

**This electronic collection of documents is provided  
for the convenience of the user  
and is Not a Certified Document –**

**The documents contained herein were originally issued  
and sealed by the individuals whose names and license  
numbers appear on each page, on the dates appearing  
with their signature on that page.**

**This file or an individual page  
shall not be considered a certified document.**

REFERENCE: B-5398

PROJECT: 46113

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

**STRUCTURE  
SUBSURFACE INVESTIGATION**

COUNTY BURKE  
PROJECT DESCRIPTION BRIDGE NO. 21 ON SR 1803  
(JOHNSON BRIDGE ROAD) OVER HENRY FORK  
RIVER

**CONTENTS**

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2	LEGEND
3	SITE PLAN
4	PROFILE
5, 6	CROSS SECTIONS
7-12	BORE LOGS & CORE REPORTS
13	ROCK CORE TEST RESULTS
14, 15	CORE PHOTOGRAPHS
16	SITE PHOTOGRAPHS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5398	1	16

**CAUTION NOTICE**

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- NOTES:
1. THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.
  2. BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

PERSONNEL

N. MOHS

E. MAYR

SDS

G. SKOGLUND

J. JUSTICE

J. WHITE

D. JEFFRIES

INVESTIGATED BY N. MOHS, LG

DRAWN BY N. MOHS, LG

CHECKED BY D. BROWN, PE

SUBMITTED BY D. BROWN, PE

DATE NOVEMBER 2015



DocuSigned by:  
Nathan Daniel Mohs

95B48AF191F3448...

12/9/2015

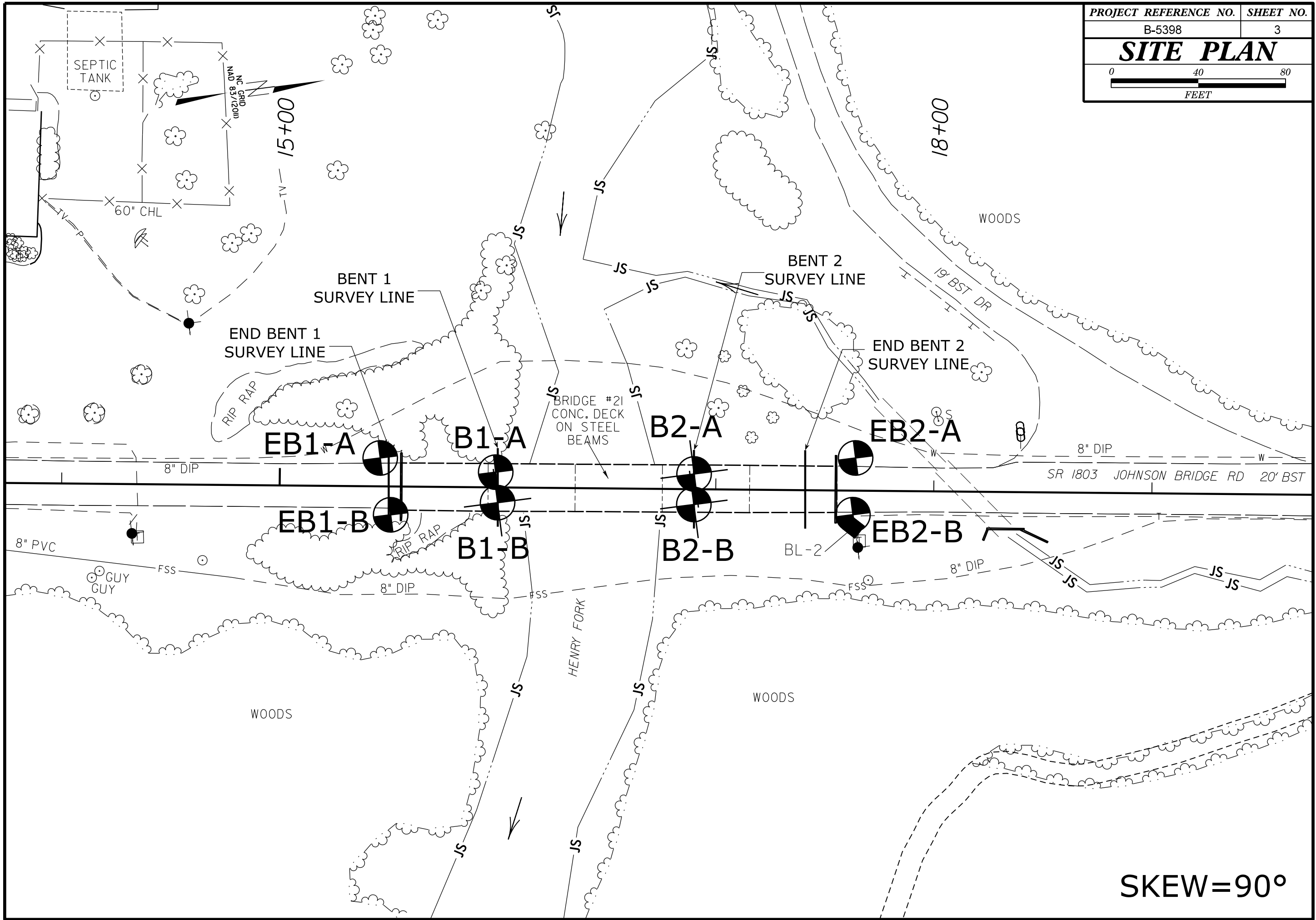
SIGNATURE

DATE

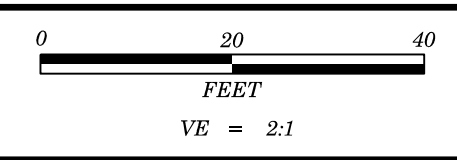
**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

**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									
<p>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, VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</p>										<p>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.</p>										<p>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:</p>										<p>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 (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 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.</p>									
SOIL LEGEND AND AASHTO CLASSIFICATION										ANGULARITY OF GRAINS										WEATHERED ROCK (WR)										CRISTALLINE ROCK (CR)									
<p>GENERAL CLASS. GRANULAR MATERIALS (&lt;= 35% PASSING #200) SILT-CLAY MATERIALS (&gt; 35% PASSING #200) ORGANIC MATERIALS</p>										<p>THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.</p>										<p>NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES &gt; 100 BLOWS PER FOOT IF TESTED.</p>										<p>FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.</p>									
MINERALOGICAL COMPOSITION										COMPRESSION										NON-CRYSTALLINE ROCK (NCR)										COASTAL PLAIN SEDIMENTARY ROCK (CP)									
<p>MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.</p>										<p>SLIGHTLY COMPRESSIBLE LL &lt; 31 MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL &gt; 50</p>										<p>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.</p>										<p>COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.</p>									
CONSISTENCY OR DENSENESS										PERCENTAGE OF MATERIAL										WEATHERING										GROUND WATER									
<p>PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT<sup>2</sup>)</p>										<p>ORGANIC MATERIAL GRANULAR SOILS SILT - CLAY SOILS OTHER MATERIAL</p>										<p>FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.</p>										<p>WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING</p>									
<p>GENERALY GRANULAR MATERIAL (NON-COHESSIVE) VERY LOOSE 4 TO 10 MEDIUM DENSE 10 TO 30 DENSE 30 TO 50 VERY DENSE &gt; 50</p>										<p>TRACE OF ORGANIC MATTER 2 - 3% LITTLE ORGANIC MATTER 3 - 5% MODERATELY ORGANIC 5 - 10% HIGHLY ORGANIC &gt; 10%</p>										<p>VERY SLIGHT (IV 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.</p>										<p>STATIC WATER LEVEL AFTER 24 HOURS</p>									
<p>GENERALY SILT-CLAY MATERIAL (COHESSIVE) VERY SOFT 2 TO 4 SOFT 4 TO 8 MEDIUM STIFF 8 TO 15 STIFF 15 TO 30 VERY STIFF &gt; 30</p>										<p>SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER</p>										<p>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.</p>										<p>PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA</p>									
TEXTURE OR GRAIN SIZE										MISCELLANEOUS SYMBOLS										RECOMMENDATION SYMBOLS										ABBREVIATIONS									
<p>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</p>										<p>ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED SOIL BOUNDARY INFERRED ROCK LINE ALLUVIAL SOIL BOUNDARY</p>										<p>UNDERCUT SHALLOW UNDERCUT UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK</p>										<p>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 FRAG. - FRAGMENTS HI. - HIGHLY</p>									
<p>GRAIN SIZE MM 305 75 2.0 0.25 0.05 0.005 IN. 12 3</p>										<p>DIP &amp; DIP DIRECTION OF ROCK STRUCTURES SPT TEST BORING AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION</p>										<p>UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL</p>										<p>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</p>									
SOIL MOISTURE - CORRELATION OF TERMS										EQUIPMENT USED ON SUBJECT PROJECT										FRACTURE SPACING										BEDDING									
<p>SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION</p>										<p>DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE: CORE SIZE: HAND TOOLS:</p>										<p>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</p>										<p>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 &lt; 0.008 FEET</p>									
<p>LL - LIQUID LIMIT PL - PLASTIC LIMIT OM - OPTIMUM MOISTURE SL - SHRINKAGE LIMIT</p>										<p>CME-45C CME-55 CME-550 VANE SHEAR TEST PORTABLE HOIST</p>										<p>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.</p>										<p>BENCH MARK: BL-2; N:714939, E:2172679</p>									
PLASTICITY										INDURATION										NOTES:																			
<p>NON PLASTIC SLIGHTLY PLASTIC MODERATELY PLASTIC HIGHLY PLASTIC</p>										<p>PLASTICITY INDEX (PI) DRY STRENGTH VERY LOW SLIGHT MEDIUM HIGH</p>										<p>ELEVATION: 977.76 FEET</p>										<p>DATE: 8-15-14</p>									
COLOR																																							
<p>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.</p>																																							

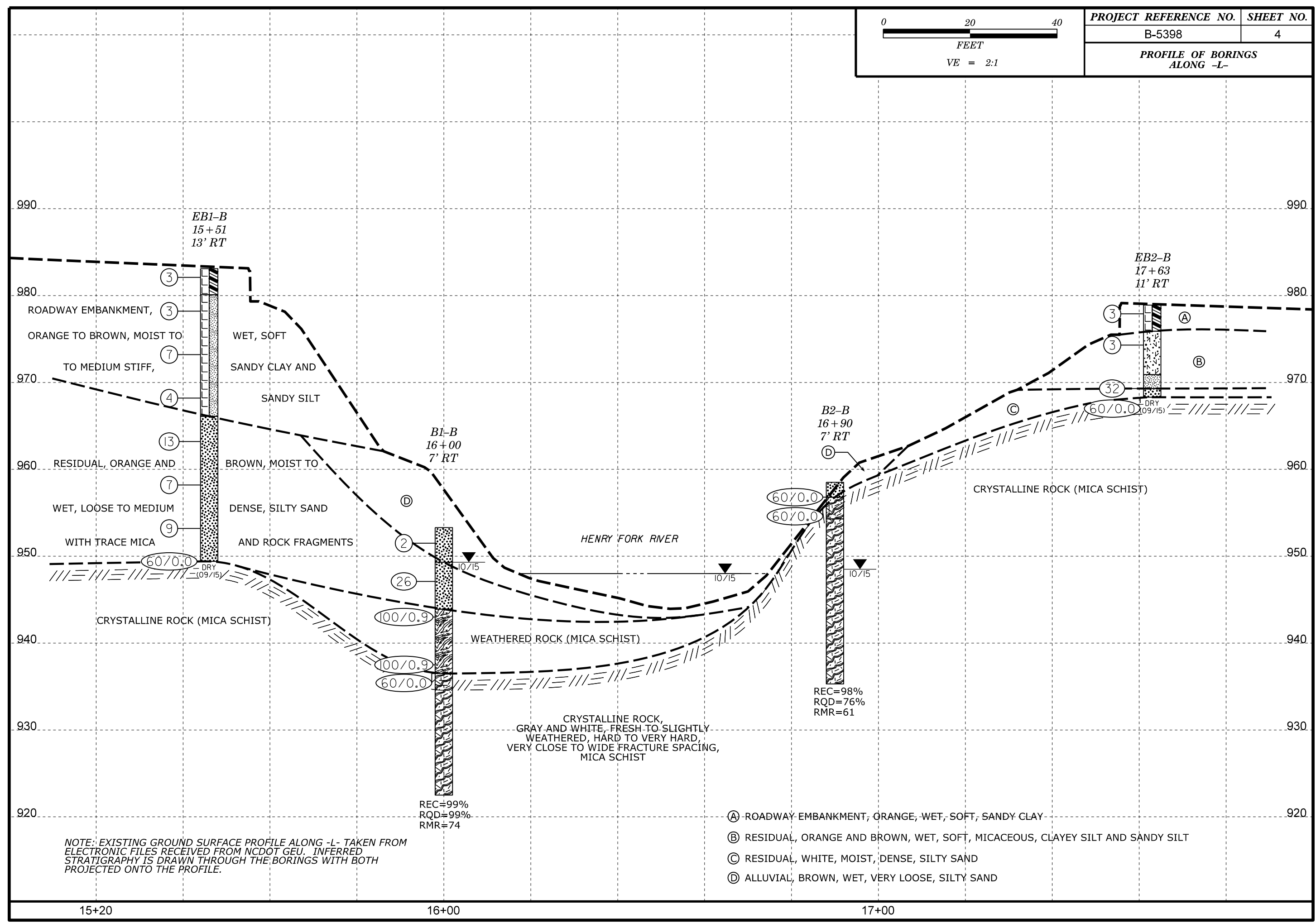


**SKEW=90°**



PROJECT REFERENCE NO.	SHEET NO.
B-5398	4

**PROFILE OF BORINGS  
ALONG -L-**



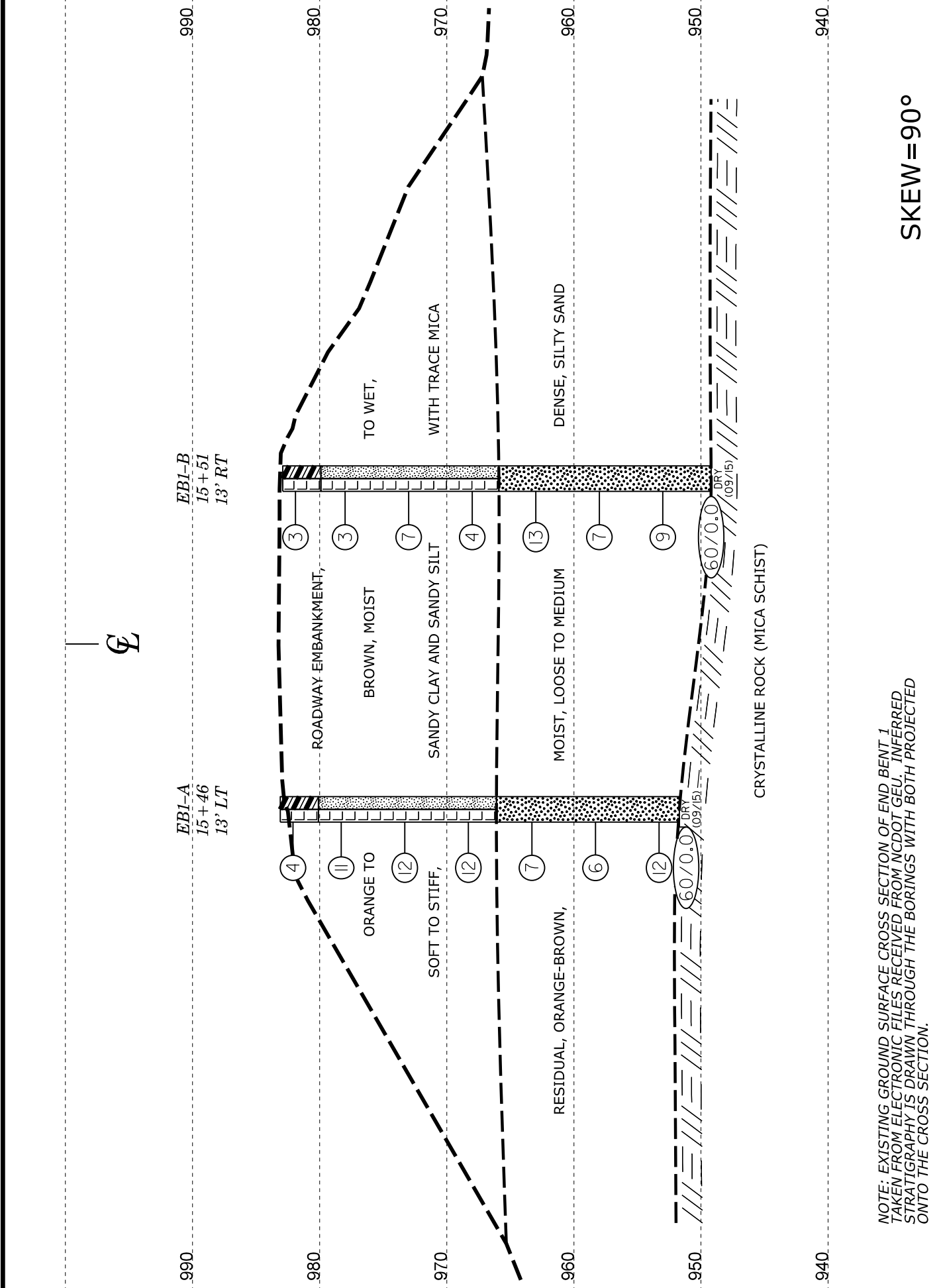
NOTE: EXISTING GROUND SURFACE PROFILE ALONG -L- TAKEN FROM ELECTRONIC FILES RECEIVED FROM NCDOT GEU. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

- (A) ROADWAY EMBANKMENT, ORANGE, WET, SOFT, SANDY CLAY
- (B) RESIDUAL, ORANGE AND BROWN, WET, SOFT, MICACEOUS, CLAYEY SILT AND SANDY SILT
- (C) RESIDUAL, WHITE, MOIST, DENSE, SILTY SAND
- (D) ALLUVIAL, BROWN, WET, VERY LOOSE, SILTY SAND

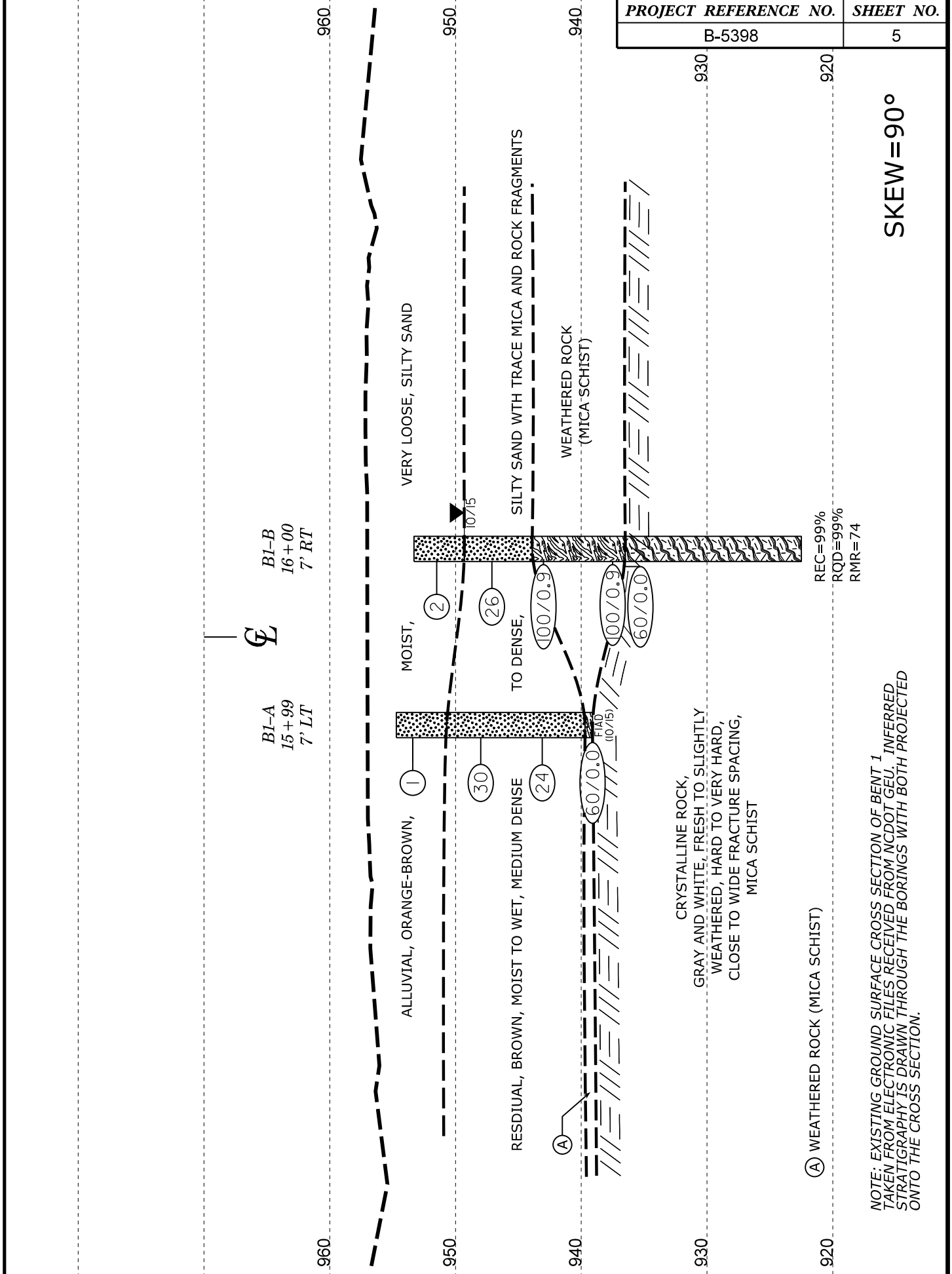
15+20

16+00

17+00



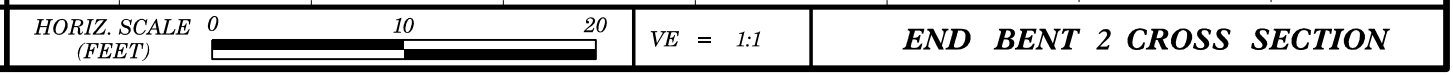
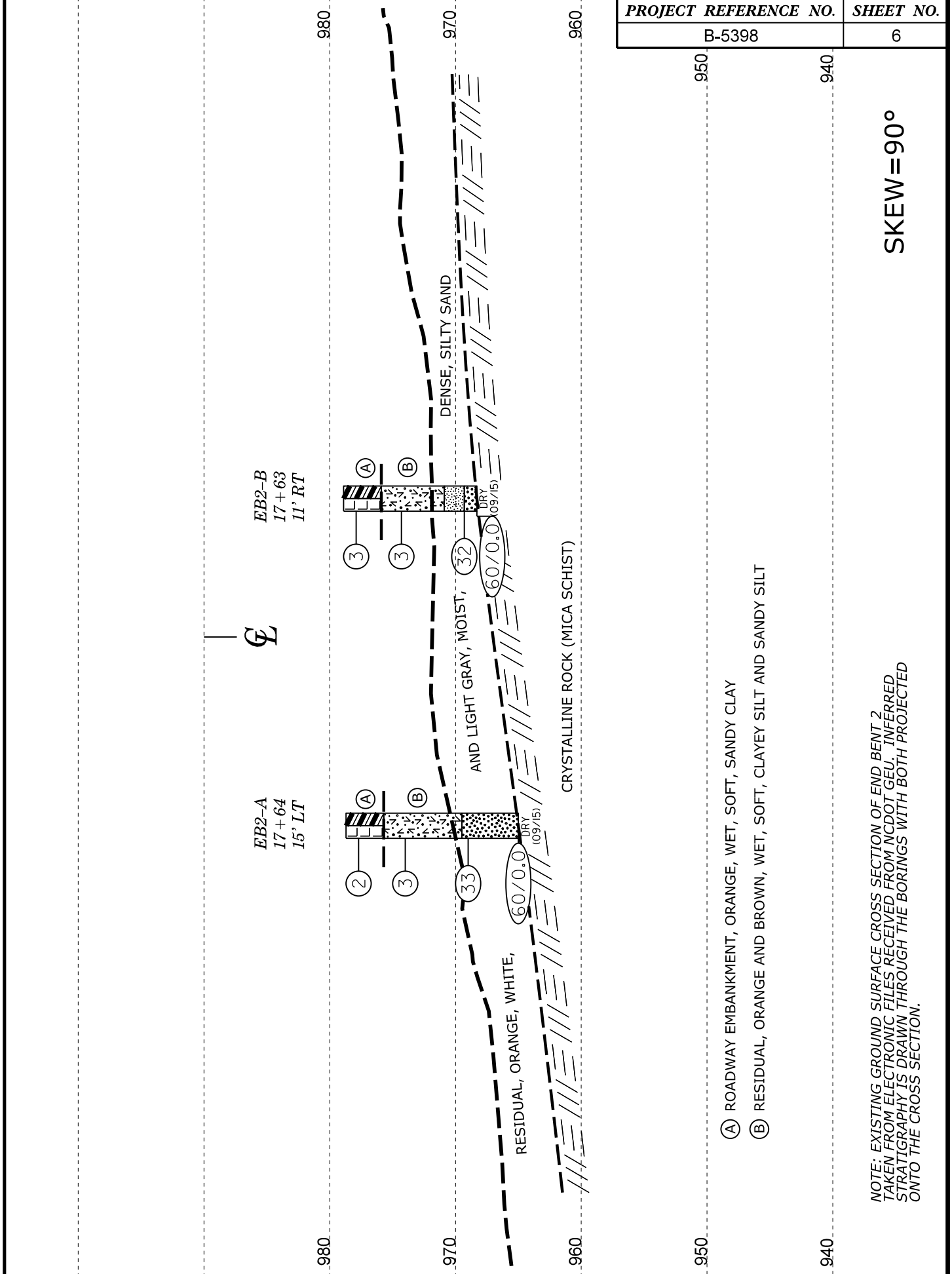
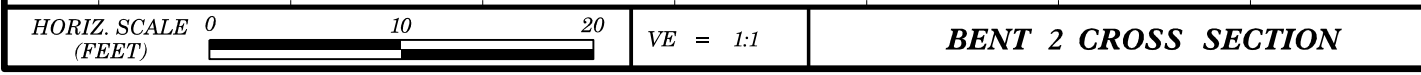
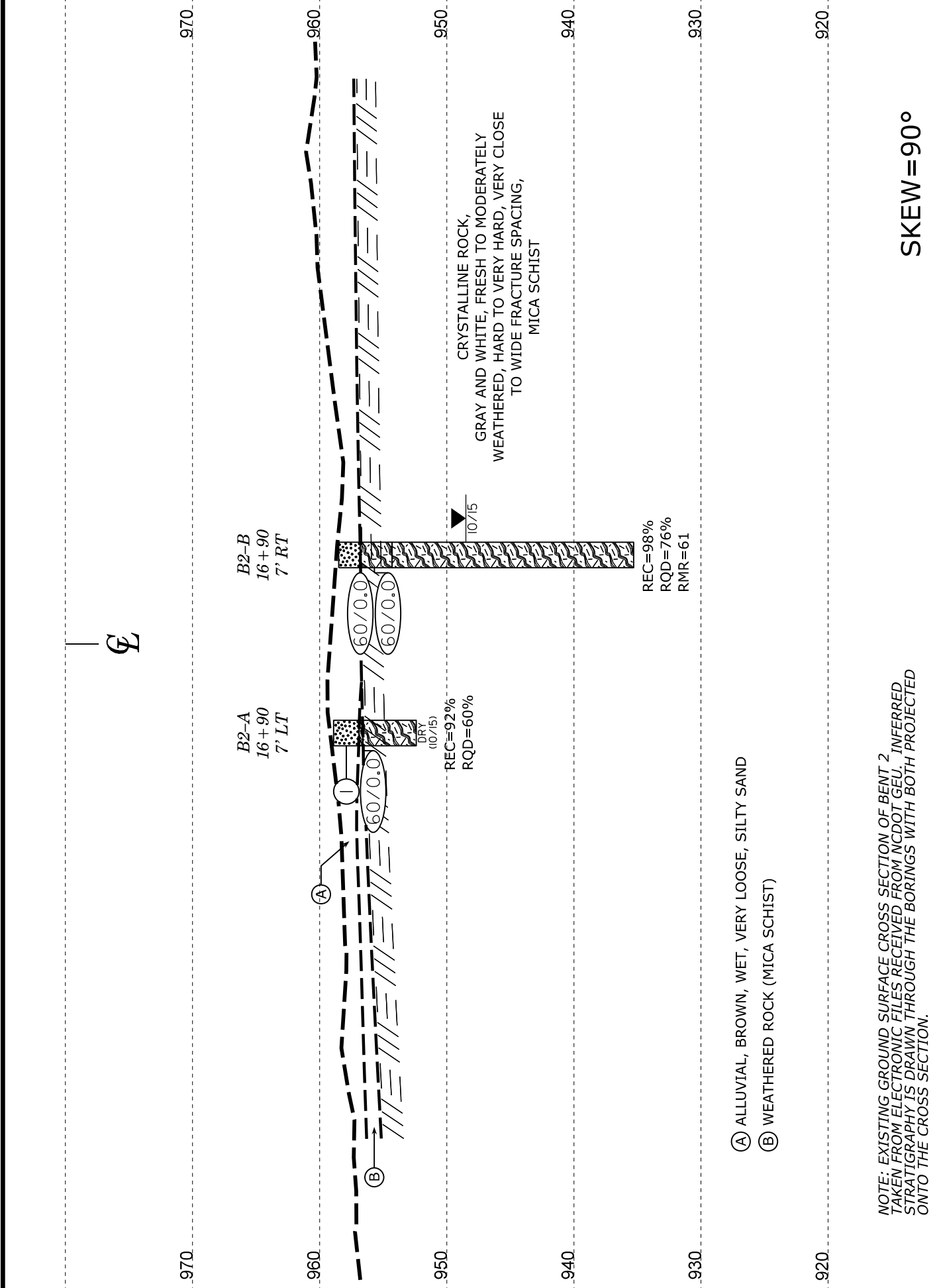
HORIZ. SCALE 0 10 20 (FEET) VE = 1:1



HORIZ. SCALE 0 10 20 (FEET) VE = 1:1

**SKEW = 90°**

**SKEW = 90°**



# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 46113.1.1		TIP B-5398		COUNTY BURKE		GEOLOGIST E. MAYR									
SITE DESCRIPTION Bridge No. 21 on SR 1803 (Johnson Bridge Road) over Henry Fork River							GROUND WTR (ft)								
BORING NO. EB1-A		STATION 15+46		OFFSET 13 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 983.1 ft		TOTAL DEPTH 31.4 ft		NORTHING 714,728		EASTING 1,272,620									
DRILL RIG/HAMMER EFF./DATE SDS1873 CME-550X 87% 09/05/2014			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER G. SKOGLUND		START DATE 09/28/15		COMP. DATE 09/28/15		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					
985	983.1	0.0	2	2	2								W	GROUND SURFACE	0.0
980	979.3	3.8	4	4	7								M	ROADWAY EMBANKMENT Orange to Light Brown, Sandy Clay with Trace Mica	3.0
975	974.3	8.8	4	6	6								M	Orange, Sandy Silt with Trace Mica	
970	969.3	13.8	4	5	7								M		
965	964.3	18.8	3	3	4								M	RESIDUAL Orange-Brown, Silty Sand	17.0
960	959.3	23.8	2	2	4								M		
955	954.3	28.8	3	5	7								M		
	951.7	31.4	60/0.0												60/0.0
Boring Terminated with Standard Penetration Test Refusal at Elevation 951.7 ft on Crystalline Rock (Mica Schist)															

WBS 46113.1.1		TIP B-5398		COUNTY BURKE		GEOLOGIST E. MAYR									
SITE DESCRIPTION Bridge No. 21 on SR 1803 (Johnson Bridge Road) over Henry Fork River							GROUND WTR (ft)								
BORING NO. EB1-B		STATION 15+51		OFFSET 13 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 982.9 ft		TOTAL DEPTH 33.7 ft		NORTHING 714,729		EASTING 1,272,646									
DRILL RIG/HAMMER EFF./DATE SDS1873 CME-550X 87% 09/05/2014			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER G. SKOGLUND		START DATE 09/28/15		COMP. DATE 09/28/15		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					
985	982.9	0.0	2	2	1								W	GROUND SURFACE	0.0
980	979.0	3.9	1	1	2								W	ROADWAY EMBANKMENT Orange and Brown, Sandy Clay with Trace Mica	3.0
975	974.0	8.9	2	3	4								W	Orange, Sandy Silt with Trace Mica	
970	969.0	13.9	2	1	3								W		
965	964.0	18.9	3	7	6								M	RESIDUAL Orange-Brown, Silty Sand	17.0
960	959.0	23.9	3	3	4								M		
955	954.0	28.9	3	4	5								M		
	949.2	33.7	60/0.0												60/0.0
Boring Terminated with Standard Penetration Test Refusal at Elevation 949.2 ft on Crystalline Rock (Mica Schist)															

NCDOT BORE DOUBLE B5398\_GEO\_BRDG0021\_BH.GPJ NC\_DOT.GDT 11/2/15



WBS 46113.1.1			TIP B-5398			COUNTY BURKE			GEOLOGIST E. MAYR						
SITE DESCRIPTION Bridge No. 21 on SR 1803 (Johnson Bridge Road) over Henry Fork River										GROUND WTR (ft)					
BORING NO. B1-A			STATION 15+99			OFFSET 7 ft LT			ALIGNMENT -L-						
COLLAR ELEV. 954.7 ft			TOTAL DEPTH 15.6 ft			NORTHING 714,780			EASTING 1,272,633						
DRILL RIG/HAMMER EFF./DATE SDS1873 CME-550X 87% 09/05/2014								DRILL METHOD NW Casing w/ Advancer			HAMMER TYPE Automatic				
DRILLER J. WHITE			START DATE 10/19/15			COMP. DATE 10/19/15			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					
955	954.4	0.3													954.7 GROUND SURFACE 0.0
			WOH	WOH	1							M			<b>ALLUVIAL</b> Orange-Brown, Silty Sand
950	949.0	5.7	6	12	18										950.7 4.0
												W			<b>RESIDUAL</b> Brown, Silty Coarse to Fine Sand with Trace Mica and Rock Fragments
945	944.1	10.6	13	12	12										
												W			
940	939.1	15.6	60	0	0										939.7 15.0 939.1 15.6
															<b>WEATHERED ROCK</b> (Mica Schist) Boring Terminated with Standard Penetration Test Refusal at Elevation 939.1 ft on Crystalline Rock (Mica Schist)

# GEOTECHNICAL BORING REPORT

## BORE LOG

# GEOTECHNICAL BORING REPORT

## CORE LOG

WBS 46113.1.1		TIP B-5398		COUNTY BURKE		GEOLOGIST E. MAYR										
SITE DESCRIPTION Bridge No. 21 on SR 1803 (Johnson Bridge Road) over Henry Fork River							GROUND WTR (ft)									
BORING NO. B1-B		STATION 16+00		OFFSET 7 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 953.3 ft		TOTAL DEPTH 30.8 ft		NORTHING 714,779		EASTING 1,272,647										
DRILL RIG/HAMMER EFF./DATE SDS8513 CME-550X 91% 09/05/2014			DRILL METHOD NW Casing W/SPT & Core		HAMMER TYPE Automatic											
DRILLER J. WHITE		START DATE 09/30/15		COMP. DATE 10/16/15		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														953.3	GROUND SURFACE	0.0
	952.5	0.8	2	1	1							M		949.3	ALLUVIAL Brown, Silty Sand with Trace Gravel	4.0
950	948.1	5.2	6	13	13							M		943.9	RESIDUAL Brown, Silty Sand with Trace Mica and Rock Fragments	9.4
945	943.9	9.4	17	83/0.4										943.9	WEATHERED ROCK (Mica Schist)	9.4
940	938.4	14.9	8	92/0.4										936.5	CRYSTALLINE ROCK Gray and White, Fresh to Slightly Weathered, Hard to Very Hard, Close to Wide Fracture Spacing, Mica Schist REC=99% RQD=99% RMR=74	16.8
935	936.5	16.8	60/0.0									RS-1		922.5	Boring Terminated at Elevation 922.5 ft in Crystalline Rock (Mica Schist)	30.8

WBS 46113.1.1		TIP B-5398		COUNTY BURKE		GEOLOGIST E. MAYR						
SITE DESCRIPTION Bridge No. 21 on SR 1803 (Johnson Bridge Road) over Henry Fork River							GROUND WTR (ft)					
BORING NO. B1-B		STATION 16+00		OFFSET 7 ft RT		ALIGNMENT -L-						
COLLAR ELEV. 953.3 ft		TOTAL DEPTH 30.8 ft		NORTHING 714,779		EASTING 1,272,647						
DRILL RIG/HAMMER EFF./DATE SDS8513 CME-550X 91% 09/05/2014			DRILL METHOD NW Casing W/SPT & Core		HAMMER TYPE Automatic							
DRILLER J. WHITE		START DATE 09/30/15		COMP. DATE 10/16/15		SURFACE WATER DEPTH N/A						
CORE SIZE N2WL		TOTAL RUN 14.0 ft										
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (%)	RQD (%)		REC. (%)	RQD (%)			
936.5	936.5	16.8	4.0	N=60/0.0 1:30/1.0 1:45/1.0 2:15/1.0 3:30/1.0	(4.0) 100%	(3.9) 98%		(13.9) 99%	(13.8) 99%		Begin Coring @ 16.8 ft	
935							RS-1				CRYSTALLINE ROCK Gray and White, Fresh to Slightly Weathered, Hard to Very Hard, Close to Wide Fracture Spacing, Mica Schist REC=99% RQD=99% RMR=74	16.8
930			5.0	1:30/1.0 1:30/1.0 1:30/1.0 2:00/1.0	(4.9) 98%	(4.9) 98%						
925			5.0	1:15/1.0 1:45/1.0 3:00/1.0 3:00/1.0 2:00/1.0	(5.0) 100%	(5.0) 100%						
											Boring Terminated at Elevation 922.5 ft in Crystalline Rock (Mica Schist)	30.8

# GEOTECHNICAL BORING REPORT BORE LOG

WBS 46113.1.1		TIP B-5398		COUNTY BURKE		GEOLOGIST E. MAYR									
SITE DESCRIPTION Bridge No. 21 on SR 1803 (Johnson Bridge Road) over Henry Fork River							GROUND WTR (ft)								
BORING NO. B2-A		STATION 16+90		OFFSET 7 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 958.9 ft		TOTAL DEPTH 6.5 ft		NORTHING 714,870		EASTING 1,272,645									
DRILL RIG/HAMMER EFF./DATE SDS1873 CME-550X 87% 09/05/2014			DRILL METHOD NW Casing W/SPT & Core			HAMMER TYPE Automatic									
DRILLER J. WHITE		START DATE 10/06/15		COMP. DATE 10/06/15		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL AND ROCK DESCRIPTION		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100			ELEV. (ft)	DEPTH (ft)	
960	958.9	0.0	WOH	WOH	1	1	...	...	...	...		W	958.9	GROUND SURFACE	0.0
	956.6	2.3	60/0.0			1	...	...	...	...			956.9	ALLUVIAL Brown, Silty Sand	2.0
							...	...	...	...			956.6	WEATHERED ROCK (Mica Schist)	2.3
							...	...	...	...			956.0	WEATHERED ROCK (Mica Schist)	2.9
							...	...	...	...			953.5	CRYSTALLINE ROCK (Mica Schist)	5.4
							...	...	...	...			952.4	CRYSTALLINE ROCK (Mica Schist)	6.5
														Gray and White, Fresh to Very Slightly Weathered, Hard to Very Hard, Close to Very Close Fracture Spacing, Mica Schist REC=92% RQD=60% (Mica Schist) *Drilled with Casing Advancer due to Core Barrel Malfunction Boring Terminated at Elevation 952.4 ft in Crystalline Rock (Mica Schist)	

NCDOT BORE DOUBLE B5398\_GEO\_BRDG0021\_BH.GPJ\_NC\_DOT.GDT 11/2/15

# CORE LOG

WBS 46113.1.1		TIP B-5398		COUNTY BURKE		GEOLOGIST E. MAYR							
SITE DESCRIPTION Bridge No. 21 on SR 1803 (Johnson Bridge Road) over Henry Fork River							GROUND WTR (ft)						
BORING NO. B2-A		STATION 16+90		OFFSET 7 ft LT		ALIGNMENT -L-							
COLLAR ELEV. 958.9 ft		TOTAL DEPTH 6.5 ft		NORTHING 714,870		EASTING 1,272,645							
DRILL RIG/HAMMER EFF./DATE SDS1873 CME-550X 87% 09/05/2014			DRILL METHOD NW Casing W/SPT & Core			HAMMER TYPE Automatic							
DRILLER J. WHITE		START DATE 10/06/15		COMP. DATE 10/06/15		SURFACE WATER DEPTH N/A							
CORE SIZE N2WL			TOTAL RUN 2.5 ft										
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		L O G	DESCRIPTION AND REMARKS		
					REC. (ft) %	RQD (ft) %		REC. (ft) %	RQD (ft) %		ELEV. (ft)	DEPTH (ft)	
956	956.0	2.9	2.5	2:45/0.5	(2.3)	(1.5)		(2.3)	(1.5)		956.0	Begin Coring @ 2.9 ft	2.9
955	953.5	5.4		3:00/1.0 9:30/1.0	92%	60%		92%	60%		953.5	Gray and White, Fresh to Very Slightly Weathered, Hard to Very Hard, Close to Very Close Fracture Spacing, Mica Schist REC=92% RQD=60% (Mica Schist)	5.4
											952.4	*Drilled with Casing Advancer due to Core Barrel Malfunction Boring Terminated at Elevation 952.4 ft in Crystalline Rock (Mica Schist)	6.5

NCDOT BORE DOUBLE B5398\_GEO\_BRDG0021\_BH.GPJ\_NC\_DOT.GDT 11/2/15

# GEOTECHNICAL BORING REPORT BORE LOG

# GEOTECHNICAL BORING REPORT CORE LOG

WBS 46113.1.1		TIP B-5398		COUNTY BURKE		GEOLOGIST E. MAYR									
SITE DESCRIPTION Bridge No. 21 on SR 1803 (Johnson Bridge Road) over Henry Fork River							GROUND WTR (ft)								
BORING NO. B2-B		STATION 16+90		OFFSET 7 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 958.5 ft		TOTAL DEPTH 23.2 ft		NORTHING 714,868		EASTING 1,272,659									
DRILL RIG/HAMMER EFF./DATE SDS8513 CME-550X 91% 09/05/2014			DRILL METHOD NW Casing W/SPT & Core			HAMMER TYPE Automatic									
DRILLER G. SKOGLUND		START DATE 10/01/15		COMP. DATE 10/01/15		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					
960															
	957.8	0.7	WOH	3	60/0.0							M	958.5	GROUND SURFACE	0.0
	955.7	2.8			60/0.0								956.8	ALLUVIAL Brown, Silty Fine Sand	1.7
955					60/0.0								954.3	CRYSTALLINE ROCK (Mica Schist)	4.2
950												RS-2		Gray and White, Fresh to Moderately Weathered, Hard to Very Hard, Very Close to Wide Fracture Spacing, Mica Schist REC=98% RQD=76% RMR=61	
945															
940															
													935.3	Boring Terminated at Elevation 935.3 ft in Crystalline Rock (Mica Schist)	23.2

WBS 46113.1.1		TIP B-5398		COUNTY BURKE		GEOLOGIST E. MAYR						
SITE DESCRIPTION Bridge No. 21 on SR 1803 (Johnson Bridge Road) over Henry Fork River							GROUND WTR (ft)					
BORING NO. B2-B		STATION 16+90		OFFSET 7 ft RT		ALIGNMENT -L-						
COLLAR ELEV. 958.5 ft		TOTAL DEPTH 23.2 ft		NORTHING 714,868		EASTING 1,272,659						
DRILL RIG/HAMMER EFF./DATE SDS8513 CME-550X 91% 09/05/2014			DRILL METHOD NW Casing W/SPT & Core			HAMMER TYPE Automatic						
DRILLER G. SKOGLUND		START DATE 10/01/15		COMP. DATE 10/01/15		SURFACE WATER DEPTH N/A						
CORE SIZE N2WL			TOTAL RUN 19.0 ft									
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (%)	RQD (%)		REC. (%)	RQD (%)			
954.3	954.3	4.2	4.0	4:00/1.0 1:30/1.0 1:45/1.0 1:45/1.0	(3.7) 93%	(2.8) 70%		(18.6) 98%	(14.5) 76%		Begin Coring @ 4.2 ft	
950	950.3	8.2	5.5	0:45/1.0 1:00/1.0 1:15/1.0 1:45/1.0 1:30/1.0	(5.5) 100%	(3.0) 55%	RS-2				Gray and White, Fresh to Moderately Weathered, Hard to Very Hard, Very Close to Wide Fracture Spacing, Mica Schist REC=98% RQD=76% RMR=61	4.2
945	944.8	13.7	4.5	0:30/0.5 1:45/0.5 2:45/1.0 1:30/1.0 1:45/1.0 3:00/1.0	(4.5) 100%	(3.8) 84%						
940	940.3	18.2	5.0	0:45/1.0 1:15/1.0 2:15/1.0 1:45/1.0 3:00/1.0	(4.9) 98%	(4.9) 98%						
	935.3	23.2									Boring Terminated at Elevation 935.3 ft in Crystalline Rock (Mica Schist)	23.2

# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 46113.1.1		TIP B-5398		COUNTY BURKE		GEOLOGIST E. MAYR										
SITE DESCRIPTION Bridge No. 21 on SR 1803 (Johnson Bridge Road) over Henry Fork River							GROUND WTR (ft)									
BORING NO.	STATION	OFFSET	ALIGNMENT													
EB2-A	17+64	15 ft LT	-L-					0 HR. Dry								
COLLAR ELEV.	TOTAL DEPTH	NORTHING	EASTING													
978.7 ft	13.7 ft	714,944	1,272,648					24 HR. Dry								
DRILL RIG/HAMMER EFF./DATE		DRILL METHOD		HAMMER TYPE												
SDS1873 CME-550X 87% 09/05/2014		H.S. Augers		Automatic												
DRILLER		START DATE	COMP. DATE	SURFACE WATER DEPTH												
G. SKOGLUND		09/28/15	09/28/15	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						
980	978.7	0.0												978.7	0.0	GROUND SURFACE
	975.7	3.0	WOH	1	1							W		975.7	3.0	ROADWAY EMBANKMENT Orange, Sandy Clay
975	975.0	3.7		1	2	1						W		975.7	3.0	RESIDUAL Orange, Clayey Silt with Trace Mica
970	970.0	8.7		1	17	16						W		969.5	9.2	Orange, White, and Light Gray, Silty Fine Sand with Rock Fragments
965	965.0	13.7										W		965.0	13.7	Boring Terminated with Standard Penetration Test Refusal at Elevation 965.0 ft on Crystalline Rock (Mica Schist)

WBS 46113.1.1		TIP B-5398		COUNTY BURKE		GEOLOGIST E. MAYR										
SITE DESCRIPTION Bridge No. 21 on SR 1803 (Johnson Bridge Road) over Henry Fork River							GROUND WTR (ft)									
BORING NO.	STATION	OFFSET	ALIGNMENT													
EB2-B	17+63	11 ft RT	-L-					0 HR. Dry								
COLLAR ELEV.	TOTAL DEPTH	NORTHING	EASTING													
978.9 ft	10.6 ft	714,940	1,272,673					24 HR. Dry								
DRILL RIG/HAMMER EFF./DATE		DRILL METHOD		HAMMER TYPE												
SDS1873 CME-550X 87% 09/05/2014		H.S. Augers		Automatic												
DRILLER		START DATE	COMP. DATE	SURFACE WATER DEPTH												
G. SKOGLUND		09/28/15	09/28/15	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						
980	978.9	0.0												978.9	0.0	GROUND SURFACE
	975.9	3.0		1	2	1						W		975.9	3.0	ROADWAY EMBANKMENT Orange, Sandy Clay with Trace Gravel
975	975.3	3.6		1	2	1						W		975.9	3.0	RESIDUAL Orange, Clayey Silt with Trace Rock Fragments
970	970.3	8.6												970.9	8.0	Brown, Micaceous, Sandy Silt
	968.3	10.6		3	5	27						M		969.3	9.6	White, Silty Sand
														968.3	10.6	Boring Terminated with Standard Penetration Test Refusal at Elevation 968.3 ft on Crystalline Rock (Mica Schist)

NCDOT BORE DOUBLE\_B5398\_GEO\_BRDG0021\_BH.GPJ\_NC\_DOT.GDT 11/2/15



**UNCONFINED COMPRESSIVE STRENGTH  
OF INTACT ROCK CORE SPECIMEN**  
ASTM D7012

WBS No.: 46113.1.1  
 TIP No.: B-5398  
 County: Burke

Test Date: 10/27/2015  
 Tested By: N. Mohs

Description: Bridge No. 21 on SR 1803 over Henry Fork River

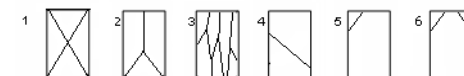
Test No.	1	2		
Boring ID	B1-B	B2-B		
Station	16+00	16+90		
Sample ID	RS-1	RS-2		
Sample Depth, ft	18.1	6.9		
Core Length #1, in.	3.980	4.001		
Core Length #2, in.	3.984	4.010		
Avg. Core Length, in.	3.982	4.006		
Core Dia. #1, in.	1.997	1.982		
Core Dia. #2, in.	1.996	1.982		
Avg. Core Dia., in.	1.997	1.982		
Length/Dia. Ratio	1.99	2.02		
X-Sectional Area, in <sup>2</sup>	3.13	3.09		
Weight, lb	1.23	1.15		
Unit Weight, pcf	170.50	160.80		
Break Type	2	4		
Load at Failure, lb	43,430	21,830		
Correction Factor	1.00	1.00		
<b>Comp. Strength, psi</b>	<b>13,875</b>	<b>7,065</b>		
<b>Comp. Strength, ksf</b>	<b>1,998</b>	<b>1,017</b>		

Rock Descriptions:

Test 1: Gray and white, Fresh to Slightly Weathered, Hard to Very Hard, Close to Wide Fracture Spacing

Test 2: Gray and white, Fresh to Moderately Weathered, Hard to Very Hard, Very Close to Wide Fracture Spacing

Break Types:



**CORE PHOTOGRAPHS**

BORING BI-B  
16+00 -L-, 7 FT RT

BORING B2-A  
16+90 -L-, 7 FT LT



CORE BOXES 1&2: RUNS 1-3



CORE BOX 1: RUN 1

**CORE PHOTOGRAPHS**

BORING B2-B  
16+90 -L-, 7 FT RT



CORE BOXES I&2: RUNS 1-4



SITE PHOTOGRAPHS



PHOTOGRAPH 1: VIEW OF JOHNSON BRIDGE RD. AT BRIDGE 21 LOOKING SOUTH.



PHOTOGRAPH 2: VIEW UNDER BRIDGE 21 LOOKING SOUTH.