

PROJECT: 47814

REFERENCE: B-5982

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

ROADWAY
SUBSURFACE INVESTIGATION

COUNTY HAYWOOD

PROJECT DESCRIPTION REPLACE BRIDGE #430095
ON US 74 SOUTHERN RAILROAD

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	47814	1	6

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:
- 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

CD JOHNSON

CJ COFFEY

C SHOOK

N RAUSCHENBERGER

INVESTIGATED BY DMM

DRAWN BY DMM

CHECKED BY JCK

SUBMITTED BY DMM

DATE 5.6.2022



DocuSigned by:
D Matt Mullen
18909BD3CD5440C...

05/06/2022

SIGNATUREDATE

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

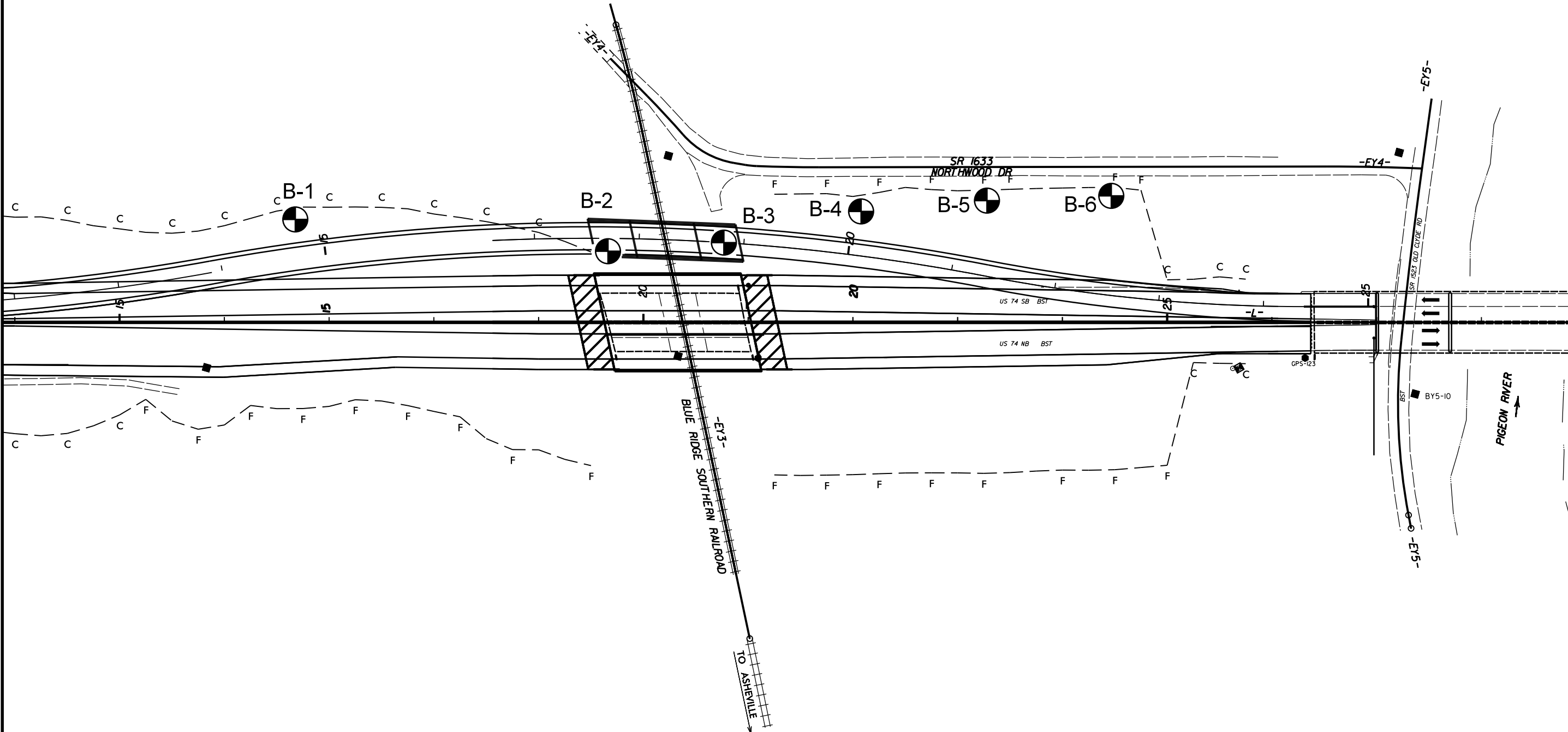
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION										GRADATION										ROCK DESCRIPTION										TERMS AND DEFINITIONS									
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, <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:										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 DISLOOGED 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										ANGULARITY OF GRAINS										WEATHERED ROCK (WR)										CRISTALLINE ROCK (CR)									
GENERAL CLASS.		GRANULAR MATERIALS (≤ 35% PASSING #200)					SILT-CLAY MATERIALS (> 35% PASSING #200)					ORGANIC MATERIALS					CRYSTALLINE ROCK (CR)		NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.																				
GROUP CLASS.	A-1-a	A-1-b	A-3	A-2		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-4, A-5	A-6, A-7	FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.																						
SYMBOL																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.																							
% PASSING #10 #40 #200	50 MX 30 MX 15 MX	50 MX 25 MX	51 MN 10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN	36 MN	GRANULAR SOILS		SILT-CLAY SOILS	MUCK, PEAT	COASTAL PLAIN SEDIMENTARY ROCK (CP)																						
MATERIAL PASSING #40 LL PI	-		-	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	41 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS		WEATHERING																						
GROUP INDEX	0		0	0		4 MX		8 MX	12 MX	16 MX	NO MX	FAIR TO POOR		FAIR TO POOR	POOR	UNSUITABLE	FRESH																						
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS, GRAVEL, AND SAND		FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND		SILTY SOILS		CLAYEY SOILS		CLAYEY SOILS		SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS		VERY SLIGHT (V SL.)																							
GEN. RATING AS SUBGRADE	EXCELLENT TO GOOD					FAIR TO POOR					FAIR TO POOR		POOR	UNSUITABLE	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.																						
PI OF A-7-5 SUBGROUP IS ≤ LL - 30; PI OF A-7-6 SUBGROUP IS > LL - 30										GROUND WATER										MODERATELY SEVERE (MOD. SEV.)																			
CONSISTENCY OR DENSENESS										MISCELLANEOUS SYMBOLS										SEVERE (SEV.)																			
PRIMARY SOIL TYPE		COMPACTNESS OR CONSISTENCY		RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE)				RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)				ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION		DIP & DIP DIRECTION OF ROCK STRUCTURES		SLOPE INDICATOR INSTALLATION																							
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)		VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE		< 4 4 TO 10 10 TO 30 30 TO 50				N/A				SOIL SYMBOL		TEST BORING		CONE PENETROMETER TEST																							
GENERALLY SILT-CLAY MATERIAL (COHESIVE)		VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD		< 2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 > 30				< 0.25 0.25 TO 0.5 0.5 TO 1.0 1 TO 2 2 TO 4 > 4				INFERRED SOIL BOUNDARY		CORE BORING		SOUNDING ROD																							
												INFERRED ROCK LINE		MONITORING WELL		TEST BORING WITH CORE																							
												ALLUVIAL SOIL BOUNDARY		PIEZOMETER INSTALLATION		SPT N-VALUE																							
TEXTURE OR GRAIN SIZE										RECOMMENDATION SYMBOLS										ROCK HARDNESS																			
U.S. STD. SIEVE SIZE OPENING (MM)		4 4.76		10 2.00		40 0.42		60 0.25		200 0.075		270 0.053		UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL		UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE		UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK																					
BOULDER (BLDR.)		COBBLE (COB.)		GRAVEL (GR.)		COARSE SAND (CSE, SD.)		FINE SAND (F SD.)		SILT (SL.)		CLAY (CL.)		UNDERCUT		SHALLOW UNDERCUT		UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK																					
GRAIN SIZE		305 12		75 3		2.0		0.25		0.05		0.005		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		VST - VANE SHEAR TEST WEA. - WEATHERED ? - UNIT WEIGHT ?g - DRY UNIT WEIGHT																					
SOIL MOISTURE - CORRELATION OF TERMS										ABBREVIATIONS										SAMPLE ABBREVIATIONS																			
SOIL MOISTURE SCALE (ATTERBERG LIMITS)		FIELD MOISTURE DESCRIPTION		GUIDE FOR FIELD MOISTURE DESCRIPTION				CME-45C		CME-55		CME-550		VANE SHEAR TEST		PORTABLE HOIST		HAMMER TYPE: <input checked="" type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL																					
LL		LIQUID LIMIT		- SATURATED - (SAT.)				USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE				CME-45C		CME-55		CME-550		CORE SIZE: <input type="checkbox"/> -B <input type="checkbox"/> -H <input type="checkbox"/> -N																					
PL		PLASTIC LIMIT		- WET - (W)				SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE				CME-45C		CME-55		CME-550		HAND TOOLS: <input type="checkbox"/> POST HOLE DIGGER <input type="checkbox"/> HAND AUGER <input type="checkbox"/> SOUNDING ROD <input type="checkbox"/> VANE SHEAR TEST																					
OM		OPTIMUM MOISTURE		- MOIST - (M)				SOLID; AT OR NEAR OPTIMUM MOISTURE				CME-45C		CME-55		CME-550																							
SL		SHRINKAGE LIMIT		- DRY - (D)				REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE				CME-45C		CME-55		CME-550																							
PLASTICITY										EQUIPMENT USED ON SUBJECT PROJECT										INDURATION																			
NON PLASTIC		SLIGHTLY PLASTIC		MODERATELY PLASTIC		HIGHLY PLASTIC		PLASTICITY INDEX (PI)		DRY STRENGTH		CLAY BITS		6" CONTINUOUS FLIGHT AUGER		HARD FACED FINGER BITS		TUNG.-CARBIDE INSERTS		CASING <input type="checkbox"/> W/ ADVANCER		TRICONE <input type="checkbox"/> * STEEL TEETH		TRICONE <input type="checkbox"/> * TUNG.-CARB.		CORE BIT													
COLOR										FRACTIONAL EQUIPMENT USED ON SUBJECT PROJECT										FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.																			
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.										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.																			

DATE: 8-15-14

PROJECT REFERENCE NO.	SHEET NO.
47814	3
SITE PLAN	
0 100 200 FEET	

B-5982 REPLACE HAYWOOD BRIDGE 430095
ON US 74 OVER SOUTHERN RAILROAD



WBS 47814.1.1		TIP B-5982		COUNTY HAYWOOD		GEOLOGIST Johnson, C. D.									
SITE DESCRIPTION REPLACE BRIDGE 430095 ON US-74 OVER SOUTHER RAILROAD							GROUND WTR (ft)								
BORING NO. B-1		STATION 14+76		OFFSET 37 ft LT		ALIGNMENT -L-DET-	0 HR. Dry								
COLLAR ELEV. 2,628.0 ft		TOTAL DEPTH 25.2 ft		NORTHING 671,636		EASTING 833,216	24 HR. Dry								
DRILL RIG/HAMMER EFF./DATE AFO6744 CME - 45C 96% 04/08/2019				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER Coffey, Jr., C.		START DATE 05/02/22		COMP. DATE 05/02/22		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					
2630															
2625	2,624.3	3.7	1	2	3	5						M	2,628.0	GROUND SURFACE	0.0
2620	2,619.3	8.7	2	3	4	7						M	2,622.8	RESIDUAL BROWN, SL MICACEOUS, CLAYEY-SANDY-SILT w/TR MnO SEAMS; ORGANICS(ROOTS)	5.2
2615	2,614.3	13.7	1	3	4	7						M		SAPROLITE BROWN-TAN, SL MICACEOUS, CLAYEY-SANDY-SILT w/MnO SEAMS T/O; WR FRAGMENTS @25.1'	
2610	2,609.3	18.7	2	6	7	13						M			
2605	2,604.3	23.7	2	5	7	12						M	2,602.8	Boring Terminated at Elevation 2,602.8 ft IN SAPROLITE	25.2

WBS 47814.1.1			TIP B-5982			COUNTY HAYWOOD			GEOLOGIST Johnson, C. D.				
SITE DESCRIPTION REPLACE BRIDGE 430095 ON US-74 OVER SOUTHER RAILROAD									GROUND WTR (ft)				
BORING NO. B-2			STATION 17+70			OFFSET 12 ft RT			ALIGNMENT -L-DET-			0 HR. Dry	
COLLAR ELEV. 2,587.0 ft			TOTAL DEPTH 23.6 ft			NORTHING 671,881			EASTING 833,389			24 HR. Dry	
DRILL RIG/HAMMER EFF./DATE AFO6744 CME - 45C 96% 04/08/2019						DRILL METHOD H.S. Augers			HAMMER TYPE Automatic				
DRILLER Coffey, Jr., C.			START DATE 05/02/22			COMP. DATE 05/02/55			SURFACE WATER DEPTH N/A				
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION
			0.5ft	0.5ft	0.5ft	0	25	50	75	100			
2590													
2585	2,584.1	2.9	2	7	8	15						M	GROUND SURFACE 0.0
2580	2,579.1	7.9	2	4	5	9						M	SAPROLITE BROWN, SL MICACEOUS, SANDY-SILT w/ CLAY; TR MnO SEAMS and WR FRAGS T/O
2575	2,574.1	12.9	1	4	6	10						M	
2570	2,569.1	17.9	1	20	16	36						M	
2565	2,565.4	21.6	100/0.4										2,565.8 21.2
	2,564.1	22.9	16	84/0.2									2,563.4 23.6
	2,563.4	23.6	60/0.0										WEATHERED ROCK HIGHLY WEATHERED BIOTITE GNEISS w/QUARTZ STRINGERS
													CRYSTALLINE ROCK BIOTITE GNEISS Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 2,563.4 ft ON CRYSTALLINE ROCK

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 47814.1.1			TIP B-5982			COUNTY HAYWOOD			GEOLOGIST Johnson, C. D.						
SITE DESCRIPTION REPLACE BRIDGE 430095 ON US-74 OVER SOUTHER RAILROAD									GROUND WTR (ft)						
BORING NO. B-3			STATION 18+81			OFFSET CL			ALIGNMENT -L-DET-			0 HR. N/A			
COLLAR ELEV. 2,561.8 ft			TOTAL DEPTH 20.9 ft			NORTHING 671,982			EASTING 833,436			24 HR. 15.0			
DRILL RIG/HAMMER EFF./DATE AFO6744 CME - 45C 96% 04/08/2019						DRILL METHOD H.S. Augers			HAMMER TYPE Automatic						
DRILLER Coffey, Jr., C.			START DATE 04/28/22			COMP. DATE 04/28/22			SURFACE WATER DEPTH N/A						
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)
2565															
2560														2,561.8	GROUND SURFACE 0.0
	2,558.2	3.6													
2555															
	2,553.2	8.6													
2550														2,551.6	WEATHERED ROCK 10.2
	2,548.2	13.6													
2545															
	2,543.2	18.6												2,542.1	19.7
	2,540.9	20.9												2,540.9	20.9

WBS 47814.1.1			TIP B-5982			COUNTY HAYWOOD			GEOLOGIST Johnson, C. D.					
SITE DESCRIPTION REPLACE BRIDGE 430095 ON US-74 OVER SOUTHER RAILROAD									GROUND WTR (ft)					
BORING NO. B-4			STATION 20+07			OFFSET 42 ft LT			ALIGNMENT -L-DET-			0 HR. N/A		
COLLAR ELEV. 2,543.8 ft			TOTAL DEPTH 25.1 ft			NORTHING 672,111			EASTING 833,475			24 HR. 6.0		
DRILL RIG/HAMMER EFF./DATE AFO6744 CME - 45C 96% 04/08/2019						DRILL METHOD H.S. Augers			HAMMER TYPE Automatic					
DRILLER Coffey, Jr., C.			START DATE 04/28/22			COMP. DATE 04/28/22			SURFACE WATER DEPTH N/A					
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
2545														
														2,543.8 GROUND SURFACE 0.0
2540	2,540.2	3.6												ARTIFICIAL FILL V. SOFT, BROWN, SL MICACEOUS, CLAYEY-SILT w/TR SAND
			1	1	2									2,537.2 6.6
2535	2,535.2	8.6	1	2	2									ALLUVIAL GREY-BROWN TO GREY, CLAYEY-SILT w/ MINOR SAND, SL MICACEOUS, w/ORGANICS (ROOTS, TWIGS)
2530	2,530.2	13.6	1	2	2									
2525	2,525.2	18.6	WOH	WOH	1									
2520	2,520.2	23.6	1	1	1									2,518.7 25.1
														Boring Terminated at Elevation 2,518.7 ft IN ALLUVIUM

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 47814.1.1			TIP B-5982			COUNTY HAYWOOD			GEOLOGIST Johnson, C. D.					
SITE DESCRIPTION REPLACE BRIDGE 430095 ON US-74 OVER SOUTHER RAILROAD									GROUND WTR (ft)					
BORING NO. B-5			STATION 21+20			OFFSET 71 ft RT			ALIGNMENT -L-DET-			0 HR. N/A		
COLLAR ELEV. 2,536.3 ft			TOTAL DEPTH 24.3 ft			NORTHING 672,221			EASTING 833,524			24 HR. 3.0		
DRILL RIG/HAMMER EFF./DATE AFO6744 CME - 45C 96% 04/08/2019						DRILL METHOD H.S. Augers			HAMMER TYPE Automatic					
DRILLER Coffey, Jr., C.			START DATE 04/29/22			COMP. DATE 04/29/22			SURFACE WATER DEPTH N/A					
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100		MOI	ELEV. (ft)	DEPTH (ft)
2540														
2535													2,536.3	GROUND SURFACE 0.0
2530	2,533.5	2.8	1	3	3						M			
2525	2,528.5	7.8	2	3	3						M			
2520	2,523.5	12.8	WOH	WOH	2						W			
2515	2,518.5	17.8	2	2	2						M			
	2,513.5	22.8	WOH	WOH	3						W		2,512.0	24.3
													Boring Terminated at Elevation 2,512.0 ft IN ALLUVIUM	

WBS 47814.1.1			TIP B-5982			COUNTY HAYWOOD			GEOLOGIST Johnson, C. D.				
SITE DESCRIPTION REPLACE BRIDGE 430095 ON US-74 OVER SOUTHER RAILROAD									GROUND WTR (ft)				
BORING NO. B-6			STATION 22+43			OFFSET 94 ft LT			ALIGNMENT -L-DET-			0 HR.	N/A
COLLAR ELEV. 2,531.7 ft			TOTAL DEPTH 24.5 ft			NORTHING 672,326			EASTING 833,579			24 HR.	4.5
DRILL RIG/HAMMER EFF./DATE AFO6744 CME - 45C 96% 04/08/2019						DRILL METHOD H.S. Augers			HAMMER TYPE Automatic				
DRILLER Coffey, Jr., C.			START DATE 04/29/22			COMP. DATE 04/29/22			SURFACE WATER DEPTH N/A				
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION
			0.5ft	0.5ft	0.5ft	0	25	50	75	100			
2535													
2530	2,528.7	3.0											2,531.7 GROUND SURFACE 0.0
2525	2,523.7	8.0	2	2	3								ARTIFICIAL FILL BROWN, SL MICACEOUS, CLAYEY-SILT w/ORGANICS (ROOTS) T/O
2520	2,518.7	13.0	2	3	4								2,525.8 5.9
2515	2,513.7	18.0	1	2	1								ALLUVIAL GREY-BROWN TO BROWN-BLACK, SL MICACEOUS, CLAYEY-SILT w/SOME SAND, SOME ORGANICS (ROOTS)
2510	2,508.7	23.0	WOH	WOH	1								
			9	2	1								
								</					