

REFERENCE: B-5947

PROJECT: 45983

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

**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

COUNTY NASH  
PROJECT DESCRIPTION BRIDGE NO. 91 ON -LREV-  
(NC 581) OVER TAR RIVER AT STA. 23 + 90.5

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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5947	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 1919 TOT-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

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A. N. JONES  
N. O. MOORE  
D. G. PINTER

INVESTIGATED BY A. N. JONES  
 DRAWN BY A. N. JONES  
 CHECKED BY J. L. LOVE  
 SUBMITTED BY N. T. ROBERSON  
 DATE OCTOBER 2020

































DocuSigned by:  
*Jaime L. Love* 4/6/2021  
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 SIGNATURE DATE

**DOCUMENT NOT CONSIDERED FINAL  
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# NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

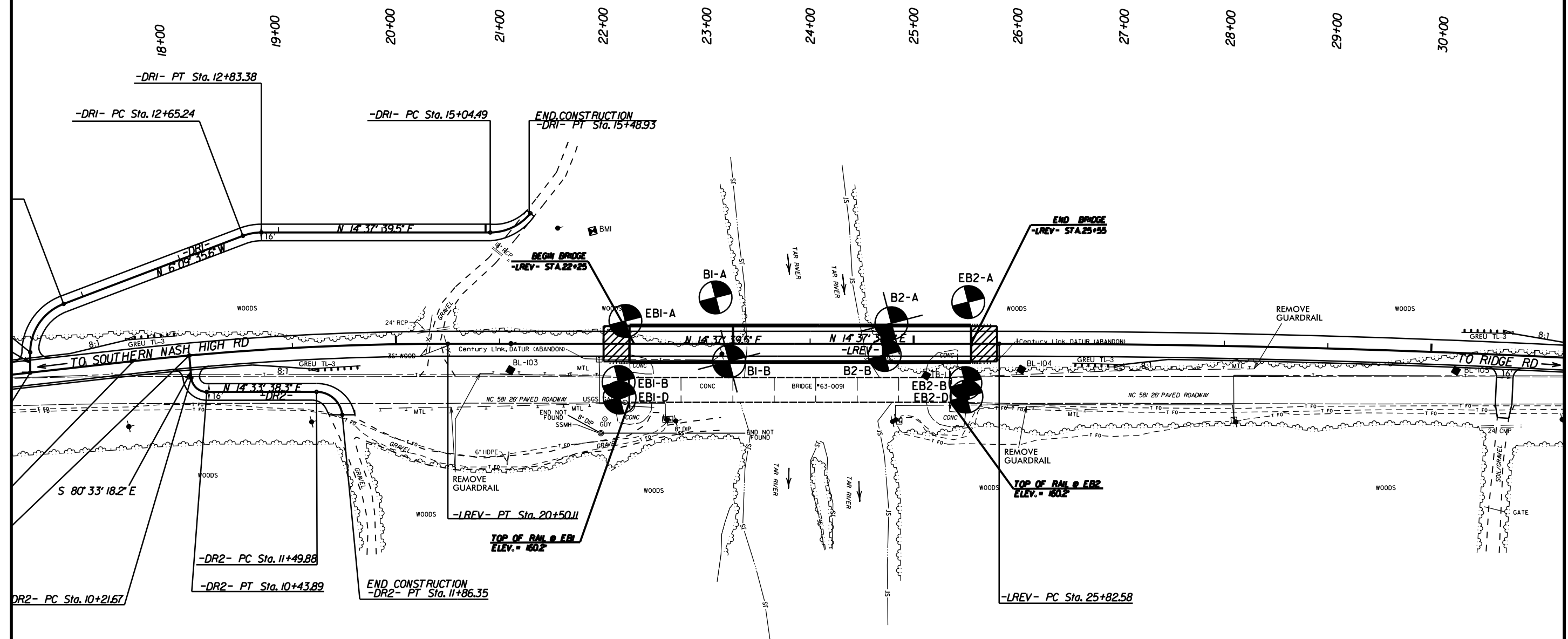
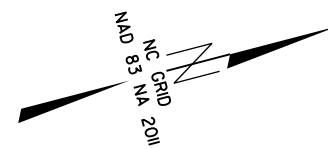
## SUBSURFACE INVESTIGATION

### SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

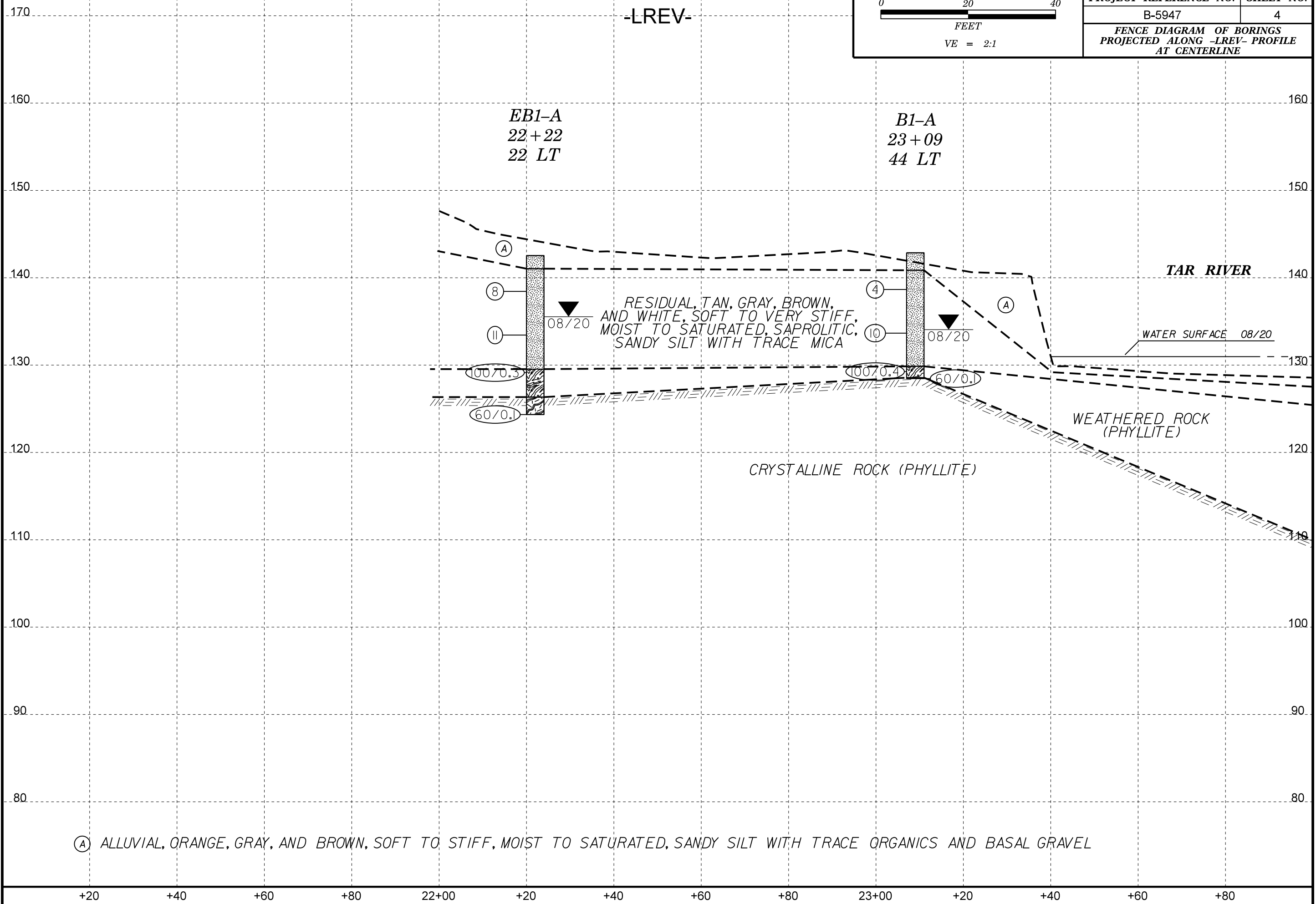
SOIL DESCRIPTION					GRADATION					ROCK DESCRIPTION					TERMS AND DEFINITIONS																																																
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 209, 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>					<b>WELL GRADED</b> - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. <b>UNIFORMLY GRADED</b> - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. <b>GAP-GRADED</b> - 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:					<b>ALLUVIUM (ALLUV.)</b> - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. <b>AQUIFER</b> - A WATER BEARING FORMATION OR STRATA. <b>ARENACEOUS</b> - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. <b>ARGILLACEOUS</b> - 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. <b>ARTESIAN</b> - 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. <b>CALCAREOUS (CALC.)</b> - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. <b>COLLUVIUM</b> - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. <b>CORE RECOVERY (REC.)</b> - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. <b>DIKE</b> - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. <b>DIP</b> - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. <b>DIP DIRECTION (DIP AZIMUTH)</b> - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. <b>FAULT</b> - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. <b>FISSILE</b> - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. <b>FLOAT</b> - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOGGED FROM PARENT MATERIAL. <b>FLOOD PLAIN (FP)</b> - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. <b>FORMATION (FM)</b> - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. <b>JOINT</b> - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. <b>LEDGE</b> - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. <b>LENS</b> - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. <b>MOTTLED (MOT.)</b> - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. <b>PERCHED WATER</b> - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. <b>RESIDUAL (RES.) SOIL</b> - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. <b>ROCK QUALITY DESIGNATION (RQD)</b> - 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. <b>SAPROLITE (SAP.)</b> - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. <b>SILL</b> - 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. <b>SLICKENSIDE</b> - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. <b>STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT)</b> - 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. <b>STRATA CORE RECOVERY (SREC.)</b> - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. <b>STRATA ROCK QUALITY DESIGNATION (SROD)</b> - 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. <b>TOPSOIL (TS.)</b> - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.																																																
<b>SOIL LEGEND AND AASHTO CLASSIFICATION</b>					<b>ANGULARITY OF GRAINS</b> THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.					<b>WEATHERED ROCK (WR)</b>  NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.					<b>CRYSTALLINE ROCK (CR)</b>  FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.																																																
<b>MINERALOGICAL COMPOSITION</b> MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.					<b>COMPRESSION</b> SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50					<b>NON-CRYSTALLINE ROCK (NCR)</b>  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.					<b>COASTAL PLAIN SEDIMENTARY ROCK (CP)</b>  COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.																																																
<b>PERCENTAGE OF MATERIAL</b> <table border="1" style="width: 100%; font-size: 6px;"> <tr> <th>ORGANIC MATERIAL</th> <th>GRANULAR SOILS</th> <th>SILT - CLAY SOILS</th> <th>OTHER MATERIAL</th> </tr> <tr> <td>TRACE OF ORGANIC MATTER</td> <td>2 - 3%</td> <td>3 - 5%</td> <td>TRACE 1 - 10%</td> </tr> <tr> <td>LITTLE ORGANIC MATTER</td> <td>3 - 5%</td> <td>5 - 12%</td> <td>LITTLE 10 - 20%</td> </tr> <tr> <td>MODERATELY ORGANIC</td> <td>5 - 10%</td> <td>12 - 20%</td> <td>SOME 20 - 35%</td> </tr> <tr> <td>HIGHLY ORGANIC</td> <td>&gt; 10%</td> <td>&gt; 20%</td> <td>HIGHLY 35% AND ABOVE</td> </tr> </table>					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	<b>GROUND WATER</b>  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					<b>WEATHERING</b> <b>FRESH</b> - ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE. <b>VERY SLIGHT (V SL.)</b> - 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. <b>SLIGHT (SL.)</b> - 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. <b>MODERATE (MOD.)</b> - 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. <b>MODERATELY SEVERE (MOD. SEV.)</b> - ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. <i>IF TESTED, WOULD YIELD SPT REFUSAL</i> <b>SEVERE (SEV.)</b> - ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. <i>IF TESTED, WOULD YIELD SPT N VALUES &gt; 100 BPF</i> <b>VERY SEVERE (V SEV.)</b> - ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <i>IF TESTED, WOULD YIELD SPT N VALUES &lt; 100 BPF</i> <b>COMPLETE</b> - ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.																																	
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<b>INDURATION</b> <b>FRIBLE</b> - RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. <b>MODERATELY INDURATED</b> - GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. <b>INDURATED</b> - GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. <b>EXTREMELY INDURATED</b> - SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.					<b>NOTES:</b> TEMPORARY BENCH MARK (TB-I), TOE OF PAVED EMBANKMENT, -LREV- STA. 25+12 31"RT ELEV.=142.7 FEET EB1 TOP OF RAIL -LREV- STA. 22+25 56' RT ELEV.=160.2' EB2 TOP OF RAIL -LREV- STA. 25+55 56' RT ELEV.=160.2'																																																										
<b>COLOR</b> 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.					<b>BENCH MARK: BL-I04, IRON SPIKE WITH CAP, -LREV- STA. 26+04 25' RT</b> <p style="text-align: right;">ELEVATION: 156.90 FEET</p>																																																										



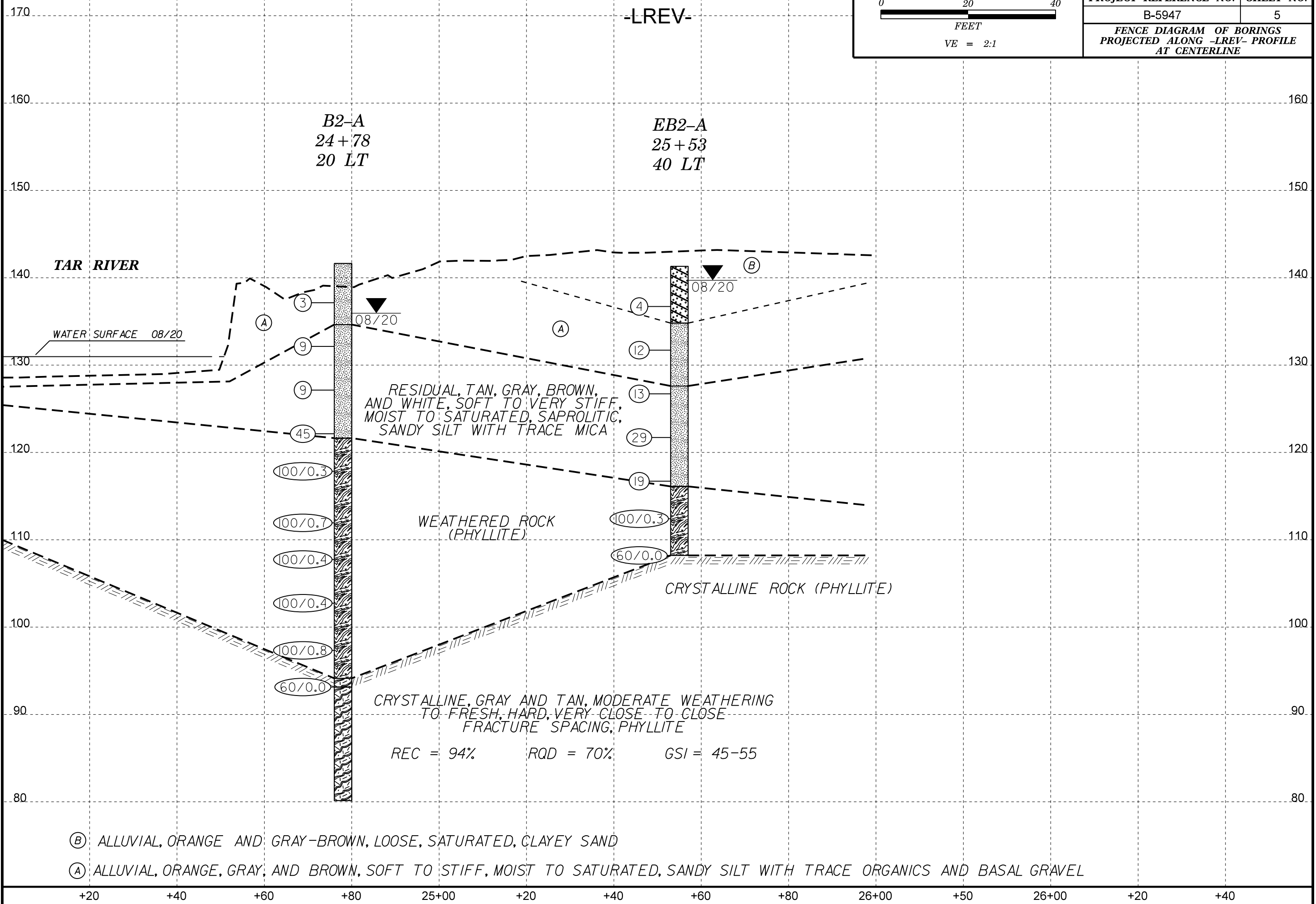
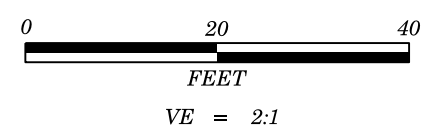
.....  
 BM1 ELEVATION = 146.10  
 N 777073 E 2269535  
 LREV STATION 21+89.98 108.86 LEFT  
 BENCHTIE NAIL SET IN 16" HARDWOOD  
 .....

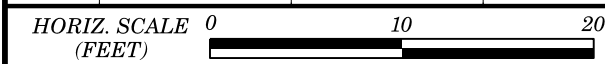


**SKEW = 90°**



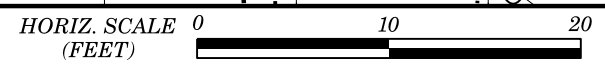
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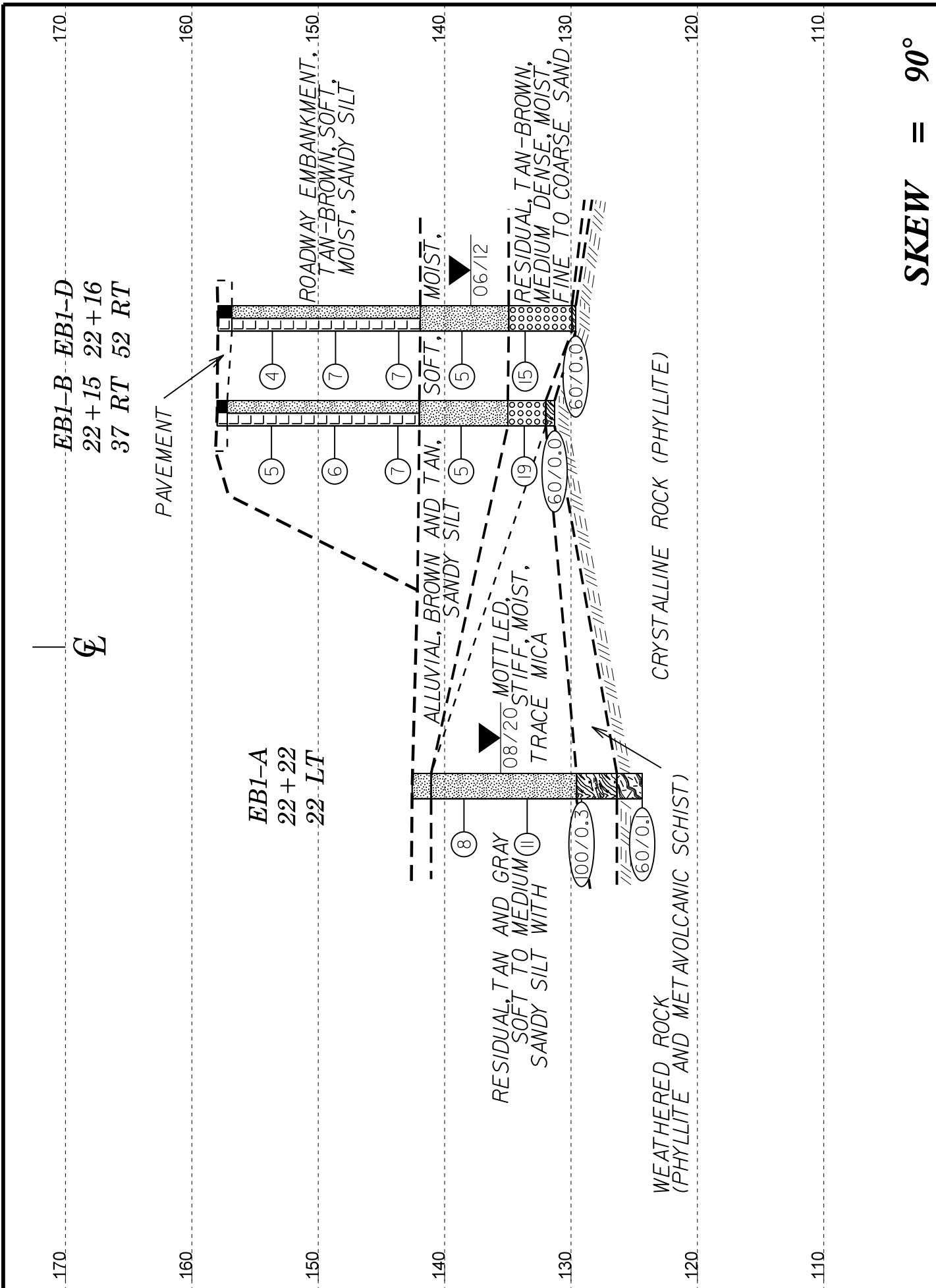
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CROSS SECTION THROUGH EBI

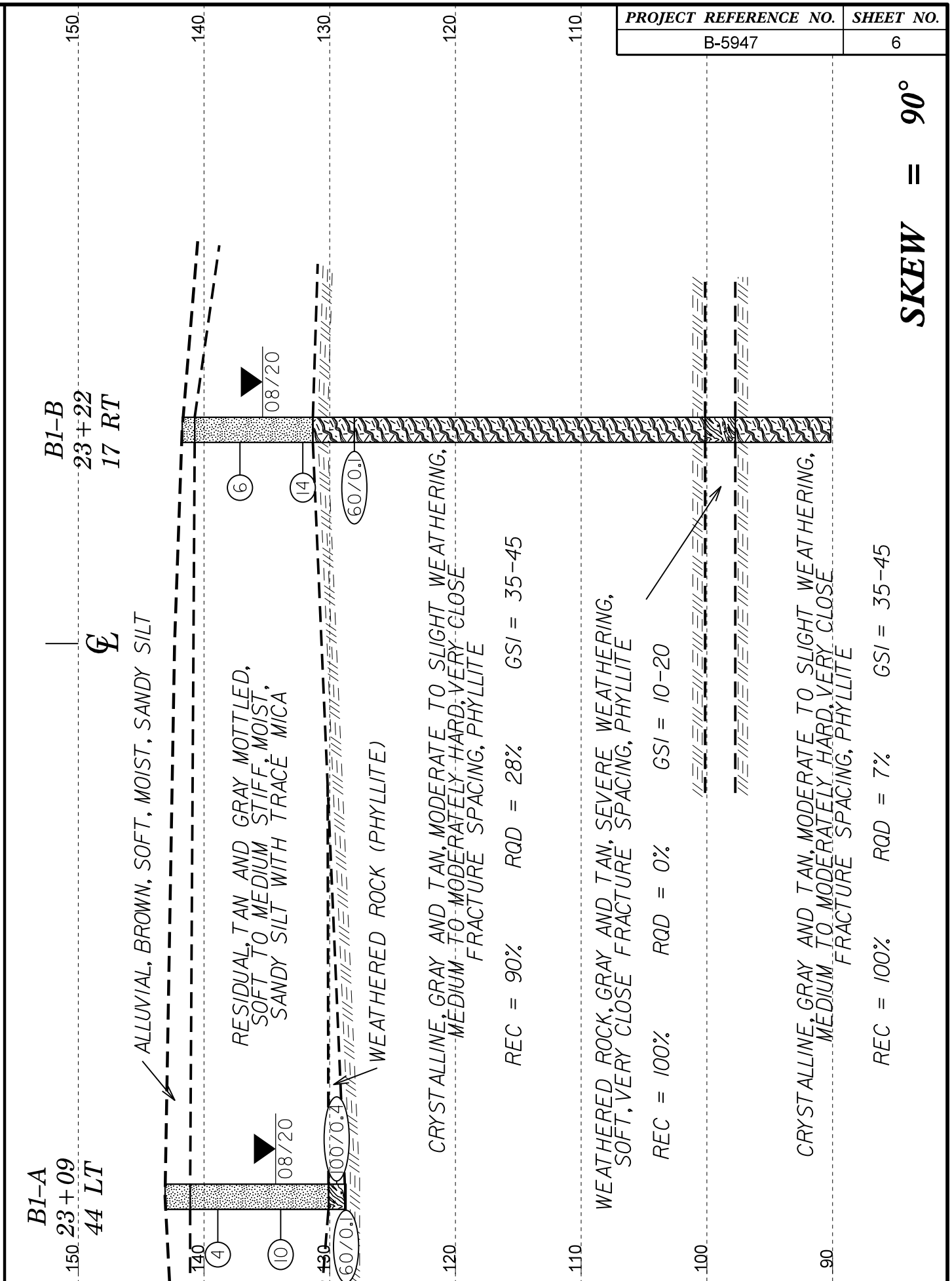


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CROSS SECTION THROUGH BI

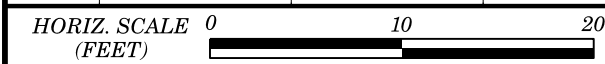


SKEW = 90°



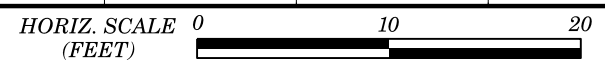
SKEW = 90°

PROJECT REFERENCE NO.	SHEET NO.
B-5947	6



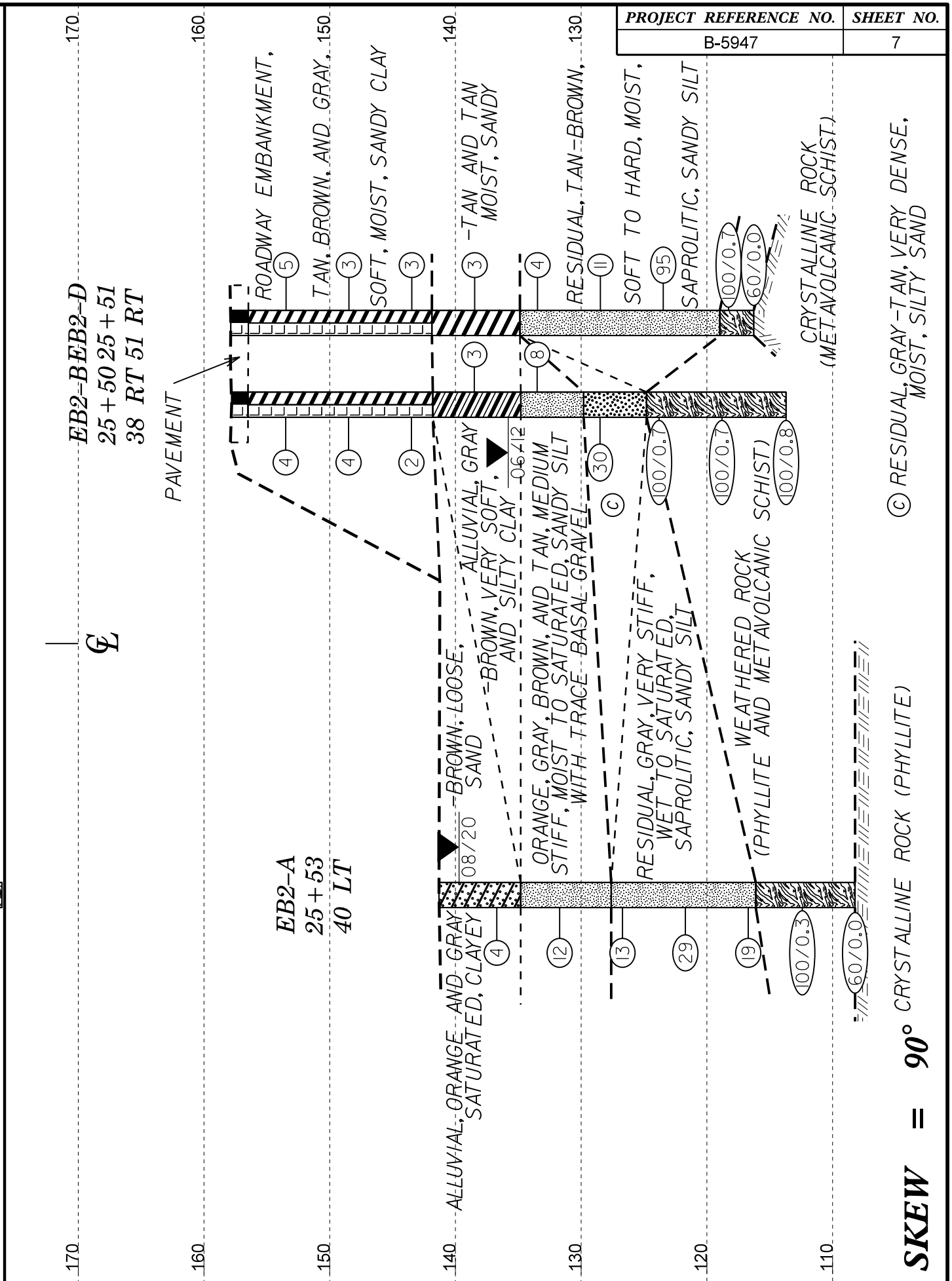
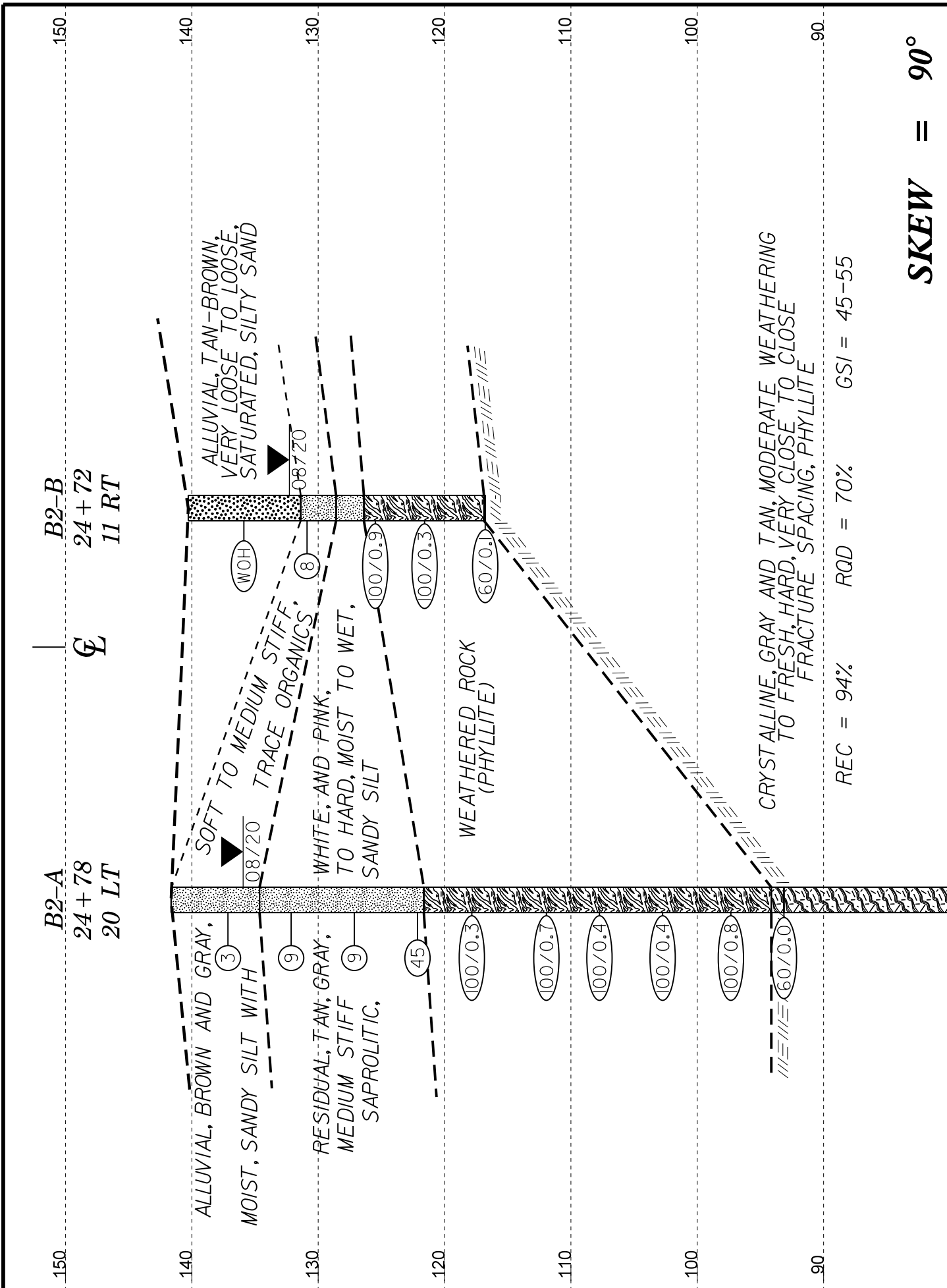
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CROSS SECTION THROUGH B2



VE = 2:1

CROSS SECTION THROUGH EB2



PROJECT REFERENCE NO.	SHEET NO.
B-5947	7





# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 45983.1.1		TIP B-5947		COUNTY NASH		GEOLOGIST Oti, O. B.										
SITE DESCRIPTION BRIDGE NO. 91 OVER TAR RIVER ON NC 581							GROUND WTR (ft)									
BORING NO. EB1-D		STATION 22+16		OFFSET 52 ft RT		ALIGNMENT -LREV-										
COLLAR ELEV. 157.9 ft		TOTAL DEPTH 28.3 ft		NORTHING 777,058		EASTING 2,269,697										
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 06/13/12		COMP. DATE 06/13/12		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
160																
															157.9	GROUND SURFACE
															156.8	ROADWAY EMBANKMENT ASPHALT & ABC TAN-BROWN, SANDY SILT
155	154.6	3.3	1	2	2								M			
150	149.6	8.3	1	3	4								M			
145	144.6	13.3	2	3	4								M			
140	139.6	18.3	1	2	3								M			
135	134.6	23.3	4	7	8								M			
130	129.6	28.3	60/0.0												129.9	WEATHERED ROCK (METAVOLCANIC SCHIST)
															129.6	Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 129.6 ft ON CRYSTALLINE ROCK (METAVOLCANIC SCHIST)

WBS 45983.1.1		TIP B-5947		COUNTY NASH		GEOLOGIST Jones, A. N.										
SITE DESCRIPTION BRIDGE NO. 91 OVER TAR RIVER ON NC 581							GROUND WTR (ft)									
BORING NO. B1-A		STATION 23+09		OFFSET 44 ft LT		ALIGNMENT -LREV-										
COLLAR ELEV. 142.9 ft		TOTAL DEPTH 14.4 ft		NORTHING 777,172		EASTING 2,269,627										
DRILL RIG/HAMMER EFF./DATE RFO0074 CME-55 80% 03/08/2019			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER Pinter, D. G.		START DATE 08/17/20		COMP. DATE 08/17/20		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
145																
															142.9	GROUND SURFACE
															140.9	ALLUVIAL BROWN, SANDY SILT
140	139.7	3.2	2	2	2								M			
135	134.7	8.2	3	4	6								M			
130	129.7	13.2													129.9	WEATHERED ROCK PHYLLITE
	128.6	14.3	100/0.4												128.6	CRYSTALLINE ROCK PHYLLITE
															128.5	Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 128.5 ft IN CRYSTALLINE ROCK (PHYLLITE)

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# GEOTECHNICAL BORING REPORT BORE LOG

# GEOTECHNICAL BORING REPORT CORE LOG

WBS 45983.1.1		TIP B-5947		COUNTY NASH		GEOLOGIST Jones, A. N.										
SITE DESCRIPTION BRIDGE NO. 91 OVER TAR RIVER ON NC 581							GROUND WTR (ft)									
BORING NO. B1-B		STATION 23+22		OFFSET 17 ft RT		ALIGNMENT -LREV-										
COLLAR ELEV. 139.5 ft		TOTAL DEPTH 51.6 ft		NORTHING 777,169		EASTING 2,269,690										
DRILL RIGHAMMER EFF./DATE RFC0074 CME-55 80% 03/08/2019		DRILL METHOD NW Casing w/ Core		HAMMER TYPE Automatic												
DRILLER Pinter, D. G.		START DATE 08/17/20		COMP. DATE 08/18/20		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
140														139.5	GROUND SURFACE	0.0
														138.5	ALLUVIAL BROWN, SANDY SILT	1.0
	135.9	3.6	2	2	4										RESIDUAL TAN AND GRAY MOTTLED, SANDY SILT	
135																
	130.9	8.6	2	5	9											
130																
	125.9	13.6	60/0.1													
125																
120																
115																
110																
105																
100																
95																
90																

WBS 45983.1.1		TIP B-5947		COUNTY NASH		GEOLOGIST Jones, A. N.						
SITE DESCRIPTION BRIDGE NO. 91 OVER TAR RIVER ON NC 581							GROUND WTR (ft)					
BORING NO. B1-B		STATION 23+22		OFFSET 17 ft RT		ALIGNMENT -LREV-						
COLLAR ELEV. 139.5 ft		TOTAL DEPTH 51.6 ft		NORTHING 777,169		EASTING 2,269,690						
DRILL RIGHAMMER EFF./DATE RFC0074 CME-55 80% 03/08/2019		DRILL METHOD NW Casing w/ Core		HAMMER TYPE Automatic								
DRILLER Pinter, D. G.		START DATE 08/17/20		COMP. DATE 08/18/20		SURFACE WATER DEPTH N/A						
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 (%)			
125.8	125.8	13.7	2.9	0:43/1.0 0:28/1.0 0:35/0.9	(2.9) 100%	(0.0) 0%		(25.1) 90%	(7.8) 28%		Begin Coring @ 13.7 ft	13.7
	122.9	16.6	5.0	0:42/1.0 0:43/1.0 0:46/1.0 0:43/1.0 0:57/1.0	(5.0) 100%	(2.9) 58%					GRAY AND TAN, MODERATE TO SLIGHT WEATHERING, MEDIUM TO MODERATELY HARD, VERY CLOSE FRACTURE SPACING, PHYLLITE	
	117.9	21.6	5.0	0:45/1.0 0:43/1.0 0:45/1.0 0:41/1.0 0:47/1.0	(5.0) 100%	(2.3) 46%					GSI=35-45	
	112.9	26.6	5.0	1:01/1.0 0:59/1.0 1:13/1.0 1:07/1.0 1:13/1.0	(5.0) 100%	(0.0) 0%						
	107.9	31.6	5.0	0:41/1.0 1:08/1.0 0:44/1.0 0:29/1.0 0:43/1.0	(5.0) 100%	(0.0) 0%						
	102.9	36.6	5.0	0:42/1.0 1:02/1.0 1:03/1.0 1:08/1.0 1:14/1.0	(5.0) 100%	(2.6) 52%						
	97.9	41.6	5.0	1:10/1.0 0:59/1.0 1:36/1.0 1:03/1.0 2:00/1.0	(5.0) 100%	(0.5) 10%		(2.4) 100%	(0.0) 0%		GRAY AND TAN, SEVERE WEATHERING, SOFT, VERY CLOSE FRACTURE SPACING, PHYLLITE	41.6
	92.9	46.6	5.0	1:04/1.0 0:39/1.0 1:08/1.0 2:12/1.0 0:54/1.0	(5.0) 100%	(0.0) 0%		(7.6) 100%	(0.5) 7%		GRAY AND TAN, MODERATE TO SLIGHT WEATHERING, MEDIUM TO MODERATELY HARD, VERY CLOSE FRACTURE SPACING, PHYLLITE	44.0
	87.9	51.6									GSI=10-20	
											GSI=35-45	
											Boring Terminated at Elevation 87.9 ft IN CRYSTALLINE ROCK (PHYLLITE)	51.6

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NCDOT BORE DOUBLE B5947\_GEO\_BRDG\_BH.GPJ NC\_DOT.GDT 10/20/20



# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 45983.1.1		TIP B-5947		COUNTY NASH		GEOLOGIST Roberson, N. T.									
SITE DESCRIPTION BRIDGE NO. 91 OVER TAR RIVER ON NC 581							GROUND WTR (ft)								
BORING NO. B2-B		STATION 24+72		OFFSET 11 ft RT		ALIGNMENT -LREV-									
COLLAR ELEV. 140.3 ft		TOTAL DEPTH 23.5 ft		NORTHING 777,316		EASTING 2,269,722									
DRILL RIGHAMMER EFF./DATE RFC0074 CME-55 80% 03/08/2019				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER Pinter, D. G.		START DATE 08/24/20		COMP. DATE 08/24/20		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
145															
140														140.3	GROUND SURFACE 0.0
135	136.9	3.4	WOH	WOH	WOH										
130	131.9	8.4	3	4	4									131.4	ALLUVIAL GRAY, SANDY SILT 8.9
125	126.9	13.4	5	12	88/0.4									128.6	RESIDUAL TAN AND GRAY, SAPROLITIC, SANDY SILT 11.7
120	121.9	18.4	100/0.3											126.4	WEATHERED ROCK PHYLITE 13.9
	116.9	23.4	60/0.1											116.9	CRYSTALLINE ROCK PHYLITE 23.4
														116.8	CRYSTALLINE ROCK PHYLITE 23.5

WBS 45983.1.1		TIP B-5947		COUNTY NASH		GEOLOGIST Roberson, N. T.									
SITE DESCRIPTION BRIDGE NO. 91 OVER TAR RIVER ON NC 581							GROUND WTR (ft)								
BORING NO. EB2-A		STATION 25+53		OFFSET 40 ft LT		ALIGNMENT -LREV-									
COLLAR ELEV. 141.3 ft		TOTAL DEPTH 33.1 ft		NORTHING 777,407		EASTING 2,269,693									
DRILL RIGHAMMER EFF./DATE RFC0074 CME-55 80% 03/08/2019				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER Pinter, D. G.		START DATE 08/24/20		COMP. DATE 08/24/20		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
145															
140														141.3	GROUND SURFACE 0.0
135	137.7	3.6	WOH	1	3										
130	132.7	8.6	3	5	7									134.8	ALLUVIAL ORANGE AND GRAY-BROWN, CLAYEY SAND 6.5
125	127.7	13.6	5	5	8									132.7	ALLUVIAL ORANGE AND GRAY-BROWN, SANDY SILT 8.9
120	122.7	18.6	9	11	18									127.6	RESIDUAL GRAY, SAPROLITIC, SANDY SILT 13.7
115	117.7	23.6	4	7	12									126.4	RESIDUAL TAN AND GRAY, SAPROLITIC, SANDY SILT 13.9
110	112.7	28.6	100/0.3											122.7	WEATHERED ROCK PHYLITE 18.6
	108.2	33.1	60/0.0											117.7	WEATHERED ROCK PHYLITE 23.6
														116.1	CRYSTALLINE ROCK PHYLITE 25.2
														108.2	CRYSTALLINE ROCK PHYLITE 33.1

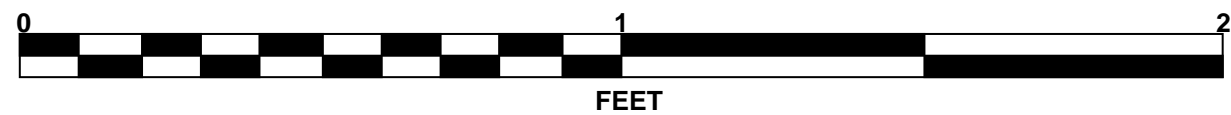
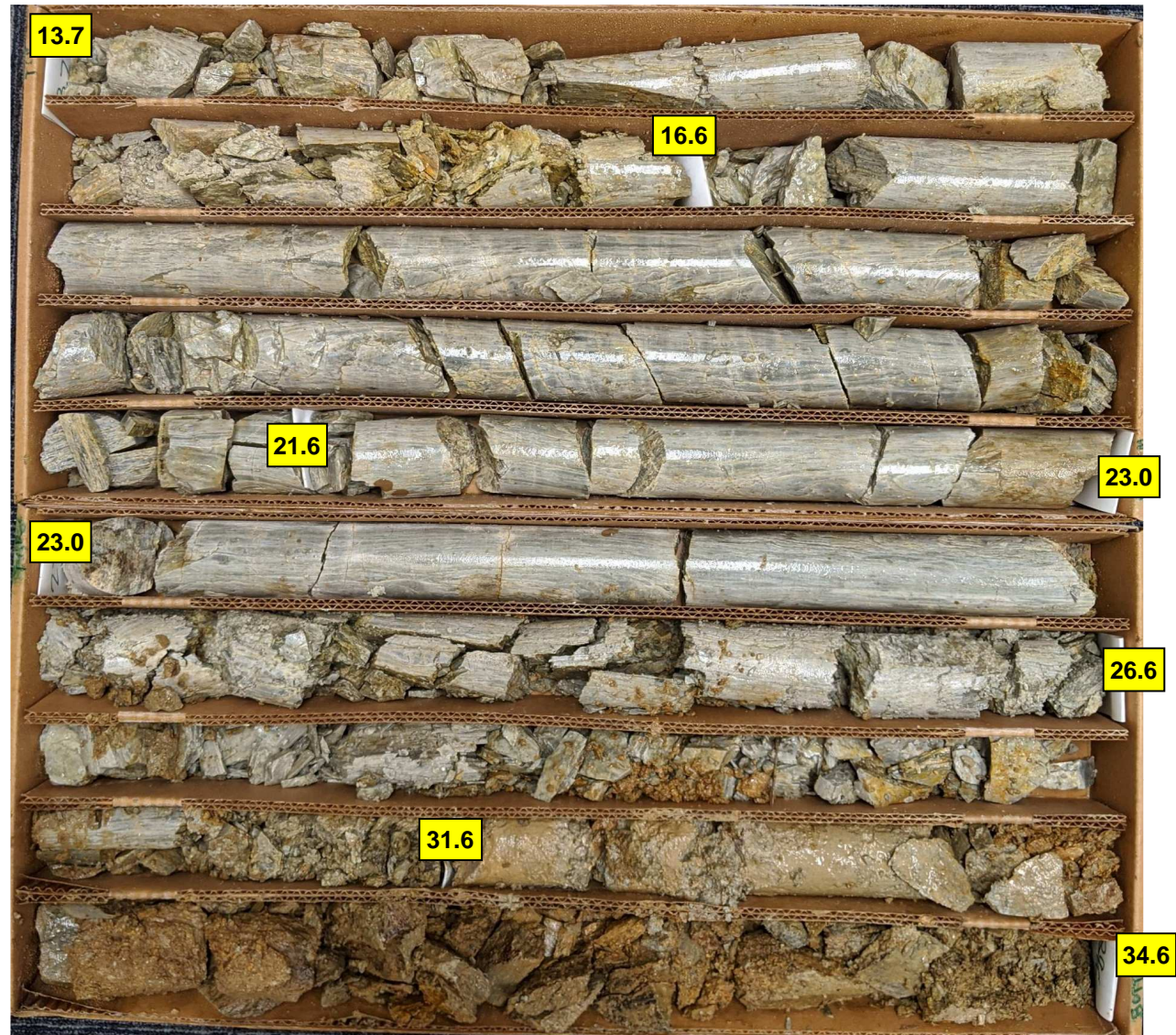
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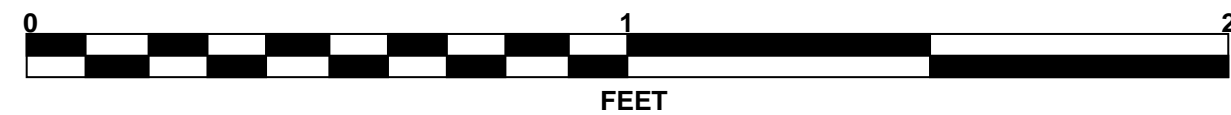


# CORE PHOTOGRAPHS

**B1-B**  
BOXES 1 & 2: 13.7 - 34.6 FEET



**B1-B**  
BOXES 3 & 4: 34.6 - 51.6 FEET

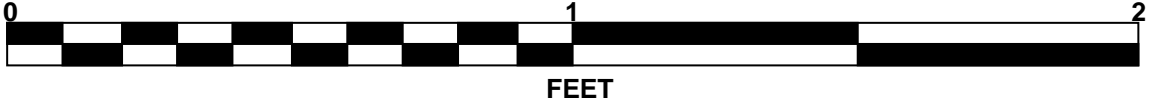




# CORE PHOTOGRAPHS

## B2-A

BOXES 1 & 2: 48.5 - 61.5 FEET





# SITE PHOTOGRAPH

Bridge No. 91 on -LREV- (NC 581) over Tar River



Looking Northwest towards End Bent 2