

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BD-5102U	1	6

**STATE OF NORTH CAROLINA**

DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

**STRUCTURE  
SUBSURFACE INVESTIGATION**

PROJ. REFERENCE NO. 45348.1.21 (BD-5102U) F.A. PROJ. BRZ-1139(5)  
 COUNTY PITT  
 PROJECT DESCRIPTION BRIDGE NO. 69 ON SR 1139 (MOYE-TURNAGE ROAD) OVER MIDDLE SWAMP AT -L- STA. 17+20.50

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<u>SHEET</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2	LEGEND
3	SITE PLAN
4	PROFILE
5-6	BORE LOGS

**CAUTION NOTICE**

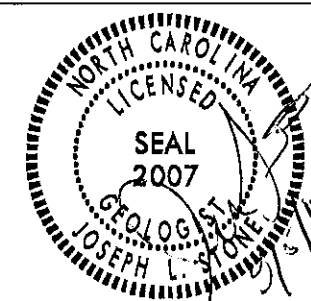
THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1989 707-6850. 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 (AS-PLACED) 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.

PERSONNEL  
C.M. WRIKE  
FOR PERSONNEL

INVESTIGATED BY J.L. STONE  
 CHECKED BY D.N. ARGENBRIGHT  
 SUBMITTED BY D.N. ARGENBRIGHT  
 DATE AUGUST 2013



**PROJECT: 45348.1.21 ID: BD-5102U**

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

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 (ASTM D-1585). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLES: <i>VERY STIFF, GRAVELLY CLAY, MOIST 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. THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.		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 50 BLOWS PER FOOT 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:  NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.  FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.  FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLITE, SLATE, SANDSTONE, ETC.  COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.		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 DISLOADED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION UNIT - 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 DR 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 50 BLOWS PER FOOT. 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.																																																																																																																																																							
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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 (SLT.) 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 THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE 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. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.			
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SLIGHTLY COMPRESSIBLE MODERATELY COMPRESSIBLE HIGHLY COMPRESSIBLE		LIQUID LIMIT LESS THAN 31 LIQUID LIMIT EQUAL TO 31-58 LIQUID LIMIT GREATER THAN 58		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																																																																																																																																																									
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 ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION  SOIL SYMBOL  ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT  INFERRERD SOIL BOUNDARY  INFERRERD ROCK LINE  ALLUVIAL SOIL BOUNDARY  DIP & DIP DIRECTION OF ROCK STRUCTURES		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 HL - 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 SPT - TEST BORING AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION SLOPE INDICATOR INSTALLATION CONE PENETROMETER TEST SOUNDING ROD TEST BORING W/ CORE SPT N-VALUE SPT REFUSAL		<input type="checkbox"/> MOBILE B- <input type="checkbox"/> BK-51 <input type="checkbox"/> CME-45C <input checked="" type="checkbox"/> CME-55 <input type="checkbox"/> PORTABLE HOIST <input type="checkbox"/> <input type="checkbox"/> 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 w/ ADVANCER <input checked="" type="checkbox"/> TRICONE 2 1/16" STEEL TEETH <input type="checkbox"/> TRICONE " TUNG-CARB. <input type="checkbox"/> CORE BIT <input type="checkbox"/> <input type="checkbox"/> HAMMER TYPE: <input checked="" type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL <input type="checkbox"/> CORE SIZE: <input type="checkbox"/> -B- <input type="checkbox"/> -N- <input type="checkbox"/> -H- <input type="checkbox"/> HAND TOOLS: <input type="checkbox"/> POST HOLE DICER <input type="checkbox"/> HAND AUGER <input type="checkbox"/> SOUNDING ROD <input type="checkbox"/> VANE SHEAR TEST																																																																																																																																																									
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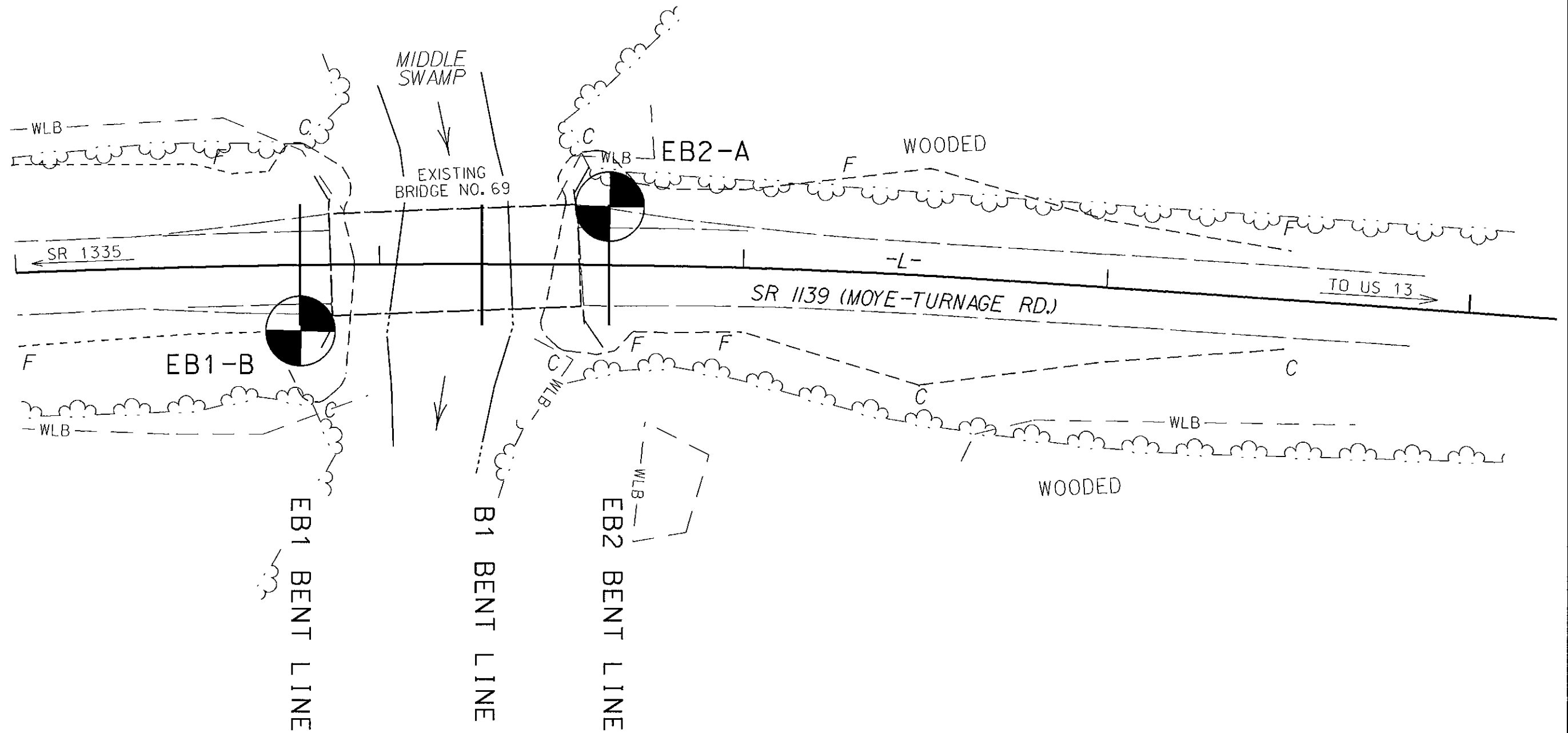
SKEW = 105°



16

18

20

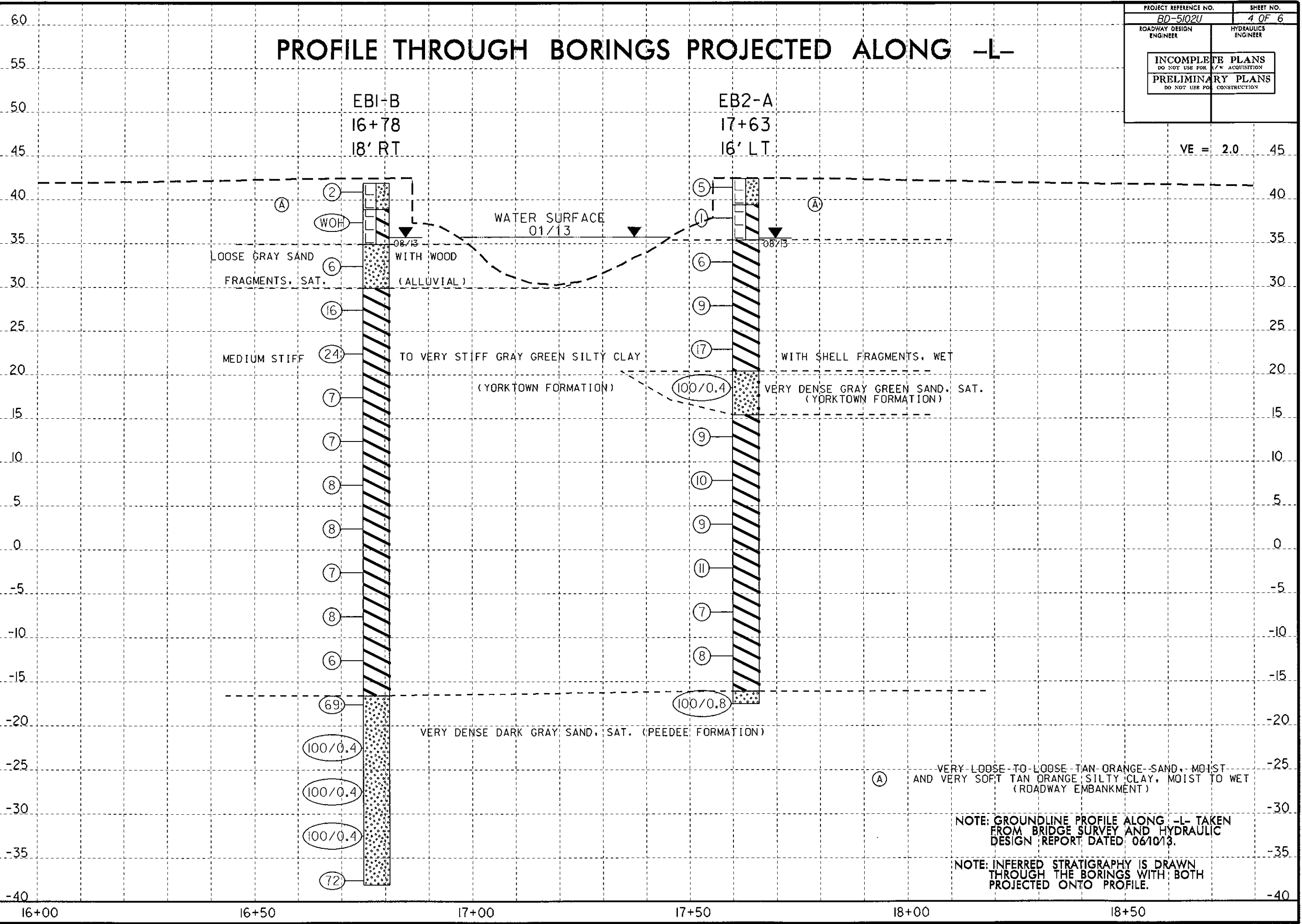


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PROJECT REFERENCE NO. BD-5102U		SHEET NO. 4 OF 6	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			

# PROFILE THROUGH BORINGS PROJECTED ALONG -L-



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# NCDOT GEOTECHNICAL ENGINEERING UNIT

## BORELOG REPORT

WBS 45348.1.21	TIP BD-5102U	COUNTY PITT	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 69 ON -L- (SR 1139) OVER MIDDLE SWAMP			GROUND WTR (ft)
BORING NO. EB2-A	STATION 17+63	OFFSET 16 ft LT	ALIGNMENT -L-
COLLAR ELEV. 42.4 ft	TOTAL DEPTH 59.9 ft	NORTHING 652,135	EASTING 2,432,740
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 08/01/13	COMP. DATE 08/01/13	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL AND ROCK DESCRIPTION				
			0.5ft	0.5ft	0.5ft	0	25	50	75	100			ELEV. (ft)	DEPTH (ft)			
45																	
	42.4	0.0	2	3	2									42.4	0.0	GROUND SURFACE	
40	38.9	3.5	1	WOH	1									39.4	3.0	ROADWAY EMBANKMENT TAN ORANGE SAND, MOIST	
35	33.9	8.5	2		4									35.4	7.0	ROADWAY EMBANKMENT TAN ORANGE SILTY CLAY, MOIST TO WET	
30	28.9	13.5	2	5	4												
25	23.9	18.5	2	9	8												
20	18.9	23.5	100/0.4											20.4	22.0	COASTAL PLAIN GRAY GREEN SAND, SAT. (YORKTOWN FORMATION)	
15	13.9	28.5	3	3	6									15.4	27.0	COASTAL PLAIN GRAY GREEN SILTY CLAY WITH SHELL FRAGMENTNS (WET) YORKTOWN FORMATION	
10	8.9	33.5	3	4	6												
5	3.9	38.5	2	4	5												
0	-1.1	43.5	3	5	6												
-5	-6.1	48.5	2	3	4												
-10	-11.1	53.5	2	3	5												
-15	-16.1	58.5	17	33	67/0.4									-16.1	58.5	COASTAL PLAIN DARK GRAY SAND, SAT. (PEEDEE FORMATION)	
														-17.5	59.9	Boring Terminated at Elevation -17.5 ft IN VERY DENSE SAND	

NCDOT BORE DOUBLE BORINGS.GPJ NC\_DOT.GDT 8/5/13

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	SF-390034	1	7

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

**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

PROJ. REFERENCE NO. 17BP.2.R.51 (SF-390034) F.A. PROJ. \_\_\_\_\_  
COUNTY GREENE  
PROJECT DESCRIPTION BRIDGE NO. 34 ON SR 1344 (DARDEN FARM ROAD) OVER MIDDLE SWAMP OVERFLOW AT -L- STA. 14+81

**CONTENTS**

<u>SHEET</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2	LEGEND
3	SITE PLAN
4	PROFILE
5-7	BORE LOGS

**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) 707-6950. 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: 17BP.2.R.51 ID: SF-390034**

**PERSONNEL**

**C.M. WRIKE**

**F&R PERSONNEL**

INVESTIGATED BY J.L. STONE

CHECKED BY D.N. ARGENBRIGHT

SUBMITTED BY D.N. ARGENBRIGHT

DATE AUGUST 2013



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 IS IT 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

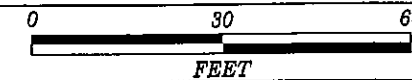
SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

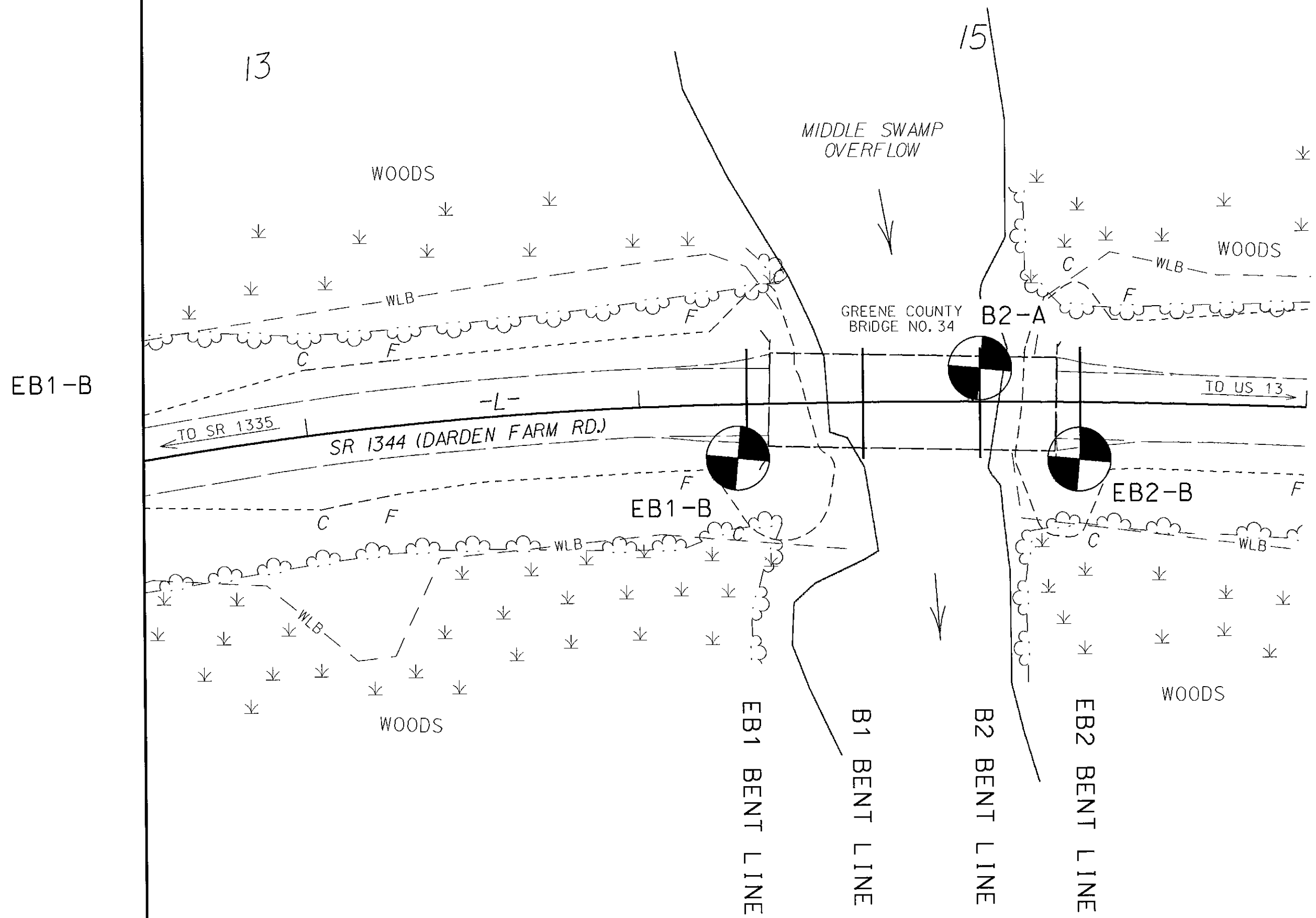
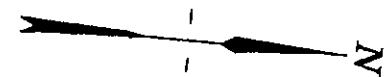
SOIL DESCRIPTION		GRADATION		ROCK DESCRIPTION		TERMS AND DEFINITIONS																																													
SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (ASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE ASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, MOISTURE CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLES: VERY STIFF, GRAY-SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, MUCKY PLASTIC, A-7-6		<b>WELL GRADED</b> - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. <b>UNIFORM</b> - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE, ALSO POORLY GRADED. <b>GAP-GRADED</b> - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES. <b>ANGULARITY OF GRAINS</b> THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: <b>ANGULAR</b> , <b>SUBANGULAR</b> , <b>SUBROUNDED</b> , OR <b>ROUNDED</b> .		<b>HARD ROCK</b> 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 PENETRATED 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: <b>WEATHERED ROCK (WR)</b>  NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED. <b>CRYSTALLINE ROCK (CR)</b>  FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC. <b>NON-CRYSTALLINE ROCK (NCR)</b>  FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLITE, SLATE, SANDSTONE, ETC. <b>COASTAL PLAIN SEDIMENTARY ROCK (CP)</b>  COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.		<b>ALLUVIUM (ALLUV.)</b> - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. <b>AQUIFER</b> - A WATER BEARING FORMATION OR STRATA. <b>ARENACEOUS</b> - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. <b>ARGILLACEOUS</b> - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC. <b>ARTESIAN</b> - 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. <b>CALCRETEOUS (CALC.)</b> - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. <b>COLLUVIUM</b> - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. <b>CORE RECOVERY (REC.)</b> - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. <b>DIKE</b> - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. <b>DIP</b> - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. <b>DIP DIRECTION (DIP AZIMUTH)</b> - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. <b>FAULT</b> - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. <b>FISSILE</b> - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. <b>FLOAT</b> - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL. <b>FLOOD PLAIN (FP)</b> - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. <b>FORMATION (FM)</b> - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. <b>JOINT</b> - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. <b>LEDGE</b> - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. <b>LENS</b> - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. <b>MOTTLED (MOTT.)</b> - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTILING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. <b>PERCHED WATER</b> - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. <b>RESIDUAL (RES.) SOIL</b> - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. <b>ROCK QUALITY DESIGNATION (RQD)</b> - 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. <b>SAPROLITE (SAP.)</b> - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. <b>SILL</b> - 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 INTRODUCED ROCKS. <b>SLICKENSIDE</b> - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. <b>STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (NPT)</b> - 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. <b>STRATA CORE RECOVERY (SREC.)</b> - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. <b>STRATA ROCK QUALITY DESIGNATION (SRQD)</b> - 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. <b>TOPSOIL (TS.)</b> - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER. <b>BENCH MARK:</b> BM-1: RAILROAD SPIKE IN 24' OAK AT -L- STA. 16+43, 64' RT <b>ELEVATION:</b> 39.25 FT.																																													
<b>SOIL LEGEND AND AASHTO CLASSIFICATION</b> <table border="1"> <tr> <td>GENERAL CLASS.</td> <td>GRANULAR MATERIALS (&lt; 35% PASSING #200)</td> <td>SILT-CLAY MATERIALS (&gt; 35% PASSING #200)</td> <td>ORGANIC MATERIALS</td> </tr> <tr> <td>GROUP CLASS.</td> <td>A-1, A-1.5, A-2, A-2.5, A-3, A-4, A-5, A-6, A-7</td> <td>A-1, A-2, A-3, A-4, A-5, A-6, A-7</td> <td>A-1, A-2, A-3, A-4, A-5, A-6, A-7</td> </tr> <tr> <td>SYMBOL</td> <td></td> <td></td> <td></td> </tr> <tr> <td>% PASSING</td> <td>10, 40, 200</td> <td>10, 40, 200</td> <td>10, 40, 200</td> </tr> <tr> <td>LIQUID LIMIT PLASTIC INDEX</td> <td>6, NP</td> <td>40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50</td> <td></td> </tr> <tr> <td>GROUP INDEX</td> <td>0</td> <td>0, 4, 8, 12, 15</td> <td></td> </tr> <tr> <td>USUAL TYPES OF MAJOR MATERIALS</td> <td>STONE FRAGS, GRAVEL, AND SAND</td> <td>FINE SAND, SILTY OR CLAYEY GRAVEL AND SAND</td> <td>SILTY SOILS, CLAYEY SOILS</td> </tr> <tr> <td>BEARING AS A SUBGRADE</td> <td>EXCELLENT TO GOOD</td> <td>FAIR TO POOR</td> <td>FAIR TO POOR, POOR, UNSUITABLE</td> </tr> </table>		GENERAL CLASS.	GRANULAR MATERIALS (< 35% PASSING #200)	SILT-CLAY MATERIALS (> 35% PASSING #200)	ORGANIC MATERIALS	GROUP CLASS.	A-1, A-1.5, A-2, A-2.5, A-3, A-4, A-5, A-6, A-7	A-1, A-2, A-3, A-4, A-5, A-6, A-7	A-1, A-2, A-3, A-4, A-5, A-6, A-7	SYMBOL				% PASSING	10, 40, 200	10, 40, 200	10, 40, 200	LIQUID LIMIT PLASTIC INDEX	6, NP	40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50		GROUP INDEX	0	0, 4, 8, 12, 15		USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS, GRAVEL, AND SAND	FINE SAND, SILTY OR CLAYEY GRAVEL AND SAND	SILTY SOILS, CLAYEY SOILS	BEARING AS A SUBGRADE	EXCELLENT TO GOOD	FAIR TO POOR	FAIR TO POOR, POOR, UNSUITABLE	<b>MINERALOGICAL COMPOSITION</b> MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.		<b>WEATHERING</b> <b>FRESH</b> - ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER HAMMER IF CRYSTALLINE. <b>VERY SLIGHT (V SL.)</b> - 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. <b>SLIGHT (SL.)</b> - 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. <b>MODERATE (MOD.)</b> - 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. <b>MODERATELY SEVERE (MOD. SEV.)</b> - 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. <b>SEVERE (SEV.)</b> - 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, YIELDS SPT N VALUES > 100 BPF. <b>VERY SEVERE (V SEV.)</b> - ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. IF TESTED, YIELDS SPT N VALUES < 100 BPF. <b>COMPLETE</b> - ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.															
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<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.																																																			



# SITE PLAN



SKEW = 90°



EB1-B

13

15

MIDDLE SWAMP  
OVERFLOW

GREENE COUNTY  
BRIDGE NO. 34

B2-A

EB1-B

EB2-B

EB1 BENT LINE

B1 BENT LINE

B2 BENT LINE

EB2 BENT LINE

WOODS

WOODS

WOODS

WOODS

TO SR 1335

SR 1344 (DARDEN FARM RD.)

TO US 13

WLB

WLB

WLB

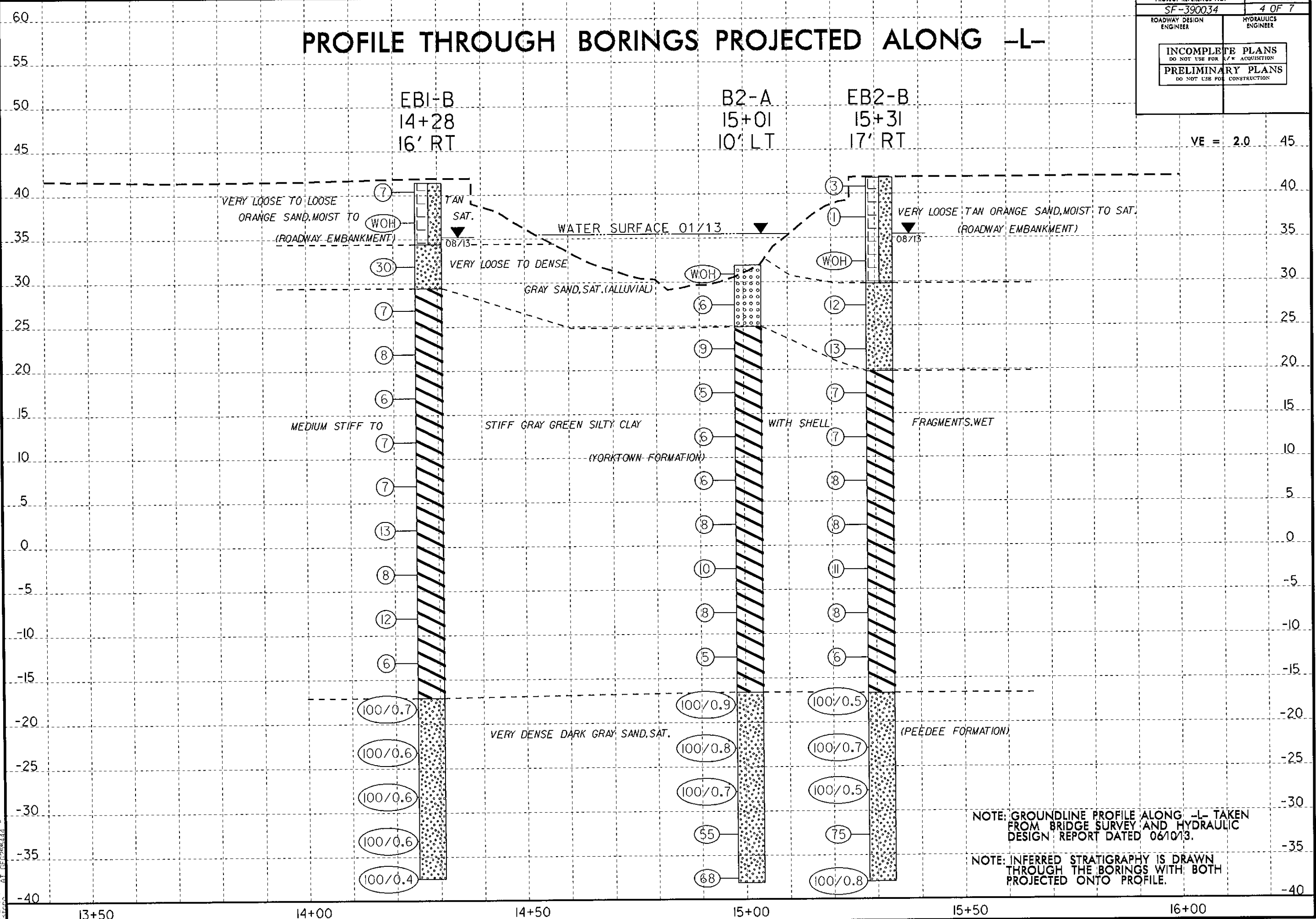
WLB

WLB

5/14/99  
 05-AUG-2003 11:51  
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 08/13/03 08:13:13

PROJECT REFERENCE NO. SF-390034	SHEET NO. 4 OF 7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR ACQUISITION	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

# PROFILE THROUGH BORINGS PROJECTED ALONG -L-



NOTE: GROUNDLINE PROFILE ALONG -L- TAKEN FROM BRIDGE SURVEY AND HYDRAULIC DESIGN REPORT DATED 06/10/13.

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





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

WBS 17BP.2.R.51			TIP SF-390034			COUNTY GREENE			GEOLOGIST Wrike, C. M.		
SITE DESCRIPTION BRIDGE NO. 34 ON -L- (SR 1344) OVER MIDDLE SWAMP OVERFLOW							GROUND WTR (ft)				
BORING NO. B2-A			STATION 15+01			OFFSET 10 ft LT			ALIGNMENT -L-		
COLLAR ELEV. 31.9 ft			TOTAL DEPTH 70.0 ft			NORTHING 651,873			EASTING 2,432,757		
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012							DRILL METHOD Mud Rotary			HAMMER TYPE Automatic	
DRILLER Contract Driller			START DATE 07/30/13			COMP. DATE 07/30/13			SURFACE WATER DEPTH 3.5ft		

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					
35															
	31.9	0.0													31.9
			WOH	WOH	WOH										
30	28.4	3.5	1	3	3										
25	23.4	8.5	2	4	5										
20	18.4	13.5	2	2	3										
15	13.4	18.5	2	2	4										
10	8.4	23.5	2	3	3										
5	3.4	28.5	3	4	4										
0	-1.6	33.5	2	5	5										
-5	-6.6	38.5	2	3	5										
-10	-11.6	43.5	2	2	3										
-15	-16.6	48.5	15	51	49/0.4										
-20	-21.6	53.5	28	60	40/0.3										
-25	-26.6	58.5	27	64	36/0.2										
-30	-31.6	63.5	32	30	25										
-35	-36.6	68.5	14	25	43										

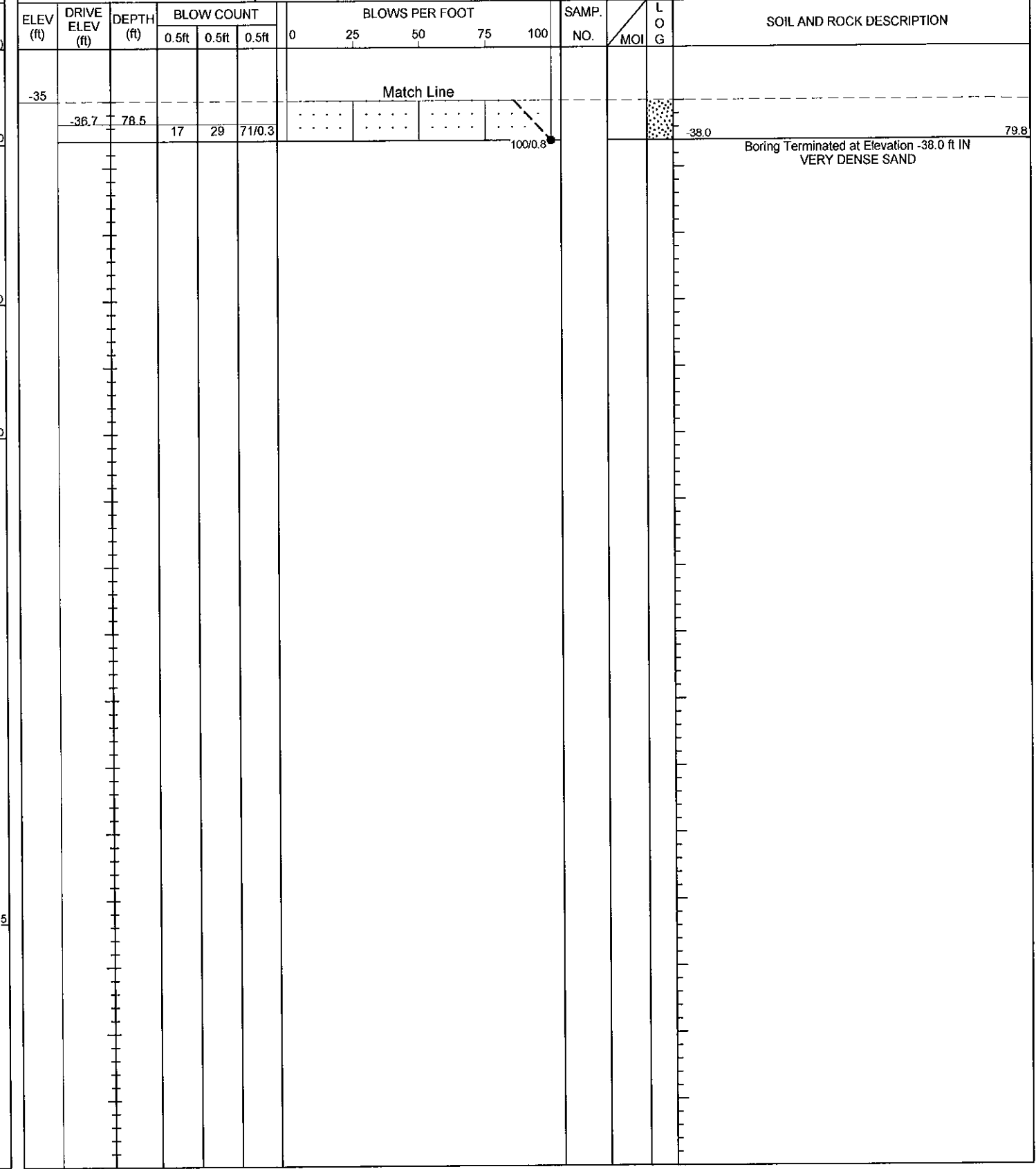
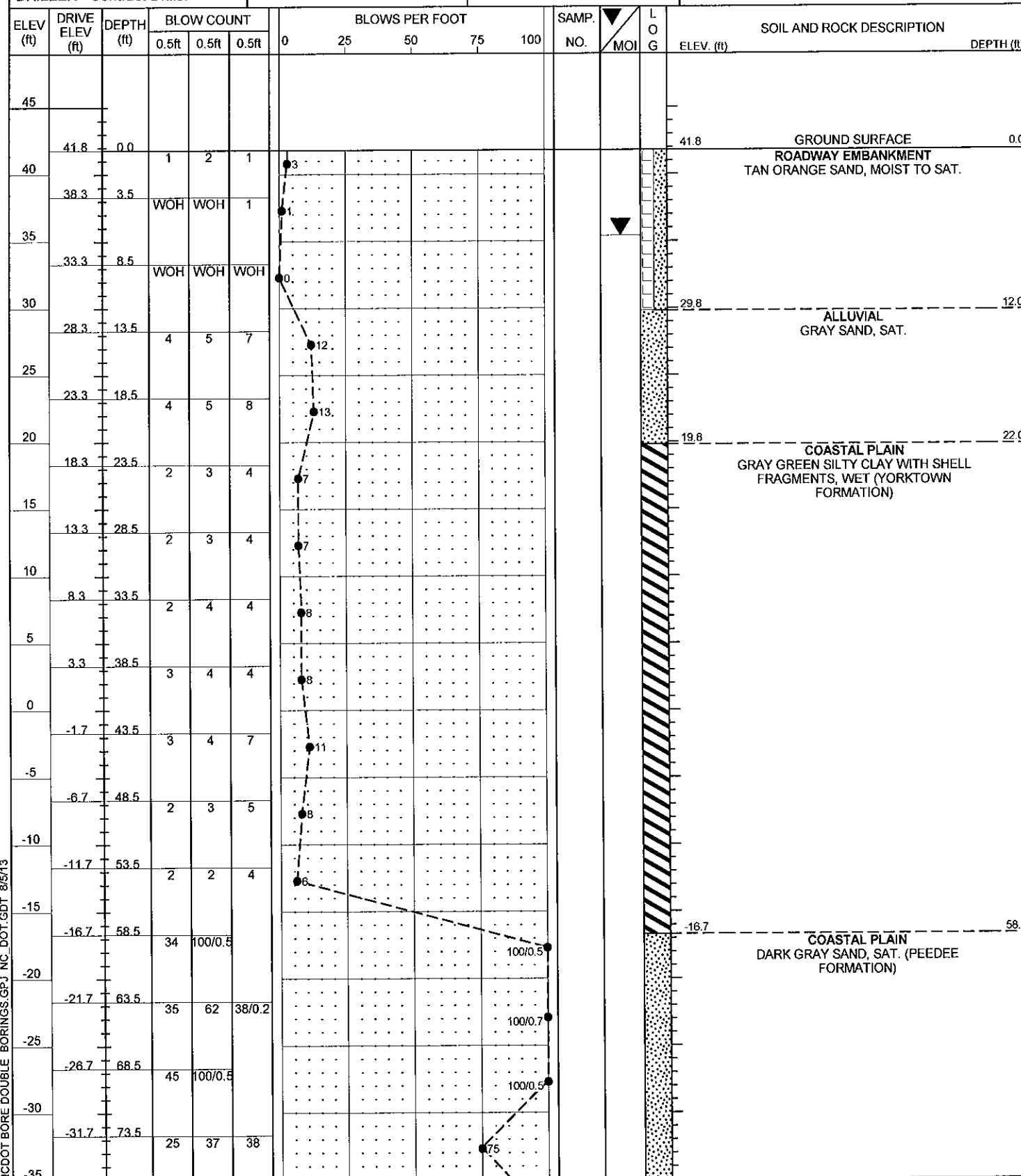
31.9	GROUND SURFACE	0.0
24.9	COASTAL PLAIN	7.0
	GRAY GREEN SILTY CLAY WITH SHELL FRAGMENTS, WET (YORKTOWN FORMATION)	
16.6	COASTAL PLAIN	48.5
	DARK GRAY SAND, SAT. (PEEDEE FORMATION)	
-38.1	Boring Terminated at Elevation -38.1 ft IN VERY DENSE SAND	70.0

NCDOT BORE DOUBLE BORINGS.GPJ NC\_DOT\_GDT\_8/5/13

# NCDOT GEOTECHNICAL ENGINEERING UNIT BORELOG REPORT

WBS 17BP.2.R.51	TIP SF-390034	COUNTY GREENE	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 34 ON -L- (SR 1344) OVER MIDDLE SWAMP OVERFLOW			GROUND WTR (ft) 0 HR. N/A
BORING NO. EB2-B	STATION 15+31	OFFSET 17 ft RT	ALIGNMENT -L-
COLLAR ELEV. 41.8 ft	TOTAL DEPTH 79.8 ft	NORTHING 651,905	EASTING 2,432,782
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 84% 12/14/2012		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 07/31/13	COMP. DATE 07/31/13	SURFACE WATER DEPTH N/A

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NCDOT BORE DOUBLE BORINGS.GPJ NC\_DOT.GDT 8/5/13