

REFERENCE: I-5987B

PROJECT: 47533

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5987B	1	7

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN AND PROFILE
4-7	BORE LOGS

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY ROBESON

PROJECT DESCRIPTION I-95 IMPROVEMENTS FROM
NORTH OF SR 1758 (McDUFFIE CROSSING RD.)
TO NORTH OF SR 1723 (PARKTON TOBEMORY RD.)

SITE DESCRIPTION NOISEWALL NW19 ON -L-
(I-95) BETWEEN -L- STA. 884+25.27 76.5' RT
(-NW19- STA. 10+30.00) AND -L- STA. 897+45.27 76.5' RT
(-NW19- STA. 23+50.00)

CAUTION NOTICE

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

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

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

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

PERSONNEL
MID ATLANTIC
LANE, R.W.

INVESTIGATED BY GOODNIGHT, D.J.
DRAWN BY HILL, M.J.
CHECKED BY HAMM, J. R.
SUBMITTED BY FALCON
DATE APRIL 2022



DocuSigned by:
Stephen C. Crockett 04/12/2022
C5CA5FED48E0435
SIGNATURE DATE

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

**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																																																														
<p>SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 208, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, <i>VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</i></p>										<p>WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.</p>										<p>HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED, AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:</p>										<p>ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOGGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (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 RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (IN 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. TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.</p>																																																														
SOIL LEGEND AND AASHTO CLASSIFICATION										ANGULARITY OF GRAINS										WEATHERED ROCK (WR)										CRYSTALLINE ROCK (CR)																																																														
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<p>MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.</p>										<p>SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50</p>										<p>FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.</p>										<p>COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.</p>																																																														
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<p>DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-BROWN). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.</p>										<p>FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.</p>										<p>ELEVATION: FEET</p>										<p>FIAD - FILLED IMMEDIATELY AFTER DRILLING</p>																																																														

GEOTECHNICAL BORING REPORT BORE LOG

WBS 47533.1.1		TIP I-5987		COUNTY ROBESON		GEOLOGIST B. PAINTER									
SITE DESCRIPTION NOISEWALL NW19 ON -L- BETWEEN STA. 883+95.27, 76.5' RT AND -L- STA. 897+45.27, 76.5' RT							GROUND WTR (ft)								
BORING NO. L_88414R		STATION 10+28		OFFSET 1 ft RT		ALIGNMENT -NW19-									
COLLAR ELEV. 171.0 ft		TOTAL DEPTH 25.0 ft		NORTHING 411,502		EASTING 2,011,546									
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 82% 03/01/2019				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic									
DRILLER R. Clarke		START DATE 02/04/20		COMP. DATE 02/04/20		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
175															
170	171.0	0.0	1	1	3									171.0	GROUND SURFACE
	167.5	3.5	1	3	6										UNDIVIDED COASTAL PLAIN BROWN-ORANGE, CLAYEY SILTY FINE TO COARSE SAND (A-2-4)
165	162.5	8.5	15	19	22									164.0	COASTAL PLAIN ORANGE, CLAYEY FINE TO COARSE SAND (A-2-6) (MIDDENDORF FORMATION)
160	157.5	13.5	12	15	15										
155	152.5	18.5	11	16	16									154.0	ORANGE-WHITE, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE GRAVEL (MIDDENDORF FORMATION)
150	147.5	23.5	7	15	17									146.0	Boring Terminated at Elevation 146.0 ft in SILTY SAND (COASTAL PLAIN) (MIDDENDORF FORMATION)

WBS 47533.1.1		TIP I-5987		COUNTY ROBESON		GEOLOGIST R. LANE									
SITE DESCRIPTION NOISEWALL NW19 ON -L- BETWEEN STA. 883+95.27, 76.5' RT AND -L- STA. 897+45.27, 76.5' RT							GROUND WTR (ft)								
BORING NO. NW19_1		STATION 11+96		OFFSET 4 ft RT		ALIGNMENT -NW19-									
COLLAR ELEV. 170.6 ft		TOTAL DEPTH 20.0 ft		NORTHING 411,667		EASTING 2,011,572									
DRILL RIG/HAMMER EFF./DATE MID606214 CME-45C 91% 02/28/2019				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic									
DRILLER Contract Driller		START DATE 11/11/21		COMP. DATE 11/11/21		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
175															
170	169.6	1.0	3	4	3									170.6	GROUND SURFACE
	167.1	3.5	7	7	9									167.6	UNDIVIDED COASTAL PLAIN TAN, F. SAND (A-3)
165	165.1	5.5	7	9	15									162.6	COASTAL PLAIN ORANGE AND GRAY, CLAYEY SAND (A-2-6) (MIDDENDORF FORMATION)
160	162.1	8.5	8	18	18									162.6	TAN GRAY AND RED, F. SAND (A-3) (MIDDENDORF FORMATION)
155	157.1	13.5	9	8	11										
	152.1	18.5	7	10	13									150.6	Boring Terminated at Elevation 150.6 ft in SAND (COASTAL PLAIN) (MIDDENDORF FORMATION)

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 47533.1.1		TIP I-5987		COUNTY ROBESON		GEOLOGIST R. LANE										
SITE DESCRIPTION NOISEWALL NW19 ON -L- BETWEEN STA. 883+95.27, 76.5' RT AND -L- STA. 897+45.27, 76.5' RT							GROUND WTR (ft)									
BORING NO. NW19_2		STATION 14+00		OFFSET 1 ft RT		ALIGNMENT -NW19-										
COLLAR ELEV. 168.3 ft		TOTAL DEPTH 20.0 ft		NORTHING 411,870		EASTING 2,011,599										
DRILL RIG/HAMMER EFF./DATE MID606214 CME-45C 91% 02/28/2019				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 11/11/21		COMP. DATE 11/11/21		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
170																
	167.3	1.0	6	6	6								M	GROUND SURFACE	0.0	
165	164.8	3.5	5	5	6									COASTAL PLAIN BROWN AND ORANGE, SANDY CLAY (A-6) (MIDDENDORF FORMATION)		
	162.8	5.5	8	8	7								W	TAN GRAY AND RED, CLAYEY SAND (A-2-6) (MIDDENDORF FORMATION)	5.5	
160	159.8	8.5	4	4	4								M	GRAY, CLAYEY SAND (A-2-7) (MIDDENDORF FORMATION)	8.0	
	156.3	12.0											M	GRAY AND PINK, SANDY CLAY (A-7) (MIDDENDORF FORMATION)	12.0	
155	154.8	13.5	3	2	6								M	RED AND TAN, F. SAND (A-3) (MIDDENDORF FORMATION)	16.0	
150	149.8	18.5	12	16	18								Sat.	Boring Terminated at Elevation 148.3 ft in SAND (COASTAL PLAIN) (MIDDENDORF FORMATION)	20.0	

WBS 47533.1.1		TIP I-5987		COUNTY ROBESON		GEOLOGIST R. LANE										
SITE DESCRIPTION NOISEWALL NW19 ON -L- BETWEEN STA. 883+95.27, 76.5' RT AND -L- STA. 897+45.27, 76.5' RT							GROUND WTR (ft)									
BORING NO. NW19_3		STATION 15+96		OFFSET 2 ft LT		ALIGNMENT -NW19-										
COLLAR ELEV. 167.3 ft		TOTAL DEPTH 20.0 ft		NORTHING 412,064		EASTING 2,011,625										
DRILL RIG/HAMMER EFF./DATE MID606214 CME-45C 91% 02/28/2019				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 11/11/21		COMP. DATE 11/11/21		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
170																
	166.3	1.0	7	8	16								D	GROUND SURFACE	0.0	
165	163.8	3.5	6	8	11									COASTAL PLAIN TAN AND GRAY, SANDY CLAY (A-6) (MIDDENDORF FORMATION)		
	161.8	5.5	4	7	9								M	GRAY AND TAN, CLAYEY SAND (A-2-7) (MIDDENDORF FORMATION)	8.0	
160	158.8	8.5	3	5	11								M	GRAY AND TAN, CLAYEY SAND (A-2-7) (MIDDENDORF FORMATION)	12.0	
155	153.8	13.5	8	9	12								Sat.	ORANGE AND TAN, F. SAND (A-3) (MIDDENDORF FORMATION)	16.0	
150	148.8	18.5	5	7	10								Sat.	Boring Terminated at Elevation 147.3 ft in SAND (COASTAL PLAIN) (MIDDENDORF FORMATION)	20.0	

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 47533.1.1		TIP I-5987		COUNTY ROBESON		GEOLOGIST R. LANE										
SITE DESCRIPTION NOISEWALL NW19 ON -L- BETWEEN STA. 883+95.27, 76.5' RT AND -L- STA. 897+45.27, 76.5' RT							GROUND WTR (ft)									
BORING NO. NW19_4		STATION 17+94		OFFSET CL		ALIGNMENT -NW19-										
COLLAR ELEV. 167.1 ft		TOTAL DEPTH 20.0 ft		NORTHING 412,260		EASTING 2,011,656										
DRILL RIG/HAMMER EFF./DATE MID606214 CME-45C 91% 02/28/2019				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 11/11/21		COMP. DATE 11/11/21		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
170																
165	166.1	1.0	4	6	7								D	167.1 GROUND SURFACE 0.0		
	163.6	3.5	6	10	15									164.1 ROADWAY EMBANKMENT TAN AND GRAY, CANDY CLAY (A-6) (MIDDENDORF FORMATION) 3.0		
160	161.6	5.5	10	14	17								M	162.1 COASTAL PLAIN TAN AND GRAY, SANDY CLAY (A-6) (MIDDENDORF FORMATION) 5.0		
	158.6	8.5	25	26	31								Sat.	159.1 GRAY AND TAN, CLAYEY SAND (A-2-7) (MIDDENDORF FORMATION) 8.0		
155	153.6	13.5	12	14	16								Sat.	TAN AND ORANGE, F. SAND (A-3) (MIDDENDORF FORMATION)		
150	148.6	18.5	5	7	22								Sat.	149.1 GRAY AND PINK, SILTY SAND (A-2-4) (MIDDENDORF FORMATION) 18.0		
													Sat.	147.1 Boring Terminated at Elevation 147.1 ft in SAND (COASTAL PLAIN) (MIDDENDORF FORMATION) 20.0		

WBS 47533.1.1		TIP I-5987		COUNTY ROBESON		GEOLOGIST R. LANE										
SITE DESCRIPTION NOISEWALL NW19 ON -L- BETWEEN STA. 883+95.27, 76.5' RT AND -L- STA. 897+45.27, 76.5' RT							GROUND WTR (ft)									
BORING NO. NW19_5		STATION 19+95		OFFSET CL		ALIGNMENT -NW19-										
COLLAR ELEV. 165.1 ft		TOTAL DEPTH 20.0 ft		NORTHING 412,459		EASTING 2,011,685										
DRILL RIG/HAMMER EFF./DATE MID606214 CME-45C 91% 02/28/2019				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 11/11/21		COMP. DATE 11/11/21		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
170																
165	164.1	1.0	11	12	9								M	165.1 GROUND SURFACE 0.0		
	161.6	3.5	4	5	6									162.1 COASTAL PLAIN BROWN, CLAYEY SAND (A-2-6) (MIDDENDORF FORMATION) 3.0		
160	159.6	5.5	7	8	10								M	160.1 GRAY AND BROWN, SANDY CLAY (A-6) (MIDDENDORF FORMATION) 5.0		
	156.6	8.5	6	18	22								Sat.	157.1 GRAY AND ORANGE, CLAY (A-7) (MIDDENDORF FORMATION) 8.0		
155	151.6	13.5	8	11	12								Sat.	PINK RED GRAY AND TAN, F. SAND (A-3) (MIDDENDORF FORMATION)		
150	146.6	18.5	17	11	10								Sat.	145.1 Boring Terminated at Elevation 145.1 ft in SAND (COASTAL PLAIN) (MIDDENDORF FORMATION) 20.0		

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 47533.1.1		TIP I-5987		COUNTY ROBESON		GEOLOGIST R. LANE										
SITE DESCRIPTION NOISEWALL NW19 ON -L- BETWEEN STA. 883+95.27, 76.5' RT AND -L- STA. 897+45.27, 76.5' RT							GROUND WTR (ft)									
BORING NO. NW19_6		STATION 21+84		OFFSET 3 ft LT		ALIGNMENT -NW19-										
COLLAR ELEV. 164.3 ft		TOTAL DEPTH 20.0 ft		NORTHING 412,646		EASTING 2,011,709										
DRILL RIG/HAMMER EFF./DATE MID606214 CME-45C 91% 02/28/2019				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 11/11/21		COMP. DATE 11/11/21		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
165														164.3	GROUND SURFACE	0.0
	163.3	1.0	2	8	11									161.3	COASTAL PLAIN GRAY, F. SAND (A-3) (MIDDENDORF FORMATION)	3.0
160	160.8	3.5	4	7	9									156.3	TAN AND GRAY, CLAYEY SAND (A-2-7) (MIDDENDORF FORMATION)	8.0
	158.8	5.5	14	18	20									156.3	TAN ORANGE AND RED, F. SAND (A-3) (MIDDENDORF FORMATION)	8.0
155	155.8	8.5	11	18	23									147.3	GRAY, SANDY SILT (A-4) (MIDDENDORF FORMATION)	17.0
	150.8	13.5	9	12	14									144.3	Boring Terminated at Elevation 144.3 ft in SILT (COASTAL PLAIN) (MIDDENDORF FORMATION)	20.0
145	145.8	18.5	4	1	6											

WBS 47533.1.1		TIP I-5987		COUNTY ROBESON		GEOLOGIST R. LANE										
SITE DESCRIPTION NOISEWALL NW19 ON -L- BETWEEN STA. 883+95.27, 76.5' RT AND -L- STA. 897+45.27, 76.5' RT							GROUND WTR (ft)									
BORING NO. NW19_7		STATION 23+37		OFFSET 7 ft LT		ALIGNMENT -NW19-										
COLLAR ELEV. 163.5 ft		TOTAL DEPTH 20.0 ft		NORTHING 412,798		EASTING 2,011,728										
DRILL RIG/HAMMER EFF./DATE MID606214 CME-45C 91% 02/28/2019				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 11/11/21		COMP. DATE 11/11/21		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
165														163.5	GROUND SURFACE	0.0
	162.5	1.0	5	8	8									160.5	COASTAL PLAIN TAN, F. SAND (A-3) (MIDDENDORF FORMATION)	3.0
160	160.0	3.5	5	10	26									158.5	GRAY AND TAN, CLAYEY SAND (A-2-7) (MIDDENDORF FORMATION)	5.0
	158.0	5.5	18	20	21									151.5	ORANGE, F. SAND (A-3) (MIDDENDORF FORMATION)	12.0
155	155.0	8.5	6	8	11									143.5	GRAY, SILTY SAND (A-2-4) (MIDDENDORF FORMATION)	20.0
	150.0	13.5	6	5	6											
150	150.0	13.5	6	5	6											
145	145.0	18.5	8	9	9											

NCDOT BORE DOUBLE NW19.GPJ NC_DOT.GDT 1/11/22