and medium-gray mottled (8-13 feet) to dark-bluish-gray (13-15 feet)
	15-19	Silt, sandy and clayey, dark-bluish-gray; looser than above
	19-25	Sand, very fine-grained grading down through fine-grained to fine/medium-grained, dark-bluish-gray
	25-32	Clay, fine-grained sandy, dark-bluish-gray, dense; acquires a greenish cast around 29 feet
	32-44	Sand, fine-grained, well-sorted, phosphate sand abundant

.....

SALKEHATCHIE BEDS	44-45	Sand, fine-grained, dark-olive-gray, contains rotten aragonitic and calcitic shells, phosphate pebble bed at base
----------------------	-------	---

.....

EDISTO FM	45-47	Calcarenite, fine-grained, light-olive-brown, shelly; phosphate pebble bed at base with sharks teeth; base of unit very hard; burrows filled with this material penetrate underlying unit
--------------	-------	---

.....

ASHLEY FM	47-50	Calcarenite, fine-grained, medium-olive-brown; smooth drilling and no cemented lumps or layers
--------------	-------	--

Base of Penholoway Formation: +32 feet above sea level
Base of Salkehatchie beds: +31 feet above sea level
Base of Edisto Formation: +29 feet above sea level
Bottomed in Ashley Formation

SU-17: 2.15 miles W of east quad. border, 2.65 miles N of south quad. border. Surface elevation 81 feet.

PENHOLLOWAY FM	0-6	Sand, fine-grained, dark-reddish-orange and medium-gray (0-1 foot) grading through light-brown (1-2 feet) and through medium-orange and medium-gray mottled (2-5 feet) to medium-gray (5-6 feet), well sorted, grades rapidly to:
	6-9	Sand, fine-grained, light-gray, well sorted, micaceous
	9-29	Clay, medium-gray (9-12 feet) grading rapidly to medium-bluish-gray (12-29 feet), micaceous, sticky, grades rapidly to
	29-42	Sand, fine-grained, silty, shelly (<u>Mulinia</u> , <u>Olivella</u> , <u>Mercenaria</u> , <u>Busycon?</u> , oyster, etc.); subrounded lumps of black phosphate in basal 3 cm

.....

ASHLEY FM	42-55	Calcarenite, fine-grained, medium-olive-brown, quartzose
--------------	-------	--

Base of Penholoway Formation: +39 feet above sea level
Bottomed in Ashley Formation

SU-18: 2.85 miles W of east quad. border, 0.7 miles N of south quad. border. Surface elevation 41 feet.

FILL 0-2 Road fill

.....

PENHOLOWAY 2-3 Clay, dark-gray, fine-grained sandy
FM
 3-10 Sand, fine-grained grading down to
 medium/coarse-grained, light-bluish-gray
 and medium-brown mottled; phosphate
 pebbles, bone fragments, and quartz
 discoids present at base

.....

ASHLEY 10-20 Calcarenite, fine-grained, medium-olive-
FM brown, quartzose and phosphatic

Base of Penholoway Formation: +31 feet above sea level
Bottomed in Ashley Formation

SU-19: 0.55 mile W of east quad. border, 0.65 mile N of south quad. border. Surface elevation 58 ft.

PENHOLOWAY 0-1 Soil, sandy, rich in organic matter
FM
 1-7 Clay, light-gray, medium-gray, dark-red,
 and medium-orange mottled, stiff, dense
 7-29 Sand, fine-grained grading down to medium-
 grained near base, bright-medium-orange (7-
 14) grading through medium-brown (14-20) to
 medium-gray (20-29), clayey and silty,
 shelly (mostly Mulinia and oyster) below 14
 feet; sparse phosphate pebbles present at
 base

.....

CHANDLER 29-35 Sand, fine-grained, dark-gray, dense,
BRIDGE FM phosphate pebbles, bone fragments and
 barnacle fragments scattered throughout

Base of Penholoway Formation: +29 feet above sea level
Bottomed in Chandler Bridge Formation

SU-20: 2.95 miles E of west quad. border, 3.55 miles S of north quad. border. Surface elevation 65 feet.

PENHOLOWAY FM	0-7	Clay, light-gray and light-orange mottled, fine-grained sandy, grades down to
	7-14	Clay, medium-gray and light-orange mottled; contains stiff, dark-olive clay balls; basal contact sharp

.....

WACCAMAW FM	14-21	Sand, medium-grained, medium-gray, clayey and silty, grading down rapidly to calcarenite, medium-grained, light-bluish-gray, quartzose, shelly with oysters and pectenids
	21-22	Clay, dark-gray, lumpy, stiff, contains (caliche?) clay balls
	22-28	Sand, fine-grained, light-gray, silty, very calcareous, sparsely shelly; coarse lumps of the underlying Ashley Formation rounded and rolled along basal contact; microfossil assemblage includes large forms of <u>Gephyrocapsa</u> , which are most typical of an early Pleistocene age (Richard Poore and Linda Gosnell, Report on Shipment Number ERG-86-4, 1986)

.....

ASHLEY FM	28-30	Calcarenite, fine-grained, light-olive grading down to medium-olive
--------------	-------	---

Base of Penholoway Formation: +51 feet above sea level
Base of Waccamaw Formation: +37 feet above sea level
Bottomed in Ashley Formation

SU-21: 0.55 mile E of west quad. border, 0.7 mile N of south quad. border. Surface elevation 70 feet.

PENHOLOWAY 0-5 Clay, light-gray, medium-orange, and dark-red mottled, sandy in upper 3 feet
FM

5-25 Clay, silty and sandy, grading down through sandy and clayey silt to clayey and silty fine-grained sand, light-yellowish-brown and light-gray mottled grading down to light-gray, subrounded lumps of 0.5 to 7 cm diameter phosphate at base

.....

WACCAMAW 25-30 Sand, fine-grained, medium-gray, silty, increasingly calcareous downward; indurated lumps of Ashley and 0.25-0.5 cm subrounded lumps of phosphate present along basal contact
FM

.....

ASHLEY 30-35 Calcarenite, fine-grained, dark-brown grading through light-olive to medium-olive-brown; top of unit has a burrow filled with dark-olive-gray sand and shell fragments (wisp of Marks Head or Raysor?)
FM

Base of Penholoway Formation: +45 feet above sea level
Base of Waccamaw Formation: +40 feet above sea level
Bottomed in Ashley Formation

SU-22: 0.2 mile E of west quad. border, 4.2 miles S of north
quad. border. Surface elevation 60 feet.

PENHOLOWAY FM	0-5	Clay, bright light-orange and light-gray mottled, fine-grained sandy, grades to:
	5-10	Clay, light-gray with mottles of dark-red and medium-reddish-orange,
	10-14	Clay, light-yellowish-brown, calcareous, sandy

EDISTO FM	14-27	Sand, fine/medium-grained, light-brown, contains lumps of calcite at 22 feet and very calcareous below that level, calcite lumps just above basal contact
--------------	-------	--

ASHLEY FM	27-40	Calcarenite, fine-grained, medium-olive- brown, contains large foraminifera, phosphatic and glauconitic
--------------	-------	---

Base of Penholoway Formation: +46 feet above sea level
Base of Edisto Formation: +33 feet above sea level
Bottomed in Ashley Formation

SU-23: 1.95 miles E of west quad. border, 2.95 miles N of south quad. border. Surface elevation 65 feet.

PENHOLOWAY FM	0-11	Clay, medium-reddish-orange, light-gray, and dark-red mottled, sandy in upper 4 feet, grades to:
	11-17	Clay, light-gray with sparse medium-brown mottles, stiff

EDISTO FM	17-18	Sand, fine/medium-grained, medium-brown, grades to:
	18-26	Sand, fine/medium-grained, light-olive-gray, silty; sting-ray barb present at 24 feet, grades to:
	26-30	Sand, fine/medium-grained, medium-greenish-bluish-gray grading down to light-gray near base, very calcareous and contains calcite-cemented lumps; basal contact indistinct

ASHLEY FM	30-35	Calcarenite, fine-grained, medium-brown grading down to medium-olive-brown
--------------	-------	--

Base of Penholoway Formation: +48 feet above sea level
Base of Edisto Formation: +35 feet above sea level
Bottomed in Ashley Formation

SU-24: 3.3 miles W of east quad. border, 2.45 miles N of south quad. border. Surface elevation 84 feet.

PENHOLOWAY FM	0-9	Sand, medium-grained, light-gray and medium-orange mottled (0-6 feet) grading down to medium-gray (6-9 feet)
	9-10	Clay, medium-gray, stiff, sticky
	10-31	Clay, medium-bluish-gray, micaceous
	31-39	Sand, fine-grained, medium-bluish-gray, silty and clayey, shelly (includes snails and <u>Mercenaria</u>)
	39-44	Clay, medium-bluish-gray, stiff
	44-51	Sand, fine-grained, medium-bluish-gray, clayey and silty, sparsely shelly; rounded, calcite-cemented lumps abundant in basal two feet

ASHLEY	51-60	Calcarenite, fine-grained, yellowish-olive, glauconitic and phosphatic
--------	-------	--

Base of Penholoway Formation: +33 feet above sea level
Bottomed in Ashley Formation

SU-25: 3.1 miles W of east quad. border, 3.75 miles S of north quad. border. Surface elevation 72 feet.

PENHOLOWAY FM	0-6	Sand, fine-grained, clayey grading down to clay, fine-grained sandy, medium-orangish-red and dark-red mottled, grades to:
	6-20	Clay, light-gray with medium-brown mottles (6-11 feet) grading to medium-bluish-gray (11-20 feet), grades rapidly to:
	20-24	Sand, fine-grained, medium-bluish-gray, clayey, shelly (including <u>Rangia</u>)
	24-28	Clay, dark-gray grading down to dark-brownish-gray, contains <u>Rangia</u> valves and articulated valve pairs, grades to:
	28-29	Clay, dark-brown, contains plant fragments
	29-34	Clay, fine- to coarse-grained sandy, medium-bluish-gray, stiff, contains lumps of calcite

ASHLEY FM	34-40	Calcarenite, fine-grained, light-brown (34-36 feet) grading down to medium-olive-brown (36-40 feet)
--------------	-------	---

Base of Penholoway Formation: +38 feet above sea level
Bottomed in Ashley Formation

SU-26: 2.7 miles E of west quad. border, 1.6 miles N of south quad. border. Surface elevation 82 feet.

PENHOLOWAY FM	0-8	Sand, fine/medium-grained, light-brown with medium-orange and light-gray mottles, clayey lense 5 cm thick at around 4.5 feet
	8-30	Clay, light-bluish-gray grading rapidly down to medium-bluish-gray, silty, micaceous
	30-41	Sand, medium-grained, medium-bluish-gray, fairly clean; shelly below 32 feet (including <u>Dinocardium</u> and <u>Anadara transversa</u>), some shells lustrous; phosphate pebbles scattered near base

ASHLEY FM	41-50	Calcarenite, fine-grained, light-brown (41-42 feet) grading down to medium-olive-brown (42-50 feet) contains calcite-cemented lumps
--------------	-------	---

Base of Penholoway Formation: +41 feet above sea level
Bottomed in Ashley Formation

SU-27: 0.05 mile E of west quad. border, 2.8 miles N of south quad. border. Surface elevation 62 feet.

PENHOLOWAY FM	0-5	Clay, light-gray, medium-reddish-orange, medium-red, and dark-red mottled, stiff, grades to
	5-15	Clay, light-gray with medium-yellowish-brown mottles, stiff, dense

EDISTO FM	15-23	Sand, fine/medium-grained, light-brown, silty, grades to
	23-35	Calcarenite, fine-grained to medium-grained, light-gray, dense, quartzose, numerous calcite-cemented lumps near base

Base of Penholoway Formation: +47 feet above sea level
Bottomed in Edisto Formation

SU-28: 3.0 miles E of west quad. border, 0.5 miles S of north quad. border. Surface elevation 50 feet.

LADSON FM	0-5	Clay, fine-grained sandy, grading down to sand, fine-grained, clayey, light-gray, medium-yellow, medium-orange, and dark-red mottled, grades to
--------------	-----	---

	5-14	Sand, dominantly medium-grained, light-gray, medium-yellow, medium-orange, and dark-red mottled grading down to bright-medium-orange; contains subrounded to subangular quartz granules
--	------	---

EDISTO FM	14-17	Sand, fine-grained, light-brown, well sorted grades to
--------------	-------	--

	17-21	Calcarenite, fine-grained, very light-brown, quartzose, grades to
--	-------	---

	21-27	Calcarenite, fine/medium-grained, medium-brown; soft, sags on stem flights; contains calcite-cemented lumps
--	-------	---

ASHLEY FM	27-30	Calcarenite, fine-grained, medium-olive-brown, phosphatic and glauconitic; dense, stiff, and does not sag on stem flights
--------------	-------	---

Base of Ladson Formation: +36 feet above sea level

Base of Edisto Formation: +23 feet above sea level

Bottomed in Ashley Formation