REFERENCE: B-4926

PROJECT: 40163

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4926	1	15

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY LENOIR

PROJECT DESCRIPTION BRIDGE NO. 20 AND BRIDGE NO. 34 ON NC 55 OVER THE NEUSE RIVER

SITE DESCRIPTION BRIDGE NO. 20 ON NC 55 OVER THE NEUSE RIVER AT –L– STA. 25+45

INVENTORY

CONTENTS

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

NOTES:
1. THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.
2. BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

PERSONNEL

J. HOWARD

K. PLUMMER

B. POWELL

L. GONZALEZ

INVESTIGATED BY WOOD E&IS, INC.

DRAWN BY R. RAHIE

CHECKED BY C. T. TANG

SUBMITTED BY M. LEAR

DATE FEBRUARY, 2022

WOOD E&IS, INC.
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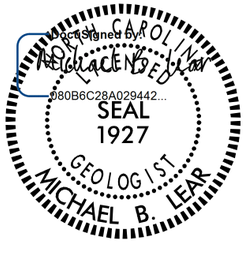

4/18/2022

SIGNATURE DATE

PROJECT REFERENCE NO.	SHEET NO.
B-4926	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	OTHER MATERIAL	
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%	TRACE	1 - 10%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%	LITTLE	10 - 20%
MODERATELY ORGANIC	5 - 10%	12 - 20%	SOME	20 - 35%
HIGHLY ORGANIC	> 10%	> 20%	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
- [X] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 4" CONTINUOUS FLIGHT AUGER
- [ ] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [X] CASING [ ] W/ ADVANCER
- [X] TRICONE 3 " STEEL TEETH
- [ ] TRICONE _____ " TUNG.-CARB.
- [ ] CORE BIT (4-INCH DIM.) _____
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

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

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [ ] HAND AUGER
- [ ] SOUNDING ROD
- [ ] VANE SHEAR TEST
- [ ] DUAL MASS DCP

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: BL-3 (-BL- 16+96)

ELEVATION: 37.22 FEET

NOTES:

FIAD = FILLED IMMEDIATELY AFTER DRILLING

DATE: 8-15-14

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Engineering & Construction, Inc.

PROJECT REFERENCE NO.	SHEET NO.
B-4926	3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

N 77° 54' 11.7" W
-DRV- POT Sta. 10+00.00

OWA11 OWA1 OWA10 OWA2 OWA8 OWA9 OWA3 OWA7 OWA6 OWA5 OWA4

-L- PC Sta. 28+32.55

N 38°53'36" E
175.17'

3

WOODY MAE FAR
DB 1153 PG 132
DB 1816 PG 689
PB 6 PG 276

BR 20_B3-A
BR 20_B5-A
CONCRETE BRIDGE #20
BR 20_B2-A
BR 20_B4-A
BR 20_EB2-A
BR 20_EBI-B
BR 20_BI-B

BL-3
BL-4

S 73° 33' 11.5" E
-L-

PROPERTY ALONG NEUSE RIVER

-L- PT Sta. 22+12.74

NEUSE RIVER

N 33°36'07" E
158.54'

N 27°08'30" E
137.26'

SKEW = 105°00'00"

0 100 200
FEET

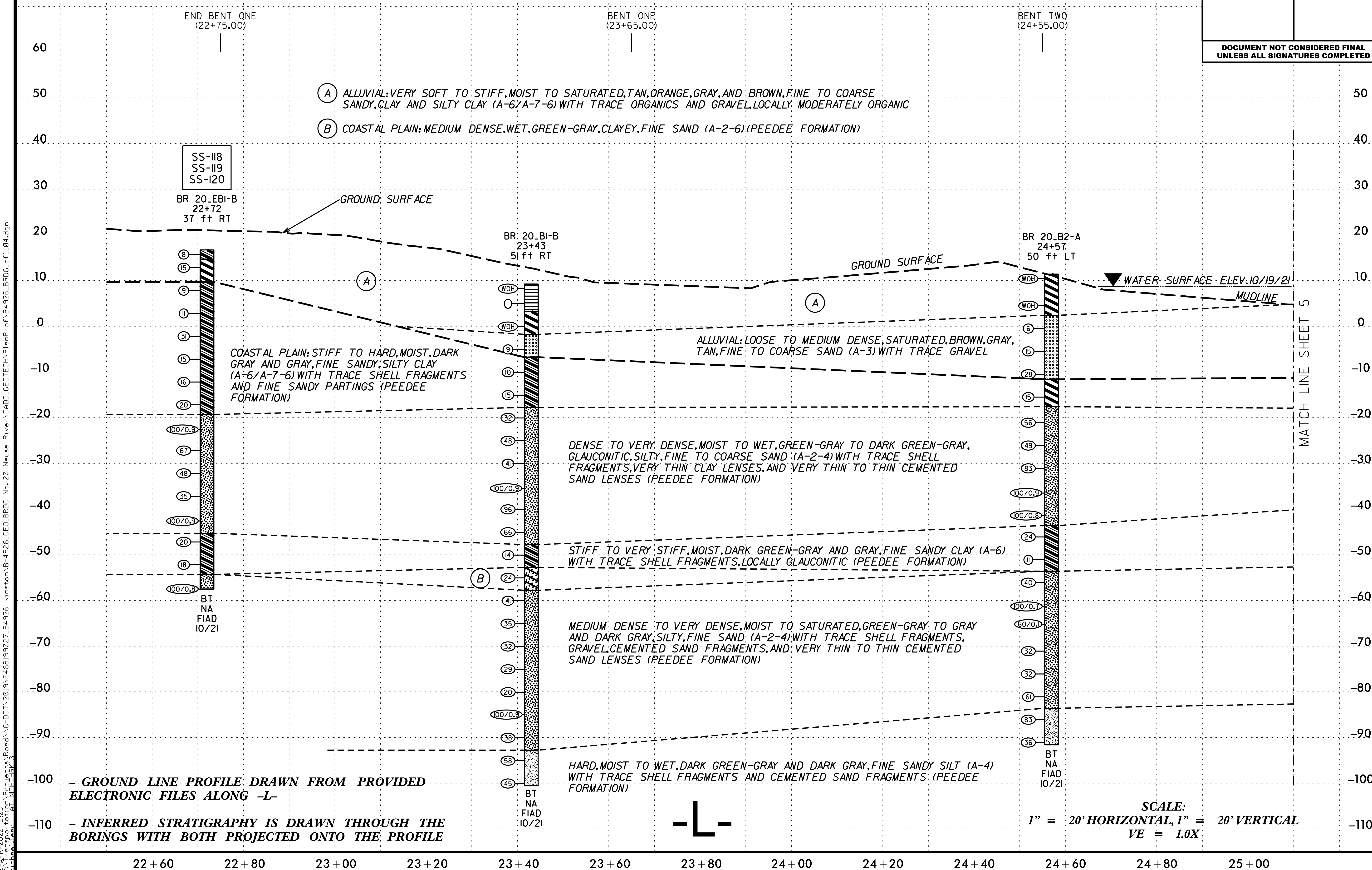
4

SEPI
Engineering & Construction, Inc.
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: C-2197

PROJECT REFERENCE NO.	SHEET NO.
B-4926	4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED


END BENT ONE (22+75.00)
BENT ONE (23+65.00)
BENT TWO (24+55.00)
(A) ALLUVIAL: VERY SOFT TO STIFF, MOIST TO SATURATED, TAN, ORANGE, GRAY, AND BROWN, FINE TO COARSE SANDY, CLAY AND SILTY CLAY (A-6/A-7-6) WITH TRACE ORGANICS AND GRAVEL, LOCALLY MODERATELY ORGANIC
(B) COASTAL PLAIN: MEDIUM DENSE, WET, GREEN-GRAY, CLAYEY, FINE SAND (A-2-6) (PEEDEE FORMATION)
SS-118
SS-119
SS-120
BR 20_EB1-B 22+72 37 ft RT
GROUND SURFACE
BR 20_B1-B 23+43 51 ft RT
BR 20_B2-A 24+57 50 ft LT
GROUND SURFACE
WATER SURFACE ELEV. 10/19/21
MUDLINE
COASTAL PLAIN: STIFF TO HARD, MOIST, DARK GRAY AND GRAY, FINE SANDY, SILTY CLAY (A-6/A-7-6) WITH TRACE SHELL FRAGMENTS AND FINE SANDY PARTINGS (PEEDEE FORMATION)
ALLUVIAL: LOOSE TO MEDIUM DENSE, SATURATED, BROWN, GRAY, TAN, FINE TO COARSE SAND (A-3) WITH TRACE GRAVEL
DENSE TO VERY DENSE, MOIST TO WET, GREEN-GRAY TO DARK GREEN-GRAY, GLAUCONITIC, SILTY, FINE TO COARSE SAND (A-2-4) WITH TRACE SHELL FRAGMENTS, VERY THIN CLAY LENSES, AND VERY THIN TO THIN CEMENTED SAND LENSES (PEEDEE FORMATION)
STIFF TO VERY STIFF, MOIST, DARK GREEN-GRAY AND GRAY, FINE SANDY CLAY (A-6) WITH TRACE SHELL FRAGMENTS, LOCALLY GLAUCONITIC (PEEDEE FORMATION)
MEDIUM DENSE TO VERY DENSE, MOIST TO SATURATED, GREEN-GRAY TO GRAY AND DARK GRAY, SILTY, FINE SAND (A-2-4) WITH TRACE SHELL FRAGMENTS, GRAVEL, CEMENTED SAND FRAGMENTS, AND VERY THIN TO THIN CEMENTED SAND LENSES (PEEDEE FORMATION)
HARD, MOIST TO WET, DARK GREEN-GRAY AND DARK GRAY, FINE SANDY SILT (A-4) WITH TRACE SHELL FRAGMENTS AND CEMENTED SAND FRAGMENTS (PEEDEE FORMATION)
BT NA FIAD 10/21
MATCH LINE SHEET 5
60 50 40 30 20 10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110
22+60 22+80 23+00 23+20 23+40 23+60 23+80 24+00 24+20 24+40 24+60 24+80 25+00

- GROUND LINE PROFILE DRAWN FROM PROVIDED ELECTRONIC FILES ALONG -L-

- INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE

-L-

SCALE:
1" = 20' HORIZONTAL, 1" = 20' VERTICAL
VE = 1.0X

- GROUND LINE PROFILE DRAWN FROM PROVIDED ELECTRONIC FILES ALONG -L-

- INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE

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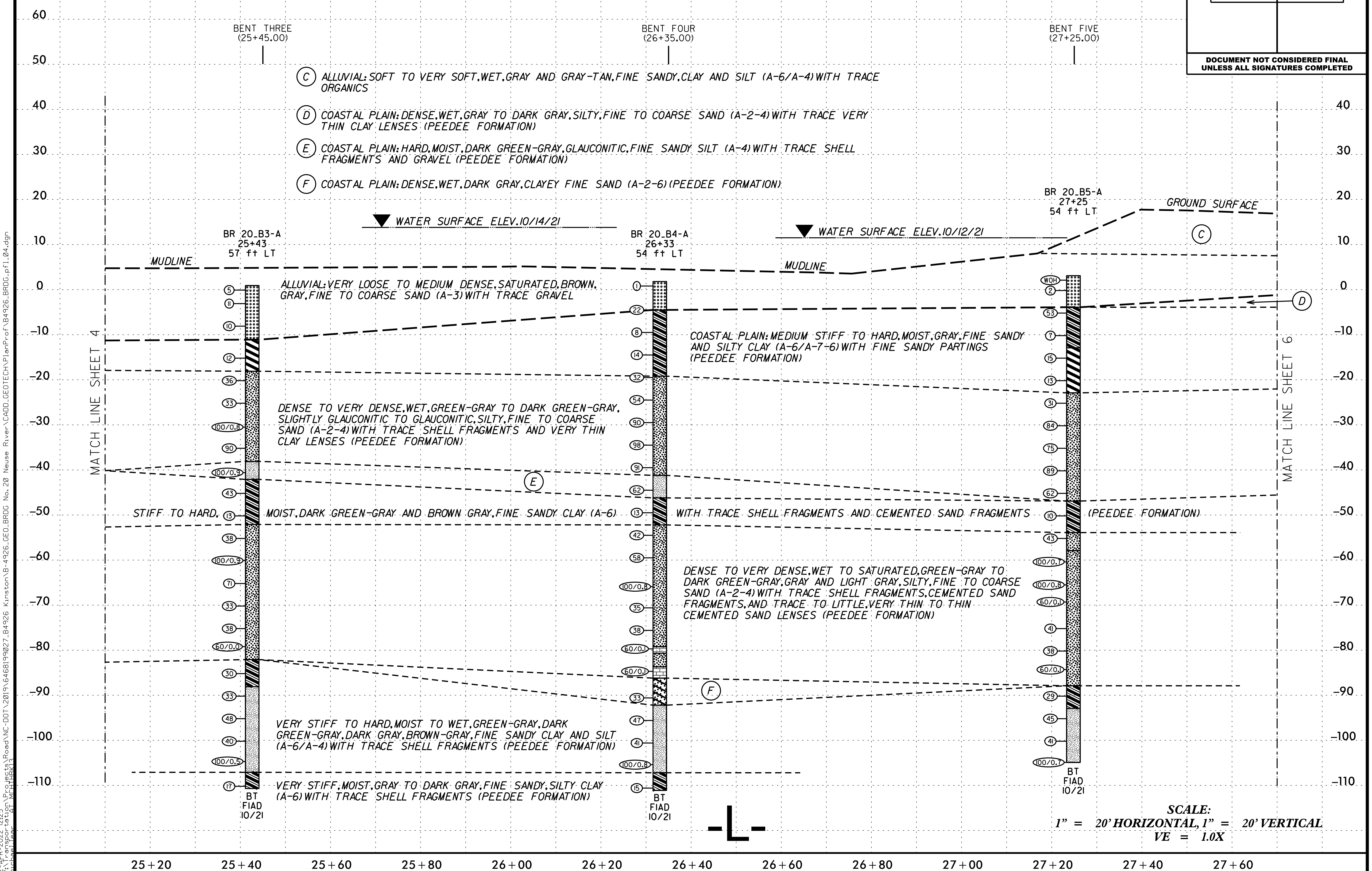
PROJECT REFERENCE NO.	SHEET NO.
B-4926	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED


BENT THREE (25+45.00)
BENT FOUR (26+35.00)
BENT FIVE (27+25.00)
(C) ALLUVIAL: SOFT TO VERY SOFT, WET, GRAY AND GRAY-TAN, FINE SANDY, CLAY AND SILT (A-6/A-4) WITH TRACE ORGANICS
(D) COASTAL PLAIN: DENSE, WET, GRAY TO DARK GRAY, SILTY, FINE TO COARSE SAND (A-2-4) WITH TRACE VERY THIN CLAY LENSES (PEEDEE FORMATION)
(E) COASTAL PLAIN: HARD, MOIST, DARK GREEN-GRAY, GLAUCONITIC, FINE SANDY SILT (A-4) WITH TRACE SHELL FRAGMENTS AND GRAVEL (PEEDEE FORMATION)
(F) COASTAL PLAIN: DENSE, WET, DARK GRAY, CLAYEY FINE SAND (A-2-6) (PEEDEE FORMATION)
WATER SURFACE ELEV. 10/14/21
WATER SURFACE ELEV. 10/12/21
BR 20_B3-A 25+43 57 ft LT
BR 20_B4-A 26+33 54 ft LT
BR 20_B5-A 27+25 54 ft LT
GROUND SURFACE
MUDLINE
MATCH LINE SHEET 4
MATCH LINE SHEET 6
ALLUVIAL: VERY LOOSE TO MEDIUM DENSE, SATURATED, BROWN, GRAY, FINE TO COARSE SAND (A-3) WITH TRACE GRAVEL
COASTAL PLAIN: MEDIUM STIFF TO HARD, MOIST, GRAY, FINE SANDY AND SILTY CLAY (A-6/A-7-6) WITH FINE SANDY PARTINGS (PEEDEE FORMATION)
DENSE TO VERY DENSE, WET, GREEN-GRAY TO DARK GREEN-GRAY, SLIGHTLY GLAUCONITIC TO GLAUCONITIC, SILTY, FINE TO COARSE SAND (A-2-4) WITH TRACE SHELL FRAGMENTS AND VERY THIN CLAY LENSES (PEEDEE FORMATION)
STIFF TO HARD, MOIST, DARK GREEN-GRAY AND BROWN GRAY, FINE SANDY CLAY (A-6) WITH TRACE SHELL FRAGMENTS AND CEMENTED SAND FRAGMENTS (PEEDEE FORMATION)
DENSE TO VERY DENSE, WET TO SATURATED, GREEN-GRAY TO DARK GREEN-GRAY, GRAY AND LIGHT GRAY, SILTY, FINE TO COARSE SAND (A-2-4) WITH TRACE SHELL FRAGMENTS, CEMENTED SAND FRAGMENTS, AND TRACE TO LITTLE, VERY THIN TO THIN CEMENTED SAND LENSES (PEEDEE FORMATION)
VERY STIFF TO HARD, MOIST TO WET, GREEN-GRAY, DARK GREEN-GRAY, DARK GRAY, BROWN-GRAY, FINE SANDY CLAY AND SILT (A-6/A-4) WITH TRACE SHELL FRAGMENTS (PEEDEE FORMATION)
VERY STIFF, MOIST, GRAY TO DARK GRAY, FINE SANDY, SILTY CLAY (A-6) WITH TRACE SHELL FRAGMENTS (PEEDEE FORMATION)
BT FIAD 10/21
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
25+20
25+40
25+60
25+80
26+00
26+20
26+40
26+60
26+80
27+00
27+20
27+40
27+60
-L-

SCALE:
1" = 20' HORIZONTAL, 1" = 20' VERTICAL
VE = 1.0X

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PROJECT REFERENCE NO.	SHEET NO.
B-4926	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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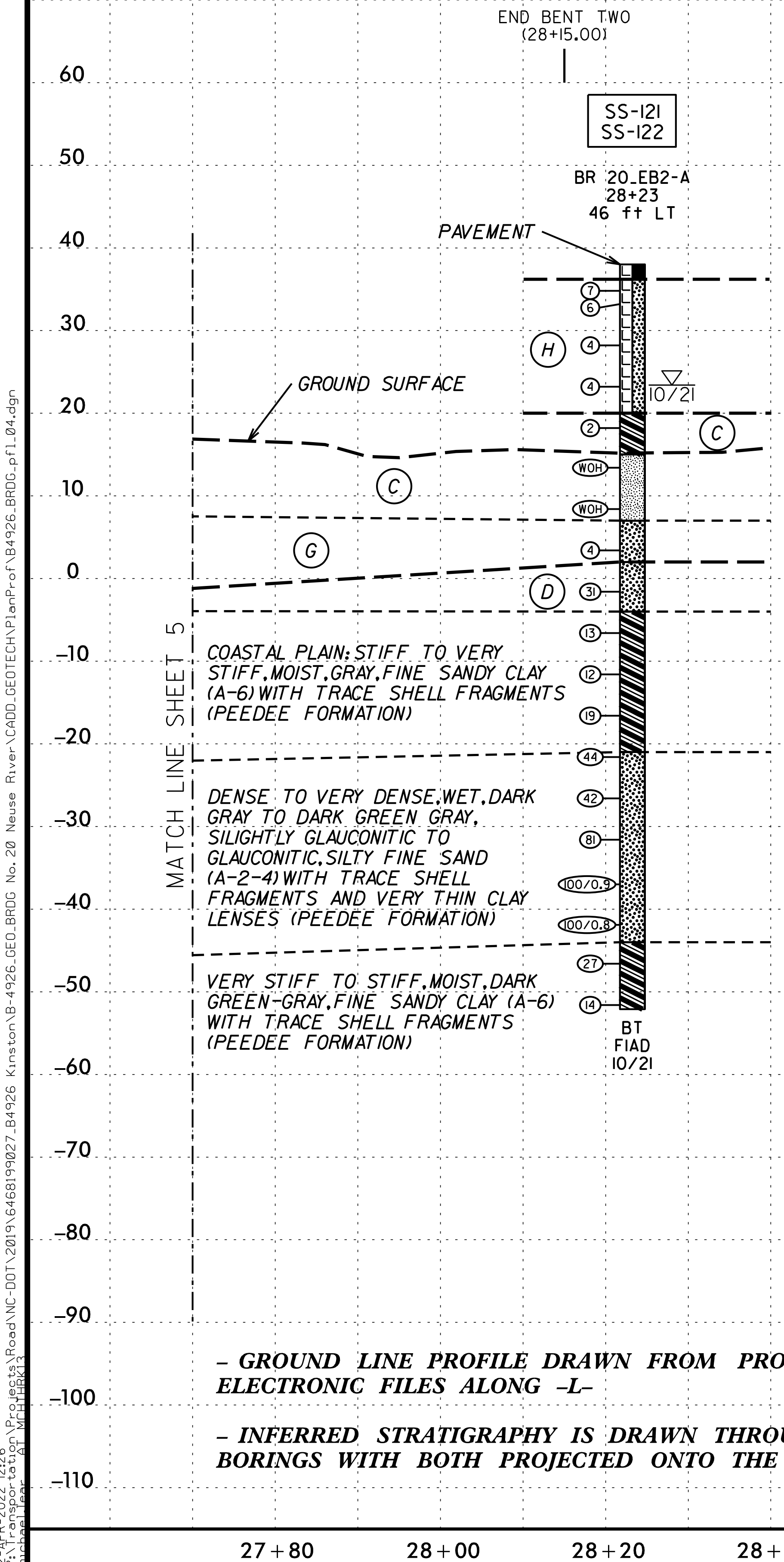


(H) ROADWAY EMBANKMENT: LOOSE TO VERY LOOSE, DRY TO MOIST, TAN-BROWN-GRAY, SILTY FINE SAND (A-2-4)

(C) ALLUVIAL: SOFT TO VERY SOFT, WET, GRAY AND GRAY-TAN, FINE SANDY, CLAY AND SILT (A-6/A-4) WITH TRACE ORGANICS

(G) ALLUVIAL: VERY LOOSE, SATURATED, BRONW-GRAY, SILTY FINE SAND (A-2-4) WITH TRACE ORGANICS

(D) COASTAL PLAIN: DENSE, WET, GRAY TO DARK GRAY, SILTY, FINE TO COARSE SAND (A-2-4) WITH TRACE VERY THIN CLAY LENSES (PEEDEE FORMATION)

– GROUND LINE PROFILE DRAWN FROM PROVIDED ELECTRONIC FILES ALONG –L–

– INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE

-L-

SCALE:
1" = 20' HORIZONTAL, 1" = 20' VERTICAL
VE = 1.0X

12-APR-2022 12:26
P:\Transportation\Projects\Road\NC-DOT\2019\64681990027_B4926 Kinston\B-4926_GEO_BRDG No. 20 Neuse River\CADD_GEOTECH\PlanProf\B4926_BRDG_pf1_04.dgn

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40163.1.2	**TIP** B-4926	**COUNTY** Lenoir	**GEOLOGIST** J. Howard	
SITE DESCRIPTION Bridge No. 20 on NC 55 (-L-) Over Neuse River Near Kinston, NC				**GROUND WTR (ft)**
BORING NO. BR 20_EB1-B	**STATION** 22+72	**OFFSET** 37 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 16.7 ft	**TOTAL DEPTH** 74.2 ft	**NORTHING** 565,928	**EASTING** 2,448,335	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE MID3964 CME-45C 87% 09/24/2021		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER B. Powell	**START DATE** 10/05/21	**COMP. DATE** 10/05/21	**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
20										
	16.7	0.0								ELEV. (ft) 16.7 GROUND SURFACE DEPTH (ft) 0.0
15			1	4	4	8	SS-118	13%		**ALLUVIAL**
	13.8	2.9								Medium stiff, moist, tan-orange, fine to coarse sandy CLAY (A-6) with trace organics and gravel 14.7 2.0
			6	6	9	15	SS-119	28%		Stiff, moist, tan-gray, fine sandy CLAY (A-7-6) with trace gravel
10										9.7 7.0
	8.8	7.9	2	4	5	9	SS-120	29%		**COASTAL PLAIN**
5										Stiff to hard, moist, dark gray, fine sandy CLAY (A-6) with trace shell fragments and fine sandy partings (Peedee Formation)
	3.8	12.9	4	5	6	11		M		
0										
	-1.2	17.9	16	15	16	31		M		
-5										
	-6.2	22.9	6	7	8	15		M		
-10										
	-11.2	27.9	3	6	10	16		M		
-15										
	-16.2	32.9	4	8	12	20		M		
-20										-19.3 36.0
	-21.2	37.9	16	40	60/0.4	100/0.9		M		Dense to very dense, moist to wet, glauconitic, green-gray to dark green-gray, silty fine SAND (A-2-4) with trace shell fragments, trace very thin clay lenses, and trace very thin to thinly bedded cemented sand lenses (Peedee Formation)
-25										
	-26.2	42.9	19	27	40	67		W		
-30										
	-31.2	47.9	9	13	35	48		W		
-35										
	-36.2	52.9	11	15	20	35		W		
-40										
	-41.2	57.9	16	34	60/0.4	100/0.9		W		
-45										
	-46.2	62.9	5	9	11	20		M		-45.3 62.0
-50										Very stiff, moist, dark gray-green, glauconitic, fine sandy CLAY (A-6) with trace shell fragments (Peedee Formation)
	-51.2	67.9	4	7	11	18		M		
-55										-54.3 71.0
	-56.2	72.9	18	23	77/0.3	100/0.8		M		Very dense, moist, dark gray, silty fine SAND (A-2-4) with trace cemented sand fragments (Peedee Formation)
										-57.5 74.2
										Boring Terminated at Elevation -57.5 ft in Coastal Plain: Very dense, silty fine SAND

NCDOT BORE SINGLE B-4926_GEO_RDWY_GINT.GPJ NC_DOT.GDT 2/9/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40163.1.2	**TIP** B-4926	**COUNTY** Lenoir	**GEOLOGIST** J. Howard	
SITE DESCRIPTION Bridge No. 20 on NC 55 (-L-) Over Neuse River Near Kinston, NC				**GROUND WTR (ft)**
BORING NO. BR 20_EB1-B	**STATION** 22+72	**OFFSET** 37 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 16.7 ft	**TOTAL DEPTH** 74.2 ft	**NORTHING** 565,928	**EASTING** 2,448,335	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE MID3964 CME-45C 87% 09/24/2021		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER B. Powell	**START DATE** 10/05/21	**COMP. DATE** 10/05/21	**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
-60						Match Line				ELEV. (ft) DEPTH (ft)
										(A-2-4) (Peedee Formation)
										Pushed tube ST-3 from 4.1-5.2 ft (Rec=1.1 ft) at offset location -L- 22+72, 40 ft RT
										Other Samples: ST-3 (4.1 - 5.2)

NCDOT BORE SINGLE B-4926_GEO_RDWY_GINT.GPJ NC_DOT.GDT 2/9/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40163.1.2	**TIP** B-4926	**COUNTY** Lenoir	**GEOLOGIST** J. Howard	
SITE DESCRIPTION Bridge No. 20 on NC 55 (-L-) Over Neuse River Near Kinston, NC				**GROUND WTR (ft)**
BORING NO. BR 20_B1-B	**STATION** 23+43	**OFFSET** 51 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 8.6 ft	**TOTAL DEPTH** 109.8 ft	**NORTHING** 565,894	**EASTING** 2,448,399	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE MID3964 CME-45C 87% 09/24/2021		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER B. Powell	**START DATE** 10/06/21	**COMP. DATE** 10/06/21	**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										
	8.6	0.0	WOH	WOH	WOH	0		Sat.		8.6 GROUND SURFACE 0.0
5	5.3	3.3	WOH	1	0	1		W		**ALLUVIAL** Very soft, saturated to wet, brown-gray, moderately organic, silty CLAY (A-7-6)
										2.6 — 6.0
0	0.3	8.3	WOH	WOH	WOH	0		W		Very soft, wet, brown-gray, silty CLAY (A-7-6) with trace organics
										-2.4 — 11.0
-5	-4.7	13.3	2	4	5	9		Sat.		Loose, saturated, brown-gray, fine to coarse SAND (A-3) with trace gravel
										-7.4 — 16.0
-10	-9.7	18.3	2	4	6	10		M		**COASTAL PLAIN** Stiff to very stiff, moist, dark gray, fine sandy CLAY (A-6) with trace shell fragments (Peedee Formation)
-15	-14.7	23.3	3	6	9	15		M		
										-18.4 — 27.0
-20	-19.7	28.3	6	12	20	32		M		Dense to very dense, moist to wet, dark gray-green, glauconitic, silty fine SAND (A-2-4) with trace shell fragments and clay lenses (Peedee Formation)
-25	-24.7	33.3	11	20	28	48		M		
-30	-29.7	38.3	11	13	28	41		W		
-35	-34.7	43.3	15	39	61/0.4	100/0.9		W		
-40	-39.7	48.3	16	33	63	96		W		
-45	-44.7	53.3	17	25	41	66		W		
										-48.4 — 57.0
-50	-49.7	58.3	8	6	8	14		M		Stiff, moist, dark green-gray, fine sandy CLAY (A-6) (Peedee Formation)
-55	-54.7	63.3	4	13	11	24		W		-53.4 — 62.0 Medium dense, wet, green-gray, clayey fine SAND (A-2-6) (Peedee Formation)
-60	-59.7	68.3	14	22	19	41		W		-58.4 — 67.0 Medium dense to very dense, wet, light green-gray to green-gray, silty, fine SAND (A-2-4) with trace shell fragments, gravel, and very thin cemented sand lenses (Peedee Formation)
-65	-64.7	73.3	13	17	18	35		W		
-70	-69.7	78.3								

NCDOT BORE SINGLE B-4926_GEO_RDWY_GINT.GPJ NC_DOT.GDT 2/9/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40163.1.2	**TIP** B-4926	**COUNTY** Lenoir	**GEOLOGIST** J. Howard	
SITE DESCRIPTION Bridge No. 20 on NC 55 (-L-) Over Neuse River Near Kinston, NC				**GROUND WTR (ft)**
BORING NO. BR 20_B1-B	**STATION** 23+43	**OFFSET** 51 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 8.6 ft	**TOTAL DEPTH** 109.8 ft	**NORTHING** 565,894	**EASTING** 2,448,399	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE MID3964 CME-45C 87% 09/24/2021		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER B. Powell	**START DATE** 10/06/21	**COMP. DATE** 10/06/21	**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))
-70						Match Line				
	-74.7	83.3	8	14	18	32		W		Medium dense to very dense, wet, light green-gray to green-gray, silty, fine SAND (A-2-4) with trace shell fragments, gravel, and very thin cemented sand lenses (Peedee Formation) *(continued)*
-75			7	12	17	29		W		
-80	-79.7	88.3	4	6	14	20		W		
-85	-84.7	93.3	30	70/0.4		100/0.9		W		
-90	-89.7	98.3	6	14	24	38		W		
-95	-94.7	103.3	19	24	34	58		M		
										-93.4 — 102.0
-100	-99.7	108.3	11	19	26	45		M		Hard, moist, dark green-gray, fine sandy SILT (A-4) with trace shell fragments (Peedee Formation)
										-101.2 — 109.8
										Boring Terminated at Elevation -101.2 ft in Coastal Plain: Hard, fine sandy SILT (A-4) (Peedee Formation)

NCDOT BORE SINGLE B-4926_GEO_RDWY_GINT.GPJ NC_DOT.GDT 2/9/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40163.1.2	**TIP** B-4926	**COUNTY** Lenoir	**GEOLOGIST** J. Howard	
SITE DESCRIPTION Bridge No. 20 on NC 55 (-L-) Over Neuse River Near Kinston, NC				**GROUND WTR (ft)**
BORING NO. BR 20_B2-A	**STATION** 24+57	**OFFSET** 50 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 11.4 ft	**TOTAL DEPTH** 103.0 ft	**NORTHING** 565,959	**EASTING** 2,448,537	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER L. Gonzalez Castillo	**START DATE** 10/21/21	**COMP. DATE** 10/22/21	**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)
15										
	11.4	0.0	WOH	WOH	WOH	0		M		11.4 GROUND SURFACE 0.0 **ALLUVIAL** Very soft, moist, tan-gray, silty CLAY (A-7-6) with trace organics
10										
	5.5	5.9	WOH	WOH	WOH	0		M		2.4 9.0 Loose to medium dense, saturated, gray-tan, fine to coarse SAND (A-3)
5										
	0.5	10.9	1	3	3	6		Sat.		
0										
	-4.5	15.9	2	7	8	15		Sat.		
-5										
	-9.5	20.9	8	9	19	28		Sat.		-11.6 23.0 **COASTAL PLAIN** Very stiff, moist, gray, fine sandy, silty CLAY (A-7-6) with fine sandy partings (Peedee Formation)
-10										
	-14.5	25.9	5	5	10	15		M		-17.6 29.0 Dense to very dense, wet, light green-gray to dark green-gray, slightly glauconitic to glauconitic, silty, fine to coarse SAND (A-2-4) with trace shell fragments and very thin clay lenses (Peedee Formation)
-15										
	-20.1	31.5	10	25	31	56		W		
-20										
	-25.1	36.5	6	16	33	49		W		
-25										
	-30.1	41.5	18	30	53	83		W		
-30										
	-35.1	46.5	21	40	60/0.4	100/0.9		W		
-35										
	-40.1	51.5	19	43	58/0.3	100/0.8		W		
-40										
	-45.1	56.5	26	11	13	24		M		-43.6 55.0 Very stiff to stiff, moist, dark gray, fine sandy CLAY (A-6) with trace shell fragments (Peedee Formation)
-45										
	-50.1	61.5	4	5	6	11		M		
-50										
	-55.1	66.5	20	17	23	40		W		-53.6 65.0 Dense to very dense, wet to saturated, gray, silty fine SAND (A-2-4) with trace shell fragments, cemented sand fragments, and very thin to thin cemented sand lenses (Peedee Formation)
-55										
	-60.1	71.5	7	14	86/0.2	100/0.7		W		
-60										
-65										

NCDOT BORE SINGLE B-4926_GEO_RDWY_GINT.GPJ NC_DOT.GDT 2/9/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40163.1.2	**TIP** B-4926	**COUNTY** Lenoir	**GEOLOGIST** J. Howard	
SITE DESCRIPTION Bridge No. 20 on NC 55 (-L-) Over Neuse River Near Kinston, NC				**GROUND WTR (ft)**
BORING NO. BR 20_B2-A	**STATION** 24+57	**OFFSET** 50 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 11.4 ft	**TOTAL DEPTH** 103.0 ft	**NORTHING** 565,959	**EASTING** 2,448,537	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER L. Gonzalez Castillo	**START DATE** 10/21/21	**COMP. DATE** 10/22/21	**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)
-65						Match Line				
	-65.1	76.5	60/0.1			60/0.1		W		Dense to very dense, wet to saturated, gray, silty fine SAND (A-2-4) with trace shell fragments, cemented sand fragments, and very thin to thin cemented sand lenses (Peedee Formation) *(continued)*
-70										
	-70.1	81.5	10	14	18	32		W		
-75										
	-75.1	86.5	9	15	17	32		W		
-80										
	-80.1	91.5	15	29	32	61		Sat.		
-85										
	-85.1	96.5	14	38	45	83		W		-83.6 95.0 Hard, wet, dark gray, fine sandy SILT (A-4) with trace cemented sand fragments (Peedee Formation)
-90										
	-90.1	101.5	8	11	25	36		W		-91.6 103.0 Boring Terminated at Elevation -91.6 ft in Coastal Plain: Hard, fine sandy SILT (A-4) (Peedee Formation)

NCDOT BORE SINGLE B-4926_GEO_RDWY_GINT.GPJ NC_DOT.GDT 2/9/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40163.1.2	**TIP** B-4926	**COUNTY** Lenoir	**GEOLOGIST** J. Howard	
SITE DESCRIPTION Bridge No. 20 on NC 55 (-L-) Over Neuse River Near Kinston, NC				**GROUND WTR (ft)**
BORING NO. BR 20_B3-A	**STATION** 25+43	**OFFSET** 57 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 0.9 ft	**TOTAL DEPTH** 111.6 ft	**NORTHING** 565,941	**EASTING** 2,448,621	**24 HR.** N/A
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER L. Gonzalez Castillo	**START DATE** 10/19/21	**COMP. DATE** 10/20/21	**SURFACE WATER DEPTH** 7.8ft	

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))
15										
10										
5										
0	0.9	0.0								WATER SURFACE (10/19/21)
			2	2	3	5		Sat.		0.9 MUDLINE 0.0
	-2.1	3.0	4	5	6	11		Sat.		**ALLUVIAL** Very loose to medium dense, saturated, brown-gray, fine to coarse SAND (A-3) with trace gravel
-5	-7.1	8.0	4	5	5	10				-11.1 12.0 **COASTAL PLAIN** Stiff, moist, gray, fine sandy, silty CLAY (A-7-6) with fine sandy partings (Peedee Formation)
-10	-14.2	15.1	3	5	7	12		M		
-15	-19.2	20.1	6	17	19	36		W		-18.1 19.0 Dense to very dense, wet, gray-green to dark green-gray, slightly glauconitic to glauconitic, silty, fine to coarse SAND (A-2-4) with trace shell fragments and very thin clay lenses (Peedee Formation)
-20	-24.2	25.1	6	13	20	33		W		
-25	-29.2	30.1	22	50	50/0.3	100/0.8		W		
-30	-34.2	35.1	17	31	59	90		W		
-35	-39.2	40.1	18	34	66/0.4	100/0.9		W		-38.1 39.0 Hard, wet, dark green-gray, glauconitic, fine sandy SILT (A-4) (Peedee Formation)
-40	-44.2	45.1	18	25	18	43		M		-42.1 43.0 Hard to stiff, moist, dark green-gray, fine sandy CLAY (A-6) with trace cemented sand fragments (Peedee Formation)
-45	-49.2	50.1	4	6	7	13		M		
-50	-54.2	55.1	8	13	25	38		W		-52.1 53.0 Dense to very dense, wet to saturated, green-gray and light gray, silty fine SAND (A-2-4) with trace shell fragments, cemented sand fragments, and trace to little, very thin to thin cemented sand lenses (Peedee Formation)
-55	-59.2	60.1	15	85/0.4		100/0.9		W		
-60	-64.2	65.1	21	50	21					
-65										

NCDOT BORE SINGLE B-4926_GEO_RDWY_GINT.GPJ NC_DOT.GDT 2/9/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40163.1.2	**TIP** B-4926	**COUNTY** Lenoir	**GEOLOGIST** J. Howard	
SITE DESCRIPTION Bridge No. 20 on NC 55 (-L-) Over Neuse River Near Kinston, NC				**GROUND WTR (ft)**
BORING NO. BR 20_B3-A	**STATION** 25+43	**OFFSET** 57 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 0.9 ft	**TOTAL DEPTH** 111.6 ft	**NORTHING** 565,941	**EASTING** 2,448,621	**24 HR.** N/A
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER L. Gonzalez Castillo	**START DATE** 10/19/21	**COMP. DATE** 10/20/21	**SURFACE WATER DEPTH** 7.8ft	

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))
-65						Match Line		Sat.		Dense to very dense, wet to saturated, green-gray and light gray, silty fine SAND (A-2-4) with trace shell fragments, cemented sand fragments, and trace to little, very thin to thin cemented sand lenses (Peedee Formation) *(continued)*
-70	-69.2	70.1	8	14	19	33		W		
-75	-74.2	75.1	14	17	21	38		W		
-80	-79.2	80.1	60/0.0			60/0.0				-82.1 83.0 Hard, moist, green-gray, fine sandy silty CLAY (A-6) with trace shell fragments (Peedee Formation)
-85	-84.2	85.1	15	17	13	30		M		
-90	-89.2	90.1	9	15	18	33		W		-88.1 89.0 Very stiff to hard, wet, dark green-gray, fine sandy SILT (A-4) with trace shell fragments (Peedee Formation)
-95	-94.2	95.1	17	21	27	48		W		
-100	-99.2	100.1	11	17	23	40		W		
-105	-104.2	105.1	100/0.5			100/0.5		W		-107.1 108.0 Very stiff, moist, gray, fine sandy CLAY (A-6) with trace shell fragments (Peedee Formation)
-110	-109.2	110.1	6	7	10	17		M		-110.7 111.6 Boring Terminated at Elevation -110.7 ft in Coastal Plain: Very stiff, fine sandy CLAY (A-6) (Peedee Formation)

NCDOT BORE SINGLE B-4926_GEO_RDWY_GINT.GPJ NC_DOT.GDT 2/9/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40163.1.2	**TIP** B-4926	**COUNTY** Lenoir	**GEOLOGIST** J. Howard/ K. Plummer	
SITE DESCRIPTION Bridge No. 20 on NC 55 (-L-) Over Neuse River Near Kinston, NC				**GROUND WTR (ft)**
BORING NO. BR 20_B4-A	**STATION** 26+33	**OFFSET** 54 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 1.8 ft	**TOTAL DEPTH** 112.9 ft	**NORTHING** 565,913	**EASTING** 2,448,707	**24 HR.** N/A
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER L. Gonzalez Castillo	**START DATE** 10/14/21	**COMP. DATE** 10/15/21	**SURFACE WATER DEPTH** 12.0ft	

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))
15										
10										WATER SURFACE (10/14/21)
5										
0	1.8	0.0	WOH	WOH	1	1				1.8 MUDLINE 0.0
-5	-3.5	5.3	2	3	19	22		Sat.		**ALLUVIAL** Very loose, saturated, brown-gray, fine to coarse SAND (A-3) with trace gravel
-10	-8.5	10.3	3	4	4	8		M		-4.5 6.3 **COASTAL PLAIN** Medium stiff to very stiff, moist, gray, fine sandy, silty CLAY (A-6) with fine sandy partings (Peedee Formation)
-15	-13.5	15.3	4	6	8	14		M		
-20	-18.5	20.3	5	15	17	32		M		-19.2 21.0 Dense to very dense, wet, green-gray to dark green-gray, slightly glauconitic to glauconitic, silty fine SAND (A-2-4) with trace shell fragments (Peedee Formation)
-25	-23.5	25.3	10	23	31	54		W		
-30	-28.5	30.3	20	35	55	90		W		
-35	-33.5	35.3	23	32	66	98		W		
-40	-38.5	40.3	19	33	58	91		W		
-45	-43.5	45.3	18	28	34	62		M		-41.2 43.0 Hard, moist, dark green-gray, fine sandy SILT (A-4) with trace shell fragments and gravel (Peedee Formation)
-50	-48.5	50.3	5	6	7	13		M		-46.2 48.0 Stiff, moist, brown-gray, fine sandy CLAY (A-6) with trace shell fragments (Peedee Formation)
-55	-53.5	55.3	11	16	26	42		W		-52.2 54.0 Dense to very dense, wet, green-gray and gray, silty fine SAND (A-2-4) with trace cemented sand fragments and shell fragments (Peedee Formation)
-60	-58.5	60.3	12	35	23	58		W		
-65	-64.6	66.4								

NCDOT BORE SINGLE B-4926_GEO_RDWY_GINT.GPJ NC_DOT.GDT 2/9/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40163.1.2	**TIP** B-4926	**COUNTY** Lenoir	**GEOLOGIST** J. Howard/ K. Plummer	
SITE DESCRIPTION Bridge No. 20 on NC 55 (-L-) Over Neuse River Near Kinston, NC				**GROUND WTR (ft)**
BORING NO. BR 20_B4-A	**STATION** 26+33	**OFFSET** 54 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 1.8 ft	**TOTAL DEPTH** 112.9 ft	**NORTHING** 565,913	**EASTING** 2,448,707	**24 HR.** N/A
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER L. Gonzalez Castillo	**START DATE** 10/14/21	**COMP. DATE** 10/15/21	**SURFACE WATER DEPTH** 12.0ft	

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))
-65						Match Line				
-70	-69.6	71.4	22	60	40/0.3	100/0.8		W		Dense to very dense, wet, green-gray and gray, silty fine SAND (A-2-4) with trace cemented sand fragments and shell fragments (Peedee Formation) *(continued)*
-75	-74.6	76.4	8	15	20	35		W		
-80	-79.6	81.4	10	16	22	38		W		-79.2 81.0 Hard, indurated, Cemented SAND and dense, wet, silty fine SAND (A-2-4) (Peedee Formation)
-85	-84.6	86.4	60/0.1			60/0.1				-80.7 82.5 Dense, wet, gray, silty fine SAND (A-2-4) (Peedee Formation)
-90	-89.6	91.4	60/0.1			60/0.1				-83.7 85.5 Hard, very thinly to thinly bedded, indurated, Cemented SAND and dense, wet, silty fine SAND (A-2-4) (Peedee Formation)
-95	-94.6	96.4	6	11	22	33		W		-86.2 88.0 Dense, wet, dark gray, clayey fine SAND (A-2-6) (Peedee Formation)
-100	-99.6	101.4	15	22	25	47		W		-92.2 94.0 Hard, wet, dark gray, fine sandy SILT (A-4) (Peedee Formation)
-105	-104.6	106.4	10	16	25	41		W		
-110	-109.6	111.4	50	50/0.3		100/0.8		M		-107.2 109.0 Very stiff, moist, dark gray, fine sandy, silty CLAY (A-6) (Peedee Formation)
			6	7	8	15		M		-111.1 112.9 Boring Terminated at Elevation -111.1 ft in Coastal Plain: Very stiff, fine sandy, silty CLAY (A-6) (Peedee Formation)

NCDOT BORE SINGLE B-4926_GEO_RDWY_GINT.GPJ NC_DOT.GDT 2/9/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40163.1.2	**TIP** B-4926	**COUNTY** Lenoir	**GEOLOGIST** J. Howard	
SITE DESCRIPTION Bridge No. 20 on NC 55 (-L-) Over Neuse River Near Kinston, NC				**GROUND WTR (ft)**
BORING NO. BR 20_B5-A	**STATION** 27+25	**OFFSET** 54 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 3.1 ft	**TOTAL DEPTH** 108.0 ft	**NORTHING** 565,887	**EASTING** 2,448,795	**24 HR.** N/A
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER L. Gonzalez Castillo	**START DATE** 10/12/21	**COMP. DATE** 10/13/21	**SURFACE WATER DEPTH** 8.4ft	

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										WATER SURFACE (10/12/21)
5	3.1	0.0	WOH	WOH	WOH	0				3.1 MUDLINE 0.0
0	0.8	2.3	WOH	1	1	2		Sat.		**ALLUVIAL** Very loose, saturated, brown-gray, fine to coarse SAND (A-3) with trace gravel
-5	-4.2	7.3	21	28	25	53		Sat.		-3.9 7.0
-10	-9.2	12.3	3	4	3	7		M		**COASTAL PLAIN** Hard to medium stiff, moist, gray, fine sandy CLAY (A-6) (Peedee Formation)
-15	-14.2	17.3	4	7	8	15		M		-12.9 16.0 Very stiff to stiff, moist, gray, silty CLAY (A-7-6) with fine sandy partings (Peedee Formation)
-20	-19.2	22.3	3	4	9	13		M		-22.9 26.0
-25	-24.2	27.3	13	14	17	31		W		Dense to very dense, wet, dark green-gray, glauconitic, silty fine SAND (A-2-4) with trace shell fragments and very thin clay lenses (Peedee Formation)
-30	-29.2	32.3	20	31	53	84		W		
-35	-34.2	37.3	17	28	47	75		W		
-40	-39.2	42.3	19	30	59	89		W		
-45	-44.2	47.3	15	23	39	62		W		
-50	-49.2	52.3	6	5	5	10		M		-46.9 50.0 Stiff, moist, dark green-gray, fine sandy CLAY (A-6) (Peedee Formation)
-55	-54.2	57.3	7	12	31	43		W		-53.9 57.0 Dense, wet, gray, silty fine SAND (A-2-4) with trace very thin clay lenses (Peedee Formation)
-60	-59.2	62.3	10	36	64/0.2	100/0.7		W		-57.9 61.0 Dense to very dense, wet, gray to dark gray-green, silty, fine to coarse SAND (A-2-4) with trace very thinly to thinly bedded cemented sand lenses and trace shell fragments (Peedee Formation)
-65	-64.2	67.3	19	45	55/0.3	100/0.8		W		
-70	-69.2	72.3	60/0.1			60/0.1		W		

NCDOT BORE SINGLE B-4926_GEO_RDWY_GINT.GPJ NC_DOT.GDT 2/9/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40163.1.2	**TIP** B-4926	**COUNTY** Lenoir	**GEOLOGIST** J. Howard	
SITE DESCRIPTION Bridge No. 20 on NC 55 (-L-) Over Neuse River Near Kinston, NC				**GROUND WTR (ft)**
BORING NO. BR 20_B5-A	**STATION** 27+25	**OFFSET** 54 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 3.1 ft	**TOTAL DEPTH** 108.0 ft	**NORTHING** 565,887	**EASTING** 2,448,795	**24 HR.** N/A
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER L. Gonzalez Castillo	**START DATE** 10/12/21	**COMP. DATE** 10/13/21	**SURFACE WATER DEPTH** 8.4ft	

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)
-70						Match Line				
-75	-74.2	77.3	9	18	23	41		W		Dense to very dense, wet, gray to dark gray-green, silty, fine to coarse SAND (A-2-4) with trace very thinly to thinly bedded cemented sand lenses and trace shell fragments (Peedee Formation) *(continued)*
-80	-79.2	82.3	15	17	21	38		W		
-85	-84.2	87.3	60/0.1			60/0.1		W		
-90	-89.2	92.3	7	10	19	29		M		-87.9 91.0 Very stiff, moist, brown-gray, fine sandy CLAY (A-6) with trace shell fragments (Peedee Formation)
-95	-94.2	97.3	14	21	24	45		M		-92.9 96.0 Hard, moist, dark gray, fine sandy SILT (A-4) (Peedee Formation)
-100	-99.2	102.3	12	17	24	41		M		
	-104.2	107.3	50	50/0.2		100/0.7		M		-104.9 108.0 Boring Terminated at Elevation -104.9 ft in Coastal Plain: Hard, fine sandy SILT (A-4) (Peedee Formation)

NCDOT BORE SINGLE B-4926_GEO_RDWY_GINT.GPJ NC_DOT.GDT 2/9/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40163.1.2	**TIP** B-4926	**COUNTY** Lenoir	**GEOLOGIST** J. Howard	
SITE DESCRIPTION Bridge No. 20 on NC 55 (-L-) Over Neuse River Near Kinston, NC				**GROUND WTR (ft)**
BORING NO. BR 20_EB2-A	**STATION** 28+23	**OFFSET** 46 ft LT	**ALIGNMENT** -L-	**0 HR.** 14.6
COLLAR ELEV. 38.0 ft	**TOTAL DEPTH** 90.1 ft	**NORTHING** 565,851	**EASTING** 2,448,887	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER L. Gonzalez Castillo	**START DATE** 10/11/21	**COMP. DATE** 10/12/21	**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
40										ELEV. (ft) DEPTH (ft)
										38.0 GROUND SURFACE 0.0
										36.2 Asphalt to 1.3 ft, Concrete to 1.8 ft 1.8
35	35.8	2.2	3	3	4	7		D		**ROADWAY EMBANKMENT**
	34.2	3.8	2	3	3	6		D		Loose to very loose, dry to moist, tan-brown-gray, silty, fine SAND (A-2-4)
30	29.2	8.8	2	1	3	4		D		
25	24.2	13.8	1	2	2	4		M		
20	19.2	18.8	1	1	1	2	SS-121	27%		20.0 18.0 **ALLUVIAL** Soft, wet, gray, fine sandy CLAY (A-6) with trace organics
15	14.4	23.6	WOH	WOH	WOH	0	SS-122	27%		15.0 23.0 Very soft, wet, gray and gray-tan, fine sandy, clayey SILT (A-4) with trace organics
10	9.4	28.6	WOH	WOH	WOH	0		W		
5	4.4	33.6	2	2	2	4		Sat.		7.0 31.0 Very loose, saturated, brown-gray, silty fine SAND (A-2-4) with trace organics
0	-0.6	38.6	8	9	22	31		W		2.0 36.0 **COASTAL PLAIN** Dense, wet, gray to dark gray, silty, fine to coarse SAND (A-2-4) with trace very thin clay lenses (Peedee Formation)
-5	-5.6	43.6	5	7	6	13		M		-4.0 42.0 Stiff to very stiff, moist, gray, fine sandy CLAY (A-6) with trace shell fragments (Peedee Formation)
-10	-10.6	48.6	4	5	7	12		M		
-15	-15.6	53.6	5	8	11	19		M		
-20	-20.6	58.6	5	12	32	44		W		-21.0 59.0 Dense to very dense, wet, dark gray to dark green-gray, slightly glauconitic to glauconitic, silty, fine SAND (A-2-4) with trace shell fragments and very thin clay lenses (Peedee Formation)
-25	-25.6	63.6	8	15	27	42		W		
-30	-30.6	68.6	20	24	57	81		W		
-35	-35.6	73.6	25	47	53/0.4	100/0.9		W		
-40										

NCDOT BORE SINGLE B-4926_GEO_RDWY_GINT.GPJ NC_DOT.GDT 2/9/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40163.1.2	**TIP** B-4926	**COUNTY** Lenoir	**GEOLOGIST** J. Howard	
SITE DESCRIPTION Bridge No. 20 on NC 55 (-L-) Over Neuse River Near Kinston, NC				**GROUND WTR (ft)**
BORING NO. BR 20_EB2-A	**STATION** 28+23	**OFFSET** 46 ft LT	**ALIGNMENT** -L-	**0 HR.** 14.6
COLLAR ELEV. 38.0 ft	**TOTAL DEPTH** 90.1 ft	**NORTHING** 565,851	**EASTING** 2,448,887	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE SUM3123 CME-550X 91% 11/19/2020		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER L. Gonzalez Castillo	**START DATE** 10/11/21	**COMP. DATE** 10/12/21	**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
-40						Match Line				ELEV. (ft) DEPTH (ft)
	-40.6	78.6	20	43	57/0.3	100/0.8		W		
-45	-45.6	83.6	16	14	13	27		M		-44.0 82.0 Very stiff to stiff, moist, dark green-gray, fine sandy CLAY (A-6) with trace shell fragments (Peedee Formation)
-50	-50.6	88.6	5	6	8	14		M		-52.1 90.1 Boring Terminated at Elevation -52.1 ft in Coastal Plain: Stiff, fine sandy CLAY (A-6) (Peedee Formation)

NCDOT BORE SINGLE B-4926_GEO_RDWY_GINT.GPJ NC_DOT.GDT 2/9/22

Wood E&IS Project No.: 6468-19-9027 **Bridge No. 20 on NC 55 (-L-) Over the Neuse River at -L- Sta. 25+45** **Date Reported: 10/29/2021**

NCDOT WBS No.: 40163.1.2 **Tip No.: B-4926** **County: LENOIR** **Date Tested: October 2021**

SOIL TEST RESULTS

SAMPLE NO.	BORING	STATION	OFFSET	LINE	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
									C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-118	BR 20_EBI-B	22+72	37' RT	-L-	0.0-1.5'	A-6(1)	27	11	17.0	41.5	7.6	32.4	98.5	92.3	43.1	12.7	-
SS-119	BR 20_EBI-B	22+72	37' RT	-L-	2.9-4.4'	A-7-6(12)	56	38	1.6	55.4	17.9	23.1	98.0	97.1	45.5	27.6	-
SS-120	BR 20_EBI-B	22+72	37' RT	-L-	7.9-9.4'	A-6(2)	32	14	1.7	62.9	12.2	23.2	100.0	99.1	41.9	28.9	-
SS-121	BR 20_EB2-A	28+23	46' LT	-L-	18.8-20.3'	A-6(5)	30	13	2.4	47.3	14.7	35.6	100.0	99.5	58.8	27.3	-
SS-122	BR 20_EB2-A	28+23	46' LT	-L-	23.6-25.1'	A-4(2)	24	10	5.6	47.8	15.9	30.7	100.0	99.7	51.7	26.8	-

ND = NOT DETERMINED
NV = NO VALUE
NP = NON-PLASTIC

Albert S. Romero — 115-01-0504 — Albert Romero

Signature — Certification # — Print Name

SITE PHOTOGRAPH

REFERENCE: B-4926

PROJECT: 40163

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4926	1	10

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY *LENOIR*

PROJECT DESCRIPTION *BRIDGE No. 20 AND BRIDGE No. 34 ON NC 55 OVER THE NEUSE RIVER*

SITE DESCRIPTION *BRIDGE No. 34 ON NC 55 OVER NEUSE RIVER OVERFLOW AT -L- STA. 35+00*

INVENTORY

CONTENTS

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

NOTES:
1. THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.
2. BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

PERSONNEL

J. HOWARD

S. HARDEE

INVESTIGATED BY *WOOD E&IS, INC.*

DRAWN BY *R. RAHIE*

CHECKED BY *C. T. TANG*

SUBMITTED BY *M. LEAR*

DATE *FEBRUARY, 2022*

WOOD E&IS, INC.
4021 STIRRUP CREEK DRIVE, SUITE 100
DURHAM, NORTH CAROLINA 27703
(919) 381-9900

NC Engineering F-1253 NC Geology C-247

NORTH CAROLINA SEAL 1927 GEOLOGIST MICHAEL B. LEAR

Docusigned by: Michael Lear D80B6C28A029442...

4/18/2022

SIGNATURE DATE

PROJECT REFERENCE NO.	SHEET NO.
B-4926	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	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	OTHER MATERIAL	
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%	TRACE	1 - 10%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%	LITTLE	10 - 20%
MODERATELY ORGANIC	5 - 10%	12 - 20%	SOME	20 - 35%
HIGHLY ORGANIC	> 10%	> 20%	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:
- [ ] CME-45C
- [ ] CME-55
- [X] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 4" CONTINUOUS FLIGHT AUGER
- [ ] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [X] CASING [ ] W/ ADVANCER
- [X] TRICONE 3 " STEEL TEETH
- [ ] TRICONE _____ " TUNG.-CARB.
- [ ] CORE BIT (4-INCH DIM.) _____

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

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

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [ ] HAND AUGER
- [ ] SOUNDING ROD
- [ ] VANE SHEAR TEST
- [ ] DUAL MASS DCP

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: ELEVATIONS DETERMINED FROM PROVIDED ELECTRONIC FILES (b4926_ls_tin_171205.tin)

ELEVATION: N/A FEET

NOTES:

FIAD - FILLED IMMEDIATELY AFTER DRILLING

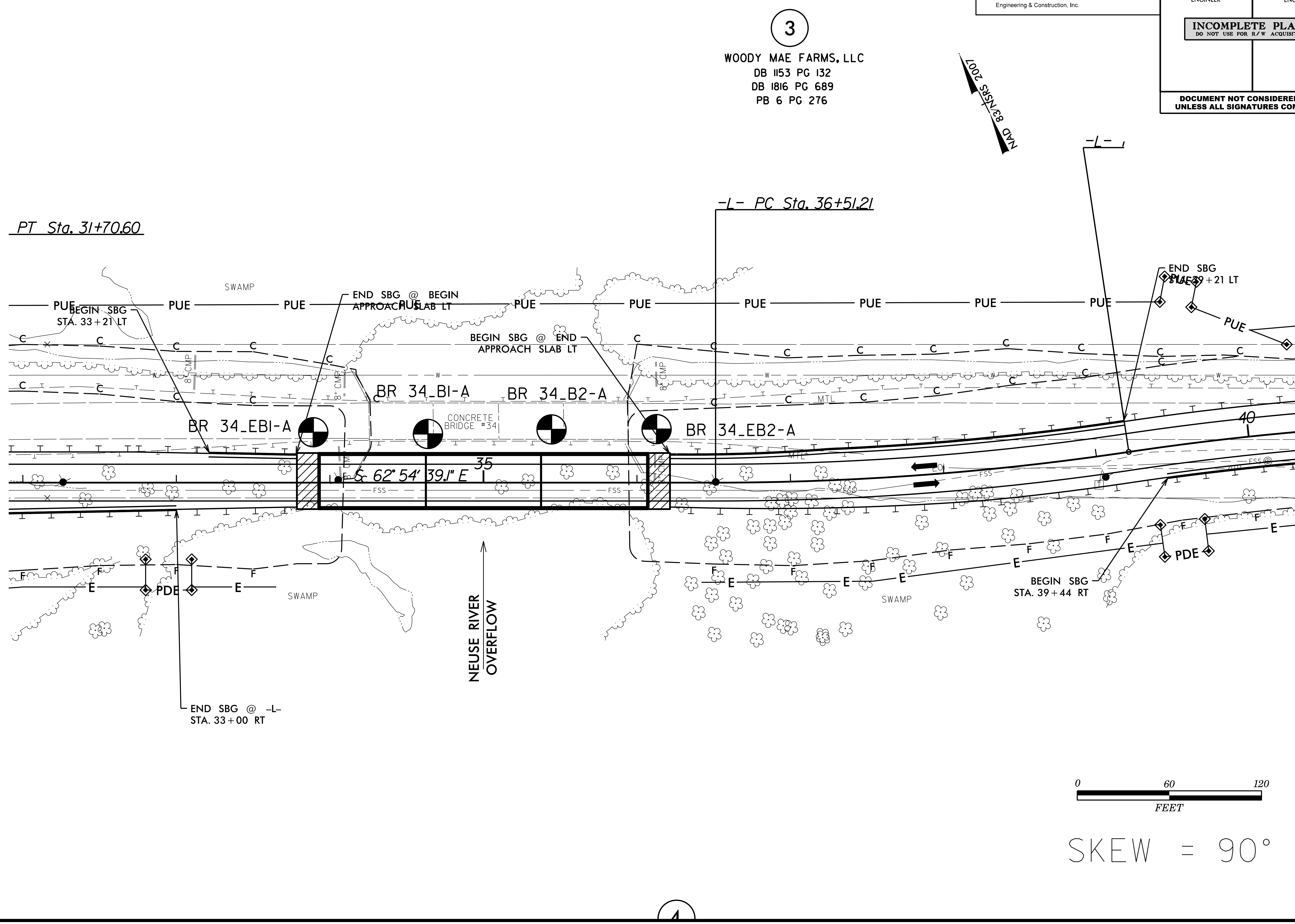
DATE: 8-15-14

SEPI Engineering & Construction, Inc.
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: C-2197

PROJECT REFERENCE NO.	SHEET NO.
B-4926	3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



0 60 120
FEET

SKEW = 90°

8/17/99

09-FEB-2022 11:33
P:\Transportation\Projects\Road\NC-DOT\2019\6468199027_B4926 Kinston\B-4926 Neuse River Overflow\CADD_GEOTECH\PlanProf\B4926_BRDG.inv_03.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4926	4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L-

Ⓐ ROADWAY EMBANKMENT: VERY LOOSE TO VERY DENSE, DRY TO SATURATED, TAN-BROWN-ORANGE, SILTY FINE SAND (A-2-4) WITH ASPHALT LENSES

Ⓑ ROADWAY EMBANKMENT: SOFT, WET, GRAY-ORANGE, FINE TO COARSE SANDY CLAY (A-6) WITH TRACE GRAVEL

Ⓒ ALLUVIAL: SOFT TO MEDIUM STIFF, MOIST TO WET, GRAY, FINE SANDY, SILTY CLAY (A-6) WITH TRACE ORGANICS

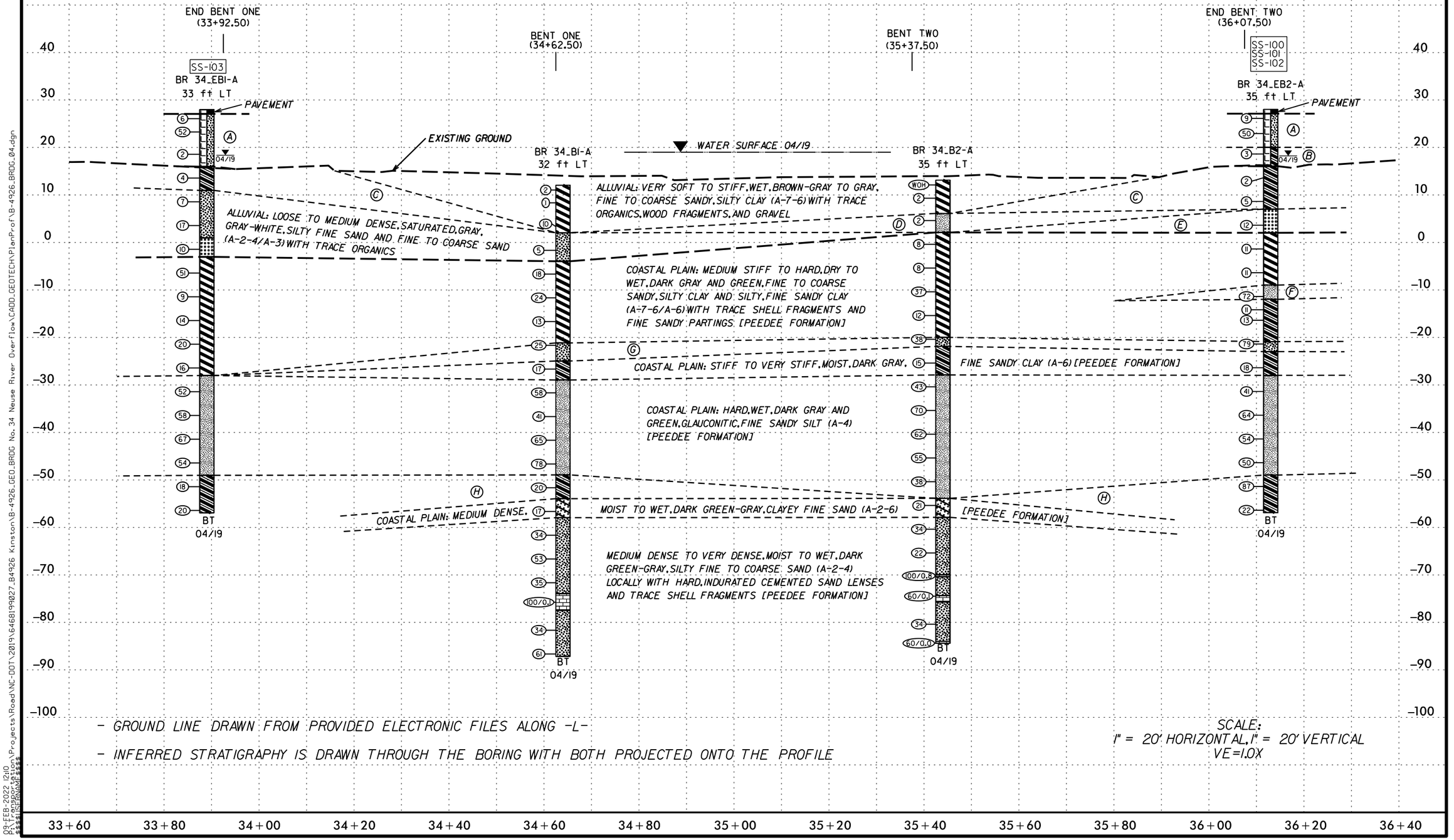
Ⓓ ALLUVIAL: SOFT, WET, GRAY, FINE SANDY, CLAYEY SILT (A-4) WITH TRACE ORGANICS

Ⓔ ALLUVIAL: MEDIUM DENSE, SATURATED, GRAY, FINE TO COARSE SAND (A-3) WITH TRACE GRAVEL

Ⓕ COASTAL PLAIN: HARD, WET, DARK GRAY, SANDY, CLAYEY SILT (A-4) [PEEDEE FORMATION]

Ⓖ COASTAL PLAIN: MEDIUM DENSE TO VERY DENSE, WET, DARK GRAY, SILTY FINE SAND (A-2-4) [PEEDEE FORMATION]

Ⓗ COASTAL PLAIN: VERY STIFF TO HARD, MOIST TO SATURATED, DARK GREEN-GRAY, FINE SANDY CLAY (A-6) WITH TRACE SHELL FRAGMENTS AND CEMENTED SAND LENSES [PEEDEE FORMATION]



- GROUND LINE DRAWN FROM PROVIDED ELECTRONIC FILES ALONG -L-
- INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORING WITH BOTH PROJECTED ONTO THE PROFILE

SCALE:
1" = 20' HORIZONTAL, 1" = 20' VERTICAL
VE=1.0X

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40163.1.2	**TIP** B-4926	**COUNTY** Lenoir	**GEOLOGIST** J. Howard	
SITE DESCRIPTION Bridge No. 34 on NC 55 Over Neuse River Overflow Near Kinston, NC				**GROUND WTR (ft)**
BORING NO. BR 34_EB1-A	**STATION** 33+89	**OFFSET** 33 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 27.9 ft	**TOTAL DEPTH** 84.9 ft	**NORTHING** 565,609	**EASTING** 2,449,406	**24 HR.** 9.6
DRILL RIG/HAMMER EFF./DATE SME9403 CME-550X 80% 12/03/2020		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER S. Hardee	**START DATE** 04/24/19	**COMP. DATE** 04/24/19	**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)
30										
	27.0	0.9	3	3	3	6		D		27.9 GROUND SURFACE 0.0 27.0 ASPHALT (0.0-0.4'), CONCRETE (0.4-0.9') 0.9 **ROADWAY EMBANKMENT** Very loose to very dense, dry to saturated, tan-brown, silty fine SAND (A-2-4) with asphalt lenses at 4.2'
25	24.2	3.7	3	40	12	52		W		
20	19.5	8.4	1	1	1	2		Sat.		
15	14.5	13.4	1	1	3	4	SS-103	30%		15.9 12.0 **ALLUVIAL** Soft, wet, gray, fine sandy, silty CLAY (A-6) trace organics
10	9.5	18.4	3	3	4	7		Sat.		10.9 17.0 Loose to medium dense, saturated, gray, silty, fine SAND (A-2-4) with trace organics
5	4.5	23.4	2	6	11	17		Sat.		
0	-0.5	28.4	6	6	4	10		Sat.		0.9 27.0 Medium dense, saturated, gray-white, fine to coarse SAND (A-3)
-5	-5.5	33.4	16	26	25	51		D		-3.1 31.0 **COASTAL PLAIN** Stiff to hard, moist, dark gray, fine sandy, silty CLAY (A-7-6) with trace shell fragments and fine sandy partings (Peedee Formation)
-10	-10.5	38.4	4	4	5	9		M		
-15	-15.5	43.4	4	5	9	14		M		
-20	-20.5	48.4	4	5	15	20		M		
-25	-25.5	53.4	5	7	9	16		M		-28.1 56.0 Hard, moist to saturated, dark green-gray, glauconitic, fine sandy SILT (A-4) (Peedee Formation)
-30	-30.5	58.4	16	21	31	52		M		
-35	-35.5	63.4	16	23	35	58		W		
-40	-40.5	68.4	17	24	43	67		Sat.		
-45	-45.5	73.4	16	21	33	54		Sat.		-49.1 77.0
-50										

NCDOT BORE SINGLE B-4926_GEO_RDWY_GINT.GPJ NC_DOT.GDT 2/9/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40163.1.2	**TIP** B-4926	**COUNTY** Lenoir	**GEOLOGIST** J. Howard	
SITE DESCRIPTION Bridge No. 34 on NC 55 Over Neuse River Overflow Near Kinston, NC				**GROUND WTR (ft)**
BORING NO. BR 34_EB1-A	**STATION** 33+89	**OFFSET** 33 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 27.9 ft	**TOTAL DEPTH** 84.9 ft	**NORTHING** 565,609	**EASTING** 2,449,406	**24 HR.** 9.6
DRILL RIG/HAMMER EFF./DATE SME9403 CME-550X 80% 12/03/2020		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER S. Hardee	**START DATE** 04/24/19	**COMP. DATE** 04/24/19	**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)
-50						Match Line				
	-50.5	78.4	7	8	10	18		W		Very stiff, wet to saturated, dark green-gray, fine sandy CLAY (A-6) with trace shell fragments (Peedee Formation) *(continued)*
-55	-55.5	83.4	11	10	10	20		Sat.		-57.0 84.9 Boring Terminated at Elevation -57.0 ft in Coastal Plain: Very stiff, fine sandy, silty CLAY (A-6) (Peedee Formation)

NCDOT BORE SINGLE B-4926_GEO_RDWY_GINT.GPJ NC_DOT.GDT 2/9/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40163.1.2	**TIP** B-4926	**COUNTY** Lenoir	**GEOLOGIST** J. Howard	
SITE DESCRIPTION Bridge No. 34 on NC 55 Over Neuse River Overflow Near Kinston, NC				**GROUND WTR (ft)**
BORING NO. BR 34_B1-A	**STATION** 34+64	**OFFSET** 32 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 12.0 ft	**TOTAL DEPTH** 99.2 ft	**NORTHING** 565,574	**EASTING** 2,449,472	**24 HR.** N/A
DRILL RIG/HAMMER EFF./DATE SME9403 CME-550X 80% 12/03/2020		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER S. Hardee	**START DATE** 04/29/19	**COMP. DATE** 04/29/19	**SURFACE WATER DEPTH** 7.0ft	

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))
20										
15										
										WATER SURFACE (04/29/19)
	12.0	0.0	3	1	1	2		W		12.0 MUDLINE 0.0
10	9.3	2.7	WOH	1	0	1		W		**ALLUVIAL** Very soft to medium stiff, wet, brown-gray to gray, fine to coarse sandy, silty CLAY (A-7-6) with trace organics, wood fragments, and gravel
5	4.3	7.7	3	3	7	10		W		2.0 10.0 Very loose, saturated, gray, silty fine SAND (A-2-4) with trace organics
0	-0.7	12.7	1	3	2	5		Sat.		-4.0 16.0 **COASTAL PLAIN** Stiff to very stiff, wet to moist, dark gray green, fine sandy, silty CLAY (A-7-6) with fine sandy partings (Peedee Formation)
-5	-5.7	17.7	3	6	12	18		W		
-10	-10.7	22.7	20	14	10	24		M		
-15	-15.7	27.7	4	5	8	13		M		
-20	-20.7	32.7	4	6	19	25		M		-21.2 33.2 Medium dense, wet, dark gray, silty SAND (A-2-4) (Peedee Formation)
-25	-25.7	37.7	5	6	11	17		W		-25.0 37.0 Stiff, moist, dark gray, fine sandy CLAY (A-6) (Peedee Formation)
-30	-30.7	42.7	17	24	34	58		M		-29.0 41.0 Hard, moist to saturated, dark green gray, glauconitic, fine sandy SILT (A-4) (Peedee Formation)
-35	-35.7	47.7	13	15	26	41		M		
-40	-40.7	52.7	17	26	39	65		Sat.		
-45	-45.7	57.7	16	22	56	78		Sat.		-49.0 61.0 Very stiff, moist, dark green gray, fine sandy CLAY (A-6) with trace shell fragments (Peedee Formation)
-50	-50.7	62.7	13	10	10	20		Sat.		-54.0 66.0 Medium dense, moist, dark green gray, clayey fine SAND (A-2-6) (Peedee Formation)
-55	-55.7	67.7	6	7	10	17		M		-58.0 70.0
-60										

NCDOT BORE SINGLE B-4926_GEO_RDWY_GINT.GPJ NC_DOT.GDT 2/9/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40163.1.2	**TIP** B-4926	**COUNTY** Lenoir	**GEOLOGIST** J. Howard	
SITE DESCRIPTION Bridge No. 34 on NC 55 Over Neuse River Overflow Near Kinston, NC				**GROUND WTR (ft)**
BORING NO. BR 34_B1-A	**STATION** 34+64	**OFFSET** 32 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 12.0 ft	**TOTAL DEPTH** 99.2 ft	**NORTHING** 565,574	**EASTING** 2,449,472	**24 HR.** N/A
DRILL RIG/HAMMER EFF./DATE SME9403 CME-550X 80% 12/03/2020		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER S. Hardee	**START DATE** 04/29/19	**COMP. DATE** 04/29/19	**SURFACE WATER DEPTH** 7.0ft	

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))
-60	-60.7	72.7	18	18	16	Match Line 34		M		Dense to very dense, moist to wet, dark green gray, silty fine to coarse SAND (A-2-4) with trace friable cemented sand lenses (Peedee Formation) *(continued)*
-65	-65.7	77.7	7	16	37	53		M		
-70	-70.7	82.7	17	16	19	35		W		
-75	-75.7	87.7	100/0.1			100/0.1		W		-74.0 86.0 Hard, indurated, green gray, CEMENTED SAND and very dense, wet, silty fine sand (A-2-4) (Peedee Formation)
-80	-80.7	92.7	12	16	18	34		W		-77.5 89.5 Dense to very dense, wet, green-gray, silty fine SAND (A-2-4) with trace shell fragments (Peedee Formation)
-85	-85.7	97.7	18	26	35	61		W		-87.2 99.2 Boring Terminated at Elevation -87.2 ft in Coastal Plain: Very dense, silty fine SAND (A-2-4) (Peedee Formation)

NCDOT BORE SINGLE B-4926_GEO_RDWY_GINT.GPJ NC_DOT.GDT 2/9/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40163.1.2	**TIP** B-4926	**COUNTY** Lenoir	**GEOLOGIST** J. Howard	
SITE DESCRIPTION Bridge No. 34 on NC 55 Over Neuse River Overflow Near Kinston, NC				**GROUND WTR (ft)**
BORING NO. BR 34_B2-A	**STATION** 35+44	**OFFSET** 35 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 13.1 ft	**TOTAL DEPTH** 97.5 ft	**NORTHING** 565,540	**EASTING** 2,449,545	**24 HR.** N/A
DRILL RIG/HAMMER EFF./DATE SME9403 CME-550X 80% 12/03/2020		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER S. Hardee	**START DATE** 04/25/19	**COMP. DATE** 04/25/19	**SURFACE WATER DEPTH** 6.0ft	

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)
20										
								W		WATER SURFACE (04/25/19)
15										
	13.1	0.0								13.1 MUDLINE 0.0
10	10.3	2.8	WOH	WOH	WOH	0		W		**ALLUVIAL** Very soft to soft, wet, gray, sandy, silty CLAY (A-7-6) with trace organics
	5.6	7.5	WOH	1	1	2		W		
5			2	1	1	2		W		6.1 7.0 Soft, wet, gray, fine sandy, clayey SILT (A-4) with trace organics
	0.6	12.5	2	3	5	8		M		2.1 11.0 **COASTAL PLAIN** Medium stiff to hard, dry to wet, dark gray, fine sandy, silty CLAY (A-7-6) with fine sand partings (Peedee Formation)
0										
	-4.4	17.5	3	3	5	8		M		
-5										
	-9.4	22.5	11	18	19	37		D		
-10										
	-14.4	27.5	3	5	7	12		W		
-15										
	-19.4	32.5	4	19	19	38		M		-20.0 33.1 Dense, wet, dark gray, silty fine SAND (A-2-4) (Peedee Formation)
-20										-21.9 35.0 Very stiff, moist, gray, fine sandy CLAY (A-6) (Peedee Formation)
	-24.4	37.5	4	7	8	15		M		
-25										
	-29.4	42.5	12	17	26	43		M		-27.9 41.0 Hard, wet, dark green-gray, glauconitic, fine sandy SILT (A-4) (Peedee Formation)
-30										
	-34.4	47.5	17	28	42	70		W		
-35										
	-39.4	52.5	17	24	38	62		W		
-40										
	-44.4	57.5	6	22	33	55		W		
-45										
	-49.4	62.5	15	23	15	38		W		
-50										
	-54.4	67.5	8	11	10	21		W		-53.9 67.0 Medium dense, wet, dark green gray, clayey fine to coarse SAND (A-2-6) with trace cemented sand fragments (Peedee Formation)
-55										-57.9 71.0
	-59.4	72.5								
-60										

NCDOT BORE SINGLE B-4926_GEO_RDWY_GINT.GPJ NC_DOT.GDT 2/9/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40163.1.2	**TIP** B-4926	**COUNTY** Lenoir	**GEOLOGIST** J. Howard	
SITE DESCRIPTION Bridge No. 34 on NC 55 Over Neuse River Overflow Near Kinston, NC				**GROUND WTR (ft)**
BORING NO. BR 34_B2-A	**STATION** 35+44	**OFFSET** 35 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 13.1 ft	**TOTAL DEPTH** 97.5 ft	**NORTHING** 565,540	**EASTING** 2,449,545	**24 HR.** N/A
DRILL RIG/HAMMER EFF./DATE SME9403 CME-550X 80% 12/03/2020		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER S. Hardee	**START DATE** 04/25/19	**COMP. DATE** 04/25/19	**SURFACE WATER DEPTH** 6.0ft	

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)
-60			17	17	17	Match Line 34		W		Medium dense to very dense, wet, dark green-gray, silty fine to coarse SAND (A-2-4) with trace friable to indurated CEMENTED SAND lenses (Peedee Formation) *(continued)*
	-64.4	77.5	7	10	12	22		W		
-65										
	-69.4	82.5	22	78/0.3		100/0.8		W		-70.0 83.1 -70.4 83.5 Hard, indurated, green-gray, CEMENTED SAND (Peedee Formation)
-70										
	-74.4	87.5	60/0.1			60/0.1				-74.4 87.5 Medium dense, wet, dark green-gray, silty fine to coarse SAND (A-2-4) with trace friable to indurated CEMENTED SAND lenses (Peedee Formation)
-75										-75.7 88.8 Hard, indurated, green-gray, CEMENTED SAND and dense, wet, silty fine SAND (A-2-4) (Peedee Formation)
	-79.4	92.5	10	15	19	34		W		Dense, wet, dark green-gray, silty fine to coarse SAND (A-2-4) with trace friable to indurated CEMENTED SAND lenses (Peedee Formation)
-80										-84.0 97.1 -84.4 97.5 Hard, indurated, green-gray, CEMENTED SAND and dense, wet, silty fine SAND (A-2-4) (Peedee Formation)
	-84.4	97.5	60/0.0			60/0.0				Boring Terminated with Standard Penetration Test Refusal at Elevation -84.4 ft in Coastal Plain: Hard, indurated, CEMENTED SAND (Peedee Formation)

NCDOT BORE SINGLE B-4926_GEO_RDWY_GINT.GPJ NC_DOT.GDT 2/9/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40163.1.2	**TIP** B-4926	**COUNTY** Lenoir	**GEOLOGIST** J. Howard	
SITE DESCRIPTION Bridge No. 34 on NC 55 Over Neuse River Overflow Near Kinston, NC				**GROUND WTR (ft)**
BORING NO. BR 34_EB2-A	**STATION** 36+13	**OFFSET** 35 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 27.9 ft	**TOTAL DEPTH** 84.9 ft	**NORTHING** 565,509	**EASTING** 2,449,606	**24 HR.** 9.8
DRILL RIG/HAMMER EFF./DATE SME9403 CME-550X 80% 12/03/2020		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER S. Hardee	**START DATE** 04/23/19	**COMP. DATE** 04/23/19	**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
30										ELEV. (ft) / DEPTH (ft)
										27.9 / 0.0 GROUND SURFACE
	27.0	0.9	5	4	5	9		D		27.0 / 0.9 ASPHALT (0.0-0.4'), CONCRETE (0.4-0.9')
25	23.8	4.1	3	16	34	50		M		**ROADWAY EMBANKMENT** Loose to medium dense, dry to moist, tan-orange, silty fine SAND (A-2-4) with trace asphalt lenses at 5.1'
20	19.5	8.4	2	1	2	3	SS-100	35%		19.9 / 8.0 Soft, wet, gray-orange, fine to coarse sandy CLAY (A-6) with trace gravel
15	14.5	13.4	1	1	1	2	SS-101	46%		15.9 / 12.0 **ALLUVIAL** Soft to medium stiff, wet to moist, dark gray and gray, fine sandy, silty CLAY (A-6) with trace organics
10	9.5	18.4	1	1	4	5		M		6.9 / 21.0 Medium dense, saturated, gray, fine to coarse SAND (A-3) with trace gravel
5	4.5	23.4	7	7	5	12		Sat.		1.9 / 26.0 **COASTAL PLAIN** Stiff, moist, dark gray, fine to coarse sandy, silty CLAY (A-7-6) (Peedee Formation)
0	-0.5	28.4	3	5	6	11	SS-102	23%		
-5	-5.5	33.4	4	5	6	11		M		
-10	-10.5	38.4	16	32	40	72		W		-9.1 / 37.0 Hard, wet, dark gray, sandy, clayey SILT (A-4) (Peedee Formation)
-15	-13.3	41.2	4	5	6	11		M		-12.1 / 40.0 Stiff, moist, dark gray, fine sandy, silty CLAY (A-6) with fine sandy partings (Peedee Formation)
	-15.5	43.4	4	5	8	13		M		
-20	-20.5	48.4	9	29	50	79		W		-21.0 / 48.9 Very dense, wet, dark gray, silty fine SAND (A-2-4) (Peedee Formation)
-25	-25.5	53.4	5	8	10	18		M		-23.1 / 51.0 Very stiff, moist, dark gray, fine sandy, silty CLAY (A-6) with fine sand partings (Peedee Formation)
-30	-30.5	58.4	14	17	24	41		W		-28.1 / 56.0 Hard, wet, dark green-gray, glauconitic, fine sandy SILT (A-4) (Peedee Formation)
-35	-35.5	63.4	17	23	41	64		W		
-40	-40.5	68.4	16	23	31	54		W		
-45	-45.5	73.4	16	21	29	50		W		
-50										-49.1 / 77.0

NCDOT BORE SINGLE B-4926_GEO_RDWY_GINT.GPJ NC_DOT.GDT 2/9/22

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40163.1.2	**TIP** B-4926	**COUNTY** Lenoir	**GEOLOGIST** J. Howard	
SITE DESCRIPTION Bridge No. 34 on NC 55 Over Neuse River Overflow Near Kinston, NC				**GROUND WTR (ft)**
BORING NO. BR 34_EB2-A	**STATION** 36+13	**OFFSET** 35 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 27.9 ft	**TOTAL DEPTH** 84.9 ft	**NORTHING** 565,509	**EASTING** 2,449,606	**24 HR.** 9.8
DRILL RIG/HAMMER EFF./DATE SME9403 CME-550X 80% 12/03/2020		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER S. Hardee	**START DATE** 04/23/19	**COMP. DATE** 04/23/19	**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
-50						Match Line				ELEV. (ft) / DEPTH (ft)
	-50.5	78.4	16	60	27	87		W		Hard to very stiff, wet, dark green gray, fine sandy CLAY (A-6) with trace cemented sand lenses (Peedee Formation) *(continued)*
-55	-55.5	83.4	14	13	9	22		W		-57.0 / 84.9 Boring Terminated at Elevation -57.0 ft in Coastal Plain: Very stiff, fine sandy, silty CLAY (A-6) (Peedee Formation)

Pushed tubes ST-1 and ST-2 at offset location -L- 36+18, 35 ft LT
-ST-1 from 8.5-10.5 ft (Rec=2.0 ft)
-ST-2 from 13.0-15.0 ft (Rec=2.0 ft)

Other Samples:
ST-1 (8.5 - 10.5)
ST-2 (13.0 - 15.0)

NCDOT BORE SINGLE B-4926_GEO_RDWY_GINT.GPJ NC_DOT.GDT 2/9/22

Wood E&IS Project No.: 6468-19-9027 **Bridge No. 34 on NC 55 (-L-) Over the Neuse River Overflow at -L- Sta. 35+00** **Date Reported: July 2019**

NCDOT WBS No.: 40163.1.2 **Tip No.: B-4926** **County: LENOIR** **Date Tested: June 2019**

SOIL TEST RESULTS

SAMPLE NO.	STATION	OFFSET	LINE	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
								C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-103	33+89	33' LT	-L-	13.4-14.9'	A-6(12)	35	19	7.8	18.4	36.3	37.4	99.9	95.7	74.8	30.3	-
SS-100	36+13	35' LT	-L-	8.4-9.9'	A-6(12)	37	22	27.5	6.8	33.7	31.4	99.4	77.1	65.6	35.2	-
SS-101	36+13	35' LT	-L-	13.4-14.9'	A-6(8)	30	14	2.1	25.1	37.9	34.9	100.0	99.6	74.2	45.5	-
SS-102	36+13	35' LT	-L-	28.4-29.9'	A-7-6(20)	41	26	12.6	7.5	49.4	30.3	99.8	91.3	80.8	23.4	-

ND = NOT DETERMINED
NV = NO VALUE
NP = NON-PLASTIC

Albert S. Romero — 115-01-0504 — Albert Romero

Signature — Certification # — Print Name

SITE PHOTOGRAPH