STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0139	1	14

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY *BRUNSWICK*

PROJECT DESCRIPTION *BRIDGE ON NC 133 (RIVER ROAD) OVER SAND HILL CREEK AT -L- STA. 20+56*

REFERENCE: BR-0139

PROJECT: 67139

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CAUTION NOTICE

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PERSONNEL

J. HOLLAND

J. ROSE

BRIDGER DRILLING

INVESTIGATED BY *J. CRENSHAW*

DRAWN BY *J. HOLLAND*

CHECKED BY *J. WESSELL*

SUBMITTED BY *SCHNABEL ENG.*

DATE *OCTOBER 2022*

Schnabel ENGINEERING

NORTH CAROLINA LICENSED SEAL 2504 GEOLOGIST JARED K. CRENSHAW

DocuSigned by:
Jared K. Crenshaw 02/26/2023
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SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
BR-0139	2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE,
VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6

SOIL LEGEND AND AASHTO CLASSIFICATION

GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)							SILT-CLAY MATERIALS (> 35% PASSING #200)				ORGANIC MATERIALS		
GROUP CLASS.	A-1		A-3	A-2				A-4	A-5	A-6	A-7	A-1, A-2 A-3	A-4, A-5 A-6, A-7	
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5, A-7-6			
SYMBOL														
% PASSING #10 #40 #200	50 MX 30 MX 15 MX	50 MX 25 MX	51 MN 10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
MATERIAL PASSING #40 LL PI	— 6 MX		— NP	40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 11 MN	40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 11 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
GROUP INDEX	0		0	0		4 MX		8 MX	12 MX	16 MX	NO MX			
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND		FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND				SILTY SOILS		CLAYEY SOILS				
GEN. RATING AS SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR				FAIR TO POOR	POOR	UNSUITABLE

PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH ($TONS/FT^2$)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE	< 4 4 TO 10 10 TO 30 30 TO 50 > 50	N/A
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD	< 2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 > 30	< 0.25 0.25 TO 0.5 0.5 TO 1.0 1 TO 2 2 TO 4 > 4

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE	4	10	40	60	200	270
OPENING (MM)	4.76	2.00	0.42	0.25	0.075	0.053

BOULDER (BLDR.)	COBBLE (COB.)	GRAVEL (GR.)	COARSE SAND (CSE. SD.)	FINE SAND (F SD.)	SILT (SL.)	CLAY (CL.)

GRAIN SIZE	MM	305	75	2.0	0.25	0.05	0.005
	IN.	12	3				

SOIL MOISTURE - CORRELATION OF TERMS

SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION
	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
LL — LIQUID LIMIT		
PLASTIC RANGE (PI)	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PL — PLASTIC LIMIT		
OM — OPTIMUM MOISTURE SL — SHRINKAGE LIMIT	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NON PLASTIC	0-5	VERY LOW
SLIGHTLY PLASTIC	6-15	SLIGHT
MODERATELY PLASTIC	16-25	MEDIUM
HIGHLY PLASTIC	26 OR MORE	HIGH

COLOR

DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.

GRADATION

WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE.
UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE.
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.

ANGULARITY OF GRAINS

THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.

MINERALOGICAL COMPOSITION

MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LL < 31
MODERATELY COMPRESSIBLE	LL = 31 - 50
HIGHLY COMPRESSIBLE	LL > 50

PERCENTAGE OF MATERIAL

ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%
MODERATELY ORGANIC	5 - 10%	12 - 20%
HIGHLY ORGANIC	> 10%	> 20%

OTHER MATERIAL	
TRACE	1 - 10%
LITTLE	10 - 20%
SOME	20 - 35%
HIGHLY	35% AND ABOVE

GROUND WATER

- WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING
- STATIC WATER LEVEL AFTER 24 HOURS
- PW — PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA
- SPRING OR SEEP

MISCELLANEOUS SYMBOLS

- ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION
- SOIL SYMBOL
- ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT
- INFERRED SOIL BOUNDARY
- INFERRED ROCK LINE
- ALLUVIAL SOIL BOUNDARY
- 25/025 — DIP & DIP DIRECTION OF ROCK STRUCTURES
- SPT, DPT, DMT, VST, PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING WITH CORE
- SPT N-VALUE

RECOMMENDATION SYMBOLS

- UNDERCUT
- SHALLOW UNDERCUT
- UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE
- UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK
- UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL

ABBREVIATIONS

AR - AUGER REFUSAL
BT - BORING TERMINATED
CL. - CLAY
CPT - CONE PENETRATION TEST
CSE. - COARSE
DMT - DILATOMETER TEST
DPT - DYNAMIC PENETRATION TEST
e - VOID RATIO
F - FINE
FOSS. - FOSSILIFEROUS
FRAC. - FRACTURED, FRACTURES
FRAGS. - FRAGMENTS
HI. - HIGHLY
MED. - MEDIUM
MICA. - MICACEOUS
MOD. - MODERATELY
NP - NON PLASTIC
ORG. - ORGANIC
PMT - PRESSUREMETER TEST
SAP. - SAPROLITIC
SD. - SAND, SANDY
SL. - SILT, SILTY
SLI. - SLIGHTLY
TCR - TRICONE REFUSAL
w - MOISTURE CONTENT
V - VERY
VST - VANE SHEAR TEST
WEA. - WEATHERED
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

SAMPLE ABBREVIATIONS

S - BULK
SS - SPLIT SPOON
ST - SHELBY TUBE
RS - ROCK
RT - RECOMPACTED TRIAXIAL
CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [X] CME-45C
- [ ] CME-55
- [ ] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [ ] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [X] CASING [ ] W/ ADVANCER
- [X] TRICONE 2 15/16" STEEL TEETH
- [ ] TRICONE _____" TUNG.-CARB.
- [ ] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

CORE SIZE:
- [ ] -B _____ [ ] -H _____
- [ ] -N _____

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [ ] HAND AUGER
- [ ] SOUNDING ROD
- [ ] VANE SHEAR TEST
- [ ] _____

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK.
ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:

WEATHERED ROCK (WR)	NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.
CRYSTALLINE ROCK (CR)	FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.
NON-CRYSTALLINE ROCK (NCR)	FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.
COASTAL PLAIN SEDIMENTARY ROCK (CP)	COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.

WEATHERING

FRESH	ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.
VERY SLIGHT (V SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.
SLIGHT (SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.
MODERATE (MOD.)	SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.
MODERATELY SEVERE (MOD. SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. *IF TESTED, WOULD YIELD SPT REFUSAL*
SEVERE (SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. *IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF*
COMPLETE	ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.

ROCK HARDNESS

VERY HARD	CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.
HARD	CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.
MODERATELY HARD	CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.
MEDIUM HARD	CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.
SOFT	CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.
VERY SOFT	CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.

FRACTURE SPACING

TERM	SPACING
VERY WIDE	MORE THAN 10 FEET
WIDE	3 TO 10 FEET
MODERATELY CLOSE	1 TO 3 FEET
CLOSE	0.16 TO 1 FOOT
VERY CLOSE	LESS THAN 0.16 FEET

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	4 FEET
THICKLY BEDDED	1.5 - 4 FEET
THINLY BEDDED	0.16 - 1.5 FEET
VERY THINLY BEDDED	0.03 - 0.16 FEET
THICKLY LAMINATED	0.008 - 0.03 FEET
THINLY LAMINATED	< 0.008 FEET

INDURATION

FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.

FRIABLE	RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.
MODERATELY INDURATED	GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.
INDURATED	GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.
EXTREMELY INDURATED	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.

TERMS AND DEFINITIONS

ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.

AQUIFER - A WATER BEARING FORMATION OR STRATA.

ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.

ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.

ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.

CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.

COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.

CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.

DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.

DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.

FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.

FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.

FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.

FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.

FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.

JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.

LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.

LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.

MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.

PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.

RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.

ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.

SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.

SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.

STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.

STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.

STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.

TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.

BENCH MARK: BM-2, NORTHING: 129680 EASTING: 2311618

ELEVATION: 22.60 FEET

NOTES:

FIAD - FILLED IMMEDIATELY AFTER DRILLING

DATE: 8-15-14

PROJECT REFERENCE NO.	SHEET NO.
BR-0139	3

SITE PLAN

0 50 100

FEET

SKEW = 90°

BEGIN APPROACH SLAB
–L– STA 18+39 +/–

BEGIN BRIDGE
–L– STA 18+64 +/–

END BRIDGE
–L– STA 22+49 +/–

END APPROACH SLAB
–L– STA 22+74 +/–

SAND HILL CREEK

18+00 19+00 20+00 21+00 22+00 23+00 24+00

EB1-B B1-A B2-B B3-A B4-B B5-A B6-B EB2-A

TO US 74

TO NC 87

–L– NC 133 RIVER RD

SAND HILL CREEK

WOODED

SANDHILL CREEK/POND
(SWAMP/MARSH AREA)

TYPE-III

GREU TL-3

0	100	200

FEET

VE = 5

PROJECT REFERENCE NO.	SHEET NO.
BR-0139	4

PROFILE – BRIDGE ON NC 133
BORINGS PROJECTED ONTO –L–

(A) **ROADWAY EMBANKMENT:** VERY LOOSE TO MEDIUM DENSE, LIGHT BROWN, BROWN, LIGHT GRAY, DARK GRAY, AND TAN, SAND, SILTY SAND, AND CLAYEY SAND (A-3, A-2-4, A-2-6), WITH TRACE CLAY AND ORGANICS, MOIST TO SATURATED

(B) **ALLUVIAL:** VERY SOFT TO SOFT, DARK BROWN AND GRAY, MUCK, SANDY MUCK, AND SOFT, DARK BROWN, CLAY WITH LITTLE ORGANICS, CONTAINS WOOD FRAGMENTS, AND LOOSE TO MEDIUM DENSE, DARK BROWN AND GRAY, SAND WITH LITTLE TO MODERATE ORGANICS, SATURATED

(C) **ALLUVIAL:** VERY LOOSE TO MEDIUM DENSE, LIGHT BROWN, DARK BROWN, DARK GRAY, GRAY, TAN, AND ORANGE, SAND AND SILTY SAND (A-1-b, A-3, A-2-4), WITH TRACE ORGANICS, CONTAINS GRAVEL, MOIST TO SATURATED

(D) **ALLUVIAL:** VERY SOFT TO SOFT, LIGHT BROWN, DARK BROWN, GRAY AND ORANGE, SANDY CLAY (A-6), WET

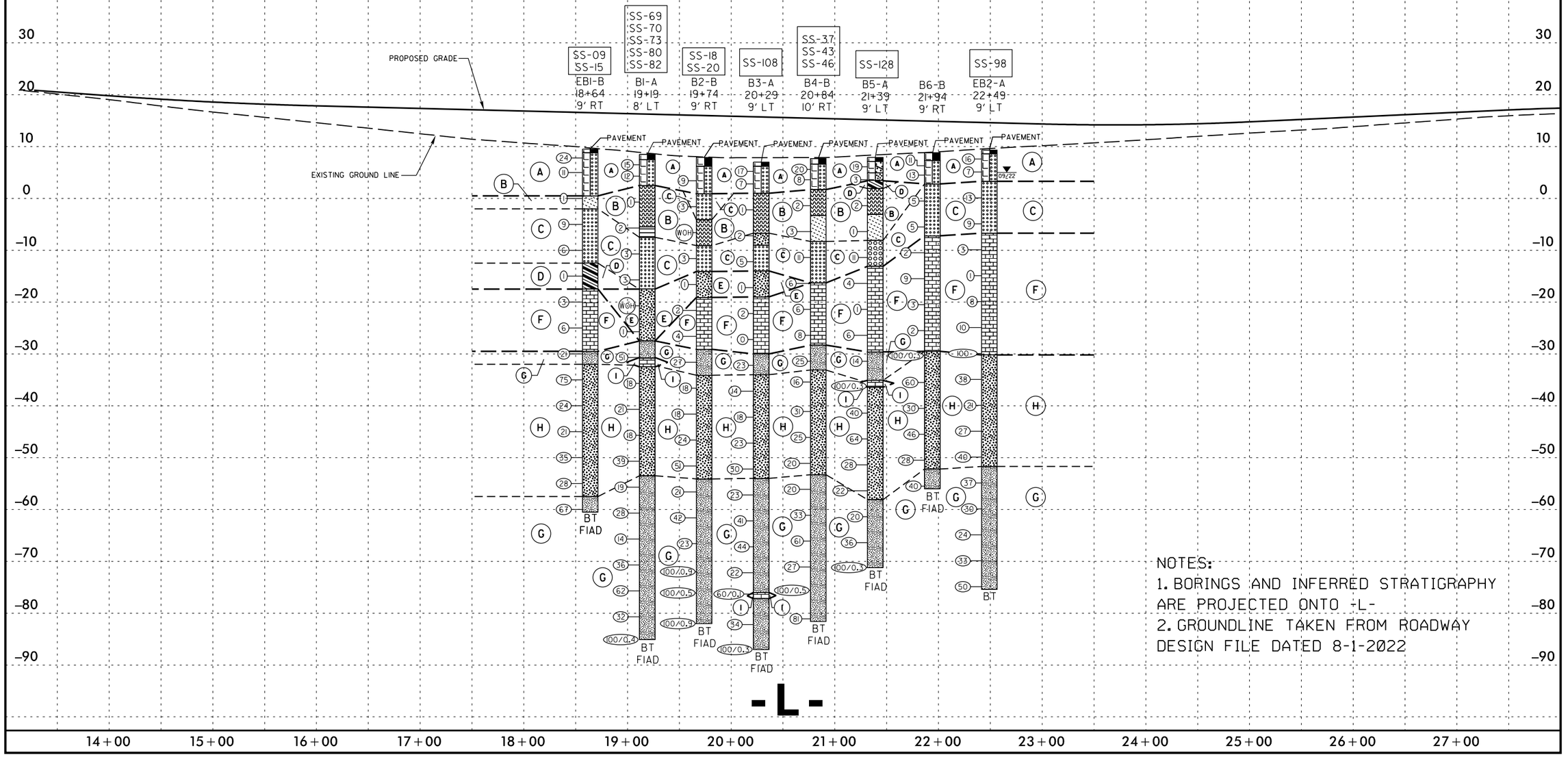
(E) **COASTAL PLAIN:** VERY LOOSE, LIGHT GRAY, GREEN, AND BROWN, SILTY SAND (A-2-4), WITH LITTLE CLAY, CONTAINS SHELL AND LIMESTONE FRAGMENTS, SATURATED (WACCAMAW FORMATION)

(F) **COASTAL PLAIN SEDIMENTARY ROCK:** SOFT TO MODERATELY HARD, LIGHT GRAY AND GRAY, LIMESTONE WITH SAND LAYERS (WACCAMAW FORMATION)

(G) **COASTAL PLAIN:** STIFF TO HARD, GRAY, DARK GRAY, AND GREEN, SANDY SILT (A-4), WITH CEMENTED SAND LAYERS, WITH TRACE TO SOME CLAY, MICACEOUS, WET (PEEDEE FORMATION)

(H) **COASTAL PLAIN:** MEDIUM DENSE TO VERY DENSE, GRAY, AND DARK GRAY, SILTY SAND (A-2-4), WITH CEMENTED SAND LAYERS, WITH TRACE TO SOME CLAY, SATURATED (PEEDEE FORMATION)

(I) **COASTAL PLAIN SEDIMENTARY ROCK:** MODERATELY HARD TO VERY HARD, GRAY AND DARK GRAY, FOSSILIFEROUS SANDSTONE, CALCAREOUS (PEEDEE FORMATION)



NOTES:
1. BORINGS AND INFERRED STRATIGRAPHY ARE PROJECTED ONTO -L-
2. GROUNDLINE TAKEN FROM ROADWAY DESIGN FILE DATED 8-1-2022

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67139.1.1	**TIP** BR-0139	**COUNTY** BRUNSWICK	**GEOLOGIST** J. Holland	
SITE DESCRIPTION BRIDGE ON NC 133 (RIVER ROAD) OVER SAND HILL CREEK				**GROUND WTR (ft)**
BORING NO. EB1-B	**STATION** 18+64	**OFFSET** 9 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 9.5 ft	**TOTAL DEPTH** 70.0 ft	**NORTHING** 129,252	**EASTING** 2,311,907	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE BRI1424 CME-45C 83% 08/24/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER M. Radford	**START DATE** 08/25/22	**COMP. DATE** 08/25/22	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
10											
	8.8	0.7	9	9	15	24		W		9.5 GROUND SURFACE	0.0
	6.0	3.5								8.8 **ROADWAY EMBANKMENT** 0.7' ASPHALT GRAY, BROWN, AND TAN, SAND (A-3), WITH TRACE CLAY	0.7
5			5	5	6	11		Sat.			
	1.0	8.5								0.5 **ALLUVIAL** DARK GRAY, MODERATELY ORGANIC SAND	9.0
0			1	1	WOH	1		Sat.		-2.0 TAN AND GRAY, SAND (A-3)	11.5
	-4.0	13.5									
-5			4	4	5	9		Sat.			
	-9.0	18.5									
-10			2	3	3	6		Sat.			
	-14.0	23.5								-12.5 DARK GRAY, BROWN, AND ORANGE, SANDY CLAY (A-6)	22.0
-15			1	WOH	1	1		W			
	-19.0	28.5								-17.5 **COASTAL PLAIN SEDIMENTARY ROCK** SOFT, GRAY, LIMESTONE, WITH SAND LAYERS (WACCAMAW FORMATION)	27.0
-20			1	2	1	3					
	-24.0	33.5									
-25			4	3	3	6					
	-29.0	38.5								-29.5 **COASTAL PLAIN** DARK GRAY, SANDY SILT (A-4), WITH TRACE CLAY, (PEEDEE FORMATION)	39.0
-30			18	15	6	21	SS-09	32%		-32.0 GRAY, SILTY SAND (A-2-4), WITH CEMENTED SAND LAYERS, CONTAINS SHELL FRAGMENTS (PEEDEE FORMATION)	41.5
	-34.0	43.5									
-35			29	36	39	75		Sat.			
	-39.0	48.5									
-40			8	12	12	24		Sat.			
	-44.0	53.5									
-45			9	8	13	21		Sat.			
	-49.0	58.5									
-50			23	15	20	35		Sat.			
	-54.0	63.5									
-55			7	12	16	28		Sat.			
	-59.0	68.5								-57.5 DARK GRAY, SANDY SILT (A-4(0)), WITH CEMENTED SAND LAYERS (PEEDEE FORMATION)	67.0
-60			12	42	25	67	SS-15	27%		-60.5 Boring Terminated at Elevation -60.5 ft in sandy SILT (A-4) (Peedee Formation)	70.0

NCDOT BORE DOUBLE BRUNSWICK COUNTY BRIDGE.GPJ NC_DOT.GDT 10/12/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67139.1.1	**TIP** BR-0139	**COUNTY** BRUNSWICK	**GEOLOGIST** J. Rose	
SITE DESCRIPTION BRIDGE ON NC 133 (RIVER ROAD) OVER SAND HILL CREEK				**GROUND WTR (ft)**
BORING NO. B1-A	**STATION** 19+19	**OFFSET** 8 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 8.5 ft	**TOTAL DEPTH** 93.6 ft	**NORTHING** 129,211	**EASTING** 2,311,947	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE BRI1424 CME-45C 83% 08/24/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER M. Radford	**START DATE** 09/02/22	**COMP. DATE** 09/02/22	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft) DEPTH (ft)
10										
										8.5 GROUND SURFACE 0.0
	7.5	1.0	14	9	6	15		W		7.5 **ROADWAY EMBANKMENT** 1.0 ASPHALT 1.0' LIGHT BROWN AND GRAY, SAND (A-3)
5	5.3	3.2	4	3	9	12		Sat.		
										2.5 **ALLUVIAL** 6.0
0	0.3	8.2	WOH	WOH	1	1	SS-69	Sat.		DARK BROWN, MUCK, CONTAINS ROOT FRAGMENTS
-5	-4.7	13.2	1	1	1	2	SS-70	53%		-5.5 14.0
								53%		-7.5 DARK BROWN, CLAY (A-7-6(16)), WITH LITTLE ORGANICS, CONTAINS ROOT FRAGMENTS 16.0 LIGHT BROWN, SAND (A-3)
-10	-9.7	18.2	3	2	1	3		Sat.		
-15	-14.7	23.2	2	2	1	3		Sat.		
-20	-19.7	28.2	WOH	WOH	WOH	0	SS-73	27%		-17.5 **COASTAL PLAIN** 26.0 LIGHT GRAY, BROWN, AND GREEN, SILTY SAND (A-2-4(0)), WITH LITTLE CLAY (WACCAMAW FORMATION)
-25	-24.7	33.2	WOH	WOH	1	1		Sat.		
										-27.5 36.0 DARK GRAY, SANDY SILT (A-4), WITH TRACE CLAY, WITH CEMENTED SAND LAYERS (PEEDEE FORMATION)
-30	-29.7	38.2	4	5	46	51		W		-30.8 39.3 **COASTAL PLAIN SEDIMENTARY ROCK**
										-32.5 HARD, DARK GRAY, FOSSILIFEROUS SANDSTONE (A-1-b), CALCAREOUS (PEEDEE FORMATION) 41.0
-35	-34.7	43.2	7	7	11	18		Sat.		**COASTAL PLAIN** DARK GRAY, SILTY SAND (A-2-4), WITH TRACE CLAY, WITH CEMENTED SAND LAYERS (PEEDEE FORMATION)
-40	-39.7	48.2	13	9	12	21		Sat.		
-45	-44.7	53.2	11	8	10	18		Sat.		
-50	-49.7	58.2	19	18	21	39		Sat.		
-55	-54.7	63.2	10	10	9	19	SS-80	30%		-53.5 DARK GRAY, SANDY SILT (A-4(0)), (A-4(2)), WITH LITTLE TO SOME CLAY, WITH CEMENTED SAND LAYERS (PEEDEE FORMATION) 62.0
-60	-59.7	68.2	6	7	21	28		W		
-65	-64.7	73.2	6	5	9	14	SS-82	28%		
-70	-69.7	78.2								

NCDOT BORE DOUBLE BRUNSWICK COUNTY BRIDGE.GPJ NC_DOT.GDT 10/12/22

WBS 67139.1.1	**TIP** BR-0139	**COUNTY** BRUNSWICK	**GEOLOGIST** J. Rose	
SITE DESCRIPTION BRIDGE ON NC 133 (RIVER ROAD) OVER SAND HILL CREEK				**GROUND WTR (ft)**
BORING NO. B1-A	**STATION** 19+19	**OFFSET** 8 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 8.5 ft	**TOTAL DEPTH** 93.6 ft	**NORTHING** 129,211	**EASTING** 2,311,947	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE BRI1424 CME-45C 83% 08/24/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER M. Radford	**START DATE** 09/02/22	**COMP. DATE** 09/02/22	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
-70										Match Line
			30	24	12	36		W		DARK GRAY, SANDY SILT (A-4(0)), (A-4(2)), WITH LITTLE TO SOME CLAY, WITH CEMENTED SAND LAYERS (PEEDEE FORMATION) *(continued)*
-75	-74.7	83.2	43	38	24	62		W		
-80	-79.7	88.2	7	7	25	32		W		
-85	-84.7	93.2	100/0.4			100/0.4		W		-85.1 93.6 Boring Terminated at Elevation -85.1 ft in sandy SILT (A-4) (Peedee Formation)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67139.1.1	**TIP** BR-0139	**COUNTY** BRUNSWICK	**GEOLOGIST** J. Rose	
SITE DESCRIPTION BRIDGE ON NC 133 (RIVER ROAD) OVER SAND HILL CREEK				**GROUND WTR (ft)**
BORING NO. B2-B	**STATION** 19+74	**OFFSET** 9 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 7.9 ft	**TOTAL DEPTH** 89.9 ft	**NORTHING** 129,154	**EASTING** 2,311,956	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE BRI5104 CME-45C 75% 03/30/2022		**DRILL METHOD** Mud Rotary		**HAMMER TYPE** Automatic
DRILLER G. Ester	**START DATE** 08/25/22	**COMP. DATE** 08/25/22	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft) DEPTH (ft)
10										
										7.9 0.0 GROUND SURFACE
										6.2 1.7 **ROADWAY EMBANKMENT** 1.7' ASPHALT DARK BROWN AND GRAY, SAND (A-3)
5	4.4	3.5	4	4	5	9		M		
										0.9 7.0 **ALLUVIAL** DARK GRAY AND BROWN, SAND (A-3), WITH TRACE ORGANICS
0	-0.6	8.5	4	1	2	3		W		
										-4.1 12.0 DARK BROWN, MUCK
-5	-5.6	13.5	WOH	WOH	WOH	0	SS-18	Sat.		
										-9.1 17.0 LIGHT AND DARK BROWN, SAND (A-3)
-10	-10.6	18.5	WOH	1	2	3		Sat.		
										-14.1 22.0 **COASTAL PLAIN** BROWN, GRAY, AND GREEN, SILTY SAND (A-2-4(0)), CONTAINS SHELL AND LIMESTONE FRAGMENTS (WACCAMAW FORMATION)
-15	-15.6	23.5	1	0	1	1	SS-20	35%		-19.1 27.0 **COASTAL PLAIN SEDIMENTARY ROCK** SOFT,LIGHT GRAY, LIMESTONE, WITH SAND LAYERS (WACCAMAW FORMATION)
-20	-20.6	28.5	1	1	1	2				
-25	-25.6	33.5	1	3	1	4				
-30	-30.6	38.5	4	6	21	27		W		-29.1 37.0 **COASTAL PLAIN** DARK GRAY, SANDY SILT (A-4), WITH TRACE CLAY, MICACEOUS (PEEDEE FORMATION)
-35	-35.6	43.5	5	8	10	18		Sat.		-34.1 42.0 DARK GRAY, SILTY SAND (A-2-4), WITH CEMENTED SAND LAYERS (PEEDEE FORMATION)
-40	-40.6	48.5	6	8	10	18		Sat.		
-45	-45.6	53.5	8	10	14	24		Sat.		
-50	-50.6	58.5	15	21	30	51		Sat.		
-55	-55.6	63.5	7	9	12	21		W		-54.1 62.0 DARK GRAY AND GRAY, SANDY SILT (A-4), WITH LITTLE TO SOME CLAY, WITH CEMENTED SAND LAYERS (PEEDEE FORMATION)
-60	-60.6	68.5	9	12	30	42		W		
-65	-65.6	73.5	6	8	15	23		W		
-70										

WBS 67139.1.1	**TIP** BR-0139	**COUNTY** BRUNSWICK	**GEOLOGIST** J. Rose	
SITE DESCRIPTION BRIDGE ON NC 133 (RIVER ROAD) OVER SAND HILL CREEK				**GROUND WTR (ft)**
BORING NO. B2-B	**STATION** 19+74	**OFFSET** 9 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 7.9 ft	**TOTAL DEPTH** 89.9 ft	**NORTHING** 129,154	**EASTING** 2,311,956	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE BRI5104 CME-45C 75% 03/30/2022		**DRILL METHOD** Mud Rotary		**HAMMER TYPE** Automatic
DRILLER G. Ester	**START DATE** 08/25/22	**COMP. DATE** 08/25/22	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
-70						Match Line				
	-70.6	78.5	21	60	40/0.4	100/0.9		W		DARK GRAY AND GRAY, SANDY SILT (A-4), WITH LITTLE TO SOME CLAY, WITH CEMENTED SAND LAYERS (PEEDEE FORMATION) *(continued)*
-75	-75.6	83.5	100/0.5			100/0.5		W		
-80	-80.6	88.5	10	60	40/0.4	100/0.9		W		-82.0 89.9 Boring Terminated at Elevation -82.0 ft in sandy SILT (A-4) (Peedee Formation)

NCDOT BORE DOUBLE BRUNSWICK COUNTY BRIDGE.GPJ NC_DOT.GDT 10/12/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67139.1.1	**TIP** BR-0139	**COUNTY** BRUNSWICK	**GEOLOGIST** J. Rose	
SITE DESCRIPTION BRIDGE ON NC 133 (RIVER ROAD) OVER SAND HILL CREEK				**GROUND WTR (ft)**
BORING NO. B3-A	**STATION** 20+29	**OFFSET** 9 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 7.0 ft	**TOTAL DEPTH** 94.0 ft	**NORTHING** 129,113	**EASTING** 2,311,997	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE BRI1424 CME-45C 83% 08/24/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER M. Radford	**START DATE** 09/07/22	**COMP. DATE** 09/07/22	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
10										
	6.2	0.8	16	10	7	17		W		7.0 / 0.0 GROUND SURFACE
5	3.8	3.2	3	5	2	7		Sat.		6.2 / 0.8 **ROADWAY EMBANKMENT** ASPHALT 0.8' GRAY AND BROWN, SAND (A-3)
0	-1.2	8.2	WOH	WOH	1	1		Sat.		1.0 / 6.0 **ALLUVIAL** DARK BROWN, MUCK, CONTAINS ROOT FRAGMENTS
-5	-6.2	13.2	WOH	1	1	2	SS-108	35%		-6.7 / 13.7 DARK BROWN, SILTY SAND (A-2-4(0)), WITH TRACE ORGANICS
-10	-9.0	16.0								LIGHT BROWN TO BROWN, SAND (A-3)
	-11.2	18.2	1	2	3	5		Sat.		-14.0 / 21.0 **COASTAL PLAIN** LIGHT GREEN, GRAY, AND BROWN, SILTY SAND (A-2-4), WITH LITTLE CLAY (WACCAMAW FORMATION)
-15	-16.2	23.2	WOH	WOH	1	1		Sat.		
-20	-19.0	26.0								**COASTAL PLAIN SEDIMENTARY ROCK** SOFT, LIGHT GRAY AND LIGHT BROWN, LIMESTONE, WITH SAND LAYERS (WACCAMAW FORMATION)
	-21.2	28.2	1	1	1	2				
-25	-26.2	33.2	1	0	0	0				
-30	-30.0	37.0								**COASTAL PLAIN** DARK GRAY, SANDY SILT (A-4), WITH TRACE CLAY (PEEDEE FORMATION)
	-31.2	38.2	6	6	17	23		W		
-35	-34.0	41.0								GRAY, SILTY SAND (A-2-4) (PEEDEE FORMATION)
	-36.2	43.2	8	6	8	14		Sat.		
-40	-41.2	48.2	7	8	10	18		Sat.		
-45	-46.2	53.2	9	12	11	23		Sat.		
-50	-51.2	58.2	16	17	13	30		Sat.		
-55	-54.0	61.0								DARK GRAY, GRAY, AND GREEN, SANDY SILT (A-4), WITH LITTLE TO SOME CLAY, WITH CEMENTED SAND LAYERS (PEEDEE FORMATION)
	-56.2	63.2	6	10	13	23		W		
-60	-61.2	68.2	12	16	25	41		W		
-65	-66.2	73.2	11	12	32	44		W		
-70										

NCDOT BORE DOUBLE BRUNSWICK COUNTY BRIDGE.GPJ NC_DOT.GDT 10/12/22

WBS 67139.1.1	**TIP** BR-0139	**COUNTY** BRUNSWICK	**GEOLOGIST** J. Rose	
SITE DESCRIPTION BRIDGE ON NC 133 (RIVER ROAD) OVER SAND HILL CREEK				**GROUND WTR (ft)**
BORING NO. B3-A	**STATION** 20+29	**OFFSET** 9 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 7.0 ft	**TOTAL DEPTH** 94.0 ft	**NORTHING** 129,113	**EASTING** 2,311,997	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE BRI1424 CME-45C 83% 08/24/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER M. Radford	**START DATE** 09/07/22	**COMP. DATE** 09/07/22	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
-70						Match Line				
	-71.2	78.2	10	10	12	22		W		DARK GRAY, GRAY, AND GREEN, SANDY SILT (A-4), WITH LITTLE TO SOME CLAY, WITH CEMENTED SAND LAYERS (PEEDEE FORMATION) *(continued)*
-75	-76.2	83.2	60/0.1			60/0.1				-76.0 / 83.0 **COASTAL PLAIN SEDIMENTARY ROCK** -77.2 / 84.2 VERY HARD, DARK GRAY FOSSILIFEROUS SANDSTONE, CALCAREOUS (PEEDEE FORMATION)
-80	-81.2	88.2	37	15	19	34		W		**COASTAL PLAIN** DARK GRAY AND GRAY, SANDY SILT (A-4), WITH LITTLE TO SOME CLAY, WITH CEMENTED SAND LAYERS (PEEDEE FORMATION)
-85	-86.2	93.2	25	100/0.3		100/0.3		W		-87.0 / 94.0 Boring Terminated at Elevation -87.0 ft in sandy SILT (A-4) (Peedee Formation)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67139.1.1	**TIP** BR-0139	**COUNTY** BRUNSWICK	**GEOLOGIST** J. Rose	
SITE DESCRIPTION BRIDGE ON NC 133 (RIVER ROAD) OVER SAND HILL CREEK				**GROUND WTR (ft)**
BORING NO. B4-B	**STATION** 20+84	**OFFSET** 10 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 7.7 ft	**TOTAL DEPTH** 89.3 ft	**NORTHING** 129,055	**EASTING** 2,312,004	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE BRI1424 CME-45C 83% 08/24/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER M. Radford	**START DATE** 08/26/22	**COMP. DATE** 08/26/22	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
10										
	6.6	1.1	11	10	10	20		M		7.7 / 0.0 GROUND SURFACE
5	4.6	3.1	4	4	4	8		M		6.6 / 1.1 **ROADWAY EMBANKMENT** 1.1' ASPHALT; LIGHT GRAY, DARK GRAY, AND BROWN, SAND (A-3)
0	-0.4	8.1	WOH	1	1	2		Sat.		1.7 / 6.0 **ALLUVIAL** DARK BROWN, MUCK, CONTAINS ROOT FRAGMENTS
-5	-5.4	13.1	1	1	2	3	SS-37	49%		-3.3 / 11.0 DARK BROWN AND GRAY, SAND (A-3 (0)), WITH LITTLE ORGANICS
-10	-10.4	18.1	4	6	5	11		Sat.		-8.3 / 16.0 DARK BROWN AND GRAY, SAND (A-3)
-15	-15.4	23.1	3	3	3	6				-16.3 / 24.0 **COASTAL PLAIN SEDIMENTARY ROCK** SOFT, LIGHT GRAY, LIMSTONE, WITH SAND LAYERS (WACCAMAW FORMATION)
-20	-20.4	28.1	2	3	3	6				
-25	-25.4	33.1	4	5	3	8				
-30	-30.4	38.1	3	6	19	25		W		-28.3 / 36.0 **COASTAL PLAIN** DARK GRAY, SANDY SILT (A-4), WITH TRACE CLAY, WITH CEMENTED SAND LAYERS (PEEDEE FORMATION)
-35	-34.4	42.1	6	6	10	16	SS-43	23%		-33.1 / 40.8 GRAY, DARK GRAY, SILTY SAND (A-2-4(0)), WITH CEMENTED SAND LAYERS (PEEDEE FORMATION)
-40	-40.1	47.8	9	18	13	31		Sat.		
-45	-45.1	52.8	16	11	14	25		Sat.		
-50	-50.1	57.8	7	7	13	20	SS-46	30%		-53.3 / 61.0 DARK GRAY AND GRAY, SANDY SILT (A-4), WITH LITTLE TO SOME CLAY, WITH CEMENTED SAND LAYERS (PEEDEE FORMATION)
-55	-55.1	62.8	9	10	10	20		W		
-60	-60.1	67.8	12	15	18	33		W		
-65	-65.1	72.8	8	8	53	61		W		
-70										

NCDOT BORE DOUBLE BRUNSWICK COUNTY BRIDGE.GPJ NC_DOT.GDT 10/12/22

WBS 67139.1.1	**TIP** BR-0139	**COUNTY** BRUNSWICK	**GEOLOGIST** J. Rose	
SITE DESCRIPTION BRIDGE ON NC 133 (RIVER ROAD) OVER SAND HILL CREEK				**GROUND WTR (ft)**
BORING NO. B4-B	**STATION** 20+84	**OFFSET** 10 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 7.7 ft	**TOTAL DEPTH** 89.3 ft	**NORTHING** 129,055	**EASTING** 2,312,004	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE BRI1424 CME-45C 83% 08/24/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER M. Radford	**START DATE** 08/26/22	**COMP. DATE** 08/26/22	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
-70						Match Line				
	-70.1	77.8	6	16	11	27		W		DARK GRAY AND GRAY, SANDY SILT (A-4), WITH LITTLE TO SOME CLAY, WITH CEMENTED SAND LAYERS (PEEDEE FORMATION) *(continued)*
-75	-75.1	82.8	100/0.5			100/0.5		W		
-80	-80.1	87.8	27	50	31	81		W		-81.6 / 89.3 Boring Terminated at Elevation -81.6 ft in sandy SILT (A-4) (Peedee Formation)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67139.1.1	**TIP** BR-0139	**COUNTY** BRUNSWICK	**GEOLOGIST** J. Rose	
SITE DESCRIPTION BRIDGE ON NC 133 (RIVER ROAD) OVER SAND HILL CREEK				**GROUND WTR (ft)**
BORING NO. B5-A	**STATION** 21+39	**OFFSET** 9 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 7.9 ft	**TOTAL DEPTH** 79.1 ft	**NORTHING** 129,014	**EASTING** 2,312,046	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE BRI1424 CME-45C 83% 08/24/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER M. Radford	**START DATE** 09/08/22	**COMP. DATE** 09/08/22	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
10										
	7.1	0.8	24	12	7	19		W		7.9 / 0.0 GROUND SURFACE 7.1 / 0.8 **ROADWAY EMBANKMENT** ASPHALT 0.8'
5	4.6	3.3	4	2	1	3		W		4.9 / 3.0 BROWN AND GRAY, CLAYEY SAND (A-2-6) 3.5 / 4.4 BROWN AND GRAY, SILTY SAND (A-2-4)
0	-0.4	8.3	WOH	1	1	2		Sat.		1.9 / 6.0 **ALLUVIAL** LIGHT BROWN AND GRAY, SANDY CLAY (A-6) DARK BROWN AND GRAY, MUCK
-5	-5.4	13.3	WOH	WOH	1	1	SS-128	Sat.		-3.1 / 11.0 DARK BROWN AND GRAY, SAND (A-3), WITH LITTLE ORGANICS
-10	-10.4	18.3	7	7	4	11		Sat.		-8.1 / 16.0 LIGHT BROWN AND GRAY, FINE TO COARSE SAND (A-1-b), CONTAINS GRAVEL
-15	-15.4	23.3	3	2	2	4				-13.1 / 21.0 **COASTAL PLAIN SEDIMENTARY ROCK** SOFT, LIGHT GRAY, LIMESTONE, WITH SAND LAYERS (WACCAMAW FORMATION)
-20	-20.4	28.3	WOH	WOH	1	1				
-25	-25.4	33.3	5	3	3	6				
-30	-30.4	38.3	15	8	6	14		W		-29.6 / 37.5 **COASTAL PLAIN** DARK GRAY, SANDY SILT (A-4), WITH TRACE CLAY, WITH CEMENTED SAND LAYERS (PEEDEE FORMATION)
-35	-35.4	43.3	46	100/0.3		100/0.3				-35.1 / 43.0 **COASTAL PLAIN SEDIMENTARY ROCK** MODERATELY HARD, GRAY FOSSILIFEROUS SANDSTONE, CALCAREOUS (PEEDEE FORMATION) -36.4 / 44.3
-40	-40.4	48.3	6	20	20	40		Sat.		**COASTAL PLAIN** GRAY, DARK GRAY, SILTY SAND (A-2-4), WITH CEMENTED SAND LAYERS (PEEDEE FORMATION)
-45	-45.4	53.3	33	33	31	64		Sat.		
-50	-50.4	58.3	13	12	16	28		Sat.		
-55	-55.4	63.3	13	12	10	22		Sat.		
-60	-60.4	68.3	7	8	12	20		W		-58.1 / 66.0 DARK GRAY, SANDY SILT (A-4), WITH LITTLE TO SOME CLAY, WITH CEMENTED SAND LAYERS (PEEDEE FORMATION)
-65	-65.4	73.3	14	17	19	36		W		
-70										

NCDOT BORE DOUBLE BRUNSWICK COUNTY BRIDGE.GPJ NC_DOT.GDT 10/12/22

WBS 67139.1.1	**TIP** BR-0139	**COUNTY** BRUNSWICK	**GEOLOGIST** J. Rose	
SITE DESCRIPTION BRIDGE ON NC 133 (RIVER ROAD) OVER SAND HILL CREEK				**GROUND WTR (ft)**
BORING NO. B5-A	**STATION** 21+39	**OFFSET** 9 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 7.9 ft	**TOTAL DEPTH** 79.1 ft	**NORTHING** 129,014	**EASTING** 2,312,046	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE BRI1424 CME-45C 83% 08/24/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER M. Radford	**START DATE** 09/08/22	**COMP. DATE** 09/08/22	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
-70						Match Line				
	-70.4	78.3	7	100/0.3		100/0.3		W		-71.2 / 79.1 DARK GRAY, SANDY SILT (A-4), WITH LITTLE TO SOME CLAY, WITH CEMENTED SAND LAYERS (PEEDEE FORMATION) Boring Terminated at Elevation -71.2 ft in sandy SILT (A-4) (Peedee Formation)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67139.1.1	**TIP** BR-0139	**COUNTY** BRUNSWICK	**GEOLOGIST** J. Rose	
SITE DESCRIPTION BRIDGE ON NC 133 (RIVER ROAD) OVER SAND HILL CREEK				**GROUND WTR (ft)**
BORING NO. B6-B	**STATION** 21+94	**OFFSET** 9 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 8.8 ft	**TOTAL DEPTH** 64.8 ft	**NORTHING** 128,957	**EASTING** 2,312,054	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE BRI1424 CME-45C 83% 08/24/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER M. Radford	**START DATE** 08/29/22	**COMP. DATE** 08/29/22	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
10										8.8 GROUND SURFACE	0.0
	7.3	1.5								7.3 **ROADWAY EMBANKMENT** 1.5' ASPHALT	1.5
5	5.5	3.3	14	7	11	18		M		DARK BROWN, SAND (A-3), WITH TRACE ORGANICS	
			5	6	7	13		M			
										2.8 **ALLUVIAL**	6.0
0	0.5	8.3	3	3	2	5		Sat.		DARK BROWN AND TAN, SAND (A-3), WITH TRACE ORGANICS	
-5	-4.5	13.3	2	2	3	5		Sat.			
										-7.2 **COASTAL PLAIN SEDIMENTARY ROCK**	16.0
-10	-9.5	18.3	2	1	1	2				SOFT, LIGHT GRAY, LIMESTONE, WITH SAND LAYERS (WACCAMAW FORMATION)	
-15	-14.5	23.3	6	5	4	9					
-20	-19.5	28.3	3	2	1	3					
-25	-24.5	33.3	2	1	1	2					
-30	-29.5	38.3	100/0.3			100/0.3		Sat.		-29.5 **COASTAL PLAIN** GRAY, SILTY SAND (A-2-4), WITH LITTLE CLAY, WITH CEMENTED SAND LAYERS (PEEDEE FORMATION)	38.3
-35	-34.5	43.3	15	30	30	60		Sat.			
-40	-39.5	48.3	25	15	15	30		Sat.			
-45	-44.5	53.3	12	25	21	46		Sat.			
-50	-49.5	58.3	8	10	18	28		Sat.		-52.2 DARK GRAY AND GRAY, SANDY SILT (A-4), WITH LITTLE TO SOME CLAY, WITH CEMENTED SAND LAYERS (PEEDEE FORMATION)	61.0
-55	-54.5	63.3	17	20	20	40		W		-56.0 Boring Terminated at Elevation -56.0 ft in sandy SILT (A-4) (Peedee Formation)	64.8

NCDOT BORE DOUBLE BRUNSWICK COUNTY BRIDGE.GPJ NC_DOT.GDT 10/12/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67139.1.1	**TIP** BR-0139	**COUNTY** BRUNSWICK	**GEOLOGIST** J. Rose
SITE DESCRIPTION BRIDGE ON NC 133 (RIVER ROAD) OVER SAND HILL CREEK			**GROUND WTR (ft)**
BORING NO. EB2-A	**STATION** 22+49	**OFFSET** 9 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 9.3 ft	**TOTAL DEPTH** 84.7 ft	**NORTHING** 128,916	**EASTING** 2,312,095	**24 HR.** 4.3
DRILL RIG/HAMMER EFF./DATE BRI1424 CME-45C 83% 08/24/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic
DRILLER M. Radford	**START DATE** 09/02/22	**COMP. DATE** 09/02/22	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
10										ELEV. (ft) DEPTH (ft)
	8.6	0.7	7	7	9	16		M		9.3 0.0 GROUND SURFACE
5	6.1	3.2	7	5	2	7				8.6 0.7 **ROADWAY EMBANKMENT** 0.7' ASPHALT LIGHT BROWN, SAND (A-3)
0	1.1	8.2	7	7	6	13		Sat.		3.3 6.0 **ALLUVIAL** LIGHT GRAY, ORANGE, AND TAN, SAND (A-3)
-5	-3.9	13.2	3	4	5	9		Sat.		
-10	-8.9	18.2	1	1	2	3				-6.7 16.0 **COASTAL PLAIN SEDIMENTARY ROCK** SOFT, LIGHT GRAY AND ORANGE, LIMESTONE, WITH SAND LAYERS (WACCAMAW FORMATION)
-15	-13.9	23.2	WOH	WOH	1	1				
-20	-18.9	28.2	2	3	5	8				
-25	-23.9	33.2	5	7	3	10				
-30	-28.9	38.2	5	5	95	100				-30.2 39.5 **COASTAL PLAIN** DARK GRAY AND GRAY , SILTY SAND (A-2-4(0)), WITH LITTLE CLAY WITH CEMENTED SAND LAYERS (PEEDEE FORMATION)
-35	-33.9	43.2	16	18	20	38		Sat.		
-40	-38.9	48.2	5	10	11	21		Sat.		
-45	-43.9	53.2	6	9	18	27	SS-98	26%		
-50	-48.9	58.2	5	16	24	40		Sat.		
-55	-53.9	63.2	17	20	17	37		W		-51.7 61.0 DARK GRAY, GRAY, AND GREEN, SANDY SILT (A-4), WITH LITTLE TO SOME CLAY, WITH CEMENTED SAND LAYERS (PEEDEE FORMATION)
-60	-58.9	68.2	13	14	16	30		W		
-65	-63.9	73.2	10	12	12	24		W		
-70	-68.9	78.2	7	16	17	33		W		

WBS 67139.1.1	**TIP** BR-0139	**COUNTY** BRUNSWICK	**GEOLOGIST** J. Rose
SITE DESCRIPTION BRIDGE ON NC 133 (RIVER ROAD) OVER SAND HILL CREEK			**GROUND WTR (ft)**
BORING NO. EB2-A	**STATION** 22+49	**OFFSET** 9 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 9.3 ft	**TOTAL DEPTH** 84.7 ft	**NORTHING** 128,916	**EASTING** 2,312,095	**24 HR.** 4.3
DRILL RIG/HAMMER EFF./DATE BRI1424 CME-45C 83% 08/24/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic
DRILLER M. Radford	**START DATE** 09/02/22	**COMP. DATE** 09/02/22	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
-70						Match Line				
-75	-73.9	83.2	37	30	20	50		W		DARK GRAY, GRAY, AND GREEN, SANDY SILT (A-4), WITH LITTLE TO SOME CLAY, WITH CEMENTED SAND LAYERS (PEEDEE FORMATION) *(continued)* -75.4 84.7 Boring Terminated at Elevation -75.4 ft in sandy SILT (A-4) (Peedee Formation)

NCDOT BORE DOUBLE BRUNSWICK COUNTY BRIDGE.GPJ NC_DOT.GDT 10/12/22

BRIDGE ON NC 133 (RIVER ROAD) OVER SAND HILL CREEK

SOIL TEST RESULTS

BORING	SAMPLE			DEPTH INTERVAL	AASHTO	LIQUID	PLASTICITY	% BY WEIGHT				% PASSING (SIEVES)			%	%
NO.	NO.	STATION	OFFSET	(FEET)	CLASS.	LIMIT	INDEX	C.SAND	F.SAND	SILT	CLAY	10	40	200	MOISTURE	ORGANIC
EB1-B	SS-09	9' RT	18+64	39.0-40.0	A-4(0)	25	0	7.3	67.4	17.4	7.8	99.6	98	36	32	-
EB1-B	SS-15	9' RT	18+64	68.5-70.0	A-4(0)	26	3	2.3	58.2	23.4	16.1	100	99	47	27	-
B1-A	SS-69	8' LT	19+19	8.2-9.7	-	-	-	-100	0.0	-	-	-	-	-	-	63.8
B1-A	SS-70	8' LT	19+19	14.0-14.7	A-7-6(16)	46	26	9.9	24.1	27.5	38.5	99.0	94	69	53	7.5
B1-A	SS-73	8' LT	19+19	28.2-29.7	A-2-4(0)	25	6	49.9	34.3	5.8	10.0	99.6	75	17	27	-
B1-A	SS-80	8' LT	19+19	63.2-64.7	A-4(0)	22	4	0.7	64.2	23.2	11.9	100	100	42	30	-
B1-A	SS-82	8' LT	19+19	73.2-74.7	A-4(2)	31	9	1.1	53.2	21.4	24.3	99.9	100	53	28	-
B2-B	SS-18	9' RT	19+47	13.5-15.0	-	-	-	-100	0.0	-	-	-	-	-	-	44.1
B2-B	SS-20	9' RT	19+74	23.5-25.0	A-2-4(0)	27	5	34.3	47.9	4.7	13.1	99.9	87	20	35	-
B3-A	SS-108	9' LT	20+29	13.7-14.7	A-2-4(0)	NP	NP	5.9	86.0	8.1	0.0	99.6	99	11	35	2.3
B4-B	SS-37	10' RT	20+84	13.1-14.6	A-3(0)	NP	NP	15.3	82.6	2.1	0.0	99.5	98	3	49	3.2
B4-B	SS-43	10' RT	20+84	42.8-44.3	A-2-4(0)	17	2	13.8	59.2	12.0	15.0	99.9	97	28	23	-
B4-B	SS-46	10' RT	20+84	57.8-59.3	A-2-4(0)	NP	NP	4.1	82.2	8.7	4.9	100	98	19	30	-
B5-A	SS-128	9' LT	21+39	13.3-14.8	-	-	-	-100	0.0	-	-	-	-	-	-	3.7
EB2-A	SS-98	9' LT	22+49	53.2-54.7	A-2-4(0)	NP	NP	1.9	75.9	11.3	11.0	100	100	25	26	-

SITE PHOTOGRAPHS
REPLACE CULVERT NO. 003 OVER SAND HILL CREEK AND TWO OTHER CULVERTS ON NC 133 (RIVER ROAD)

View of NC 133 looking south.

View of NC 133 looking North.

View of Sand Hill Creek looking west southwest.

View of Sand Hill Creek looking east northeast.