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REFERENCE: U-4751

PROJECT: 40191

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4751	1	40

CONTENTS

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
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**STRUCTURE  
SUBSURFACE INVESTIGATION**

COUNTY NEW HANOVER  
PROJECT DESCRIPTION SR 1409 (MILITARY CUTOFF ROAD) TO US 17 IN WILMINGTON

SITE DESCRIPTION NOISE WALL 13 AT -L- STA. 128+50, LEFT.

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

W. S. HUNSBERGER

MID-ATLANTIC DRILLING

INVESTIGATED BY WSH

DRAWN BY WSH

CHECKED BY J. R. HAMM

SUBMITTED BY FALCON

DATE JUNE 2015



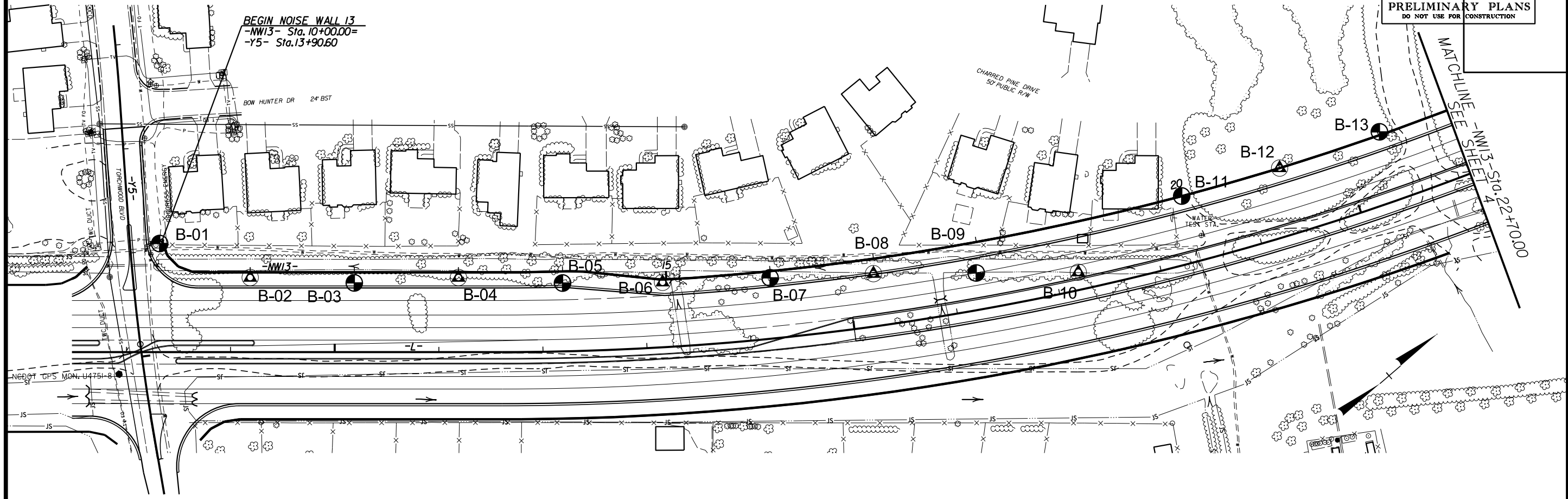
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W. Scott Hunsberger 7/15/2015  
EA39AB9EDF5845A SIGNATURE DATE

**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 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, <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><u>ALLUVIUM (ALLUV.)</u> - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.  <u>AQUIFER</u> - A WATER BEARING FORMATION OR STRATA.  <u>ARENACEOUS</u> - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.  <u>ARGILLACEOUS</u> - 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.  <u>ARTESIAN</u> - 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.  <u>CALCAREOUS (CALC.)</u> - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.  <u>COLLUVIUM</u> - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.  <u>CORE RECOVERY (REC.)</u> - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.  <u>DIKE</u> - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.  <u>DIP</u> - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.  <u>DIP DIRECTION (DIP AZIMUTH)</u> - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.  <u>FAULT</u> - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.  <u>FISSILE</u> - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.  <u>FLOAT</u> - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOADED FROM PARENT MATERIAL.  <u>FLOOD PLAIN (FP)</u> - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.  <u>FORMATION (FM)</u> - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.  <u>JOINT</u> - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.  <u>LEDGE</u> - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.  <u>LENS</u> - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.  <u>MOTTLED (MOT.)</u> - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.  <u>PERCHED WATER</u> - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.  <u>RESIDUAL (RES.) SOIL</u> - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.  <u>ROCK QUALITY DESIGNATION (ROD)</u> - 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.  <u>SAPROLITE (SAP.)</u> - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.  <u>SILL</u> - 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.  <u>SLICKENSIDE</u> - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.  <u>STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT)</u> - 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.  <u>STRATA CORE RECOVERY (SREC.)</u> - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.  <u>STRATA ROCK QUALITY DESIGNATION (SROD)</u> - 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.  <u>TOPSOIL (TS.)</u> - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.</p>									
SOIL LEGEND AND AASHTO CLASSIFICATION										MINERALOGICAL COMPOSITION										WEATHERING										ROCK HARDNESS									
<p>GENERAL CLASS. GRANULAR MATERIALS (&lt;= 35% PASSING #200) SILT-CLAY MATERIALS (&gt; 35% PASSING #200) ORGANIC MATERIALS</p> <p>GROUP CLASS. A-1, A-3, A-2, A-4, A-5, A-6, A-7, A-1, A-2, A-3, A-4, A-5, A-6, A-7</p> <p>SYMBOL</p> <p>% PASSING #10 #40 #200</p> <p>MATERIAL PASSING #40 LL PI</p> <p>GROUP INDEX</p> <p>USUAL TYPES OF MAJOR MATERIALS</p> <p>GEN. RATING AS SUBGRADE</p>										<p>MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.</p> <p>COMPRESSIBILITY</p> <p>PERCENTAGE OF MATERIAL</p> <p>GROUND WATER</p> <p>MISCELLANEOUS SYMBOLS</p>										<p>FRESH</p> <p>VERY SLIGHT (IV SLI.)</p> <p>SLIGHT (SLI.)</p> <p>MODERATE (MOD.)</p> <p>MODERATELY SEVERE (MOD. SEV.)</p> <p>SEVERE (SEV.)</p> <p>VERY SEVERE (IV SEV.)</p> <p>COMPLETE</p>										<p>VERY HARD</p> <p>HARD</p> <p>MODERATELY HARD</p> <p>MEDIUM HARD</p> <p>SOFT</p> <p>VERY SOFT</p>									
CONSISTENCY OR DENSENESS										RECOMMENDATION SYMBOLS										FRACTURE SPACING										BEDDING									
<p>PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT<sup>2</sup>)</p>										<p>UNDERCUT EXCAVATION UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK</p>										<p>VERY WIDE MORE THAN 10 FEET WIDE 3 TO 10 FEET MODERATELY CLOSE 1 TO 3 FEET CLOSE 0.16 TO 1 FOOT VERY CLOSE LESS THAN 0.16 FEET</p>										<p>VERY THICKLY BEDDED 4 FEET THICKLY BEDDED 1.5 - 4 FEET THINLY BEDDED 0.16 - 1.5 FEET VERY THINLY BEDDED 0.03 - 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET THINLY LAMINATED &lt; 0.008 FEET</p>									
TEXTURE OR GRAIN SIZE										ABBREVIATIONS										EQUIPMENT USED ON SUBJECT PROJECT										INDURATION									
<p>U.S. STD. SIEVE SIZE OPENING (MM) 4 10 40 60 200 270 4.76 2.00 0.42 0.25 0.075 0.053</p> <p>BOULDER (BLDR.) COBBLE (COB.) GRAVEL (GR.) COARSE SAND (CSE. SD.) FINE SAND (F SD.) SILT (SL.) CLAY (CL.)</p> <p>GRAIN SIZE MM 305 75 2.0 0.25 0.05 0.005 IN. 12 3</p>										<p>AR - AUGER REFUSAL BT - BORING TERMINATED CL - CLAY CPT - CONE PENETRATION TEST CSE - COARSE DMT - DILATOMETER TEST DPT - DYNAMIC PENETRATION TEST e - VOID RATIO F - FINE FOSS. - FOSSILIFEROUS FRAC. - FRACTURED, FRACTURES FRAGS. - FRAGMENTS HI. - HIGHLY MED. - MEDIUM MICA - MICACEOUS MOD. - MODERATELY NP - NON PLASTIC ORG. - ORGANIC PMT - PRESSUREMETER TEST SAP. - SAPROLITIC SD. - SAND, SANDY SL. - SILT, SILTY SLI. - SLIGHTLY TCR - TRICONE REFUSAL w - MOISTURE CONTENT V - VERY VST - VANE SHEAR TEST WEA. - WEATHERED UG - UNIT WEIGHT UG - DRY UNIT WEIGHT SAMPLE ABBREVIATIONS S - BULK SS - SPLIT SPOON ST - SHELBY TUBE RS - ROCK RT - RECOMPACTED TRIAXIAL CBR - CALIFORNIA BEARING RATIO</p>										<p>DRILL UNITS: CME-45C CME-55 CME-550 VANE SHEAR TEST PORTABLE HOIST CME-45B</p> <p>ADVANCING TOOLS: CLAY BITS 6" CONTINUOUS FLIGHT AUGER 8" HOLLOW AUGERS HARD FACED FINGER BITS TUNG-CARBIDE INSERTS CASING w/ ADVANCER TRICONE *STEEL TEETH TRICONE *TUNG-CARB. CORE BIT</p> <p>HAMMER TYPE: AUTOMATIC MANUAL CORE SIZE: B H N HAND TOOLS: POST HOLE DIGGER HAND AUGER SOUNDING ROD VANE SHEAR TEST</p>										<p>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>									
SOIL MOISTURE - CORRELATION OF TERMS										FRAC. MARK: BL-16 LOCATED SOUTHWEST OF WATER TREATMENT PLANT * SEE NOTES SECTION FOR ADDITIONAL BENCH MARKS										ELEVATION: 41.24 FEET																			
<p>SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION</p> <p>LL LIQUID LIMIT PLASTIC RANGE (PI) PL PLASTIC LIMIT OM OPTIMUM MOISTURE SL SHRINKAGE LIMIT</p> <p>- SATURATED - (SAT.) USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE</p> <p>- WET - (W) SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE</p> <p>- MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE</p> <p>- DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE</p>										<p>FRAC. MARK: BL-20 STA. 190+44.62 -BL- ELEV: 43.06 FT BENCH MARK: MANHOLE TOP STA. 127+84.02 72.03' RT -L- ELEV: 41.8 FT</p>										<p>NOTES: UCP: UNDIVIDED COASTAL PLAIN BENCH MARK: BL-20 STA. 190+44.62 -BL- ELEV: 43.06 FT L.T.: LIGHT DK.: DARK W/: WITH</p>																			
PLASTICITY										COLOR										DATE: 8-15-14																			
<p>NON PLASTIC SLIGHTLY PLASTIC MODERATELY PLASTIC HIGHLY PLASTIC</p> <p>PLASTICITY INDEX (PI) DRY STRENGTH VERY LOW SLIGHT MEDIUM HIGH</p>										<p>DESCRIPTORS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.</p>										<p>DATE: 8-15-14</p>																			

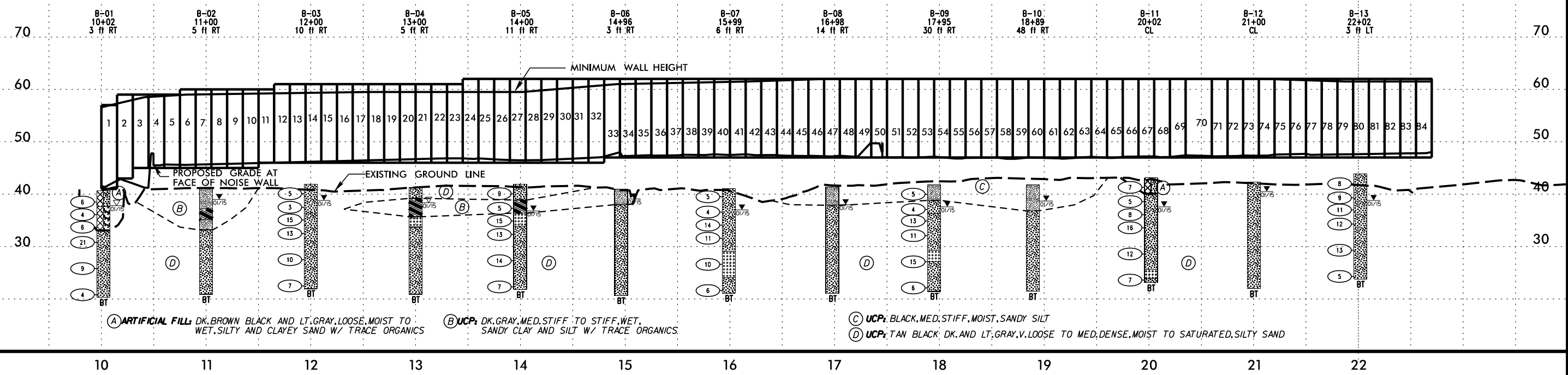
# PLAN AND PROFILE OF NOISE WALL 13

INCOMPLETE PLANS  
DO NOT USE FOR R/W ACQUISITION  
PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION



NOISE WALL 13 DESIGN DATA

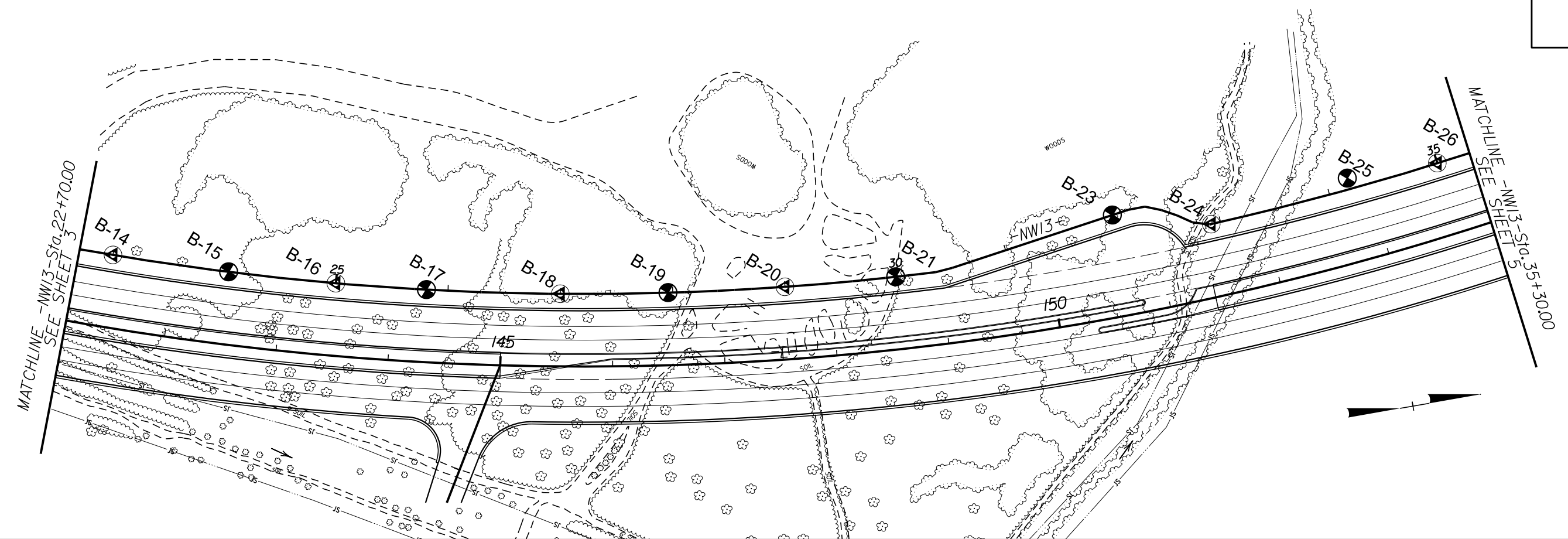
Station	Segment	Height	Notes
10+00	B-01	3 ft RT	
11+00	B-02	5 ft RT	
12+00	B-03	10 ft RT	
13+00	B-04	5 ft RT	
14+00	B-05	11 ft RT	
14+96	B-06	3 ft RT	
15+99	B-07	6 ft RT	
16+98	B-08	14 ft RT	
17+95	B-09	30 ft RT	
18+89	B-10	48 ft RT	
20+02	B-11	CL	
21+00	B-12	CL	
22+02	B-13	5 ft LT	



# PLAN AND PROFILE OF NOISE WALL 13

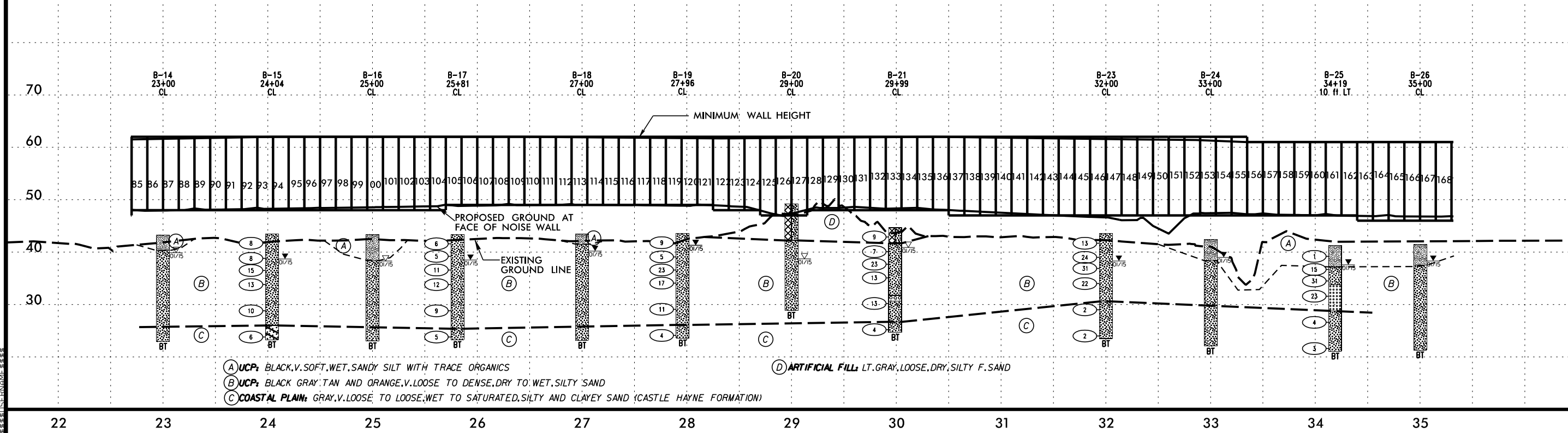
INCOMPLETE PLANS  
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION



NOISE WALL 13 DESIGN DATA

Station	Marker	Notes
23+00	B-14	
24+04	B-15	
25+00	B-16	
25+81	B-17	
27+00	B-18	
27+96	B-19	
29+00	B-20	
29+99	B-21	
32+00	B-23	
33+00	B-24	
34+19	B-25	10. ft. LT.
35+00	B-26	



ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED  
 ALL WALLS TO BE CONSTRUCTED WITH 12" CONCRETE  
 ALL WALLS TO BE FINISHED WITH 2" GYPSUM BOARD  
 ALL WALLS TO BE PAINTED WITH EXTERIOR GRADE PAINT  
 ALL WALLS TO BE MAINTAINED AT ALL TIMES  
 ALL WALLS TO BE REPAIRED AS NECESSARY  
 ALL WALLS TO BE DEMOLISHED AS NECESSARY  
 ALL WALLS TO BE RECONSTRUCTED AS NECESSARY  
 ALL WALLS TO BE MAINTAINED AT ALL TIMES  
 ALL WALLS TO BE REPAIRED AS NECESSARY  
 ALL WALLS TO BE DEMOLISHED AS NECESSARY  
 ALL WALLS TO BE RECONSTRUCTED AS NECESSARY







# NCDOT GEOTECHNICAL ENGINEERING UNIT

## BORELOG REPORT

WBS 40191.1.2		TIP U-4751		COUNTY NEW HANOVER		GEOLOGIST Hunsberger, W. S.										
SITE DESCRIPTION SR 1409 (MILITARY CUTTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13							GROUND WTR (ft)									
BORING NO. B-01		STATION 10+02		OFFSET 3 ft RT		ALIGNMENT -NW13-										
COLLAR ELEV. 40.6 ft		TOTAL DEPTH 20.3 ft		NORTHING 197,256		EASTING 2,354,770										
DRILL RIG/HAMMER EFF./DATE MID1904 CME-45B 80% 10/14/2014			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER Contract Driller		START DATE 01/19/15		COMP. DATE 01/19/15		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						
45																
40	39.5	1.1	2	4	2									40.6	0.3' TOPSOIL	0.0
	37.1	3.5	1	2	2									37.6	ARTIFICIAL FILL DK. BROWN, SILTY F. SAND (A-2-4)	3.0
35	34.7	5.9	1	3	3									33.1	LT. GRAY, CLAYEY SAND (A-2-6) W/ TRACE ORGANICS	7.5
30	31.8	8.8	8	9	12										UNDIVIDED COASTAL PLAIN TAN AND GRAY, SILTY SAND (A-2-4)	
25	26.8	13.8	2	4	5											
	21.8	18.8	WOH	2	2									20.3		20.3
Boring Terminated at Elevation 20.3 ft in loose sand.																

WBS 40191.1.2		TIP U-4751		COUNTY NEW HANOVER		GEOLOGIST Hunsberger, W. S.										
SITE DESCRIPTION SR 1409 (MILITARY CUTTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13							GROUND WTR (ft)									
BORING NO. B-03		STATION 12+00		OFFSET 10 ft RT		ALIGNMENT -NW13-										
COLLAR ELEV. 40.9 ft		TOTAL DEPTH 19.9 ft		NORTHING 197,373		EASTING 2,354,921										
DRILL RIG/HAMMER EFF./DATE MID1904 CME-45B 80% 10/14/2014			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER Contract Driller		START DATE 01/14/15		COMP. DATE 01/14/15		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						
45																
40	40.1	0.8	2	2	3									40.9	0.5' TOPSOIL	0.0
	37.5	3.4	WOH	1	2										UNDIVIDED COASTAL PLAIN BLACK AND GRAY, SILTY F. SAND (A-2-4) W/ TRACE ORGANICS	
35	35.1	5.8	3	6	9									35.4	GRAY AND TAN, SILTY F. TO MED. SAND (A-2-4)	5.5
30	32.5	8.4	5	6	7											
25	27.5	13.4	4	4	6											
	22.5	18.4	4	4	3									21.0		19.9
Boring Terminated at Elevation 21.0 ft in loose sand.																

NCDOT BORE DOUBLE U4751\_GEO\_SWAL0013\_GINT.GPJ NC\_DOT.GDT 6/18/15



**NCDOT GEOTECHNICAL ENGINEERING UNIT**  
**BORELOG REPORT**

<b>WBS</b> 40191.1.2	<b>TIP</b> U-4751	<b>COUNTY</b> NEW HANOVER	<b>GEOLOGIST</b> Hunsberger, W. S.
<b>SITE DESCRIPTION</b> SR 1409 (MILITARY CUTTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13			<b>GROUND WTR (ft)</b>
<b>BORING NO.</b> B-05	<b>STATION</b> 14+00	<b>OFFSET</b> 11 ft RT	<b>ALIGNMENT</b> -NW13-
<b>COLLAR ELEV.</b> 41.9 ft	<b>TOTAL DEPTH</b> 20.1 ft	<b>NORTHING</b> 197,524	<b>EASTING</b> 2,355,052
<b>DRILL RIG/HAMMER EFF./DATE</b> MID1904 CME-45B 80% 10/14/2014		<b>DRILL METHOD</b> Mud Rotary	<b>HAMMER TYPE</b> Automatic
<b>DRILLER</b> Contract Driller	<b>START DATE</b> 01/14/15	<b>COMP. DATE</b> 01/14/15	<b>SURFACE WATER DEPTH</b> 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						
45																
41.1	41.1	0.8	3	4	5									0.8'	0.0	0.8' TOPSOIL
38.3	38.3	3.6	2	2	3									3.0'	3.0	UNDIVIDED COASTAL PLAIN BLACK AND GRAY, SILTY SAND (A-2-4)
35.9	35.9	6.0	4	6	9									5.5'	5.5	DK. GRAY, F. SANDY CLAY (A-6) W/ TRACE ORGANICS
33.3	33.3	8.6	5	5	8									8.0'	8.0	LT. GRAY, SILTY F. SAND (A-3)
28.3	28.3	13.6	4	6	8											TAN AND LT. GRAY, SILTY F. TO CSE. SAND (A-2-4)
23.3	23.3	18.6	3	3	4											Boring Terminated at Elevation 21.8 ft in loose sand.

<b>WBS</b> 40191.1.2	<b>TIP</b> U-4751	<b>COUNTY</b> NEW HANOVER	<b>GEOLOGIST</b> Hunsberger, W. S.
<b>SITE DESCRIPTION</b> SR 1409 (MILITARY CUTTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13			<b>GROUND WTR (ft)</b>
<b>BORING NO.</b> B-07	<b>STATION</b> 15+99	<b>OFFSET</b> 6 ft RT	<b>ALIGNMENT</b> -NW13-
<b>COLLAR ELEV.</b> 41.1 ft	<b>TOTAL DEPTH</b> 20.0 ft	<b>NORTHING</b> 197,678	<b>EASTING</b> 2,355,179
<b>DRILL RIG/HAMMER EFF./DATE</b> MID1904 CME-45B 80% 10/14/2014		<b>DRILL METHOD</b> Mud Rotary	<b>HAMMER TYPE</b> Automatic
<b>DRILLER</b> Contract Driller	<b>START DATE</b> 01/14/15	<b>COMP. DATE</b> 01/14/15	<b>SURFACE WATER DEPTH</b> 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							
45																	
41.1	41.1	0.0												0.0'	0.0	0.7' TOPSOIL	
37.6	40.5	0.6	2	3	2									3.0'	3.0	UNDIVIDED COASTAL PLAIN BLACK DK. GRAY AND TAN, SILTY F. SAND (A-2-4) W/ TRACE ORGANICS AND ROOTS	
35.1	37.6	3.5	WOH	1	3												
32.6	35.1	6.0	5	7	7												
27.6	32.6	8.5	3	5	6												
22.6	27.6	13.5	4	4	6												
21.1	22.6	18.5	3	2	4												
																	Boring Terminated at Elevation 21.1 ft in loose sand.

NCDOT BORE DOUBLE U4751\_GEO\_SWAL0013\_GINT.GPJ NC\_DOT.GDT 6/18/15



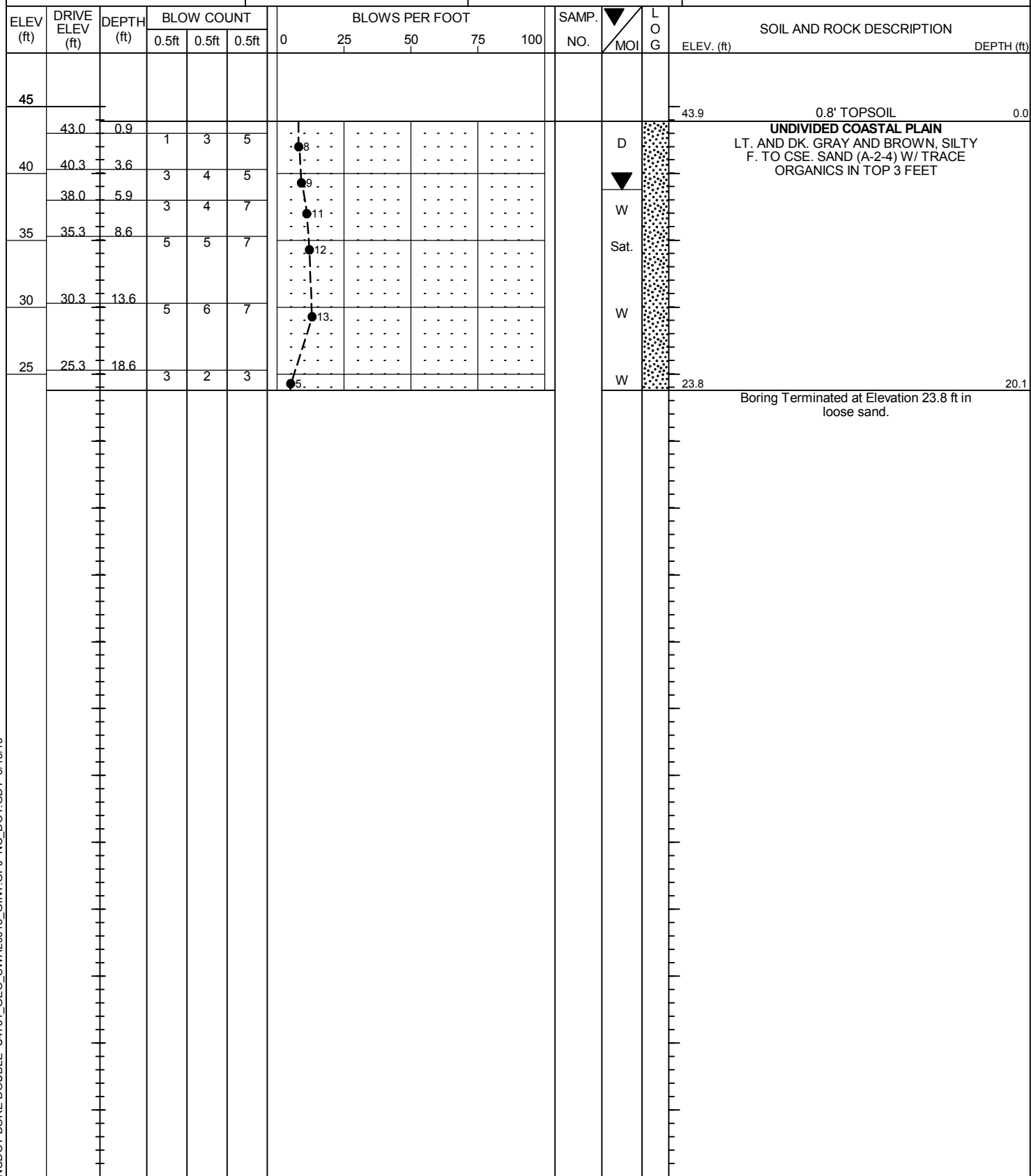
**NCDOT GEOTECHNICAL ENGINEERING UNIT**  
**BORELOG REPORT**

WBS 40191.1.2		TIP U-4751		COUNTY NEW HANOVER		GEOLOGIST Hunsberger, W. S.									
SITE DESCRIPTION SR 1409 (MILITARY CUTTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13							GROUND WTR (ft)								
BORING NO. B-09		STATION 17+95		OFFSET 30 ft RT		ALIGNMENT -NW13-									
COLLAR ELEV. 41.8 ft		TOTAL DEPTH 20.2 ft		NORTHING 197,830		EASTING 2,355,305									
DRILL RIG/HAMMER EFF./DATE MID1904 CME-45B 80% 10/14/2014			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 01/14/15		COMP. DATE 01/14/15		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					
45														41.8	0.0
	41.0	0.8											M	0.8' TOPSOIL	
40			2	2	3									38.8	3.0
	38.1	3.7	1	1	3								W	UNDIVIDED COASTAL PLAIN BLACK, F. SANDY SILT (A-4)	
35			5	5	8								W	36.3	5.5
	35.9	5.9											W	BLACK AND DK. GRAY, SILTY F. SAND (A-2-4)	
30			5	5	6								W	34.6	8.5
	33.1	8.7											W	TAN AND GRAY, SILTY F. SAND (A-2-4)	
25			5	6	9								W	29.3	12.5
	28.1	13.7											W	27.1	14.7
	23.1	18.7	2	3	3								Sat.	21.6	20.2

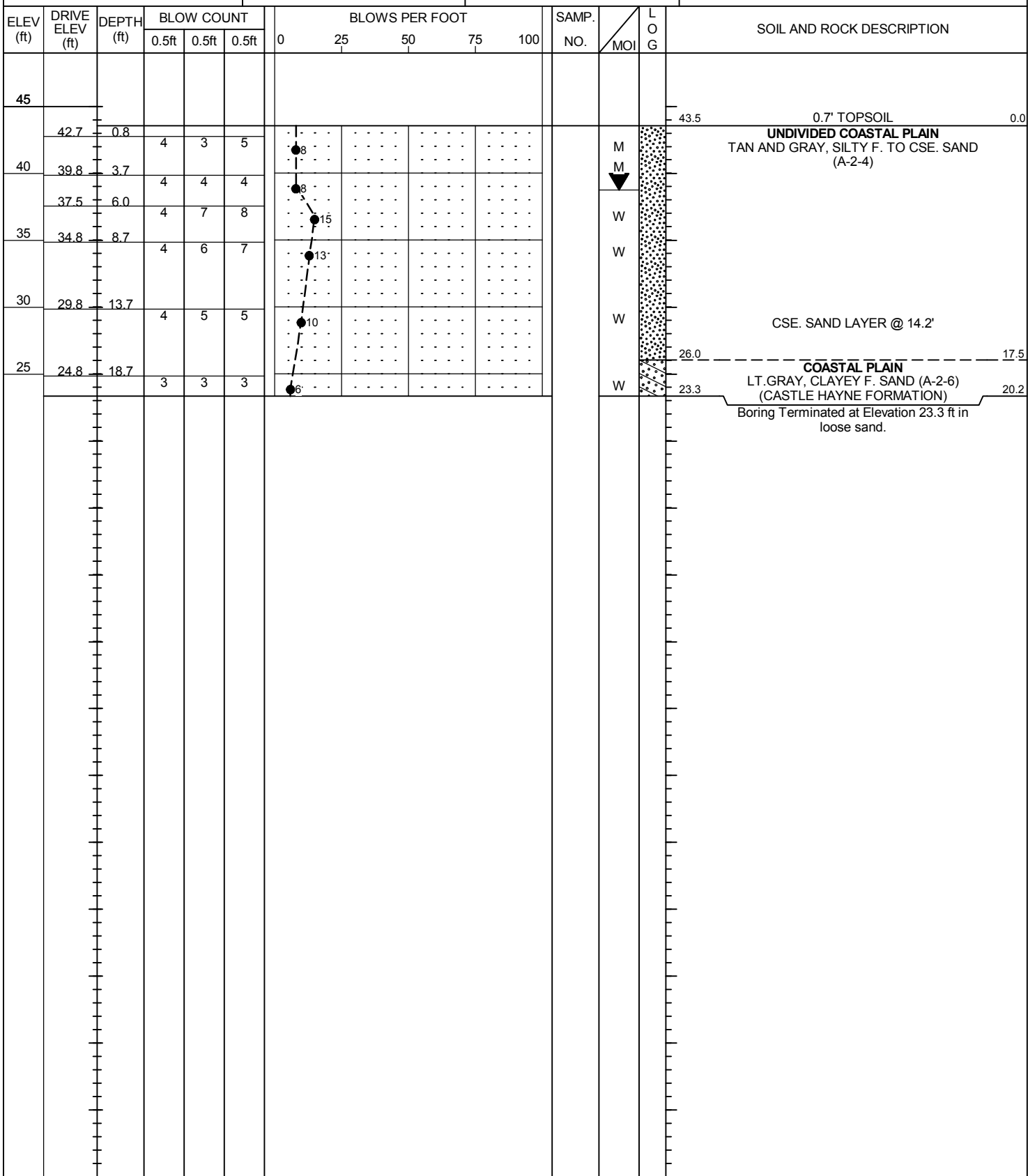
WBS 40191.1.2		TIP U-4751		COUNTY NEW HANOVER		GEOLOGIST Hunsberger, W. S.									
SITE DESCRIPTION SR 1409 (MILITARY CUTTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13							GROUND WTR (ft)								
BORING NO. B-11		STATION 20+02		OFFSET CL		ALIGNMENT -NW13-									
COLLAR ELEV. 43.1 ft		TOTAL DEPTH 20.0 ft		NORTHING 198,028		EASTING 2,355,378									
DRILL RIG/HAMMER EFF./DATE MID1904 CME-45B 80% 10/14/2014			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 01/14/15		COMP. DATE 01/14/15		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					
45														43.1	0.0
	42.3	0.8	3	3	4								M	0.7' SAND ROADWAY	
40			3	2	3								M	ARTIFICIAL FILL BLACK, SILTY F. SAND (A-2-4) W/ LAYER OF GEOTECH FABRIC @ 1'	3.0
	39.6	3.5											W	UNDIVIDED COASTAL PLAIN TAN DK. GRAY AND BLACK, SILTY F. SAND (A-2-4)	
35			2	3	5								W	37.1	6.0
	37.1	6.0											W	34.6	8.5
30			6	7	9								Sat.	29.6	13.5
	34.6	8.5											Sat.	27.1	14.7
25			5	5	7								Sat.	25.6	17.5
	29.6	13.5											Sat.	23.9	19.2
	24.6	18.5	3	3	4								Sat.	23.1	20.0

# NCDOT GEOTECHNICAL ENGINEERING UNIT BORELOG REPORT

WBS 40191.1.2		TIP U-4751		COUNTY NEW HANOVER		GEOLOGIST Hunsberger, W. S.	
SITE DESCRIPTION SR 1409 (MILITARY CUTTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13							GROUND WTR (ft)
BORING NO. B-13	STATION 22+02	OFFSET 3 ft LT	ALIGNMENT -NW13-	0 HR.	5.0		
COLLAR ELEV. 43.9 ft	TOTAL DEPTH 20.1 ft	NORTHING 198,212	EASTING 2,355,456	24 HR.	5.1		
DRILL RIG/HAMMER EFF./DATE MID1904 CME-45B 80% 10/14/2014				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic	
DRILLER Contract Driller		START DATE 01/14/15	COMP. DATE 01/14/15	SURFACE WATER DEPTH N/A			



WBS 40191.1.2		TIP U-4751		COUNTY NEW HANOVER		GEOLOGIST Hunsberger, W. S.	
SITE DESCRIPTION SR 1409 (MILITARY CUTTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13							GROUND WTR (ft)
BORING NO. B-15	STATION 24+04	OFFSET CL	ALIGNMENT -NW13-	0 HR.	3.4		
COLLAR ELEV. 43.5 ft	TOTAL DEPTH 20.2 ft	NORTHING 198,401	EASTING 2,355,525	24 HR.	4.8		
DRILL RIG/HAMMER EFF./DATE MID1904 CME-45B 80% 10/14/2014				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic	
DRILLER Contract Driller		START DATE 01/14/15	COMP. DATE 01/14/15	SURFACE WATER DEPTH N/A			



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**NCDOT GEOTECHNICAL ENGINEERING UNIT**  
**BORELOG REPORT**

WBS 40191.1.2		TIP U-4751		COUNTY NEW HANOVER		GEOLOGIST Hunsberger, W. S.										
SITE DESCRIPTION SR 1409 (MILITARY CUTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13							GROUND WTR (ft)									
BORING NO. B-17		STATION 25+81		OFFSET CL		ALIGNMENT -NW13-										
COLLAR ELEV. 43.4 ft		TOTAL DEPTH 20.1 ft		NORTHING 198,572		EASTING 2,355,571										
DRILL RIG/HAMMER EFF./DATE MID1904 CME-45B 80% 10/14/2014			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER Contract Driller		START DATE 01/15/15		COMP. DATE 01/15/15		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						
45														43.4	0.8' TOPSOIL	0.0
	42.6	0.8	2	3	3										UNDIVIDED COASTAL PLAIN BLACK AND DK. GRAY, SILTY F. SAND (A-2-4) W/ TRACE ORGANICS @ 3.2'	
40	40.2	3.2	1	2	3											
	37.6	5.8	4	5	6											
35	34.8	8.6	5	5	7											
30	29.8	13.6	3	4	5											
25	24.8	18.6	3	3	2									25.4	COASTAL PLAIN LT. GRAY, SILTY F. SAND (A-2-4) (CASTLE HAYNE FORMATION)	18.0
														23.3	Boring Terminated at Elevation 23.3 ft in loose sand.	20.1

WBS 40191.1.2		TIP U-4751		COUNTY NEW HANOVER		GEOLOGIST Hunsberger, W. S.										
SITE DESCRIPTION SR 1409 (MILITARY CUTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13							GROUND WTR (ft)									
BORING NO. B-19		STATION 27+96		OFFSET CL		ALIGNMENT -NW13-										
COLLAR ELEV. 43.6 ft		TOTAL DEPTH 20.0 ft		NORTHING 198,783		EASTING 2,355,611										
DRILL RIG/HAMMER EFF./DATE MID1904 CME-45B 80% 10/14/2014			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER Contract Driller		START DATE 01/15/15		COMP. DATE 01/15/15		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						
45														43.6	0.7' TOPSOIL	0.0
	42.8	0.8	4	4	5										UNDIVIDED COASTAL PLAIN BLACK AND DK. GRAY, SILTY F. SAND (A-2-4) W/ TRACE ORGANICS FROM 0-3 FEET	
40	40.1	3.5	2	2	3											
	37.6	6.0	7	9	14											
35	35.1	8.5	6	7	10											
30	30.1	13.5	4	5	6											
25	25.1	18.5	3	2	2									26.1	COASTAL PLAIN LT. GRAY, SILTY F. SAND (A-2-4) (CASTLE HAYNE FORMATION)	17.5
														23.6	Boring Terminated at Elevation 23.6 ft in loose sand.	20.0

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# NCDOT GEOTECHNICAL ENGINEERING UNIT

## BORELOG REPORT

WBS 40191.1.2		TIP U-4751		COUNTY NEW HANOVER		GEOLOGIST Hunsberger, W. S.										
SITE DESCRIPTION SR 1409 (MILITARY CUTTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13							GROUND WTR (ft)									
BORING NO. B-21		STATION 29+99		OFFSET CL		ALIGNMENT -NW13-										
COLLAR ELEV. 44.7 ft		TOTAL DEPTH 20.0 ft		NORTHING 198,985		EASTING 2,355,632										
DRILL RIG/HAMMER EFF./DATE MID1904 CME-45B 80% 10/14/2014				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 01/15/15		COMP. DATE 01/15/15		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
45														44.7	0.0	0.5' SAND ROADWAY
	43.9	0.8	1	4	5											ARTIFICIAL FILL
	41.1	3.6	3	3	4									41.7	3.0	LT. GRAY, SILTY F. SAND (A-2-4)
40																UNDIVIDED COASTAL PLAIN
	38.7	6.0	10	11	12											DK. BROWN AND BLACK, SILTY F. SAND (A-2-4) W/ TRACE ORGANICS FROM 3-9 FEET
	36.1	8.6	4	5	8											
35																
	31.2	13.5	4	6	7									31.7	13.0	TAN AND GRAY, SILTY CSE. SAND (A-1-b)
30														30.6	14.1	TAN, SILTY F. SAND (A-2-4)
	26.2	18.5	2	2	2									26.7	18.0	COASTAL PLAIN
25														24.7	20.0	LT. GRAY, SILTY F. SAND (A-2-4) (CASTLE HAYNE FORMATION)
																Boring Terminated at Elevation 24.7 ft in loose sand.

WBS 40191.1.2		TIP U-4751		COUNTY NEW HANOVER		GEOLOGIST Hunsberger, W. S.										
SITE DESCRIPTION SR 1409 (MILITARY CUTTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13							GROUND WTR (ft)									
BORING NO. B-23		STATION 32+00		OFFSET CL		ALIGNMENT -NW13-										
COLLAR ELEV. 43.6 ft		TOTAL DEPTH 20.1 ft		NORTHING 199,185		EASTING 2,355,610										
DRILL RIG/HAMMER EFF./DATE MID1904 CME-45B 80% 10/14/2014				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 01/15/15		COMP. DATE 01/15/15		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
45														43.6	0.0	0.7' TOPSOIL
	42.7	0.9	3	5	8											UNDIVIDED COASTAL PLAIN
	40.0	3.6	4	6	18											TAN AND BLACK, SILTY F. TO MED. SAND (A-2-4)
40																
	37.9	5.7	11	13	18											
	35.0	8.6	8	9	13											
35																
	30.0	13.6	1	1	1									30.6	13.0	COASTAL PLAIN
30																LT. GRAY, SILTY F. SAND (A-2-4) (CASTLE HAYNE FORMATION)
	25.0	18.6	1	1	1									23.5	20.1	Boring Terminated at Elevation 23.5 ft in very loose sand.

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**NCDOT GEOTECHNICAL ENGINEERING UNIT**  
**BORELOG REPORT**

<b>WBS</b> 40191.1.2	<b>TIP</b> U-4751	<b>COUNTY</b> NEW HANOVER	<b>GEOLOGIST</b> Hunsberger, W. S.
<b>SITE DESCRIPTION</b> SR 1409 (MILITARY CUTTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13			<b>GROUND WTR (ft)</b>
<b>BORING NO.</b> B-25	<b>STATION</b> 34+19	<b>OFFSET</b> 10 ft LT	<b>ALIGNMENT</b> -NW13-
<b>COLLAR ELEV.</b> 41.3 ft	<b>TOTAL DEPTH</b> 20.2 ft	<b>NORTHING</b> 199,396	<b>EASTING</b> 2,355,614
<b>DRILL RIG/HAMMER EFF./DATE</b> MID1904 CME-45B 80% 10/14/2014		<b>DRILL METHOD</b> Mud Rotary	<b>HAMMER TYPE</b> Automatic
<b>DRILLER</b> Contract Driller	<b>START DATE</b> 01/16/15	<b>COMP. DATE</b> 01/16/15	<b>SURFACE WATER DEPTH</b> 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					
45															
40	40.2	1.1	WOH	WOH	1							W	1.0' TOPSOIL/ROOTMAT	0.0	
	37.7	3.6	1	6	9							W	UNDIVIDED COASTAL PLAIN BLACK, F. SANDY SILT (A-4) W/ TRACE ORGANICS	4.1	
35	35.5	5.8	8	13	18							W	DK. BROWN ORANGE AND BROWN, SILTY F. TO MED. SAND (A-2-4)	7.5	
	32.6	8.7	5	9	14							W	ORANGE AND TAN, SILTY F. SAND (A-3)	12.5	
30	27.6	13.7	3	2	2							W	COASTAL PLAIN LT. GRAY, SILTY F. SAND (A-2-4) (CASTLE HAYNE FORMATION)	20.2	
25	22.6	18.7	3	2	1							W	Boring Terminated at Elevation 21.1 ft in very loose sand.		

<b>WBS</b> 40191.1.2	<b>TIP</b> U-4751	<b>COUNTY</b> NEW HANOVER	<b>GEOLOGIST</b> Hunsberger, W. S.
<b>SITE DESCRIPTION</b> SR 1409 (MILITARY CUTTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13			<b>GROUND WTR (ft)</b>
<b>BORING NO.</b> B-27	<b>STATION</b> 35+90	<b>OFFSET</b> CL	<b>ALIGNMENT</b> -NW13-
<b>COLLAR ELEV.</b> 42.0 ft	<b>TOTAL DEPTH</b> 19.9 ft	<b>NORTHING</b> 199,566	<b>EASTING</b> 2,355,601
<b>DRILL RIG/HAMMER EFF./DATE</b> MID1904 CME-45B 80% 10/14/2014		<b>DRILL METHOD</b> Mud Rotary	<b>HAMMER TYPE</b> Automatic
<b>DRILLER</b> Contract Driller	<b>START DATE</b> 01/16/15	<b>COMP. DATE</b> 01/16/15	<b>SURFACE WATER DEPTH</b> 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					
45															
40	40.8	1.2	2	2	3							W	0.8' TOPSOIL/ROOTMAT	0.0	
	38.6	3.4	6	9	12							W	UNDIVIDED COASTAL PLAIN BLACK AND BROWN, SILTY F. SAND (A-2-4) W/ TRACE ORGANICS	8.0	
35	36.2	5.8	5	8	12							W	TAN AND GRAY, SILTY F. TO MED. SAND (A-3)	12.5	
	33.6	8.4	5	8	11							W	COASTAL PLAIN LT. GRAY, SILTY F. SAND (A-2-4) (CASTLE HAYNE FORMATION)	19.9	
30	28.6	13.4	2	2	3							Sat.			
25	23.6	18.4	3	2	4							Sat.	Boring Terminated at Elevation 22.1 ft in loose sand.		



# NCDOT GEOTECHNICAL ENGINEERING UNIT

## BORELOG REPORT

WBS 40191.1.2		TIP U-4751		COUNTY NEW HANOVER		GEOLOGIST Hunsberger, W. S.											
SITE DESCRIPTION SR 1409 (MILITARY CUTTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13							GROUND WTR (ft)										
BORING NO. B-29		STATION 37+92		OFFSET 25 ft LT		ALIGNMENT -NW13-											
COLLAR ELEV. 42.0 ft		TOTAL DEPTH 20.1 ft		NORTHING 199,758		EASTING 2,355,536											
DRILL RIG/HAMMER EFF./DATE MID1904 CME-45B 80% 10/14/2014			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic												
DRILLER Contract Driller		START DATE 01/16/15		COMP. DATE 01/16/15		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
45																	
	40.9	1.1															
40	38.4	3.6	4	5	3									W	0.7' TOPSOIL/ROOTMAT	0.0	
	36.2	5.8	4	6	8									W	UNDIVIDED COASTAL PLAIN DK. GRAY AND BROWN, SILTY F. SAND (A-2-4)		
35	36.2	5.8	6	8	11									W	BROWN, SILTY F. SAND (A-3)	5.5	
	33.4	8.6	7	4	7									W	BROWN AND TAN, SILTY F. SAND (A-2-4)	8.0	
30	28.4	13.6	1	2	3									W	COASTAL PLAIN LT. GRAY, SILTY F. SAND (A-2-4) (CASTLE HAYNE FORMATION)	13.0	
25	23.4	18.6	2	2	3									Sat.			
														Sat.			
																Boring Terminated at Elevation 21.9 ft in loose sand.	20.1

WBS 40191.1.2		TIP U-4751		COUNTY NEW HANOVER		GEOLOGIST Hunsberger, W. S.											
SITE DESCRIPTION SR 1409 (MILITARY CUTTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13							GROUND WTR (ft)										
BORING NO. B-31		STATION 158+70		OFFSET 65 ft LT		ALIGNMENT -L-											
COLLAR ELEV. 42.2 ft		TOTAL DEPTH 20.0 ft		NORTHING 199,956		EASTING 2,355,499											
DRILL RIG/HAMMER EFF./DATE MID1904 CME-45B 80% 10/14/2014			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic												
DRILLER Contract Driller		START DATE 01/16/15		COMP. DATE 01/16/15		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
45																	
	41.1	1.1															
40	38.7	3.5	3	8	7									W	0.7' TOPSOIL/ROOTMAT	0.0	
	36.5	5.7	4	6	9									W	UNDIVIDED COASTAL PLAIN DK. GRAY BROWN AND TAN, SILTY F. TO MED. SAND (A-2-4)		
35	36.5	5.7	5	8	11									W	TAN, SILTY F. TO MED. SAND (A-3)	5.5	
	33.7	8.5	3	5	8									W	TAN, SILTY SAND (A-2-4)	8.0	
30	28.7	13.5	1	1	2									W	COASTAL PLAIN LT. GRAY, CLAYEY SAND (A-2-6) (CASTLE HAYNE FORMATION)	12.5	
25	23.7	18.5	2	1	1									Sat.	LT. GRAY, SILTY F. SAND (A-2-4)	17.0	
														Sat.			
																Boring Terminated at Elevation 22.2 ft in very loose sand.	20.0
NOTE: BORING PERFORMED BASED ON PRELIMINARY WALL ENVELOPE PRIOR TO REVISIONS AND THEREFORE IS REFERENCED TO -L-																	

NCDOT BORE DOUBLE U4751\_GEO\_SWAL0013\_GINT.GPJ NC\_DOT.GDT 6/18/15

**NCDOT GEOTECHNICAL ENGINEERING UNIT**  
**BORELOG REPORT**

WBS 40191.1.2	TIP U-4751	COUNTY NEW HANOVER	GEOLOGIST Hunsberger, W. S.
SITE DESCRIPTION SR 1409 (MILITARY CUTTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13			GROUND WTR (ft)
BORING NO. B-33	STATION 160+76	OFFSET 63 ft LT	ALIGNMENT -L-
COLLAR ELEV. 42.0 ft	TOTAL DEPTH 19.8 ft	NORTHING 200,156	EASTING 2,355,445
DRILL RIG/HAMMER EFF./DATE MID1904 CME-45B 80% 10/14/2014		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/16/15	COMP. DATE 01/16/15	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					
45															
40	40.8	1.2	3	3	3								W	42.0	0.0
	38.5	3.5	2	3	4								W		
	36.3	5.7	5	5	7								W		
35	33.7	8.3	4	4	7								W		
30	28.7	13.3	2	2	3								W	29.0	13.0
25	23.7	18.3	2	2	2								W	22.2	19.8
Boring Terminated at Elevation 22.2 ft in loose sand. NOTE: BORING PERFORMED BASED ON PRELIMINARY WALL ENVELOPE PRIOR TO REVISIONS AND THEREFORE IS REFERENCED TO -L-															

WBS 40191.1.2	TIP U-4751	COUNTY NEW HANOVER	GEOLOGIST Hunsberger, W. S.
SITE DESCRIPTION SR 1409 (MILITARY CUTTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13			GROUND WTR (ft)
BORING NO. B-35	STATION 162+78	OFFSET 71 ft LT	ALIGNMENT -L-
COLLAR ELEV. 42.1 ft	TOTAL DEPTH 20.0 ft	NORTHING 200,346	EASTING 2,355,378
DRILL RIG/HAMMER EFF./DATE MID1904 CME-45B 80% 10/14/2014		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/16/15	COMP. DATE 01/16/15	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					
45															
40	40.9	1.2	2	2	1								W	42.1	0.0
	38.7	3.4	1	3	5								W	39.1	3.0
	36.8	5.3	5	5	6								W	37.1	5.0
35	33.6	8.5	3	4	6								M		
30	28.6	13.5	3	3	2								W	29.1	13.0
25	23.6	18.5	2	1	1								W	22.1	20.0
Boring Terminated at Elevation 22.1 ft in very loose sand. NOTE: BORING PERFORMED BASED ON PRELIMINARY WALL ENVELOPE PRIOR TO REVISIONS AND THEREFORE IS REFERENCED TO -L-															

NCDOT BORE DOUBLE U4751\_GEO\_SWAL0013\_GINT.GPJ NC\_DOT.GDT 6/18/15



**NCDOT GEOTECHNICAL ENGINEERING UNIT**  
**BORELOG REPORT**

WBS 40191.1.2		TIP U-4751		COUNTY NEW HANOVER		GEOLOGIST Hunsberger, W. S.									
SITE DESCRIPTION SR 1409 (MILITARY CUTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13							GROUND WTR (ft)								
BORING NO. B-37		STATION 164+78		OFFSET 57 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 40.9 ft		TOTAL DEPTH 20.1 ft		NORTHING 200,542		EASTING 2,355,333									
DRILL RIG/HAMMER EFF./DATE MID1904 CME-45B 80% 10/14/2014			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 01/16/15		COMP. DATE 01/16/15		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					
45															
40	39.9	1.0	WOH	WOH	1									40.9	0.7' TOPSOIL/ROOTMAT
	37.3	3.6												37.9	UNDIVIDED COASTAL PLAIN BLACK AND DK. GRAY, F. SANDY SILT (A-4)
	35.2	5.7	3	3	4									35.9	LT. GRAY, CLAYEY SAND (A-2-6)
	32.3	8.6	4	6	6									35.9	LT. GRAY AND TAN, SILTY F. TO MED. SAND (A-2-4)
	27.3	13.6	4	4	3									28.4	COASTAL PLAIN LT. GRAY, CLAYEY F. SAND (A-2-6) (CASTLE HAYNE FORMATION)
	22.3	18.6	2	1	1									28.4	
			1	1	2									20.8	
Boring Terminated at Elevation 20.8 ft in very loose sand.															
NOTE: BORING PERFORMED BASED ON PRELIMINARY WALL ENVELOPE PRIOR TO REVISIONS AND THEREFORE IS REFERENCED TO -L-															

WBS 40191.1.2		TIP U-4751		COUNTY NEW HANOVER		GEOLOGIST Hunsberger, W. S.									
SITE DESCRIPTION SR 1409 (MILITARY CUTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13							GROUND WTR (ft)								
BORING NO. B-39		STATION 166+81		OFFSET 91 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 43.1 ft		TOTAL DEPTH 19.8 ft		NORTHING 200,725		EASTING 2,355,239									
DRILL RIG/HAMMER EFF./DATE MID1904 CME-45B 80% 10/14/2014			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 01/16/15		COMP. DATE 01/16/15		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					
45															
	42.3	0.8	2	2	3									43.1	0.4' TOPSOIL/ROOTMAT
	39.8	3.3	2	3	3									40.1	UNDIVIDED COASTAL PLAIN BLACK AND DK. GRAY, SILTY F. SAND (A-2-4) W/ TRACE ORGANICS
	37.9	5.2	3	4	6									38.1	BLACK, F. SANDY SILT (A-4) W/ TRACE ORGANICS
	34.8	8.3	8	8	11									38.1	BROWN TAN AND LT. GRAY, SILTY F. SAND (A-2-4)
	29.8	13.3	2	2	1									26.1	COASTAL PLAIN LT. GRAY, CLAYEY F. SAND (A-2-6) (CASTLE HAYNE FORMATION)
	24.8	18.3	1	1	1									23.3	COASTAL PLAIN LT. GRAY, CLAYEY F. SAND (A-2-6) (CASTLE HAYNE FORMATION)
Boring Terminated at Elevation 23.3 ft in very loose sand.															
NOTE: BORING PERFORMED BASED ON PRELIMINARY WALL ENVELOPE PRIOR TO REVISIONS AND THEREFORE IS REFERENCED TO -L-															

NCDOT BORE DOUBLE U4751\_GEO\_SWAL0013\_GINT.GPJ NC\_DOT.GDT 6/18/15

**NCDOT GEOTECHNICAL ENGINEERING UNIT**  
**BORELOG REPORT**

WBS 40191.1.2		TIP U-4751		COUNTY NEW HANOVER		GEOLOGIST Hunsberger, W. S.										
SITE DESCRIPTION SR 1409 (MILITARY CUTTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13							GROUND WTR (ft)									
BORING NO. B-41		STATION 168+76		OFFSET 64 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 40.6 ft		TOTAL DEPTH 20.1 ft		NORTHING 200,824		EASTING 2,355,236										
DRILL RIG/HAMMER EFF./DATE MID1904 CME-45B 80% 10/14/2014			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER Contract Driller		START DATE 01/15/15		COMP. DATE 01/15/15		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						
45																
40	39.8	0.8	2	3	2								W	0.8' TOPSOIL/ROOTMAT	0.0	
	36.8	3.8	2	3	3								W	UNDIVIDED COASTAL PLAIN BLACK AND LT. GRAY, SILTY F. SAND (A-2-4) W/ TRACE ORGANICS FROM 3' TO 5'		
35	34.5	6.1	9	12	12								M			
	32.0	8.6	6	7	8								W			
30	27.0	13.6	2	1	2								W	28.1	LT. GRAY, CLAYEY F. SAND (A-2-6)	12.5
	22.0	18.6	WOH	2	1								W	23.6	COASTAL PLAIN LT. GRAY, SILTY F. SAND (A-2-4) (CASTLE HAYNE FORMATION)	17.0
													Sat.	20.5	Boring Terminated at Elevation 20.5 ft in very loose sand.	20.1
NOTE: BORING PERFORMED BASED ON PRELIMINARY WALL ENVELOPE PRIOR TO REVISIONS AND THEREFORE IS REFERENCED TO -L-																

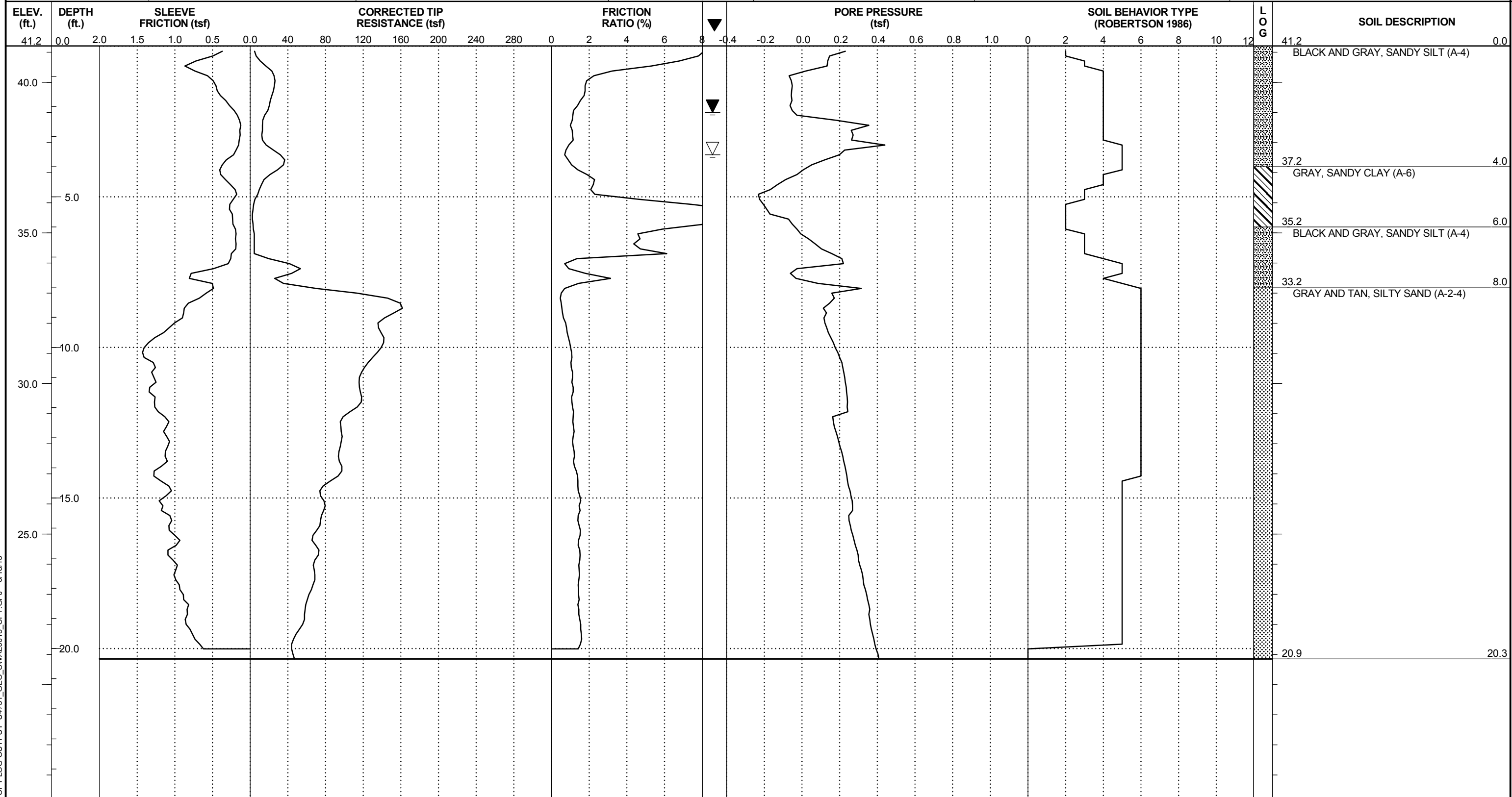
WBS 40191.1.2		TIP U-4751		COUNTY NEW HANOVER		GEOLOGIST Hunsberger, W. S.										
SITE DESCRIPTION SR 1409 (MILITARY CUTTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13							GROUND WTR (ft)									
BORING NO. B-44		STATION 171+26		OFFSET 69 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 41.7 ft		TOTAL DEPTH 20.0 ft		NORTHING 201,157		EASTING 2,355,129										
DRILL RIG/HAMMER EFF./DATE MID1904 CME-45B 80% 10/14/2014			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER Contract Driller		START DATE 01/15/15		COMP. DATE 01/15/15		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						
45																
40	40.9	0.8	2	2	2								M	41.7	0.9' TOPSOIL/ROOTMAT	0.0
	38.2	3.5	2	3	3								W	38.7	UNDIVIDED COASTAL PLAIN BLACK, F. SANDY SILT (A-4) W/ TRACE ORGANICS	3.0
35	36.2	5.5	3	4	8								W		LT. AND DK. GRAY, SILTY F. TO MED. SAND (A-2-4) W/ TRACE ORGANICS AT 8.5'	
	33.2	8.5	6	8	10								W			
30	28.2	13.5	3	3	2								Sat.	28.7	COASTAL PLAIN LT. AND DK. GRAY AND TAN, SILTY F. SAND (A-2-4) (CASTLE HAYNE FORMATION)	13.0
	23.2	18.5	1	2	2								W	21.7	Boring Terminated at Elevation 21.7 ft in loose sand.	20.0
NOTE: BORING PERFORMED BASED ON PRELIMINARY WALL ENVELOPE PRIOR TO REVISIONS AND THEREFORE IS REFERENCED TO -L-																

NCDOT BORE DOUBLE U4751\_GEO\_SWAL0013\_GINT.GPJ NC\_DOT.GDT 6/18/15



FALCON ENGINEERING, INC.  
 1210 TRINITY ROAD, SUITE 110  
 RALEIGH, NORTH CAROLINA 27607  
 Phone (919) 871-0800 Fax (919) 871-0803

PROJECT NO. U-4751	ID. 40191.1.2	COUNTY NEW HANOVER	LOGGED BY HUNSBERGER, W. S.	TYPE OF CONE 10 TON CONE	ROD TYPE 1.4" DIA	MAX. DOWN PRESSURE (tsf) 900 TSF
SITE DESCRIPTION SR 1409 (MILITARY CUTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13			GROUND WATER (ft.)	DATE STARTED 1/13/15	COMPLETED 1/13/15	SURFACE WATER DEPTH N/A
BORING NO. B-02	BORING LOCATION 11+00	OFFSET 5' RT	ALIGNMENT -NW13-	0 HR. 3.6	TOTAL DEPTH 20.34 ft	DRILL MACHINE CPT TRACK
COLLAR ELEV. 41.2 ft	NORTHING 197,300	EASTING 2,354,852	24 HR. 2.2	DRILLER CONTRACT DRILLER	DRILL METHOD DIRECT PUSH	

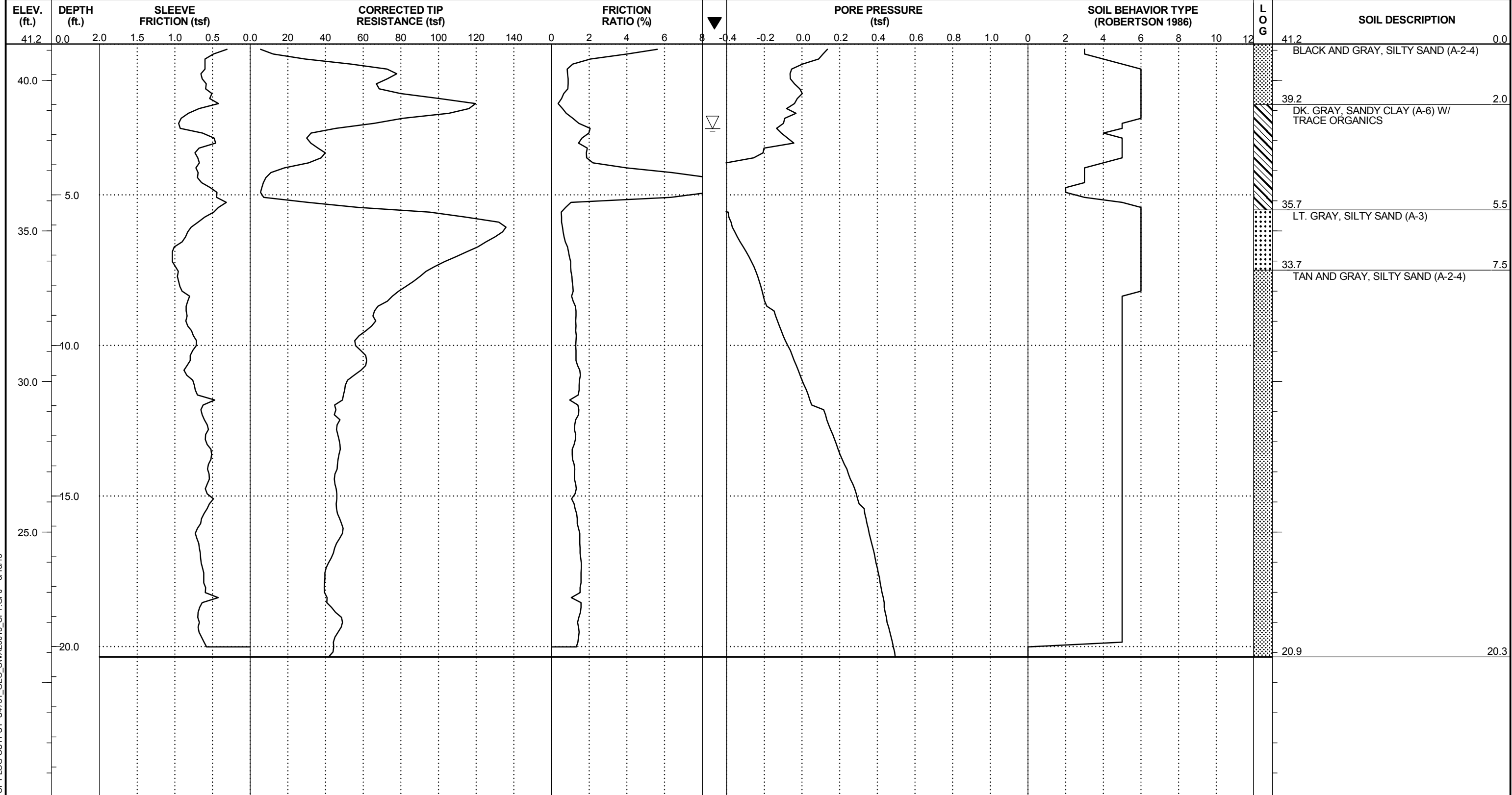


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PROJECT NO. U-4751	ID. 40191.1.2	COUNTY NEW HANOVER	LOGGED BY HUNSBERGER, W. S.	TYPE OF CONE 10 TON CONE	ROD TYPE 1.4" DIA	MAX. DOWN PRESSURE (tsf) 900 TSF
SITE DESCRIPTION SR 1409 (MILITARY CUTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13			GROUND WATER (ft.)	DATE STARTED 1/13/15	COMPLETED 1/13/15	SURFACE WATER DEPTH N/A
BORING NO. B-04	BORING LOCATION 13+00	OFFSET 5' RT	ALIGNMENT -NW13-	0 HR. 2.8	TOTAL DEPTH 20.34 ft	DRILL MACHINE CPT TRACK
COLLAR ELEV. 41.2 ft	NORTHING 197,452	EASTING 2,354,983	24 HR. CAVED	DRILLER CONTRACT DRILLER	DRILL METHOD DIRECT PUSH	

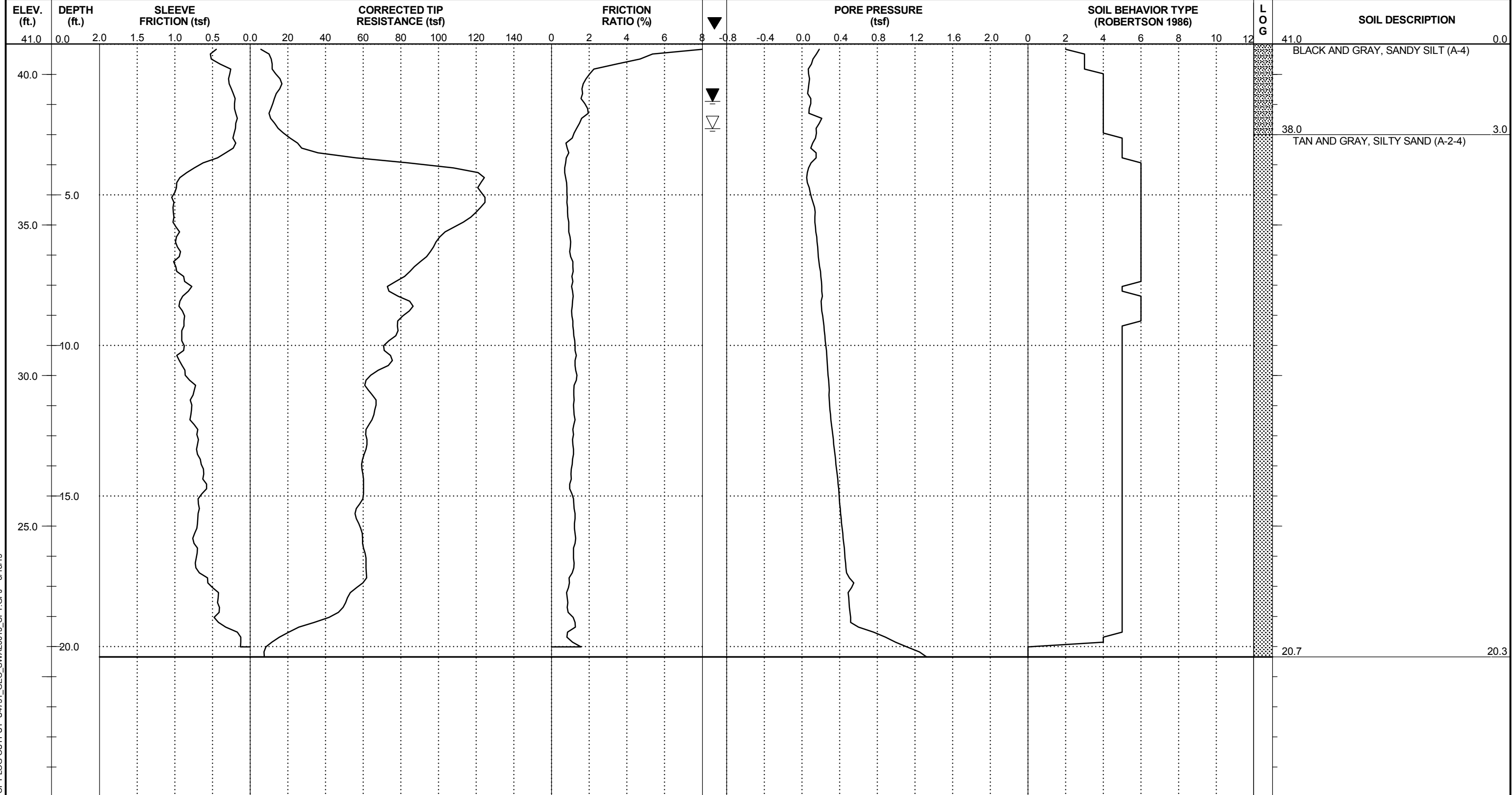


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PROJECT NO. U-4751	ID. 40191.1.2	COUNTY NEW HANOVER	LOGGED BY HUNSBERGER, W. S.	TYPE OF CONE 10 TON CONE	ROD TYPE 1.4" DIA	MAX. DOWN PRESSURE (tsf) 900 TSF
SITE DESCRIPTION SR 1409 (MILITARY CUTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13			GROUND WATER (ft.)	DATE STARTED 1/13/15	COMPLETED 1/13/15	SURFACE WATER DEPTH N/A
BORING NO. B-06	BORING LOCATION 14+96	OFFSET 3' RT	ALIGNMENT -NW13-	0 HR. 2.8	TOTAL DEPTH 20.34 ft	DRILL MACHINE CPT TRACK
COLLAR ELEV. 41.0 ft	NORTHING 197,597	EASTING 2,355,115	24 HR. 1.9	DRILLER CONTRACT DRILLER	DRILL METHOD DIRECT PUSH	

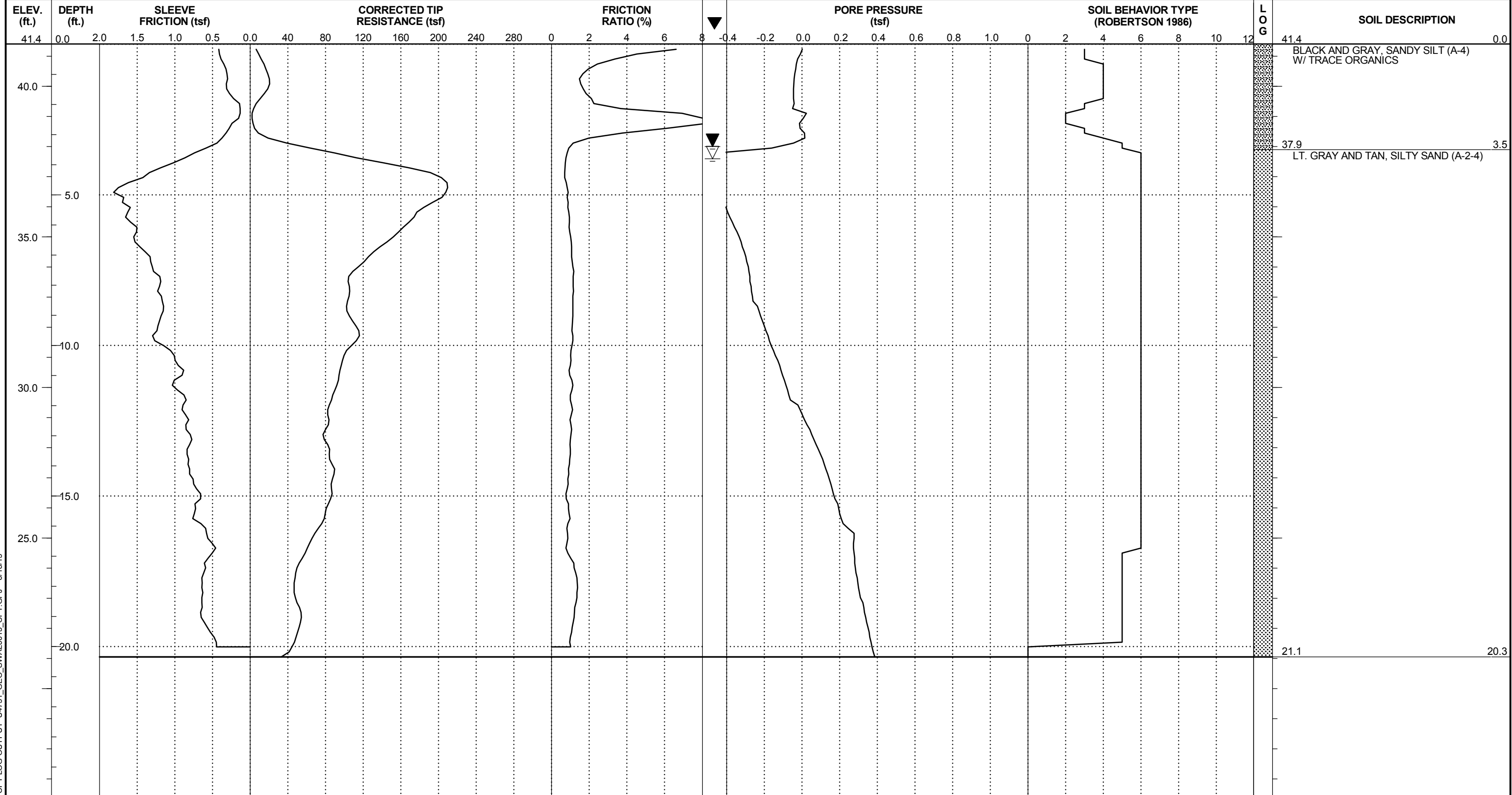


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PROJECT NO. U-4751	ID. 40191.1.2	COUNTY NEW HANOVER	LOGGED BY HUNSBERGER, W. S.	TYPE OF CONE 10 TON CONE	ROD TYPE 1.4" DIA	MAX. DOWN PRESSURE (tsf) 900 TSF
SITE DESCRIPTION SR 1409 (MILITARY CUTOFF RD) TO US 17 IN WILIMINGTON - NOISE WALL 13			GROUND WATER (ft.)	DATE STARTED 1/13/15	COMPLETED 1/13/15	SURFACE WATER DEPTH N/A
BORING NO. B-08	BORING LOCATION 16+98	OFFSET 14' RT	ALIGNMENT -NW13-	0 HR. 3.8	TOTAL DEPTH 20.34 ft	DRILL MACHINE CPT TRACK
COLLAR ELEV. 41.4 ft	NORTHING 197,755	EASTING 2,355,241	24 HR. 3.4	DRILLER CONTRACT DRILLER	DRILL METHOD DIRECT PUSH	

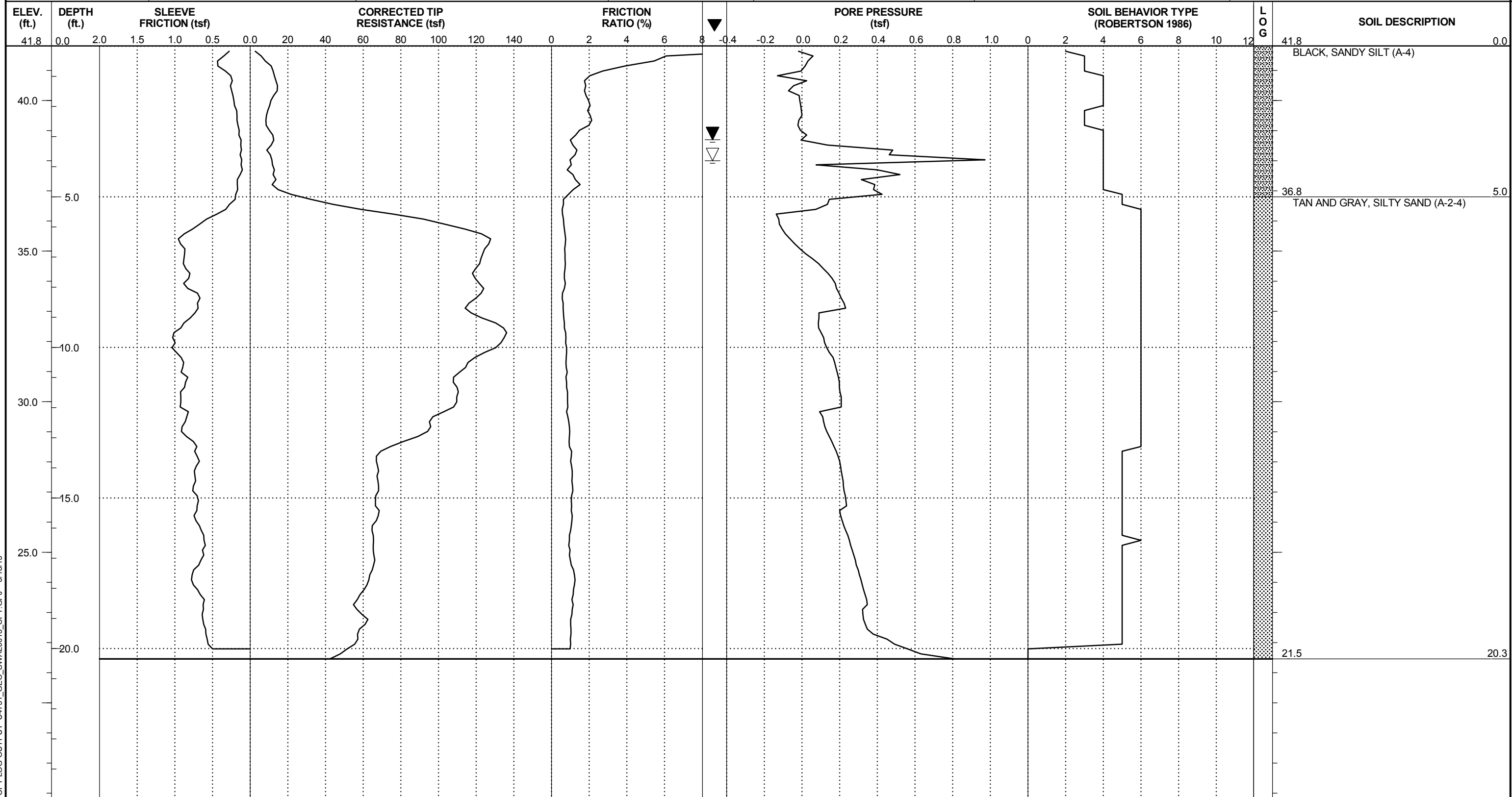


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PROJECT NO. U-4751	ID. 40191.1.2	COUNTY NEW HANOVER	LOGGED BY HUNSBERGER, W. S.	TYPE OF CONE 10 TON CONE	ROD TYPE 1.4" DIA	MAX. DOWN PRESSURE (tsf) 900 TSF
SITE DESCRIPTION SR 1409 (MILITARY CUTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13			GROUND WATER (ft.)	DATE STARTED 1/13/15	COMPLETED 1/13/15	SURFACE WATER DEPTH N/A
BORING NO. B-10	BORING LOCATION 18+89	OFFSET 48' RT	ALIGNMENT -NW13-	0 HR. 3.8	TOTAL DEPTH 20.34 ft	DRILL MACHINE CPT TRACK
COLLAR ELEV. 41.8 ft	NORTHING 197,905	EASTING 2,355,369	24 HR. 3.1	DRILLER CONTRACT DRILLER	DRILL METHOD DIRECT PUSH	



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PROJECT NO. U-4751	ID. 40191.1.2	COUNTY NEW HANOVER	LOGGED BY HUNSBERGER, W. S.	TYPE OF CONE 10 TON CONE	ROD TYPE 1.4" DIA	MAX. DOWN PRESSURE (tsf) 900 TSF
SITE DESCRIPTION SR 1409 (MILITARY CUTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13			GROUND WATER (ft.)	DATE STARTED 1/13/15	COMPLETED 1/13/15	SURFACE WATER DEPTH N/A
BORING NO. B-12	BORING LOCATION 21+00	OFFSET CL	ALIGNMENT -NW13-	0 HR. 4	TOTAL DEPTH 20.34 ft	DRILL MACHINE CPT TRACK
COLLAR ELEV. 42.3 ft	NORTHING 198,116	EASTING 2,355,420	24 HR. 1.8	DRILLER CONTRACT DRILLER	DRILL METHOD DIRECT PUSH	



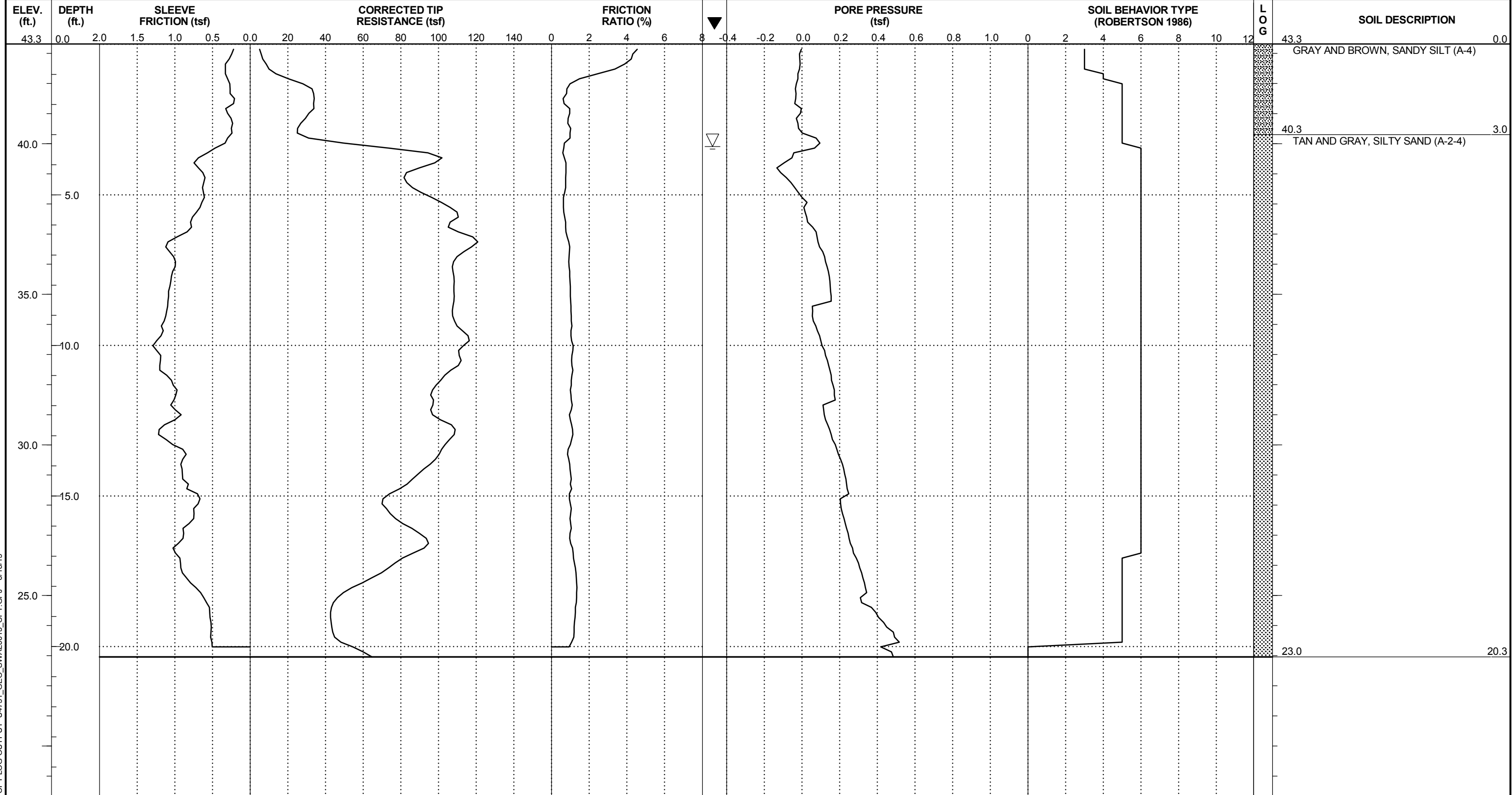
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PROJECT NO. U-4751	ID. 40191.1.2	COUNTY NEW HANOVER	LOGGED BY HUNSBERGER, W. S.	TYPE OF CONE 10 TON CONE	ROD TYPE 1.4" DIA	MAX. DOWN PRESSURE (tsf) 900 TSF
SITE DESCRIPTION SR 1409 (MILITARY CUTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13			GROUND WATER (ft.)	DATE STARTED 1/13/15	COMPLETED 1/13/15	SURFACE WATER DEPTH N/A
BORING NO. B-14	BORING LOCATION 23+00	OFFSET CL	ALIGNMENT -NW13-	0 HR. 3.4	TOTAL DEPTH 20.34 ft	DRILL MACHINE CPT TRACK
COLLAR ELEV. 43.3 ft	NORTHING 198,302	EASTING 2,355,493	24 HR. N/A	DRILLER CONTRACT DRILLER	DRILL METHOD DIRECT PUSH	

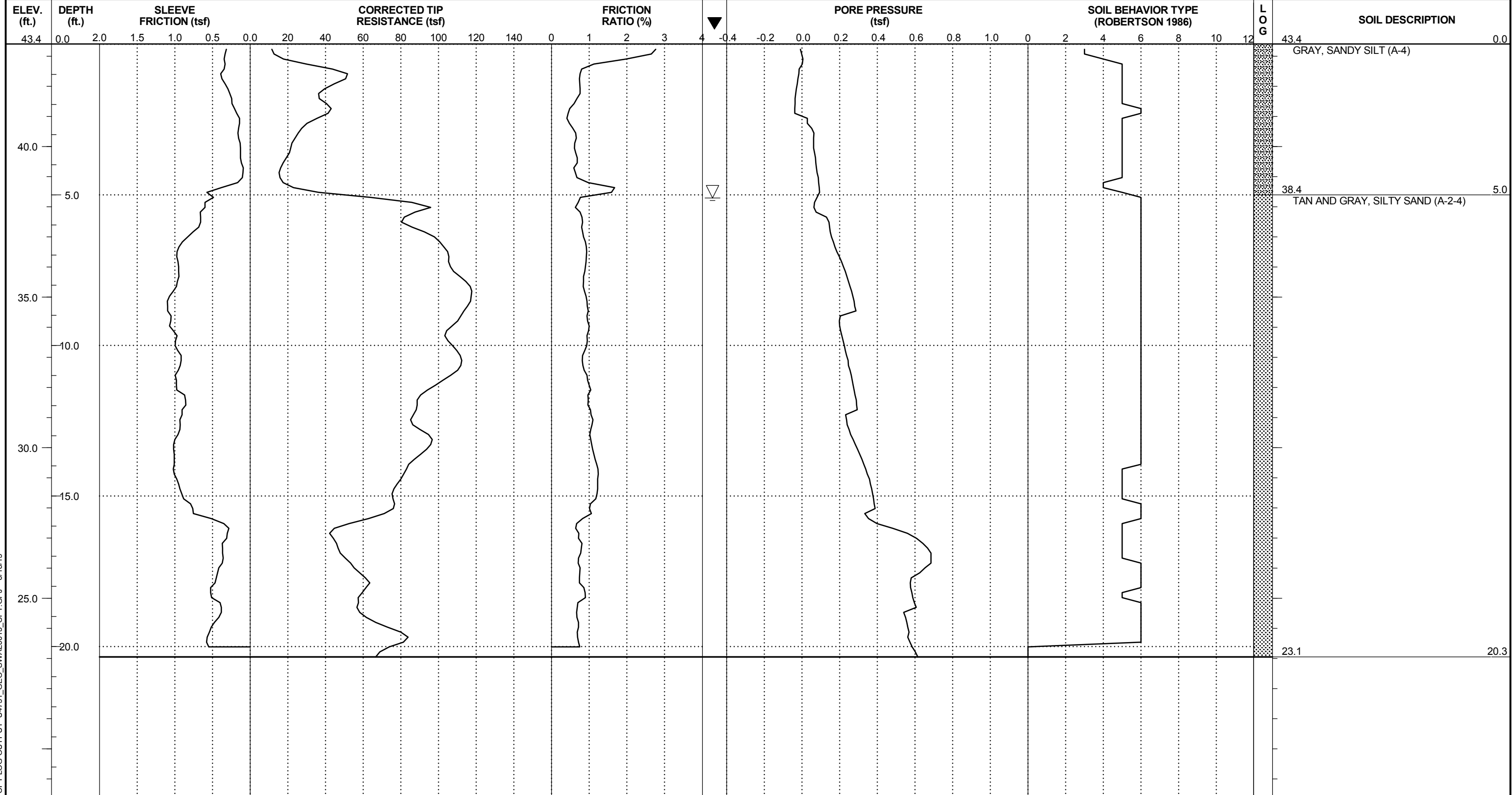


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 RALEIGH, NORTH CAROLINA 27607  
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PROJECT NO. U-4751	ID. 40191.1.2	COUNTY NEW HANOVER	LOGGED BY HUNSBERGER, W. S.	TYPE OF CONE 10 TON CONE	ROD TYPE 1.4" DIA	MAX. DOWN PRESSURE (tsf) 900 TSF
SITE DESCRIPTION SR 1409 (MILITARY CUTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13			GROUND WATER (ft.)	DATE STARTED 1/13/15	COMPLETED 1/13/15	SURFACE WATER DEPTH N/A
BORING NO. B-16	BORING LOCATION 25+00	OFFSET CL	ALIGNMENT -NW13-	0 HR. 5.1	TOTAL DEPTH 20.34 ft	DRILL MACHINE CPT TRACK
COLLAR ELEV. 43.4 ft	NORTHING 198,494	EASTING 2,355,552	24 HR. N/A	DRILLER CONTRACT DRILLER	DRILL METHOD DIRECT PUSH	

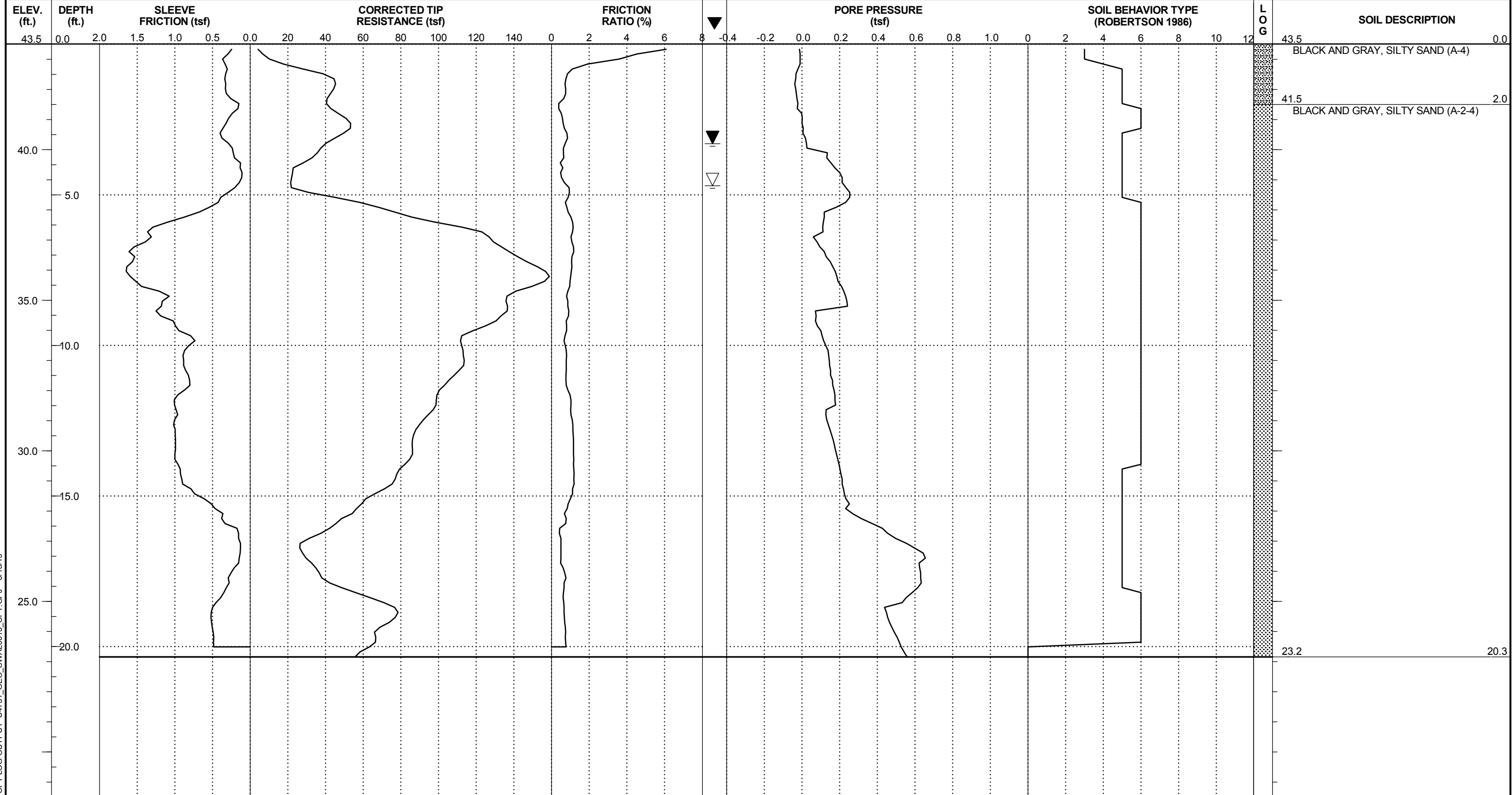


CPT LOG OUTPUT U4751\_GEO\_SWAL0013\_CPT.GPJ 6/18/15



FALCON ENGINEERING, INC.  
 1210 TRINITY ROAD, SUITE 110  
 RALEIGH, NORTH CAROLINA 27607  
 Phone (919) 871-0800 Fax (919) 871-0803

PROJECT NO. U-4751	ID. 40191.1.2	COUNTY NEW HANOVER	LOGGED BY HUNSBERGER, W. S.	TYPE OF CONE 10 TON CONE	ROD TYPE 1.4" DIA	MAX. DOWN PRESSURE (tsf) 900 TSF
SITE DESCRIPTION SR 1409 (MILITARY CUTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13			GROUND WATER (ft.)	DATE STARTED 1/13/15	COMPLETED 1/13/15	SURFACE WATER DEPTH N/A
BORING NO. B-18	BORING LOCATION 27+00	OFFSET CL	ALIGNMENT -NW13-	0 HR. 4.7	TOTAL DEPTH 20.34 ft	DRILL MACHINE CPT TRACK
COLLAR ELEV. 43.5 ft	NORTHING 198,689	EASTING 2,355,595	24 HR. 3.3	DRILLER CONTRACT DRILLER	DRILL METHOD DIRECT PUSH	

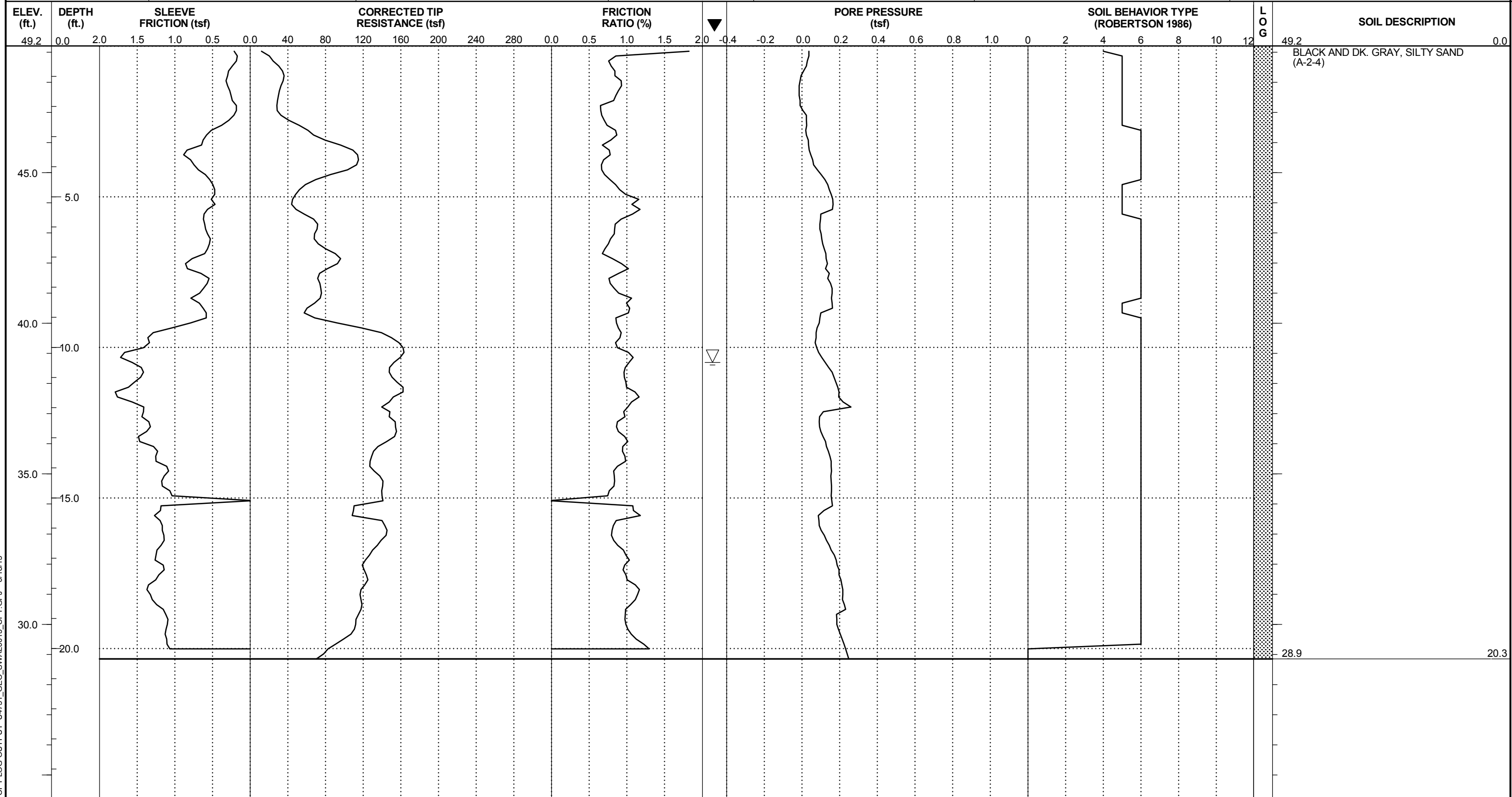


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PROJECT NO. U-4751	ID. 40191.1.2	COUNTY NEW HANOVER	LOGGED BY HUNSBERGER, W. S.	TYPE OF CONE 10 TON CONE	ROD TYPE 1.4" DIA	MAX. DOWN PRESSURE (tsf) 900 TSF
SITE DESCRIPTION SR 1409 (MILITARY CUTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13			GROUND WATER (ft.)	DATE STARTED 1/13/15	COMPLETED 1/13/15	SURFACE WATER DEPTH N/A
BORING NO. B-20	BORING LOCATION 29+00	OFFSET CL	ALIGNMENT -NW13-	0 HR. 10.5	TOTAL DEPTH 20.34 ft	DRILL MACHINE CPT TRACK
COLLAR ELEV. 49.2 ft	NORTHING 198,887	EASTING 2,355,623	24 HR. CAVED	DRILLER CONTRACT DRILLER	DRILL METHOD DIRECT PUSH	



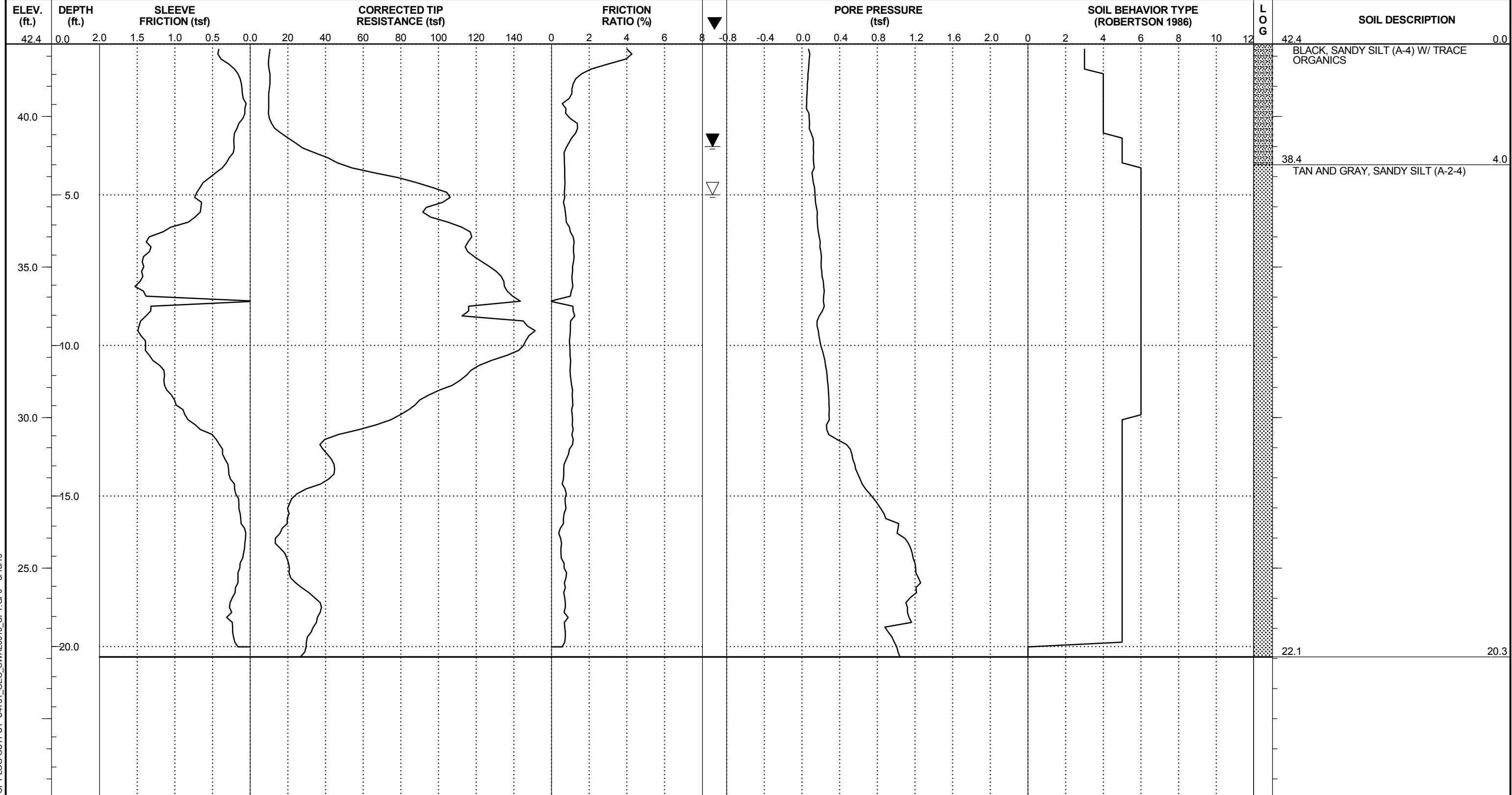
CPT LOG OUTPUT U4751\_GEO\_SWAL0013\_CPT.GPJ 6/18/15





FALCON ENGINEERING, INC.  
 1210 TRINITY ROAD, SUITE 110  
 RALEIGH, NORTH CAROLINA 27607  
 Phone (919) 871-0800 Fax (919) 871-0803

PROJECT NO. U-4751	ID. 40191.1.2	COUNTY NEW HANOVER	LOGGED BY HUNSBERGER, W. S.	TYPE OF CONE 10 TON CONE	ROD TYPE 1.4" DIA	MAX. DOWN PRESSURE (tsf) 900 TSF
SITE DESCRIPTION SR 1409 (MILITARY CUTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13			GROUND WATER (ft.)	DATE STARTED 1/13/15	COMPLETED 1/13/15	SURFACE WATER DEPTH N/A
BORING NO. B-24	BORING LOCATION 33+00	OFFSET CL	ALIGNMENT -NW13-	0 HR. 5	TOTAL DEPTH 20.34 ft	DRILL MACHINE CPT TRACK
COLLAR ELEV. 42.4 ft	NORTHING 199,270	EASTING 2,355,633	24 HR. 3.4	DRILLER CONTRACT DRILLER	DRILL METHOD DIRECT PUSH	

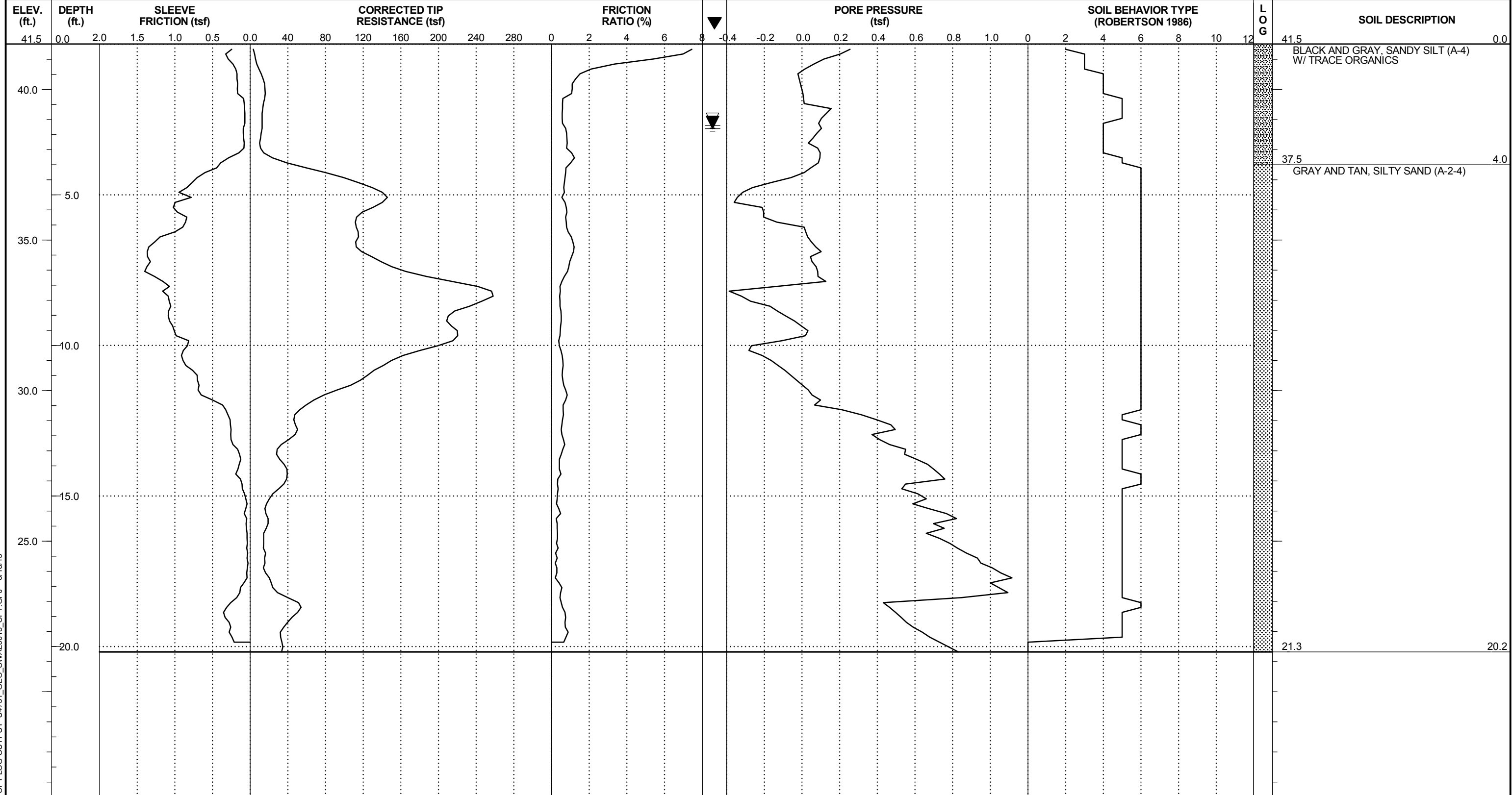


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FALCON ENGINEERING, INC.  
 1210 TRINITY ROAD, SUITE 110  
 RALEIGH, NORTH CAROLINA 27607  
 Phone (919) 871-0800 Fax (919) 871-0803

PROJECT NO. U-4751	ID. 40191.1.2	COUNTY NEW HANOVER	LOGGED BY HUNSBERGER, W. S.	TYPE OF CONE 10 TON CONE	ROD TYPE 1.4" DIA	MAX. DOWN PRESSURE (tsf) 900 TSF
SITE DESCRIPTION SR 1409 (MILITARY CUTOFF RD) TO US 17 IN WILIMINGTON - NOISE WALL 13			GROUND WATER (ft.)	DATE STARTED 1/14/15	COMPLETED 1/14/15	SURFACE WATER DEPTH N/A
BORING NO. B-26	BORING LOCATION 35+00	OFFSET CL	ALIGNMENT -NW13-	0 HR. 2.7	TOTAL DEPTH 20.18 ft	DRILL MACHINE CPT TRACK
COLLAR ELEV. 41.5 ft	NORTHING 199,477	EASTING 2,355,615	24 HR. 2.8	DRILLER CONTRACT DRILLER	DRILL METHOD DIRECT PUSH	

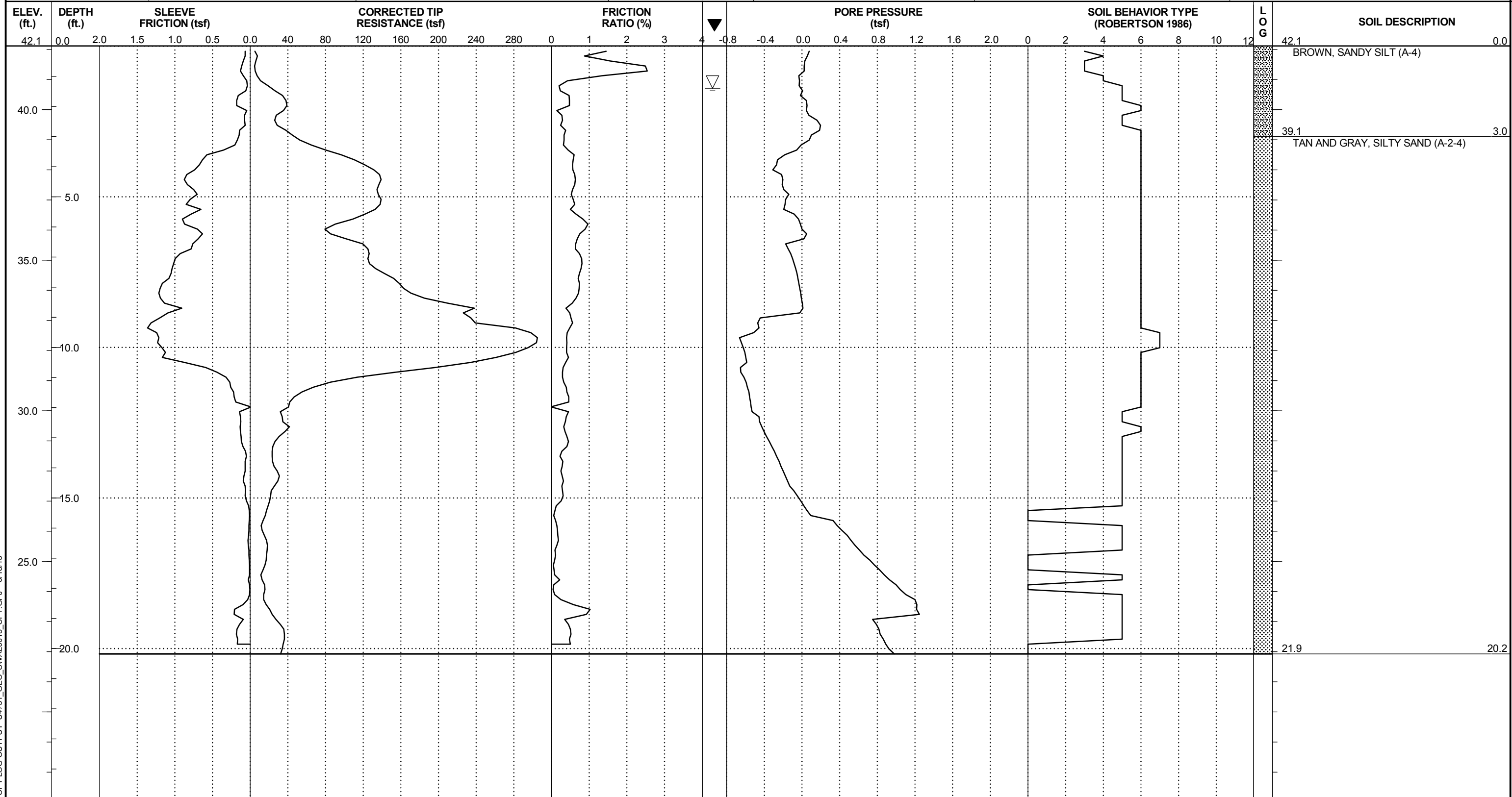


CPT LOG OUTPUT U4751\_GEO\_SWAL0013\_CPT.GPJ 6/18/15



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 RALEIGH, NORTH CAROLINA 27607  
 Phone (919) 871-0800 Fax (919) 871-0803

PROJECT NO. U-4751	ID. 40191.1.2	COUNTY NEW HANOVER	LOGGED BY HUNSBERGER, W. S.	TYPE OF CONE 10 TON CONE	ROD TYPE 1.4" DIA	MAX. DOWN PRESSURE (tsf) 900 TSF
SITE DESCRIPTION SR 1409 (MILITARY CUTOFF RD) TO US 17 IN WILIMINGTON - NOISE WALL 13			GROUND WATER (ft.)	DATE STARTED 1/14/15	COMPLETED 1/14/15	SURFACE WATER DEPTH N/A
BORING NO. B-28	BORING LOCATION 37+00	OFFSET CL	ALIGNMENT -NW13-	0 HR. 1.4	TOTAL DEPTH 20.18 ft	DRILL MACHINE CPT TRACK
COLLAR ELEV. 42.1 ft	NORTHING 199,674	EASTING 2,355,581	24 HR. CAVED	DRILLER CONTRACT DRILLER	DRILL METHOD DIRECT PUSH	



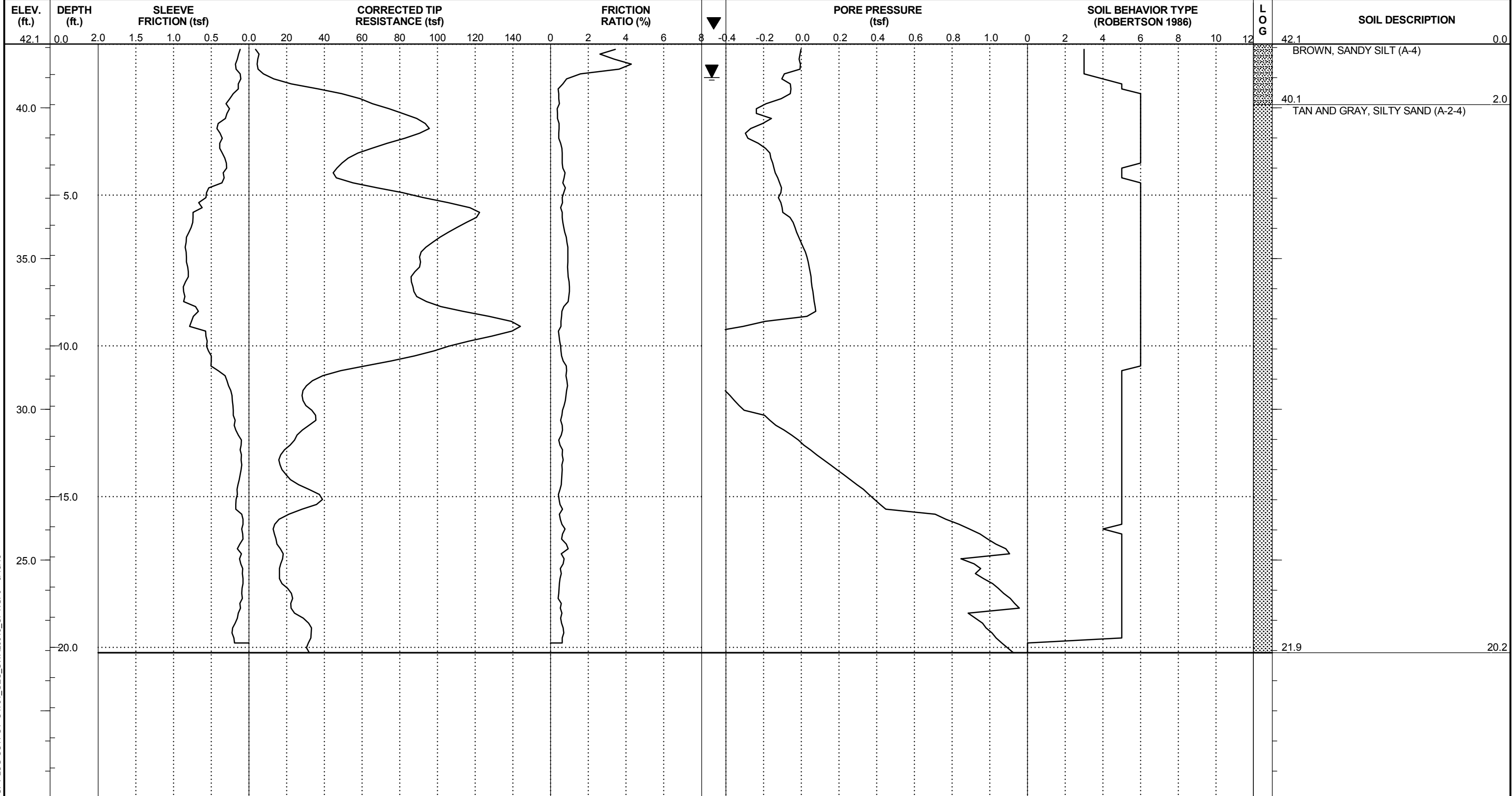
CPT LOG OUTPUT U4751\_GEO\_SWAL0013\_CPT.GPJ 6/18/15





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 RALEIGH, NORTH CAROLINA 27607  
 Phone (919) 871-0800 Fax (919) 871-0803

PROJECT NO. U-4751	ID. 40191.1.2	COUNTY NEW HANOVER	LOGGED BY HUNSBERGER, W. S.	TYPE OF CONE 10 TON CONE	ROD TYPE 1.4" DIA	MAX. DOWN PRESSURE (tsf) 900 TSF
SITE DESCRIPTION SR 1409 (MILITARY CUTOFF RD) TO US 17 IN WILIMINGTON - NOISE WALL 13			GROUND WATER (ft.)	DATE STARTED 1/14/15	COMPLETED 1/14/15	SURFACE WATER DEPTH N/A
BORING NO. B-30	BORING LOCATION 39+00	OFFSET CL	ALIGNMENT -NW13-	0 HR. 1.1	TOTAL DEPTH 20.18 ft	DRILL MACHINE CPT TRACK
COLLAR ELEV. 42.1 ft	NORTHING 199,868	EASTING 2,355,531	24 HR. 1.1	DRILLER CONTRACT DRILLER	DRILL METHOD DIRECT PUSH	

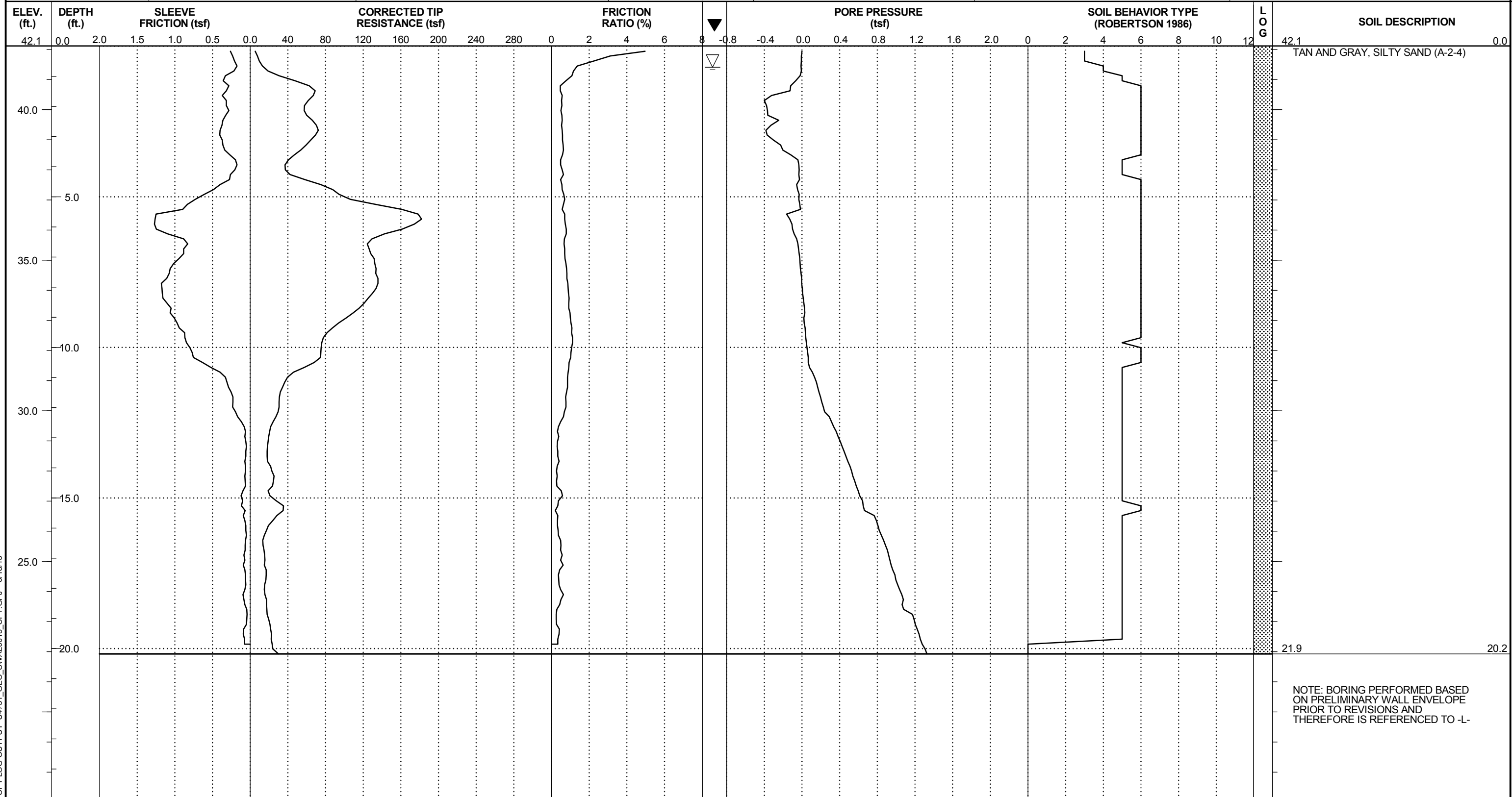


CPT LOG OUTPUT U4751\_GEO\_SWAL0013\_CPT.GPJ 6/18/15



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 Phone (919) 871-0800 Fax (919) 871-0803

PROJECT NO. U-4751	ID. 40191.1.2	COUNTY NEW HANOVER	LOGGED BY HUNSBERGER, W. S.	TYPE OF CONE 10 TON CONE	ROD TYPE 1.4" DIA	MAX. DOWN PRESSURE (tsf) 900 TSF
SITE DESCRIPTION SR 1409 (MILITARY CUTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13			GROUND WATER (ft.)	DATE STARTED 1/14/15	COMPLETED 1/14/15	SURFACE WATER DEPTH N/A
BORING NO. B-32	BORING LOCATION 159+76	OFFSET 65' LT	ALIGNMENT -L-	0 HR. 0.7	TOTAL DEPTH 20.18 ft	DRILL MACHINE CPT TRACK
COLLAR ELEV. 42.1 ft	NORTHING 200,059	EASTING 2,355,473	24 HR. CAVED	DRILLER CONTRACT DRILLER	DRILL METHOD DIRECT PUSH	



CPT LOG OUTPUT U4751\_GEO\_SWAL0013\_CPT.GPJ 6/18/15

NOTE: BORING PERFORMED BASED ON PRELIMINARY WALL ENVELOPE PRIOR TO REVISIONS AND THEREFORE IS REFERENCED TO -L-



FALCON ENGINEERING, INC.  
 1210 TRINITY ROAD, SUITE 110  
 RALEIGH, NORTH CAROLINA 27607  
 Phone (919) 871-0800 Fax (919) 871-0803

PROJECT NO. U-4751	ID. 40191.1.2	COUNTY NEW HANOVER	LOGGED BY HUNSBERGER, W. S.	TYPE OF CONE 10 TON CONE	ROD TYPE 1.4" DIA	MAX. DOWN PRESSURE (tsf) 900 TSF
SITE DESCRIPTION SR 1409 (MILITARY CUTOFF RD) TO US 17 IN WILIMINGTON - NOISE WALL 13				GROUND WATER (ft.)	DATE STARTED 1/14/15	COMPLETED 1/14/15
BORING NO. B-34	BORING LOCATION 161+76	OFFSET 65' LT	ALIGNMENT -L-	0 HR. 0.9	TOTAL DEPTH 20.18 ft	DRILL MACHINE CPT TRACK
COLLAR ELEV. 42.2 ft	NORTHING 200,251	EASTING 2,355,414		24 HR. 0.9	DRILLER CONTRACT DRILLER	DRILL METHOD DIRECT PUSH

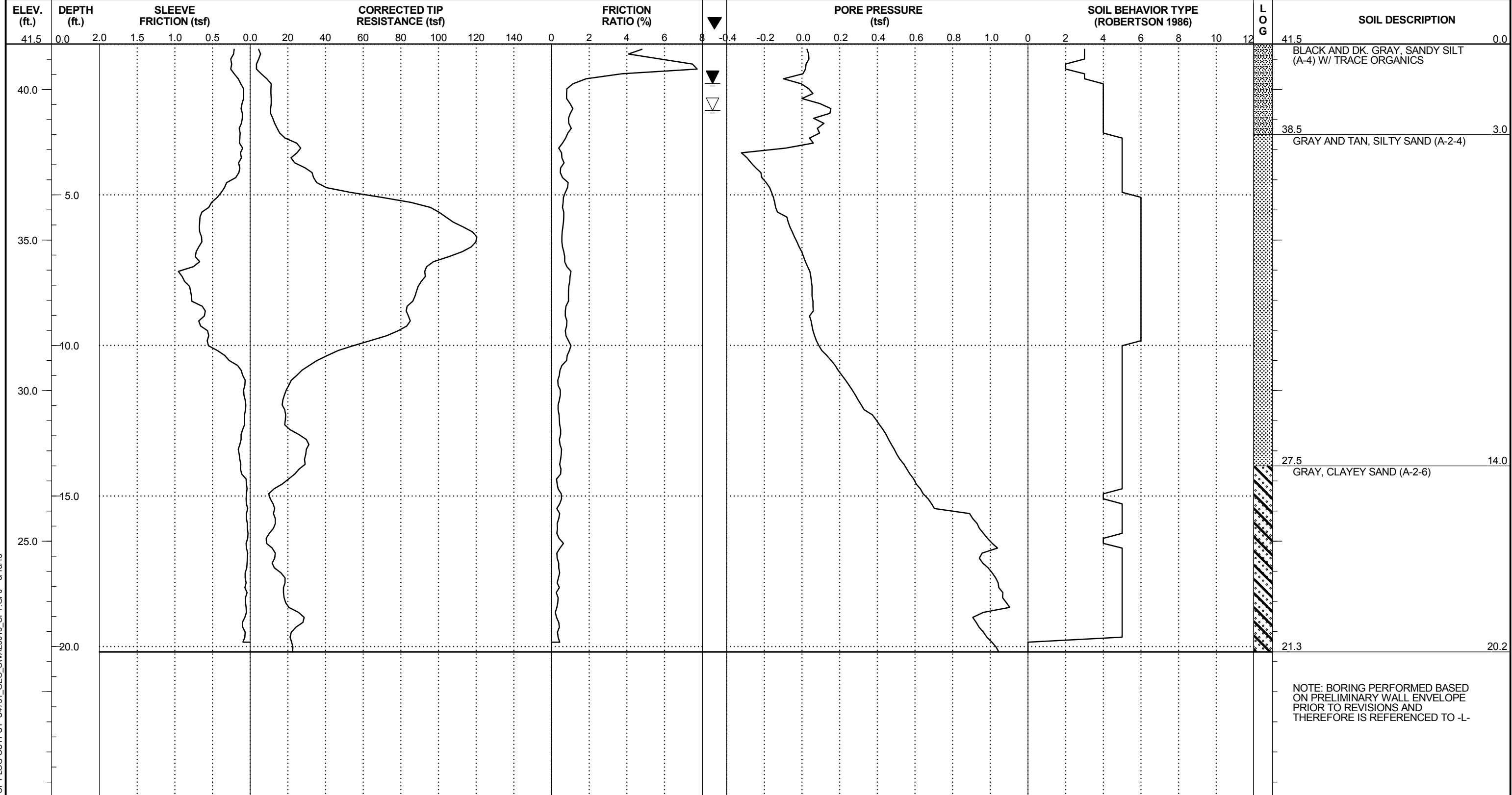


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 Phone (919) 871-0800 Fax (919) 871-0803

PROJECT NO. U-4751	ID. 40191.1.2	COUNTY NEW HANOVER	LOGGED BY HUNSBERGER, W. S.	TYPE OF CONE 10 TON CONE	ROD TYPE 1.4" DIA	MAX. DOWN PRESSURE (tsf) 900 TSF
SITE DESCRIPTION SR 1409 (MILITARY CUTOFF RD) TO US 17 IN WILIMINGTON - NOISE WALL 13				GROUND WATER (ft.)	DATE STARTED 1/14/15	COMPLETED 1/14/15
BORING NO. B-36	BORING LOCATION 163+76	OFFSET 65' LT	ALIGNMENT -L-	0 HR. 2.2	TOTAL DEPTH 20.18 ft	DRILL MACHINE CPT TRACK
COLLAR ELEV. 41.5 ft	NORTHING 200,442	EASTING 2,355,355		24 HR. 1.3	DRILLER CONTRACT DRILLER	DRILL METHOD DIRECT PUSH



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PROJECT NO. U-4751	ID. 40191.1.2	COUNTY NEW HANOVER	LOGGED BY HUNSBERGER, W. S.	TYPE OF CONE 10 TON CONE	ROD TYPE 1.4" DIA	MAX. DOWN PRESSURE (tsf) 900 TSF
SITE DESCRIPTION SR 1409 (MILITARY CUTOFF RD) TO US 17 IN WILIMINGTON - NOISE WALL 13			GROUND WATER (ft.)	DATE STARTED 1/14/15	COMPLETED 1/14/15	SURFACE WATER DEPTH N/A
BORING NO. B-38	BORING LOCATION 165+76	OFFSET 65' LT	ALIGNMENT -L-	0 HR. 1.8	TOTAL DEPTH 20.18 ft	DRILL MACHINE CPT TRACK
COLLAR ELEV. 41.0 ft	NORTHING 200,633	EASTING 2,355,296	24 HR. 1.8	DRILLER CONTRACT DRILLER	DRILL METHOD DIRECT PUSH	

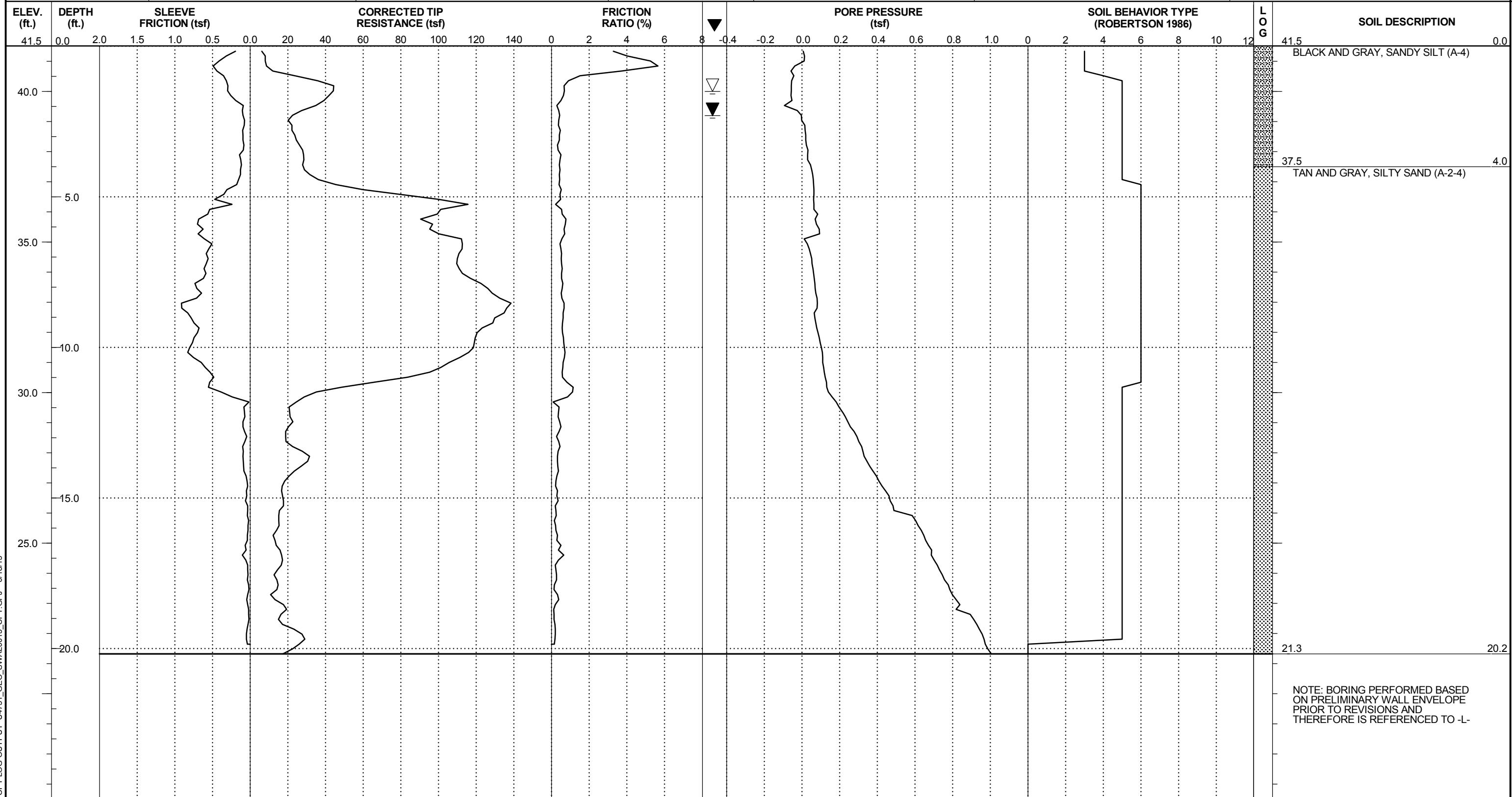


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 RALEIGH, NORTH CAROLINA 27607  
 Phone (919) 871-0800 Fax (919) 871-0803

PROJECT NO. U-4751	ID. 40191.1.2	COUNTY NEW HANOVER	LOGGED BY HUNSBERGER, W. S.	TYPE OF CONE 10 TON CONE	ROD TYPE 1.4" DIA	MAX. DOWN PRESSURE (tsf) 900 TSF
SITE DESCRIPTION SR 1409 (MILITARY CUTOFF RD) TO US 17 IN WILIMINGTON - NOISE WALL 13			GROUND WATER (ft.)	DATE STARTED 1/14/15	COMPLETED 1/14/15	SURFACE WATER DEPTH N/A
BORING NO. B-40	BORING LOCATION 167+76	OFFSET 66' LT	ALIGNMENT -L-	0 HR. 1.5	TOTAL DEPTH 20.18 ft	DRILL MACHINE CPT TRACK
COLLAR ELEV. 41.5 ft	NORTHING 200,824	EASTING 2,355,236	24 HR. 2.3	DRILLER CONTRACT DRILLER	DRILL METHOD DIRECT PUSH	



CPT LOG OUTPUT U4751\_GEO\_SWAL0013\_CPT.GPJ 6/18/15



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 Phone (919) 871-0800 Fax (919) 871-0803

PROJECT NO. U-4751	ID. 40191.1.2	COUNTY NEW HANOVER	LOGGED BY HUNSBERGER, W. S.	TYPE OF CONE 10 TON CONE	ROD TYPE 1.4" DIA	MAX. DOWN PRESSURE (tsf) 900 TSF
SITE DESCRIPTION SR 1409 (MILITARY CUTOFF RD) TO US 17 IN WILMINGTON - NOISE WALL 13			GROUND WATER (ft.)	DATE STARTED 1/14/15	COMPLETED 1/14/15	SURFACE WATER DEPTH N/A
BORING NO. B-42	BORING LOCATION 169+76	OFFSET 70' LT	ALIGNMENT -L-	0 HR. 1.1	TOTAL DEPTH 20.34 ft	DRILL MACHINE CPT TRACK
COLLAR ELEV. 41.6 ft	NORTHING 201,014	EASTING 2,355,174	24 HR. 2.4	DRILLER CONTRACT DRILLER	DRILL METHOD DIRECT PUSH	



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 Phone (919) 871-0800 Fax (919) 871-0803

PROJECT NO. U-4751	ID. 40191.1.2	COUNTY NEW HANOVER	LOGGED BY HUNSBERGER, W. S.	TYPE OF CONE 10 TON CONE	ROD TYPE 1.4" DIA	MAX. DOWN PRESSURE (tsf) 900 TSF
SITE DESCRIPTION SR 1409 (MILITARY CUTOFF RD) TO US 17 IN WILIMINGTON - NOISE WALL 13			GROUND WATER (ft.)	DATE STARTED 1/14/15	COMPLETED 1/14/15	SURFACE WATER DEPTH N/A
BORING NO. B-43	BORING LOCATION 171+12	OFFSET 70' LT	ALIGNMENT -L-	0 HR. 1.5	TOTAL DEPTH 20.18 ft	DRILL MACHINE CPT TRACK
COLLAR ELEV. 41.5 ft	NORTHING 201,144	EASTING 2,355,134	24 HR. CAVED	DRILLER CONTRACT DRILLER	DRILL METHOD DIRECT PUSH	



CPT LOG OUTPUT U4751\_GEO\_SWAL0013\_CPT.GPJ 6/18/15





SPT RIG AT STAKED B-1 LOCATION



CPT RIG AT STAKED B-2 LOCATION



B-11 STAKED LOCATION



LOOKING DOWNSTATION FROM B-18 ALONG -NW\_13-



FALCON ENGINEERING, INC.  
1210 TRINITY ROAD, SUITE 110  
RALEIGH, NC 27607  
PHONE: 919.871.0800  
FAX: 919.871.0803

SITE PHOTOGRAPHS

SR1409 (MILITARY CUTOFF RD) TO US 17 IN WILMINGTON  
NOISE WALL 13  
NEW HANOVER COUNTY, NC  
WBS NO.: 40191.1.2 TIP NO.: U-4751

REFERENCE: U-4751

PROJECT: 40191

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4751	1	11

**CONTENTS**

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2	LEGEND
3	SITE PLAN
4	PROFILE
5-II	APPENDIX A - CPT LOGS

**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

COUNTY NEW HANOVER  
PROJECT DESCRIPTION SR 1409 (MILITARY CUT-OFF ROAD) TO US 17 IN WILMINGTON

SITE DESCRIPTION NOISE WALL 14 AT -L- STA. 129+00, RIGHT

**CAUTION NOTICE**

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

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

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

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

PERSONNEL

J. MUESSEN, EI

MID-ATLANTIC

A. FOWLER

M. WIGGINS

M. LOOGAN

INVESTIGATED BY D. BROWN, PE

DRAWN BY D. BROWN, PE

CHECKED BY E. MAYR, PE

SUBMITTED BY D. BROWN, PE

DATE MAY 2015



DocuSigned by:  
*Donald W. Brown Jr.* 6/9/2015  
056948D03967464 SIGNATURE DATE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION

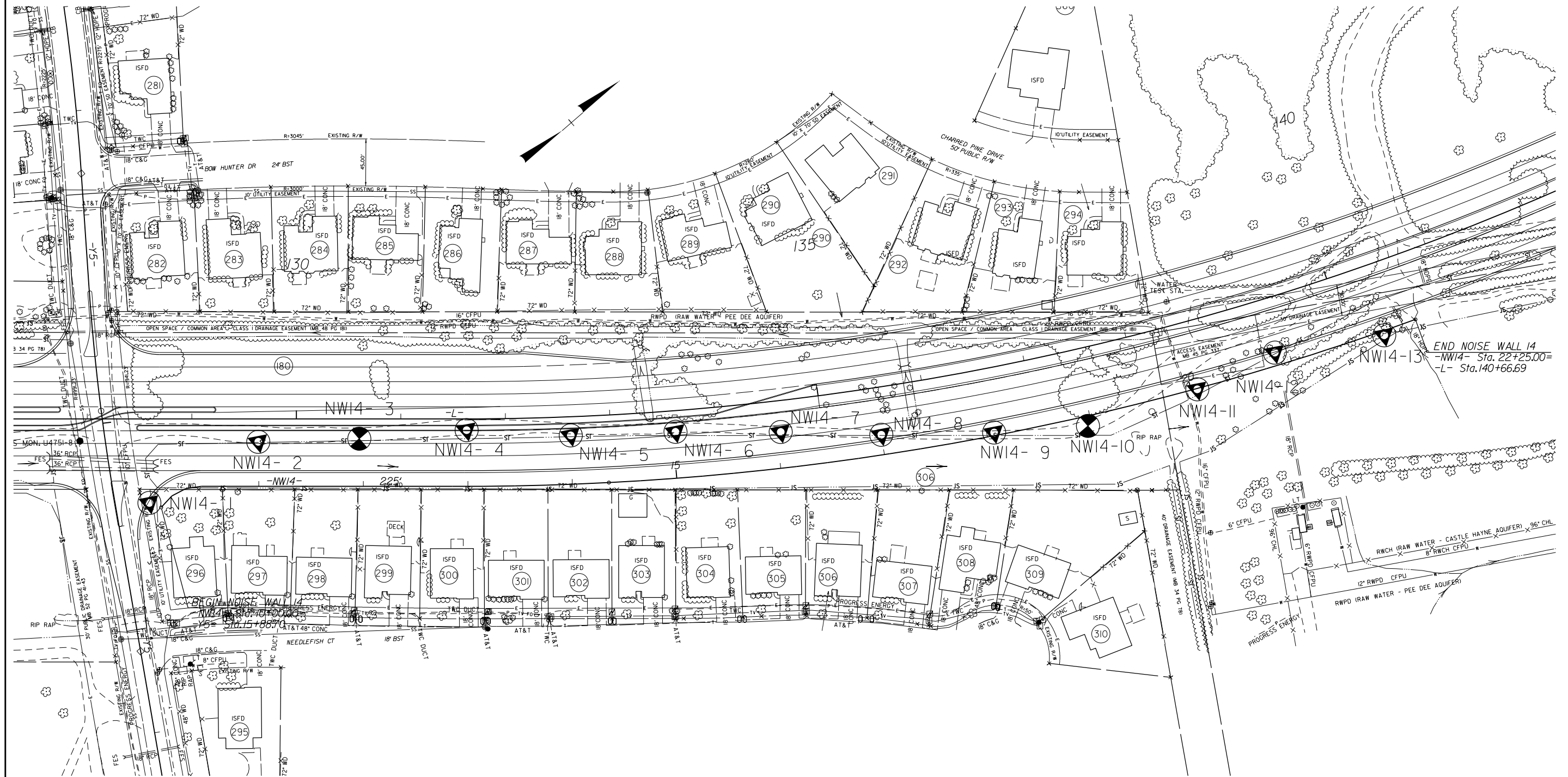
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

Table with 4 main columns: SOIL DESCRIPTION, GRADATION, ROCK DESCRIPTION, and TERMS AND DEFINITIONS. It includes various legends for soil types, gradation, rock types, and symbols, along with detailed definitions and abbreviations.

# SITE PLAN

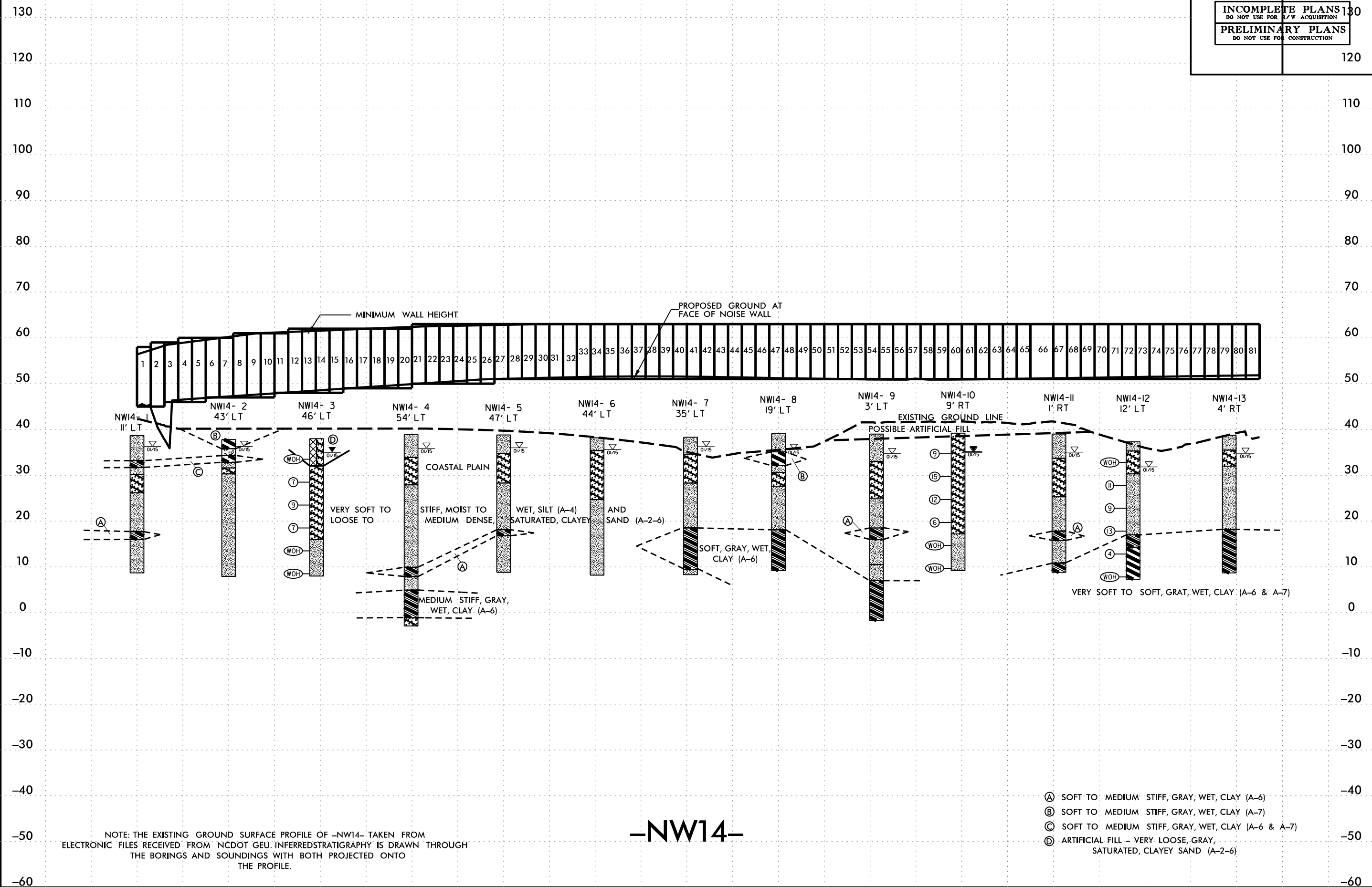
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FEET



5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-4751	4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR ACQUISITION	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



NOTE: THE EXISTING GROUND SURFACE PROFILE OF -NW14- TAKEN FROM ELECTRONIC FILES RECEIVED FROM NCDOT GEU. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS AND SOUNDINGS WITH BOTH PROJECTED ONTO THE PROFILE.

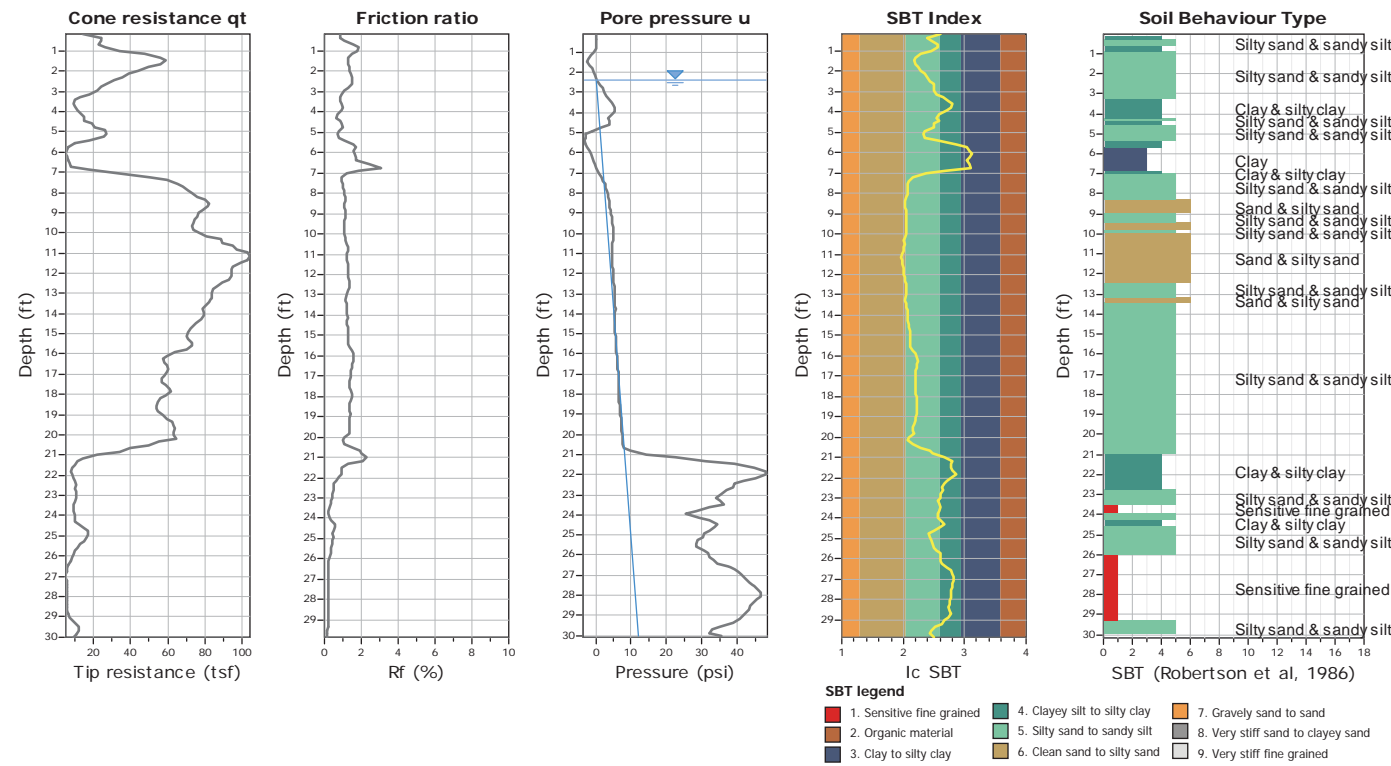
-NW14-

- (A) SOFT TO MEDIUM STIFF, GRAY, WET, CLAY (A-6)
- (B) SOFT TO MEDIUM STIFF, GRAY, WET, CLAY (A-7)
- (C) SOFT TO MEDIUM STIFF, GRAY, WET, CLAY (A-6 & A-7)
- (D) ARTIFICIAL FILL - VERY LOOSE, GRAY, SATURATED, CLAYEY SAND (A-2-6)

***APPENDIX A  
CPT LOGS***

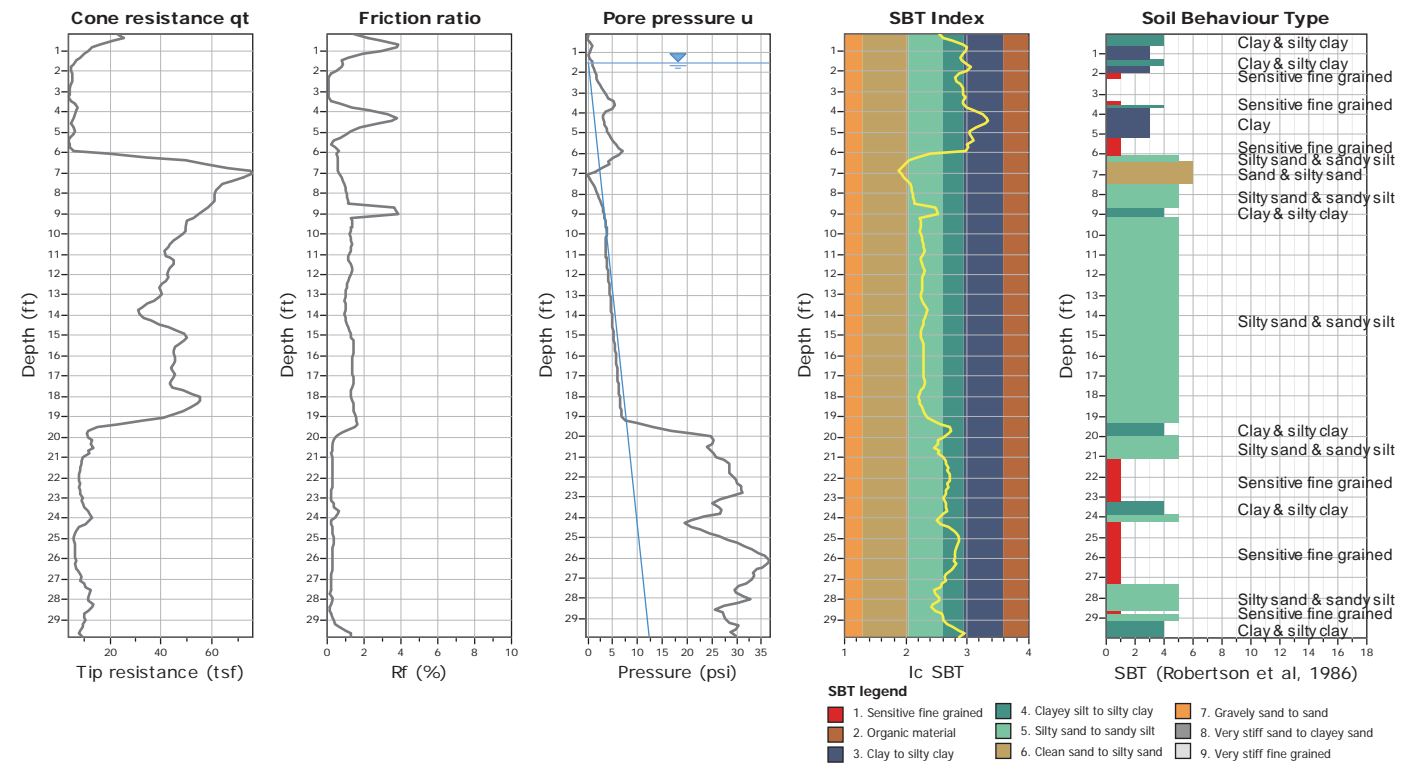
Project: U-4751 NOISE WALL 14  
 Location: NEW HANOVER CO.

CPT: NW14- 1  
 Total depth: 30.02 ft, Date: 1/7/2015  
 Cone Type: Hogentogler 10 Ton  
 Cone Operator: Mid-Atlantic Drilling



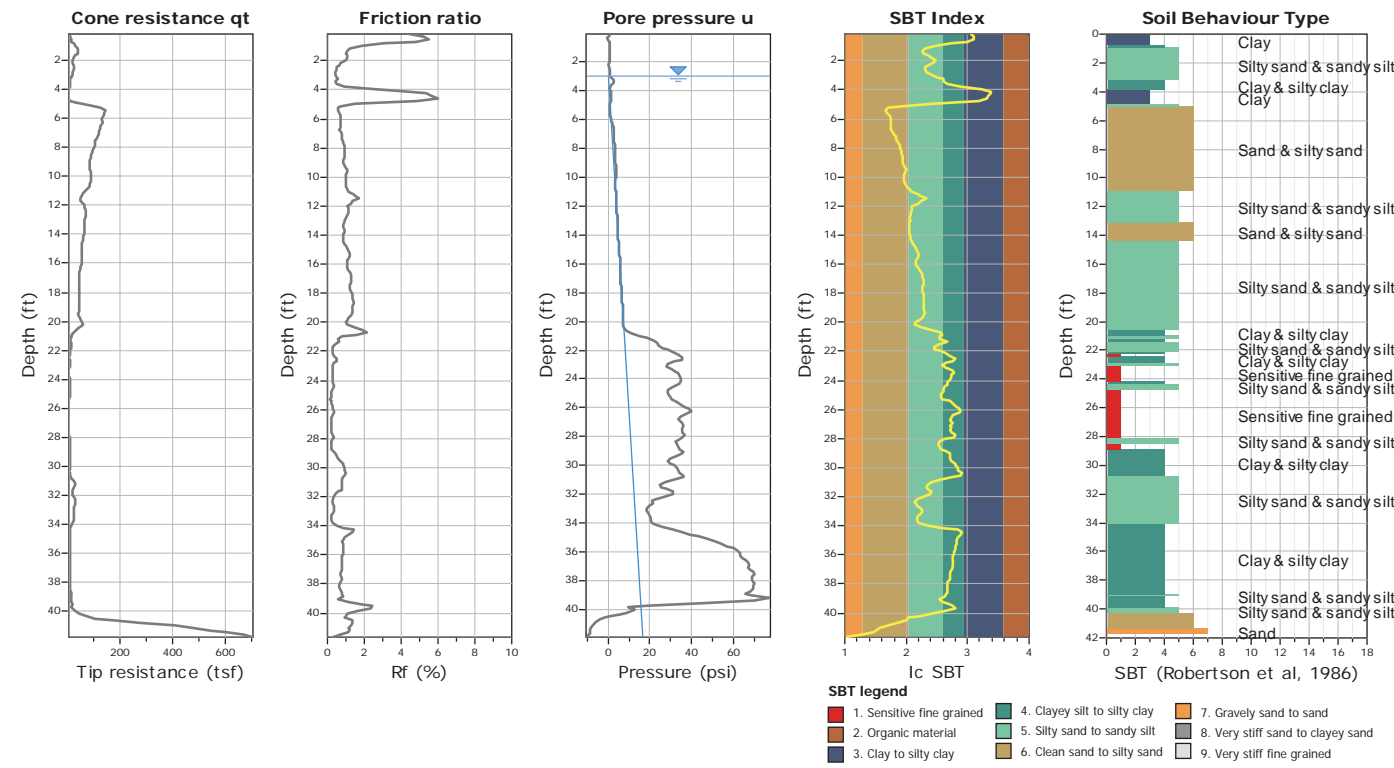
Project: U-4751 NOISE WALL 14  
 Location: NEW HANOVER CO.

CPT: NW14- 2  
 Total depth: 29.86 ft, Date: 1/7/2015  
 Cone Type: Hogentogler 10 Ton  
 Cone Operator: Mid-Atlantic Drilling



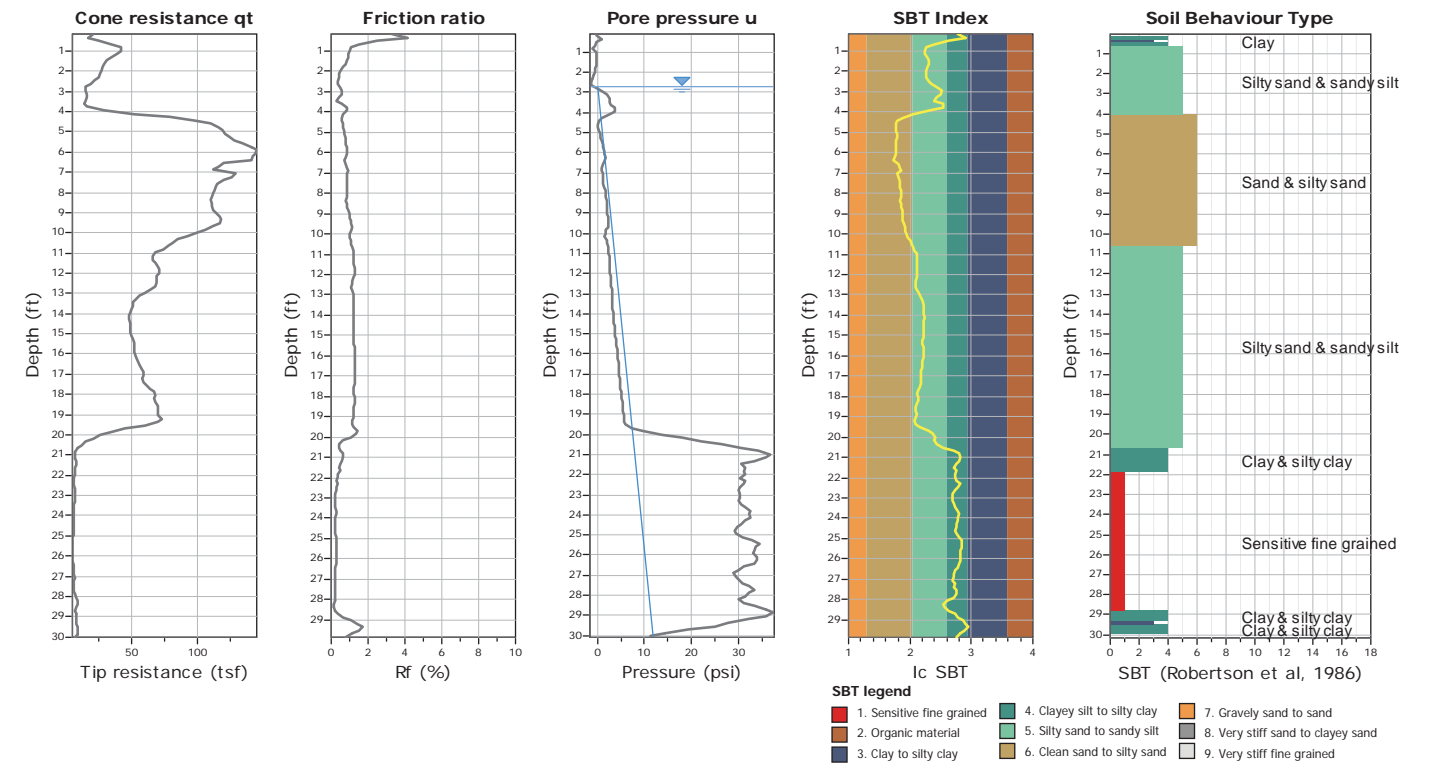
Project: U-4751 NOISE WALL 14  
 Location: NEW HANOVER CO.

CPT: NW14- 4  
 Total depth: 41.83 ft, Date: 1/7/2015  
 Cone Type: Hogentogler 10 Ton  
 Cone Operator: Mid-Atlantic Drilling



Project: U-4751 NOISE WALL 14  
 Location: NEW HANOVER CO.

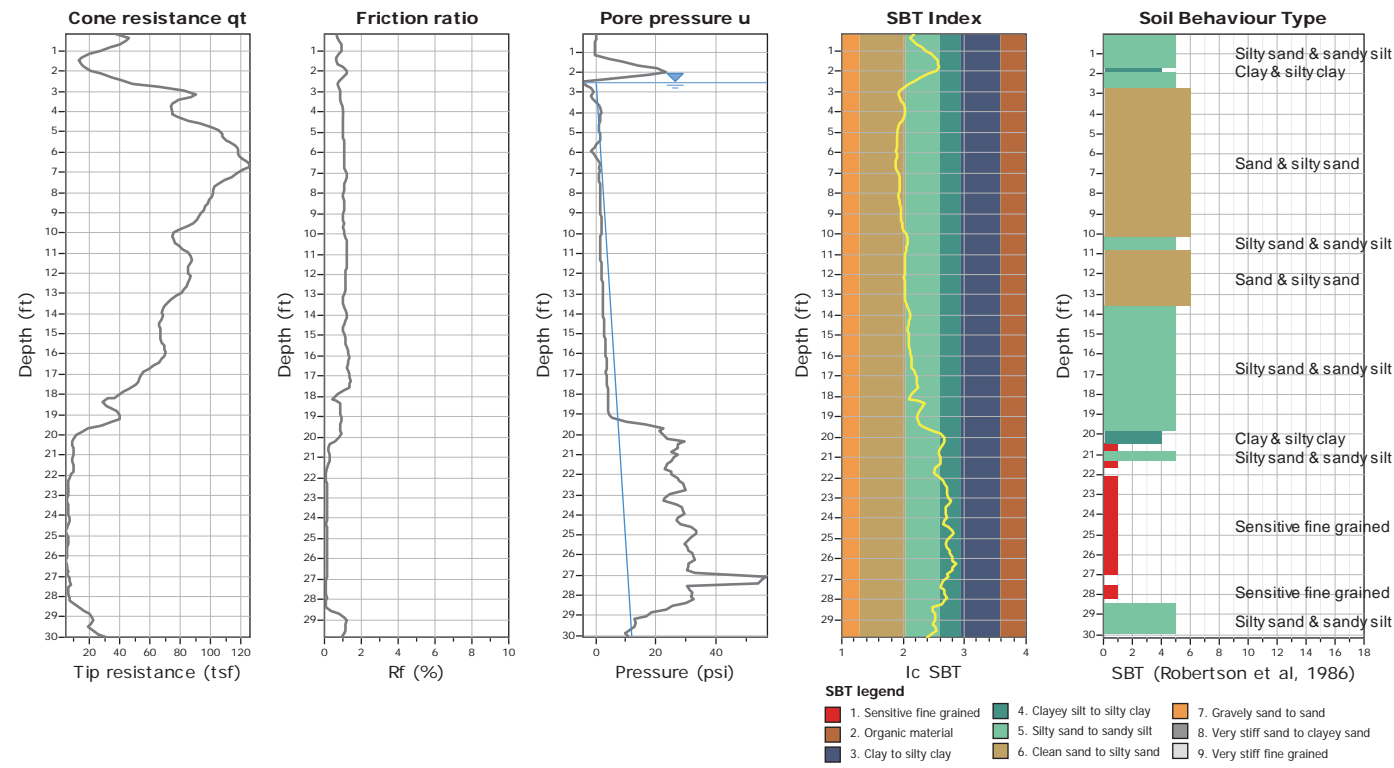
CPT: NW14- 5  
 Total depth: 30.02 ft, Date: 1/7/2015  
 Cone Type: Hogentogler 10 Ton  
 Cone Operator: Mid-Atlantic Drilling





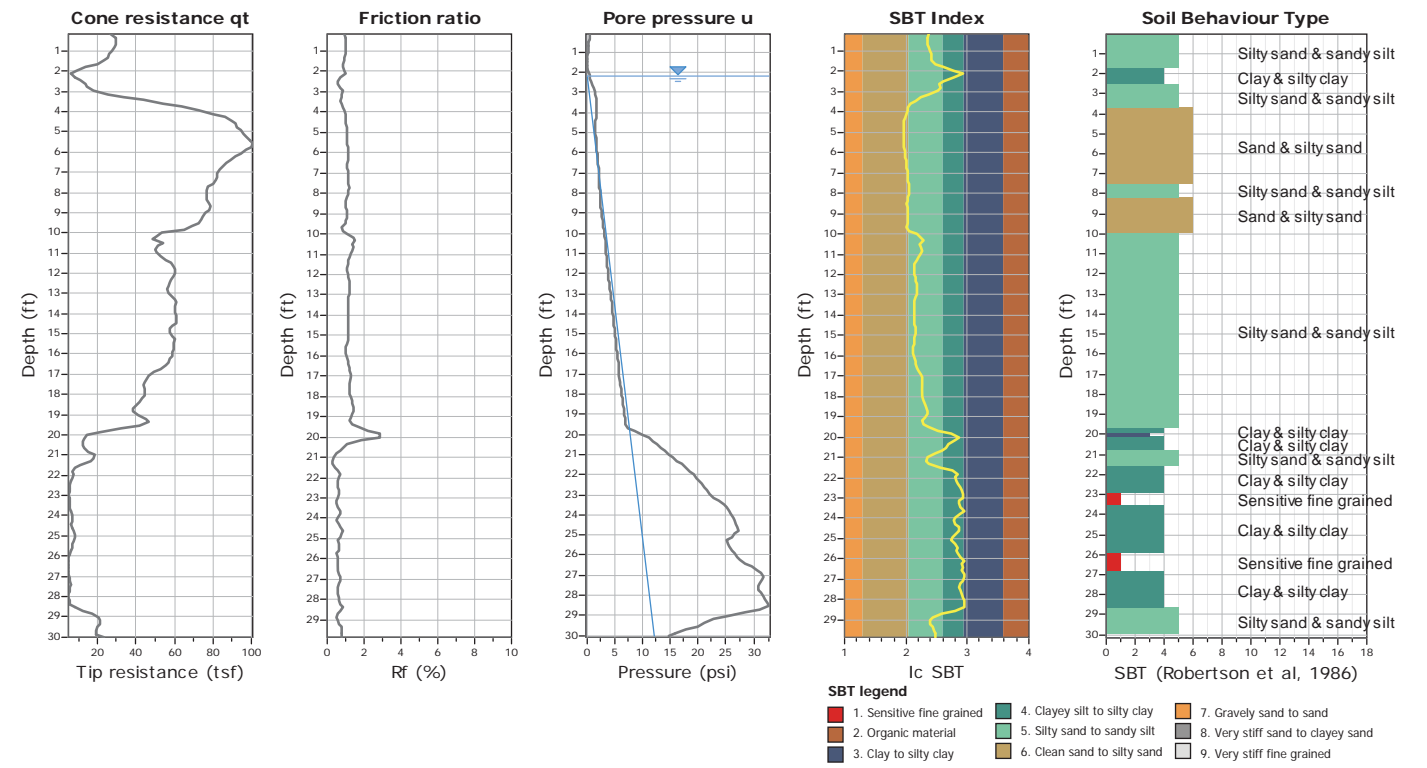
Project: U-4751 NOISE WALL 14  
Location: NEW HANOVER CO.

CPT: NW14- 6  
Total depth: 30.02 ft, Date: 1/7/2015  
Cone Type: Hogentogler 10 Ton  
Cone Operator: Mid-Atlantic Drilling



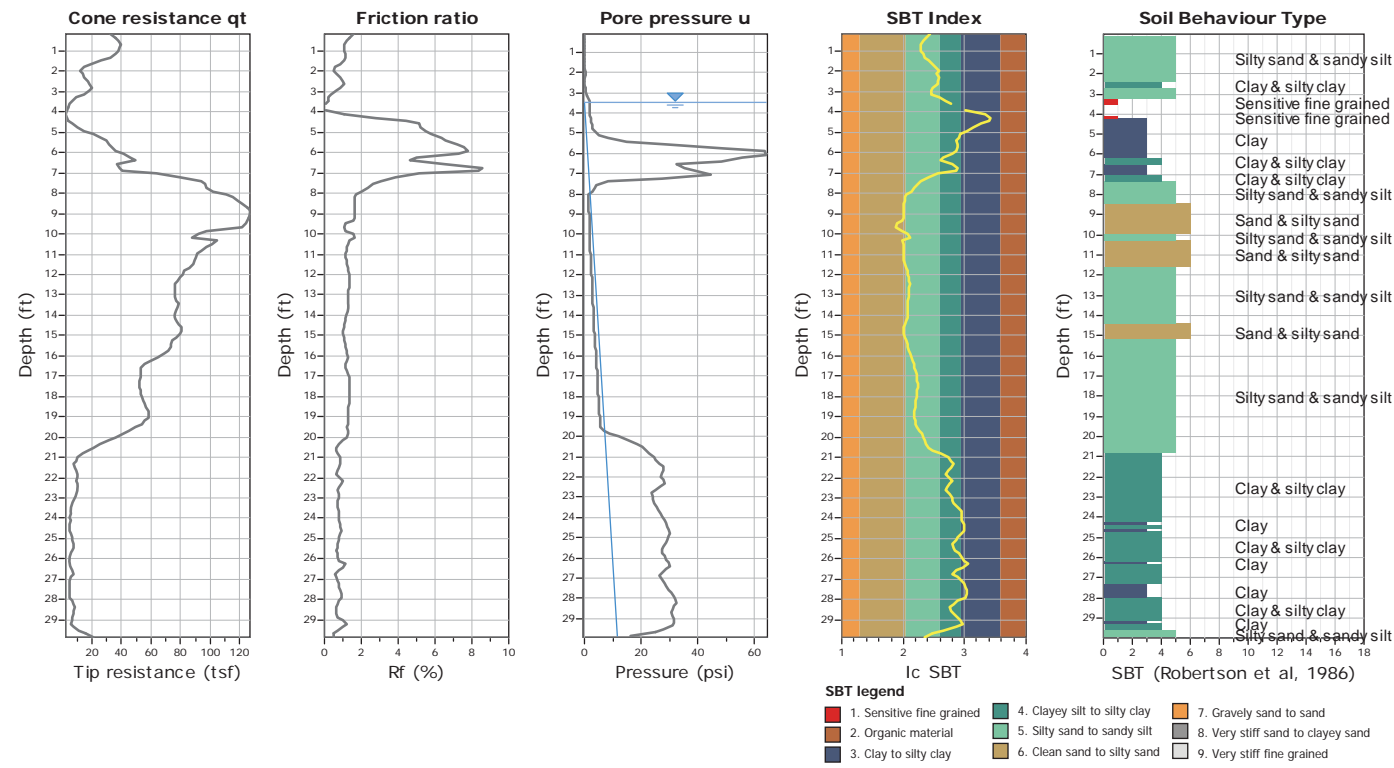
Project: U-4751 NOISE WALL 14  
Location: NEW HANOVER CO.

CPT: NW14- 7  
Total depth: 30.02 ft, Date: 1/7/2015  
Cone Type: Hogentogler 10 Ton  
Cone Operator: Mid-Atlantic Drilling



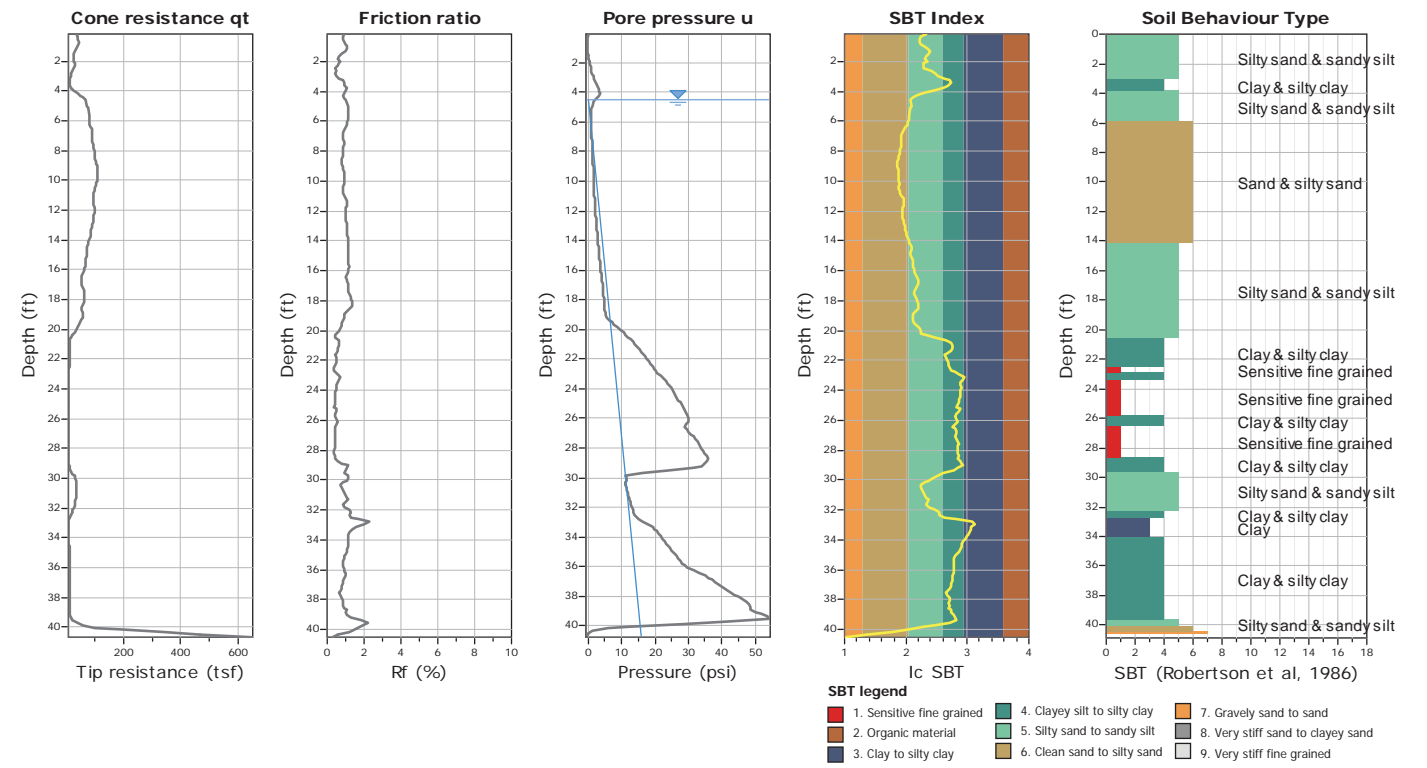
Project: U-4751 NOISE WALL 14  
 Location: NEW HANOVER CO.

CPT: NW14- 8  
 Total depth: 29.86 ft, Date: 1/7/2015  
 Cone Type: Hogentogler 10 Ton  
 Cone Operator: Mid-Atlantic Drilling



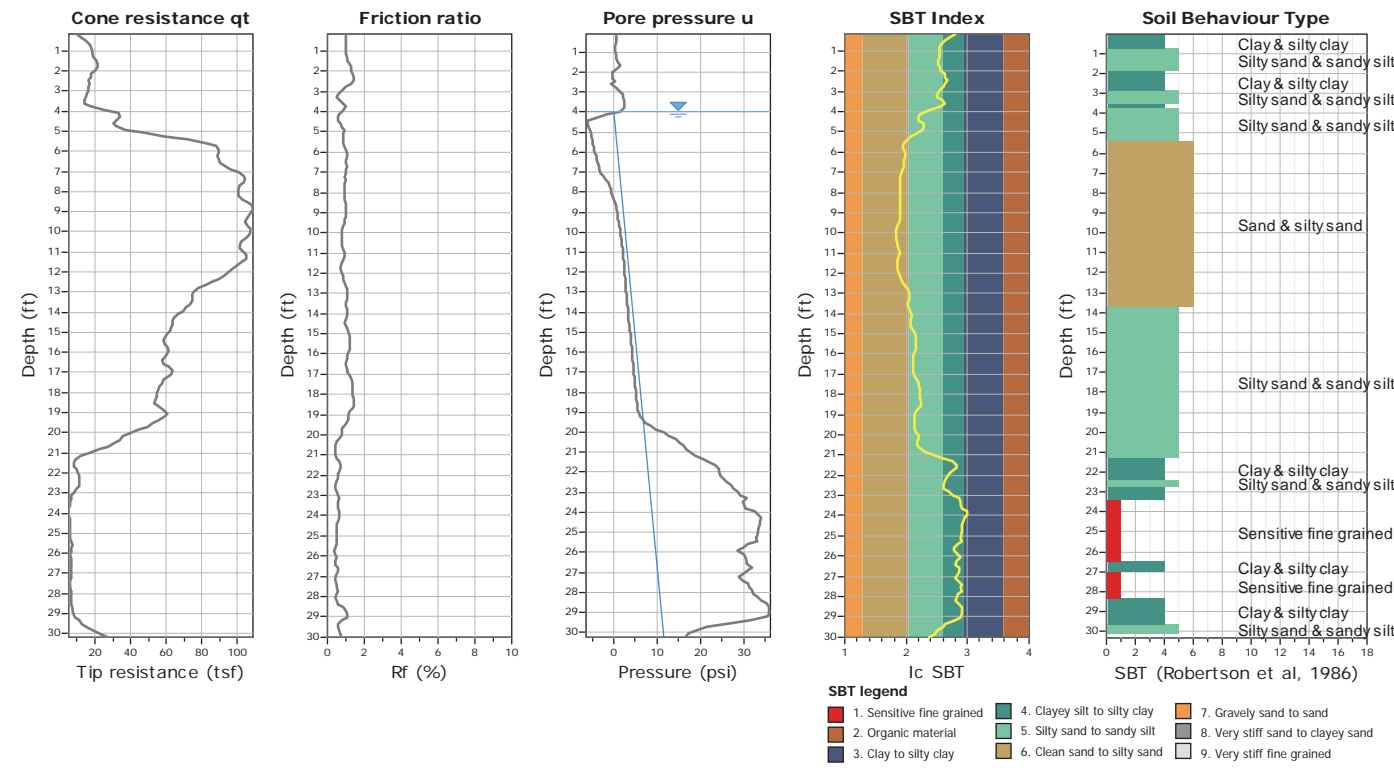
Project: U-4751 NOISE WALL 14  
 Location: NEW HANOVER CO.

CPT: NW14- 9  
 Total depth: 40.68 ft, Date: 1/7/2015  
 Cone Type: Hogentogler 10 Ton  
 Cone Operator: Mid-Atlantic Drilling



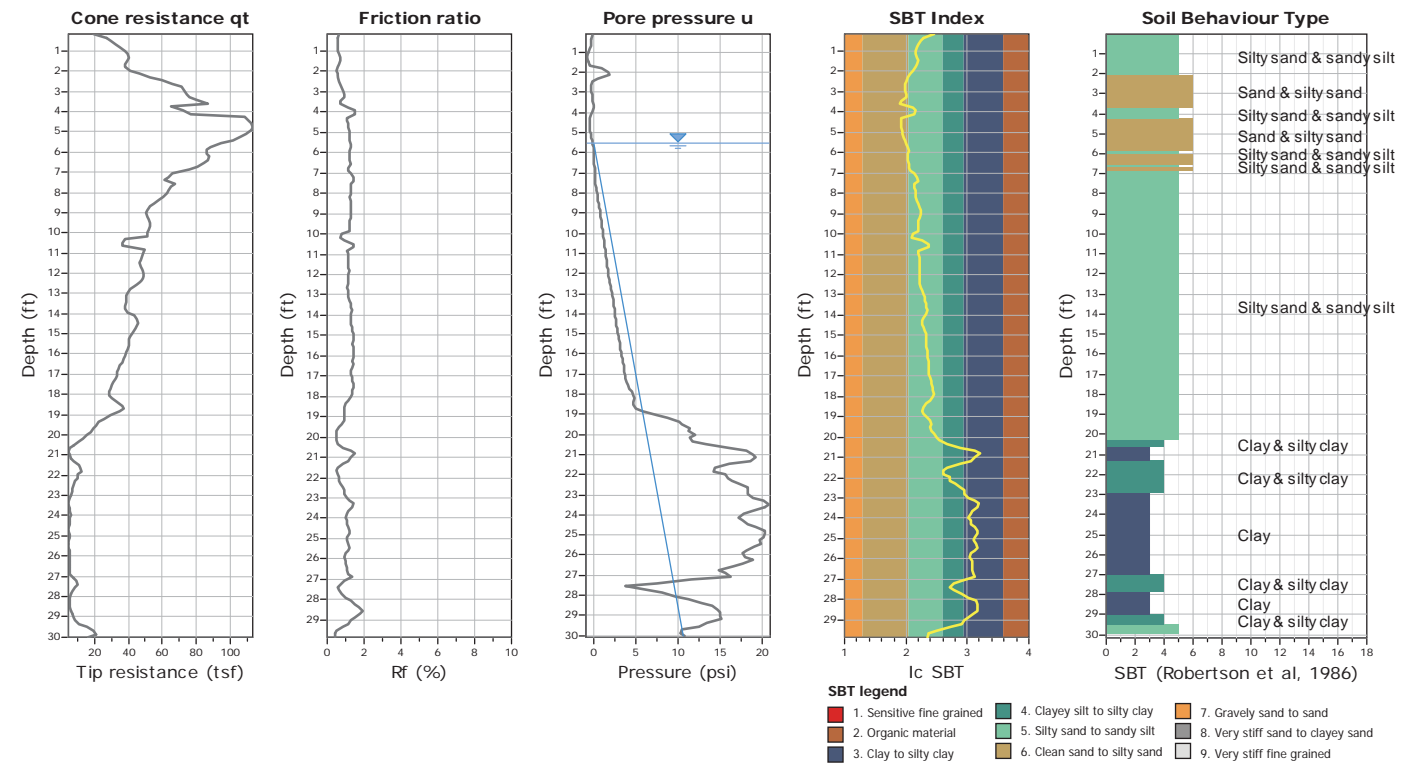
Project: U-4751 NOISE WALL 14  
 Location: NEW HANOVER CO.

CPT: NW14-11  
 Total depth: 30.18 ft, Date: 1/7/2015  
 Cone Type: Hogentogler 10 Ton  
 Cone Operator: Mid-Atlantic Drilling



Project: U-4751 NOISE WALL 14  
 Location: NEW HANOVER CO.

CPT: NW14-12  
 Total depth: 30.02 ft, Date: 1/7/2015  
 Cone Type: Hogentogler 10 Ton  
 Cone Operator: Mid-Atlantic Drilling



Project: U-4751 NOISE WALL 14  
 Location: NEW HANOVER CO.

CPT: NW14-13  
 Total depth: 30.02 ft, Date: 1/7/2015  
 Cone Type: Hogentogler 10 Ton  
 Cone Operator: Mid-Atlantic Drilling

