

REFERENCE: SF-240043

PROJECT: BP2.R022

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	SF-240043	1	8

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4	PROFILE
5-8	BORE LOGS

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY CRAVEN/PITT
PROJECT DESCRIPTION BRIDGE NO. 43 ON -L-
(SR 1465) OVER SWIFT CREEK AT STA. 13+88

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 PERFORM INDEPENDENT SUBSURFACE INVESTIGATIONS AND MAKE INTERPRETATIONS AS NECESSARY TO CONFIRM CONDITIONS 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:
- 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.
 - 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

S.N. ZIMARINO

T.W. MILLER

C.M. WALKER

J.M. EDMONDSON

INVESTIGATED BY T.C. BOTTOMS

DRAWN BY S.N. ZIMARINO

CHECKED BY D.N. ARGENBRIGHT

SUBMITTED BY D.N. ARGENBRIGHT

DATE JUNE 2023







DocuSigned by:
Tyler Bottoms 07/31/2023

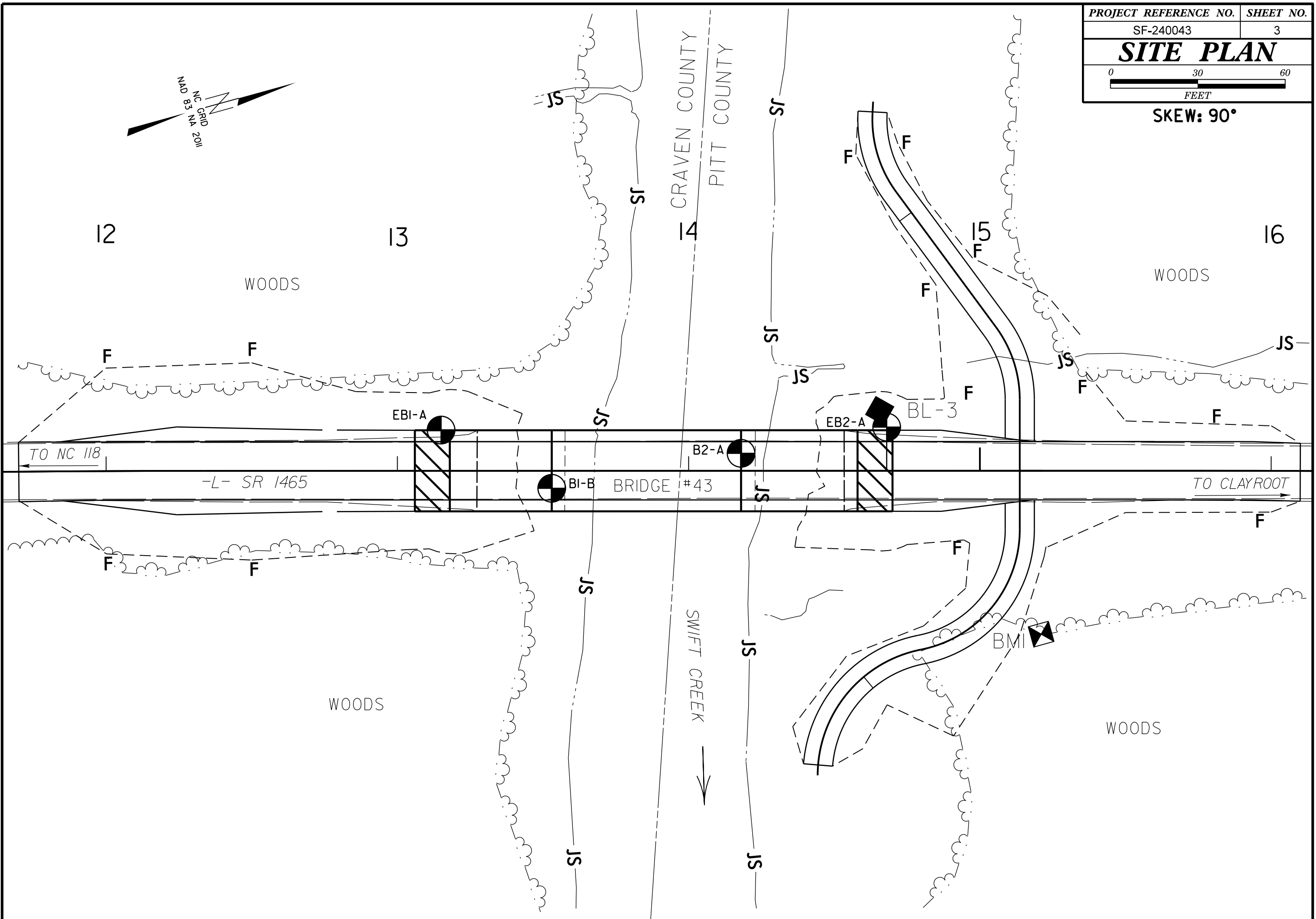
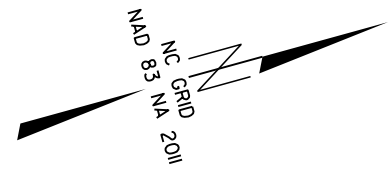
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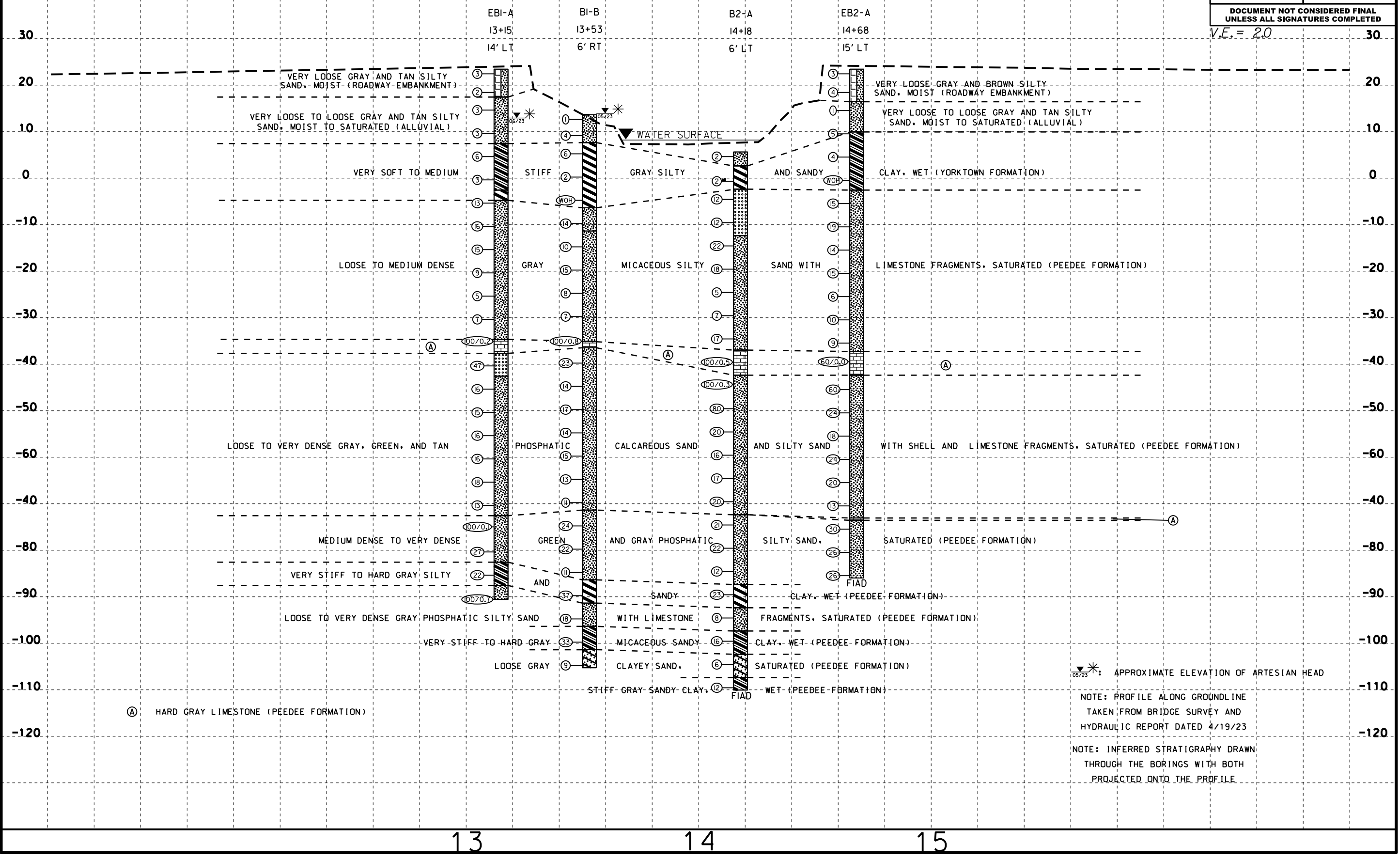
**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS**

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 (ASTM T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, <i>VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</i>										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:  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 PHYLLITE, SLATE, SANDSTONE, ETC.  COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. 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, 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 IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (ROD) - 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										MINERALOGICAL COMPOSITION										WEATHERING																																							
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 WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.										FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT (V SLI.) 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 (SLI.) 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. <i>IF TESTED, WOULD YIELD SPT REFUSAL</i> 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. <i>IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF</i> 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. <i>IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF</i> 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.										MUCK, PEAT										ROCK HARDNESS																			
GROUP CLASS. A-1-a, A-1-b, A-3, A-2-4, A-2-5, A-2-6, A-2-7, A-4, A-5, A-6, A-7, A-1, A-2, A-3, A-4, A-5, A-6, A-7										SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50										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 GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PIECES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK. SOFT CAN BE GROVED 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.										SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER										VERY THICKLY BEDDED 4 FEET THICKLY BEDDED 1.5 - 4 FEET MODERATELY BEDDED 0.16 - 1.5 FEET THINLY BEDDED 0.03 - 0.16 FEET VERY THINLY BEDDED 0.008 - 0.03 FEET THICKLY LAMINATED 0.008 - 0.03 FEET THINLY LAMINATED < 0.008 FEET																			
SYMBOL										PERCENTAGE OF MATERIAL										GROUND WATER																																							
% PASSING #10, #40, #200										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										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																																							
MATERIAL PASSING #40 LL PI										GROUND WATER										MISCELLANEOUS SYMBOLS																																							
GROUP INDEX										RECOMMENDATION SYMBOLS										ABBREVIATIONS																																							
USUAL TYPES OF MAJOR MATERIALS										UNDERCUT, SHALLOW UNDERCUT, UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE, UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK										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, SPT - SPLIT SPOON, ST - SHELBY TUBE, RS - ROCK, RT - RECOMPACTED TRIAXIAL, CBR - CALIFORNIA BEARING RATIO, V - VERY										VST - VANE SHEAR TEST, WEA. - WEATHERED, U - UNIT WEIGHT, D - DRY UNIT WEIGHT, S - BULK, SS - SPLIT SPOON, ST - SHELBY TUBE, RS - ROCK, RT - RECOMPACTED TRIAXIAL, CBR - CALIFORNIA BEARING RATIO																													
GEN. RATING AS SUBGRADE										ABBREVIATIONS										EQUIPMENT USED ON SUBJECT PROJECT																																							
PI OF A-7-5 SUBGROUP IS <= LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30										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 2 1/8" STEEL TEETH, TRICONE * TUNG-CARB., CORE BIT										HAMMER TYPE: AUTOMATIC, MANUAL, CORE SIZE: -B, -H, -N, HAND TOOLS: POST HOLE DIGGER, HAND AUGER, SOUNDING ROD, VANE SHEAR TEST																													
CONSISTENCY OR DENSENESS										TEXTURE OR GRAIN SIZE										SOIL MOISTURE - CORRELATION OF TERMS																																							
PRIMARY SOIL TYPE										U.S. STD. SIEVE SIZE OPENING (MM): 4, 10, 40, 60, 200, 270										SOIL MOISTURE SCALE (ATTERBERG LIMITS)																																							
COMPACTNESS OR CONSISTENCY										BOULDER (BLDR.), COBBLE (COB.), GRAVEL (GR.), COARSE SAND (CSE, SD.), FINE SAND (F SD.), SILT (SL.), CLAY (CL.)										FIELD MOISTURE DESCRIPTION																																							
RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE)										GRAIN SIZE										GUIDE FOR FIELD MOISTURE DESCRIPTION																																							
RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)										GRAIN MM, IN.										LIQUID LIMIT, PLASTIC LIMIT, OPTIMUM MOISTURE SHRINKAGE LIMIT																																							
VERY LOOSE, MEDIUM DENSE, DENSE, VERY DENSE										GRAIN MM, IN.										- SATURATED - (SAT.) - WET - (W) - MOIST - (M) - DRY - (D)																																							
VERY SOFT, SOFT, MEDIUM STIFF, STIFF, VERY HARD										GRAIN MM, IN.										USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE SOLID; AT OR NEAR OPTIMUM MOISTURE REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE																																							
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SKEW: 90°



PROFILE THROUGH BORINGS ALONG -L-



V.E. = 2.0

(A) HARD GRAY LIMESTONE (PEEDEE FORMATION)

▽*: APPROXIMATE ELEVATION OF ARTESIAN HEAD

NOTE: PROFILE ALONG GROUNDLINE TAKEN FROM BRIDGE SURVEY AND HYDRAULIC REPORT DATED 4/19/23

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

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GEOTECHNICAL BORING REPORT

BORE LOG

WBS BP2.R022.1		TIP SF-240043		COUNTY CRAVEN		GEOLOGIST Zimarino, S. N.	
SITE DESCRIPTION BRIDGE NUMBER 43 ON -L- (SR 1465) OVER SWIFT CREEK							GROUND WTR (ft)
BORING NO. EB1-A		STATION 13+15		OFFSET 14 ft LT		ALIGNMENT -L-	
COLLAR ELEV. 23.4 ft		TOTAL DEPTH 114.0 ft		NORTHING 587,382		EASTING 2,518,491	
DRILL RIGHAMMER EFF./DATE GFC0075 CME-45C 90% 11/21/2022				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic	
DRILLER Walker, C. M.		START DATE 06/01/23		COMP. DATE 06/01/23		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						
25	23.4	0.0	1	1	2									23.4	GROUND SURFACE	0.0
															ROADWAY EMBANKMENT	
															GRAY AND TAN SILTY SAND, MOIST	
20	19.4	4.0	1	1	1									17.4	ALLUVIAL	6.0
															BROWN AND GRAY SILTY SAND WITH WOOD, MOIST TO SATURATED	
15	15.6	7.8	1	1	2											
10	10.6	12.8	1	1	2									7.4	COASTAL PLAIN	16.0
															GRAY SANDY CLAY, WET (YORKTOWN FORMATION)	
5	5.6	17.8	3	3	3											
0	0.6	22.8	1	1	2									-2.6	GRAY SILTY CLAY, WET	26.0
-5	-4.4	27.8	WOH	4	9									-4.8	GRAY CALCAREOUS SILTY SAND WITH LIMESTONE FRAGMENTS, SATURATED (PEEDEE FORMATION)	28.2
-10	-9.4	32.8	5	7	9											
-15	-14.4	37.8	6	7	8											
-20	-19.4	42.8	3	4	5											
-25	-24.4	47.8	2	2	3											
-30	-29.4	52.8	3	3	4											
-35	-34.4	57.8	44	100/0.2										-34.7	HARD GRAY LIMESTONE	58.1
-40	-39.4	62.8	16	20	27									-37.7		61.1
-45	-44.4	67.8	8	8	8									-42.6	GRAY SAND AND SILTY SAND WITH SHELL FRAGMENTS, SATURATED	66.0
-50	-49.4	72.8	7	7	8											
-55	-54.4	77.8														

NCDOT BORE DOUBLE SF240043_GEO_BRDG.GPJ_NC_DOT.GDT 6/23/23

WBS BP2.R022.1		TIP SF-240043		COUNTY CRAVEN		GEOLOGIST Zimarino, S. N.	
SITE DESCRIPTION BRIDGE NUMBER 43 ON -L- (SR 1465) OVER SWIFT CREEK							GROUND WTR (ft)
BORING NO. EB1-A		STATION 13+15		OFFSET 14 ft LT		ALIGNMENT -L-	
COLLAR ELEV. 23.4 ft		TOTAL DEPTH 114.0 ft		NORTHING 587,382		EASTING 2,518,491	
DRILL RIGHAMMER EFF./DATE GFC0075 CME-45C 90% 11/21/2022				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic	
DRILLER Walker, C. M.		START DATE 06/01/23		COMP. DATE 06/01/23		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						
-55			7	8	8										Match Line	
-60	-59.4	82.8	7	8	8										GRAY SAND AND SILTY SAND WITH SHELL FRAGMENTS, SATURATED (continued)	
-65	-64.4	87.8	7	9	9											
-70	-69.4	92.8	5	6	7											
-75	-74.4	97.8	27	100/0.1										-72.6	GRAY PHOSPHATIC SILTY SAND, SATURATED	96.0
-80	-79.4	102.8	6	16	11									-82.6	GRAY SANDY CLAY, WET	106.0
-85	-84.4	107.8	4	5	17									-87.6	GRAY SILTY SAND, SATURATED	111.0
-90	-89.4	112.8	4	6	94/0.2									-90.6	Boring Terminated at Elevation -90.6 ft in Very Dense Silty Sand	114.0

GEOTECHNICAL BORING REPORT

BORE LOG

WBS BP2.R022.1		TIP SF-240043		COUNTY CRAVEN		GEOLOGIST Miller, T. W.												
SITE DESCRIPTION BRIDGE NUMBER 43 ON -L- (SR 1465) OVER SWIFT CREEK							GROUND WTR (ft)											
BORING NO. B1-B		STATION 13+53		OFFSET 6 ft RT		ALIGNMENT -L-												
COLLAR ELEV. 13.6 ft		TOTAL DEPTH 118.9 ft		NORTHING 587,479		EASTING 2,518,527												
DRILL RIGHAMMER EFF./DATE GFC0075 CME-45C 90% 11/21/2022			DRILL METHOD Mud Rotary			HAMMER TYPE Automatic												
DRILLER Walker, C. M.		START DATE 05/30/23		COMP. DATE 05/30/23		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								
15	13.6	0.0													13.6	GROUND SURFACE	0.0	
			WOH	WOH	1													
10	10.1	3.5	3	2	2													
5	6.2	7.4	2	2	4													
0	1.2	12.4	1	1	1													
-5	-3.9	17.4	WOH	WOH	WOH													
-10	-8.9	22.4	5	6	8													
-15	-13.9	27.4	2	4	6													
-20	-18.9	32.4	7	5	10													
-25	-23.9	37.4	3	3	5													
-30	-28.9	42.4	3	3	4													
-35	-33.9	47.4	5	12	88/0.3													
-40	-38.9	52.4	11	10	13													
-45	-43.9	57.4	8	6	8													
-50	-48.9	62.4	8	8	9													
-55	-53.9	67.4	6	7	7													
-60	-58.9	72.4	4	7	8													
-65	-63.9	77.4	5	6	7													

WBS BP2.R022.1		TIP SF-240043		COUNTY CRAVEN		GEOLOGIST Miller, T. W.											
SITE DESCRIPTION BRIDGE NUMBER 43 ON -L- (SR 1465) OVER SWIFT CREEK							GROUND WTR (ft)										
BORING NO. B1-B		STATION 13+53		OFFSET 6 ft RT		ALIGNMENT -L-											
COLLAR ELEV. 13.6 ft		TOTAL DEPTH 118.9 ft		NORTHING 587,479		EASTING 2,518,527											
DRILL RIGHAMMER EFF./DATE GFC0075 CME-45C 90% 11/21/2022			DRILL METHOD Mud Rotary			HAMMER TYPE Automatic											
DRILLER Walker, C. M.		START DATE 05/30/23		COMP. DATE 05/30/23		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							
-65																	
-70	-68.9	82.4	6	5	6												
-75	-73.9	87.4	10	8	16												
-80	-78.9	92.4	10	11	11												
-85	-83.9	97.4	5	5	6												
-90	-88.9	102.4	27	24	13												
-95	-93.9	107.4	18	11	7												
-100	-98.9	112.4	22	22	11												
-105	-103.9	117.4	3	4	5												

NCDOT BORE DOUBLE SF240043_GEO_BRDG.GPJ_NC_DOT.GDT 6/23/23

GEOTECHNICAL BORING REPORT

BORE LOG

WBS BP2.R022.1		TIP SF-240043		COUNTY CRAVEN		GEOLOGIST Miller, T. W.	
SITE DESCRIPTION BRIDGE NUMBER 43 ON -L- (SR 1465) OVER SWIFT CREEK							GROUND WTR (ft)
BORING NO. B2-A		STATION 14+18		OFFSET 6 ft LT		ALIGNMENT -L-	
COLLAR ELEV. 5.6 ft		TOTAL DEPTH 115.7 ft		NORTHING 587,413		EASTING 2,518,521	
DRILL RIGHAMMER EFF./DATE GFC0075 CME-45C 90% 11/21/2022			DRILL METHOD Mud Rotary			HAMMER TYPE Automatic	
DRILLER Edmondson, J. M.		START DATE 05/31/23		COMP. DATE 05/31/23		SURFACE WATER DEPTH 1.3ft	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
10																
5	5.6	0.0														
0	0.3	5.3	4	1	1											
-5	-3.6	9.2	3	5	7											
-10	-8.6	14.2	12	6	6											
-15	-13.6	19.2	3	9	13											
-20	-18.6	24.2	6	8	10											
-25	-23.6	29.2	3	2	3											
-30	-28.6	34.2	3	3	4											
-35	-33.6	39.2	8	12	5											
-40	-38.6	44.2	58	100/0.5												
-45	-43.6	49.2	38	100/0.3												
-50	-48.6	54.2	76	45	35											
-55	-53.6	59.2	25	12	8											
-60	-58.6	64.2	15	7	9											
-65	-63.6	69.2	12	8	9											
-70	-68.6	74.2	10	9	11											

WBS BP2.R022.1		TIP SF-240043		COUNTY CRAVEN		GEOLOGIST Miller, T. W.	
SITE DESCRIPTION BRIDGE NUMBER 43 ON -L- (SR 1465) OVER SWIFT CREEK							GROUND WTR (ft)
BORING NO. B2-A		STATION 14+18		OFFSET 6 ft LT		ALIGNMENT -L-	
COLLAR ELEV. 5.6 ft		TOTAL DEPTH 115.7 ft		NORTHING 587,413		EASTING 2,518,521	
DRILL RIGHAMMER EFF./DATE GFC0075 CME-45C 90% 11/21/2022			DRILL METHOD Mud Rotary			HAMMER TYPE Automatic	
DRILLER Edmondson, J. M.		START DATE 05/31/23		COMP. DATE 05/31/23		SURFACE WATER DEPTH 1.3ft	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
-70																
-75	-73.6	79.2	6	11	10											
-80	-78.6	84.2	9	11	11											
-85	-83.6	89.2	5	5	7											
-90	-88.6	94.2	3	5	18											
-95	-93.6	99.2	3	4	4											
-100	-98.6	104.2	10	6	10											
-105	-103.6	109.2	3	2	4											
-110	-108.6	114.2	3	4	8											

NCDOT BORE DOUBLE SF240043_GEO_BRDG.GPJ_NC_DOT.GDT 6/23/23

