

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5122	1	9

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

**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

PROJ. REFERENCE NO. 42264.1.1 (B-5122) F.A. PROJ. BRNHS-0013(24)  
COUNTY BERTIE  
PROJECT DESCRIPTION BRIDGE NO. 51 ON US 13 OVER CASHIE  
RIVER AT -L- STA. 15+90.50

**REVISED**

**CONTENTS**

<u>SHEET</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
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**CAUTION NOTICE**

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1919 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE 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 THIS 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.

**PROJECT: 42264.1.1**  
**ID: B-5122**

PERSONNEL

C.M. WRIKE

J.P. DELOATCH

J.R. SWARTLEY

R.E. SMITH

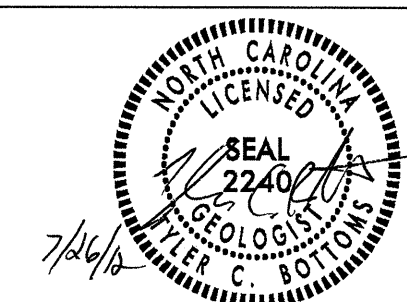
J.M. EDMONDSON

INVESTIGATED BY J.R. SWARTLEY

CHECKED BY D.N. ARGENBRIGHT

SUBMITTED BY D.N. ARGENBRIGHT

DATE JULY 2012



DRAWN BY: C.P. TURNER

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - 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.

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

PROJECT REFERENCE NO. B-5122  
 SHEET NO. 2 OF 9

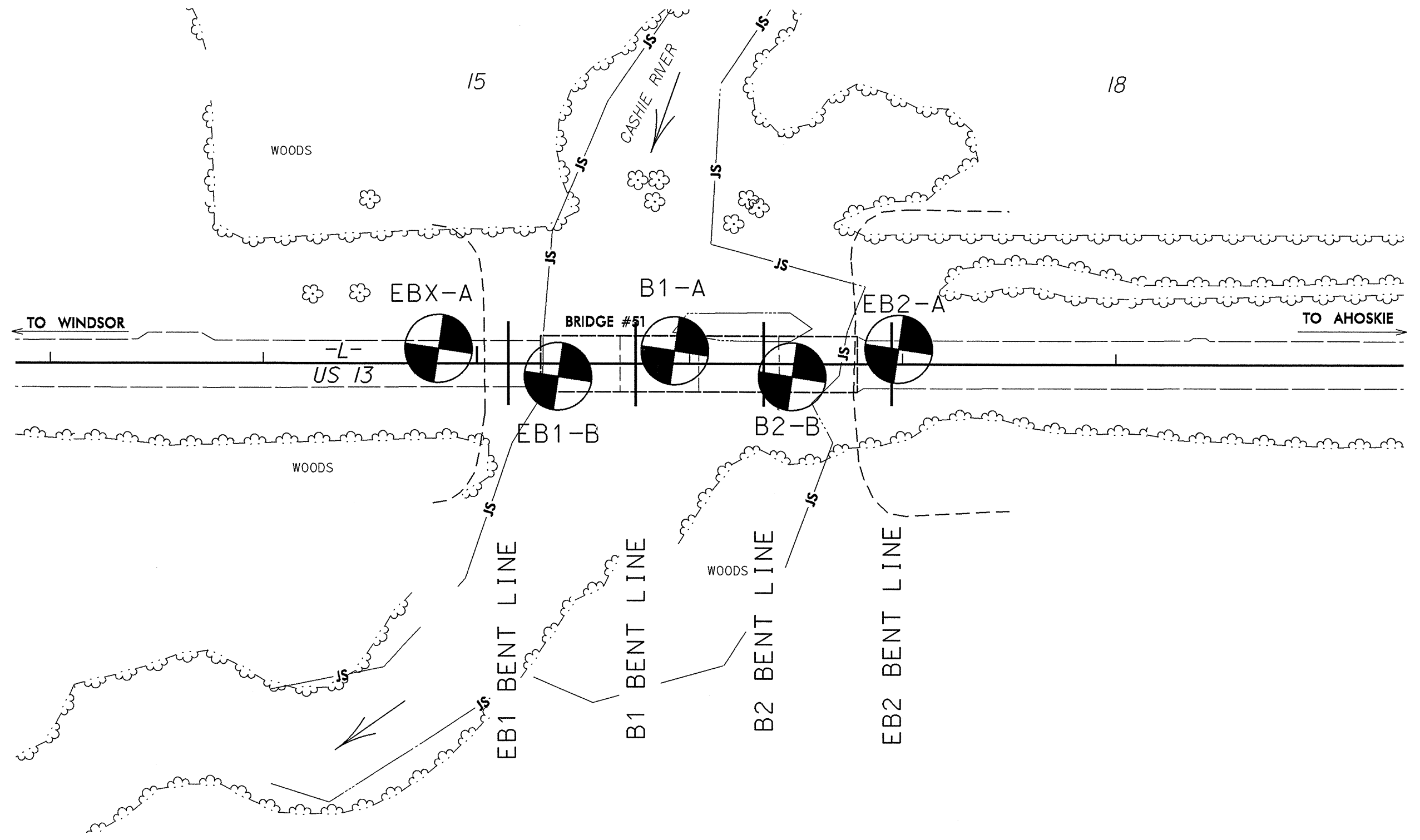
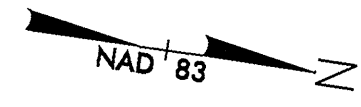
**SUBSURFACE INVESTIGATION**

**SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS**

SOIL DESCRIPTION		GRADATION		ROCK DESCRIPTION		TERMS AND DEFINITIONS	
SOIL IS CONSIDERED TO BE THE 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 STANDARD PENETRATION TEST (ASHTO T208, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE ASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE: <i>VERY STIFF, GRAY, SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HIGH PLASTIC, A-7-6</i>		WELL-GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED) GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.		HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL, 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, 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 IN OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SCRC) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SRQD) - 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.	
<b>SOIL LEGEND AND AASHTO CLASSIFICATION</b>		<b>MINERALOGICAL COMPOSITION</b>		<b>WEATHERING</b>			
GENERAL CLASS. GRANULAR MATERIALS (<= 35% PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS		MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.		WEATHERED ROCK (WR) NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.			
<b>COMPRESSION</b>		<b>PERCENTAGE OF MATERIAL</b>		CRYSTALLINE ROCK (CR) FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.			
SLIGHTLY COMPRESSIBLE LIQUID LIMIT LESS THAN 31 MODERATELY COMPRESSIBLE LIQUID LIMIT EQUAL TO 31-50 HIGHLY COMPRESSIBLE LIQUID LIMIT GREATER THAN 50		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		NON-CRYSTALLINE ROCK (NCR) FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.			
<b>GROUND WATER</b>		<b>MISCELLANEOUS SYMBOLS</b>		COASTAL PLAIN SEDIMENTARY ROCK (CP) COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.			
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		ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED SOIL BOUNDARY INFERRED ROCK LINE ALLUVIAL SOIL BOUNDARY DIP & DIP DIRECTION OF ROCK STRUCTURES		TEST BORING AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION SLOPE INDICATOR INSTALLATION CONE PENETROMETER TEST SOUNDING ROD			
<b>CONSISTENCY OR DENSENESS</b>		<b>ABBREVIATIONS</b>		<b>ROCK HARDNESS</b>			
PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/F <sup>2</sup> )		AR - AUGER REFUSAL MED. - MEDIUM VST - VANE SHEAR TEST BT - BORING TERMINATED MICA - MICACEOUS WEA. - WEATHERED CL. - CLAY MOD. - MODERATELY UNIT WEIGHT CPT - CONE PENETRATION TEST NP - NON PLASTIC ORG. - ORGANIC DRY UNIT WEIGHT CSE. - COARSE PMT - PRESSUREMETER TEST DPT - DILATOMETER TEST SAP. - SAPROLITIC SAMPLE ABBREVIATIONS e - VOID RATIO SD. - SAND, SANDY S - BULK F - FINE SL. - SILT, SILTY SS - SPLIT SPOON FOSS. - FOSSILIFEROUS TCR - TRICONE REFUSAL ST - SHELBY TUBE FRAC. - FRACTURED, FRACTURES TCR - TRICONE REFUSAL RS - ROCK FRAGS. - FRAGMENTS W - MOISTURE CONTENT RT - RECOMPACTED TRIAXIAL HI. - HIGHLY V - VERY CBR - CALIFORNIA BEARING RATIO		VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK. HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN. MODERATELY HARD CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS. MEDIUM HARD CAN BE GROOVED OR GROOVED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK. SOFT CAN BE GROOVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE. VERY SOFT CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGER NAIL.			
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		<b>EQUIPMENT USED ON SUBJECT PROJECT</b>		<b>FRACTURE SPACING</b>		<b>BEDDING</b>	
BOULDER (BLDR.) COBBLE (COB.) GRAVEL (GR.) COARSE SAND (CSE. SD.) FINE SAND (F SD.) SILT (SL.) CLAY (CL.) GRAIN SIZE MM 305 75 2.0 0.25 0.05 0.005 IN. 12 3		DRILL UNITS: MOBILE B- BK-51 CME-45B CME-550 PORTABLE HOIST ADVANCING TOOLS: CLAY BITS 6" CONTINUOUS FLIGHT AUGER 8" HOLLOW AUGERS HARD FACED FINGER BITS TUNG-CARBIDE INSERTS CASING W/ ADVANCER TRICONE 2 1/8" STEEL TEETH TRICONE TUNG-CARB. CORE BIT		HAMMER TYPE: AUTOMATIC MANUAL CORE SIZE: B N H HAND TOOLS: POST HOLE DIGGER HAND AUGER SOUNDING ROD VANE SHEAR TEST		TERM SPACING THICKNESS VERY WIDE MORE THAN 10 FEET > 4 FEET WIDE 3 TO 10 FEET 1.5 - 4 FEET MODERATELY CLOSE 1 TO 3 FEET 0.16 - 1.5 FEET CLOSE 0.16 TO 1 FEET 0.03 - 0.16 FEET VERY CLOSE LESS THAN 0.16 FEET 0.008 - 0.03 FEET THINLY LAMINATED < 0.008 FEET	
<b>TEXTURE OR GRAIN SIZE</b>		<b>INDURATION</b>		<b>INDURATION</b>			
GENERALLY GRANULAR MATERIAL (NON-COHESIVE) VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE GENERALLY SILT-CLAY MATERIAL (COHESIVE) VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD		FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE 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.					
<b>SOIL MOISTURE - CORRELATION OF TERMS</b>							
SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION SATURATED - (SAT.) USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE WET - (W) SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE							
<b>PLASTICITY</b>							
NONPLASTIC LOW PLASTICITY MED. PLASTICITY HIGH PLASTICITY PLASTICITY INDEX (PI) DRY STRENGTH 0-5 VERY LOW 6-15 SLIGHT 16-25 MEDIUM 26 OR MORE HIGH							
<b>COLOR</b>							
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.							

PROJECT REFERENCE NO.	SHEET
B-5122	3 OF 9
<b>SITE PLAN</b>	
FEET	

SKEW = 90°



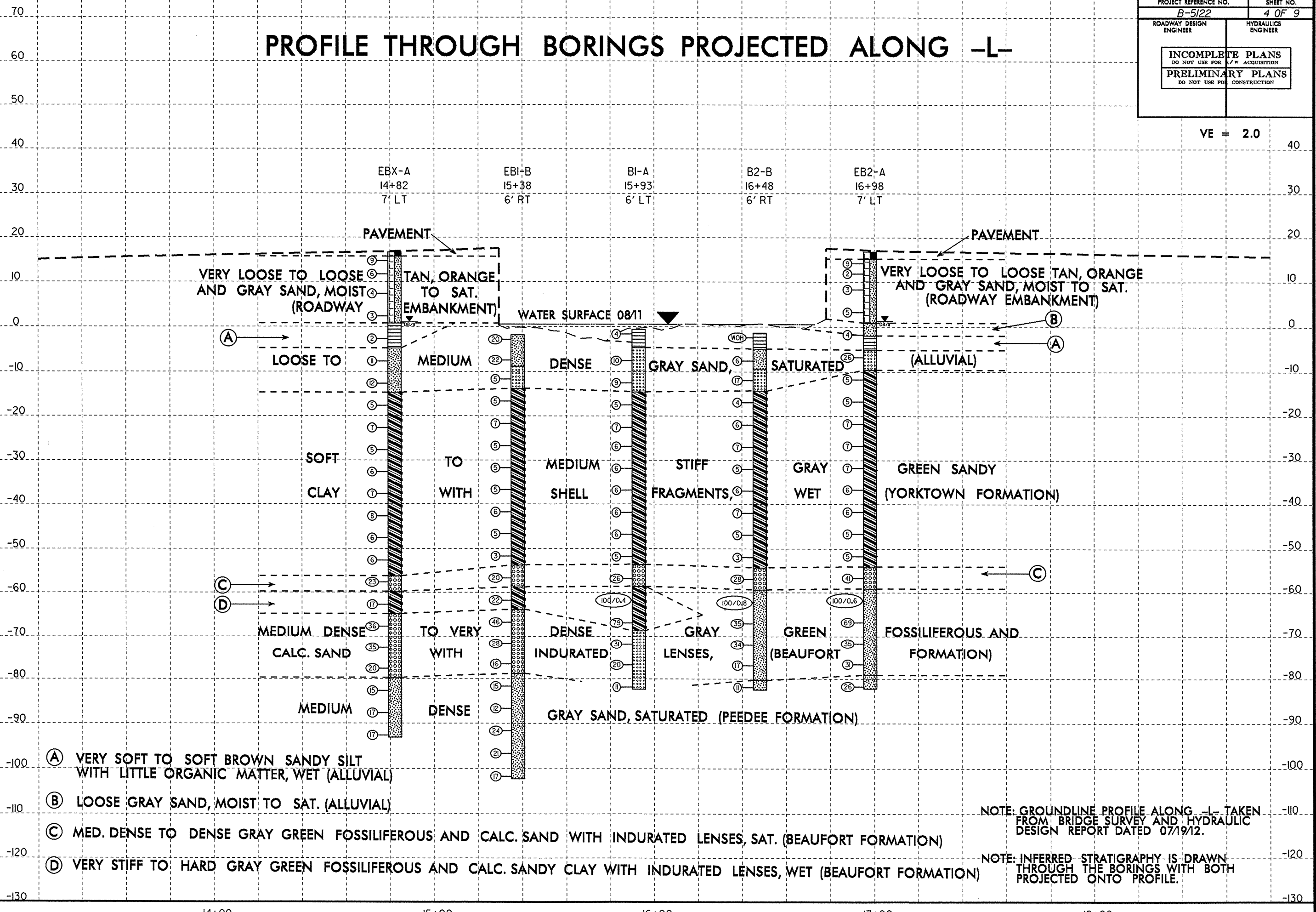
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Plotter: [unreadable]

PROJECT REFERENCE NO. <b>B-5122</b>	SHEET NO. <b>4 OF 9</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

VE = 2.0

# PROFILE THROUGH BORINGS PROJECTED ALONG -L-



- (A) VERY SOFT TO SOFT BROWN SANDY SILT WITH LITTLE ORGANIC MATTER, WET (ALLUVIAL)
- (B) LOOSE GRAY SAND, MOIST TO SAT. (ALLUVIAL)
- (C) MED. DENSE TO DENSE GRAY GREEN FOSSILIFEROUS AND CALC. SAND WITH INDURATED LENSES, SAT. (BEAUFORT FORMATION)
- (D) VERY STIFF TO HARD GRAY GREEN FOSSILIFEROUS AND CALC. SANDY CLAY WITH INDURATED LENSES, WET (BEAUFORT FORMATION)

NOTE: GROUNDLINE PROFILE ALONG -L- TAKEN FROM BRIDGE SURVEY AND HYDRAULIC DESIGN REPORT DATED 07/19/12.

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

14+00

15+00

16+00

17+00

18+00

-130

-110

-90

-70

-50

-30

-10

10

30

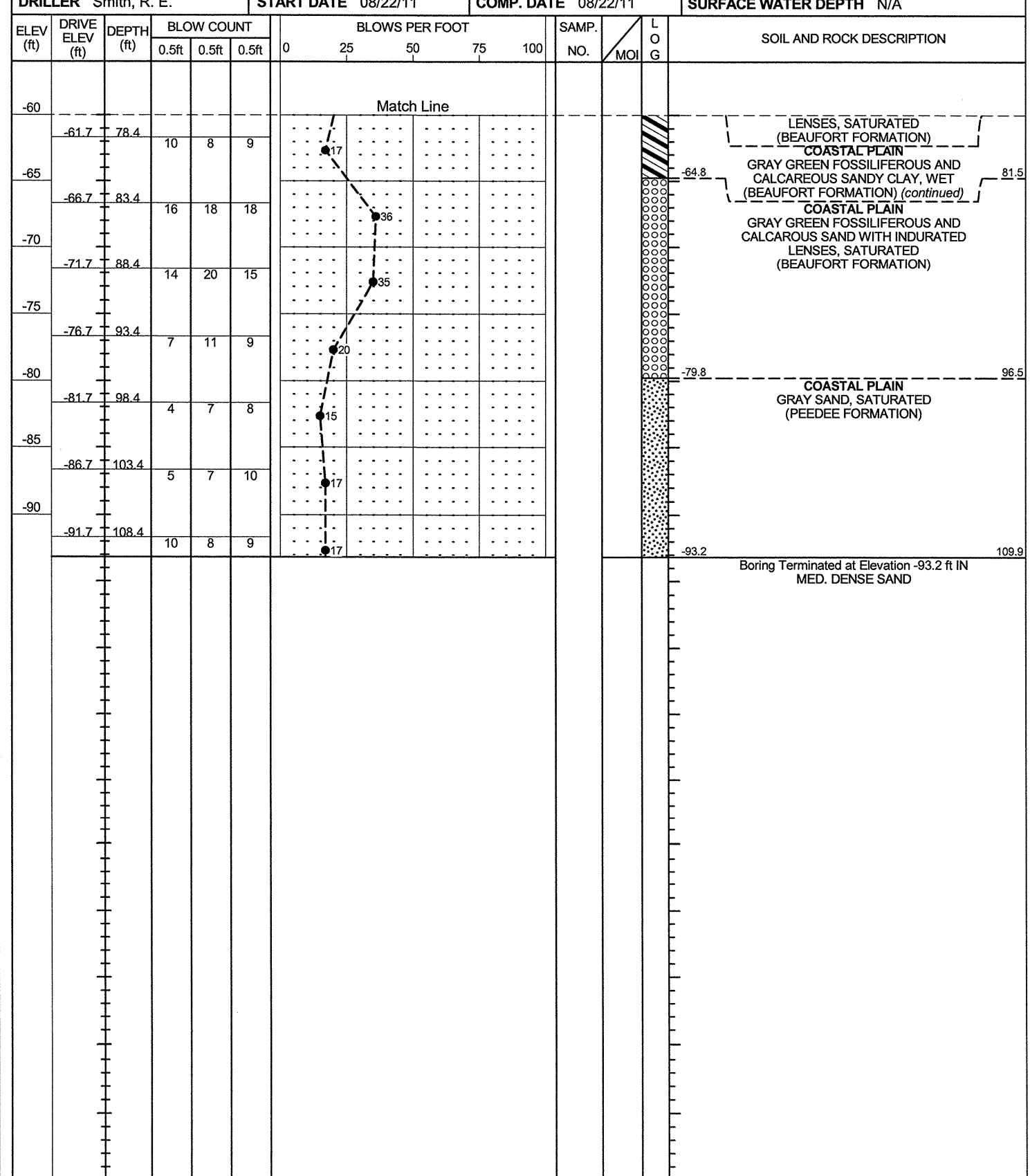
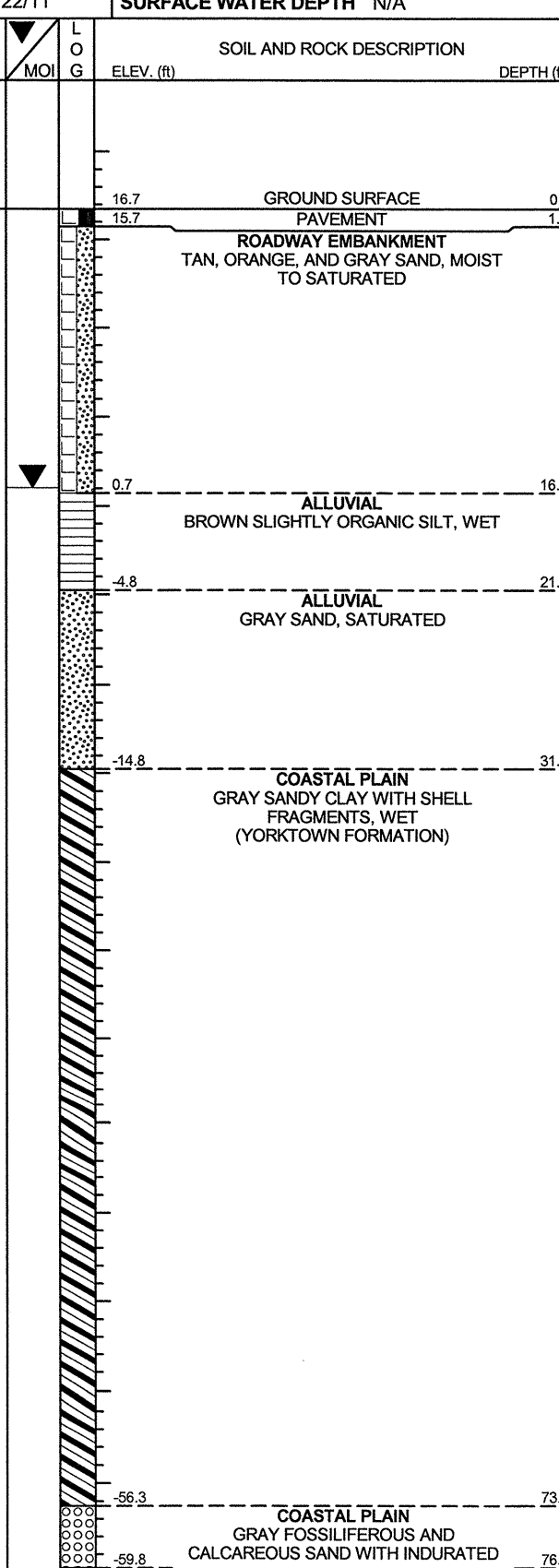
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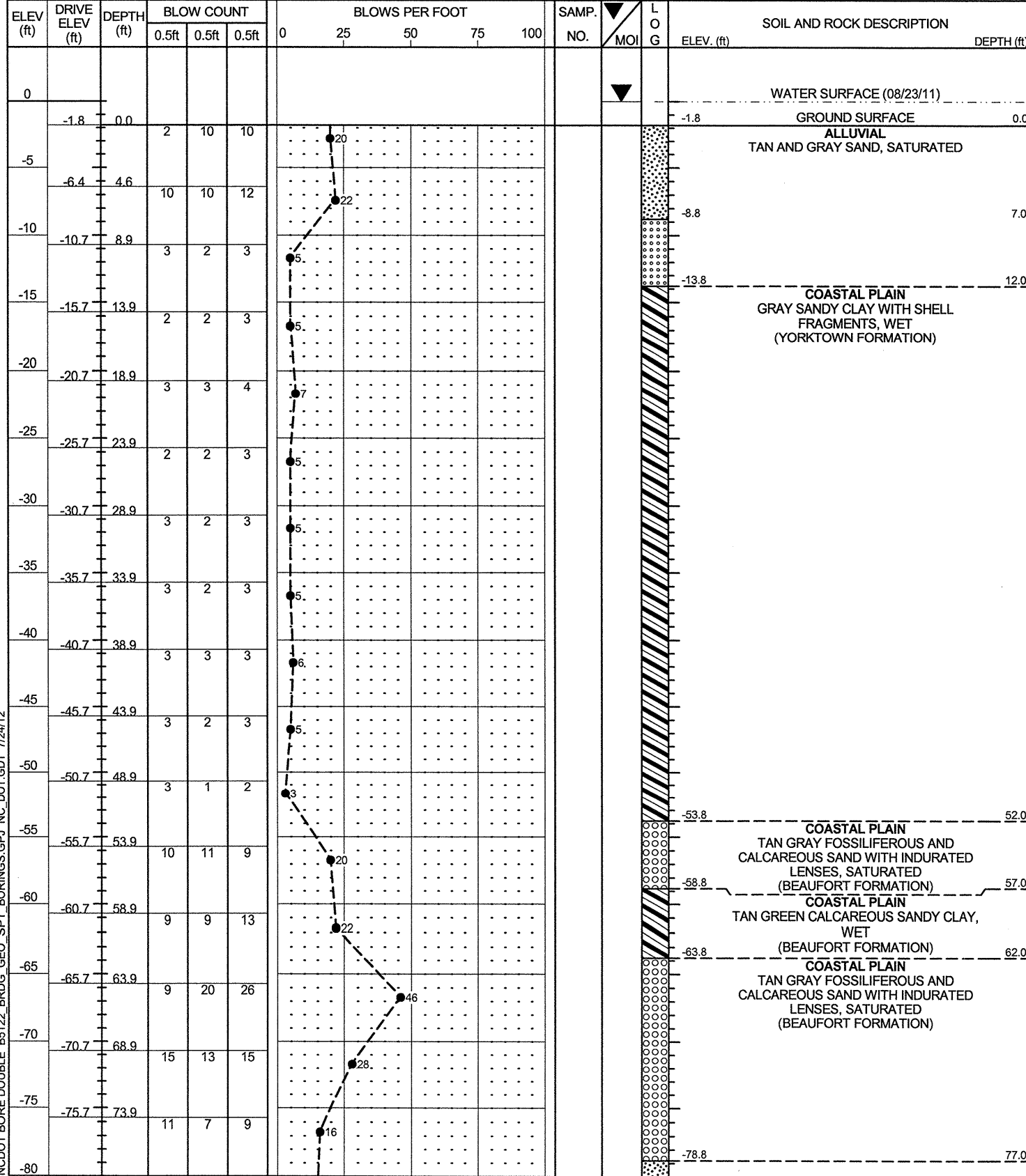
WBS 42264.1.1		TIP B-5122		COUNTY BERTIE		GEOLOGIST DeLoatch, J. P.									
SITE DESCRIPTION BRIDGE NO. 51 ON -L- (US 13) OVER CASHIE RIVER							GROUND WTR (ft)								
BORING NO. EBX-A		STATION 14+82		OFFSET 7 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 16.7 ft		TOTAL DEPTH 109.9 ft		NORTHING 833,928		EASTING 2,604,351									
DRILL RIG/HAMMER EFF./DATE GFO0062 CME-45B 96% 6/27/2011		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER Smith, R. E.		START DATE 08/22/11		COMP. DATE 08/22/11		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					
20															
15	15.7	1.0	2	5	4										
	12.7	4.0	2	3	3										
10	8.3	8.4	2	2	2										
5	3.3	13.4	2	2	1										
0	-1.7	18.4	2	1	1										
-5	-6.7	23.4	2	3	8										
-10	-11.7	28.4	5	4	8										
-15	-16.7	33.4	2	2	3										
-20	-21.7	38.4	3	3	4										
-25	-26.7	43.4	2	3	2										
-30	-31.7	48.4	3	3	3										
-35	-36.7	53.4	2	3	4										
-40	-41.7	58.4	3	4	4										
-45	-46.7	63.4	3	3	3										
-50	-51.7	68.4	2	3	3										
-55	-56.7	73.4	9	11	12										
-60															

WBS 42264.1.1		TIP B-5122		COUNTY BERTIE		GEOLOGIST DeLoatch, J. P.									
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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					
-60	-61.7	78.4	10	8	9										
-65	-66.7	83.4	16	18	18										
-70	-71.7	88.4	14	20	15										
-75	-76.7	93.4	7	11	9										
-80	-81.7	98.4	4	7	8										
-85	-86.7	103.4	5	7	10										
-90	-91.7	108.4	10	8	9										

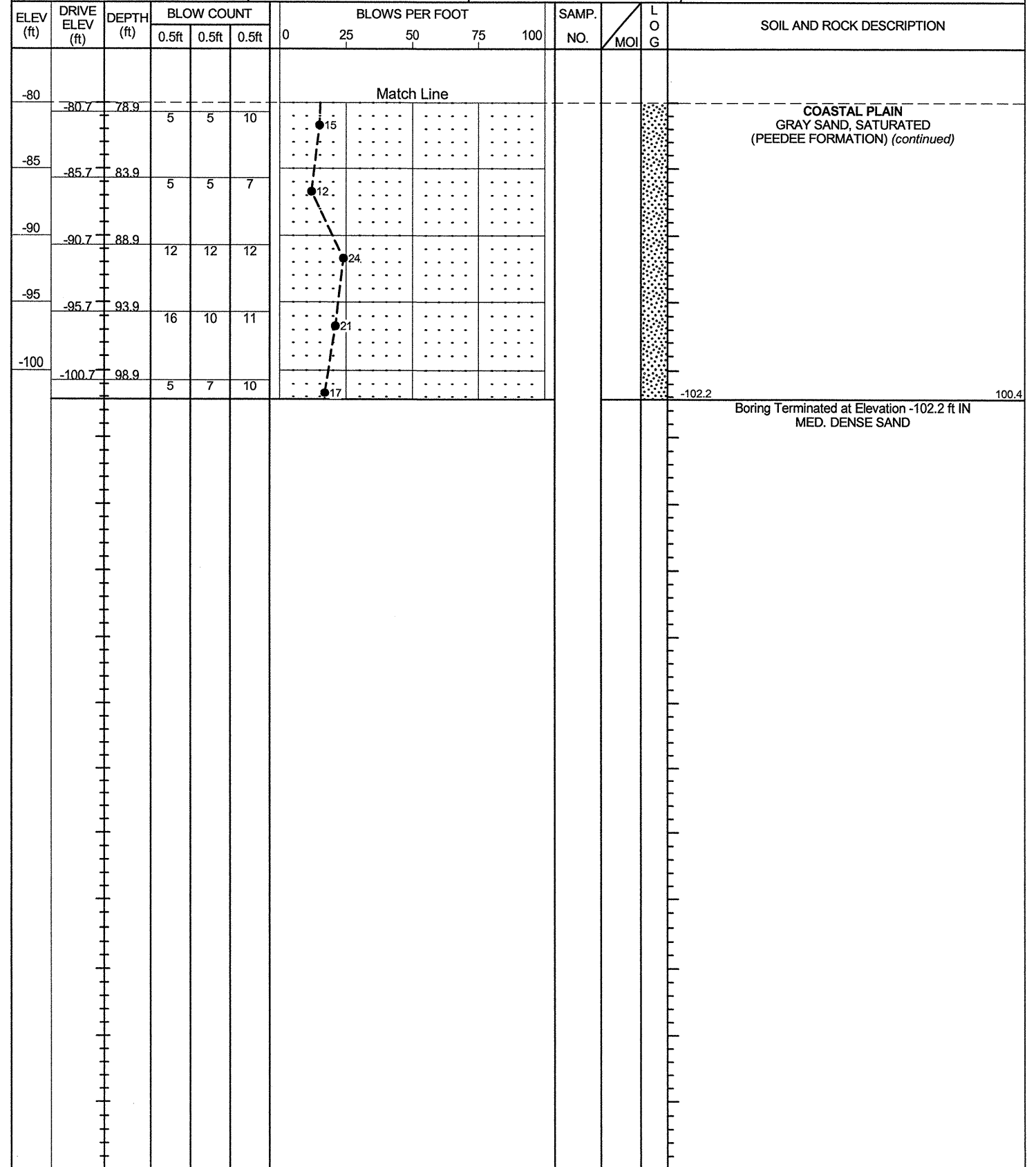
NCDOT BORE DOUBLE B5122 BRDG GEO SPT BORINGS.GPJ NC\_DOT\_GDT 7/24/12



WBS 42264.1.1	TIP B-5122	COUNTY BERTIE	GEOLOGIST DeLoatch, J. P.
SITE DESCRIPTION BRIDGE NO. 51 ON -L- (US 13) OVER CASHIE RIVER			GROUND WTR (ft) 0 HR. N/A
BORING NO. EB1-B	STATION 15+38	OFFSET 6 ft RT	ALIGNMENT -L-
COLLAR ELEV. -1.8 ft	TOTAL DEPTH 100.4 ft	NORTHING 833,985	EASTING 2,604,355
DRILL RIG/HAMMER EFF./DATE GFO0062 CME-45B 96% 6/27/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Smith, R. E.	START DATE 08/23/11	COMP. DATE 08/24/11	SURFACE WATER DEPTH 1.8ft



WBS 42264.1.1	TIP B-5122	COUNTY BERTIE	GEOLOGIST DeLoatch, J. P.
SITE DESCRIPTION BRIDGE NO. 51 ON -L- (US 13) OVER CASHIE RIVER			GROUND WTR (ft) 0 HR. N/A
BORING NO. EB1-B	STATION 15+38	OFFSET 6 ft RT	ALIGNMENT -L-
COLLAR ELEV. -1.8 ft	TOTAL DEPTH 100.4 ft	NORTHING 833,985	EASTING 2,604,355
DRILL RIG/HAMMER EFF./DATE GFO0062 CME-45B 96% 6/27/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Smith, R. E.	START DATE 08/23/11	COMP. DATE 08/24/11	SURFACE WATER DEPTH 1.8ft

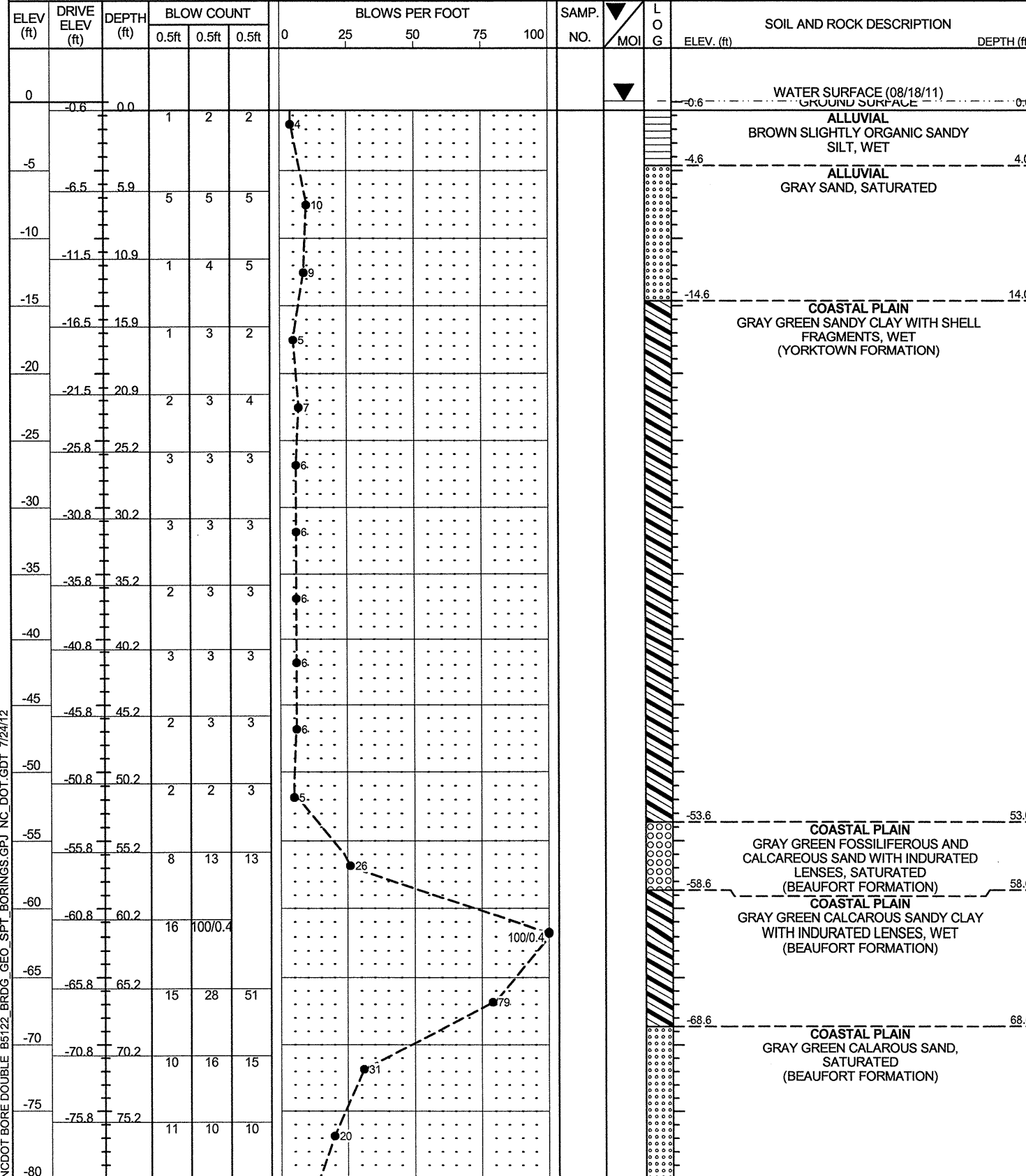


NCDOT BORE DOUBLE B5122 BRDG. GEO. SPT. BORINGS.GPJ NC\_DOT.GDT 7/24/12

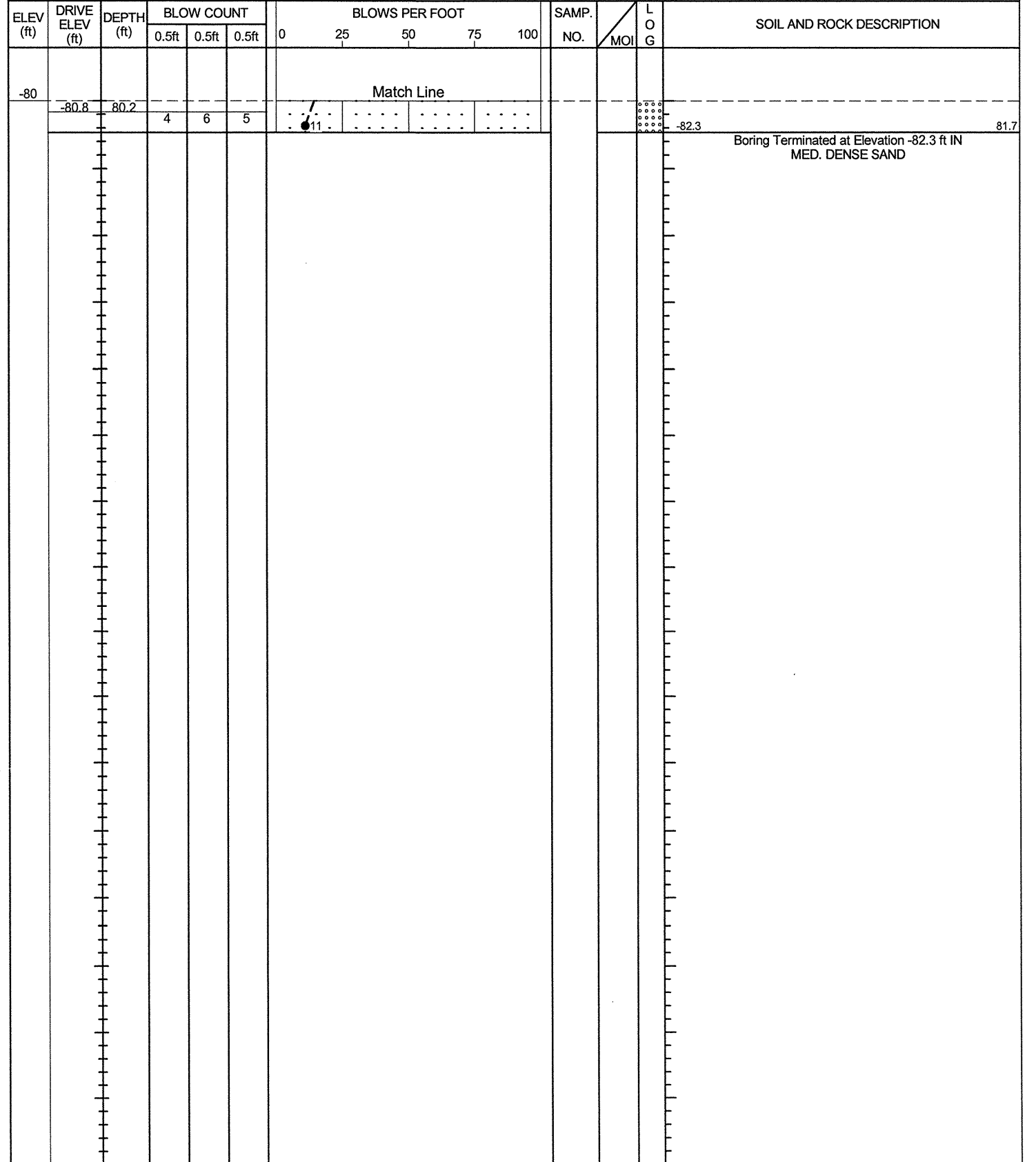


# NCDOT GEOTECHNICAL ENGINEERING UNIT BORELOG REPORT

WBS 42264.1.1	TIP B-5122	COUNTY BERTIE	GEOLOGIST Wrike, C. M.	
SITE DESCRIPTION BRIDGE NO. 51 ON -L- (US 13) OVER CASHIE RIVER				GROUND WTR (ft)
BORING NO. B1-A	STATION 15+93	OFFSET 6 ft LT	ALIGNMENT -L-	0 HR. N/A
COLLAR ELEV. -0.6 ft	TOTAL DEPTH 81.7 ft	NORTHING 834,038	EASTING 2,604,336	24 HR. N/A
DRILL RIG/HAMMER EFF./DATE GFO0062 CME-45B 96% 6/27/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic	
DRILLER Smith, R. E.	START DATE 08/18/11	COMP. DATE 08/18/11	SURFACE WATER DEPTH 0.7ft	

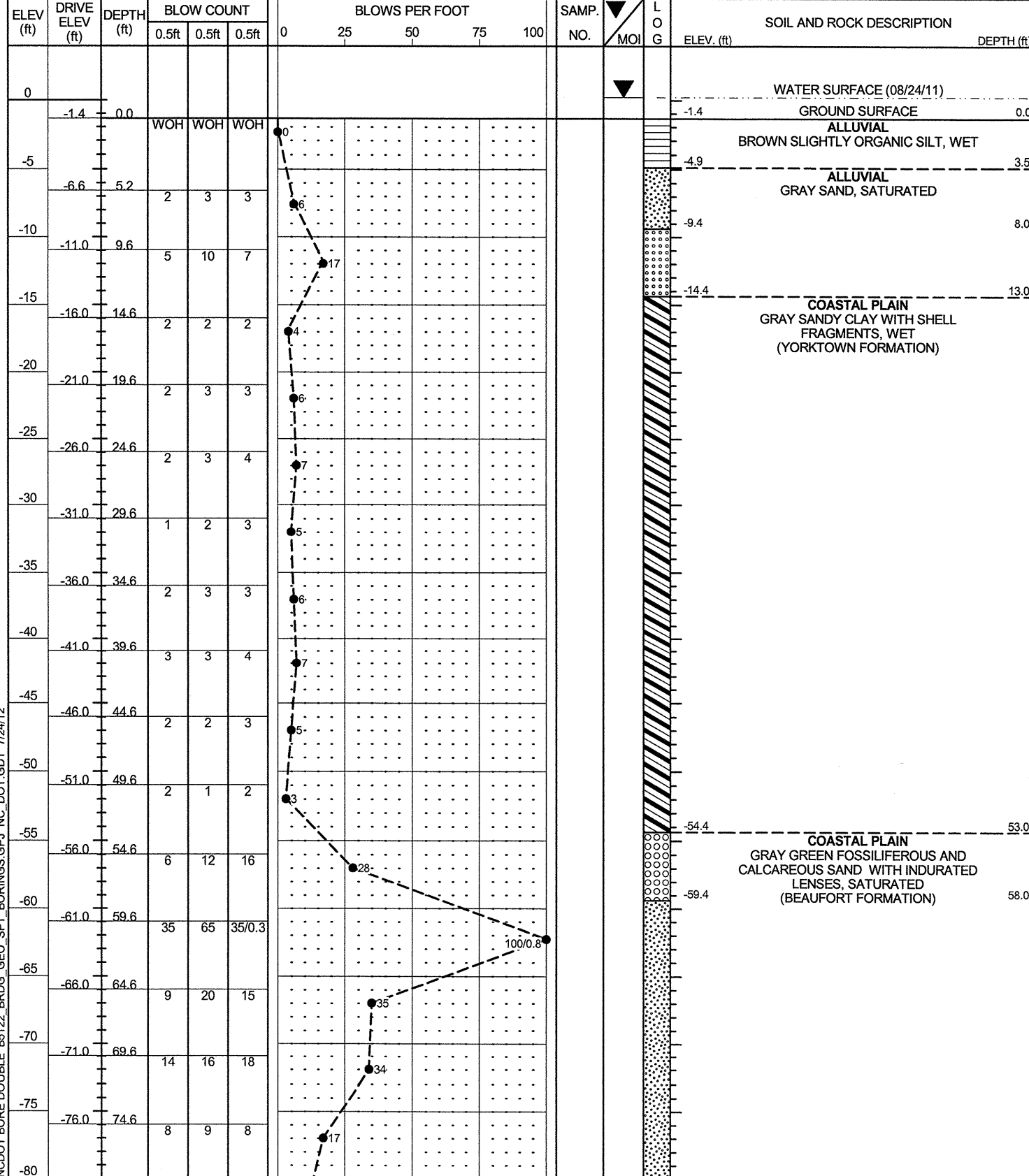


WBS 42264.1.1	TIP B-5122	COUNTY BERTIE	GEOLOGIST Wrike, C. M.	
SITE DESCRIPTION BRIDGE NO. 51 ON -L- (US 13) OVER CASHIE RIVER				GROUND WTR (ft)
BORING NO. B1-A	STATION 15+93	OFFSET 6 ft LT	ALIGNMENT -L-	0 HR. N/A
COLLAR ELEV. -0.6 ft	TOTAL DEPTH 81.7 ft	NORTHING 834,038	EASTING 2,604,336	24 HR. N/A
DRILL RIG/HAMMER EFF./DATE GFO0062 CME-45B 96% 6/27/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic	
DRILLER Smith, R. E.	START DATE 08/18/11	COMP. DATE 08/18/11	SURFACE WATER DEPTH 0.7ft	

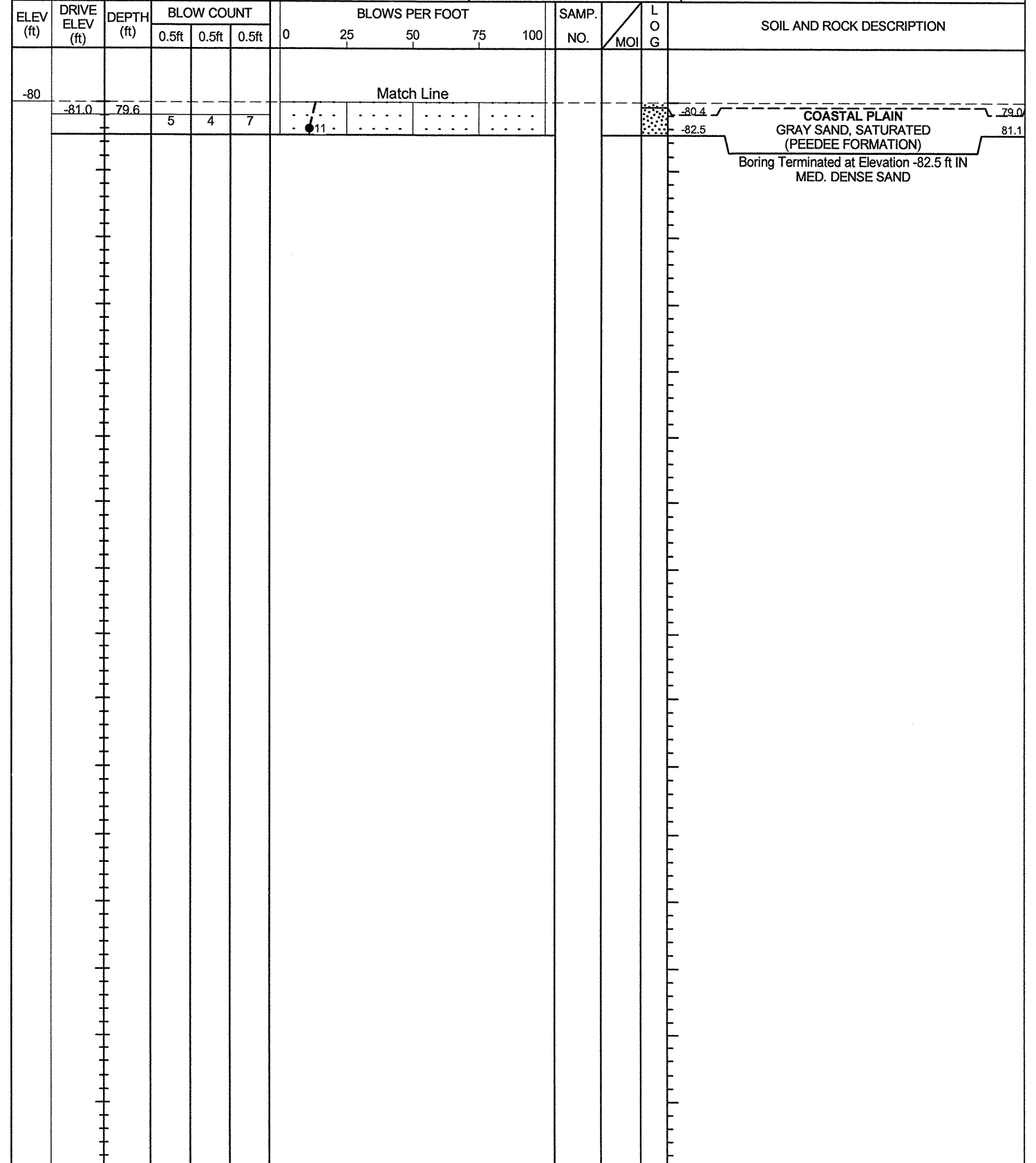


NCDOT BORE DOUBLE B5122 BRDG GEO SPT BORINGS.GPJ NC\_DOT\_GDT 7/24/12

WBS 42264.1.1	TIP B-5122	COUNTY BERTIE	GEOLOGIST DeLoatch, J. P.
SITE DESCRIPTION BRIDGE NO. 51 ON -L- (US 13) OVER CASHIE RIVER			GROUND WTR (ft)
BORING NO. B2-B	STATION 16+48	OFFSET 6 ft RT	ALIGNMENT -L-
COLLAR ELEV. -1.4 ft	TOTAL DEPTH 81.1 ft	NORTHING 834,094	EASTING 2,604,339
DRILL RIG/HAMMER EFF./DATE GFO062 CME-45B 96% 6/27/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Smith, R. E.	START DATE 08/24/11	COMP. DATE 08/25/11	SURFACE WATER DEPTH 1.6ft



WBS 42264.1.1	TIP B-5122	COUNTY BERTIE	GEOLOGIST DeLoatch, J. P.
SITE DESCRIPTION BRIDGE NO. 51 ON -L- (US 13) OVER CASHIE RIVER			GROUND WTR (ft)
BORING NO. B2-B	STATION 16+48	OFFSET 6 ft RT	ALIGNMENT -L-
COLLAR ELEV. -1.4 ft	TOTAL DEPTH 81.1 ft	NORTHING 834,094	EASTING 2,604,339
DRILL RIG/HAMMER EFF./DATE GFO062 CME-45B 96% 6/27/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Smith, R. E.	START DATE 08/24/11	COMP. DATE 08/25/11	SURFACE WATER DEPTH 1.6ft



NC DOT BORE DOUBLE B6122 BRDG\_GEO\_SPT BORINGS.GPJ NC DOT.GDT 7/24/12



