

PROJECT: 17BP.13.R.158 REFERENCE: SF-990120

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

**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

COUNTY YANCEY  
PROJECT DESCRIPTION REPLACE BRDG #0120 ON  
SR-1395 (BALD MTN RD.) over JIM CREEK  
SITE DESCRIPTION PROPOSED CULVERT w/  
WING WALL EXTENSION--STATION 12+96 +/- TO 13+16 +/-

**CONTENTS**

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2	LEGEND (SOIL)
3	SITE PLAN
4-6	BORELOGS/ROD SOUNDING

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	SF-990120	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

~~TERRACON~~

ZR TIDMORE

WT DUGGINS

~~NC DOT~~

DO CHEEK /CJ COFFEY

CRYSTAL JOHNSON

DC ELLIOTT

INVESTIGATED BY TERRACON CONSULTANTS /  
NC DOT

DRAWN BY DC ELLIOTT

CHECKED BY JC KUHNE

SUBMITTED BY JC KUHNE

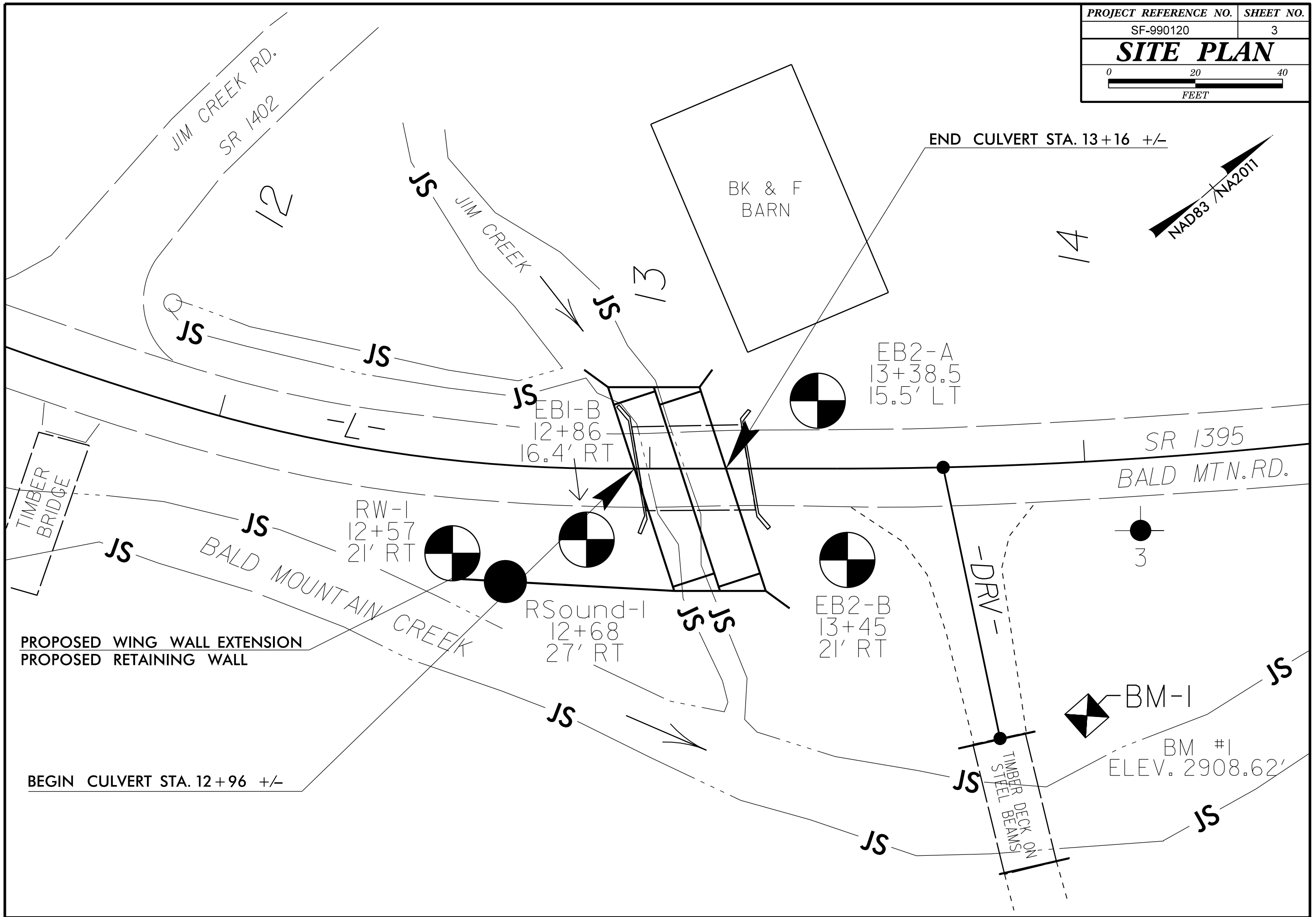


DocuSigned by:  
D. Clayton Elliott 4/9/2020  
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SIGNATURE DATE

**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										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, VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6										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 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.									
<b>SOIL LEGEND AND AASHTO CLASSIFICATION</b>										<b>MINERALOGICAL COMPOSITION</b>										<b>WEATHERING</b>																			
GENERAL CLASS. GRANULAR MATERIALS (<= 35% PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS										MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.										FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.																			
<b>COMPRESSIBILITY</b>										<b>PERCENTAGE OF MATERIAL</b>										<b>GROUND WATER</b>										<b>MISCELLANEOUS SYMBOLS</b>									
SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50										ORGANIC MATERIAL GRANULAR SOILS SILT - CLAY SOILS OTHER MATERIAL TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10% LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35% HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE										WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING STATIC WATER LEVEL AFTER 24 HOURS PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA SPRING OR SEEP										ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED SOIL BOUNDARY INFERRED ROCK LINE ALLUVIAL SOIL BOUNDARY DIP & DIP DIRECTION OF ROCK STRUCTURES SPT DMT VST PMT TEST BORING AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION SLOPE INDICATOR INSTALLATION CONE PENETROMETER TEST SOUNDING ROD TEST BORING WITH CORE SPT N-VALUE									
<b>TEXTURE OR GRAIN SIZE</b>										<b>RECOMMENDATION SYMBOLS</b>										<b>ROCK HARDNESS</b>																			
U.S. STD. SIEVE SIZE OPENING (MM) 4 10 40 60 200 270 4.76 2.00 0.42 0.25 0.075 0.053										UNDERCUT SHALLOW UNDERCUT UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK										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.										ABBREVIATIONS AR - AUGER REFUSAL BT - BORING TERMINATED CL - CLAY CPT - COY PENETRATION TEST CSE - COARSE DMT - DILATOMETER TEST DPT - DYNAMIC PENETRATION TEST e - VOID RATIO F - FINE FOSS. - FOSSILIFEROUS FRAC. - FRACTURED, FRACTURES FRAG. - 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 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 - RECOMPACTED TRIAXIAL CBR - CALIFORNIA BEARING RATIO									
<b>SOIL MOISTURE - CORRELATION OF TERMS</b>										<b>ABBREVIATIONS</b>										<b>FRACTURE SPACING</b>										<b>BEDDING</b>									
SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION										DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE: CORE SIZE: HAND TOOLS:										TERM SPACING: VERY WIDE MORE THAN 10 FEET WIDE 3 TO 10 FEET MODERATELY CLOSE 1 TO 3 FEET CLOSE 0.16 TO 1 FOOT VERY CLOSE LESS THAN 0.16 FEET										TERM THICKNESS: VERY THICKLY BEDDED 4 FEET THICKLY BEDDED 1.5 - 4 FEET THINLY BEDDED 0.16 - 1.5 FEET VERY THINLY BEDDED 0.03 - 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET THINLY LAMINATED < 0.008 FEET									
LL LIQUID LIMIT PLASTIC RANGE (PI) PL PLASTIC LIMIT OM OPTIMUM MOISTURE SL SHRINKAGE LIMIT										EQUIPMENT USED ON SUBJECT PROJECT										INDURATION										BENCH MARK: BM-1: COORD'S -- N : 827341 E : 978673 METAL SPIKE OF 15" POPLAR, BY CREEK - BL- STA 7+93.00, 52' RT ELEVATION: 2908.62 FEET									
<b>PLASTICITY</b>										DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE: CORE SIZE: HAND TOOLS:										INDURATION										NOTES:									
NON PLASTIC SLIGHTLY PLASTIC MODERATELY PLASTIC HIGHLY PLASTIC										CME-45C CME-55 CME-550 VANE SHEAR TEST PORTABLE HOIST ACKER RENEGADE (TERRACON)										INDURATED MODERATELY INDURATED INDURATED EXTREMELY INDURATED										FIAD - FILLED IMMEDIATELY AFTER DRILLING									
<b>COLOR</b>										ACKER RENEGADE (TERRACON)										INDURATED										**PROJECT WAS FORMERLY KNOWN AS : B-5881, 48075.1.I (CHANGED 10/16/2017)									
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.																																							



# GEOTECHNICAL BORING REPORT BORE LOG

# GEOTECHNICAL BORING REPORT BORE LOG

WBS 17BP.13.R.158		TIP SF-990120		COUNTY YANCEY		GEOLOGIST Miller, K. B.											
SITE DESCRIPTION Replace Bridge No. 120 on SR 1395 over Jim Creek							GROUND WTR (ft)										
BORING NO. EB1-B		STATION 12+86		OFFSET 16 ft RT		ALIGNMENT -L-											
COLLAR ELEV. 2,913.8 ft		TOTAL DEPTH 49.5 ft		NORTHING 827,281		EASTING 978,567											
DRILL RIG/HAMMER EFF./DATE TER92-0 ACKER RENEGADE 86% 03/21/2016			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER Duggins, W. T.		START DATE 04/20/16		COMP. DATE 04/21/16		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)		
2915															2,913.8	0.0	GROUND SURFACE
2910	2,910.4	3.4	8	6	5										2,905.8	8.0	<b>ROADWAY EMBANKMENT</b> boulders and soil (no recovery)
2905	2,905.9	7.9	20	10	19										2,901.8	12.0	<b>COLLUVIAL</b> brown, medium dense, silty sand with gravel and boulders
2900	2,900.9	12.9	10	15	11										2,893.9	19.9	orangish brown and gray, medium dense to very dense, saprolitic silty sand with rock fragments
2895	2,895.9	17.9	20	19	65										2,892.9	20.9	boulders and soil (no recovery)
2890	2,890.8	23.0	76	24/0.1											2,890.8	23.0	
2885	2,885.8	28.0	2	7	10										2,889.8	24.0	
2880	2,880.8	33.0	4	5	12										2,886.8	27.0	<b>RESIDUAL</b> tannish brown, white to greenish gray, very stiff to hard, saprolitic, sandy silt
2875	2,875.8	38.0	19	16	28												
2870	2,870.8	43.0	4	4	14												
2865	2,865.8	48.0	13	21	15												
															2,864.3	49.5	Boring Terminated at Elevation 2,864.3 ft in saprolitic sandy silt

WBS 17BP.13.R.158		TIP SF-990120		COUNTY YANCEY		GEOLOGIST Miller, K. B.											
SITE DESCRIPTION Replace Bridge No. 120 on SR 1395 over Jim Creek							GROUND WTR (ft)										
BORING NO. EB2-A		STATION 13+39		OFFSET 16 ft LT		ALIGNMENT -L-											
COLLAR ELEV. 2,912.3 ft		TOTAL DEPTH 26.1 ft		NORTHING 827,342		EASTING 978,578											
DRILL RIG/HAMMER EFF./DATE TER92-0 ACKER RENEGADE 86% 03/21/2016			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER Duggins, W. T.		START DATE 04/20/16		COMP. DATE 04/20/16		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)		
2915															2,912.3	0.0	GROUND SURFACE
2910	2,909.3	3.0	6	3	2										2,907.3	5.0	<b>ROADWAY EMBANKMENT</b> brown, medium stiff, sandy silt with boulders
2905	2,904.3	8.0	15	7	11										2,894.7	17.6	<b>COLLUVIAL</b> brown, medium dense to dense, coarse sand with rock fragments and boulders
2900	2,899.3	13.0	21	19	17										2,889.3	23.0	
2895	2,894.7	17.6	72	28/0.4											2,886.2	26.1	<b>WEATHERED ROCK</b> (granitic gneiss)
2890	2,889.3	23.0	50	25	33												
															2,886.2	26.1	<b>RESIDUAL</b> gray to white, very dense, saprolitic, silty sand
																	Boring Terminated with Standard Penetration Test Refusal at Elevation 2,886.2 ft on crystalline rock (granitic gneiss)

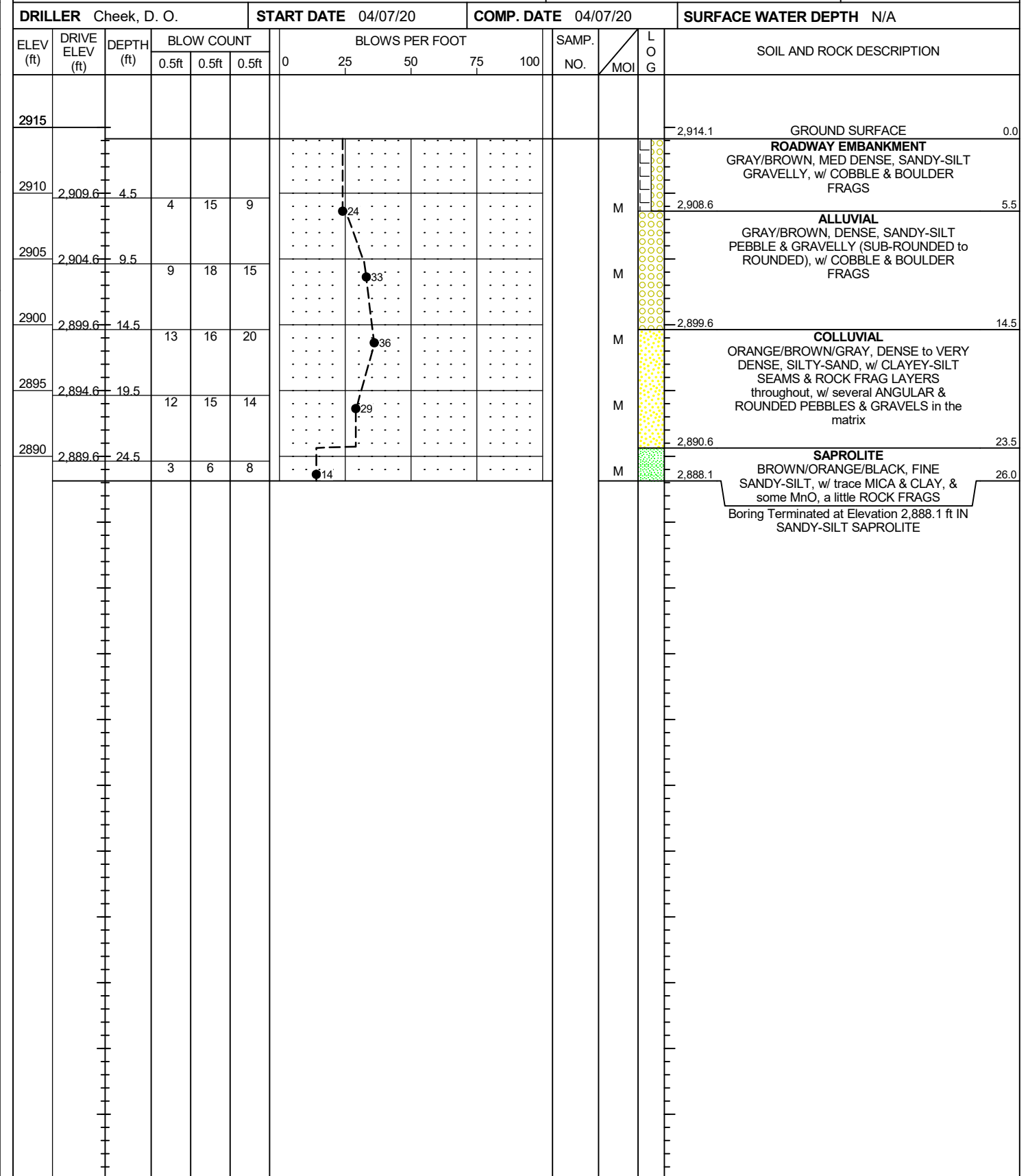
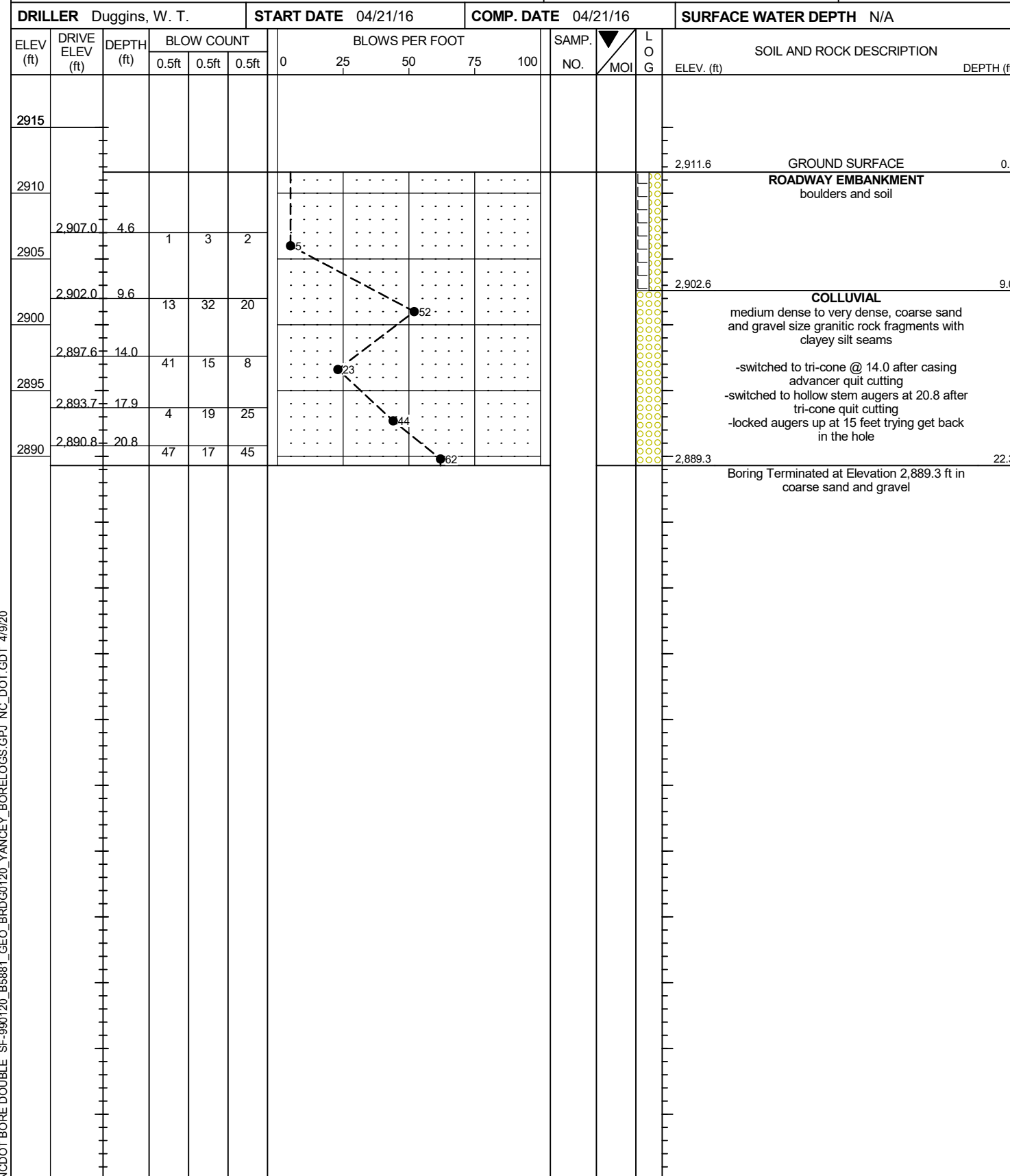
NCDOT BORE DOUBLE SF-990120\_B5881\_GEO\_BRDG0120\_YANCEY\_BORELOGS.GPJ NC\_DOT\_GDT\_4/19/20

# GEOTECHNICAL BORING REPORT BORE LOG

# GEOTECHNICAL BORING REPORT BORE LOG

WBS 17BP.13.R.158		TIP SF-990120		COUNTY YANCEY		GEOLOGIST Miller, K. B.	
SITE DESCRIPTION Replace Bridge No. 120 on SR 1395 over Jim Creek							GROUND WTR (ft)
BORING NO. EB2-B		STATION 13+45		OFFSET 21 ft RT		ALIGNMENT -L-	
COLLAR ELEV. 2,911.6 ft		TOTAL DEPTH 22.3 ft		NORTHING 827,323		EASTING 978,610	
DRILL RIG/HAMMER EFF./DATE TER92-0 ACKER RENEGADE 86% 03/21/2016			DRILL METHOD NW Casing w/ Advancer			HAMMER TYPE Automatic	
DRILLER Duggins, W. T.		START DATE 04/21/16		COMP. DATE 04/21/16		SURFACE WATER DEPTH N/A	

WBS 17BP.13.R.158		TIP SF-990120		COUNTY YANCEY		GEOLOGIST Elliott, D. C.	
SITE DESCRIPTION Replace Bridge No. 120 on SR 1395 over Jim Creek							GROUND WTR (ft)
BORING NO. RW-1		STATION 12+57		OFFSET 21 ft RT		ALIGNMENT -L-	
COLLAR ELEV. 2,914.1 ft		TOTAL DEPTH 26.0 ft		NORTHING 827,256		EASTING 978,549	
DRILL RIG/HAMMER EFF./DATE AFO8963 CME-550X 94% 04/08/2019			DRILL METHOD NW Casing w/ SPT			HAMMER TYPE Automatic	
DRILLER Cheek, D. O.		START DATE 04/07/20		COMP. DATE 04/07/20		SURFACE WATER DEPTH N/A	



NCDOT BORE DOUBLE SF-990120\_B5881\_GEO\_BRD0120\_YANCEY\_BORELOGS.GPJ NC\_DOT\_GDT 4/19/20

# GEOTECHNICAL BORING REPORT ROD SOUNDING LOG

WBS 17BP.13.R.158		TIP SF-990120		COUNTY YANCEY		GEOLOGIST Elliott, D. C.										
SITE DESCRIPTION Replace Bridge No. 120 on SR 1395 over Jim Creek							GROUND WTR (ft)									
BORING NO. RSound-1		STATION 12+68		OFFSET 27 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 2,913.8 ft		TOTAL DEPTH 17.3 ft		NORTHING 827,258		EASTING 978,560										
DRILL RIG/HAMMER EFF./DATE N/A				DRILL METHOD Rod Sounding		HAMMER TYPE N/A										
DRILLER N/A		START DATE 03/30/20		COMP. DATE 03/30/20		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			ELEV. (ft)	DEPTH (ft)		
2915														2,913.8	0.0	GROUND SURFACE
2910			7	.....	.....	.....	.....	.....	.....							ROADWAY EMBANKMENT SANDY-SILT FILL, w/ GRAVELS and many COBBLES & several BOULDERS
			17	.....	.....	.....	.....	.....	.....							
			11	.....	.....	.....	.....	.....	.....							
			24	.....	.....	.....	.....	.....	.....					2,908.3	5.5	
2905			9	.....	.....	.....	.....	.....	.....							ALLUVIAL SANDY-SILT GRAVELLY, w/ many COBBLES & BOULDERS
			14	.....	.....	.....	.....	.....	.....							
			22	.....	.....	.....	.....	.....	.....							
			18	.....	.....	.....	.....	.....	.....							
2900			17	.....	.....	.....	.....	.....	.....							COLLUVIAL BECAME SOMEWHAT SMOOTHER w/ many DENSE to VERY DENSE LAYERS; BECAME HARD @ 17.3', UNKNOWN SOURCE of TERMINATION Boring Terminated at Elevation 2,896.5 ft IN EITHER VERY DENSE ROCK-FRAG COLLUVIUM, or POSSIBLY ON WEATHERED ROCK
			14	.....	.....	.....	.....	.....	.....					2,899.8	14.0	
			13	.....	.....	.....	.....	.....	.....							
			13	.....	.....	.....	.....	.....	.....							
			14	.....	.....	.....	.....	.....	.....					2,896.5	17.3	
			8	.....	.....	.....	.....	.....	.....							
			8	.....	.....	.....	.....	.....	.....							
			14	.....	.....	.....	.....	.....	.....							
			50	.....	.....	.....	.....	.....	.....							

NCDOT BORE DOUBLE\_SF-990120\_B5881\_GEO\_BRDG0120\_YANCEY\_BORELOGS.GPJ\_NC\_DOT.GDT\_4/9/20