

REFERENCE: SF-420072

PROJECT: 17BP.6.R.96

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY HARNETT
PROJECT DESCRIPTION BRIDGE NO. 72 ON SR 2045
(ELLIOTT BRIDGE ROAD) OVER ANDERSON CREEK

CONTENTS

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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	SF-420072	1	7

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

K. PLUMMER

CAROLINA DRILLING

M. RADFORD

T. POGGIE

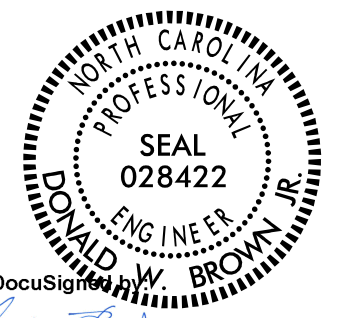
INVESTIGATED BY K. PLUMMER

DRAWN BY C.T. TANG, EI

CHECKED BY D. BROWN, PE

SUBMITTED BY D. BROWN, PE

DATE APRIL 2018



DocuSigned by:
Donald W. Brown Jr.

4/9/2018

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SIGNATURE

DATE

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

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

SOIL DESCRIPTION

SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 208, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6

SOIL LEGEND AND AASHTO CLASSIFICATION

Table with columns for General Class., Soil Legend, and AASHTO Classification. Includes symbols for various soil types like Granular, Silty-clay, and Organic materials.

PI OF A-7-5 SUBGROUP IS ≤ LL - 30; PI OF A-7-6 SUBGROUP IS > LL - 30

CONSISTENCY OR DENSENESS

Table showing consistency or denseness levels: Very loose, medium dense, very dense, very soft, medium stiff, stiff, very stiff, hard.

TEXTURE OR GRAIN SIZE

Table for texture or grain size with columns for U.S. Std. Sieve Size (mm) and corresponding soil texture (Boulder, Cobble, Gravel, etc.).

SOIL MOISTURE - CORRELATION OF TERMS

Table correlating soil moisture scale (Atterberg limits) with field moisture descriptions (Saturated, Wet, Moist, Dry).

PLASTICITY

Table relating Plasticity Index (PI) to Dry Strength (Very Low, Slight, Medium, High).

COLOR

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.

GRADATION

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.

ANGULARITY OF GRAINS

THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.

MINERALOGICAL COMPOSITION

MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE LL < 31
MODERATELY COMPRESSIBLE LL = 31 - 50
HIGHLY COMPRESSIBLE LL > 50

PERCENTAGE OF MATERIAL

Table showing percentage of material: Organic material (trace to highly organic), Granular soils (2-3% to >10%), Silty-clay soils (3-5% to >20%), and Other material (trace to 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

MISCELLANEOUS SYMBOLS

Symbols for Roadway Embankment, Artificial Fill, Inferred Soil Boundary, Inferred Rock Line, Alluvial Soil Boundary, Dip and Dip Direction, SPT Test Boring, Auger Boring, Core Boring, Monitoring Well, Piezometer Installation, Sounding Rod, and SPT N-Value.

RECOMMENDATION SYMBOLS

Symbols for Undercut, Shallow Undercut, Unclassified Excavation - Unsuitable Waste, and Unclassified Excavation - Acceptable Degradable Rock.

ABBREVIATIONS

List of abbreviations including 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, FRAGS - Fragments, HI - Highly, MED - Medium, MICA - Micaceous, MOD - Moderately, NP - Non Plastic, ORG - Organic, PMT - Pressuremeter Test, SAP - Saprolitic, SD - Sand, Sandy, SL - Silty, SILTY, SLI - Slightly, TCR - Tricone Refusal, w - Moisture Content, V - Very, VST - Vane Shear Test, WEA - Weathered, UNIT WEIGHT, DRY UNIT WEIGHT, SAMPLE ABBREVIATIONS, S - Bulk, SS - Split Spoon, ST - Shelby Tube, RS - Rock, RT - Recompact Triaxial, CBR - California Bearing Ratio.

EQUIPMENT USED ON SUBJECT PROJECT

Form with checkboxes for equipment used: Drill units (CME-45C, CME-55, CME-550, Vane Shear Test, Portable Hoist), Advancing Tools (Clay Bits, 6" Continuous Flight Auger, 8" Hollow Augers, Hard Faced Finger Bits, Tung-Carbide Inserts, Casing, W/ Advancer, Tricone, Core Bit), Hammer Type (Automatic, Manual), Core Size (-B, -N, -H), and Hand Tools (Post Hole Digger, Hand Auger, Sounding Rod, Vane Shear Test).

ROCK DESCRIPTION

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 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:

WEATHERED ROCK (WR): NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.

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.

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.

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.

WEATHERING

Table describing weathering levels: Fresh, Very Slight (IV SLI), Slight (SLI), Moderate (MOD), Moderately Severe (MOD. SEV.), Severe (SEV.), Very Severe (IV SEV.), and Complete. Includes descriptions of rock appearance and strength changes.

ROCK HARDNESS

Table describing rock hardness levels: Very Hard, Hard, Moderately Hard, Medium Hard, Soft, Very Soft. Includes descriptions of how the rock responds to picking and gouging.

FRACTURE SPACING

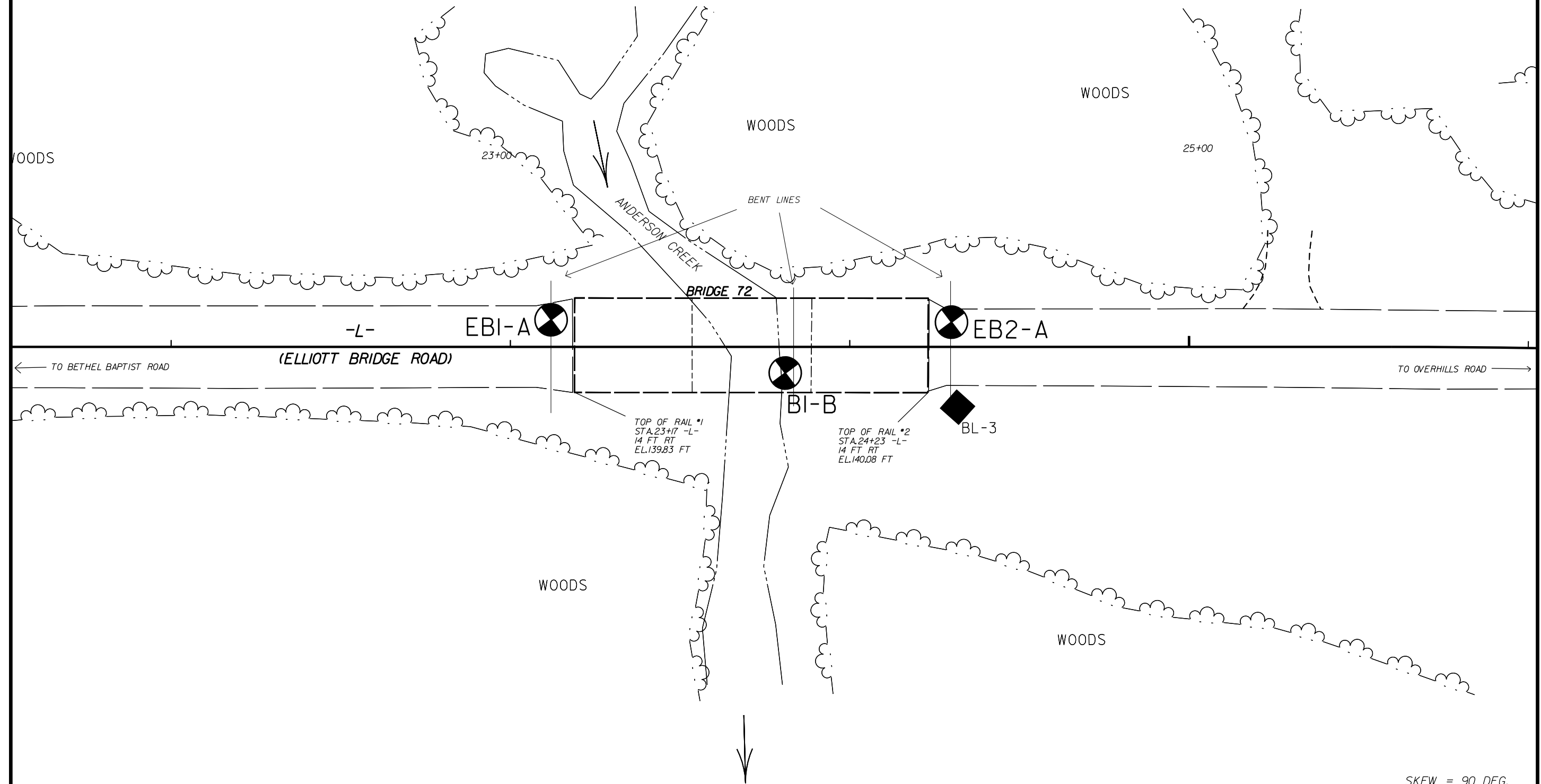
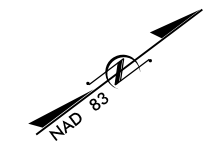
Table relating Fracture Spacing and Bedding to Induration levels: Very Wide, Wide, Moderately Close, Close, Very Close.

INDURATION

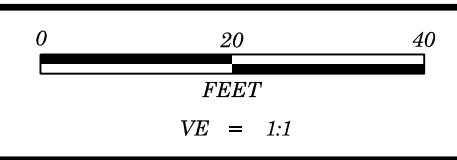
FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. Friable: Rubbing with finger frees numerous grains; Gentle blow by hammer disintegrates sample. Moderately Indurated: Grains can be separated from sample with steel probe; Breaks easily when hit with hammer. 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.

TERMS AND DEFINITIONS

ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
AQUIFER - A WATER BEARING FORMATION OR STRATA.
ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.
ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.
CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.
CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.
DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.
DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOGGED FROM PARENT MATERIAL.
FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.
JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.
LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIUOUS STRATUM.
RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
ROCK QUALITY DESIGNATION (ROQ) - 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.
SLICKENISE - 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 (SROQ) - 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.
BENCH MARK: BL-3 AT STA. 16+00 -BL-, 18 FT RT
ELEVATION: 136.67 FEET
NOTES:



SKEW = 90 DEG.



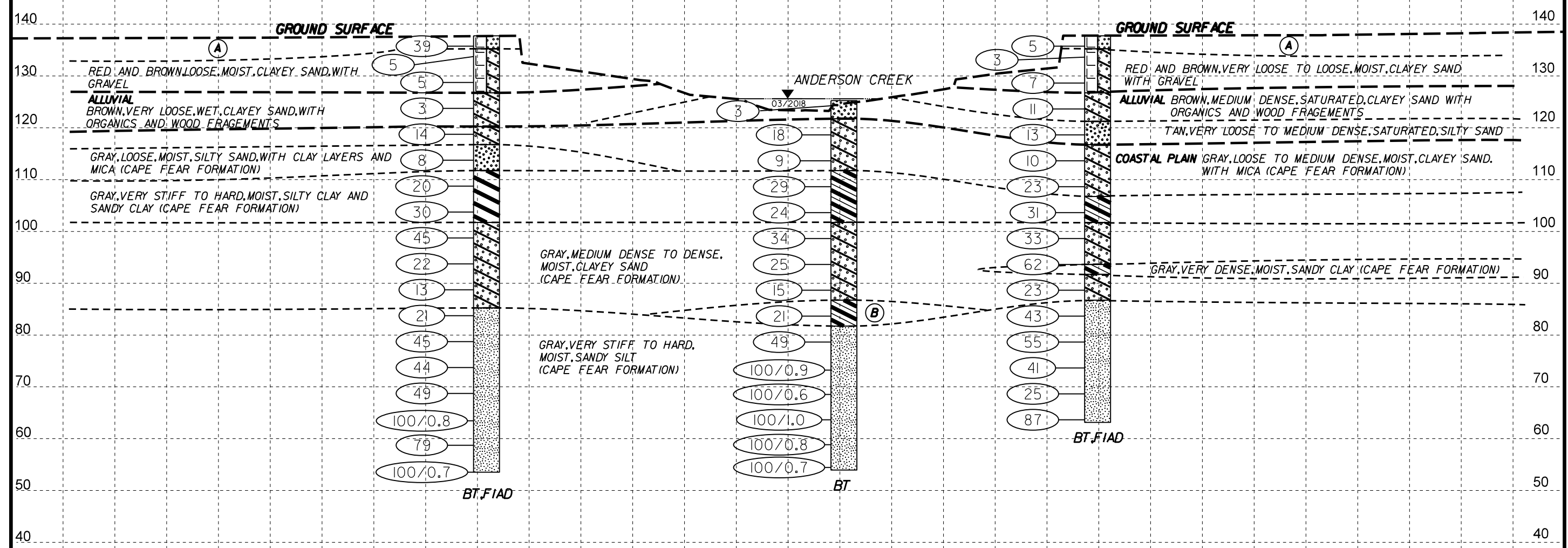
PROJECT REFERENCE NO.	SHEET NO.
SF-420072	4
PROFILE ALONG -L- CENTERLINE	

- (A) **ROADWAY EMBANKMENT** TAN, LOOSE TO DENSE, MOIST, SILTY SAND
- (B) **COASTAL PLAIN** GRAY, VERY STIFF, MOIST, SANDY CLAY (CAPE FEAR FORMATION)

EBI-A
23+12
8 FT LT

BI-B
23+81
8 FT RT

EB2-A
24+30
7 FT LT



23+00

24+00

25+00

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 17.BP.6.R.96		TIP SF-420072		COUNTY HARNETT		GEOLOGIST K. Plummer											
SITE DESCRIPTION Bridge No. 72 on SR 2045 (Elliott Bridge Road) over Anderson Creek							GROUND WTR (ft)										
BORING NO. EB1-A		STATION 23+12		OFFSET 8 ft LT		ALIGNMENT -L-											
COLLAR ELEV. 137.7 ft		TOTAL DEPTH 84.2 ft		NORTHING 548,975		EASTING 2,038,558											
DRILL RIG/HAMMER EFF./DATE BRI2974 CME-45C 93% 02/26/2018			DRILL METHOD Mud Rotary			HAMMER TYPE Automatic											
DRILLER M. Radford		START DATE 03/13/18		COMP. DATE 03/13/18		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		ELEV. (ft)	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
140																	
	136.7	1.0	15	24	15								GROUND SURFACE		0.0		
	ROADWAY EMBANKMENT																
135	134.7	3.0	4	2	3								Tan, Silty Sand		2.5		
			Red Brown to Dark Brown, Clayey Sand with Gravel														
130	129.7	8.0	3	3	2												
	126.7	11.0	ALLUVIAL														
	Gray, Clayey Sand with Roots																
125	124.7	13.0	1	1	2												
	120.2	17.5	COASTAL PLAIN														
	Gray, Clayey Sand [Cape Fear Formation]																
120	119.7	18.0	6	6	8												
	116.7	21.0	Gray, Silty Sand with Clay Layers and Mica [Cape Fear Formation]														
115	114.7	23.0	3	4	4												
	111.7	26.0	Gray, Silty Clay [Cape Fear Formation]														
110	109.7	28.0	5	8	12												
	101.7	36.0	Gray, Clayey Sand [Cape Fear Formation]														
105	104.7	33.0	11	14	16												
	95.2	44.0	Gray to Red, Sandy Silt [Cape Fear Formation]														
100	99.7	38.0	12	20	25												
	85.2	52.5	Gray to Red, Sandy Silt [Cape Fear Formation]														
95	94.7	43.0	6	10	12												
	79.7	58.0	Boring Terminated at Elevation 53.5 ft in Sandy Silt														
90	89.7	48.0	5	6	7												
	74.7	63.0	Boring Terminated at Elevation 53.5 ft in Sandy Silt														
85	84.7	53.0	6	9	12												
	69.7	68.0	Boring Terminated at Elevation 53.5 ft in Sandy Silt														
80	79.7	58.0	13	21	24												
	64.7	73.0	Boring Terminated at Elevation 53.5 ft in Sandy Silt														
75	74.7	63.0	11	18	26												
	53.5		Boring Terminated at Elevation 53.5 ft in Sandy Silt														
70	69.7	68.0	14	24	25												
			Boring Terminated at Elevation 53.5 ft in Sandy Silt														
65	64.7	73.0	16	55	45/0.3												
			Boring Terminated at Elevation 53.5 ft in Sandy Silt														
60			Boring Terminated at Elevation 53.5 ft in Sandy Silt														

NCDOT BORE DOUBLE 420072_GEO_BRD072_BH.GPJ_NC_DOT.GDT 04/09/18

WBS 17.BP.6.R.96		TIP SF-420072		COUNTY HARNETT		GEOLOGIST K. Plummer											
SITE DESCRIPTION Bridge No. 72 on SR 2045 (Elliott Bridge Road) over Anderson Creek							GROUND WTR (ft)										
BORING NO. EB1-A		STATION 23+12		OFFSET 8 ft LT		ALIGNMENT -L-											
COLLAR ELEV. 137.7 ft		TOTAL DEPTH 84.2 ft		NORTHING 548,975		EASTING 2,038,558											
DRILL RIG/HAMMER EFF./DATE BRI2974 CME-45C 93% 02/26/2018			DRILL METHOD Mud Rotary			HAMMER TYPE Automatic											
DRILLER M. Radford		START DATE 03/13/18		COMP. DATE 03/13/18		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		ELEV. (ft)	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
60																	
	59.7	78.0	26	32	47								Match Line				
			Gray to Red, Sandy Silt [Cape Fear Formation] (continued)														
55	54.7	83.0	25	64	36/0.2												
			Boring Terminated at Elevation 53.5 ft in Sandy Silt														
			Boring Terminated at Elevation 53.5 ft in Sandy Silt														

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 17.BP.6.R.96		TIP SF-420072		COUNTY HARNETT		GEOLOGIST K. Plummer									
SITE DESCRIPTION Bridge No. 72 on SR 2045 (Elliott Bridge Road) over Anderson Creek							GROUND WTR (ft)								
BORING NO. B1-B		STATION 23+81		OFFSET 8 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 125.2 ft		TOTAL DEPTH 71.3 ft		NORTHING 549,021		EASTING 2,038,612									
DRILL RIG/HAMMER EFF./DATE BRI2974 CME-45C 93% 02/26/2018			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER M. Radford		START DATE 03/14/18		COMP. DATE 03/14/18		SURFACE WATER DEPTH 1.2ft									
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					
130															
125	125.2	0.0	1	1	2										125.2
WATER SURFACE (03/14/18) MUD LINE															
															121.7
ALLUVIAL Tan, Silty Sand															
120	119.6	5.6	5	8	10										121.7
COASTAL PLAIN Gray, Clayey Sand [Cape Fear Formation]															
115	114.6	10.6	4	4	5										111.7
Gray, Sandy Clay [Cape Fear Formation]															
110	109.6	15.6	7	14	15										101.7
Gray, Clayey Sand [Cape Fear Formation]															
105	104.6	20.6	9	11	13										86.7
Gray, Sandy Clay [Cape Fear Formation]															
100	99.6	25.6	11	16	18										81.7
Gray, Sandy Silt [Cape Fear Formation]															
95	94.6	30.6	10	12	13										
90	89.6	35.6	7	7	8										
85	84.6	40.6	5	9	12										
80	79.6	45.6	11	19	30										
75	74.6	50.6	18	35	65/0.4										
70	69.6	55.6	18	67	33/0.1										
65	64.6	60.6	35	65/0.5											
60	59.6	65.6	48	52/0.3											
55	54.6	70.6	50	50/0.2											
															53.9
Boring Terminated at Elevation 53.9 ft In Sandy Silt															

WBS 17.BP.6.R.96		TIP SF-420072		COUNTY HARNETT		GEOLOGIST K. Plummer									
SITE DESCRIPTION Bridge No. 72 on SR 2045 (Elliott Bridge Road) over Anderson Creek							GROUND WTR (ft)								
BORING NO. EB2-A		STATION 24+30		OFFSET 7 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 137.7 ft		TOTAL DEPTH 74.6 ft		NORTHING 549,069		EASTING 2,038,630									
DRILL RIG/HAMMER EFF./DATE BRI2974 CME-45C 93% 02/26/2018			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER M. Radford		START DATE 03/15/18		COMP. DATE 03/15/18		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					
140															
135	136.7	1.0	4	3	2										137.7
GROUND SURFACE															
ROADWAY EMBANKMENT															
															135.2
Red Brown, Silty Sand with Trace Clay															
Red Brown to Tan, Clayey Sand															
130	129.6	8.1	2	4	3										126.7
ALLUVIAL															
Brown, Clayey Sand with Organics and Wood Fragments															
125	124.6	13.1	3	4	7										121.2
Tan, Silty Sand															
120	119.6	18.1	4	6	7										116.7
COASTAL PLAIN															
Gray, Clayey Sand with Some Mica [Cape Fear Formation]															
115	114.6	23.1	3	4	6										106.7
Gray, Sandy Clay [Cape Fear Formation]															
110	109.6	28.1	7	10	13										101.7
Gray, Clayey Sand [Cape Fear Formation]															
105	104.6	33.1	10	13	18										93.6
Gray, Sandy Clay [Cape Fear Formation]															
100	99.6	38.1	8	16	17										91.7
Gray, Clayey Sand [Cape Fear Formation]															
95	94.6	43.1	8	12	50										86.7
Gray, Sandy Silt [Cape Fear Formation]															
90	89.6	48.1	14	11	12										
85	84.6	53.1	9	17	26										
80	79.6	58.1	14	21	34										
75	74.6	63.1	14	20	21										
70	69.6	68.1	7	11	14										
65	64.6	73.1	15	32	55										
															63.1
Boring Terminated at Elevation 63.1 ft In Sandy Silt															

NCDOT BORE DOUBLE 420072_GEO_BRD072_BH.GPJ_NC_DOT.GDT 04/09/18

SITE PHOTOGRAPH

BRIDGE 72



VIEW LOOKING NORTH