598 Ò REFERENCE

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STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY _ROBESON

PROJECT DESCRIPTION BRIDGE NO. 770125 ON -L1-(NC 41/NC 72) OVER LUMBER RIVER AT -L1- STA. 23 + 56.00

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5985	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 (1991) 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 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 METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS INCLORDED TO CLIMATIC CONDITIONS INCLOUDING 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 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 BY 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.

Lindsay Pugh, LG

Thomas Park

Jordan Edmondson Corey Futral

Patrick McCain

INVESTIGATED BY _

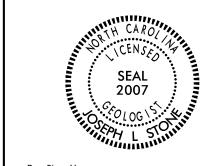
DRAWN BY L. G. PUGH, LG

CHECKED BY J. LEE STONE, PG

SUBMITTED BY J. Lee Stone, PG

DATE _March 2022





Joseph L. Stone

03/25/2022

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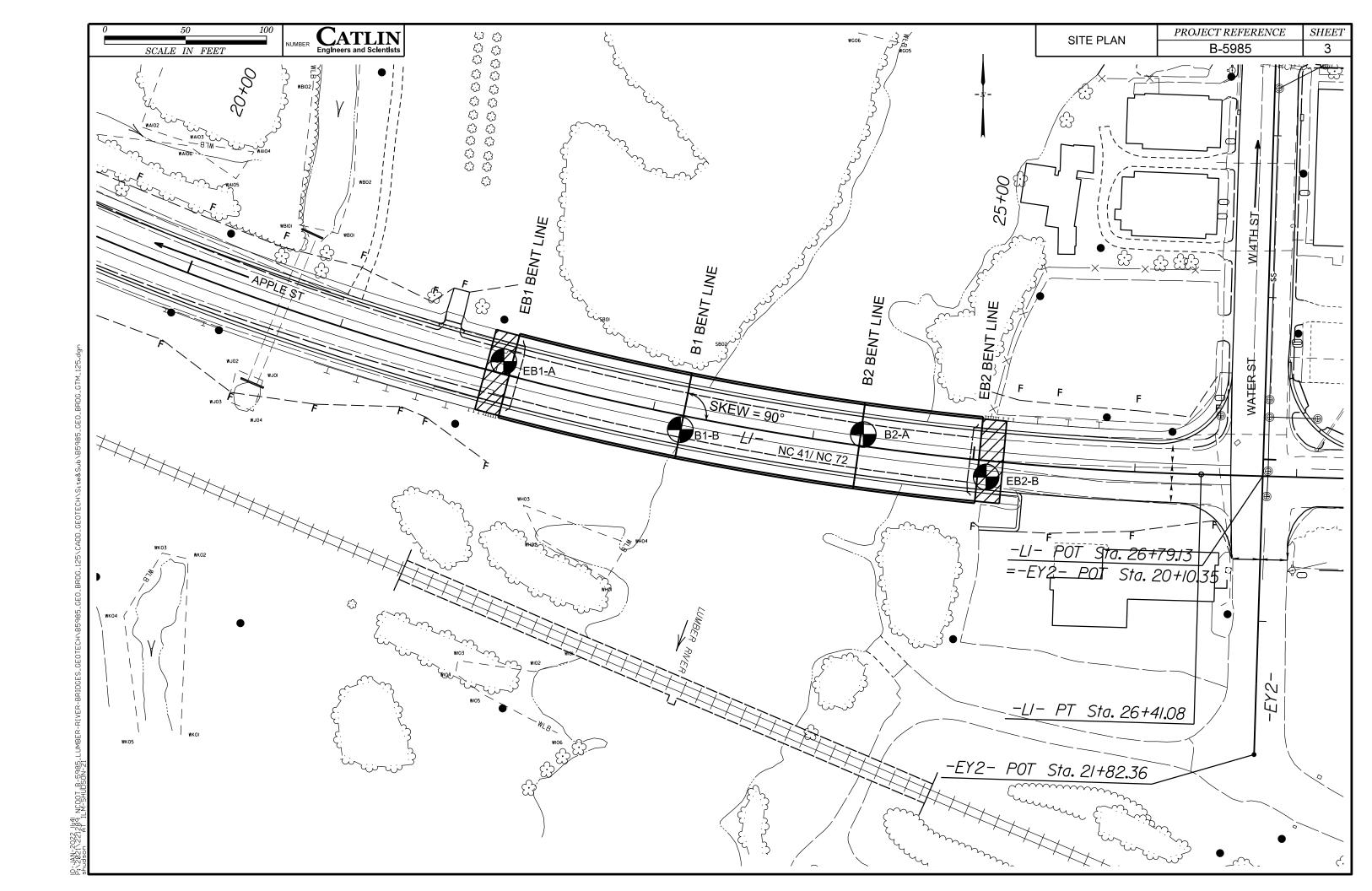
PROJECT REFERENCE NO. SHEET NO. 2

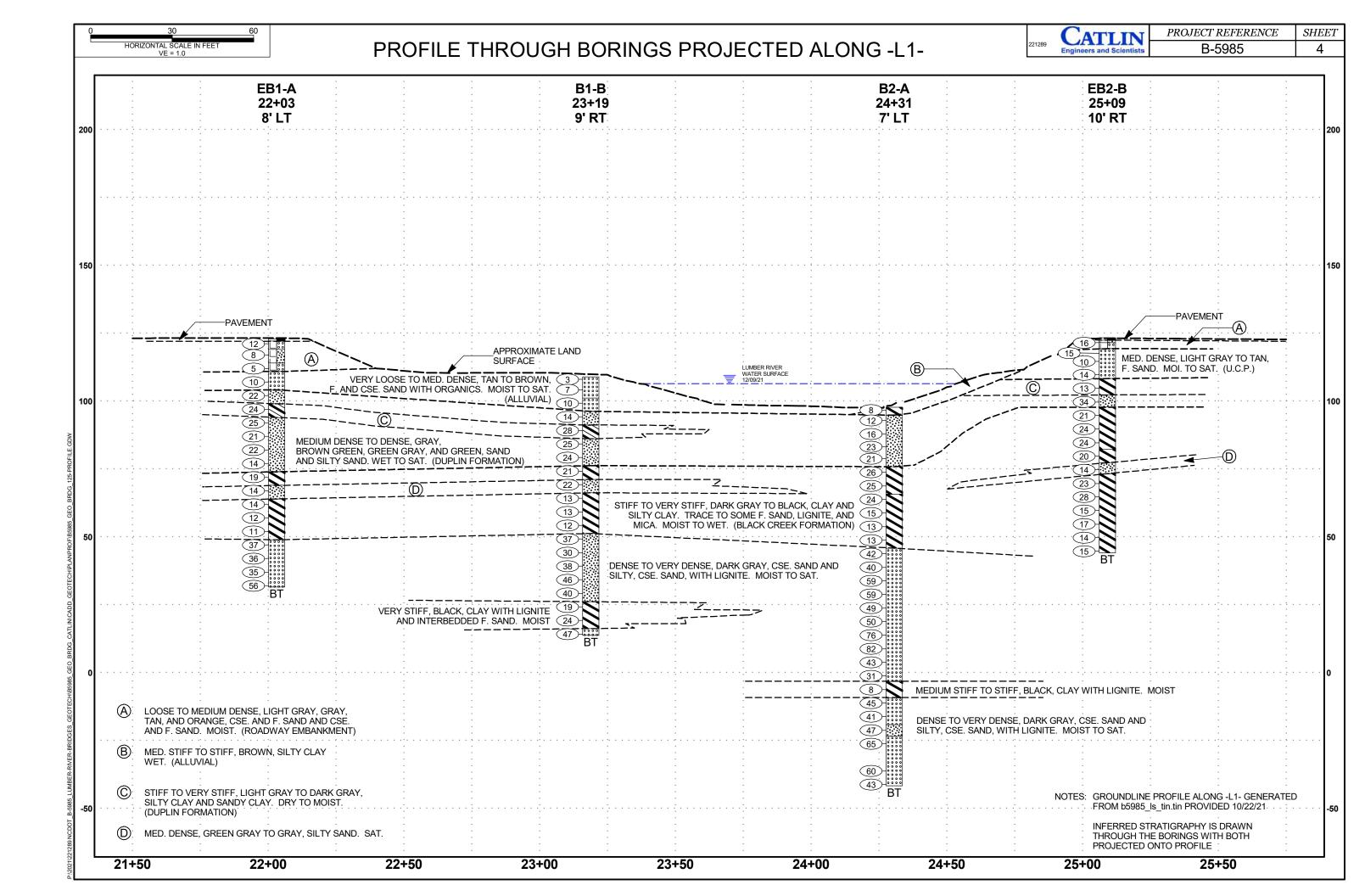
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

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. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE.	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 IS BASED ON THE AASHTO SYSTEM, BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING:	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 BLOWS IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN	AQUIFER - A WATER BEARING FORMATION OR STRATA,			
CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE,	ANGULARITY OF GRAINS	REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVIN			
VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6	THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS:	WEATHERED VISCOUSTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES >	A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.			
SOIL LEGEND AND AASHTO CLASSIFICATION	ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	ROCK (WR) 100 BLOWS PER FOOT IF TESTED.	ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT			
GENERAL GRANULAR MATERIALS SILT-CLAY MATERIALS ORGANIC MATERIALS	MINERALOGICAL COMPOSITION	CRYSTALLINE FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT	WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.			
CLASS. (≤ 35% PASSING *200) (> 35% PASSING *200) CHOWNEL PRITECTIFIES GROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.	ROCK (CR) WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.			
GROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4 A-5 CLASS. A-1-0 A-1-0 A-1-0 A-2-4 A-2-5 A-2-6 A-2-7 A-7-5 A-6 A-7	COMPRESSIBILITY	NON-CRYSTALLINE FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED.	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM			
SYMBOL 0000d00000	SLIGHTLY COMPRESSIBLE LL < 31	ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.	OF SLOPE.			
7. PASSING	MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50	COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD 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 SIL1-	PERCENTAGE OF MATERIAL	(CP) SHELL BEDS, ETC. WEATHERING	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT			
*40 30 MX 50 MX 51 MN PEAT ** *200 15 MX 25 MX 10 MX 35 MX 35 MX 35 MX 36 MN 36 MN 36 MN 36 MN 36 MN 36 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.	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.			
PASSING *40 40 MX 41 MN	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, (V SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE			
PI 6 MX NP 10 MX 10 MX 11 MN 11 MN 10 MX 10 MX 11 MN 11 MN LITTLE UR HIGHLY	HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE	OF A CRYSTALLINE NATURE.	LINE OF DIP MEASURED CLOCKWISE FROM NORTH.			
GROUP INDEX 0 0 0 4 MX 8 MX 12 MX 16 MX NO MX AMOUNTS OF SOUS	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 SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.			
USUAL TYPES STONE FRACS. OF MATCH CRAYEL AND FINE SILTY OR CLAYEY SILTY CLAYEY MATTER		(SLI.) 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR 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	\blacksquare STATIC WATER LEVEL AFTER $\underline{24}$ HOURS	MODERATE SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM			
GEN, RATING EXCELLENT TO GOOD FAIR TO POOR POOR UNSUITABLE	<u> </u>	(MOD.) GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY, ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED	PARENT MATERIAL.			
AS SUBURANE PUUR	SPRING OR SEEP	WITH FRESH ROCK.	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 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	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.			
PANCE OF STANDARD PANCE OF UNICONSTINED		(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 COMPACTNESS OR CONSISTENCY PENETRATION RESISTANCE COMPRESSIVE STRENGTH (IN-VALUE) (TONS/FT ²)	ROADWAY EMBANKMENT (RE) 25/025 DIP & DIP DIRECTION OF ROCK STRUCTURES	IF TESTED, WOULD YIELD SPT REFUSAL	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO			
VERY LOOSE 4.4	SPT CLORE INDICATOR	SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT (SEV.) REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED	ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.			
GRANIII AR LOOSE 4 TO 10	SOIL SYMBOL OPT ONT TEST BORING 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			
MEDIUM DENSE 10 TO 30 N/A MATERIAL DENSE 30 TO 50 (NON-COHESIVE) VERY DENSE	ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT 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.			
VERT DENSE / 30		SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK (V SEV.) REMAINING, SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR	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	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 (RQD) - 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	TTTTT ALLUVIAL SOIL BOUNDARY ALLUVIAL SOIL BOUNDARY PIEZOMETER INSTALLATION - SPT N-VALUE	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 RUN AND EXPRESSED AS A PERCENTAGE.			
HARD > 30 > 4		ROCK HARDNESS	SAPROLITE (SAP.) - 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 OPENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053	UNCLASSIFIED EXCAVATION - UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE 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 RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO			
COARSE FINE	SHALLOW UNDERCUT UNCLASSIFIED EXCAVATION - USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL	HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.	THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.			
BOULDER	ABBRE VIATIONS	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 WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL			
SOIL MOISTURE - CORRELATION OF TERMS	CL CLAY MOD MODERATELY γ - UNIT WEIGHT CPT - CONE PENETRATION TEST NP - NON PLASTIC γ_a - DRY UNIT WEIGHT	HARD CAN BE EXCAVATED IN SMALL CHIPS TO PE ICES I INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.	TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.			
SOIL MOISTURE SCALE FIELD MOISTURE GUIDE FOR FIELD MOISTURE DESCRIPTION	CSE COARSE ORG ORGANIC	SOFT CAN BE GROOVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY			
(HITERDERG CIMITS) DESCRIPTION	DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK	FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.	TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL			
- SATURATED - USUALLY LIQUID; VERY WET, USUALLY (SAT.) FROM BELOW THE GROUND WATER TABLE	e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON 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	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.			
	─ FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK	SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE, CAN BE SCRATCHED READILY BY FINGERNAIL.	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.			
PLASTIC SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE	FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL FRAGS FRAGMENTS W - MOISTURE CONTENT CBR - CALIFORNIA BEARING	FRACTURE SPACING BEDDING	BENCH MARK: BORINGS LOCATED WITH REAL TIME KINEMATIC (RTK)			
(PI) PL PLASTIC LIMITATTAIN OPTIMUM MOISTURE	HI HIGHLY V - VERY RATIO	TERM SPACING TERM THICKNESS	GLOBAL POSITIONING SYSTEM (GPS) TO NORTH CAROLINA STATE PLANE			
- 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	NORTH AMERICAN DATUM 1983 ELEVATION: FEET			
OM OPTIMUM MOISTURE	DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE:	MODERATELY CLOSE 1 TO 3 FEET THINLY BEDDED Ø.16 - 1.5 FEET	NOTES:			
- DRY - (D) REQUIRES ADDITIONAL WATER TO	CME-45C 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				
ATTAIN UPTIMUM MUISTURE	X CME-55 CONTINUOUS FLIGHT AUGER CORE SIZE:	THINLY LAMINATED < 0.008 FEET	FIAD = FILLED IMMEDIATELY AFTER DRILLING UCP = UNDIVIDED COASTAL PLAIN			
PLASTICITY	 	INDURATION FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	1			
PLASTICITY INDEX (PI) DRY STRENGTH NON PLASTIC 0-5 VERY LOW	CME-550	DIBRING WITH FINGED EDEES NUMEROUS CRAINS.				
SLIGHTLY PLASTIC 6-15 SLIGHT	VANE SHEAR TEST X CASING X W/ADVANCER HAND TOOLS:	FRIABLE GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.				
MODERATELY PLASTIC 16-25 MEDIUM HIGHLY PLASTIC 26 OR MORE HIGH	POST HOLE DIGGER	MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.				
COLOR	TOTAL	CRAINC ARE DISCIONATE WITH STEEL PROPE.				
		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 VANE SHEAR TEST	EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE;				
		SAMPLE BREAKS ACROSS GRAINS.	DATE: 8-15-1			





PROJECT REFERENCE SHEET GEOTECHNICAL BORING REPORT B-5985 5 **BORE LOG GEOLOGIST**: THOMAS PARK **TIP**: B-5985 COUNTY: ROBESON **GEOLOGIST:** THOMAS PARK COUNTY: ROBESON **WBS**: 47749.1.1 **WBS**: 47749.1.1 **TIP:** B-5985 SITE DESCRIPTION: BRIDGE NO. 770125 ON -L1- (NC 41/NC 72) over LUMBER RIVER AT -L1- 23+56.00 SITE DESCRIPTION: BRIDGE NO. 770125 ON -L1- (NC 41/NC 72) over LUMBER RIVER AT -L1- 23+56.00 **GROUND WTR (ft) GROUND WTR (ft)** OFFSET: 8 ft LT ALIGNMENT: -L1-OFFSET: 8 ft LT ALIGNMENT: -L1-BORING NO.: EB1-A **STATION**: 22+03 0 HR. 9.4 BORING NO.: EB1-A **STATION**: 22+03 0 HR. **EASTING:** 1,996,438 COLLAR ELEV.: 122.8 ft TOTAL DEPTH: 91.4 ft **NORTHING:** 315,959 TOTAL DEPTH: 91.4 ft **EASTING:** 1,996,438 24 HR. FIAD COLLAR ELEV.: 122.8 ft **NORTHING**: 315,959 24 HR. FIAD DRILL RIG/HAMMER EFF./DATE: CAT0071 DIEDRICH D-50 94.8% 01/20/2021 **DRILL METHOD:** MUD ROTARY HAMMER TYPE: AUTOMATIC DRILL RIG/HAMMER EFF./DATE: CAT0071 DIEDRICH D-50 94.8% 01/20/2021 DRILL METHOD: MUD ROTARY HAMMER TYPE: AUTOMATIC DRILLER: P. McCAIN **START DATE:** 12/16/21 COMP. DATE: 12/16/21 SURFACE WATER DEPTH: N/A **START DATE:** 12/16/21 COMP. DATE: 12/16/21 SURFACE WATER DEPTH: N/A ELEV DRIVE DEPTH BLOW COUNT ELEV DRIVE DEPTH BLOW COUNT **BLOWS PER FOOT BLOWS PER FOOT** SAMP # SAMP SOIL AND ROCK DESCRIPTION SOIL AND ROCK DESCRIPTION RESULT MOI G (ft) RESUL^{*} (ft) 0.5ft 0.5ft 0.5ft 0.5ft 0.5ft 0.5ft 75 100 (ft) 75 100 ELEV. (ft) DEPTH (ft) Match Line 45 DARK GRAY, CSE. SAND (continued) LAND SURFACE 42.9 79.9 122.0 0.8 PAVEMENT W ROADWAY EMBANKMEN 120 40 ORANGE BROWN, CSE. SAND WITH TR. LIGHT TAN, SILTY, F. SAND 117.9 _ 37.9 4 84.9 15 20 М W 115 113.9 GRAY, F. SAND 112.9 89.9 27 29 W W Boring Terminated at Elevation 31.4 ft IN VERY DENSE, CSE. SAND. (BLACK CREEK FORMATION) ALLUVIAL 110 TAN, CSE. SAND 107.9 W 105 COASTAL PLAIN 102.9 1 19.9 GRAY, F. SAND WITH TR. CSE. SAND М (DUPLIN FORMATION) 100 DARK GRAY, SANDY CLAY 97.9 11 D GREEN, SILTY SAND 10 15 D 90 87 9 10 D 82.9 10 D 77.9 D DARK GRAY, CLAY 72.9 8 D (BLACK CREEK FORMATION) GRAY, SILTY, F. SAND M DARK GRAY, CLAY 62.9 М - - - -60 57.9 I 64.9 3 5 D 52.9 D DARK GRAY, CSE. SAND 47.9 15 W

PROJECT REFERENCE SHEET GEOTECHNICAL BORING REPORT B-5985 6 **BORE LOG TIP**: B-5985 COUNTY: ROBESON **GEOLOGIST:** THOMAS PARK **GEOLOGIST:** THOMAS PARK **WBS**: 47749.1.1 **WBS**: 47749.1.1 **TIP:** B-5985 COUNTY: ROBESON SITE DESCRIPTION: BRIDGE NO. 770125 ON -L1- (NC 41/NC 72) over LUMBER RIVER AT -L1- 23+56.00 SITE DESCRIPTION: BRIDGE NO. 770125 ON -L1- (NC 41/NC 72) over LUMBER RIVER AT -L1- 23+56.00 **GROUND WTR (ft) GROUND WTR (ft) STATION**: 23+19 OFFSET: 9 ft RT ALIGNMENT: -L1-OFFSET: 9 ft RT ALIGNMENT: -L1-BORING NO.: B1-B 0 HR. FIAD BORING NO.: B1-B **STATION**: 23+19 0 HR. FIAD TOTAL DEPTH: 95.3 ft COLLAR ELEV.: 108.9 ft **NORTHING:** 315,917 **EASTING**: 1,996,547 COLLAR ELEV.: 108.9 ft TOTAL DEPTH: 95.3 ft **NORTHING:** 315,917 **EASTING:** 1,996,547 24 HR. FIAD 24 HR. FIAD DRILL RIG/HAMMER EFF./DATE: CAT4425 CME-55 83.7% 03/10/2021 DRILL METHOD: NW Casing w/ Advancer HAMMER TYPE: AUTOMATIC DRILL METHOD: NW Casing w/ Advancer DRILL RIG/HAMMER EFF./DATE: CAT4425 CME-55 83.7% 03/10/2021 HAMMER TYPE: AUTOMATIC **DRILLER:** J. EDMONDSON **START DATE:** 12/15/21 COMP. DATE: 12/15/21 SURFACE WATER DEPTH: N/A **DRILLER:** J. EDMONDSON **START DATE:** 12/15/21 COMP. DATE: 12/15/21 SURFACE WATER DEPTH: N/A ELEV DRIVE DEPTH BLOW COUNT ELEV DRIVE DEPTH BLOW COUNT **BLOWS PER FOOT BLOWS PER FOOT** SAMP # SAMP SOIL AND ROCK DESCRIPTION SOIL AND ROCK DESCRIPTION RESULT MOI G (ft) RESUL^{*} (ft) 0.5ft 0.5ft 0.5ft 0.5ft 0.5ft 0.5ft 75 100 (ft) 75 100 ELEV. (ft) DEPTH (ft Match Line LAND SURFACE 18 DARK GRAY, SILTY SAND (continued) 108.9 \perp 0.0 ALLUVIAL TAN BROWN, F. AND CSE. SAND WITH ORGANICS BLACK, CLAY, WITH LIGNITE AND 105 105.1 25.1 М INTERBEDDED F. SAND, HIGH PLASTICITY - - - -TAN BROWN, F. SAND 100 100.1 1 8.8 20 20.1 1 88.8 W SS-21 4-7-6(38 COASTAL PLAIN GREEN, SILTY SAND DARK GRAY, CSE. SAND WITH LIGNITE 95.1 <u> 15.1 📘 93.8</u> 20 D (DUPLIN FORMATION) A-2-4(0) Boring Terminated at Elevation 13.6 ft IN DENSE, CSE. SAND. (BLACK CREEK GREEN, CLAY. MODERATE PLASTICITY 90.1 <u>T</u> 18.8 13 SS-14 D A-6(6) GREEN, SILTY SAND 85.1 1 23.8 D A-2-4(0) D COASTAL PLAIN 75.1 <u>T</u> 33.8 10 DARK GRAY, CLAY. MODERATE D SS-16 4-7-6(21) (BLACK CREEK FORMATION) GREEN GRAY, SILTY SAND 70.1 M A-2-4(0) BLACK, CLAY, HIGH PLASTICITY __65.1_<u>_</u> SS-18 A-7-6(44) 60.1 I 48.8 55.1 I 6 M DARK GRAY, SILTY SAND 50.1 <u>T</u> 58.8 SS-19 45.1 T 63.8 W 40.1 <u>T</u> 68.8 13 19 W 35.1 20 26 W SS-20

PROJECT REFERENCE SHEET GEOTECHNICAL BORING REPORT B-5985 **BORE LOG TIP**: B-5985 COUNTY: ROBESON **GEOLOGIST:** THOMAS PARK **GEOLOGIST:** THOMAS PARK **WBS**: 47749.1.1 **WBS**: 47749.1.1 **TIP:** B-5985 COUNTY: ROBESON SITE DESCRIPTION: BRIDGE NO. 770125 ON -L1- (NC 41/NC 72) over LUMBER RIVER AT -L1- 23+56.00 **GROUND WTR (ft)** SITE DESCRIPTION: BRIDGE NO. 770125 ON -L1- (NC 41/NC 72) over LUMBER RIVER AT -L1- 23+56.00 **GROUND WTR (ft) STATION**: 24+31 OFFSET: 7 ft LT ALIGNMENT: -L1-OFFSET: 7 ft LT ALIGNMENT: -L1-BORING NO.: B2-A 0 HR. FIAD BORING NO.: B2-A **STATION**: 24+31 0 HR. FIAD COLLAR ELEV.: 97.6 ft TOTAL DEPTH: 139.4 ft **NORTHING:** 315,914 **EASTING:** 1,996,660 TOTAL DEPTH: 139.4 ft **NORTHING:** 315,914 **EASTING:** 1,996,660 24 HR. FIAD COLLAR ELEV.: 97.6 ft 24 HR. FIAD DRILL RIG/HAMMER EFF./DATE: CAT4425 CME-55 83.7% 03/10/2021 DRILL METHOD: NW Casing w/ Advancer HAMMER TYPE: AUTOMATIC DRILL METHOD: NW Casing w/ Advancer HAMMER TYPE: AUTOMATIC DRILL RIG/HAMMER EFF./DATE: CAT4425 CME-55 83.7% 03/10/2021 **DRILLER:** J. EDMONDSON **START DATE:** 12/14/21 COMP. DATE: 12/15/21 SURFACE WATER DEPTH: N/A **DRILLER:** J. EDMONDSON **START DATE:** 12/14/21 COMP. DATE: 12/15/21 SURFACE WATER DEPTH: N/A ELEV DRIVE DEPTH BLOW COUNT ELEV DRIVE DEPTH BLOW COUNT **BLOWS PER FOOT BLOWS PER FOOT** SAMP # SAMP SOIL AND ROCK DESCRIPTION SOIL AND ROCK DESCRIPTION RESULT (ft) RESUL (ft) 0.5ft 0.5ft 0.5ft 0.5ft 0.5ft 0.5ft 75 100 MOI G (ft) 50 75 100 ELEV. (ft) DEPTH (ft Match Line 100 20 19.7 77.9 DARK GRAY, CSE. SAND WITH LIGNITE MUD LINE (continued) 97.6 ALLUVIAL М BROWN, CLAY - 82.9 COASTAL PLAIN 34 42 93.8 THIN LAYERS OF LIGNITE W BROWN GREEN, SILTY SAND D (DUPLIN FORMATION) 90 10 97 + 879 44 38 88 8 SS-26 A-3(0) W SS-22 A-2-4(0) D 19 24 D 79.7 + 17.9 - 97.9 15 М W SS-23 . . BLACK, CLAY WITH LIGNITE, HIGH 75 COASTAL PLAIN 74.7 + 22.9 **PLASTICITY** -5.3 + 102.9WOH DARK GRAY, CLAY, HIGH PLASTICITY SS-24 4-7-6(18 (BLACK CREEK FORMATION) -7-6(34 GRAY, CSE. SAND WITH TRACE LIGNITE 69.7 + 27.9-10.3 + 107.9 10 20 25 D -15 BLACK, CLAY WITH LIGNITE, HIGH -15.3 + 112.9 64.7 + 12 21 20 D -20 DARK GRAY, SILTY, CSE. SAND WITH 59.7 -20.3 + 117.928 6 19 DARK GRAY, CSE. SAND WITH LIGNITE -25.3 + 122.918 29 36 SS-25 A-7-5(56) . . . D -30 49.7 -(SAMPLE BYPASSED ON REDRILL) D DARK GRAY, CSE. SAND WITH LIGNITE -35 -35.3 + 132.918 24 28 32 W -40 -40.3 + 137.939.7 -20 20 13 20 23 W Boring Terminated at Elevation -41.8 ft IN DENSE, CSE. SAND. (BLACK CREEK FORMATION) 30 20 29 W 29.7 + 67.927 W 24.7 -+ 72.9 19 21 28 W

PROJECT REFERENCE SHEET GEOTECHNICAL BORING REPORT B-5985 8 **BORE LOG** COUNTY: ROBESON GEOLOGIST: COREY FUTRAL **TIP**: B-5985 **GEOLOGIST:** COREY FUTRAL COUNTY: ROBESON **WBS**: 47749.1.1 **WBS:** 47749.1.1 **TIP**: B-5985 SITE DESCRIPTION: BRIDGE NO. 770125 ON -L1- (NC 41/NC 72) over LUMBER RIVER AT -L1- 23+56.00 SITE DESCRIPTION: BRIDGE NO. 770125 ON -L1- (NC 41/NC 72) over LUMBER RIVER AT -L1- 23+56.00 **GROUND WTR (ft) GROUND WTR (ft)** ALIGNMENT: -L1-OFFSET: 10 ft RT ALIGNMENT: -L1-**BORING NO.:** EB2-B **STATION**: 25+09 OFFSET: 10 ft RT 0 HR. 10.2 **BORING NO.:** EB2-B **STATION**: 25+09 0 HR. 10.2 COLLAR ELEV.: 123.2 ft TOTAL DEPTH: 79.1 ft **NORTHING:** 315,888 **EASTING:** 1,996,736 TOTAL DEPTH: 79.1 ft 24 HR. FIAD COLLAR ELEV .: 123.2 ft **NORTHING:** 315,888 **EASTING:** 1,996,736 24 HR. FIAD DRILL RIG/HAMMER EFF./DATE: CAT0071 DIEDRICH D-50 94.8% 01/20/2021 **DRILL METHOD:** MUD ROTARY HAMMER TYPE: AUTOMATIC HAMMER TYPE: AUTOMATIC DRILL RIG/HAMMER EFF./DATE: CAT0071 DIEDRICH D-50 94.8% 01/20/2021 DRILL METHOD: MUD ROTARY **START DATE:** 12/15/21 COMP. DATE: 12/15/21 SURFACE WATER DEPTH: N/A DRILLER: P. McCAIN **START DATE:** 12/15/21 COMP. DATE: 12/15/21 SURFACE WATER DEPTH: N/A ELEV DRIVE DEPTH BLOW COUNT ELEV DRIVE DEPTH BLOW COUNT **BLOWS PER FOOT BLOWS PER FOOT** SAMP # SAMP SOIL AND ROCK DESCRIPTION SOIL AND ROCK DESCRIPTION RESULT (ft) RESUL* (ft) 0.5ft 0.5ft 0.5ft MOI G 0.5ft 0.5ft 0.5ft 75 100 (ft) 75 100 ELEV. (ft) DEPTH (ft Match Line 45 6 - 6 LAND SURFACE Boring Terminated at Elevation 44.1 ft IN 122.4 0.8 PAVEMENT STIFF CLAY. (BLACK CREEK FORMATION) D ROADWAY EMBANKMEN 120 TAN AND ORANGE, SILTY SAND LIGHT GRAY, F. AND CSE. SAND WITH 118.6 CONCRETE FRAGMENTS D UNDIVIDED COASTAL PLAIN 115.6 -- - - . LIGHT GRAY, F. SAND М 110.6 + 12.6 TAN AND LIGHT GRAY М COASTAL PLAIN LIGHT GRAY, SILTY CLAY 105.6 + 17.6 (DUPLIN FORMATION) 105 LIGHT GRAY, SILTY, CSE. SAND 100.6 + 22.6 16 15 W COASTAL PLAIN GRAY, CLAY WITH F. SAND 95.6 М (BLACK CREEK FORMATION) 90.6 М 85.6 - - - -10 M GRAY, CLAY WITH MICA 80.6 10 W GRAY, SILTY, F. AND CSE. SAND 75.6 6 Sat. DARK GRAY, CLAY 70.6 W 65.6 W - - - . 60.6 W W 50.6 + 72.6 W

221289 CATLIN Engineers and Scientists

PROJECT REFERENCE
B-5985

SHEET

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LABORATORY SUMMARY SHEET

AASHTO Standard Specifications

(As modified by NCDOT, Material and Tests Unit, 2000.)

TEST RESULTS															
Proj. Sample Number	SS-13	SS-14	SS-15	SS-16	SS-17	SS-18	SS-19	SS-20	SS-21	SS-22	SS-23	SS-24	SS-25	SS-26	SS-27
Lab Sample Number	SS-13	SS-14	SS-15	SS-16	SS-17	SS-18	SS-19	SS-20	SS-21	SS-22	SS-23	SS-24	SS-25	SS-26	SS-27
Retained #4 Sieve %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Passing #10 Sieve %	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Passing #40 Sieve %	64	89	59	99	99	99	96	83	97	81	73	98	100	72	97
Passing #200 Sieve %	22	52	16	91	26	94	27	15	91	16	18	87	99	9	93
						MINUS	NUMBER 10	FRACTION							
SOIL MORTAR - 100%															
Coarse Sand Ret#60 %	51.6	20.1	62.4	2.4	3.8	1.8	25.7	46.6	4.3	49.0	57.5	3.2	0.4	76.4	4.9
Fine Sand Ret#270 %	30.7	33.8	24.9	8.1	79.1	4.6	48.5	40.6	7.5	38.5	27.6	13.0	0.7	16.0	3.0
Silt 0.05 - 0.005mm %	13.9	38.2	9.8	75.1	13.2	40.0	6.7	7.2	29.0	11.7	12.9	67.2	21.7	5.6	27.6
Clay <0.005mm %	3.7	7.9	2.9	14.4	3.9	53.6	19.1	5.6	59.2	0.8	2.0	16.6	77.2	2.0	64.6
Liquid Limit (LL)	NP	35	NP	48	NP	67	NP	NP	62	NP	NP	44	79	NP	56
Plasticity Index (PI)	NP	17	NP	19	NP	41	NP	NP	37	NP	NP	19	47	NP	33
AASHTO Classification /Group Index	A-2-4(0)	A-6(6)	A-2-4(0)	A-7-6(21)	A-2-4(0)	A-7-6(44)	A-2-4(0)	A-2-4(0)	A-7-6(38)	A-2-4(0)	A-2-4(0)	A-7-6(18)	A-7-5(56)	A-3(0)	A-7-6(34)
Organic Content %	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Station	23+19	23+19	23+19	23+19	23+19	23+19	23+19	23+19	23+19	24+31	24+31	24+31	24+31	24+31	24+31
Offset	9ft RT	9ft RT	9ft RT	9ft RT	9ft RT	9ft RT	9ft RT	9ft RT	9ft RT	7ft LT	7ft LT	7ft LT	7ft LT	7ft LT	7ft LT
Alignment	-L1-	-L1-	-L1-	-L1-	-L1-	-L1-	-L1-	-L1-	-L1-	-L1-	-L1-	-L1-	-L1-	-L1-	-L1-
Boring Identification	B1-B	B1-B	B1-B	B1-B	B1-B	B1-B	B1-B	B1-B	B1-B	B2-A	B2-A	B2-A	B2-A	B2-A	B2-A
Depth (FT)	13.8	18.8	23.8	33.8	38.8	43.8	58.8	73.8	88.8	8.8	17.9	22.9	42.9	87.9	102.9
to	15.3	20.3	25.3	35.2	40.3	45.3	60.3	75.3	90.3	10.3	19.4	24.4	44.4	89.4	104.4
Field Moist. Content %															
Tested By	MDMASON	MDMASON	MDMASON	MDMASON	MDMASON	MDMASON	MDMASON	MDMASON	MDMASON	MDMASON	MDMASON	MDMASON	MDMASON	MDMASON	MDMASON
Submitted By	L.PUGH	L.PUGH	L.PUGH	L.PUGH	L.PUGH	L.PUGH	L.PUGH	L.PUGH	L.PUGH	L.PUGH	L.PUGH	L.PUGH	L.PUGH	L.PUGH	L.PUGH
Date Submitted	12/22/21	12/22/21	12/22/21	12/22/21	12/22/21	12/22/21	12/22/21	12/22/21	12/22/21	12/22/21	12/22/21	12/22/21	12/22/21	12/22/21	12/22/21

NP = Non-Plastic

NEM = Not Enough Material for Analysis

N/A = Not Applicable / Not Analyzed

Muhaul D. Masan Laboratory Manager Report Date: ___1/6/2022

Laboratory Report Page 1 of 1

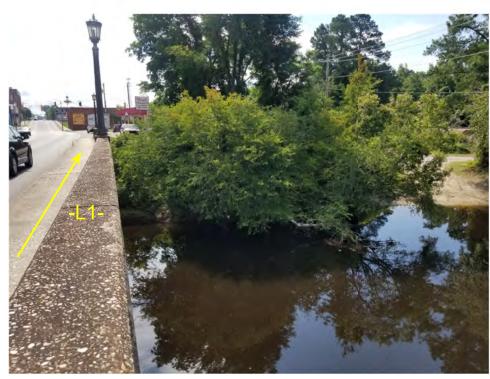
PROJECT REFERENCE
B-5985

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LEFT OF -L1- NEAR END BENT 1 FACING EAST



RIGHT OF -L1- NEAR BENT 2 FACING EAST TOWARDS END BENT 2



LEFT OF -L1- NEAR BENT 2 FACING WEST TOWARDS END BENT 1



DOWNSTREAM (RIGHT) OF -L1-FACING NORTH