

REFERENCE: BR-0107

PROJECT: 67107

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY Iredell
SITE DESCRIPTION Bridge No. 131 on SR 1577
(Pisgah Ridge Cir.) over UT to Snow Creek

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4-5	CROSS SECTION(S)
6-7	BORE LOG(S)
8	SITE PHOTOGRAPHS)

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0107	1	8

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

J.K. Stickney

C.L. Smith

B.E. Foster

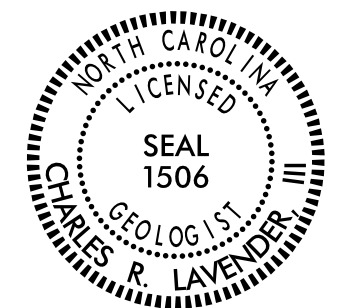
INVESTIGATED BY J.K. Stickney

DRAWN BY T.T. Walker, F&R Inc.

CHECKED BY K.B. Miller

SUBMITTED BY C.R. Lavender, III

DATE December 2019



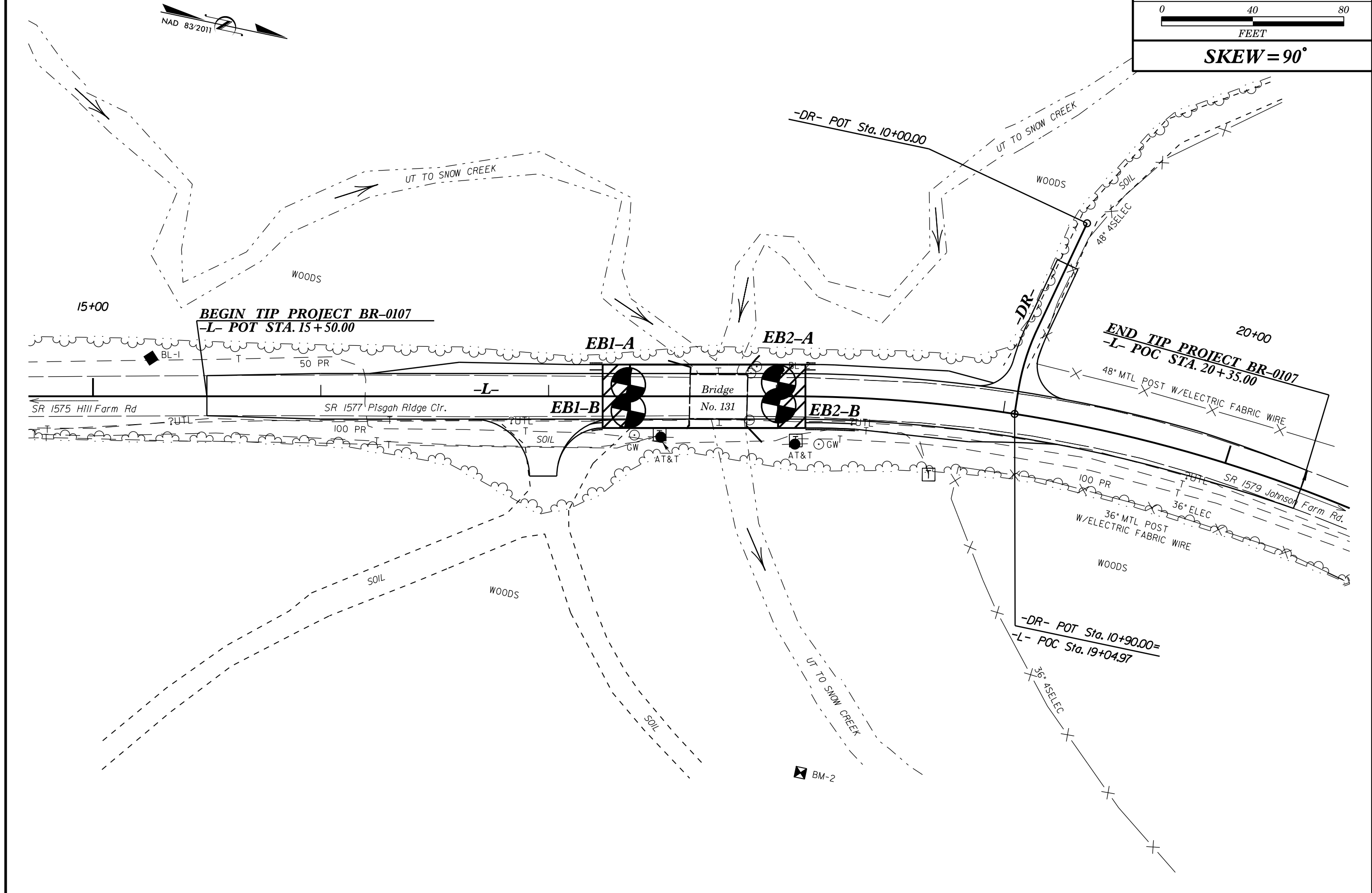
DocuSigned by:
Charles R. Lavender, III 12/23/2019
SIGNATURE DATE

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 (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				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 60 BLOWS PER FOOT IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS: 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.				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 DISLODGED 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 (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRODED ROCKS. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS IN 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 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 (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. 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SOIL LEGEND AND AASHTO CLASSIFICATION <table border="1"> <thead> <tr> <th>GENERAL CLASS.</th> <th colspan="6">GRANULAR MATERIALS (≤ 35% PASSING #200)</th> <th colspan="4">SILT-CLAY MATERIALS (> 35% PASSING #200)</th> <th colspan="3">ORGANIC MATERIALS</th> </tr> <tr> <th>GROUP CLASS.</th> <th colspan="2">A-1</th> <th>A-3</th> <th colspan="2">A-2</th> <th>A-4</th> <th>A-5</th> <th>A-6</th> <th>A-7</th> <th colspan="2">A-1, A-2</th> <th>A-3</th> <th colspan="2">A-4, A-5</th> </tr> <tr> <th>SYMBOL</th> <th>A-1-a</th> <th>A-1-b</th> <th>A-3</th> <th>A-2-4</th> <th>A-2-5</th> <th>A-2-6</th> <th>A-2-7</th> <th>A-4</th> <th>A-5</th> <th>A-6</th> <th>A-7</th> <th>A-1, A-2</th> <th>A-3</th> <th>A-4, A-5</th> </tr> </thead> <tbody> <tr> <td>% PASSING #10</td> <td>50 MX</td> <td>30 MX</td> <td>50 MX</td> <td>51 MN</td> <td>35 MX</td> <td>35 MX</td> <td>35 MX</td> <td>35 MX</td> <td>36 MN</td> <td>36 MN</td> <td>36 MN</td> <td>GRANULAR SOILS</td> <td>SILT-CLAY SOILS</td> <td>MUCK, PEAT</td> </tr> <tr> <td>% PASSING #40</td> <td>15 MX</td> <td>25 MX</td> <td>10 MX</td> <td>10 MX</td> <td>10 MX</td> <td>10 MX</td> <td>10 MX</td> <td>10 MX</td> <td>10 MX</td> <td>10 MX</td> <td>11 MN</td> <td>SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER</td> <td>HIGHLY ORGANIC SOILS</td> <td></td> </tr> <tr> <td>MATERIAL PASSING #40</td> <td></td> <td></td> <td></td> <td>40 MX</td> <td>41 MN</td> <td>40 MX</td> <td>41 MN</td> <td>40 MX</td> <td>41 MN</td> <td>40 MX</td> <td>41 MN</td> <td></td> <td></td> <td></td> </tr> <tr> <td>LL</td> <td>6 MX</td> <td></td> <td></td> <td>NP</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PL</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>GROUP INDEX</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>4 MX</td> <td>8 MX</td> <td>12 MX</td> <td>16 MX</td> <td>NO MX</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>USUAL TYPES OF MAJOR MATERIALS</td> <td colspan="3">STONE FRAGS., GRAVEL, AND SAND</td> <td>FINE SAND</td> <td colspan="2">SILTY OR CLAYEY GRAVEL AND SAND</td> <td colspan="2">SILTY SOILS</td> <td colspan="2">CLAYEY SOILS</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>GEN. RATING AS SUBGRADE</td> <td colspan="6">EXCELLENT TO GOOD</td> <td colspan="2">FAIR TO POOR</td> <td>FAIR TO POOR</td> <td>POOR</td> <td>UNSATURABLE</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30</p>				GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)						SILT-CLAY MATERIALS (> 35% PASSING #200)				ORGANIC MATERIALS			GROUP CLASS.	A-1		A-3	A-2		A-4	A-5	A-6	A-7	A-1, A-2		A-3	A-4, A-5		SYMBOL	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	% PASSING #10	50 MX	30 MX	50 MX	51 MN	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT	% PASSING #40	15 MX	25 MX	10 MX	10 MX	10 MX	10 MX	10 MX	10 MX	10 MX	10 MX	11 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER	HIGHLY ORGANIC SOILS		MATERIAL PASSING #40				40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN				LL	6 MX			NP											PL															GROUP INDEX	0	0	0	0	4 MX	8 MX	12 MX	16 MX	NO MX						USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS., GRAVEL, AND SAND			FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND		SILTY SOILS		CLAYEY SOILS						GEN. RATING AS SUBGRADE	EXCELLENT TO GOOD						FAIR TO POOR		FAIR TO POOR	POOR	UNSATURABLE				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 border="1"> <thead> <tr> <th>ORGANIC MATERIAL</th> <th>GRANULAR SOILS</th> <th>SILT - CLAY SOILS</th> <th>OTHER MATERIAL</th> </tr> </thead> <tbody> <tr> <td>TRACE OF ORGANIC MATTER</td> <td>2 - 3%</td> <td>3 - 5%</td> <td>TRACE</td> </tr> <tr> <td>LITTLE ORGANIC MATTER</td> <td>3 - 5%</td> <td>5 - 12%</td> <td>LITTLE</td> </tr> <tr> <td>MODERATELY ORGANIC</td> <td>5 - 10%</td> <td>12 - 20%</td> <td>SOME</td> </tr> <tr> <td>HIGHLY ORGANIC</td> <td>> 10%</td> <td>> 20%</td> <td>HIGHLY</td> </tr> </tbody> </table>				ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS	OTHER MATERIAL	TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%	TRACE	LITTLE ORGANIC MATTER	3 - 5%	5 - 12%	LITTLE	MODERATELY ORGANIC	5 - 10%	12 - 20%	SOME	HIGHLY ORGANIC	> 10%	> 20%	HIGHLY
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BOULDER (BLDR.)	COBBLE (COB.)	GRAVEL (GR.)	COARSE SAND (CSE. SD.)	FINE SAND (F. SD.)	SILT (SL.)	CLAY (CL.)																																																																																																																																																																																																					
GRAIN SIZE	MM 305	75	2.0	0.25	0.05	0.005																																																																																																																																																																																																					
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COLOR DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-BROWN). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.				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.				NOTES: FIAD= FILLED IMMEDIATELY AFTER DRILLING BENCH MARK: BM#2: BENCH TIE SET IN 18' BIRCH, -L- STA. 18+12, 165' RIGHT, N: 795796, E: 1407,960 ELEVATION: 949.40 FEET DATE: 8-15-14																																																																																																																																																																																																			

PROJECT REFERENCE NO.	SHEET NO.
BR-107	3
SITE PLAN	
SKEW = 90°	



NAD 83/2011

UT TO SNOW CREEK

WOODS

15+00

BEGIN TIP PROJECT BR-0107
-L- POT STA. 15+50.00

50 PR

SR 1575 Hill Farm Rd

SR 1577 Pisgah Ridge Cir.

100 PR

SOIL

EB1-A

EB2-A

Bridge No. 131

EB1-B

EB2-B

UTL

GW

AT&T

UT TO SNOW CREEK

48" ASELEC

48" MTL POST W/ELECTRIC FABRIC WIRE

20+00

END TIP PROJECT BR-0107
-L- POC STA. 20+35.00

SR 1579 Johnson Farm Rd

100 PR

UTL

36" ELEC

36" MTL POST W/ELECTRIC FABRIC WIRE

WOODS

UT TO SNOW CREEK

SOIL

WOODS

SOIL

UT TO SNOW CREEK

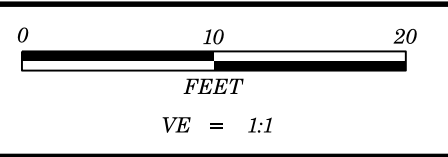
BM-2

-DR- POT Sta. 10+00.00

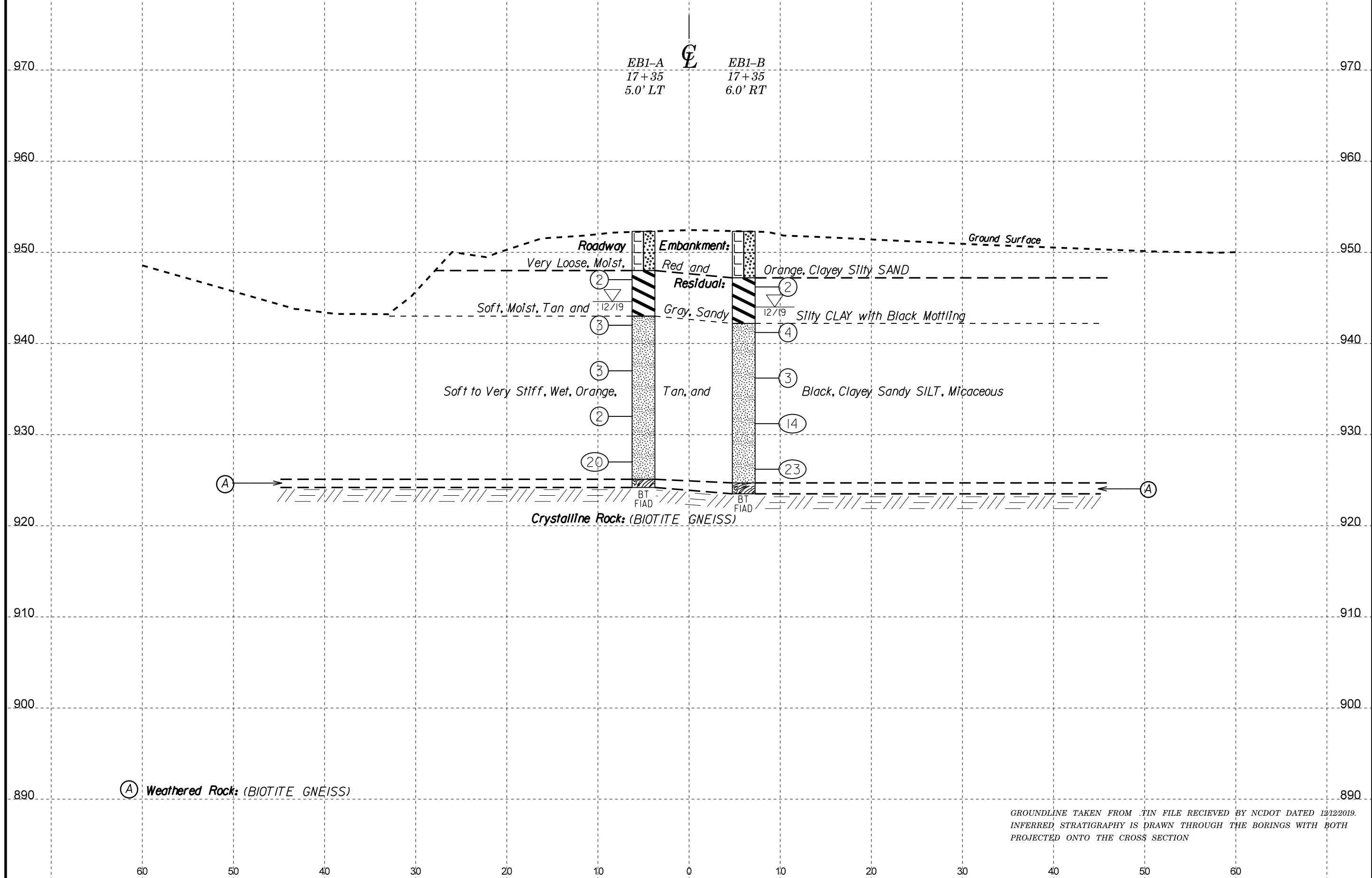
-DR- POT Sta. 10+90.00=

-L- POC Sta. 19+04.97

36" ASELEC



PROJECT REFERENCE NO.	SHEET NO.
BR-0107	4
CROSS SECTION THROUGH END BENT 1	
AT -L- STATION 17+36.00	
SKEW=90°	



EB1-A
17+35
5.0' LT

EB1-B
17+35
6.0' RT

Very Loose, Moist.

Soft, Moist, Tan and

Soft to Very Stiff, Wet, Orange.

Red and Residual:

Orange, Clayey Silty SAND

Gray, Sandy

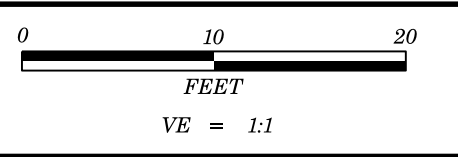
Silty CLAY with Black Mottling

Black, Clayey Sandy SILT, Micaceous

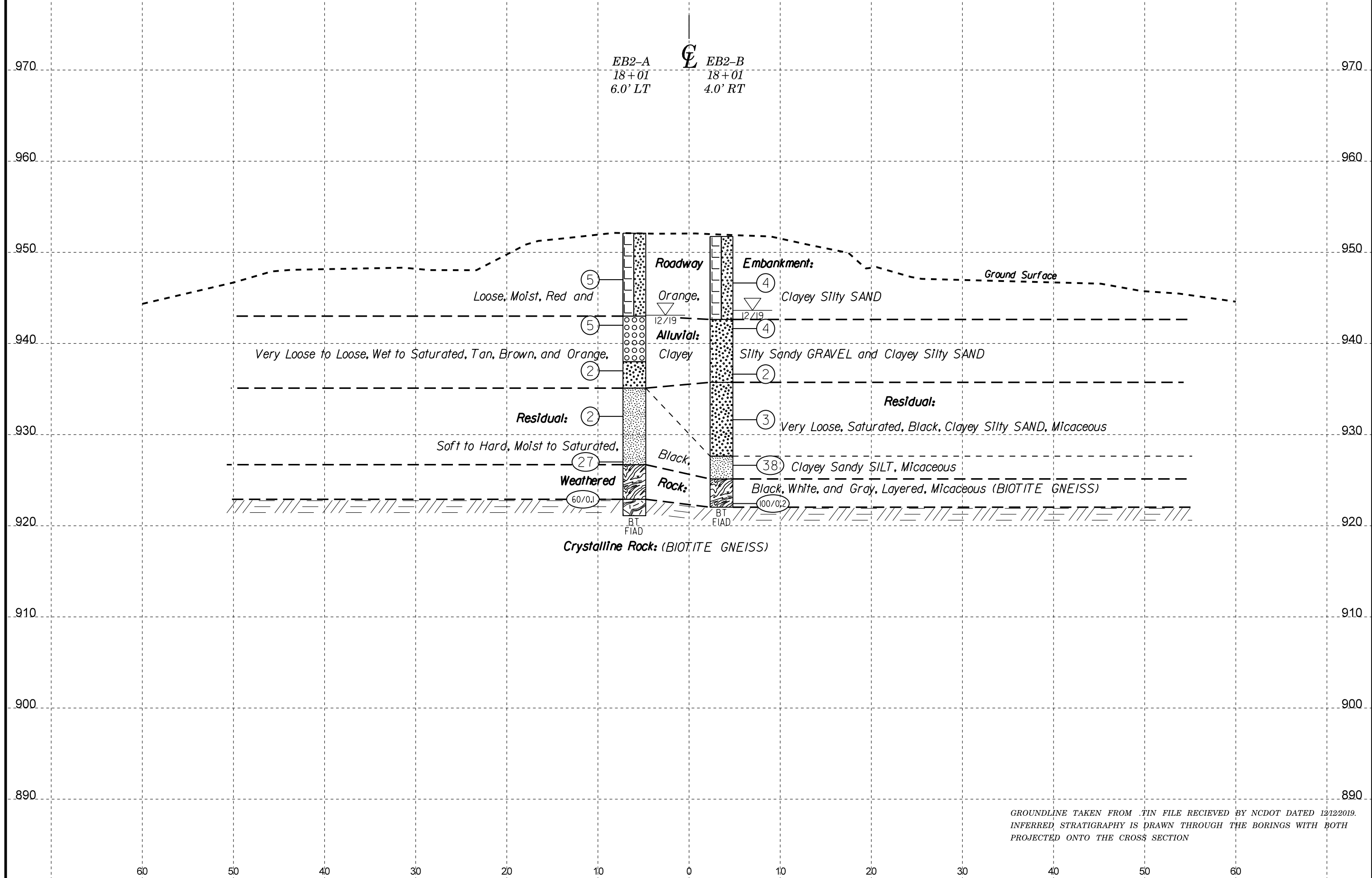
Crystalline Rock: (BIOTITE GNEISS)

(A) Weathered Rock: (BIOTITE GNEISS)

GROUNDLINE TAKEN FROM TIN FILE RECEIVED BY NCDOT DATED 12/12/2019.
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH
PROJECTED ONTO THE CROSS SECTION



PROJECT REFERENCE NO.	SHEET NO.
BR-0107	5
CROSS SECTION THROUGH END BENT 2	
AT -L- STATION 18+01.00	
SKEW=90°	



GEOTECHNICAL BORING REPORT

BORE LOG

WBS 67107.1.1		TIP BR-0107		COUNTY IREDELL		GEOLOGIST Stickney, J. K.											
SITE DESCRIPTION Bridge No. 131 on SR1577 (Pisgah Ridge Circle) over UT to Snow Creek							GROUND WTR (ft)										
BORING NO. EB1-A		STATION 17+35		OFFSET 5 ft LT		ALIGNMENT -L-											
COLLAR ELEV. 952.3 ft		TOTAL DEPTH 28.1 ft		NORTHING 795,687		EASTING 1,407,809											
DRILL RIG/HAMMER EFF./DATE HFC0072 CME-550X 92% 08/15/2018			DRILL METHOD NW Casing w/ Advancer			HAMMER TYPE Automatic											
DRILLER Smith, C. L.		START DATE 12/06/19		COMP. DATE 12/06/19		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							
955															952.3	0.0	GROUND SURFACE
950															948.0	4.3	ROADWAY EMBANKMENT Red And Orange, Clayey, Silty SAND.
945	948.0	4.3	2	1	1								M		948.0	4.3	RESIDUAL Tan And Gray, Sandy, Silty CLAY, with Black Mottling.
940	943.0	9.3	4	2	1								W		943.0	9.3	RESIDUAL Orange, Tan and Black, Clayey, Sandy SILT, Micaceous.
935	938.0	14.3	2	2	1								W				
930	933.0	19.3	1	1	1								W				
925	928.0	24.3	2	5	15								W				
															925.1	27.2	WEATHERED ROCK Black and White (Biotite Gneiss)
															924.2	28.1	CRYSTALLINE ROCK (Biotite Gneiss) Boring Terminated with Casing Advancer Refusal at Elevation 924.2 ft on Crystalline Rock (Biotite Gneiss)

WBS 67107.1.1		TIP BR-0107		COUNTY IREDELL		GEOLOGIST Stickney, J. K.											
SITE DESCRIPTION Bridge No. 131 on SR1577 (Pisgah Ridge Circle) over UT to Snow Creek							GROUND WTR (ft)										
BORING NO. EB1-B		STATION 17+35		OFFSET 6 ft RT		ALIGNMENT -L-											
COLLAR ELEV. 952.3 ft		TOTAL DEPTH 28.8 ft		NORTHING 795,689		EASTING 1,407,820											
DRILL RIG/HAMMER EFF./DATE HFC0072 CME-550X 92% 08/15/2018			DRILL METHOD NW Casing w/ Advancer			HAMMER TYPE Automatic											
DRILLER Smith, C. L.		START DATE 12/04/19		COMP. DATE 12/04/19		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							
955															952.3	0.0	GROUND SURFACE
950															947.2	5.1	ROADWAY EMBANKMENT Red And Orange, Clayey, Silty SAND.
945	947.2	5.1	1	1	1								M		947.2	5.1	RESIDUAL Tan And Gray, Sandy, Silty CLAY, with Black Mottling.
940	942.2	10.1	2	2	2								W		942.2	10.1	RESIDUAL Orange, Tan and Black, Clayey, Sandy SILT, Micaceous.
935	937.2	15.1	2	1	2								W				
930	932.2	20.1	2	4	10								W				
925	927.2	25.1	4	10	13								W				
															924.7	27.6	WEATHERED ROCK Black And White (Biotite Gneiss)
															923.5	28.8	CRYSTALLINE ROCK (Biotite Gneiss) Boring Terminated at Elevation 923.5 ft on Crystalline Rock (Biotite Gneiss)

NCDOT BORE DOUBLE BR107_GEO_BRD0131_BL.GPJ NC_DOT.GDT 12/19/19

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 67107.1.1		TIP BR-0107		COUNTY IREDELL		GEOLOGIST Stickney, J. K.											
SITE DESCRIPTION Bridge No. 131 on SR1577 (Pisgah Ridge Circle) over UT to Snow Creek							GROUND WTR (ft)										
BORING NO. EB2-A		STATION 18+01		OFFSET 6 ft LT		ALIGNMENT -L-											
COLLAR ELEV. 952.1 ft		TOTAL DEPTH 31.0 ft		NORTHING 795,751		EASTING 1,407,795											
DRILL RIG/HAMMER EFF./DATE HFC0072 CME-550X 92% 08/15/2018			DRILL METHOD NW Casing w/ Advancer			HAMMER TYPE Automatic											
DRILLER Smith, C. L.		START DATE 12/06/19		COMP. DATE 12/06/19		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							
955															952.1	GROUND SURFACE	0.0
950		4.1	2	3	2							M		ROADWAY EMBANKMENT Red And Orange, Clayey, Silty SAND.			
945	948.0																
940	943.0	9.1	10	4	1							W		ALLUVIAL Tan And Orange, Clayey, Silty, Sandy GRAVEL.	9.1		
935	938.0	14.1	1	1	1							Sat.		Tan, Brown And Orange, Clayey, Silty SAND.	14.1		
930	933.0	19.1	2	1	1							Sat.		RESIDUAL Black, Clayey, Sandy SILT, Micaceous.	17.0		
925	928.0	24.1	1	6	21							M		WEATHERED ROCK Black, White And Gray, Layered, Micaceous (Biotite Gneiss).	25.4		
	923.0	29.1												CRYSTALLINE ROCK (Biotite Gneiss).	29.2		
		60/0.1												Boring Terminated with Casing Advancer Refusal at Elevation 921.1 ft in Crystalline Rock (Biotite Gneiss)	31.0		

WBS 67107.1.1		TIP BR-0107		COUNTY IREDELL		GEOLOGIST Stickney, J. K.											
SITE DESCRIPTION Bridge No. 131 on SR1577 (Pisgah Ridge Circle) over UT to Snow Creek							GROUND WTR (ft)										
BORING NO. EB2-B		STATION 18+01		OFFSET 4 ft RT		ALIGNMENT -L-											
COLLAR ELEV. 951.9 ft		TOTAL DEPTH 29.7 ft		NORTHING 795,753		EASTING 1,407,805											
DRILL RIG/HAMMER EFF./DATE HFC0072 CME-550X 92% 08/15/2018			DRILL METHOD NW Casing w/ Advancer			HAMMER TYPE Automatic											
DRILLER Smith, C. L.		START DATE 12/04/19		COMP. DATE 12/04/19		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							
955															951.9	GROUND SURFACE	0.0
950		4.1	3	2	2							M		ROADWAY EMBANKMENT Red And Orange, Clayey, Silty SAND.			
945	947.8																
940	942.8	9.1	6	3	1							W		ALLUVIAL Brown And Orange, Clayey, Silty SAND.	9.1		
935	937.8	14.1	1	1	1							Sat.		RESIDUAL Black, Clayey, Silty SAND, Micaceous	16.0		
930	932.8	19.1	1	1	2							Sat.					
925	927.8	24.1	4	6	32							M		WEATHERED ROCK Black, White and Gray, Clayey, Sandy SILT, Layered, Micaceous, (Biotite Gneiss)	24.1		
	922.8	29.1												WEATHERED ROCK Black And White (Biotite Gneiss)	26.6		
		100/0.2												Boring Terminated with Casing Advancer Refusal at Elevation 922.2 ft on Crystalline Rock (Biotite Gneiss)	29.7		

NCDOT BORE DOUBLE BR107_GEO_BRD0131_BL.GPJ NC_DOT.GDT 12/19/19

Bridge No. 131 on SR 1577 (Pisgah Ridge Cir.) over UT to Snow Creek

SITE PHOTOGRAPHS



Photograph No. 1: Looking at End Bent 1 toward End Bent 2



Photograph No. 2: Looking Downstream