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REFERENCE

40163

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SHEET NO. **DESCRIPTION** TITLE SHEET LEGEND (SOIL & ROCK) SITE PLAN 4-6 PROFILE 7-13 BORE LOGS LABORATORY TEST RESULTS SITE PHOTOGRAPH(S)

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

STATE PROJECT REFERENCE NO. 15 B-4926

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 (1991) 707-6805. 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 BORCHOLE. 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 METHOL. 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 INCLORDED TO CLIMATIC CONDITIONS INCLOURS CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLOURING 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 IT 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 SATISTY 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.

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DATE __FEBRUARY, 2022

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NC Engineering F-1253 NC Geology C-247 4/18/2022 SIGNATURE

B-4926

SHEET NO.

2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS
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	WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE.	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.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION	<u>UNIFORMLY GRADED</u> - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.	SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60	AQUIFER - A WATER BEARING FORMATION OR STRATA.
IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH	ANGULARITY OF GRAINS	BLOWS IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK.	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE,	THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS:	ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING
VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDOED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6 SOIL LEGEND AND AASHTO CLASSIFICATION	ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	WEATHERED VICTURE NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.	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
CENERAL CRAMINI AR MATERIAL C CTLT-CLAY MATERIAL C	MINERALOGICAL COMPOSITION	FINE TO COARSE CRAIN ICNEOUS AND METAMORPHIC POCK THAT	WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND
CLASS. (≤ 35% PASSING *200) (> 35% PASSING *200) ORGANIC MATERIALS	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC.	WOULD YIELD SPT REFUSAL IF TESTED, ROCK TYPE INCLUDES GRANITE,	SURFACE.
GROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5	ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.	NON-CRYSTALLINE NON-CRYSTALLINE FIRE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN FOR TOWNSHAP ROOM TO AND THE PLAN OF TH	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
CLASS. A-1-6 A-1-6 A-2-4 A-2-5 A-2-6 A-2-7 A-7-6 A-7-7 A-7-6 A-3 A-6, A-7	COMPRESSIBILITY SLIGHTLY COMPRESSIBLE LL < 31	ROCK (NCR) SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.
SYMBOL 0000d0000d	MODERATELY COMPRESSIBLE LL = 31 - 50	COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD	CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED
7. PASSING SILT-	HIGHLY COMPRESSIBLE LL > 50 PERCENTAGE OF MATERIAL	SEDIMENTARY ROCK SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.	BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
*10 58 MX GRANULAR CLAY MUCK, SOILS SOIL		WEATHERING	<u>DIKE</u> - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.
ואו של ואו של ואו של ואו של או כנ או כנ או כנ או כנ או כנ או כל או כנ או כנ או כל או כנ או כנ או או כל או כנ	ORGANIC MATERIAL SOILS SOILS OTHER MATERIAL	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER	<u>DIP</u> - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE
MATERIAL PASSING *40	TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10% LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20%	HAMMER IF CRYSTALLINE. VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN,	HORIZONTAL.
LL 40 MX 41 MN 40 MX 41 MN 40 MX 41 MN 40 MX 41 MN 1111E OR	MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35% HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE	(V SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF	<u>DIP DIRECTION (DIP AZIMUTH)</u> - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
PI 6 MX NP 10 MX 10 MX 11 MN 11 MN 10 MX 10 MX 11 MN 11 MN MODERATE OPENALS	GROUND WATER	OF A CRYSTALLINE NATURE.	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE
GROUP INDEX 0 0 0 4 MX 8 MX 12 MX 16 MX NO MX AMOUNTS OF SOILS		SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO (SLI.) 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR	SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
OF MAJOR GRAYEL, AND CAMP CRAYEL AND CAMP COLOR	WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING	CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
MATERIALS SAND SAND GRAVEL AND SAND SOILS SOILS	▼ STATIC WATER LEVEL AFTER <u>24</u> HOURS	MODERATE SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS, IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY, ROCK HAS	<u>FLOAT</u> - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIG _I NAL POSITION AND DISLODGED FROM PARENT MATERIAL.
GEN. RATING AS SUBGRADE EXCELLENT TO GOOD FAIR TO POOR FAIR TO POOR POOR UNSUITABLE		DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
P1 0F A-7-5 SUBGROUP IS ≤ LL - 30 ; P1 0F A-7-6 SUBGROUP IS > LL - 30	SPRING OR SEEP	WITH FRESH ROCK.	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE
CONSISTENCY OR DENSENESS	MISCELLANEOUS SYMBOLS	MODERATELY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL SEVERE AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH	FIELD.
COMPACTNIESS OR RANGE OF STANDARD RANGE OF UNCONFINED	TT 35,405	(MOD. SEV.) AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES 'CLUNK' SOUND WHEN STRUCK.	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
PRIMARY SOIL TYPE CONSISTENCY PENETRATION RESISTENCE COMPRESSIVE STRENGTH (N-VALUE) (TONS/FT ²)	ROADWAY EMBANKMENT (RE) 25/025 DIP & DIP DIRECTION OF ROCK STRUCTURES	IF TESTED, WOULD YIELD SPT REFUSAL SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC CLEAR AND EVIDENT BUT	<u>LEDGE</u> - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.
VERY LOOSE (4	┫ ╚┦	(SEV.) REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED	LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
GRANII AR LOOSE 4 TO 10	SOIL SYMBOL SOIL SYMBOL SUPPLIENT TEST BORING SLOPE INDICATOR INSTALLATION	TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLING IN SOILS
MATERIAL MEDIUM DENSE 10 TO 30 N/A MATERIAL DENSE 30 TO 50 (NON-COHESIVE) MEDIUM DENSE 30 TO 50	ARTIFICIAL FILL (AF) OTHER AUGER BORING CONE PENETROMETER THAN ROADWAY EMBANKMENT TEST	VERY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE	USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
VERY DENSE > 500		SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.
VERY SOFT < 2 < 0.25 GENERALLY SOFT 2 TO 4 0.25 TO 0.5	— INFERRED SOIL BOUNDARY — CORE BORING SOUNDING ROD	(V SEV.) REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <u>IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF</u>	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0	INFERRED ROCK LINE MONITORING WELL TEST BORING WITH CORE	COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND	ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF
MATERIAL STIFF 8 TO 15 1 TO 2 (COHESIVE) VERY STIFF 15 TO 30 2 TO 4	ALLUMIAL SOU BOUNDARY A PIEZOMETER	SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.	ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE
HARD > 30 > 4	INSTREETION	ROCK HARDNESS	RUN AND EXPRESSED AS A PERCENTAGE. <u>SAPROLITE (SAP.)</u> - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT
TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS	VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES	ROCK.
U.S. STD. SIEVE SIZE 4 10 40 60 200 270	UNDERCUT UNCLASSIFIED EXCAVATION - UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE	SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.	SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND
OPENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053	SHALLOW UNCLASSIFIED EXCAVATION - USED IN THE TOP 3 FEET OF	HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.	RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
BOULDER	UNDERCUT OR BACKFILL STRILLOW UNDERCUT ACCEPTABLE DEGRADABLE ROCK EMBANKMENT OR BACKFILL	MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK, GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT
(BLDR.) (COB.) (GR.) (CSE. SD.) (F SD.) (SL.) (CL.)	ABBREVIATIONS		
GRAIN MM 305 75 2.0 0.25 0.05 0.005		HARD EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED	OR SLIP PLANE.
	AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST	BY MODERATE BLOWS.	STANDARD PENETRATION TEST (PENETRATION RESISTANCE)(SPT) - NUMBER OF BLOWS (N OR BPF) OF
SIZE IN. 12 3	BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED CL CLAY MOD MODERATELY 7 - UNIT WEIGHT	BY MODERATE BLOWS. MEDIUM CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES I INCH MAXIMUM SIZE BY HARD BLOWS OF THE	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
SOIL MOISTURE - CORRELATION OF TERMS	BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED CL CLAY MOD MODERATELY 7 - UNIT WEIGHT CPT - CONE PENETRATION TEST NP - NON PLASTIC 7- DRY UNIT WEIGHT	BY MODERATE BLOWS. MEDIUM CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.	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 I FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.I FOOT PER 60 BLOWS.
SIZE IN. 12 3	BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED CL CLAY MOD MODERATELY 7 - UNIT WEIGHT CPT - CONE PENETRATION TEST NP - NON PLASTIC 7/4 - DRY UNIT WEIGHT CSE COARSE ORG ORGANIC DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST SAMPLE ABBREVIATIONS	BY MODERATE BLOWS. MEDIUM CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES I INCH MAXIMUM SIZE BY HARD BLOWS OF THE	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
SIZE IN. 12 3 SOIL MOISTURE - CORRELATION OF TERMS SOIL MOISTURE SCALE FIELD MOISTURE DESCRIPTION DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION	BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED CL CLAY MOD MODERATELY 7 - UNIT WEIGHT CPT - CONE PENETRATION TEST NP - NON PLASTIC CSE COARSE ORG ORGANIC DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST SAMLE ABBREVIATIONS DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK	BY MODERATE BLOWS. MEDIUM CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. HARD 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.	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 STRATAM AND EXPRESSED AS A PERCENTAGE.
SOIL MOISTURE - CORRELATION OF TERMS SOIL MOISTURE SCALE (ATTERBERG LIMITS) SOIL MOISTURE SCALE DESCRIPTION SOIL MOISTURE SCALE (ATTERBERG LIMITS) SATURATED - (SAT.) (SAT.) SOULLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE	BT - BORING TERMINATED MICA MICACEOUS CL CLAY MOD MODEATELY CPT - CONE PENETRATION TEST NP - NON PLASTIC CSC COARSE ORG ORGANIC DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC E - VOID RATIO F - FINE SL SILT, SILTY ST - SHELBY TUBE	BY MODERATE BLOWS. MEDIUM 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 CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH	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
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SOIL MOISTURE - CORRELATION OF TERMS SOIL MOISTURE SCALE (ATTERBERG LIMITS) SOIL MOISTURE SCALE DESCRIPTION CATTERBERG LIMITS - SATURATED - USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE - WET - (W) SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE SCAL SHRINKAGE LIMIT - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE	BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED CL CLAY MOD MODERATELY CPT - CONE PENETRATION TEST NP - NON PLASTIC CSE COARSE ORG ORGANIC DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST SAPLE ABBREVIATIONS DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST SAPLE ABBREVIATIONS DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON F - FINE SL SILT, SILTY ST - SHELBY TUBE FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK FRACE FRACTURED, FRACTURES TCR - TRICONE REFUSAL HI HIGHLY V - VERY RATIO EQUIPMENT USED ON SUBJECT PROJECT DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE: X CME-45C CAPE SIZE:	BY MODERATE BLOWS. MEDIUM 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 CAN BE CARVED WITH KNIFE, CAN BE EXCAVATED READILY WITH POINT OF PICK, PIECES 1 INCH SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE, CAN BE SCRATCHED READILY BY FINGERNAL. FRACTURE SPACING VERY WIDE MORE THAN 10 FEET WIDE MODERATELY CLOSE 1 TO 3 FEET THICKLY BEDDED 1.5 - 4 FEET CLOSE 0.16 TO 1 FOOT VERY THICKLY BEDDED 0.03 - 0.16 FEET THINLY BEDDED 0.040 - 0.03 FEET THICKLY LAMINATED VERY THINLY BEDDED 0.03 - 0.16 FEET THICKLY LAMINATED VERY THINLY BEDDED 0.040 - 0.03 FEET THICKLY LAMINATED VERY THINLY LAMINATED VERY THINLY LAMINATED VERY THINLY LAMINATED VERY BEDDED 0.040 - 0.03 FEET THINLY LAMINATED VERY THINLY LAMINATED	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 (SROD) - 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. 10PSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER. BENCH MARK: BL-3 (-BL- 16+96)
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SOIL MOISTURE - CORRELATION OF TERMS SOIL MOISTURE SCALE (ATTERBERG LIMITS) - SATURATED - USUALLY LIQUID: VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE - WET - (W) - WET - (W) - SEMISOLID: REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE SL SHRINKAGE LIMIT - DRY - (D) - PLASTIC TY - DRY - (D) - DRY STRENGTH - SEMISOLID: REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE - DRY - (D) - DRY STRENGTH - SEMISOLID: AT OR NEAR OPTIMUM MOISTURE - DRY - (D) - DRY STRENGTH - SEMISOLID: AT OR NEAR OPTIMUM MOISTURE - DRY - (D) - DRY - (D) - DRY STRENGTH - SEMISOLID: AT OR NEAR OPTIMUM MOISTURE - DRY - (D) - DRY STRENGTH - SEMISOLID: AT OR NEAR OPTIMUM MOISTURE - DRY - (D) - DRY STRENGTH - SEMISOLID: AT OR NEAR OPTIMUM MOISTURE - DRY - (D) - DRY STRENGTH - SEMISOLID: AT OR NEAR OPTIMUM MOISTURE - DRY - (D) - DRY STRENGTH - SEMISOLID: AT OR NEAR OPTIMUM MOISTURE - DRY - (D) - DRY STRENGTH - SEMISOLID: AT OR NEAR OPTIMUM MOISTURE - DRY - (D) - DRY STRENGTH - SEMISOLID: AT OR NEAR OPTIMUM MOISTURE - DRY - (D) - DRY - (D) - DRY STRENGTH - SEMISOLID: AT OR NEAR OPTIMUM MOISTURE - DRY - (D) - DRY - (D) - DRY STRENGTH - SEMISOLID: AT OR NEAR OPTIMUM MOISTURE - DRY - (D) - DRY - (D) - DRY STRENGTH - SEMISOLID: AT OR NEAR OPTIMUM MOISTURE - DRY - (D) - DRY - (D) - DRY STRENGTH - SEMISOLID: AT OR NEAR OPTIMUM MOISTURE - DRY - (D) - DRY - (D) - DRY STRENGTH - SEMISOLID: AT OR NEAR OPTIMUM MOISTURE - DRY - (D) - DRY - (D)	BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED CL CLAY MOD MODERATELY 7 - UNIT WEIGHT CPT - CONE PENETRATION TEST NP - NON PLASTIC CSE COARSE ORG ORGANIC DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST SAMLE ABBREVIATIONS DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST SAMLE ABBREVIATIONS DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK SS SHOLL SHOWN SS - SPLIT SPOON SS SPLIT SPOON SS SPLIT SPOON SS FOSSILIFEROUS SLI SLIGHTLY ST - SHELBY TUBE RS - ROCK FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL FRAGS FRAGMENTS W- MOISTURE CONTENT CBR - CALIFORNIA BEARING RATION RATIO RATIO RATIO RATIO CRITICAL CBR - CALIFORNIA BEARING RATIO CBR - CALIFORNIA DEARING RATIO CB	BY MODERATE BLOWS. MEDIUM 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 CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE, CAN BE SCRATCHED READILY BY FINGERNALL. FRACTURE SPACING VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET WIDE 3 TO 10 FEET THICKLY BEDDED 0.15 - 4 FEET MODERATELY CLOSE 1 TO 3 FEET THINLY BEDDED 0.16 - 1.5 FEET CLOSE 0.16 TO 1 FOOT VERY THINLY BEDDED 0.000 - 0.03 FEET THINLY LAMINATED 0.000 FEET INDURATION FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. FRIABLE GRAVED WITH STEEL PROBE;	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 I FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EDUAL 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 (SROD) - 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. 10PSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER. BENCH MARK: BL-3 (-BL- 16+96) ELEVATION: 37.22 FEET
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0					1	1 Glenwood Avenue	PROJECT REFERENCE N	NO.
						Raletgh, NC 27603 Tel: 919,789,9977 Fax: 910,788,9591 Licence; C-2197	ROADWAY DESIGN ENGINEER	
							INCOMPLI DO NOT USE FOR	ETE
	END BENT TWO (28+15.00) 	H) ROADWAY EMBAN	KMENT:LOOSE TO VERY LOO	SE.DRY TO MOIST.TAN-BROWN-GRA	Y,SILTY F	INE SAND (A-2-4)		
60	SS-121 SS-122	(C) ALLUVIAL: SOFT	O VERY SOFT,WET,GRAY AN	ID GRAY-TAN,FINE SANDY,CLAY AN	D SILT (A	-6/A-4)WITH TRACE	DOCUMENT NOT UNLESS ALL SIGN	CO
50	BR 20_EB2-A 28+23 46 ft LT			RAY,SILTY FINE SAND (A-2-4)WITH		<u> </u>		- 2
40	PAVEMENT 46 ft LT					<u> </u>		2
30		D COASTAL PLAIN: THIN CLAY LENS	DENSE,WET,GRAY TO DARK (ES (PEEDEE FORMATION)	GRAY,SILTY,FINE TO COARSE SAND	(A-2-4) \	WITH TRACE VERY		
20	GROUND SURFACE (H) (H) (T) T T T T T T T T T T T T T T T T T							
10								
0								
NPlanPro								
10	COASTAL PLAIN: STIFF TO VERY 以 STIFF, MOIST, GRAY, FINE SANDY CLAY ② 以 (A-6) WITH TRACE SHELL FRAGMENTS は (PEEDEE FORMATION)							
2.0	≝L							
-30	☐ DENSE TO VERY DENSE, WET, DARK ☐ GRAY TO DARK GREEN GRAY, ☐ SILIGHTLY GLAUCONITIC TO ☐ GLAUCONITIC, SILTY FINE SAND ☐ (A-2-4) WITH TRACE SHELL ☐ FRAGMENTS AND VERY THIN CLAY							
40	FRAGMENTS AND VERY THIN CLAY COOTO.D COO							-
-50	VERY STIFF TO STIFF, MOIST, DARK GREEN-GRAY, FINE SANDY CLAY (A-6) (A-6) WITH TRACE SHELL FRAGMENTS BT							
60	(PEEDEE FORMATION) FIAD 10/21							
-7.0								
0.8 . 								
-90								
100	– GROUND LINE PROFILE DRAWN FROM PROVIDE ELECTRONIC FILES ALONG –L–	D						
AT WCH	– INFERRED STRATIGRAPHY IS DRAWN THROUGH BORINGS WITH BOTH PROJECTED ONTO THE PROJ					SCALE: 1" = 20'HORIZONTAL, 1" = VE = 1.0X		A.

							B	<u>ORE</u>	<u>L</u>	<u>OG</u>			_				
WBS	40163	3.1.2			TI	P B-4926	COUNT	Y Lenoir					GEOLOGI	ST J. Howa	rd		
SITE	DESC	RIPTIO	N Brid	lge No	o. 20 oı	n NC 55 (-L-) Over N	euse Rive	er Near Kii	nsto	on, NC						GROUN	ID WTR (f
BOR	ING NO). BR 2	20_EB	1-B	S	TATION 22+72		OFFSET	3	7 ft RT			ALIGNME	NT -L-		0 HR.	N/A
COLI	LAR EL	. EV . 16	6.7 ft		TO	OTAL DEPTH 74.2 f	t	NORTHI	NG	565,9	28		EASTING	2,448,335		24 HR.	FIAD
DRILL	RIG/HA	MMER E	FF./DA	те м	ID3964	CME-45C 87% 09/24/202	1			DRILL M	IETHO	D Mu	ıd Rotary		HAMM	ER TYPE	Automatic
DRIL	LER B	B. Powe	II		S	TART DATE 10/05/2	:1	COMP.	DAT	Γ E 10/0	05/21		SURFACE	WATER DE	PTH N	/A	
ELEV (ft)	DRIVE ELEV	DEPTH (ft)		W CO			PER FOOT	75 10	0	SAMP.	\	LO	:	SOIL AND RO	CK DES	CRIPTION	
(11)	(ft)	(11)	0.5ft	0.5ft	0.5ft	25	50	75 10	,0	NO.	/MOI	G	ELEV. (ft)				DEPTH (
20		+										<u> </u>	-				
	16.7	0.0										l F	16.7	GROUN	ID SURF	ACE	C
15	10.7	- 0.0	1	4	4				+	SS-118	13%			AL	LUVIAL		
	13.8	2.9	6	6	9			1						dium stiff, mo parse sandy C	LAY (A-6	i) with trac	e — =
		‡		ľ	9	15				SS-119	28%		\Sti	organic ff, moist, tan-c	s and gra		'
10	-	‡						1	4				9.7	(A-7-6) w	ith trace o	graveľ	
	8.8	7.9	2	4	5					SS-120	29%		Stiff	COAS to hard, mois	TAL PLA		ndy
		ŧ				: 🐧 : : : : : :							CLA	Y (A-6) with tra sandy parting	ace shell	fragments	and
5	3.8	12.9					ļ	+	\dashv				-	salidy parting	js (i eeue	e i oimau	511)
	<u> </u>	12.3	4	5	6						М						
0		‡				: : X, : : : :											
	-1.2	17.9						1	-				-				
		t	16	15	16	31 : :					М						
-5	•	+				∤′											
	-6.2	22.9	6	7	8	,							=				
		‡		′	0	15					М						
-10	-	‡				• • • • • •							_				
	-11.2	27.9	3	6	10	: : : : : : :		1::::			М						
		+				· · · 1.0 · · · ·			.		101						
-15	40.0	Ī						ļ	4				-				
	-16.2 ·	32.9	4	8	12	20					М						
		‡				· · · · · · · · · · · · · · · · · ·							-19.3				36
-20	-21.2	37.9				 	 	+	7					Dense to very conitic, green-			
		-	16	40	60/0.4						М	-	silt	v fine SAND (A-2-4) wi	th trace sh	ell
-25		Ŧ						100/0.					trac	nents, trace ve e very thin to t	hinly bed	ded cemer	and nted
	-26.2	42.9	10	0.7	40			/					=	sand lenses (l	Peedee F	ormation)	
		‡	19	27	40		· · · /•6	7			W						
-30		İ						1				ĿĿ	_				
	-31.2	47.9	9	13	35		<u>/</u>				۱۸/	F					
	-	Ŧ		.~		::::/	48				W	:::					
-35	_	‡				· · · · · · · · · / ·		1::::	4				_				
	-36.2	52.9	11	15	20						W						
	-	ŧ				: : : : : • • • • • •	<u> </u>				.,	:::: -					
-40	-41.2 -	57.9						 	+			F	_				
	-41.2 -	57.9	16	34	60/0.4		: : : :	7.5.			W	:::					
-45		‡				:::: :::::		+÷.100/0	y T								
-4 0	-46.2	62.9						 	+				45.3	Very stiff, mois	st, dark d	ray-green.	62
		t	5	9	11	20					М		gla trace	uconitic, fine s shell fragme	andy CL	AÝ (A-6) w lee Format	rith rion)
-50		±				<u> · · · </u> · · · ·	<u> </u>	<u></u>					_	. choir nagine	(1 000	.co i oiiila	
	-51.2	67.9	4	7	11				1								
	•	Ŧ		′	''	18	<u> </u>	1::::			М		54.0				
-55	-	‡					· · · · -	Ţ	\exists				- <u>-54.3</u> Ve	ry dense, moi	st, dark g	ray, silty fi	ne <u>71</u>
	-56.2 ·	72.9	18	23	77/0.3						М		-57.5	ND (A-2-4) wit fragments (P	h trace ce	emented sa	and74
-35 -40 -45 -50	•	ŧ					1	100/0.	8			 	Bori	ng Terminated	d at Eleva	tion -57.5	ft in
ldot	•	T											Coas	stal Plain: Ver	dense, s	silty fine S	AND

GEOTECHNICAL BORING REPORT BORE LOG

WBS	3 40163	3.1.2			TI	P B-492	26	COUN	TY Lei	noir				GEOLOGIST J. Howard		
SITE	DESCR	RIPTIO	N Brid	ge No	. 20 o	n NC 55	(-L-) Ov	er Neuse Riv	ver Nea	r Kinst	on, NC				GROUN	D WTR (ft)
BOF	RING NO	. BR 2	0_EB	1-B	S	TATION	22+72		OFF	SET 3	7 ft RT			ALIGNMENT -L-	0 HR.	N/A
COL	LAR EL	EV . 16	6.7 ft		TO	OTAL DE	PTH 7	4.2 ft	NOR	THING	565,9	28		EASTING 2,448,335	24 HR.	FIAD
DRIL	L RIG/HAI	MMER E	FF./DA1	ГЕ МІ	D3964	CME-45C	87% 09/2	4/2021			DRILL N	IETHO) М	ud Rotary HAMM	ER TYPE	Automatic
DRII	LER B	. Powe	II		S	TART DA	TE 10	/05/21	СОМ	P. DA	TE 10/	05/21		SURFACE WATER DEPTH N	/A	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	_	W COL	JNT 0.5ft	0	BLC 25	OWS PER FOC	75	100	SAMP. NO.	MOI	L O G	SOIL AND ROCK DES	CRIPTION	DEPTH (ft)
10001 BONE SINGLE B-4522 GEC_ADM GINE SINGLE B-4	(ft)		υ.5π	O.Sit	0.5ft		· ·	Match Line			NO.	MOI	G	ELEV. (ft) (A-2-4) (Peedee For Pushed tube ST-3 from 4.1-ft) at offset location -L-22 Other Samples: ST-3 (4.1 - 5.2)	5.2 ft (Rec	=1.1

WBS	40163	3.1.2			ТІ	P B-492	 3		Y Lenoir			GEOL	.OGIST J. Howa	d	
			N Bric	dge No			-		r Near Kins	ston, NC					UND WTR (ft
	ING NO			<u> </u>		TATION			OFFSET			ALIGN	NMENT -L-	0 HF	•
	LAR EL						PTH 109.8	l ft	NORTHIN		94	EAST	ING 2,448,399	24 HF	
DRIL	RIG/HAI	MER E	FF./DA	TE M	ID3964	CME-45C 8	7% 09/24/202	 21		DRILL M		Mud Rotary		HAMMER TYP	
DRIL	LER B	. Powe	 		s	TART DA	TE 10/06/2	21	COMP. DA				ACE WATER DE		
ELEV	DRIVE	DEPTH		ow co				PER FOOT		SAMP.	V /	L			
(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	o	25	50	75 100	NO.		O G ELEV. (ft)		CK DESCRIPTION	ON DEPTH (ft
10															
	8.6 -	- 0.0	WOH	WOL	WOH			T	_			- 8.6		D SURFACE	0.
	-		WOII	VVOIT	VVOIT	 •0::::					Sat.	-	Very soft, saturate	LUVIAL ed to wet, brown	-gray,
5	5.3	3.3	WOH	1	0				1		w E	-	moderately organ	ic, silty CLAY (A	A-7-6)
	-	-				[" E	2.6			6.
0	0.3	- - 8.3				:::::						3	Very soft, wet, br (A-7-6) with	own-gray, silty (ı trace organics	CLAY
U		- 0.3	WOH	WOH	WOH	0			1		w	<u> </u>	, ,	· ·	
	_	L				-i:::					9.9	-2.4	Loose, saturated	brown-gray fir	11.
-5	-4.7	13.3									0 0		coarse SAND (A		
	-		2	4	5	. •9		1	1		Sat.				
	-	-				[}]]						-7.4		TAL PLAIN	16
-10	-9.7	18.3	2	4	6						.,	\$ _	Stiff to very stiff, sandy CLAY (A	moist, dark gray -6) with trace s	, fine hell
	-		~	l .		. ¶10					М	3		edee Formation	
	-	_				\						}			
-15	-14.7	23.3	3	6	9	15		ļ	+		м	<u> </u>			
	-						' : : : :					3			
00	-19.7 ⁻	- - 28.3				:::-	- -::::					-18.4	Dense to very der	ise. moist to wel	<u>27</u>
-20	-19.1	20.3	6	12	20		32	1	1		М	<u></u>	gray-green, glauc (A-2-4) with trace s	onitic, silty fine S	SAND
	-	_					. \					_		dee Formation)	nd clay
-25	-24.7	33.3													
	-		11	20	28			48	1 : : : :		М	-			
	-					::::	: : : : <i>;</i>	' : : : :				-			
-30	-29.7	38.3	11	13	28		/-					<u>-</u>			
	-	_	''	"	20	::::	•41	↓::: :			W	_			
	-	_						177				-			
-35	-34.7	43.3	15	39	61/0.4						w	<u> </u>			
	-								100/0.9	?					
-40	-39.7	- - 48.3							::::/						
-40	-55.7	- 40.5	16	33	63	 	 	 		6	w	<u></u>			
	-	L				::::		1 : : : :	1./::			:: <u>-</u>			
-45	-44.7	53.3							/						
	-	-	17	25	41			🕶 66			w	-			
	-	_					· · · · ·					- 48.4			57
-50	-49.7	58.3	8	6	8	• • -						S	Stiff, moist, dark g	reen-gray, fine seedee Formation	sandy
	_		°	"	0	1 • 14					M	<u>}</u>	OLAT (74-0) (1	ccacc i omiano	···)
	-	L										-53.4	Modium	ot groot	62
-55	-54.7	63.3	4	13	11		24		1		w	\\	Medium dense, w fine SAND (A-2-6		
	-	<u> </u>				::::	4				** %	\			
00	F0.7	- 60 0									×.	-58.4	Medium dense to	very dense wet	light 67
-60	-59.7	68.3	14	22	19		41	 	1		w	<u>:::</u>	green-gray to green	n-gray, silty, fine	SĂND
	-	-					- /						(A-2-4) with trace s and very thin ce	mented sand ler	graver, ises
		Ī				[[:::::						:	(Peedee	Formation)	
-65	-64 7	73.3		1											
-65	-64.7	73.3 -	13	17	18	1	. •35 .				w :	<u>-</u>			
-65	-64.7 -	73.3 - -	13	17	18		. •35 .				W	- - -			

GEOTECHNICAL BORING REPORT BORE LOG

		D	ORE LOG		
WBS 40163.1.2	ті	TIP B-4926 COUNTY	Y Lenoir	GEOLOGIST J. Howard	
SITE DESCRIPTION	Bridge No. 20 o	on NC 55 (-L-) Over Neuse River	r Near Kinston, NC		GROUND WTR (ft)
BORING NO. BR 20_	B1-B S	STATION 23+43	OFFSET 51 ft RT	ALIGNMENT -L-	0 HR. N/A
COLLAR ELEV. 8.6 f	T TO	OTAL DEPTH 109.8 ft	NORTHING 565,894	EASTING 2,448,399	24 HR . FIAD
DRILL RIG/HAMMER EFF.	/DATE MID3964	4 CME-45C 87% 09/24/2021	DRILL METHOD Mu	d Rotary HAMME	ER TYPE Automatic
DRILLER B. Powell	s-	START DATE 10/06/21	COMP. DATE 10/06/21	SURFACE WATER DEPTH N/	A
	BLOW COUNT	BLOWS PER FOOT	SAMP. V		
"た" FLEV ピニ''ー	5ft 0.5ft 0.5ft	⊣	75 100 100 / 0	SOIL AND ROCK DESC	CRIPTION DEPTH (ft)
-75 -74.7 83.3	8 14 18 7 7 12 17	Match Line		Medium dense to very den green-gray to green-gray, si (A-2-4) with trace shell fragr and very thin cemented s (Peedee Formation) (co	lty, fine SAND ments, gravel, and lenses
‡	4 6 14	•20			
-90 -89.7 7 98.3	70/0.4		100/0.9• W		
-94 7 7 103 3	6 14 24 9 24 34		W E	-93.4 — Hard, moist, dark green-gra	ay, fine sandy I fragments
-100 -99.7 108.3	1 19 26		M	(Peedee Formation 101.2	on) ¯
				Boring Terminated at Elevat Coastal Plain: Hard, fine sar (Peedee Formation	ndy SILT (A-4)

									URI		UU				
WBS	4016	3.1.2			TI	I P B-4926		COUNT	Y Len	oir				GEOLOGIST J. Howard	
SITE	DESC	RIPTIO	N Brid	dge No	o. 20 o	n NC 55 (-L-)	Over Ne	euse Rive	r Near	Kins	on, NC	:			GROUND WTR
BOR	ING NO). BR 2	20 B2-	-A	S	TATION 24+	-57		OFFS	ET :	50 ft LT			ALIGNMENT -L-	0 HR . N
COLI	AR FI	.EV . 1	 1 4 ft			OTAL DEPTI	1 103 0	ft	NORT	HING	3 565.	959		EASTING 2,448,537	24 HR. FIA
				TE CI					HOIL				D 14	<u> </u>	
						3 CME-550X 919							ואו ט	· ·	MER TYPE Automati
DRIL		Gonza				TART DATE				P. DA	TE 10		4	SURFACE WATER DEPTH	N/A
ELEV	DRIVE ELEV	DEPTH	BLC	W CO	UNT	4		ER FOOT			SAMP	. ▼/		SOIL AND ROCK DE	SCRIPTION
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25	5	60 I	75 	100	NO.	MOI		ELEV. (ft)	DEPT
15															
		‡												- ·	
	11.4	‡ + 0.0												· 11.4 GROUND SUR	FACE
10	11.4	+ "."	WOH	WOH	WOH	0			1			М		ALLUVIA	_
	•	Ŧ												Very soft, moist, tan-gra (A-7-6) with trace	ay, silty CLAY organics
		‡						: : : :		::					J
5	5.5	5.9	MOL	IWO!	MOL									•	
	•	Ŧ	WOH	WOH	WOH	0			1			М		- ·	
		‡				-; : : :			: :	::				2.4	
0	0.5	10.9	.						• •					Loose to medium dens gray-tan, fine to coarse	
		‡	1	3	3	6 6						Sat.		-	
		İ				:\::			1::	::					
-5	-4.5	15.9												-	
	•	‡	2	7	8	15						Sat.		- ·	
		†				$ \cdot\cdot\cdot\cdot'_{\zeta} $									
-10	-9.5	T 20.9]				: :			0000	•	
-10		‡	8	9	19	 	28		+::			Sat.		- · -11.6	:
		+				╎╎╶╴┌┯┼								COASTAL P	LAIN
15	-14.5	† + 25.9				:: :				::				Very stiff, moist, gray, fi CLAY (A-7-6) with fine s	ne sandy, silty
-15	-	<u> </u>	5	5	10	15			+			М		(Peedee Form	ation)
		Ŧ					<u> </u>	_: : : :	: :	: :				· · -17.6	:
		‡				:::::::		7:::		: :				Dense to very dense, wet to dark green-gray, slight	light green-gray
-20	-20.1	31.5	10	25	31	.		 	+			w		glauconitic, silty, fine to	
		‡		-	•			● 56 · · ·		::		l vv		(A-2-4) with trace shell fra thin clay lenses (Peede	gments and very
		‡				::::		<i>!</i> :::::	: :	::					o i oimauon)
-25	-25.1	36.5	6	16	33				1			147		=	
		‡		'	55			49	: :	::		W		•	
		İ							• •						
-30	-30.1	41.5	18	30	53			-	¥			ļ ,		_	
		‡	'0	30	55	::::			. 783	3		W		•	
		<u>†</u>				• • • •			· · · `	×					
-35	-35.1	46.5	21	40	60/0.4				+	./.				-	
		‡	21	40	00/0.4	[[::::[. 10	0/0.9	-	W		•	
		†				[]			• • •						
-40	-40.1	51.5	19	40	E0/0.0				↓ ∷					• -	
		‡	19	43	58/0.3	[[::::[. 10		-	W			
		+				[[<u> </u>	_					· · <u>-43.6</u>	:
-45	-45.1	56.5		ļ	1.0				1::-	• •				Very stiff to stiff, moist, sandy CLAY (A-6) wit	dark gray, fine
		<u> </u>	26	11	13	2	4		: :	::		М		fragments (Peedee	Formation)
		Ŧ				::::,/		: : : :	: :					•	
-50	-50.1	61.5		_		;/			1::	• •				-	
		†	4	5	6				• •			М		•	
		Ŧ				::::		: : : :		::				· · -53.6	
-55	-55.1.	66.5]	7 :		1::					Dense to very dense, we	et to saturated,
		+	20	17	23		- •40					W	::::	gray, silty fine SAND (A- shell fragments, cemented	sand fragments,
		‡				::::		7.5.0	: :	::				and very thin to thin ceme	nted sand lenses
-60	-60.1	71.5						>	+.					(Peedee Form	auon)
	-UU. I .	T / 1.5	7	14	86/0.2	1			T	<u> </u>	,]	W		- ·	
		†				::::			. 10	0/0.7					
-65		Ŧ						: : : :	: :				::::		
-00		1	I					1		!	1	1	10.00		

GEOTECHNICAL BORING REPORT BORE LOG

WRS	40163	3 1 2			Т	P B-4926		Y Lenoir				GEOLOGIST J. Howard		
-			N Bric	lae Na		n NC 55 (-L-) Over			ton NC			GEGEGGIGT 6. Floward	GROUN	D WTR (ft)
	ING NO			<u> </u>		TATION 24+57	1100001111	OFFSET S				ALIGNMENT -L-	0 HR.	N/A
	LAR EL				_	OTAL DEPTH 103	0 ft	NORTHING				EASTING 2,448,537	24 HR.	FIAD
				TE SI		CME-550X 91% 11/19		11011111111	DRILL		D Mu	<u> </u>	ER TYPE	
_	LER L				\neg	TART DATE 10/21		COMP. DA	l			SURFACE WATER DEPTH N		7.00011000
ELEV	DDIV/E	DEPTH		W CO			PER F001		SAMP.	_	1-1	'		
(ft)	ELEV (ft)	(ft)		0.5ft	0.5ft	0 25	50	75 100	NO.	MOI	O G	SOIL AND ROCK DES	CRIPTION	DEPTH (ft)
										1		(\(\)		<i>DEI</i> 111 (10)
-65						 Ma	tch Line							
	-65.1	76.5	60/0.1		11		.	60/0.1	<u>'</u>			Dense to very dense, wet gray, silty fine SAND (A-2	to saturate	d,
		Ŧ					.	- ::::			ĮĮ	shell fragments, cemented s and very thin to thin cement	sand fragme	ents,
-70	-70.1 -	81.5	10	14	18					w		(Peedee Formation) (1303
		Ŧ				32.	.			\ v				
-75	-75.1 -	86.5					.				<u> </u>			
	-73.1-	00.3	9	15	17	32				W		•		
	:	ļ				: : : : : : : : : : : : : : : : :								
-80	-80.1	91.5	15	29	32					C-4		-		
		ļ	10	20			· • • • • • • • • • • • • • • • • • • •			Sat.				
-85	-85.1 <u>-</u>	96.5					: : ! ==	+-:::			₩	-83.6 Hard, wet, dark gray, fine sa	andy SILT (A-4) 95.0
	-05.1 -	90.5	14	38	45			83		W	F	with trace cemented san (Peedee Format	d fragments ion)	5
		ļ					: : ; ; /	:1::::			F	·		
-90	-90.1	101.5	8	11	25					١,,,	F	-		
		 		''	20	36	.		-	W		-91.6 Boring Terminated at Eleva	ation -91.6 f	103.0 t in
		Ŧ									F	Coastal Plain: Hard, fine sa (Peedee Format		A-4)
	-	F									l F	•		
		Ŧ									l F			
	_	-									F			
		‡									F			
		ļ									F			
	-	ļ									F	•		
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<u> </u>	l	l									$\Box\Box$			

								UKE L	UG			T	
WBS	4016	3.1.2			TI	IP B-4926	COUNTY	Y Lenoir				GEOLOGIST J. Howard	1
SITE	DESC	RIPTIO	N Bric	lge No	o. 20 o	n NC 55 (-L-) O	ver Neuse Rive	r Near Kinst	on, NC				GROUND WTR (f
BOR	ING NO) . BR 2	20_B3-	-A	s ⁻	TATION 25+43	3	OFFSET 5	57 ft LT			ALIGNMENT -L-	0 HR. N/A
COLI	LAR EL	EV. 0.	9 ft		T	OTAL DEPTH	111.6 ft	NORTHING	5 565,9	941		EASTING 2,448,621	24 HR . N/A
DRILL	RIG/HA	MMER E	FF./DA	TE SU	 JM3123	3 CME-550X 91% 1	1/19/2020		DRILL I	METHO	D M	ud Rotary HAMM	ER TYPE Automatic
DRIL	LER L	Gonza	alez C	astillo	S.	TART DATE 10	0/19/21	COMP. DA				SURFACE WATER DEPTH 7.	8ft
ELEV	DRIVE			W COI		11	OWS PER FOOT		SAMP.		1 [CONTROL WATER DEFINITION	011
(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft		0 25		75 100	NO.	MOI	O G	SOIL AND ROCK DES	CRIPTION DEPTH (
	(11)						<u> </u>			/ IVIOI	Ĭ	LLLV. (II)	DLI III (
4-													
15		t									1	-	
		+									-		
10		Ŧ										•	
	-	Ŧ									_	WATER SURFACE (10/19/21)
		‡										•	
5	_	İ										=	
		ł											
	0.9	1 0.0										0.9 MUDLINE	(
0	0.8	+ "."	2	2	3	5		 		Sat.		ALLUVIAL	
	-2.1	3.0] :\::: ::						 Very loose to medium den brown-gray, fine to coarse S 	se, saturated, SAND (A-3) with
_		‡	4	5	6	11 . 11				Sat.		trace gravel	
-5	-	İ				 . j .		+			0000	-	
	-7.1	8.0	4	5	5						0000	•	
-10		Ŧ				1 10 1 1						•	
-10	-	‡									0000		12
		‡				:: :: :						COASTAL PLA Stiff, moist, gray, fine sand	dy, silty CLAY
-15	-14.2	15.1	3	5	7					М		(A-7-6) with fine sandy par Formation)	tings (Peedee
		+				.				"			
	40.0	Ī				:::::::::::::::::::::::::::::::::::::	<u>.</u>					18.1 Dense to very dense, wet,	gray-green to
-20	-19.2 -	20.1	6	17	19		1 · · · · · · · · · · · · · · · · · · ·	<u> </u>		W		dark green-gray, slightly of	glauconitic to
		‡				:::: :;	! : : : : : :					glauconitic, silty, fine to c (A-2-4) with trace shell fragi	ments and verv
	-24.2	25.1] :::: : <i>i</i>	!					thin clay lenses (Peedee	Formation)
-25	-	<u> </u>	6	13	20] 	33	+		W		_	
		1											
-30	-29.2	30.1	22	50	50/0.2	:::: :		 				•	
	-	Ŧ	~~	30	50/0.3			. 100/0.8		W		- :	
		‡						::::/					
-35	-34.2	35.1	17	31	59	.		· · · <u>'</u> · ·		w		=	
		<u>†</u>						/.					
	-39.2	I 40.1						$ \langle \cdot \cdot \cdot \rangle $				38.1 Hard, wet, dark green-gra	y, glauconitic, 39
-40	-05.2		18	34	66/0.4	1		400/0.0	,	w		fine sandy SILT (A-4) (Peed	dee Formation)
		Ŧ						. 100/0.9				-42.1 Hard to etiff majet dark ar	
-45	-44.2	45.1	10		10	:::: :	::: <u>;</u> ;;:::	1::::				Hard to stiff, moist, dark gr sandy CLAY (A-6) with tra	ice cemented
- - +0	-	‡	18	25	18		43	 		М		_ sand fragments (Peedee	Formation)
		<u> </u>				:::: ;/		::::					
-50	-49.2	50.1	4	6	7			<u> </u>		N.A		_	
	-	Ŧ	.		l .	Table 13 13 1 1 1 1 1 1 1 1				М		- - -52.1	53
	-	‡				:::	נוְנוֹ בּוֹנוֹנוֹ					Dense to very dense, wet	to saturated,
-55	-54.2	55.1	8	13	25		38	: : : :		w		green-gray and light gray, s (A-2-4) with trace shell	fragments,
		‡				:::: :	:	::::				cemented sand fragments little, very thin to thin cen	, and trace to
	-59.2	I 60.1					::: ::::::	† <u></u>				lenses (Peedee For	
-60	-Ja.2	Ŧ 00.1	15	85/0.4	1			100/0.9	, [W		: -	
		‡										•	
	-64.2	65.1] :::: :		/::::				•	
-65			21	50	21			/		1			

GEOTECHNICAL BORING REPORT BORE LOG

												UG			T		
	40163					P B-4			COUNT						GEOLOGIST J. Howard		
									leuse Riv						Τ	_	ND WTR (ft)
	ING NO			-A		ΓΑΤΙΟΙ				_		57 ft LT			ALIGNMENT -L-	0 HR.	N/A
COLI	LAR EL	EV. 0.	.9 ft		TO	DTAL [DEPT	TH 111.6	6 ft	NOR	THING	565,9	941		EASTING 2,448,621	24 HR.	N/A
DRILL	. RIG/HAI	MMER E	FF./DA	TE SI	UM3123	CME-5	50X 91	1% 11/19/2	2020			DRILL N	METHO	D Mu	d Rotary HAMI	MER TYPE	Automatic
DRIL	LER L	. Gonz	alez C	astillo	S	TART I	DATE	E 10/19/	21	CON	IP. DA	TE 10/	20/21		SURFACE WATER DEPTH 7	7.8ft	
ELEV	DRIVE ELEV	DEPTH	BLC	w co	UNT			BLOWS	PER FOO	Г		SAMP.	lacksquare		SOIL AND ROCK DE	SCRIPTION	J
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	2	5 L	50	75 	100	NO.	МО		ELEV. (ft)		DEPTH (ft)
-65	. 	L	l	↓	l			Mat	ch Line	3 71		L		<u> </u>			
	-	ţ							1.71				Sat.	li t	Dense to very dense, we green-gray and light gray,	silty fine Sa	AND
	-69.2 -	70.1							/i:::					Ŀ	(A-2-4) with trace shell cemented sand fragment	l fragments s. and trace	e to
-70		-	8	14	19			- 4 33		+			W	-	little, very thin to thin ce lenses (Peedee Formation	mented sar	nd
		Ŧ						. ,						F	ienses (i eedee i onnand	ni) (comina	eu)
-75	-74.2 -	75.1	144	17	0.4			: \; : :									
, 5	-	‡	14	17	21			●38		.			W				
	-	‡							'``	4.	: :						
-80	-79.2 -	80.1	60/0.0	1							60/0.0	,					
	-	F								7-				F	-82.1		83.0
		ļ						[:							Hard, moist, green-gray, CLAY (A-6) with trace sl	fine sandy	silty
-85	-84.2 -	85.1	15	17	13		• •	↓ · · · ·		1			М		CLAY (A-6) with trace si Peedee Forma	ition)	nis
		‡						1 : : :									
	-89.2 -	90.1					: :	:\: : :	1						Very stiff to hard, wet, dark	green-gray	7, fine 89.0
-90		-	9	15	18					+-			W	 -	sandy SILT (A-4) with trace (Peedee Forma	shell fragr	ments
	-	Ī												F	(i eedee i oillie	ition)	
-95	-94.2 -	95.1	47		0.7												
-95	-	‡	17	21	27			,	4 8	+-			W		•		
	-	ł					: :	: : : <i>/</i> :						l E			
-100	-99.2 -	100.1	11	17	23			/ .		.			١٨/	F			
	-	Ŧ	''	''				40					W	F	•		
	-	‡								4	: : :						
-105	-104.2 -	105.1	100/0.5			<u> </u>	• •		1	4.	100/0.5	,	W				
		ţ									 				-107.1		108.0
	- -109.2 -	1101						: <u></u> :							Very stiff, moist, gray, fin (A-6) with trace shell frag	e sandy CL ments (Pee	AY edee
-110		-	6	7	10		• 17						М		- _{-110.7} Formation		111.6
	-	Ŧ												l F	Boring Terminated at Elev Coastal Plain: Very stiff, fi	ne sandy C	7 ft in CLAY
	:	ļ													(A-6) (Peedee For	mation) ُ	
	-	‡													•		
	-	ţ												<u> </u>			
	-	+															
		F												l F	•		
		‡												F			
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WBS	40163	3.1.2			Т	IP B-492	ô		COUN	TY I	_enoir				GEOLOGIST J. Howard/ K. P	lummer
SITE	DESCF	RIPTIO	N Brid	lge No	. 20 c	on NC 55 (L-) Ov	er Ne	use Riv	er N	ear Kins	ton, NC				GROUND WTR (ft
BOR	ING NO	BR 2	20 B4-	-A	s	TATION	26+33			OF	FSET	54 ft LT			ALIGNMENT -L-	0 HR . N/A
	LAR EL				-	OTAL DE		12 9 f	ft .	+	ORTHIN				EASTING 2,448,707	24 HR. N/A
				TF 01						1.1	, , , , , , , , , , , , , , , , , , ,	DRILL		D 14	<u> </u>	<u></u>
-						3 CME-550X				T				ואו ט	, ,	ER TYPE Automatic
DRIL	LER L	. Gonza				TART DA					MP. DA		/15/21		SURFACE WATER DEPTH 12	2.0ft
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	0.5ft	0.5ft	JNT 0.5ft	0	25 1	WS PI 50	ER FOC	75 	100	NO.	МОІ	O G	SOIL AND ROCK DES	CRIPTION DEPTH (fi
15	-	-											•		WATER SURFACE (10/14/21)
10	- -														-	
5	- - -														_	
	1.8	0.0	WOH	WOH	1	 		1				1	Sat.	::::	1.8 MUDLINE ALLUVIAL	0.
0	-												Jai.	0000	Very loose, saturated, brow coarse SAND (A-3) with	n-gray, fine to trace gravel
-5	-3.5	5.3	2	3	19	┤ <u>╟┇┇</u>	22						М	0000	-4.5	6.3
<u> </u>	-8.5	10.3				/									 COASTAL PL/ Medium stiff to very stiff, m sandy, silty CLAY (A-6) w partings (Peedee Fo 	oist, gray, fine ith fine sandy
-10		<u> </u>	3	4	4	· ¶8 · · · · · · · · · · · · · · · · ·							M		-	,
-15	-13.5 - - -	15.3	4	6	8	14							М		-	
-20	-18.5 - -18.5 -	20.3	5	15	17	- - - - - - - -	32						w		-19.2 Dense to very dense, wet,	green-gray to
-25	-23.5 -	25.3	10	23	31	-			54				W	-	dark green-gray, slightly of glauconitic, silty fine SANI trace shell fragments (Peec	O (A-2-4) with
-30	-28.5 -	30.3	20	35	55	· · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·			90		w			
-50	-33.5	35.3												-	-	
-35	-	<u> </u>	23	32	66						· · · · /	98	W		-	
-40	-38.5 - - -	40.3	19	33	58				: : : : : : : : : : : : : : : : : : :		9 91		w		- -41.2 Hard, moist, dark green-gr	43.
-45	-43.5	45.3	18	28	34				62				М		SILT (A-4) with trace shell gravel (Peedee Ford	fragments and mation) 48.
-50	-48.5 - -48.5 -	50.3	5	6	7	 		,					М		Stiff, moist, brown-gray, fin (A-6) with trace shell fragm Formation)	e sandy CLAY
-55	-53.5 - 	55.3	11	16	26			· · · · · · · · · · · · · · · · · · ·					W		Dense to very dense, wet, gray, silty fine SAND (A-2 cemented sand fragmen fragments (Peedee F	-4) with trace ts and shell
-60	-58.5 -	60.3	12	35	23			: : \	€ 58				W		naginenis (Feedee Pt	omation)
-40 -45 -50 -55 -60	-64.6	66.4						· · · · · · · · · · · · · · · · · · ·	· · · · ·							

GEOTECHNICAL BORING REPORT

	В	ORE LOG		
WBS 40163.1.2	TIP B-4926 COUNT	Y Lenoir	GEOLOGIST J. Howard/ K. Plum	nmer
SITE DESCRIPTION Bridge No. 20	0 on NC 55 (-L-) Over Neuse Rive	er Near Kinston, NC	G	ROUND 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 SUM3	3123 CME-550X 91% 11/19/2020	DRILL METHOD Mu	d Rotary HAMMER	TYPE Automatic
DRILLER L. Gonzalez Castillo	START DATE 10/14/21	COMP. DATE 10/15/21	SURFACE WATER DEPTH 12.01	ft
ELEV (ft) DRIVE DEPTH BLOW COUNT (ft) 0.5ft 0.5ft 0.5ft 0.5ft	─	75 100 NO. MOI G	SOIL AND ROCK DESCRI	PTION DEPTH (ft)
-65	Match Line 0.3	75 100 NO. MOI G 100/0.8 W W 60/0.1 W W W 100/0.8 MOI G		DEPTH (ft) an-gray and with trace ind shell (continued) AND and 82.5 ND (A-2-4) 85.5 edded, and dense, (Peedee 10 10 10 10 10 10 10

COLLAR ELEV. 3.1 TOTAL DEPTH 108.0 NORTHING 565.887 EASTING 2.448.795 24 HR.									D	ORE	: <u>L</u>	UG					
BORING NO. BR 20_85-A	WBS	4016	3.1.2			TI	P B-4926		COUNT	Y Lenc	ir				GEOLOGIST J. Howard		
COLLAR ELEV. 3.1 II	SITE	DESC	RIPTIO	N Bric	lge No	o. 20 o	n NC 55 (-L-) Over Ne	euse Rive	r Near I	Kinst	on, NC				GROU	JND WTR (ff
COLLAR CLEV. 3.1 II								<u> </u>							ALIGNMENT -L-		•
DRILLER Gorzalez Casillo START DATE 10/12/21 COMP. DATE 10/13/21 SURFACE WATER DEPTH 8-Aft SURFACE									ft				887				
DRILLER GOZ-JCZ Cast					TE QI									D Mi	1		
ELDY DEVV OF PROVIDED PRO										COMP				- 1110	1		L Automatic
Page 10 10 10 10 10 10 10 1			1				HARIDAIE				. DA		13/21	1	SURFACE WATER DEP	I II 0.411	
10		ELEV	DEF III	-			0 25				100	1	//			CDESCRIPTION	
10	. ,	(11)	+ '	0.010	0.010	0.010			T	<u> </u>	-	110.	/ MOI	G	ELEV. (ft)		DEPTH (ff
5														_	WATER SURFA	ACE (10/12/21	.)
3.1	10		+												-		
3.1 MUDUMS 0.0.8 2.3 WOH 1 1 1 0.5 4.2 7.3 21 28 25 0.10 9.2 12.3 3 4 3 3 0.10 9.2 12.3 3 4 7 8 0.11 1 1 0.12 12.3 3 4 7 8 0.11 1 1 0.12 12.3 3 4 7 8 0.13 12 12.3 3 4 9 0.14 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18			Ŧ														
3.1	5		‡														
Sat. Very loose, saturated, brown-gray, fine to coarse SAND (A-3) with trace gravel Sat. Very loose, saturated, brown-gray, fine to coarse SAND (A-3) with trace gravel 3.9 Hard to medium stiff, most, gray, fine sandy CLAY (A-6) (Peadee Formation) M. Hard to medium stiff, most, gray, fine sandy CLAY (A-6) (Peadee Formation) M. Very loose, saturated, brown-gray, fine to coarse SAND (A-3) with trace gravel 3.9 Hard to medium stiff, most, gray, fine sandy CLAY (A-6) (Peadee Formation) M. Very loose, saturated, brown-gray, fine sandy CLAY (A-6) (Peadee Formation) M. Very loose, saturated, brown-gray, fine sandy CLAY (A-6) (Peadee Formation) M. Very loose, saturated, brown-gray, fine sandy CLAY (A-6) (Peadee Formation) M. Very loose, saturated, brown-gray, fine sandy CLAY (A-6) (Peadee Formation) M. Very loose, saturated, brown-gray, fine sandy CLAY (A-6) (Peadee Formation) M. Very loose, saturated, brown-gray, fine sandy CLAY (A-6) (Peadee Formation) M. Very loose, saturated, brown-gray, fine sandy CLAY (A-6) (Peadee Formation) M. Very loose, saturated, brown-gray, fine sandy CLAY (A-6) (Peadee Formation) M. Very loose, saturated, brown-gray, fine sandy CLAY (A-6) (Peadee Formation) M. Very loose, saturated, brown-gray, fine sandy CLAY (A-6) (Peadee Formation) M. Very loose, saturated, brown-gray, fine sandy CLAY (A-6) (Peadee Formation) M. Very loose, saturated, brown-gray, fine sandy CLAY (A-6) (Peadee Formation) M. Very loose, sandy fine sandy CLAY (A-6) (Peadee Formation) M. Very loose, saturated, brown-gray, fine sandy CLAY (A-6) (Peadee Formation) M. Very loose, saturated, brown-gray, fine sandy CLAY (A-6) (Peadee Formation) M. Very loose, saturated, brown-gray, fine sandy CLAY (A-6) (Peadee Formation) M. Very loose, saturated, brown-gray, fine sandy CLAY (A-6) (Peadee Formation) M. Very loose, saturated, brown-gray, fine sandy CLAY (A-6) (Peadee Formation) M. Very loose, saturated, brown-gray, fine sandy CLAY (A-6) (Peadee Formation) M. Very loose, saturated, brown-gray, fine sandy CL		-	‡ , ,												- 31 MUD	LINE	0.
Sat. Coarse SAND (A-3) with trace gravel -5	ŀ	3.1	I	WOH	WOH	WOH	0			T : : :	\exists	+	Sat.	0000	ALLU	IVIAL	
.5	0	0.8	2.3	WOH	1	1	$ \sum_{i=1}^{n} \cdots \sum_{j=1}^{n} \sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{i=1}^{n} \sum_{j=1}^{n}					Sat					
5			Ŧ				1						Jat.	0000	-	,	
5		4.0	Ī							: : :					-3.9		7.
sandy CLAY (A-6) (Peedee Formation) M 112.9 Very stiff to stiff, moist, gray, silty CLAY (A-7.6) with fine sandy partings (Peedee Formation) M 122.9 Very stiff to stiff, moist, gray, silty CLAY (A-7.6) with fine sandy partings (Peedee Formation) M 223.0 Dense to very dense, wet, dark green-gray, glauconitic, silty fine SAND (A-2-4) with frace series (Peedee Formation) W 46.9 Stiff, moist, dark green-gray, fine sandy CLAY (A-6) (Peedee Formation) M 48.2 48.2 48.2 48.3 48.2 48.3 48.2 48.3 48	-5	-4.2	+ 7.3	21	28	25			53	ļ · · ·			М		COASTA		
-10			‡							: : :					sandy CLAY (A-6) (Peedee Forma	ation)
-15		-9.2	12.3				:::::/	 									
-15	-10	-	t	3	4	3	1			+ : : :	-		М		-		
15			Ŧ														16.
20 -192 -223	-15	-14.2	17.3	1	7	Ω	::\\::			: : :			١		Very stiff to stiff, mo (A-7-6) with fine san	ist, gray, silty (CLAY eedee
20		-	Ŧ	-	′		15			·			М				-
20			‡				: : ; :										
25	-20	-19.2	22.3	3	4	9	[•		М		_		
25			İ				: : :										
25		-24.2	27.3				║╶╶┖╼┼	-1 : : :							Dense to very dense,		
Lenses (Peedee Formation) Lenses (Peedee Formation)	-25	-27.2	-	13	14	17		31		+			W	F	glauconitic, silty fine	SAND (A-2-4) with n clay
			Ŧ					1175	<u> </u>	: : :					lenses (Peede	ee Formation)	,
-35	-30	-29.2	32.3	20	24	F2				.							
-40	-30	-	‡	20	31	53				. 84			W		-		
-50			‡							<i>[</i>							
40 39.2 42.3 19 30 59 45 44.2 47.3 15 23 39 46.9 Stiff, moist, dark green-gray, fine sandy CLAY (A-6) (Peedee Formation) M 53.9 Dense, wet, gray, silty fine SAND (A-2.4) with trace very thin clay lenses (Peedee Formation) 55 54.2 57.3 7 12 31 43 W 57.9 Dense, wet, gray, silty fine SAND (A-2.4) with trace very thin clay lenses (Peedee Formation) 57.9 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 comented sand lenses and trace shell fragments (Peedee Formation) 46.9 Stiff, moist, dark green-gray, fine sandy CLAY (A-6) (Peedee Formation) W W 46.9 Dense, wet, gray, silty fine SAND (A-2.4) with trace very thin clay lenses (Peedee Formation) W W W W W W W W W W W W W	-35	-34.2	37.3	17	28	47				/	٠		\ _{\\\}	Ŀ	_		
40			+							\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	.		''	-			
40		20.2	Ī 42.2											F			
-50	-40	-39.2	+ 42.3	19	30	59				· ``	89		W	F	_		
15 23 39 -50 49.2 52.3 6 5 5 -54.2 57.3 7 12 31 -60 -59.2 62.3 10 36 64/0.2 -60 -60 -60 -60 -60 -60 -60 -60 -60 -60			‡							//.:							
-50	45	-44.2	47.3							/ : : :							
	-45	-	‡	15	23	39			62	+			W		-		
			İ				: ┌:::+		ن		:				Stiff, moist, dark gre		
	-50	-49.2	52.3	6	5	5	• • •				-				CLAY (A-6) (Pee	edee Formation	n)
-55		_	Ŧ				10 .				-		IVI		_		
-55			‡				::::								-53 9		57.
	-55	-54.2	+ 57.3 +	7	12	31	· -	·					w		Dense, wet, gray, silt	ty fine SAND (A-2-4)
			‡				::::		100	: : :	:				Forma	ation)	
-65		-59.2	62.3				::::		: : : `;	\ :.::	:				Dense to very dens		
bedded cemented sand lenses and trace shell fragments (Peedee Formation) -65	-60		<u> </u>	10	36	64/0.2			 	. 100	/0.7	-	W		(A-2-4) with trace v	very thinly to th	ninly
-65 -64.2 - 67.3 19 45 55/0.3 · · · · · · · · · · · · · · · · · · ·			+								- }			<u> </u>	bedded cemented sa	and lenses and	trace
-69 2 - 72 3	-65	-64.2	67.3	10	45	55/0 2	::::		: : : :	: : :			147		Son nagmonto (i		/
-70 -69.2 - 72.3 GOO 4	- 55	-	Ŧ	19	40	55/0.3				. 100	/0.8	1	W		-		
-70 -69.2 + 72.3			‡				::::			: : :	: [
	-70	-69.2	72.3	60/0.1			<u> </u>	<u> </u>	<u> </u>		 /0.1			<u> </u>			

GEOTECHNICAL BORING REPORT BORE LOG

							BOR	KE L	<u>UG</u>					
WBS	40163	.1.2			TI	P B-4926 CO	UNTY Le	enoir				GEOLOGIST J. Howard		
SITE	DESCR	IPTIO	N Bric	lge No	. 20 or	n NC 55 (-L-) Over Neuse	River Ne	ar Kinsto	on, NC				GROUND	WTR (ft)
BOR	ING NO	. BR 2	20_B5	A	ST	FATION 27+25	OFF	SET 5	4 ft LT			ALIGNMENT -L-	0 HR.	N/A
COL	LAR ELI	EV. 3.	1 ft		TC	OTAL DEPTH 108.0 ft	NOF	RTHING	565,8	87		EASTING 2,448,795	24 HR.	N/A
DRILL	RIG/HAN	MER E	FF./DA	TE SU	JM3123	CME-550X 91% 11/19/2020			DRILL N	IETHO	D Mu	d Rotary HAMME	R TYPE A	utomatic
DRIL	LER L.	Gonza	alez C	astillo	S	TART DATE 10/12/21	COI	MP. DA	Γ E 10/	13/21		SURFACE WATER DEPTH 8.4	lft	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	-	0.5ft		BLOWS PER I	FOOT 75	100	SAMP. NO.	MOI	L O G	SOIL AND ROCK DESC	RIPTION	DEPTH (ft)
-70 -75	-74.2 -	 - - - 77.3				Match Lir	ne				-	Dense to very dense, wet, gray-green, silty, fine to co (A-2-4) with trace very thi bedded cemented sand len	parse SAND only to thinly ses and trace	
-80	-79.2 -	- - - - 82.3 -	9 15	17	23	41				w	-	shell fragments (Peedee (continued)	Formation)	
-85	-84.2 - -	- - 87.3 - - -	60/0.1					60/0.1				-87.9	- <u>-</u>	<u>91</u> .0
-90	-89.2 - -	- 92.3 - -	7	10	19	29				М		Very stiff, moist, brown-gra CLAY (A-6) with trace she (Peedee Formati	ll fragments on)	96.0
-95	-94.2 - - - -	- 97.3 - - -	14	21	24	45 				М		Hard, moist, dark gray, fine (A-4) (Peedee Form	sandy SIL [*] ation)	Γ
-100	-99.2 - - - - -104.2 -	- 102.3 - - - - - 107.3	12	17	24	41				M		-104.9		108.0
			50	50/0.2				°100/0.7♥		M		Boring Terminated at Elevat Coastal Plain: Hard, fine sar (Peedee Formati	dy SILT (A-	in

												_		.UG							
WBS	40163	3.1.2			TI	I P B	-4926	i		co	UNT	/ Le	noir				GEOLOGIST	J. Howa	ard		
SITE	DESCR	RIPTIO	N Brid	dge No	o. 20 o	n NC	55 (-	L-) C	ver N	euse	Rive	r Nea	ar Kins	ton, NC						GROUN	D WTR (ft
BOR	ING NO	. BR 2	20 EB	2-A	S	TATI	ON 2	8+2	3			OFF	SET	46 ft LT			ALIGNMENT	-L-		0 HR.	14.6
	LAR EL				_				90.11	t		NOF	THIN	G 565,8	51		EASTING 2,4	 48 887		24 HR.	FIAD
				TE C										. 		D M	1	+0,007	LUANAN	ER TYPE	
	. RIG/HAI													DRILL N		וואו טי	ud Rotary				Automatic
DRIL	LER L	. Gonza	alez C	astillo	S	TAR	T DAT	E 1	0/11/2	21		COV	IP. DA	TE 10/	12/21		SURFACE WA	TER DE	EPTH N	<u>/A</u>	
ELEV	DRIVE ELEV	DEPTH	'——	ow co		_			OWS					SAMP.	lacktriangledown/		SOIL	. AND RO	OCK DESC	CRIPTION	
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0		25		50		75 	100	NO.	/MOI	l G	ELEV. (ft)				DEPTH (ft
40																					
	-	F														1 1	- · 38.0	GROUI	ND SURF	ACF	0.0
	-			<u> </u>		<u> </u>		Τ.				Τ.								ete to 1.8 ft	
35	35.8 -	2.2	3	3	4	الل		•		-					D	L.::	R		Y EMBAN		1.0
	34.2	3.8	2	3	3			.				.			D					y to moist, SAND (A-2	-4)
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30		<u> </u>				اللا		<u> </u> :	• • •	-		Ŀ					• -				
	29.2	8.8	2	1	3	<u> </u>		-		-					D		•				
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25	-	100				<u> j</u>	• • •	1:		<u> </u>	· · ·	1:					-				
	24.2	13.8	1	2	2	{		-		-		-			-M		•				
	-	F				Ť		:		:		:					•				
20	19.2 -	100						<u></u> :		-		1:					20.0				18.0
	19.2	18.8	1	1	1	2		:		:		:		SS-121	27%		Soft, wet,		LLUVIAL e sandy C	LAY (A-6)	with
	_	F				ĭ		.				.					•		e organics		
15	14.4	23.6				۱Ľ		ֈ:				_:					15.0	-644			23.0
	- 1-1	20.0	WOH	WOH	WOH	• 0:		:		:		:		SS-122	27%		very so sandy	οπ, weτ, g ,, clayey	gray and g SILT (A-4	ray-tan, fir) with trace	ie e
	-	-				-		.				.						0	rganics		
10	9.4	28.6				ال∟		ֈ։		<u> </u>		⊥։					• -				
			WOH	WOH	WOH	• 0:		:				:			W						
	-	-						-				•						e. satura	ted. brown	n-gray, silty	31.0 fine
5	4.4	33.6				<u> </u>		╀:		<u> </u>		 								e organics	
	-		2	2	2	•4		:				:			Sat.		•				
	_	t				:		† 7		:		1:							STAL PLA		36.0
0	-0.6	38.6				!		+		ļ.		┼					_ Dense, w	et, gray t	to dark gra	ay, silty, fin trace very t	e to
	-	ļ	8	9	22	:		🛉	31			:			W				Peedee F		u III I
_	_	ţ				:	·					:					<u>4.0</u>				42.0
-5	-5.6	43.6				!		+				+-					_ Stiff to \ CLAY (∕ery stiff, (A-6) with	moist, gra trace she	y, fine san	idy ts
	_	Ţ	5	'	6	:	.●13	:				:			М			(Peede	e Formati	ell fragmen ion)	
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-25	-	ļ				:		:	: :[:			:					. glaucon	itic, silty,	fine SANI	D (A-2-4) w	vith .
-23	-25.6	63.6	8	15	27	 -		+-	-+-	+:-		+:-					_ trace sh . le	iell fragm inses (Pe	ents and redee Forr	very thin cl mation)	ay
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GEOTECHNICAL BORING REPORT BORE LOG

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WBS	40163.1.2			TI	IP B-4926 COUNT	Y Lenoir				GEOLOGIST J. Howard	
SITE	DESCRIPTION	ON Bri	dge N	o. 20 oı	n NC 55 (-L-) Over Neuse Rive	er Near Kinsto	on, NC				GROUND WTR (ft)
BOR	ING NO. BR	20_EE	32-A	S	TATION 28+23	OFFSET 4	6 ft LT			ALIGNMENT -L-	0 HR. 14.6
COL	LAR ELEV.	38.0 ft		TC	OTAL DEPTH 90.1 ft	NORTHING	565,8	51		EASTING 2,448,887	24 HR. FIAD
DRILL	RIG/HAMMER	EFF./DA	TE S	UM3123	3 CME-550X 91% 11/19/2020		DRILL N	IETHO	D Mu	d Rotary HAMME	ER TYPE Automatic
DRIL	LER L. Gon	zalez C	astillo	S	TART DATE 10/11/21	COMP. DA	TE 10/	12/21		SURFACE WATER DEPTH N/	'A
ELEV	DRIVE DEDT		OW CC		BLOWS PER FOOT	-	SAMP.	▼/		2011 AND DOOK DEGG	PIDTION
(ft)	ELEV (ft)		0.5ft	0.5ft	0 25 50	75 100	NO.	моі	O G	SOIL AND ROCK DESC	DEPTH (fi
-40					Match Line						
	-40.6 78.6	20	43	57/0.3		T]	T ·		F		
	‡					100/0.8				-44.0	82.0
-45	-45.6 + 83.6				· · · · +					Very stiff to stiff, moist, dark fine sandy CLAY (A-6) wit	k green-gray,
	‡	16	14	13	27			М		fragments (Peedee Fo	rmation)
-50	‡				::::/ :::: ::::						
-00	-50.6 + 88.6	5	6	8	14			М		-52.1	00
	+				1	1		IVI	7	Boring Terminated at Eleva	90. tion -52.1 ft in
	‡								▎▐	Coastal Plain: Stiff, fine sand (Peedee Formati	dy CLAY (A-6) on)
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Wood E&IS Project No.: 6468-19-9027

Bridge No. 20 on NC 55 (-L-) Over the Neuse River at -L- Sta. 25+45

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

NODO! WBO!	10 40100.1.2			TIP 110 B-4320			County.	LLITOIT					Date restea.	October 202	•		
						S	SOIL T	EST F	RESULTS	3							
	505010	07.47.01.	0==0==	–	DEPTH	AASHTO				% BY V	/EIGHT		% F	PASSING SIE	/ES	%	%
SAMPLE NO.	BORING	STATION	OFFSET	LINE	INTERVAL	CLASS.	L.L.	P.I.	C. SAND	F. SAND	SILT	CLAY	10	40	200	MOISTURE	ORGANIC
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	-
																	i

ND = NOT DETERMINED

NV = NO VALUE NP = NON-PLASTIC

allet 2. Romo 2 115-01-0504 Albert Romero Signature Certification # Print Name

Date Reported: 10/29/2021

SITE PHOTOGRAPH



DocuSign Envelope ID: D538DEA7-BAAE-418B-8C72-17C67AE759CE

CONTENTS

DESCRIPTION

LABORATORY RESULTS SITE PHOTOGRAPH(S)

TITLE SHEET LEGEND (SOIL & ROCK)

SITE PLAN

BORE LOG(S)

SHEET NO.

4 5-8 9

Ŕ REFERENCE

40163

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION **DIVISION OF HIGHWAYS** GEOTECHNICAL ENGINEERING UNIT

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY <u>LENOIR</u>

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

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

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 (1919) 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 (IM-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED MATER 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 SATISTY 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 CONJUTIONS 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 <u>R. Rahie</u>

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 AND CAROLINA 4/18/2022 SIGNATURE

B-4926

PROJECT REFERENCE NO.

2

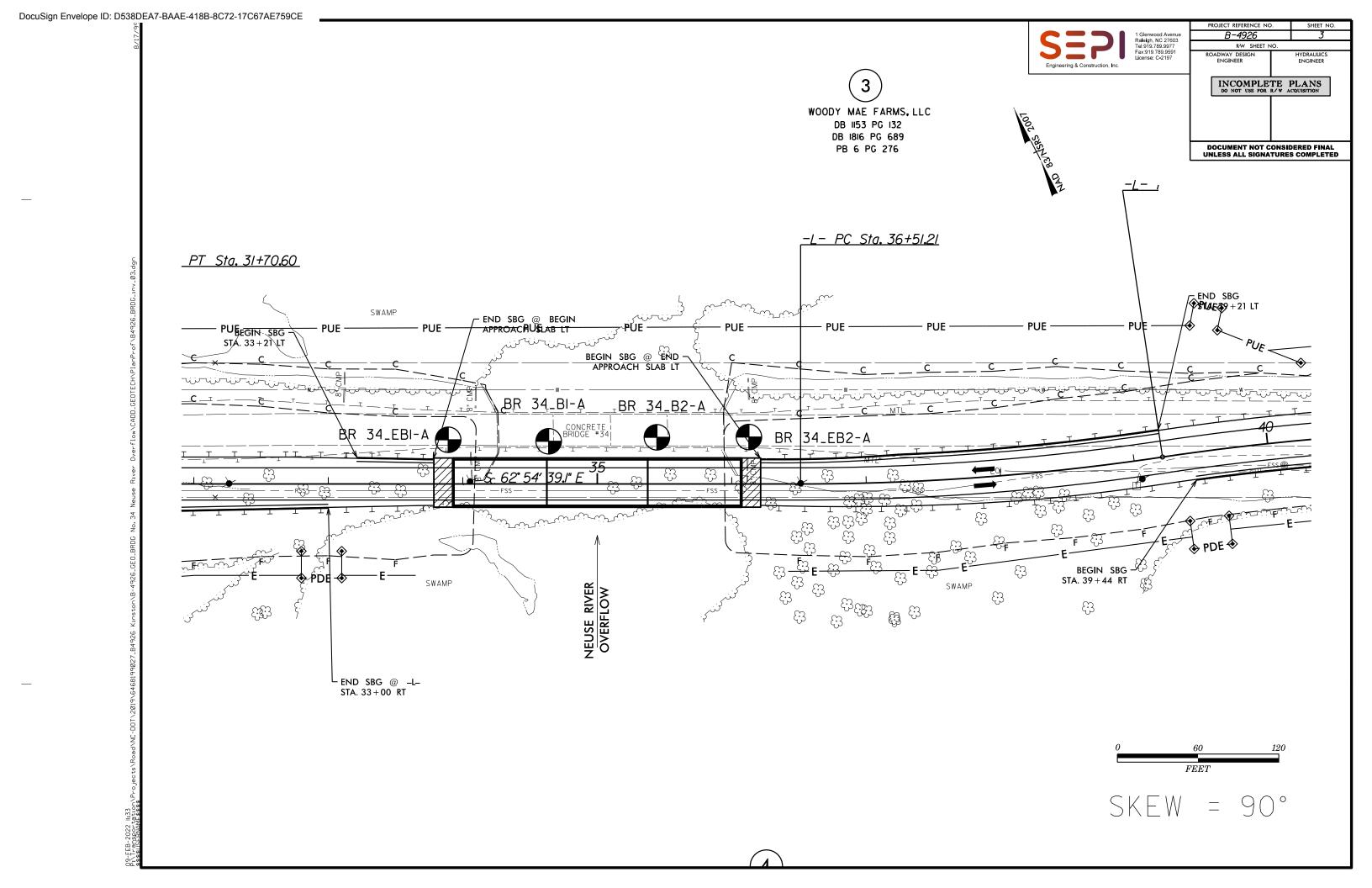
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS
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	WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE.	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.	ALLUYIUM (ALLUY.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM DI586). SOIL CLASSIFICATION	<u>UNIFORMLY GRADED</u> - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. <u>GAP-GRADED</u> - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.	SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60	AQUIFER - A WATER BEARING FORMATION OR STRATA.
IS BASED ON THE AASHTO SYSTEM, BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH	ANGULARITY OF GRAINS	BLOWS IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK,	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE,	THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS:	ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING
VERY STIFF,GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6 SOIL LEGEND AND AASHTO CLASSIFICATION	ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	WEATHERED VILLE NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.	A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.
CENERAL CRANIII AR MATERIAIS SILT-CLAY MATERIAIS	MINERALOGICAL COMPOSITION	FINE TO COARSE CRAIN IGNEOUS AND METAMORPHIC POCK THAT	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
CLASS. (≤ 35% PASSING *200) (> 35% PASSING *200) ORGANIC MATERIALS	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC.	WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE,	SURFACE.
GROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5	ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.	UNEISS, OARDENO, SCHIST, ETC.	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
CLASS. A-1-6 A-1-6 A-2-4 A-2-5 A-2-6 A-2-7 A-7-6 A-3 A-6, A-7	COMPRESSIBILITY	NON-CATSTALLINE SEDIMENTARY ROCK THAT WOULD YELD SPT REFUSAL IF TESTED.	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM
SYMBOL 000000000000000000000000000000000000	SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50	COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD	OF SLOPE.
7. PASSING	HIGHLY COMPRESSIBLE LL > 50	SEDIMENTARY ROCK SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED	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.
*10 50 MX GRANULAR SILT- MUCK, CLAY	PERCENTAGE OF MATERIAL	CP) SHELL BEDS, ETC. WEATHERING	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT
*40 38 MX 58 MX 51 MN	GRANULAR SILT - CLAY ORGANIC MATERIAL SOILS SOILS OTHER MATERIAL	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER	ROCKS OR CUTS MASSIVE ROCK.
MATERIAL	TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10%	HAMMER IF CRYSTALLINE.	<u>DIP</u> - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.
PASSING #40 SOILS WITH	LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35%	VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN,	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE
LL — — 40 MX 41 MN 40 MX 41 MN 40 MX 41 MN 40 MX 41 MN 40 MX 41 MN LITTLE OR HIGHLY	HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE	(V SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.	LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
CROILE INDEX A A A A MY 8 MY 12 MY 16 MY NO MY AMOUNTS OF ORGANIC	GROUND WATER	SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE
USUAL TYPES STONE FRACS ORGANIC	✓ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING	(SLI.) 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR	SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
OF MAJOR GRAVEL, AND FINE SILIT CLATET MATTER OF MAJOR GRAVEL, AND CAMP CAMP SOULS SOULS	▼ STATIC WATER LEVEL AFTER 24 HOURS	CRYSTALS ARE DULL AND DISCOLORED, CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
MATERIALS SANU	✓ PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA	MODERATE SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN (MOD.) GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY, ROCK HAS	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.
GEN, RATING AS SUBGRADE EXCELLENT TO GOOD FAIR TO POOR POOR UNSUITABLE	· · · · · · · · · · · · · · · · · · ·	DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30	SPRING OR SEEP	WITH FRESH ROCK. MODERATELY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE
CONSISTENCY OR DENSENESS	MISCELLANEOUS SYMBOLS	SEVERE AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH	FIELD.
COMPACTNESS OR RANGE OF STANDARD RANGE OF UNCONFINED	∏ POADUAY EMBANIZMENT (PE) 25/025 DIP • DIP DIPECTION	(MOD. SEV.) AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK, ROCK GIVES 'CLUNK' SOUND WHEN STRUCK.	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
PRIMARY SOIL TYPE CONSISTENCY PENETRATION RESISTENCE COMPRESSIVE STRENGTH (N-VALUE) (TONS/FT ²)	ROADWAY EMBANKMENT (RE) OF ROCK STRUCTURES ROADWAY EMBANKMENT (RE) OF ROCK STRUCTURES	IF TESTED, WOULD YIELD SPT REFUSAL SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC CLEAR AND EVIDENT BUT	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.
VERY LORGE / A	1 ^P	(SEV.) REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED	LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
GRANII AD LOOSE 4 TO 10	SOIL SYMBOL SOIL SYMBOL SOIL SYMBOL SUPE INDICATOR INSTALLATION	TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLING IN SOILS
MATERIAL MEDIUM DENSE 10 10 30 N/A	ARTIFICIAL FILL (AF) OTHER AUGER BORING CONE PENETROMETER	VERY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE	USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
(NON-COHESIVE) VERY DENSE > 50	THAN ROADWAY EMBANKMENT TEST	SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE
VERY SOFT < 2 < 0.25	— INFERRED SOIL BOUNDARY — CORE BORING SOUNDING ROD	(V SEV.) REMAINING, SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <u>IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF</u>	OF AN INTERVENING IMPERVIOUS STRATUM.
GENERALLY SOFT 2 TO 4 0.25 TO 0.5 SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0	INFERRED ROCK LINE MN MONITORING WELL TEST BORING	COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
MATERIAL STIFF 8 TO 15 1 TO 2	A PIEZOMETER	SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS	ROCK QUALITY DESIGNATION (ROD) - 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
(COHESIVE) VERY STIFF 15 TO 30 2 TO 4 HARD > 30 > 4	TTTTT ALLUVIAL SOIL BOUNDARY ALLUVIAL SOIL BOUNDARY INSTALLATION SPT N-VALUE	ALSO AN EXAMPLE.	RUN AND EXPRESSED AS A PERCENTAGE.
TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS	ROCK HARDNESS	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT
U.S. STD. SIEVE SIZE 4 10 40 60 200 270		VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK, BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.	ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND
OPENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053	UNSUITABLE WASTE ACCEPTABLE, BUT NOT TO BE	HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY, HARD HAMMER BLOWS REQUIRED	RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO
ROULDER CORRIE GRAVEL COARSE FINE SILT CLAY	SHALLOW UNCLASSIFIED EXCAVATION - USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL	TO DETACH HAND SPECIMEN.	THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
BOULDER	ABBREVIATIONS	MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK, GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.
GRAIN MM 305 75 2.0 0.25 0.05 0.005	AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST	HARD EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.	STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF
SIZE IN. 12 3	BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED	MEDIUM CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT.	A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL
SOIL MOISTURE - CORRELATION OF TERMS	CL CLAY MOD MODERATELY 7 - UNIT WEIGHT	HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE	WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
SOLI MOISTURE SCALE FIELD MOISTURE	CPT - CONE PENETRATION TEST NP - NON PLASTIC $\gamma_{ m d}$ - DRY UNIT WEIGHT CSE COARSE ORG ORGANIC	POINT OF A GEOLOGIST'S PICK. SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK, CAN BE EXCAVATED IN FRAGMENTS	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY
(ATTERBERG LIMITS) DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION	DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST SAMPLE ABBREVIATIONS	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	TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
- SATURATED - USUALLY LIQUID; VERY WET, USUALLY	DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON	PIECES CAN BE BROKEN BY FINGER PRESSURE.	STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY
(SAT.) FROM BELOW THE GROUND WATER TABLE	F - FINE SL SILT, SILTY ST - SHELBY TUBE	VERY CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK, PIECES 1 INCH SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY	THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
PLASTIC PLASTIC PROVIDES ORVING TO	FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL	FINGERNALL.	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
BANCE Z - WET - (W) SEMISULIU; REQUIRES DRYING TO	FRACE - FRACTURED, FRACTURES TO FRACTURE TO FRACTURE ON THE CONTENT CBR - CALIFORNIA BEARING	FRACTURE SPACING BEDDING	BENCH MARK: ELEVATIONS DETERMINED FROM PROVIDED ELECTRONIC FILES
(PI) PL PLASTIC LIMIT ATTAIN OPTIMUM MOISTURE	HI HIGHLY V - VERY RATIO	TERM SPACING TERM THICKNESS	(b4926_ls_tin_171205.tin)
ON ORTHUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE	EQUIPMENT USED ON SUBJECT PROJECT	VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET	ELEVATION: N/A FEET
OM _ OPTIMUM MOISTURE - MOIST - (M) SULID; AT OR NEAR OPTIMUM MOISTURE SL _ SHRINKAGE LIMIT	DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE:	MODERATELY CLOSE 1 TO 3 FEET THINLY BEDDED 0.16 - 1.5 FEET	NOTES:
PENUIPES ANDITIONAL WATER TO	CLAY BITS X AUTOMATIC MANUAL	CLOSE 0.16 TO 1 FOOT VERY THINLY BEDDED 0.03 - 0.16 FEET VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET	
- DRY - (D) ATTAIN OPTIMUM MOISTURE	CME-55 4* CONTINUOUS FLIGHT AUGER CORE SIZE:	THICKLY LAMINATED < 0.008 FEET	FIAD - FILLED IMMEDIATELY AFTER DRILLING
PLASTICITY	8* HOLLOW AUGERS	INDURATION	
PLASTICITY INDEX (PI) DRY STRENGTH	X CME-550 HARD FACED FINGER BITS	FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	
NON PLASTIC 0-5 VERY LOW	TUNGCARBIDE INSERTS	RUBBING WITH FINGER FREES NUMEROUS GRAINS;	
SLIGHTLY PLASTIC 6-15 SLIGHT MODERATELY PLASTIC 16-25 MEDIUM	VANE SHEAR TEST X CASING W/ ADVANCER HAND TOOLS:	GENILE BLUW BY HAMMER DISINIEGRATES SAMPLE.	
HIGHLY PLASTIC 16-25 MEDIUM HIGHLY PLASTIC 26 OR MORE HIGH	POSTABLE HOLE INCLE	MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.	
COLOR	1 TOURNEY TO THE ROOM	CRAINS ARE DISCIPLET TO SERARATE WITH STEEL PROBE.	
		INDURATED DIFFICULT TO BREAK WITH HAMMER.	
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.	CORE BIT (4-INCH DIM.) VANE SHEAR TEST	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE;	
MODIFIERS SUCH MS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.	DUAL MASS DCP	EXTREMELY INDURATED SAMPLE BREAKS ACROSS GRAINS.	DATE: 8-15-14



							ORE L	.UG			
WBS 40163.	1.2			TII	P B-4926	COUNT	Y Lenoir			GEOLOGIST J. Howard	
SITE DESCR	IPTION	N Brid	ge No.	. 34 or	n NC 55 Over Neuse	River Ove	erflow Near	Kinston,	NC		GROUND WTR (f
BORING NO.	BR 3	4_EB	1-A	SI	FATION 33+89		OFFSET :	33 ft LT		ALIGNMENT -L-	0 HR. N/A
COLLAR ELE	V . 27	'.9 ft		TC	OTAL DEPTH 84.9 f	t	NORTHING	3 565,6	09	EASTING 2,449,406	24 HR. 9.6
DRILL RIG/HAM	MER EI	FF./DA	re sm	1E9403	CME-550X 80% 12/03/	2020		DRILL M	ETHOD	Mud Rotary HAMN	IER TYPE Automatic
DRILLER S.	Harde	e		SI	TART DATE 04/24/1	9	COMP. DA	TE 04/2	24/19	SURFACE WATER DEPTH N	/A
LEV DRIVE	DEPTH	BLO	W COL	TNL	BLOWS F	PER FOOT		SAMP.	V/L	COIL AND BOOK DEG	CDIDTION
(ft) ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25	50	75 100	NO.	MOI G		DEPTH (
30											
-										27.9 GROUND SURF	ACE
27.0	0.9	3	3	3	1				D L	27.0 ASPHALT (0.0-0.4'), CONC	RETE (0.4-0.9')(
25 24.2	3.7				● 6· · · · · · · · · · · · · · · · · · ·					ROADWAY EMBA Very loose to very dense, o	lry to saturated,
1		3	40	12		●52			w E	tan-brown, silty fine SAN asphalt lenses a	D (A-2-4) with t 4.2'
20 +										-	
19.5	8.4	1	1	1					Sat.	: :	
15	13.4									15.9 ALLUVIAL	1
17.0		1	1	3	• 4			SS-103	30%	Soft, wet, gray, fine sandy, trace organic	silty CLAY (A-6) s
. ‡					<u> </u> :::: ::::					10.9	1
9.5	18.4	3	3	4			 		Sat.	Loose to medium dense, s silty, fine SAND (A-2-4) with	
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4.5	23.4	2	6	11	17				Sat.		
I					::/: ::::					.T L 0.9	2
-0.5	28.4								000	Medium dense, saturated, to coarse SAND	gray-white, fine
		6	6	4	10 . 11				Sat.	S -3.1	(A-3) 3
5 _ +									***	COASTAL PL	AIN — — — — — —
-5.5	33.4	16	26	25		<u> </u>			D	Stiff to hard, moist, dark gr silty CLAY (A-7-6) with	trace shell
					:::: :;;/(`					fragments and fine sandy p Formation)	
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-50 †					./		1				·

GEOTECHNICAL BORING REPORT BORE LOG

WB	S 40163	3.1.2			TI	P B-49	926		COUNT	Y Ler	noir				GEOLOGIST J. Howard		
SIT	E DESCF	RIPTION	N Brid	ge No	. 34 or	n NC 55	Over l	Neuse	River Ov	erflow	Near	Kinston	, NC			GROUN	D WTR (ft)
во	RING NO	. BR 3	4_EB	1-A	Sī	ATION	33+8	19		OFFS	SET 3	33 ft LT			ALIGNMENT -L-	0 HR.	N/A
СО	LLAR EL	EV . 27	7.9 ft		TC	TAL D	EPTH	84.9 f	t	NOR.	THING	5 65,6	609		EASTING 2,449,406	24 HR.	9.6
DRII	L RIG/HAI	MMER E	FF./DA	TE SM	1E9403	CME-55	0X 80%	12/03/	2020			DRILL I	METHO	D Mu	ud Rotary HAMM	ER TYPE	Automatic
DR	LLER S	. Harde	e		S	ART D	ATE ()4/24/1	9	СОМ	P. DA	TE 04/	24/19		SURFACE WATER DEPTH N	/A	
ELE'	DRIVE ELEV (ft)	DEPTH (ft)	BLO 0.5ft	W COL 0.5ft	JNT 0.5ft	0	25 -		PER FOOT 50	Γ 75 '	100	SAMP.	MOI	L O G	SOIL AND ROCK DESC	CRIPTION	DEPTH (ft)
-50	-50.5	78.4						Matc	h Line	· 							
-55	-		7	8	10		♦ 18						W		Very stiff, wet to satura green-gray, fine sandy Cl trace shell fragments (Peec (continued)	.AY (A-6) w	ith ion)
NODOI BORE SINGLE B-4520 GEO_RUMT_GINI GFO NO_DOI 2/9/22			11	10	10								Sat.		-57.0 Boring Terminated at Eleva Coastal Plain: Very stiff, fir CLAY (A-6) (Peedee F	ne sandy, s	t in iilty

								В	ORE L	.OG						
WBS	40163	3.1.2			Т	IP B-4926		COUNT	Y Lenoir				GEOLOGIST J. Howar	rd		
SITE	DESC	RIPTIO	N Bric	dge No	o. 34 c	on NC 55 Ov	er Neuse	River Ov	erflow Near	Kinston	, NC				GROUN	D WTR (f
BOR	ING NO). BR 3	34_B1-	-A	s	TATION 3	4+64		OFFSET	32 ft LT			ALIGNMENT -L-		0 HR.	N/A
COL	LAR EL	. EV . 12	2.0 ft		Т	OTAL DEP	TH 99.2 f	t	NORTHIN	G 565,	574		EASTING 2,449,472		24 HR.	N/A
DRILL	RIG/HA	MMER E	FF./DA	TE SI	ME9403	3 CME-550X	80% 12/03/	2020		DRILL	METHO	D M	ud Rotary	HAMME	R TYPE	Automatic
DRIL	LER S	. Harde	е		s	TART DAT	E 04/29/1	9	COMP. DA	TE 04	/29/19		SURFACE WATER DE	PTH 7.0	Oft	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLC 0.5ft	0.5ft		0 :		PER FOOT 50	75 100	SAMP NO.	. MOI	L O G	SOIL AND RO	CK DESC	CRIPTION	DEPTH (
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-5	-5.7	17.7							ļ · · · ·					TAL PLA		
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		‡					• 25				IVI		. Medium dense, we (A-2-4) (Pee			ND
-25	-25.7 ⁻	37.7				· · · ·	<u> </u>						Stiff, moist, dark g			37
	-20.7	1 77.7	5	6	11	17]:::::				W		(A-6) (Peed	dee Form	sandy CLA ation)	ιT
-30		‡					7.50						-29.0 Hard maint to actu		rk groop gr	41
-00	-30.7	42.7	17	24	34	 	 	<u></u>	1		М		Hard, moist to satu	ndy SILT		
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-50	-50.7	62.7	13	10	10	 	<u> </u>		 		Sat.		_ Very stiff, moist, sandy CLAY (A	۱-6) with t	trace shell	3
		‡	.	.,	.0						oal.		fragments (Pe	eedee Fo	rmation)	00
-55	-55.7 ⁻	677				<u> i,</u>	: : : :							oist, dark	green gra	y, <u>66</u> .
	-00.1	† "	6	7	10] · · · .] · · · · .♠17	: : : :				М		clayey fine SAN	ND (A-2-6 mation)) (Peedee	70
		‡				::::	↓ ::::	: : : :					<u>58.0</u>			
-60		<u> </u>	<u> </u>		1		11					\cdots				

GEOTECHNICAL BORING REPORT BORE LOG

							<u> </u>	<u> </u>					
WBS	40163	3.1.2			TII	P B-4926 COUN	TY Lenoir				GEOLOGIST J. Howard		
SITE D	DESCR	RIPTIO	N Brid	lge No	. 34 or	n NC 55 Over Neuse River (verflow Near I	Kinston,	NC			GROUND WT	R (ft)
BORIN	IG NO	. BR 3	4_B1-	A	S1	TATION 34+64	OFFSET 3	2 ft LT			ALIGNMENT -L-	0 HR.	N/A
COLLA	AR EL	EV . 12	2.0 ft		TC	OTAL DEPTH 99.2 ft	NORTHING	565,5	74		EASTING 2,449,472	24 HR.	N/A
DRILL R	RIG/HAI	MMER E	FF./DA	TE SN	1E9403	CME-550X 80% 12/03/2020		DRILL N	ETHO	D Mu	d Rotary HAMM	ER TYPE Automa	atic
DRILLI	ER S	. Harde	e		SI	TART DATE 04/29/19	COMP. DA	TE 04/2	29/19		SURFACE WATER DEPTH 7.	Oft	
	DRIVE	DEPTH		w col		BLOWS PER FO		SAMP.	V /	L			
(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25 50	75 100	NO.	мог	0 G	SOIL AND ROCK DESC		PTH (ft)
-60						Match Line							
	-60.7	72.7	18	18	16			T	— — — М	F	Dense to very dense, mois green gray, silty fine to co	t to wet, dark	
	-	ļ.								-	(A-2-4) with trace friable ce lenses (Peedee Formation	mented sand	
-65	-65.7 ⁻	77.7								-	-) (continueu)	
	-	-	7	16	37	53.			М				
-70	-	<u> </u>				:::: :::::/ ::::							
-70	-70.7	82.7	17	16	19				W	-	-		
	-	<u> </u>	,,,						vv	<u> </u>			
-75	- 	07.7					-+				-74.0 Hard, indurated, green gray		86.0
	-75.7 -	87.7	100/0.1				100/0.1		W	罝	SAND and very dense, wet, -77.5 (A-2-4) (Peedee For	silty fine sand nation)	89.5
	-	<u> </u>								E	Dense to very dense, wet, g fine SAND (A-2-4) with	reen-gray, silty	_ <u></u>
-80	-80.7	92.7	40	40	40		- 			<u> </u>	fragments (Peedee Fo	rmation)	
	-	F	12	16	18				W	F			
-85	-	F								F			
-	-85.7	97.7	18	26	35				W	F	-87.2		99.2
											Coastal Plain: Very dense, s (A-2-4) (Peedee For	nation)	

							<u>B</u>	<u>ORE L</u>	<u>.OG</u>					
WBS	4016	3.1.2			T	IP B-4926	COUNT	Y Lenoir				GEOLOGIST J. Howard		
SITE	DESCI	RIPTIO	N Bric	dge No	o. 34 o	on NC 55 Over Neus	se River Ov	erflow Near	Kinston	, NC			GROUN	ID WTR (fi
BOR	ING NO). BR 3	84_B2-	-A	S	TATION 35+44		OFFSET :	35 ft LT			ALIGNMENT -L-	0 HR.	N/A
COL	LAR EL	.EV. 13	3.1 ft		T	OTAL DEPTH 97.	5 ft	NORTHING	3 565,5	540		EASTING 2,449,545	24 HR.	N/A
DRILL	RIG/HA	MMER E	FF./DA	TE SI	ME9403	3 CME-550X 80% 12/0	3/2020		DRILL I	METHOD) Mu	d Rotary HAM	MER TYPE	Automatic
DRIL	LER S	6. Harde	ee		S	TART DATE 04/25	5/19	COMP. DA	TE 04/	25/19		SURFACE WATER DEPTH	6.0ft	
ELEV	DRIVE ELEV	DEPTH		W CO	·	- ∤	S PER FOOT	I	SAMP.	$ \nabla \!\!\!/ $	L	SOIL AND ROCK DE	SCRIPTION	
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25	50	75 100	NO.	MOI	G	ELEV. (ft)		DEPTH (
20	_	+								lacksqrup	_	WATER SURFACE	(04/25/19)	
		Ŧ									F			
15		Ī									E	_		
	13.1	0.0										13.1 MUDLINE		C
		Ŧ	WOH	WOH	WOH	•				W		ALLUVIA Very soft to soft, wet, gr	ay, sandy, si	
10	10.3	2.8	WOH	1	1	•2		 		w		CLAY (A-7-6) with tra	ce organics	
		ł				:::: :::					J			
5	5.6	7.5	2	1	1	<u> </u>				l w	ì	Soft, wet, gray, fine sand		<u>LT 7</u>
		ł	_			$\begin{vmatrix} \mathbf{q}^2 & \dots & \mathbf{q} \\ \mathbf{q} & \dots & \mathbf{q} \end{vmatrix}$				l vv	æŁ	(A-4) with trace of	rganics	
_	0.6	12.5				-::: :::						COASTAL P		11
0	- 0.0	- 12.3	2	3	5	1 - 8				М	J	Medium stiff to hard, dry to fine sandy, silty CLAY (/	4-7-6) with fi	ne
		<u> </u>									3	sand partings (Peede	e Formation))
-5	-4.4	17.5	3	3	5	· <u> </u> · · · · · ·				М	1	_		
		‡				. • 8				"	1			
40	-9.4	22.5				:::::::\::::					3			
-10	-	ļ	11	18	19	37				D		-		
		‡				::::; /:::					3			
-15	-14.4	27.5	3	5	7					l _w		-		
		‡								"	3			
-20	-19.4	+ - 32.5] :::::::::::::::::::::::::::::::::::::					3	-20.0		33
-20	-	‡	4	19	19	3.	3			М	<u></u> -	Dense, wet, dark gray, s	ilty fine SAN	ND 35
		‡				:::::::::::::::::::::::::::::::::::::						Very stiff, moist, gray, fir	e sandy CL	/
-25	-24.4	37.5	4	7	8	15				М		(A-6) (Peedee Fo	rmation)	
		‡										-27.9		41
-30	-29.4	42.5	10	47	00] ::::: :`\;						Hard, wet, dark green-gr fine sandy SILT (A-4) (Pe	ay, glauconi	tic,
] -	Ŧ	12	17	26		43			М	F			,
		Ŧ									F			
-35	-34.4	+ 47.5 -	17	28	42	1		70		w	F	-		
		Ŧ					: : : : /:				F			
-40	-39.4	52.5	17	24	38		. / .			١,,,	Æ	_		
		Ŧ	''		00					W	Œ			
	-44.4	57.5					: :/: : :				Æ			
-45	-44.4	57.5	6	22	33	1 	9 55	 		w		-		
		‡					:/\::::							
-50	-49.4	62.5	15	23	15	/	<u> </u>			w	#	-		
		‡					'. .			**	*			
	-54.4	67.5				│						-53.9		67.
-55	-	+ ""	8	11	10	7	- 	 		W	\searrow	Medium dense, wet, da clayey fine to coarse SA	ND (A-2-6) w	vith
-35 -40 -45 -50		‡				::::\\:::					\searrow	trace cemented sand frace	ments (Pee	dee ⁄ <u>71</u> .
-60	-59.4	72.5				 					:::-			

GEOTECHNICAL BORING REPORT BORE LOG

WB	40163	3.1.2			TI	P B-4	926	COUNT	Y Lend	oir				GEOLOGIST J. Howard				
SITE	DESCF	RIPTIO	N Bric	lge No	. 34 or	n NC 5	5 Over Neus	se River Ov	erflow N	lear l	Kinston,	, NC			ND WTR (ft)			
BOF	RING NO	. BR 3	4_B2-	-A	ST	OITA	N 35+44		OFFSI	ET 3	55 ft LT			ALIGNMENT -L-	0 HR.	N/A		
COL	LAR EL	EV . 13	3.1 ft		TC	TAL [DEPTH 97.5	5 ft	NORTHING 565,540					EASTING 2,449,545	24 HR.	N/A		
DRIL	L RIG/HAI	MMER E	FF./DA	TE SN	ЛЕ9403	CME-5	50X 80% 12/0)3/2020	DRILL METHOD Mud					lud Rotary HA	MMER TYPE	Automatic		
DRII	LER S	. Harde				ART [DATE 04/25	5/19	СОМР	. DA	TE 04/	25/19		SURFACE WATER DEPTH	6.0ft			
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)		0.5ft	UNT 0.5ft	0	BLOW 25	S PER FOOT 50		100	SAMP. NO.	MOI	L O G	SOIL AND ROCK [ESCRIPTIO	N DEPTH (ft)		
-60 -65 -70 -75	(ft)	(III) - 77.5 - 82.5 - 87.5 - 97.5	0.5ft	10 78/0.3	17 12 19		I	atch Line	100	100 	NO.				dense, wet, o coarse SA ble to indura enses (Peed Intinued) gray, CEMEI Formation) A-2-4) with the MENTED S/Formation) -gray, CEMEI D SAND lense mation) gray, CEMEI D, silty fine S/Formation) with Standar I at Elevation ard, indurate sind in coarse see the see	DEPTH (ft) dark ND ted ee 83.1 NTED \83.5 /, silty acc 87.5 AND 88.8 NTED NND 10 NTED \97.5 NND d d d 1 -84.4 d,		

							B	ORE L	OG									
WBS	40163	.1.2			TI	IP B-4926	COUNT	f Lenoir				GEOLOGIST J. Howard						
				<u> </u>		n NC 55 Over Neuse	River Ove			NC				GROUN	ID WTR (f			
BOR	ING NO	. BR 3	4_EB2	2-A	Sī	TATION 36+13		OFFSET 3	35 ft LT			ALIGNMENT -L-	0 HR.	N/A				
	LAR ELI					OTAL DEPTH 84.9 f		NORTHING	565,5	509		EASTING 2,449,606		24 HR.	9.8			
DRILL	RIG/HAN	MER E	FF./DA	TE SN	ME9403	3 CME-550X 80% 12/03/	2020		DRILL N	METHO	D M	ud Rotary	HAMM	ER TYPE	Automatic			
DRIL	LER S	. Harde				TART DATE 04/23/1		COMP. DA		23/19	<i>a</i>	SURFACE WATER D	EPTH N	/A				
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	0.5ft	0.5ft	UNT 0.5ft	4	PER FOOT	75 100	SAMP. U L O NO. MOI G			SOIL AND RO	OCK DES	CRIPTION	DEPTH (f			
30		-										_						
	27.0	0.9	5	4	5					D		27.9 GROUI 27.0 ASPHALT (0.0-0.4 - ROADWA		RETE (0.4	0.9') 0.			
25	23.8 -	- - 4.1						1				 Loose to mediu tan-orange, silty 	m dense,	dry to mois				
		-	3	16	34	:::: ::;>	50			М		trace asph						
20	19.5 -	- - 8.4										19.9			8.			
	-	-	2	1	2	 • • • • • • • • • • • • • • • • • • •			SS-100	35%		Soft, wet, gray- sandy CLAY (orange, fil A-6) with t	ne to coars race grave	se I			
15		-											LLUVIAL		12.			
	14.5	- 13.4 -	1	1	1	2		1	SS-101	46%		Soft to medium sti and gray, fine sar	ff, wet to n	noist, dark	gray			
		-				$ \vec{l}_i $						- trac	e organics	EAT (A-0)	With			
10	9.5	18.4	1	1	4			+				_						
]		'	'	4	♦ 5				М		6.9			21.			
5	4.5	- - 23.4									0000	Medium dense, coarse SAND	saturated A-3) with	gray, fine trace grave	to el			
	4.5		7	7	5	1 12.				Sat.	0000	<u>.</u>	,	Ü				
	-	-				:j:: ::::							STAL PLA					
0	-0.5	28.4	3	5	6	-		1	SS-102	23%		 Stiff, moist, dark g silty CLAY (A-7- 	ray, fine to 6) (Peede	coarse sa e Formatio	andy, on)			
	-	-				. ¶11 .			33-102	2370		- -						
-5	-5.5	- - 33.4				-						-						
	-	-	4	5	6					М		<u>.</u>						
-10	1	-				::::]7%;;						9.1 Hard, wet, dark o			37			
-10	-10.5	- 38.4 -	16	32	40			72		w			edee Form					
	-13.3 -	- - 41.2	4			: : : : <u>: : : : : :</u>	-::-					Stiff, moist, darl	gray, fine	sandy, si	ity — 40.			
-15	-15.5 -	- - 43.4	4	5	6	11				М		_ CLAY (A-6) WI	ee Formati	ion)	5			
	1	-	4	5	8	13				М		<u>.</u>						
-20		-										•						
	-20.5	- 48.4 -	9	29	50	: : '		6 79		w		-21.0 Very dense, wet, o						
_]					::::	 	+' : : :				23.1 (A-2-4) (Pe	edee For	mation)	<u> 51</u> .			
-25	-25.5	53.4	5	8	10			 				 CLAY (A-6) w 	ith fine sar	nd partings	3			
		-			.	18				М		- -28.1		,	56.			
-30	-30.5	- - 58.4				`\						Hard, wet, dark						
	-	-	14	17	24] : : : : : : • 41				W		·						
-35		-				:::: ::::						• •						
-00	-35.5	- 63.4 -	17	23	41		- GA			w		_ -						
		-					. /	[::::				. -						
-40	-40.5	- - 68.4	40	00			1					- -						
		-	16	23	31		€54			W		- -						
-45		-					<u>j:</u>					- - -						
	-45.5 -	- 73.4 -	16	21	29		50			w		_ - -						
												- 49.1			<u>77</u> .			
-50	1						🔪	1										

GEOTECHNICAL BORING REPORT BORE LOG

												_							
WBS	40163	3.1.2			TI	P B-	4926		cou	NTY	Lenoir					GEOLOGIST J. Howard			
SITE	DESCR	RIPTIO	N Brid	dge No	o. 34 o	n NC	55 Ove	er Neus	e River	Overl	flow Ne	ar K	inston,	NC			GROUND WTR (ft		
BOR	ING NO	. BR 3	4_EB	2-A	S	TATIC	ON 36	+13		c	OFFSET 35 ft LT					ALIGNMENT -L-	0 HR. N/A		
COL	LAR EL	EV . 27	7.9 ft		T	TOTAL DEPTH 84.9 ft						NG	565,5	09		EASTING 2,449,606	24 HR. 9.8		
DRILL	RIG/HAN	MER E	FF./DA	TE SI	ME9403	CME-	550X 8	0% 12/0	3/2020				DRILL N	IETHO	D M	ud Rotary HAMME	R TYPE Automatic		
DRIL	LER S	. Harde	ee		S	TART	DATE	04/23/	/19	C	OMP. I	DAT	E 04/2	23/19		SURFACE WATER DEPTH N/	A		
ELEV (ft) DRIVE (ft) DEPTH BLOW COUNT (ft) 0.5ft 0.5ft 0					1	0	OOT 75	5 10	- 1 1	SAMP. NO.	MOI	00 -	SOIL AND ROCK DESC ELEV. (ft)	CRIPTION DEPTH (ft					
-50_	0 -50.5 78.4 16 60 2						[Mat	tch Line							Hard to very stiff, wet, dark g sandy CLAY (A-6) with tra	et, dark green gray, fine		
-55	- -55.5 —	- - - 83.4	14	13	9							- - -		w		_ sand lenses (Peedee F _ (continued) _	ormation)		
	-	- - -	17	10		Ш	● 2:	2		!				VV		-57.0 Boring Terminated at Eleva Coastal Plain: Very stiff, fin CLAY (A-6) (Peedee Fo	e sandy, silty		
		- - - -														- Pushed tubes ST-1 and S - location -L- 36+18, 3 ST-1 from 8.5-10.5 ft (F - ST-2 from 13.0-15.0 ft (I	5 ft LT Rec=2.0 ft)		
	- - -	- - -														Other Samples: - ST-1 (8.5 - 10.5) - ST-2 (13.0 - 15.0)			
	-	- - -														- - - - -			
	-	- - -														_ - - -			
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Bridge No. 34 on NC 55 (-L-) Over the Neuse River Overflow at -L- Sta. 35+00 Wood E&IS Project No.: 6468-19-9027

Date Reported: July 2019

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

HODO! HOO!	10 +0.100.1.2		11p 110 B 4020			oounty.				Data 10010d. 04110 2010						
	SOIL TEST RESULTS															
OAMBI E NO	STATION	OFFOFT	LINE	DEPTH INTERVAL	AASHTO		Б.		% BY V	VEIGHT		% PASSING SIEVES			%	%
SAMPLE NO.		OFFSET	LINE		CLASS.	L.L.	P.I.	C. SAND	F. SAND	SILT	CLAY	10	40	200	MOISTURE	ORGANIC
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

allat 2. Roma 2 Albert Romero Print Name 115-01-0504 Signature Certification #

SITE PHOTOGRAPH

