

REFERENCE: B-5300

PROJECT: 46000

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY BEAUFORT
PROJECT DESCRIPTION REPLACE BRIDGE 55 OVER
PANTEGO CREEK ON US 264

CONTENTS

SHEET NO.	DESCRIPTION
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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5300	1	14

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF PREPARING THE SCOPE OF WORK TO BE INCLUDED IN THE REQUEST FOR PROPOSAL. 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.

SOIL AND ROCK BOUNDARIES WITHIN A BOREHOLE ARE BASED ON GEOTECHNICAL INTERPRETATION UNLESS ENCOUNTERED IN A SAMPLE. INTERPRETED BOUNDARIES MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN SAMPLED STRATA AND BOREHOLE INFORMATION MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS. 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

BR Spiro

GW Stalls

AP Lankford

JR Helms

INVESTIGATED BY GET SOLUTIONS

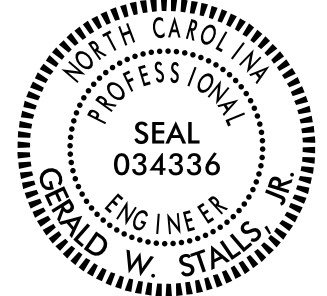
DRAWN BY A.P. Lankford, B.R. Spiro

CHECKED BY _____

SUBMITTED BY G. Stalls

DATE August 20, 2015

NOT CONSIDERED FINAL UNLESS ALL SIGNATURES ARE COMPLETED



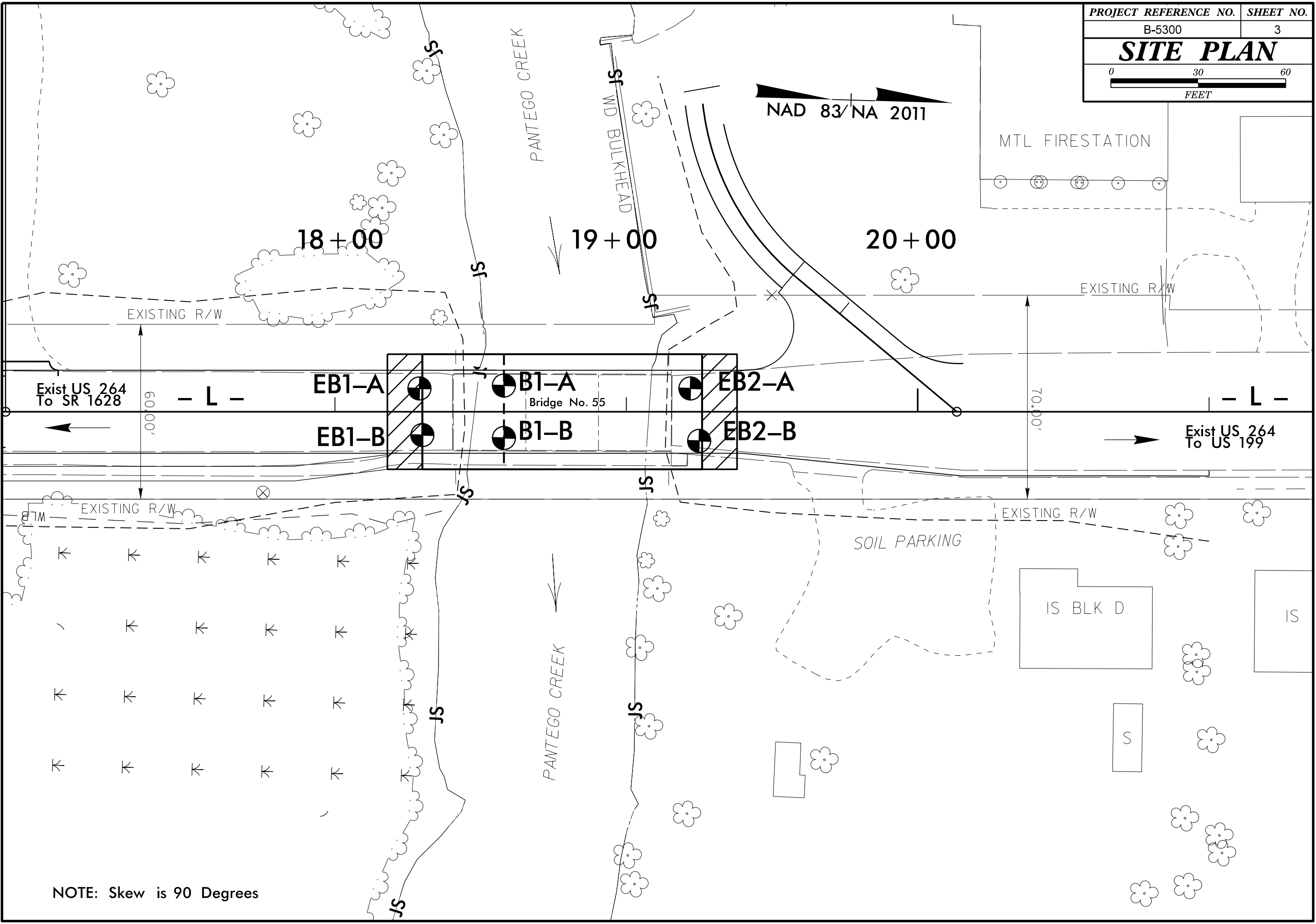
DocuSigned by:
Gerald W. Stalls, Jr. 8/20/15

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SIGNATURE DATE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
 SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

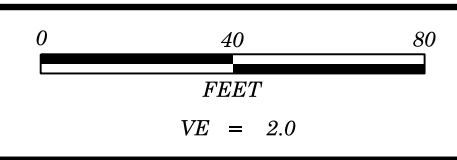
SOIL DESCRIPTION										GRADATION					ROCK DESCRIPTION					TERMS AND DEFINITIONS				
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6										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.					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:					ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (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.				
SOIL LEGEND AND AASHTO CLASSIFICATION										ANGULARITY OF GRAINS THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.					WEATHERED ROCK (WR) CRYSTALLINE ROCK (CR) NON-CRYSTALLINE ROCK (NCR) COASTAL PLAIN SEDIMENTARY ROCK (CP)									
MINERALOGICAL COMPOSITION MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.										COMPRESSION SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50					WEATHERING FRESH - ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT (V SL.) - ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY, ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE. SLIGHT (SL.) - ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED, CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. MODERATE (MOD.) - SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK. MODERATELY SEVERE (MOD. SEV.) - ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. IF TESTED, WOULD YIELD SPT REFUSAL. SEVERE (SEV.) - ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF. VERY SEVERE (V SEV.) - ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF. COMPLETE - ROCK REDUCED TO SOIL, ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. FABRIC MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.									
PERCENTAGE OF MATERIAL ORGANIC MATERIAL GRANULAR SOILS SILT - CLAY SOILS OTHER MATERIAL TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10% LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35% HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE										GROUND WATER WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING STATIC WATER LEVEL AFTER 24 HOURS PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA SPRING OR SEEP														
CONSISTENCY OR DENSENESS										MISCELLANEOUS SYMBOLS 														
TEXTURE OR GRAIN SIZE										RECOMMENDATION SYMBOLS 														
SOIL MOISTURE - CORRELATION OF TERMS										ABBREVIATIONS AR - AUGER REFUSAL BT - BORING TERMINATED CL. - CLAY CPT - CONE PENETRATION TEST CSE. - COARSE DMT - DILATOMETER TEST DPT - DYNAMIC PENETRATION TEST e - VOID RATIO F - FINE FOSS. - FOSSILIFEROUS FRAC. - FRACTURED, FRACTURES FRAGS. - FRAGMENTS HI. - HIGHLY MED. - MEDIUM MICA. - MICACEOUS MOD. - MODERATELY NP - NON PLASTIC ORG. - ORGANIC PMT - PRESSUREMETER TEST SAP. - SAPROLITIC SD. - SAND, SANDY SL. - SILT, SILTY SLI. - SLIGHTLY TCR - TRICONE REFUSAL w - MOISTURE CONTENT V - VERY VST - VANE SHEAR TEST WEA. - WEATHERED 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														
PLASTICITY										EQUIPMENT USED ON SUBJECT PROJECT DRILL UNITS: <input type="checkbox"/> CME-45C <input checked="" type="checkbox"/> CME-55 <input type="checkbox"/> CME-550 <input type="checkbox"/> VANE SHEAR TEST <input type="checkbox"/> PORTABLE HOIST ADVANCING TOOLS: <input type="checkbox"/> CLAY BITS <input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER <input type="checkbox"/> 8" HOLLOW AUGERS <input type="checkbox"/> HARD FACED FINGER BITS <input type="checkbox"/> TUNG-CARBIDE INSERTS <input checked="" type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER <input checked="" type="checkbox"/> TRICONE 2.875" STEEL TEETH <input type="checkbox"/> TRICONE " TUNG-CARB. <input type="checkbox"/> CORE BIT HAMMER TYPE: <input checked="" type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL CORE SIZE: <input type="checkbox"/> -B <input type="checkbox"/> -H <input type="checkbox"/> -N HAND TOOLS: <input type="checkbox"/> POST HOLE DIGGER <input type="checkbox"/> HAND AUGER <input type="checkbox"/> SOUNDING ROD <input type="checkbox"/> VANE SHEAR TEST														
FRACATURE SPACING TERM SPACING VERY WIDE MORE THAN 10 FEET WIDE 3 TO 10 FEET MODERATELY CLOSE 1 TO 3 FEET CLOSE 0.16 TO 1 FOOT VERY CLOSE LESS THAN 0.16 FEET										BEDDING TERM THICKNESS VERY THICKLY BEDDED 4 FEET THICKLY BEDDED 1.5 - 4 FEET THINLY BEDDED 0.16 - 1.5 FEET VERY THINLY BEDDED 0.03 - 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET THINLY LAMINATED < 0.008 FEET														
INDURATION FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. FRIABLE - RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED - GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED - GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. EXTREMELY INDURATED - SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.																				BENCH MARK: BM-1 NAIL SET IN BASE OF POWER POLE; - L - STATION 19+61.50 189.11 LT ELEVATION: 3.91 FEET				
COLOR 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.																				NOTES:				

NAD 83/NA 2011

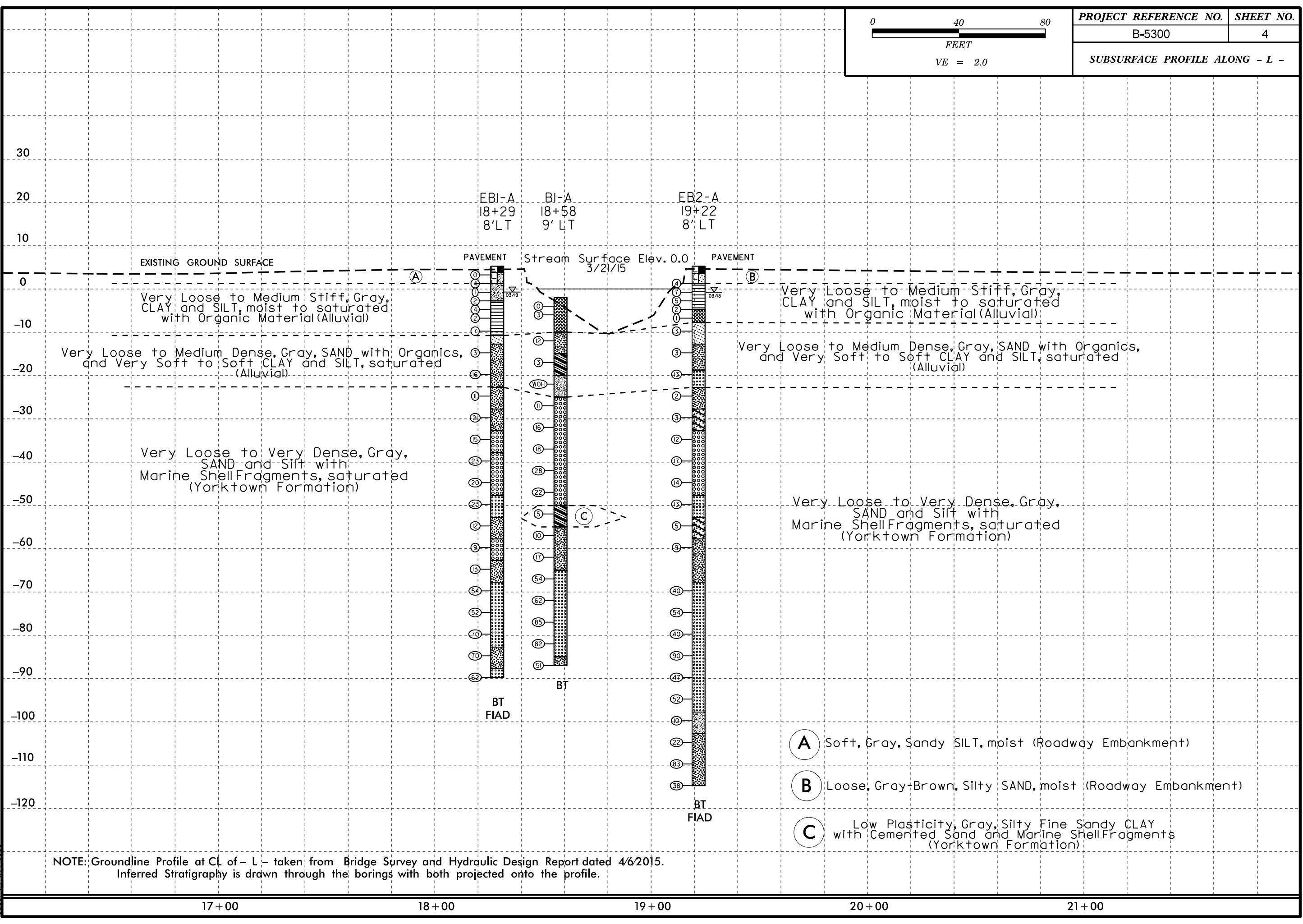


NOTE: Skew is 90 Degrees

5/14/99



PROJECT REFERENCE NO.	SHEET NO.
B-5300	4
SUBSURFACE PROFILE ALONG - L -	



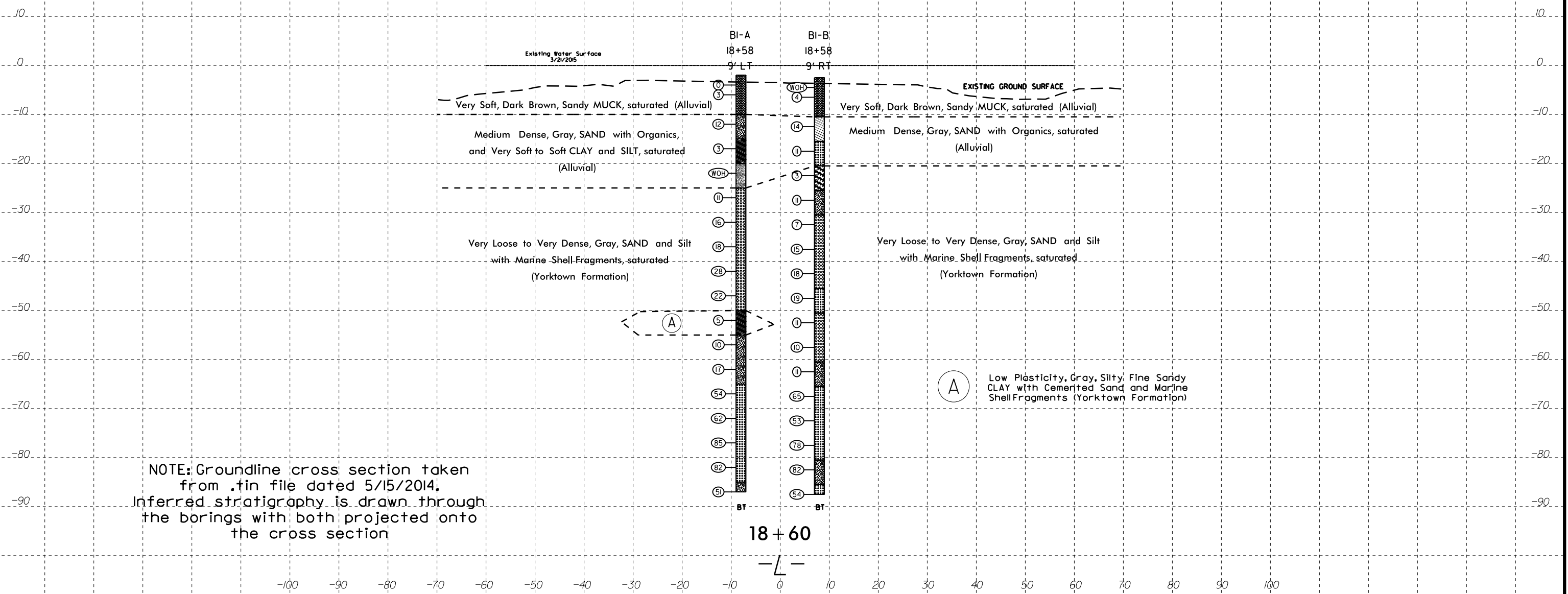
NOTE: Groundline Profile at CL of - L - taken from Bridge Survey and Hydraulic Design Report dated 4/6/2015.
Inferred Stratigraphy is drawn through the borings with both projected onto the profile.

- (A)** Soft, Gray, Sandy SILT, moist (Roadway Embankment)
- (B)** Loose, Gray-Brown, Silty SAND, moist (Roadway Embankment)
- (C)** Low Plasticity, Gray, Silty Fine Sandy CLAY with Cemented Sand and Marine Shell Fragments (Yorktown Formation)

03-SEP-2015 11:34 C:\Users\jbs01\OneDrive\Documents\B5300 BR55 on 264 over Pantego Creek\Working Folder\CADD\GEO\TECH\G\te&sub\B5300_GEO_Prof1.e_004.dgn

17+00 18+00 19+00 20+00 21+00

CROSS SECTION THROUGH BENT 1



NOTE: Groundline cross section taken from .tin file dated 5/15/2014. Inferred stratigraphy is drawn through the borings with both projected onto the cross section

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 46000.1.1		TIP B-5300		COUNTY BEAUFORT		GEOLOGIST Lankford, P.									
SITE DESCRIPTION Bridge No. 55 on US 264 over Pantego Creek							GROUND WTR (ft)								
BORING NO. EB1-A		STATION 18+29		OFFSET 8 ft LT		ALIGNMENT L									
COLLAR ELEV. 5.3 ft		TOTAL DEPTH 95.0 ft		NORTHING 676,915		EASTING 2,694,838									
DRILL RIG/HAMMER EFF./DATE GET7255 CME-55 85% 03/20/2015			DRILL METHOD Mud Rotary			HAMMER TYPE Automatic									
DRILLER Contract Driller		START DATE 03/19/15		COMP. DATE 03/19/15		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					
10															
5	3.8	1.5													
0	3.3	2.0	1	0	0										
	1.3	4.0	2	2	2										
	-0.7	6.0	1	0	1										
	-2.7	8.0	4	3	1										
-5	-4.7	10.0	1	1	1										
	-7.7	13.0	2	3	4										
-10	-12.7	18.0	2	2	1										
-15	-17.7	23.0	6	8	8										
-20	-22.7	28.0	6	5	6										
-25	-27.7	33.0	8	10	11										
-30	-32.7	38.0	5	5	10										
-35	-37.7	43.0	8	11	12										
-40	-42.7	48.0	12	10	10										
-45	-47.7	53.0	10	9	14										
-50	-52.7	58.0	5	4	8										
-55	-57.7	63.0	6	4	5										
-60	-62.7	68.0	5	5	8										
-65	-67.7	73.0	22	24	30										
-70															

NCDOT BORE DOUBLE B5300_GEO_BH_BRDG0055.GPJ NC_DOT.GDT 9/2/15

WBS 46000.1.1		TIP B-5300		COUNTY BEAUFORT		GEOLOGIST Lankford, P.									
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DRILLER Contract Driller		START DATE 03/19/15		COMP. DATE 03/19/15		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					
-70															
	-72.7	78.0	26	25	27										
	-77.7	83.0	26	33	37										
-80	-82.7	88.0	33	40	30										
-85	-87.7	93.0	30	26	36										

Match Line

COASTAL PLAIN
Non-Plastic, Gray, Fine SAND with Trace Silt and Marine Shell Fragments, "Yorktown Formation" (continued)

COASTAL PLAIN
Non-Plastic, Gray, Silty, Fine SAND with Trace Marine Shell Fragments, "Yorktown Formation"

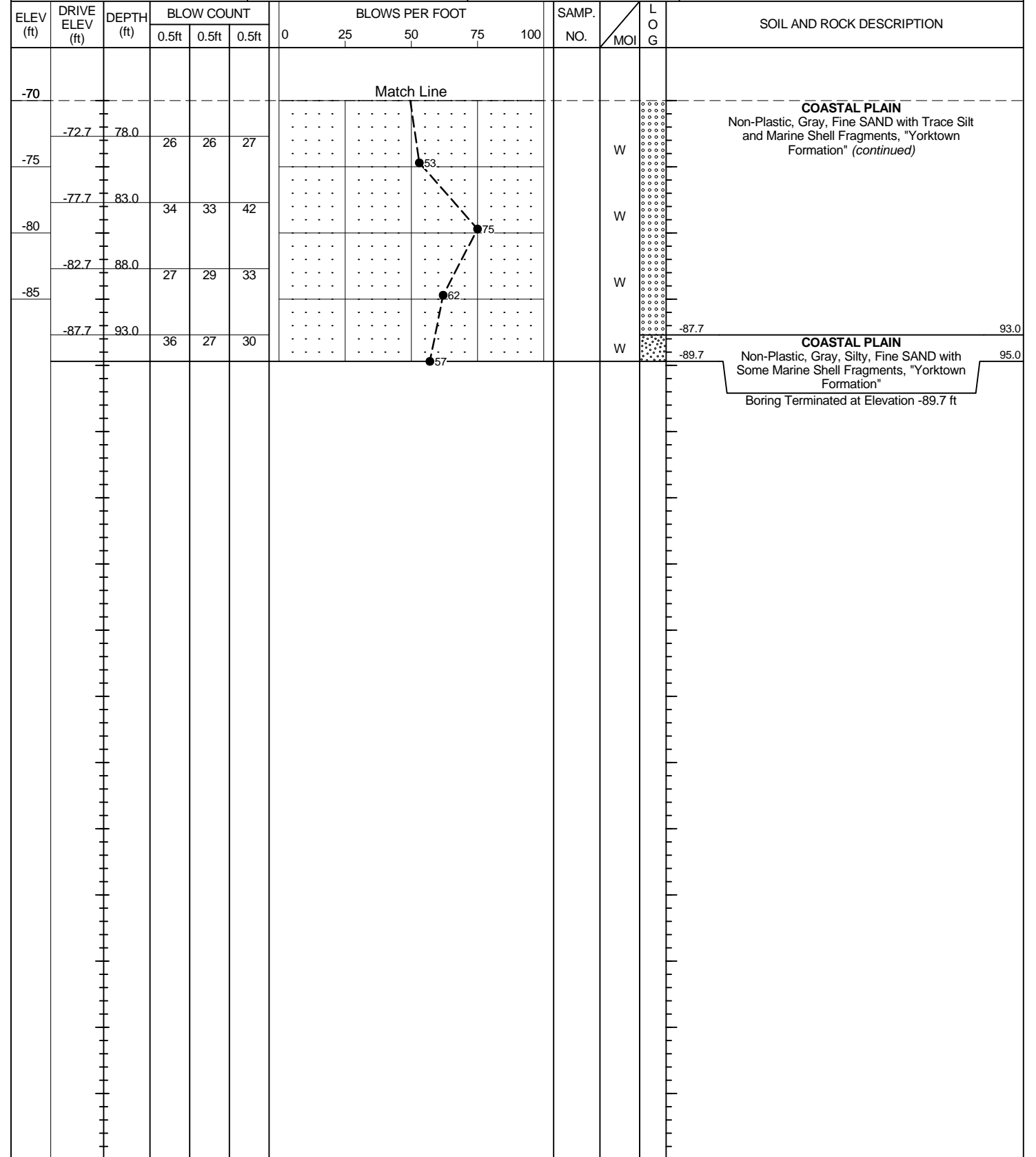
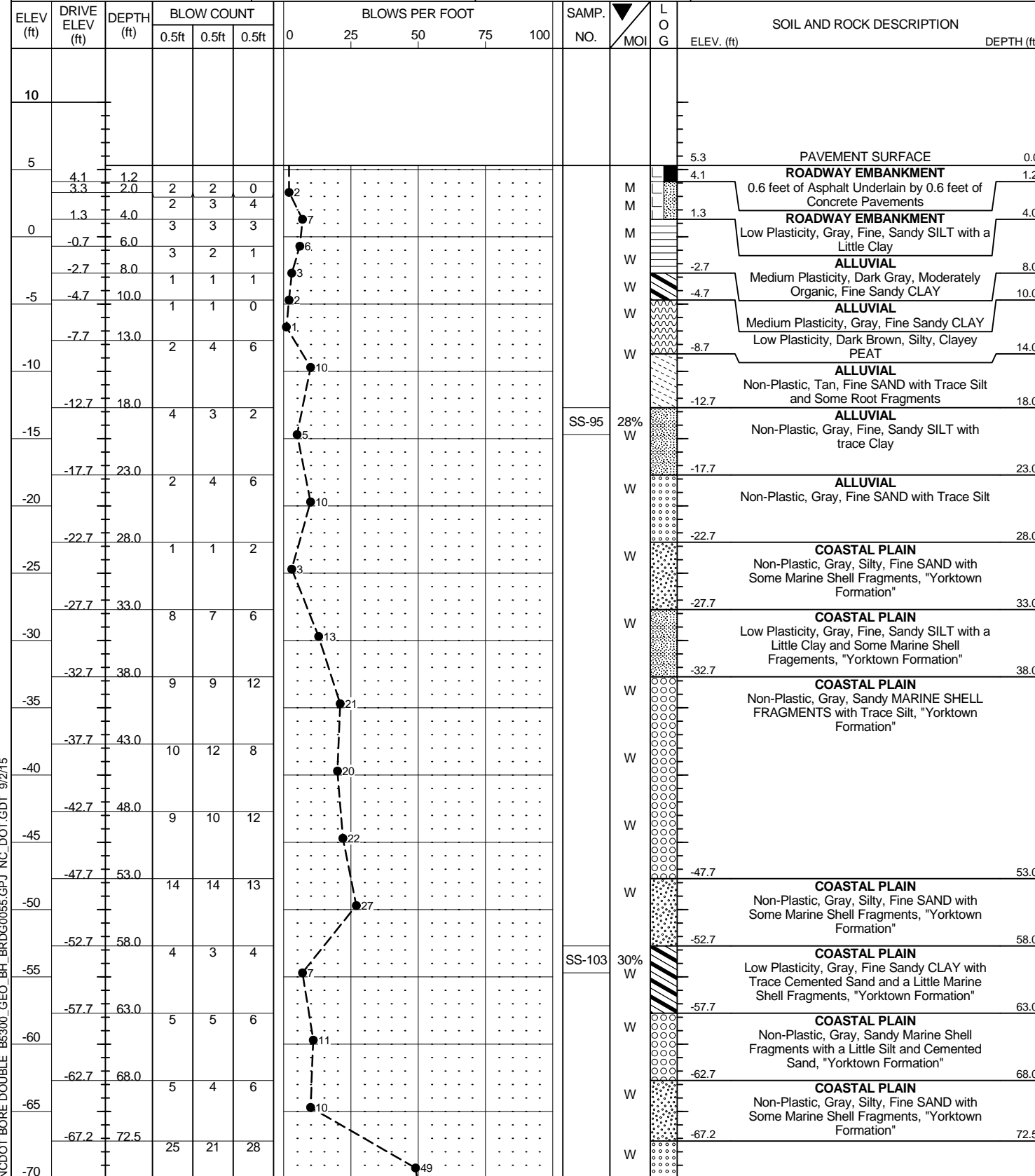
COASTAL PLAIN
Non-Plastic, Gray, Fine SAND with Trace Silt and Marine Shell Fragments, "Yorktown Formation"
Boring Terminated at Elevation -89.7 ft

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 46000.1.1			TIP B-5300			COUNTY BEAUFORT			GEOLOGIST Lankford, P.				
SITE DESCRIPTION Bridge No. 55 on US 264 over Pantego Creek								GROUND WTR (ft)					
BORING NO. EB1-B			STATION 18+30			OFFSET 8 ft RT			ALIGNMENT L			0 HR. 6.0	
COLLAR ELEV. 5.3 ft			TOTAL DEPTH 95.0 ft			NORTHING 676,916			EASTING 2,694,856			24 HR. N/A	
DRILL RIG/HAMMER EFF./DATE GET7255 CME-55 85% 03/20/2015						DRILL METHOD Mud Rotary			HAMMER TYPE Automatic				
DRILLER Contract Driller			START DATE 03/19/15			COMP. DATE 03/19/15			SURFACE WATER DEPTH N/A				

WBS 46000.1.1			TIP B-5300			COUNTY BEAUFORT			GEOLOGIST Lankford, P.				
SITE DESCRIPTION Bridge No. 55 on US 264 over Pantego Creek								GROUND WTR (ft)					
BORING NO. EB1-B			STATION 18+30			OFFSET 8 ft RT			ALIGNMENT L			0 HR. 6.0	
COLLAR ELEV. 5.3 ft			TOTAL DEPTH 95.0 ft			NORTHING 676,916			EASTING 2,694,856			24 HR. N/A	
DRILL RIG/HAMMER EFF./DATE GET7255 CME-55 85% 03/20/2015						DRILL METHOD Mud Rotary			HAMMER TYPE Automatic				
DRILLER Contract Driller			START DATE 03/19/15			COMP. DATE 03/19/15			SURFACE WATER DEPTH N/A				



NCDOT BORE DOUBLE B5300_GEO_BH_BRDG0055.GPJ, NC_DOT.GDT 9/2/15

GEOTECHNICAL BORING REPORT

BORE LOG

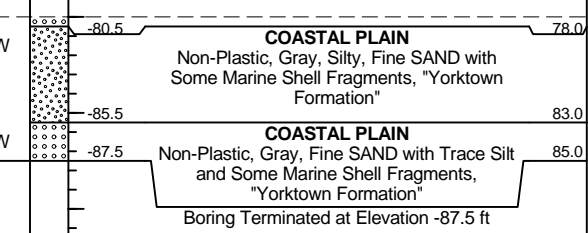
WBS 46000.1.1		TIP B-5300		COUNTY BEAUFORT		GEOLOGIST Lankford, P.	
SITE DESCRIPTION Bridge No. 55 on US 264 over Pantego Creek							GROUND WTR (ft)
BORING NO. B1-B		STATION 18+58		OFFSET 9 ft RT		ALIGNMENT L	
COLLAR ELEV. -2.5 ft		TOTAL DEPTH 85.0 ft		NORTHING 676,944		EASTING 2,694,855	
DRILL RIG/HAMMER EFF./DATE GET7255 CME-55 85% 03/20/2015			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic		
DRILLER Contract Driller		START DATE 03/20/15		COMP. DATE 03/20/15		SURFACE WATER DEPTH 2.5ft	

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					
0															
	-2.5	0.0													
	-4.5	2.0	WOH	WOH	WOH										
-5															
	-10.5	8.0													
-10															
	-15.5	13.0													
-15															
	-20.5	18.0													
-20															
	-25.5	23.0													
-25															
	-30.5	28.0													
-30															
	-35.5	33.0													
-35															
	-40.5	38.0													
-40															
	-45.5	43.0													
-45															
	-50.5	48.0													
-50															
	-55.5	53.0													
-55															
	-60.5	58.0													
-60															
	-65.5	63.0													
-65															
	-70.5	68.0													
-70															
	-75.5	73.0													
-75															
	-80														

NCDOT BORE DOUBLE B5300_GEO_BH_BRD0055.GPJ NC_DOT_GDT 9/2/15

WBS 46000.1.1		TIP B-5300		COUNTY BEAUFORT		GEOLOGIST Lankford, P.	
SITE DESCRIPTION Bridge No. 55 on US 264 over Pantego Creek							GROUND WTR (ft)
BORING NO. B1-B		STATION 18+58		OFFSET 9 ft RT		ALIGNMENT L	
COLLAR ELEV. -2.5 ft		TOTAL DEPTH 85.0 ft		NORTHING 676,944		EASTING 2,694,855	
DRILL RIG/HAMMER EFF./DATE GET7255 CME-55 85% 03/20/2015			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic		
DRILLER Contract Driller		START DATE 03/20/15		COMP. DATE 03/20/15		SURFACE WATER DEPTH 2.5ft	

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					
-80	-80.5	78.0													
	-85.5	83.0													
-85															



GEOTECHNICAL BORING REPORT

BORE LOG

WBS 46000.1.1		TIP B-5300		COUNTY BEAUFORT		GEOLOGIST Lankford, P.									
SITE DESCRIPTION Bridge No. 55 on US 264 over Pantego Creek							GROUND WTR (ft)								
BORING NO. EB2-A		STATION 19+22		OFFSET 8 ft LT		ALIGNMENT L									
COLLAR ELEV. 5.3 ft		TOTAL DEPTH 120.0 ft		NORTHING 677,011		EASTING 2,694,836									
DRILL RIG/HAMMER EFF./DATE GET7255 CME-55 85% 03/20/2015			DRILL METHOD Mud Rotary			HAMMER TYPE Automatic									
DRILLER Contract Driller		START DATE 03/18/15		COMP. DATE 03/18/15		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					
10															
5	3.3	2.0	3	2	2										
0	1.3	4.0	3	2	5										
	-0.7	6.0	3	3	2										
	-2.7	8.0	3	1	1										
-5	-4.7	10.0	1	1	0										
	-7.7	13.0	1	1	2										
-10	-12.7	18.0	2	1	2										
	-17.7	23.0	4	7	6										
-20	-22.7	28.0	3	1	1										
	-27.7	33.0	1	2	1										
-30	-32.7	38.0	5	5	7										
	-37.7	43.0	5	8	9										
-40	-42.7	48.0	9	7	7										
	-47.7	53.0	12	6	7										
-50	-52.7	58.0	3	2	3										
	-57.7	63.0	5	5	4										
-60	-67.7	73.0	20	19	21										
-70															

WBS 46000.1.1		TIP B-5300		COUNTY BEAUFORT		GEOLOGIST Lankford, P.									
SITE DESCRIPTION Bridge No. 55 on US 264 over Pantego Creek							GROUND WTR (ft)								
BORING NO. EB2-A		STATION 19+22		OFFSET 8 ft LT		ALIGNMENT L									
COLLAR ELEV. 5.3 ft		TOTAL DEPTH 120.0 ft		NORTHING 677,011		EASTING 2,694,836									
DRILL RIG/HAMMER EFF./DATE GET7255 CME-55 85% 03/20/2015			DRILL METHOD Mud Rotary			HAMMER TYPE Automatic									
DRILLER Contract Driller		START DATE 03/18/15		COMP. DATE 03/18/15		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					
-70															
	-72.7	78.0	11	21	33										
	-77.7	83.0	14	16	24										
	-82.7	88.0	17	40	50										
	-87.7	93.0	19	21	26										
	-92.7	98.0	15	22	30										
	-97.7	103.0	8	6	4										
-100	-102.7	108.0	12	10	12										
	-107.7	113.0	16	33	50										
-110	-112.7	118.0	21	15	23										

NCDOT BORE DOUBLE B5300_GEO_BH_BRDG0055.GPJ NC_DOT.GDT 9/2/15

COASTAL PLAIN
Non-Plastic, Gray, Fine SAND with Trace Silt, "Yorktown Formation"
Some Marine Shell Fragments from 73 to 78 feet (continued)

Some Marine Shell Fragments from 93 to 103 feet

COASTAL PLAIN
Low Plasticity, Gray, Fine, Silty SAND with a Little Clay and Some Marine Shell Fragments, "Yorktown Formation"

COASTAL PLAIN
Low Plasticity, Gray, Silty, Clayey, Fine SAND with Some Marine Shell Fragments, "Yorktown Formation"

Boring Terminated at Elevation -114.7 ft

Match Line

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 46000.1.1		TIP B-5300		COUNTY BEAUFORT		GEOLOGIST Lankford, P.										
SITE DESCRIPTION Bridge No. 55 on US 264 over Pantego Creek							GROUND WTR (ft)									
BORING NO. EB2-B		STATION 19+25		OFFSET 10 ft RT		ALIGNMENT L										
COLLAR ELEV. 5.3 ft		TOTAL DEPTH 95.0 ft		NORTHING 677,012		EASTING 2,694,854										
DRILL RIG/HAMMER EFF./DATE GET7255 CME-55 85% 03/20/2015			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER Contract Driller		START DATE 03/20/15		COMP. DATE 03/20/15		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						
10																
5	4.7	0.6	5	3	3											
0	3.3	2.0	3	2	3											
	1.3	4.0	3	2	4											
	-0.7	6.0	2	1	3											
	-2.7	8.0	3	1	2											
-5	-4.7	10.0	1	1	2											
	-7.7	13.0	1	2	1											
-10	-12.7	18.0	1	2	2											
-15	-16.4	21.7	6	8	10											
-20	-22.7	28.0	2	3	6											
-25	-27.7	33.0	6	4	5											
-30	-32.7	38.0	10	10	12											
-35	-37.7	43.0	7	9	7											
-40	-42.7	48.0	8	9	8											
-45	-47.7	53.0	9	9	10											
-50	-52.7	58.0	8	6	6											
-55	-57.7	63.0	5	5	6											
-60	-62.2	67.5	8	6	5											
-65	-67.7	73.0	21	27	34											
-70																

WBS 46000.1.1		TIP B-5300		COUNTY BEAUFORT		GEOLOGIST Lankford, P.										
SITE DESCRIPTION Bridge No. 55 on US 264 over Pantego Creek							GROUND WTR (ft)									
BORING NO. EB2-B		STATION 19+25		OFFSET 10 ft RT		ALIGNMENT L										
COLLAR ELEV. 5.3 ft		TOTAL DEPTH 95.0 ft		NORTHING 677,012		EASTING 2,694,854										
DRILL RIG/HAMMER EFF./DATE GET7255 CME-55 85% 03/20/2015			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER Contract Driller		START DATE 03/20/15		COMP. DATE 03/20/15		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						
-70																
	-72.7	78.0	22	36	42											
	-77.7	83.0	26	30	37											
	-82.7	88.0	24	24	30											
	-87.7	93.0	38	22	28											

NCDOT BORE DOUBLE B5300_GEO_BH_BRDG0055.GPJ NC_DOT.GDT 9/2/15

SOIL TEST RESULTS EB1-A

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-9	8 LT	18+20	23.0-25.0	A-2-4(0)	17	0	50.8	30.8	11.3	7.1	99	77	21	-	-
SS-11	8 LT	18+20	33.0-35.0	A-2-4(0)	28	8	50.5	25.9	13.6	10.0	92	61	40	-	-

SOIL TEST RESULTS EB1-B

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-95	8 RT	18+20	18.0-20.0	A-4(0)	26	5	5.3	68.1	18.9	7.7	100	97	40	-	-
SS-103	8 RT	18+20	58.0-60.0	A-6(0)	34	11	29.9	27.9	21.3	20.9	77	59	36	-	-

SOIL TEST RESULTS B1-A

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-74	8 LT	18+55	18.0-20.0	A-4(1)	33	9	20.2	43.3	20.6	15.9	100	93	43	-	-

SOIL TEST RESULTS B1-B

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-56	9 RT	18+55	18.0-20.0	A-2-6(0)	34	12	58.0	18.4	8.6	15.0	92	53	24	-	-

SOIL TEST RESULTS EB2-A

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-34	8 LT	19+75	33.0-35.0	A-2-6(0)	31	11	62.9	18.1	5.0	14.0	88	45	19	-	-
SS-39	8 LT	19+75	58.0-60.0	A-2-6(0)	36	13	39.0	30.8	15.2	15.0	79	56	27	-	-

SOIL TEST RESULTS EB2-B

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-118	9 RT	19+75	18.0-20.0	A-2-4(0)	25	7	24.4	42.8	18.9	13.9	90	81	35	-	-
SS-120	9 RT	19+75	28.0-30.0	A-2-6(0)	32	12	66.4	14.1	5.5	14.0	71	36	15	-	-