

REFERENCE: R-3822

PROJECT: 37765

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

**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

COUNTY HALIFAX  
 PROJECT DESCRIPTION PREMIER BLVD. EXTENSION  
(-LI-) FROM NC 125 TO SOUTH OF US 158

SITE DESCRIPTION BRIDGE ON PREMIER BLVD.  
EXTENSION OVER CHOCKOYOTTE CREEK

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3822	1	39

**CAUTION NOTICE**

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF PREPARING THE SCOPE OF WORK TO BE INCLUDED IN THE REQUEST FOR PROPOSAL. 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.

SOIL AND ROCK BOUNDARIES WITHIN A BOREHOLE ARE BASED ON GEOTECHNICAL INTERPRETATION UNLESS ENCOUNTERED IN A SAMPLE. INTERPRETED BOUNDARIES MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN SAMPLED STRATA AND BOREHOLE INFORMATION MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS. 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.

P.M. WEAVER

C.R. PASTRANA

AMERIDRILL

INVESTIGATED BY ESP Associates, P.A.

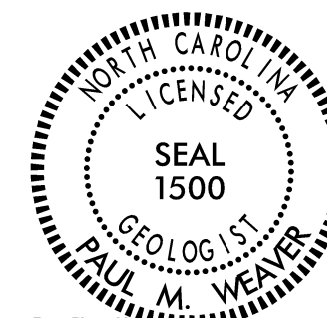
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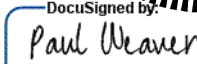
CHECKED BY P.M. WEAVER

SUBMITTED BY ESP Associates, P.A.

DATE JANUARY 2018

 **ESP ASSOCIATES, PA**  
 7011 ALBERT PICK RD  
 SUITE E  
 GREENSBORO, NC 27409  
 FIRM # C-0587  
 WWW.ESPASSOCIATES.COM



DocuSigned by:  
  
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**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><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.</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><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 DISLODGED 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 INTRODUCED 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 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.  <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 (SRQD)</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.</p>																																																																																																																																																
<p style="text-align: center;"><b>SOIL LEGEND AND AASHTO CLASSIFICATION</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th rowspan="2">GENERAL CLASS.</th> <th colspan="6">GRANULAR MATERIALS (≤ 35% PASSING #200)</th> <th colspan="4">SILT-CLAY MATERIALS (&gt; 35% PASSING #200)</th> <th colspan="3">ORGANIC MATERIALS</th> </tr> <tr> <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> <th>A-6, A-7</th> </tr> <tr> <th>GROUP CLASS.</th> <td colspan="2">A-1</td> <td>A-3</td> <td colspan="2">A-2</td> <td colspan="2">A-2</td> <td>A-4</td> <td>A-5</td> <td>A-6</td> <td>A-7</td> <td>A-1, A-2</td> <td>A-3</td> <td>A-4, A-5</td> <td>A-6, A-7</td> </tr> <tr> <th>SYMBOL</th> <td colspan="2">[Symbol]</td> <td>[Symbol]</td> <td colspan="2">[Symbol]</td> <td colspan="2">[Symbol]</td> <td>[Symbol]</td> <td>[Symbol]</td> <td>[Symbol]</td> <td>[Symbol]</td> <td>[Symbol]</td> <td>[Symbol]</td> <td>[Symbol]</td> <td>[Symbol]</td> </tr> <tr> <th>% PASSING</th> <td colspan="2">50 MX</td> <td>30 MX</td> <td>50 MX</td> <td>10 MN</td> <td>35 MX</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>36 MN</td> <td>36 MN</td> </tr> <tr> <th>MATERIAL PASSING #40</th> <td colspan="2">LL</td> <td>NP</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>40 MX</td> <td>41 MN</td> <td>40 MX</td> <td>41 MN</td> </tr> <tr> <th>GROUP INDEX</th> <td colspan="2">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> <td></td> </tr> <tr> <th>USUAL TYPES OF MAJOR MATERIALS</th> <td colspan="2">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 colspan="3">SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER</td> <td colspan="3">HIGHLY ORGANIC SOILS</td> </tr> <tr> <th>GEN. RATING AS SUBGRADE</th> <td colspan="6">EXCELLENT TO GOOD</td> <td colspan="4">FAIR TO POOR</td> <td>FAIR TO POOR</td> <td>POOR</td> <td colspan="3">UNSATURABLE</td> </tr> </table> <p style="text-align: center;">PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS &gt; LL - 30</p>		GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)						SILT-CLAY MATERIALS (> 35% PASSING #200)				ORGANIC MATERIALS			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	A-6, A-7	GROUP CLASS.	A-1		A-3	A-2		A-2		A-4	A-5	A-6	A-7	A-1, A-2	A-3	A-4, A-5	A-6, A-7	SYMBOL	[Symbol]		[Symbol]	[Symbol]		[Symbol]		[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	% PASSING	50 MX		30 MX	50 MX	10 MN	35 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN	36 MN	MATERIAL PASSING #40	LL		NP	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	GROUP INDEX	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		SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER			HIGHLY ORGANIC SOILS			GEN. RATING AS SUBGRADE	EXCELLENT TO GOOD						FAIR TO POOR				FAIR TO POOR	POOR	UNSATURABLE			<p style="text-align: center;"><b>ANGULARITY OF GRAINS</b></p> <p>THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.</p>		<p style="text-align: center;"><b>MINERALOGICAL COMPOSITION</b></p> <p>MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.</p>		<p style="text-align: center;"><b>WEATHERED ROCK (WR)</b></p> <p>NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES &gt; 100 BLOWS PER FOOT IF TESTED.</p>		<p><b>ALLUVIUM (ALLUV.)</b> - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.</p>	
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**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION**  
**DIVISION OF HIGHWAYS**  
**GEOTECHNICAL ENGINEERING UNIT**  

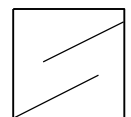
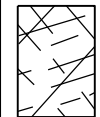
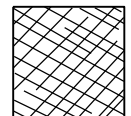
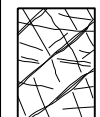

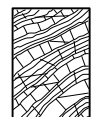

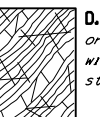
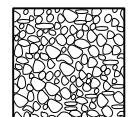

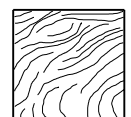




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**SUBSURFACE INVESTIGATION**

**SUPPLEMENTAL LEGEND, GEOLOGICAL STRENGTH INDEX (GSI) TABLES**  
**FROM AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS**

AASHTO LRFD Figure 10.4.6.4-1 — Determination of GSI for Jointed Rock Mass (Marinos and Hoek, 2000)

AASHTO LRFD Figure 10.4.6.4-2 — Determination of GSI for Tectonically Deformed Heterogeneous Rock Masses (Marinos and Hoek, 2000)

GEOLOGICAL STRENGTH INDEX (GSI) FOR JOINTED ROCKS (Hoek and Marinos, 2000)		SURFACE CONDITIONS					GSI FOR HETEROGENEOUS ROCK MASSES SUCH AS FLYSCH (Marinos, P and Hoek E., 2000)		SURFACE CONDITIONS OF DISCONTINUITIES (Predominantly bedding planes)				
From the lithology, structure and surface conditions of the discontinuities, estimate the average value of GSI. Do not try to be too precise. Quoting a range from 33 to 37 is more realistic than stating that GSI = 35. Note that the table does not apply to structurally controlled failures. Where weak planar structural planes are present in an unfavorable orientation with respect to the excavation face, these will dominate the rock mass behaviour. The shear strength of surfaces in rocks that are prone to deterioration as a result of changes in moisture content will be reduced if water is present. When working with rocks in the fair to very poor categories, a shift to the right may be made for wet conditions. Water pressure is dealt with by effective stress analysis.		VERY GOOD	GOOD	FAIR	POOR	VERY POOR	From a description of the lithology, structure and surface conditions (particularly of the bedding planes), choose a box in the chart. Locate the position in the box that corresponds to the condition of the discontinuities and estimate the average value of GSI from the contours. Do not attempt to be too precise. Quoting a range from 33 to 37 is more realistic than giving GSI = 35. Note that the Hoek-Brown criterion does not apply to structurally controlled failures. Where unfavourably oriented continuous weak planar discontinuities are present, these will dominate the behaviour of the rock mass. The strength of some rock masses is reduced by the presence of groundwater and this can be allowed for by a slight shift to the right in the columns for fair, poor and very poor conditions. Water pressure does not change the value of GSI and it is dealt with by using effective stress analysis.		VERY GOOD	GOOD	FAIR	POOR	VERY POOR
STRUCTURE		DECREASING SURFACE QUALITY →					COMPOSITION AND STRUCTURE						
	INTACT OR MASSIVE - intact rock specimens or massive in situ rock with few widely spaced discontinuities	90			N/A	N/A		70					
	BLOCKY - well interlocked undisturbed rock mass consisting of cubical blocks formed by three intersecting discontinuity sets	80	70					60	A				
	VERY BLOCKY - interlocked, partially disturbed mass with multi-faceted angular blocks formed by 4 or more joint sets		60					50	B	C	D	E	
	BLOCKY/DISTURBED/SEAMY - folded with angular blocks formed by many intersecting discontinuity sets. Persistence of bedding planes or schistosity			40						30			
	DISINTEGRATED - poorly interlocked, heavily broken rock mass with mixture of angular and rounded rock pieces				30						20		
	LAMINATED/SHEARED - Lack of blockiness due to close spacing of weak schistosity or shear planes					20						10	
						10							G
		N/A	N/A										H

**A. Thick bedded, very blocky sandstone**  
 The effect of pelitic coatings on the bedding planes is minimized by the confinement of the rock mass. In shallow tunnels or slopes these bedding planes may cause structurally controlled instability.

**B. Sandstone with thin inter-layers of siltstone**

**C. Sandstone and siltstone in similar amounts**

**D. Siltstone or silty shale with sandstone layers**

**E. Weak siltstone or clayey shale with sandstone layers**

**C, D, E, and G** - may be more or less folded than illustrated but this does not change the strength. Tectonic deformation, faulting and loss of continuity moves these categories to **F** and **H**.

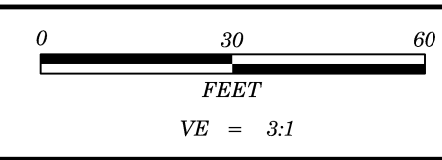
**F. Tectonically deformed, intensively folded/faulted, sheared clayey shale or siltstone with broken and deformed sandstone layers forming an almost chaotic structure**

**G. Undisturbed silty or clayey shale with or without a few very thin sandstone layers**

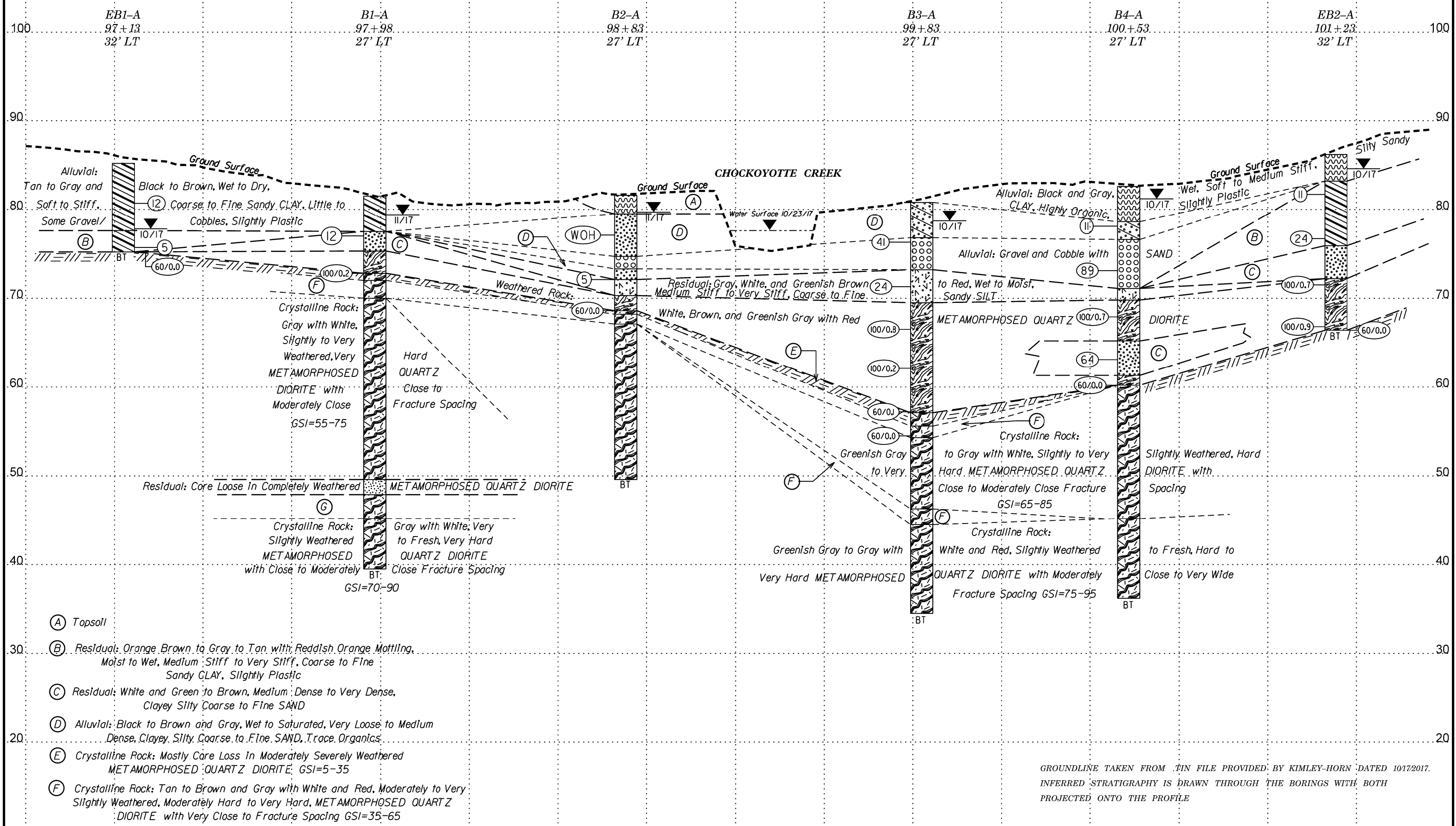
**H. Tectonically deformed silty or clayey shale forming a chaotic structure with pockets of clay. Thin layers of sandstone are transformed into small rock pieces.**

→ Means deformation after tectonic disturbance





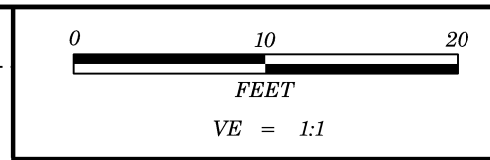
<b>PROJECT REFERENCE NO.</b>	<b>SHEET NO.</b>
R-3822	4
<b>PROFILE BORINGS PROJECTED 27' LEFT ALONG -L-</b>	



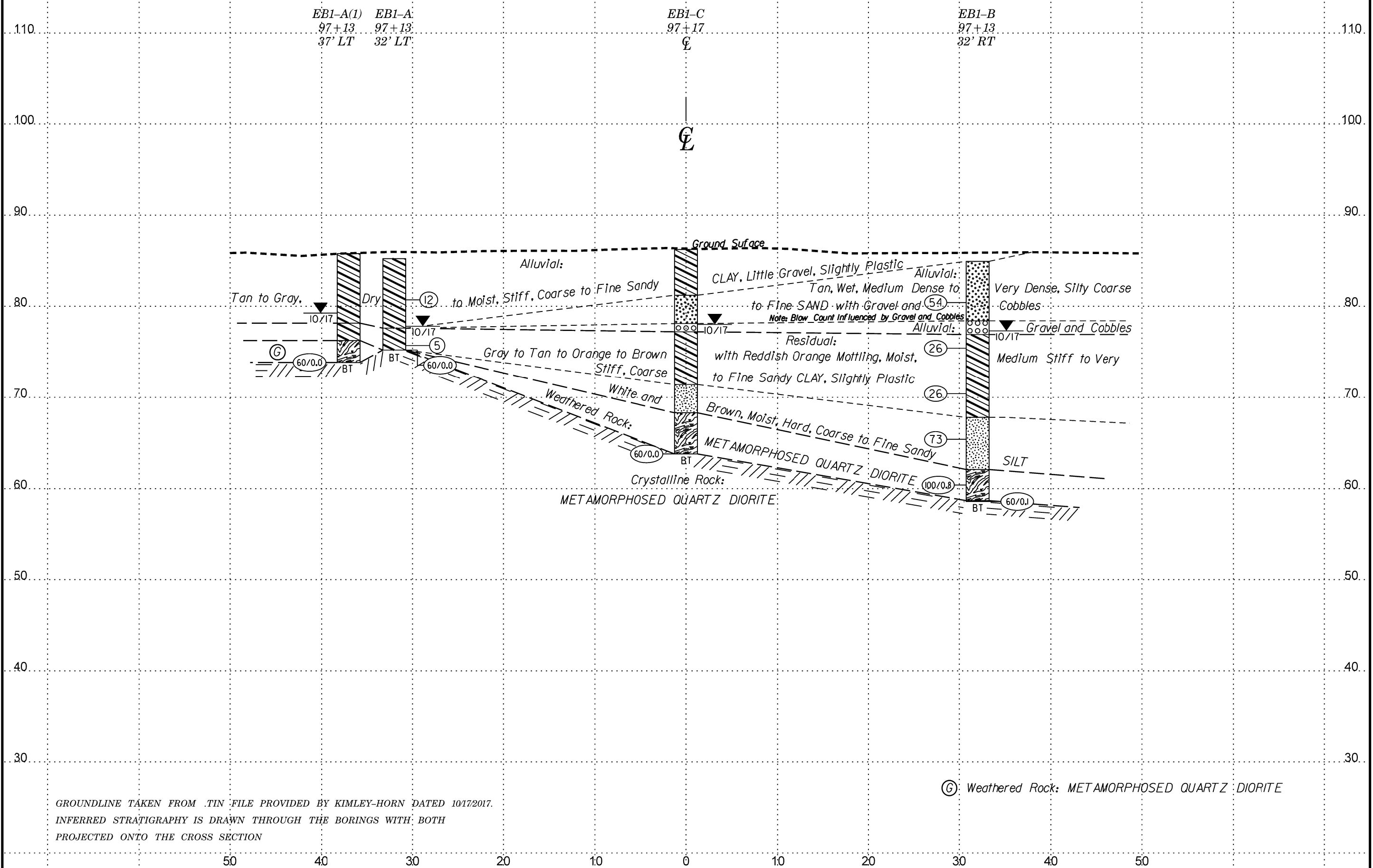
98+00

101+00

GROUNDLINE TAKEN FROM TIN FILE PROVIDED BY KIMLEY-HORN DATED 10/17/2017. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE

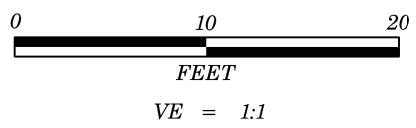


<b>PROJECT REFERENCE NO.</b>	<b>SHEET NO.</b>
R-3822	5
<b>CROSS SECTION THROUGH END BENT 1</b>	
AT STA. 97+12.60	
SKEW=90 DEGREES	

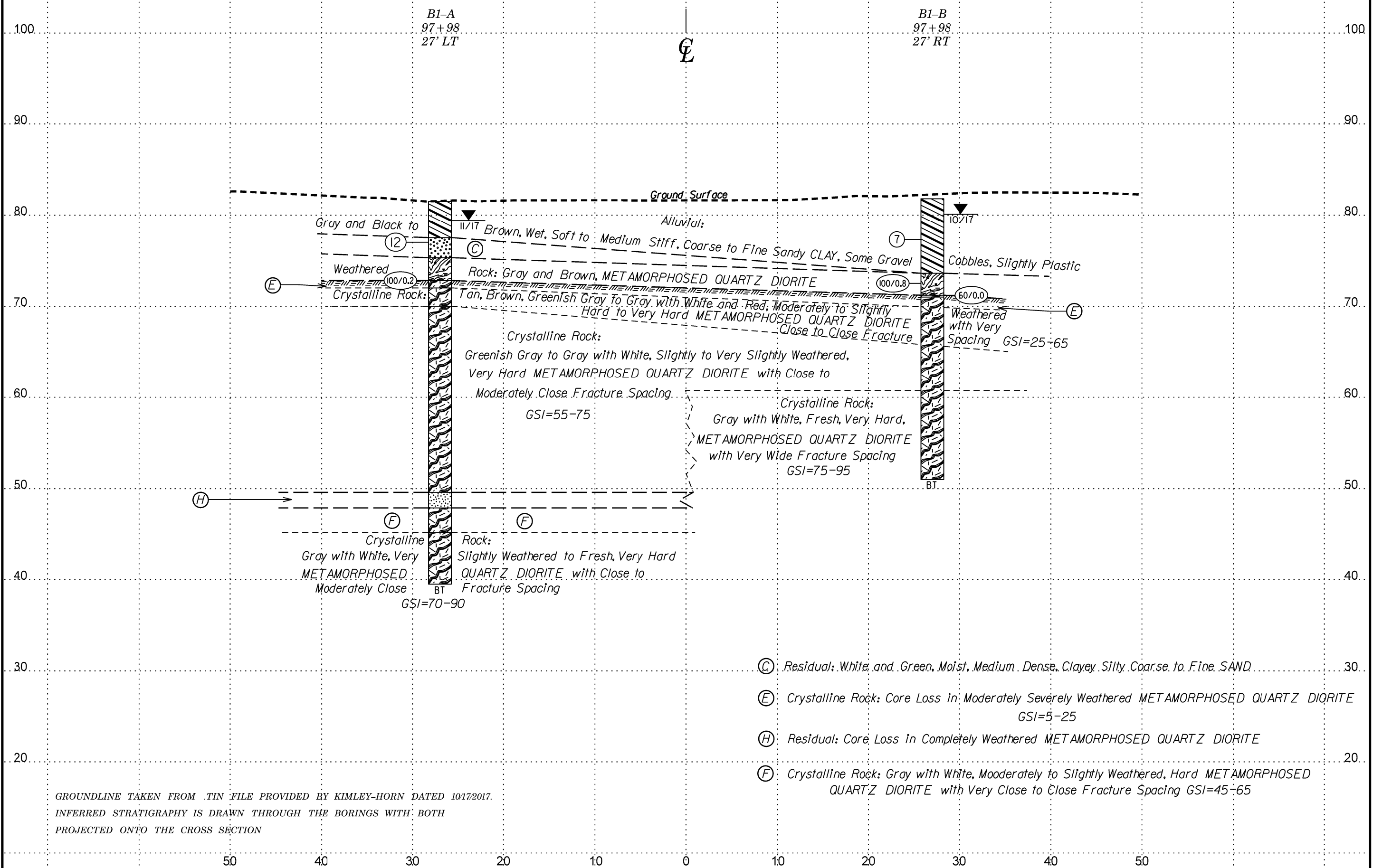


GROUNDLINE TAKEN FROM .TIN FILE PROVIDED BY KIMLEY-HORN DATED 10/17/2017.  
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH  
 PROJECTED ONTO THE CROSS SECTION

Ⓞ Weathered Rock: METAMORPHOSED QUARTZ DIORITE



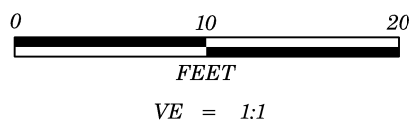
PROJECT REFERENCE NO.	SHEET NO.
R-3822	6
CROSS SECTION THROUGH BENT 1 AT STA. 97+97.60 SKEW=90 DEGREES	



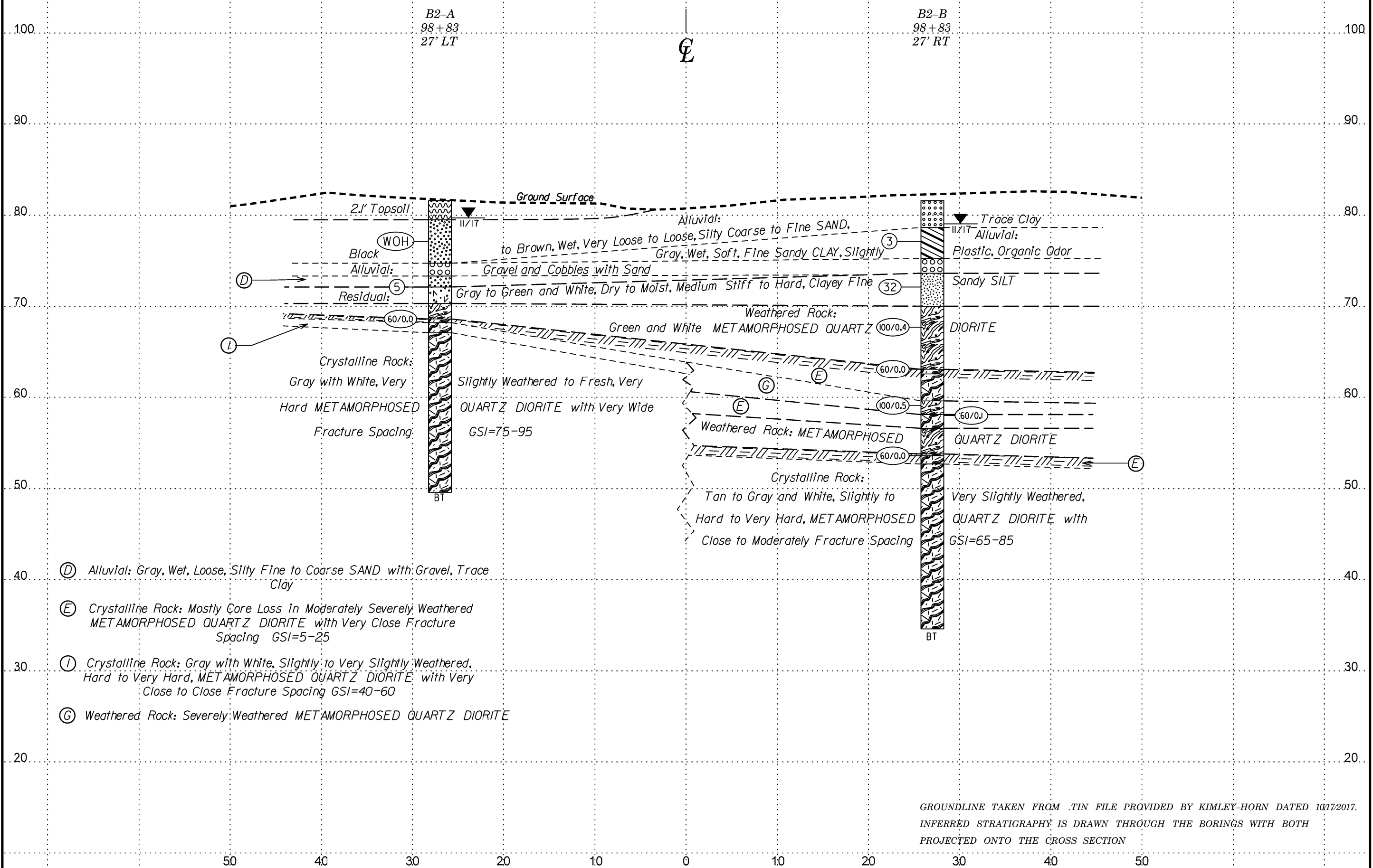
- Ⓒ Residual: White and Green, Moist, Medium Dense, Clayey Silty Coarse to Fine SAND
- Ⓔ Crystalline Rock: Core Loss in Moderately Severely Weathered METAMORPHOSED QUARTZ DIORITE GSI=5-25
- Ⓕ Residual: Core Loss in Completely Weathered METAMORPHOSED QUARTZ DIORITE
- Ⓖ Crystalline Rock: Gray with White, Moderately to Slightly Weathered, Hard METAMORPHOSED QUARTZ DIORITE with Very Close to Close Fracture Spacing GSI=45-65

GROUNDLINE TAKEN FROM TIN FILE PROVIDED BY KIMLEY-HORN DATED 10/17/2017.  
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH  
 PROJECTED ONTO THE CROSS SECTION



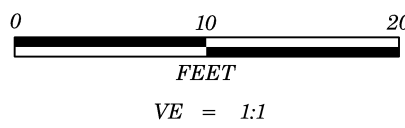


PROJECT REFERENCE NO.	SHEET NO.
R-3822	7
CROSS SECTION THROUGH BENT 2 AT STA. 98+82.60 SKEW=90 DEGREES	

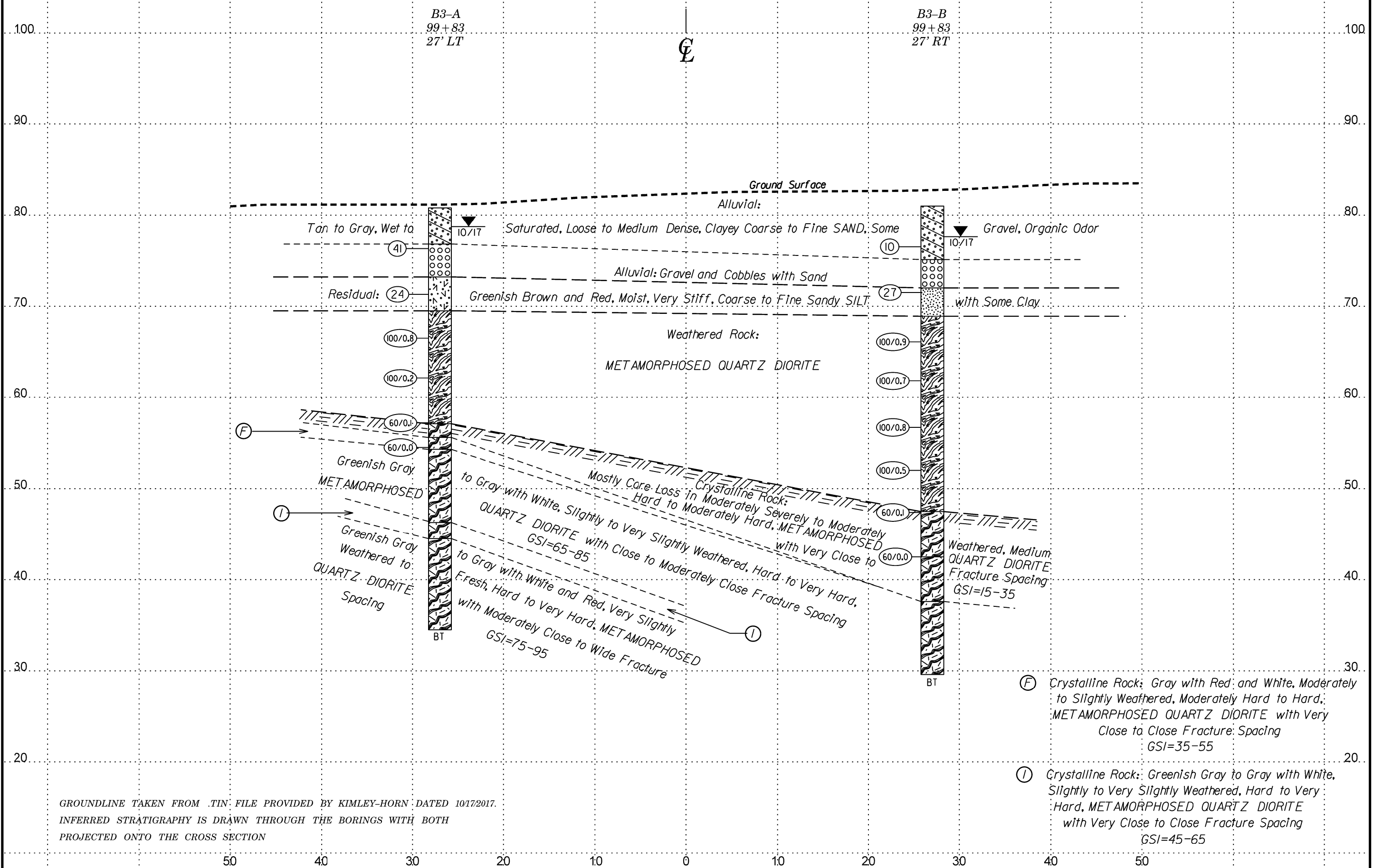


GROUNDLINE TAKEN FROM .TIN FILE PROVIDED BY KIMLEY-HORN DATED 10/17/2017.  
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH  
PROJECTED ONTO THE CROSS SECTION

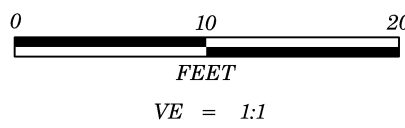




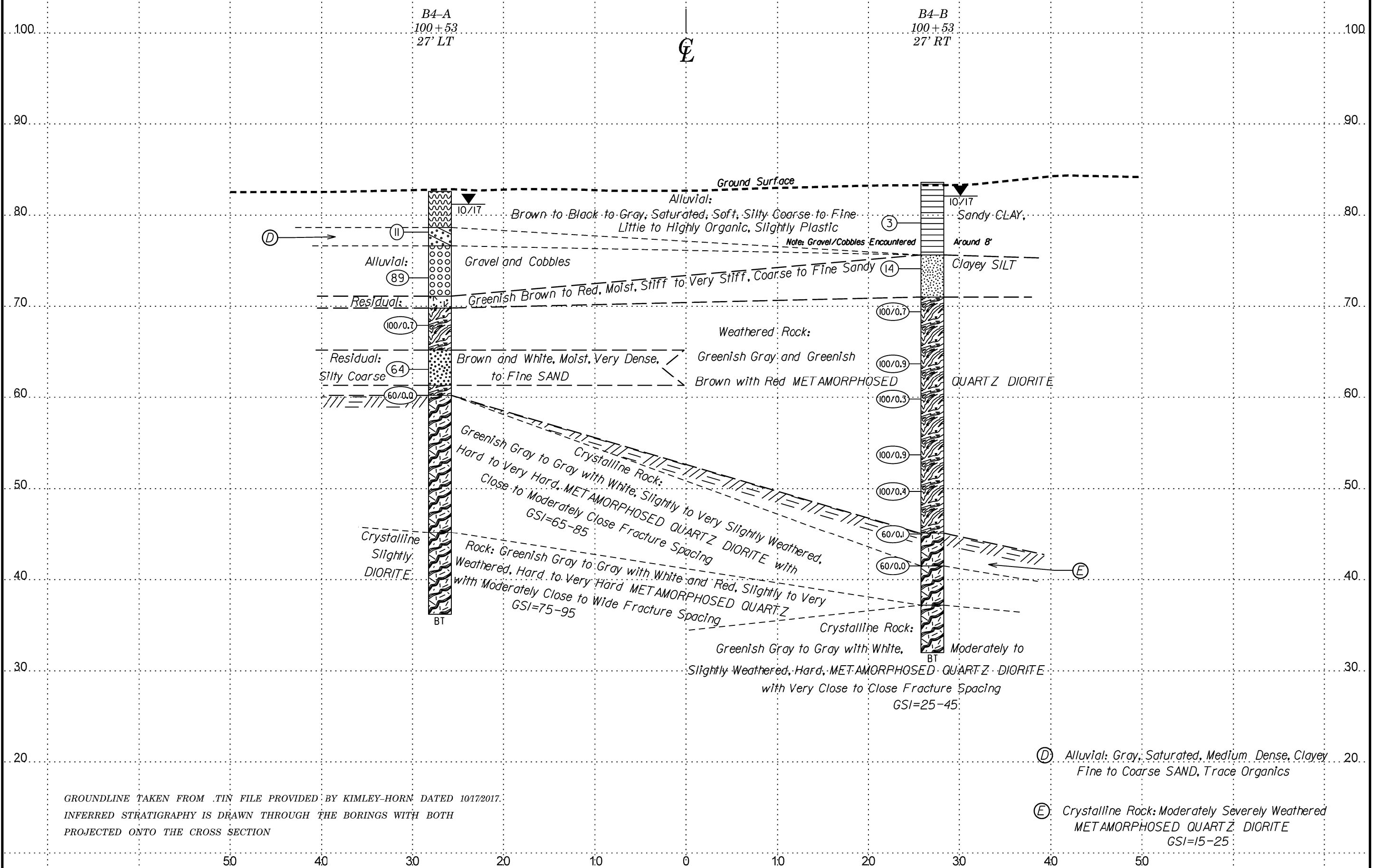
PROJECT REFERENCE NO.	SHEET NO.
R-3822	8
CROSS SECTION THROUGH BENT 3 AT STA. 99+82.60 SKEW=90 DEGREES	

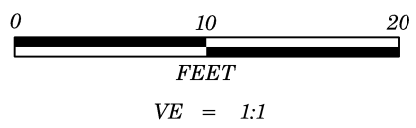


GROUNDLINE TAKEN FROM .TIN. FILE PROVIDED BY KIMLEY-HORN DATED 10/17/2017.  
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH  
PROJECTED ONTO THE CROSS SECTION

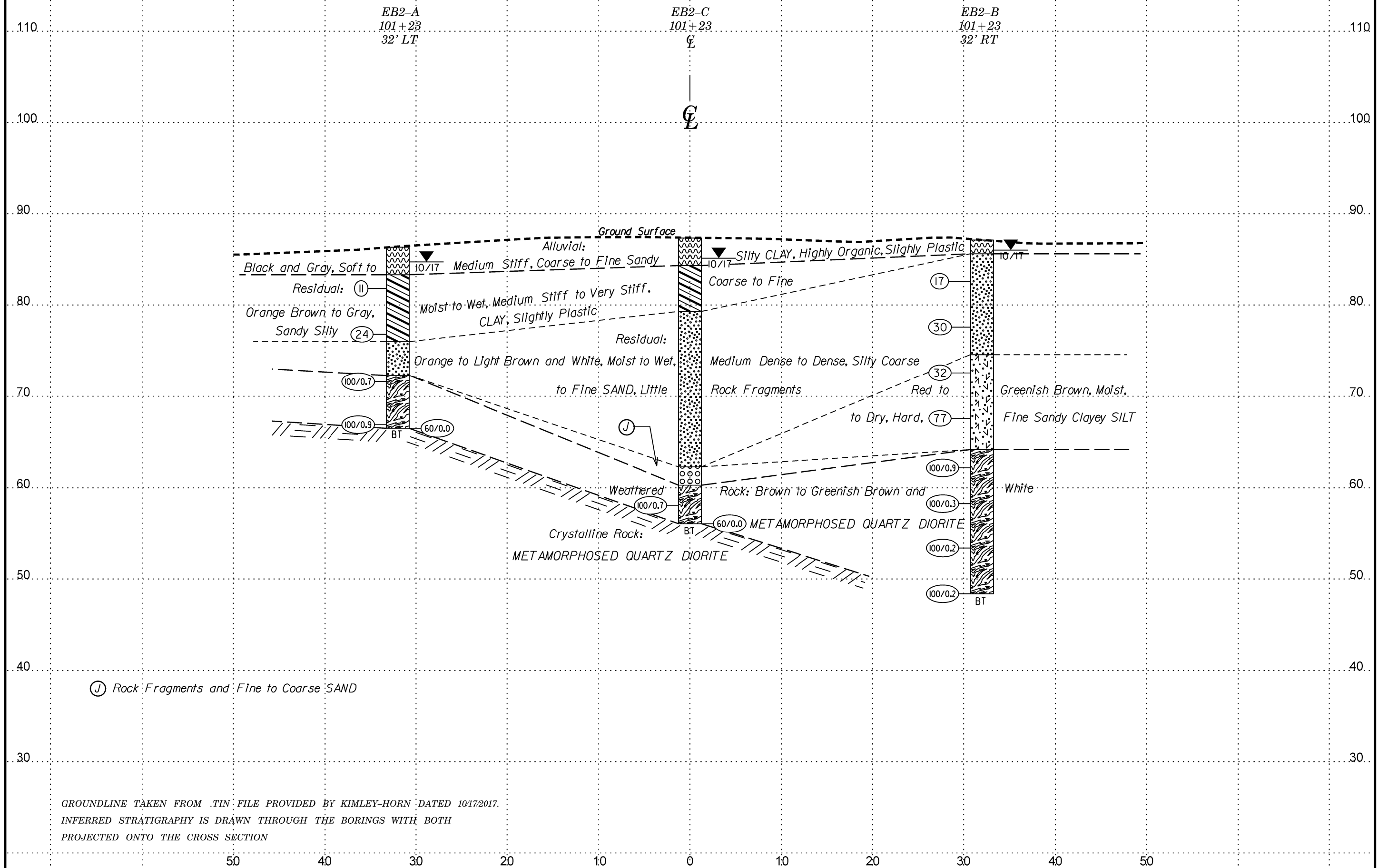


PROJECT REFERENCE NO.	SHEET NO.
R-3822	9
CROSS SECTION THROUGH BENT 4 AT STA. 100+52.60 SKEW=90 DEGREES	





PROJECT REFERENCE NO.	SHEET NO.
R-3822	10
CROSS SECTION THROUGH END BENT 2 AT STA. 101+22.60 SKEW=90 DEGREES	



# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 37765.1.5		TIP R-3822		COUNTY HALIFAX		GEOLOGIST Pastrana, C.R.									
SITE DESCRIPTION Bridge on Premier Boulevard Extension Over Chockoyotte Creek							GROUND WTR (ft)								
BORING NO. EB1-A1		STATION 97+13		OFFSET 37 ft LT		ALIGNMENT -L1-									
COLLAR ELEV. 86.0 ft		TOTAL DEPTH 11.9 ft		NORTHING 974,726		EASTING 2,401,465									
DRILL RIG/HAMMER EFF./DATE AME9533 CME-550X 83% 01/01/2015			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Meatyard, C.		START DATE 10/27/17		COMP. DATE 10/27/17		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					
90															
85														86.0	0.0
80														78.4	7.6
														76.5	9.5
														74.1	11.9
75	74.1	11.9												60/0.0	

WBS 37765.1.5		TIP R-3822		COUNTY HALIFAX		GEOLOGIST Pastrana, C.R.									
SITE DESCRIPTION Bridge on Premier Boulevard Extension Over Chockoyotte Creek							GROUND WTR (ft)								
BORING NO. EB1-A		STATION 97+13		OFFSET 32 ft LT		ALIGNMENT -L1-									
COLLAR ELEV. 85.2 ft		TOTAL DEPTH 10.0 ft		NORTHING 974,726		EASTING 2,401,470									
DRILL RIG/HAMMER EFF./DATE AME9533 CME-550X 83% 01/01/2015			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Meatyard, C.		START DATE 10/25/17		COMP. DATE 10/25/17		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					
90															
85														85.2	0.0
80	81.7	3.5	7	6	6									77.6	7.6
														75.2	10.0
														60/0.0	

NCDOT BORE DOUBLE R3822\_GINT LOGS - CORE LOGS.GPJ NC\_DOT.GDT 11/7/17

# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 37765.1.5		TIP R-3822		COUNTY HALIFAX		GEOLOGIST Long, B.									
SITE DESCRIPTION Bridge on Premier Boulevard Extension Over Chockoyotte Creek							GROUND WTR (ft)								
BORING NO. EB1-C		STATION 97+17		OFFSET CL		ALIGNMENT -L1-									
COLLAR ELEV. 86.2 ft		TOTAL DEPTH 22.4 ft		NORTHING 974,728		EASTING 2,401,502									
DRILL RIG/HAMMER EFF./DATE AME9533 CME-550X 83% 01/01/2015			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic									
DRILLER Meatyard, C.		START DATE 10/25/17		COMP. DATE 10/25/17		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					
90															
85															
80															
75															
70															
65	63.8	22.4													60/0.0
Boring Terminated with Standard Penetration Test Refusal at Elevation 63.8 ft on Crystalline Rock: METAMORPHOSED QUARTZ DIORITE															

WBS 37765.1.5		TIP R-3822		COUNTY HALIFAX		GEOLOGIST Pastrana, C.R.									
SITE DESCRIPTION Bridge on Premier Boulevard Extension Over Chockoyotte Creek							GROUND WTR (ft)								
BORING NO. EB1-B		STATION 97+13		OFFSET 32 ft RT		ALIGNMENT -L1-									
COLLAR ELEV. 84.9 ft		TOTAL DEPTH 26.3 ft		NORTHING 974,723		EASTING 2,401,534									
DRILL RIG/HAMMER EFF./DATE AME9533 CME-550X 83% 01/01/2015			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic									
DRILLER Meatyard, C.		START DATE 10/25/17		COMP. DATE 10/25/17		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					
85															
80	81.4	3.5	14	25	29										
75	76.4	8.5	9	13	13										
70	71.4	13.5	10	13	13										
65	66.4	18.5	15	36	37										
60	61.4	23.5	66	44/0.3											
	58.7	26.2	60/0.1												60/0.1
Boring Terminated with Standard Penetration Test Refusal at Elevation 58.6 ft in Crystalline Rock: METAMORPHOSED QUARTZ DIORITE															

NCDOT BORE DOUBLE R3822\_GEO\_BRDG\_GINT LOGS.GPJ NC\_DOT.GDT 11/7/17

# GEOTECHNICAL BORING REPORT

## BORE LOG

<b>WBS</b> 37765.1.5		<b>TIP</b> R-3822		<b>COUNTY</b> HALIFAX		<b>GEOLOGIST</b> Pastrana, C.R.	
<b>SITE DESCRIPTION</b> Bridge on Premier Boulevard Extension Over Chockoyotte Creek							<b>GROUND WTR (ft)</b>
<b>BORING NO.</b> B1-A		<b>STATION</b> 97+98		<b>OFFSET</b> 27 ft LT		<b>ALIGNMENT</b> -L1-	
<b>COLLAR ELEV.</b> 81.5 ft		<b>TOTAL DEPTH</b> 42.0 ft		<b>NORTHING</b> 974,810		<b>EASTING</b> 2,401,479	
<b>DRILL RIG/HAMMER EFF./DATE</b> AME9533 CME-550X 83% 01/01/2015				<b>DRILL METHOD</b> H.S. Augers		<b>HAMMER TYPE</b> Automatic	
<b>DRILLER</b> Meatyard, C.		<b>START DATE</b> 10/27/17		<b>COMP. DATE</b> 10/31/17		<b>SURFACE WATER DEPTH</b> 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)
85														
														81.5 GROUND SURFACE 0.0
80	78.0	3.5	4	5	7									77.5 ALLUVIAL Black to Brown, Soft to Medium Stiff, Coarse to Fine Sandy CLAY, Some Gravel/Cobbles, Slightly Plastic 4.0
75														75.3 RESIDUAL White and Green, Medium Dense, Clayey Silty Coarse to Fine SAND 6.2
	73.0	8.5												72.8 WEATHERED ROCK 8.7
	72.8	8.7	100/0.2											72.0 METAMORPHOSED QUARTZ DIORITE 9.5
70			60/0.0											70.0 CRYSTALLINE ROCK Core Loss in Moderately Severely Weathered METAMORPHOSED QUARTZ DIORITE 11.5
65														
60														
55														
50														
45														49.6 RESIDUAL 31.9
														47.9 Core Loss in Completely Weathered METAMORPHOSED QUARTZ DIORITE 33.6
40														45.2 CRYSTALLINE ROCK 36.3
														42.0 Gray with White, Moderately to Slightly Weathered, Hard METAMORPHOSED QUARTZ DIORITE with Very Close to Close Fracture Spacing
														39.5 Gray with White, Very Slightly Weathered to Fresh, Very Hard METAMORPHOSED QUARTZ DIORITE with Close to Moderately Close Fracture Spacing 42.0
														Boring Terminated at Elevation 39.5 ft in Crystalline Rock: METAMORPHOSED QUARTZ DIORITE

NCDOT BORE DOUBLE R3822\_GEO\_BRDG\_GINT LOGS.GPJ NC\_DOT.GDT 11/7/17

# GEOTECHNICAL BORING REPORT

## CORE LOG

<b>WBS</b> 37765.1.5		<b>TIP</b> R-3822		<b>COUNTY</b> HALIFAX		<b>GEOLOGIST</b> Pastrana, C.R.					
<b>SITE DESCRIPTION</b> Bridge on Premier Boulevard Extension Over Chockoyotte Creek							<b>GROUND WTR (ft)</b>				
<b>BORING NO.</b> B1-A		<b>STATION</b> 97+98		<b>OFFSET</b> 27 ft LT		<b>ALIGNMENT</b> -L1-					
<b>COLLAR ELEV.</b> 81.5 ft		<b>TOTAL DEPTH</b> 42.0 ft		<b>NORTHING</b> 974,810		<b>EASTING</b> 2,401,479					
<b>DRILL RIG/HAMMER EFF./DATE</b> AME9533 CME-550X 83% 01/01/2015				<b>DRILL METHOD</b> H.S. Augers		<b>HAMMER TYPE</b> Automatic					
<b>DRILLER</b> Meatyard, C.		<b>START DATE</b> 10/27/17		<b>COMP. DATE</b> 10/31/17		<b>SURFACE WATER DEPTH</b> N/A					
<b>CORE SIZE</b> NQ		<b>TOTAL RUN</b> 33.3 ft									
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (%)	RQD (%)	REC. (%)	RQD (%)			
72.8	72.8	8.7	2.8	4:58/1.0 8:21/1.0 10:27/0.8	(1.8) 64%	(0.0) 0%	(0.0) 0%	(0.0) 0%		Begin Coring @ 8.7 ft <b>CRYSTALLINE ROCK</b>	8.7
70	70.0	11.5	5.0	7:19/1.0 13:04/1.0 15:41/1.0 17:40/1.0 20:21/1.0	(4.9) 98%	(4.7) 94%	(1.8) 90%	(0.0) 0%		Core Loss in Moderately Severely Weathered METAMORPHOSED QUARTZ DIORITE	11.5
65	65.0	16.5	5.0	6:06/1.0 6:34/1.0 8:05/1.0 10:53/1.0 13:07/1.0	(4.0) 80%	(3.1) 62%	(18.4) 90%	(16.0) 78%		Tan to Brown and Gray with White and Red, Moderately Weathered, Very Hard METAMORPHOSED QUARTZ DIORITE with Very Close to Close Fracture Spacing, Very Quartzitic Majority of joints at 10 degrees to 20 degrees 1 vertical fracture 0.8' long All fracture faces heavily iron stained GSI = 45-65	
60	60.0	21.5	5.0	6:03/1.0 7:30/1.0 9:55/1.0 8:18/1.0 15:52/1.0	(4.6) 92%	(3.9) 78%				Gray with White, Slightly to Very Slightly Weathered, Very Hard METAMORPHOSED QUARTZ DIORITE with Close to Moderately Close Fracture Spacing Majority of joints at 10 degrees to 20 degrees 4 joints at 70 degrees to 80 degrees Very close fracture spacing 15.6 to 15.9', 18.2' to 18.4', 21.1' to 22.0', and 25.6' to 26.4' GSI = 55-75	
55	55.0	26.5	5.5	23:38/1.0 13:38/1.0 14:21/1.0 14:18/1.0 5:58/1.5	(4.9) 89%	(4.3) 78%					
50	49.5	32.0	5.0	:48/0.5 4:16/1.0 4:40/1.0 5:47/1.0 10:15/1.0	(3.4) 68%	(1.9) 38%	(0.0) 0%	(0.0) 0%		Core Loss in Completely Weathered METAMORPHOSED QUARTZ DIORITE	31.9
45	44.5	37.0	5.0	5:39/1.0 5:30/1.0 5:27/1.0 7:44/1.0 13:29/1.0	(4.9) 98%	(4.6) 92%	(2.7) 100%	(1.2) 44%		<b>CRYSTALLINE ROCK</b>	36.3
40	39.5	42.0	5.0				(5.6) 98%	(5.3) 93%		Gray with White, Moderately to Slightly Weathered, Hard METAMORPHOSED QUARTZ DIORITE with Very Close to Close Fracture Spacing Joints at 10 degrees to 80 degrees with light to heavy iron staining GSI = 45-65	39.5
										Gray with White, Very Slightly Weathered to Fresh, Very Hard METAMORPHOSED QUARTZ DIORITE with Close to Moderately Close Fracture Spacing Joints at 10 degrees to 20 degrees GSI = 70-90	42.0
Boring Terminated at Elevation 39.5 ft in Crystalline Rock: METAMORPHOSED QUARTZ DIORITE											

NCDOT CORE DOUBLE R3822\_GEO\_BRDG\_GINT LOGS - CORE LOGS.GPJ NC\_DOT.GDT 11/17/17



### CORE PHOTOGRAPHS

WBS No. 37765.1.5

TIP No. R-3822

Project Description: Bridge on Premier Blvd. Ext. Over Chockoyotte Creek  
Halifax County, North Carolina

B1-A (-L1-, STA. 97+98, 27' LT)

Box 1: 8.7 Feet to 11.5 Feet



Box 2: 11.5 Feet to 20.4 Feet



FEET

Box 3: 20.4 Feet to 28.3 Feet



### CORE PHOTOGRAPHS

WBS No. 37765.1.5

TIP No. R-3822

Project Description: Bridge on Premier Blvd. Ext. Over Chockoyotte Creek  
Halifax County, North Carolina

B1-A (-L1-, STA. 97+98, 27' LT)

Box 4: 28.3 Feet to 37.0 Feet



FEET

Box 5: 37.0 Feet to 42.0 Feet





# GEOTECHNICAL BORING REPORT

## BORE LOG

<b>WBS</b> 37765.1.5		<b>TIP</b> R-3822		<b>COUNTY</b> HALIFAX		<b>GEOLOGIST</b> Nance, D.S.	
<b>SITE DESCRIPTION</b> Bridge on Premier Boulevard Extension Over Chockoyotte Creek							<b>GROUND WTR (ft)</b>
<b>BORING NO.</b> B1-B		<b>STATION</b> 97+98		<b>OFFSET</b> 27 ft RT		<b>ALIGNMENT</b> -L1-	<b>0 HR.</b> N/A
<b>COLLAR ELEV.</b> 81.8 ft		<b>TOTAL DEPTH</b> 30.8 ft		<b>NORTHING</b> 974,808		<b>EASTING</b> 2,401,533	<b>24 HR.</b> 1.7
<b>DRILL RIG/HAMMER EFF./DATE</b> AME9533 CME-550X 83% 01/01/2015				<b>DRILL METHOD</b> H.S. Augers		<b>HAMMER TYPE</b> Automatic	
<b>DRILLER</b> Meatyard, C.		<b>START DATE</b> 10/26/17		<b>COMP. DATE</b> 10/26/17		<b>SURFACE WATER DEPTH</b> 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)		
85																
														81.8	GROUND SURFACE	0.0
80	78.3	3.5	3	3	4										<b>ALLUVIAL</b> Gray and Brown, Medium Stiff, Coarse to Fine Sandy CLAY, Slightly Plastic	
75														73.6		8.2
	73.3	8.5	40	60/0.3										71.2	<b>WEATHERED ROCK</b> Gray and Brown METAMORPHOSED QUARTZ DIORITE	10.6
70	71.2	10.6	60/0.0							100/0.8				71.0	<b>CRYSTALLINE ROCK</b> METAMORPHOSED QUARTZ DIORITE	10.8
										60/0.0				70.0	Core Loss in Moderately Severely Weathered METAMORPHOSED QUARTZ DIORITE	11.8
65														65.8	Greenish Gray to Gray with White and Red, Moderately to Slightly Weathered, Hard METAMORPHOSED QUARTZ DIORITE with Very Close to Close Fracture Spacing	16.0
60														61.4	Greenish Gray to Gray with White, Slightly to Very Slightly Weathered, Very Hard METAMORPHOSED QUARTZ DIORITE with Close to Moderately Close Fracture Spacing	20.4
55														51.0	Gray with White, Fresh, Very Hard METAMORPHOSED QUARTZ DIORITE with Very Wide Fracture Spacing	30.8
															Boring Terminated at Elevation 51.0 ft in Crystalline Rock: METAMORPHOSED QUARTZ DIORITE	

NCDOT BORE DOUBLE R3822\_GEO\_BRDG\_GINT LOGS.GPJ NC\_DOT.GDT 11/7/17

# GEOTECHNICAL BORING REPORT

## CORE LOG

<b>WBS</b> 37765.1.5		<b>TIP</b> R-3822		<b>COUNTY</b> HALIFAX		<b>GEOLOGIST</b> Nance, D.S.					
<b>SITE DESCRIPTION</b> Bridge on Premier Boulevard Extension Over Chockoyotte Creek							<b>GROUND WTR (ft)</b>				
<b>BORING NO.</b> B1-B		<b>STATION</b> 97+98		<b>OFFSET</b> 27 ft RT		<b>ALIGNMENT</b> -L1-					
<b>COLLAR ELEV.</b> 81.8 ft		<b>TOTAL DEPTH</b> 30.8 ft		<b>NORTHING</b> 974,808		<b>EASTING</b> 2,401,533					
<b>DRILL RIG/HAMMER EFF./DATE</b> AME9533 CME-550X 83% 01/01/2015				<b>DRILL METHOD</b> H.S. Augers		<b>HAMMER TYPE</b> Automatic					
<b>DRILLER</b> Meatyard, C.		<b>START DATE</b> 10/26/17		<b>COMP. DATE</b> 10/26/17		<b>SURFACE WATER DEPTH</b> N/A					
<b>CORE SIZE</b> NQ		<b>TOTAL RUN</b> 20.0 ft									
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (ft) %	RQD (ft) %	REC. (ft) %	RQD (ft) %			
71										Begin Coring @ 10.8 ft	
70	71.0	10.8	5.0	4:03/1.0 14:25/1.0 4:08/1.0 5:29/1.0 8:55/1.0	(3.5) 70%	(0.5) 10%	(0.0) 0%	(0.0) 0%		Core Loss in Moderately Severely Weathered METAMORPHOSED QUARTZ DIORITE GSI = 5-25	10.8 11.8
65	66.0	15.8	5.0	6:30/1.0 4:28/1.0 5:54/1.0 7:08/1.0 12:42/1.0	(4.8) 96%	(2.8) 56%	(4.4) 100%	(2.4) 55%		Greenish Gray to Gray with White and Red, Moderately to Slightly Weathered, Hard METAMORPHOSED QUARTZ DIORITE with Very Close to Close Fracture Spacing Abundant low to high angle fractures with heavy iron staining GSI = 25-45	16.0
60	61.0	20.8	5.0	5:12/1.0 7:08/1.0 7:12/1.0 7:19/1.0 10:56/1.0	(5.0) 100%	(5.0) 100%	(10.4) 100%	(10.4) 100%		Greenish Gray to Gray with White, Slightly to Very Slightly Weathered, Very Hard METAMORPHOSED QUARTZ DIORITE with Close to Moderately Close Fracture Spacing 6 joints at 0 degrees to 10 degrees 4 joints at 35 degrees to 45 degrees with some iron staining 2 joints at 80 degrees GSI = 55-75	20.4
55	56.0	25.8	5.0	6:45/1.0 7:26/1.0 7:28/1.0 7:27/1.0 7:48/1.0	(5.0) 100%	(5.0) 100%				Gray with White, Fresh, Very Hard METAMORPHOSED QUARTZ DIORITE with Very Wide Fracture Spacing No natural fractures GSI = 75-95	30.8
	51.0	30.8								Boring Terminated at Elevation 51.0 ft in Crystalline Rock: METAMORPHOSED QUARTZ DIORITE	

NCDOT CORE DOUBLE R3822\_GEO\_BRDG\_GINT LOGS - CORE LOGS.GPJ NC\_DOT.GDT 11/17/17

### CORE PHOTOGRAPHS

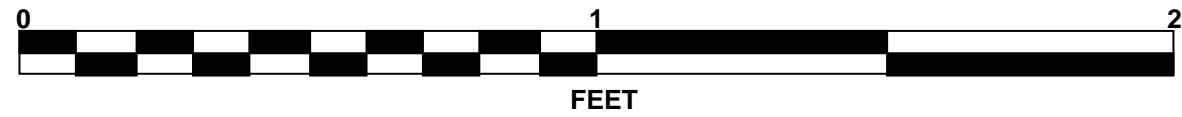
WBS No. 37765.1.5

TIP No. R-3822

Project Description: Bridge on Premier Blvd. Ext. Over Chockoyotte Creek  
Halifax County, North Carolina

B1-B (-L1-, STA. 97+98, 27' RT)

Box 1: 10.8 Feet to 21.2 Feet



### CORE PHOTOGRAPHS

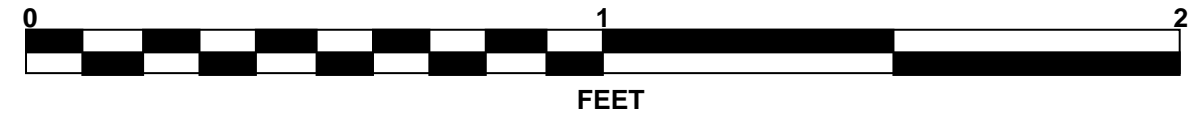
WBS No. 37765.1.5

TIP No. R-3822

Project Description: Bridge on Premier Blvd. Ext. Over Chockoyotte Creek  
Halifax County, North Carolina

B1-B (-L1-, STA. 97+98, 27' RT)

Box 2: 21.2 Feet to 30.8 Feet



# GEOTECHNICAL BORING REPORT

## BORE LOG

<b>WBS</b> 37765.1.5		<b>TIP</b> R-3822		<b>COUNTY</b> HALIFAX		<b>GEOLOGIST</b> Pastrana, C.R.										
<b>SITE DESCRIPTION</b> Bridge on Premier Boulevard Extension Over Chockoyotte Creek							<b>GROUND WTR (ft)</b>									
<b>BORING NO.</b> B2-A		<b>STATION</b> 98+83		<b>OFFSET</b> 27 ft LT		<b>ALIGNMENT</b> -L1-										
<b>COLLAR ELEV.</b> 81.6 ft		<b>TOTAL DEPTH</b> 32.0 ft		<b>NORTHING</b> 974,895		<b>EASTING</b> 2,401,483										
<b>DRILL RIG/HAMMER EFF./DATE</b> AME9533 CME-550X 83% 01/01/2015				<b>DRILL METHOD</b> H.S. Augers		<b>HAMMER TYPE</b> Automatic										
<b>DRILLER</b> Meatyard, C.		<b>START DATE</b> 10/31/17		<b>COMP. DATE</b> 11/01/17		<b>SURFACE WATER DEPTH</b> 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)		
85														81.6	GROUND SURFACE	0.0
														79.5	2.1' Topsoil	2.1
	78.1	3.5	1	WOH	WOH									74.7	<b>ALLUVIAL</b> Black to Brown, Very Loose, Silty Fine SAND, Trace Clay, Trace Organics	6.9
														73.3	GRAVEL and COBBLES with Sand	8.3
	73.1	8.5	5	3	2									72.1	Gray, Loose, Silty Fine to Coarse SAND with Gravel, Trace Clay	9.5
														70.3	<b>RESIDUAL</b>	11.3
	68.6	13.0	60/0.0											68.6	Gray and White, Moist, Medium Stiff, Fine Sandy Clayey SILT	13.0
														68.2		13.4
														67.1	<b>WEATHERED ROCK</b> METAMORPHOSED QUARTZ DIORITE	14.5
															<b>CRYSTALLINE ROCK</b> Core Loss in Moderately Severely Weathered METAMORPHOSED QUARTZ DIORITE	
															Gray with White, Slightly to Very Slightly Weathered, Hard to Very Hard METAMORPHOSED QUARTZ DIORITE with Very Close to Close Fracture Spacing	
															Gray with White, Very Slightly Weathered to Fresh, Very Hard METAMORPHOSED QUARTZ DIORITE with Very Wide Fracture Spacing	
														49.6	Boring Terminated at Elevation 49.6 ft in Crystalline Rock: METAMORPHOSED QUARTZ DIORITE	32.0

NCDOT BORE DOUBLE R3822\_GINT LOGS.GPJ NC\_DOT.GDT 11/7/17

# GEOTECHNICAL BORING REPORT

## CORE LOG

<b>WBS</b> 37765.1.5		<b>TIP</b> R-3822		<b>COUNTY</b> HALIFAX		<b>GEOLOGIST</b> Pastrana, C.R.					
<b>SITE DESCRIPTION</b> Bridge on Premier Boulevard Extension Over Chockoyotte Creek							<b>GROUND WTR (ft)</b>				
<b>BORING NO.</b> B2-A		<b>STATION</b> 98+83		<b>OFFSET</b> 27 ft LT		<b>ALIGNMENT</b> -L1-					
<b>COLLAR ELEV.</b> 81.6 ft		<b>TOTAL DEPTH</b> 32.0 ft		<b>NORTHING</b> 974,895		<b>EASTING</b> 2,401,483					
<b>DRILL RIG/HAMMER EFF./DATE</b> AME9533 CME-550X 83% 01/01/2015				<b>DRILL METHOD</b> H.S. Augers		<b>HAMMER TYPE</b> Automatic					
<b>DRILLER</b> Meatyard, C.		<b>START DATE</b> 10/31/17		<b>COMP. DATE</b> 11/01/17		<b>SURFACE WATER DEPTH</b> N/A					
<b>CORE SIZE</b> NQ		<b>TOTAL RUN</b> 19.0 ft									
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (ft) %	RQD (ft) %	SAMP. NO.	REC. (ft) %			
68.6										Begin Coring @ 13.0 ft	
	68.6	13.0	4.0	8:01/1.0 6:09/1.0 7:12/1.0 5:59/1.0	(3.6) 90%	(2.9) 73%	(0.0) 0%	(0.0) 0%		CRYSTALLINE ROCK	13.0
65	64.6	17.0		8:03/1.0 4:39/1.0 5:04/1.0 5:37/1.0 5:17/1.0	(5.0) 100%	(5.0) 100%	(1.1) 100%	(0.4) 36%		Core Loss in Moderately Severely Weathered METAMORPHOSED QUARTZ DIORITE GSI = 5-25	13.4 14.5
60	59.6	22.0	5.0	8:03/1.0 4:39/1.0 5:04/1.0 5:37/1.0 5:17/1.0	(5.0) 100%	(5.0) 100%	(17.5) 100%	(17.5) 100%		Gray with White, Slightly to Very Slightly Weathered, Hard to Very Hard METAMORPHOSED QUARTZ DIORITE with Very Close to Close Fracture Spacing Joints at 10 degrees to 20 degrees GSI = 40-60	
55	54.6	27.0	5.0	6:07/1.0 4:50/1.0 6:06/1.0 7:07/1.0 7:40/1.0	(5.0) 100%	(5.0) 100%				Gray with White, Very Slightly Weathered to Fresh, Very Hard METAMORPHOSED QUARTZ DIORITE with Very Wide Fracture Spacing No natural fractures GSI = 75-95	
50	49.6	32.0	5.0	4:25/1.0 5:21/1.0 7:22/1.0 5:57/1.0 7:12/1.0	(5.0) 100%	(5.0) 100%				Boring Terminated at Elevation 49.6 ft in Crystalline Rock: METAMORPHOSED QUARTZ DIORITE	32.0

NCDOT CORE DOUBLE R3822\_GEO\_BRDG\_GINT LOGS - CORE LOGS.GPJ NC\_DOT.GDT 11/17/17



### CORE PHOTOGRAPHS

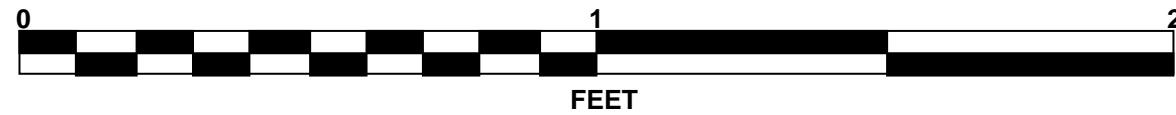
WBS No. 37765.1.5

TIP No. R-3822

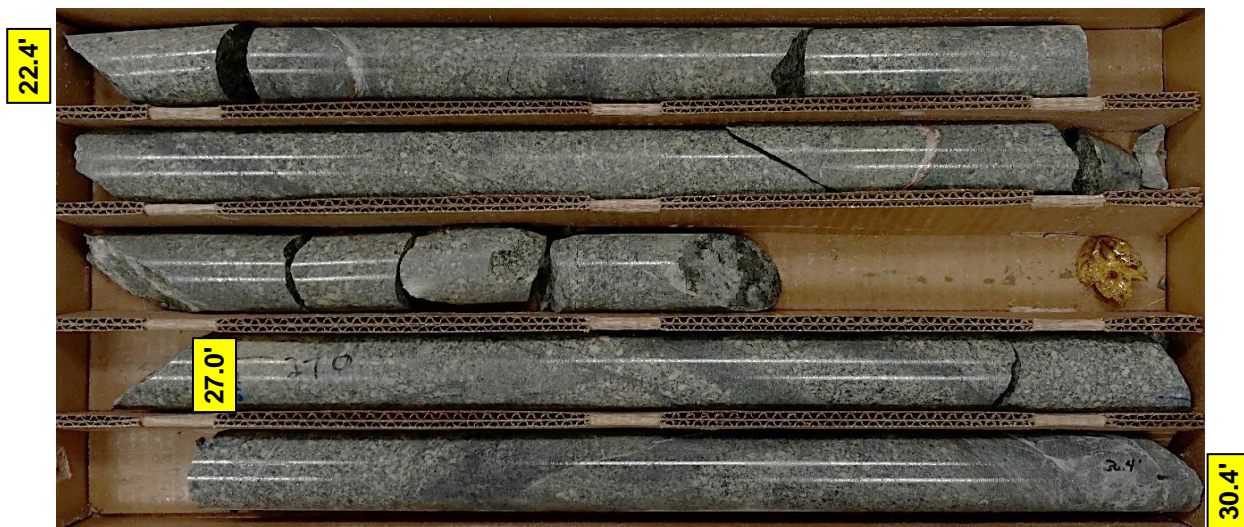
Project Description: Bridge on Premier Blvd. Ext. Over Chockoyotte Creek  
Halifax County, North Carolina

B2-A (-L1-, STA. 98+83, 27' LT)

Box 1: 13.0 Feet to 22.4 Feet



Box 2: 22.4 Feet to 30.4 Feet



### CORE PHOTOGRAPHS

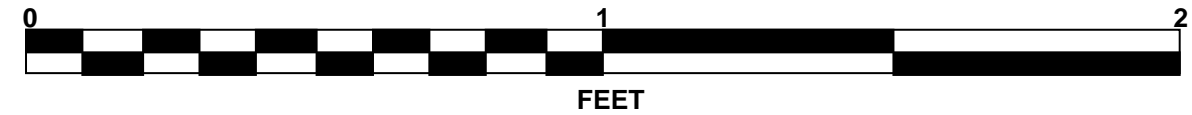
WBS No. 37765.1.5

TIP No. R-3822

Project Description: Bridge on Premier Blvd. Ext. Over Chockoyotte Creek  
Halifax County, North Carolina

B2-A (-L1-, STA. 98+83, 27' LT)

Box 3: 30.4 Feet to 32.0 Feet





# GEOTECHNICAL BORING REPORT

## BORE LOG

<b>WBS</b> 37765.1.5		<b>TIP</b> R-3822		<b>COUNTY</b> HALIFAX		<b>GEOLOGIST</b> Pastrana, C.R.	
<b>SITE DESCRIPTION</b> Bridge on Premier Boulevard Extension Over Chockoyotte Creek							<b>GROUND WTR (ft)</b>
<b>BORING NO.</b> B2-B		<b>STATION</b> 98+83		<b>OFFSET</b> 27 ft RT		<b>ALIGNMENT</b> -L1-	
<b>COLLAR ELEV.</b> 81.8 ft		<b>TOTAL DEPTH</b> 47.0 ft		<b>NORTHING</b> 974,893		<b>EASTING</b> 2,401,537	
<b>DRILL RIG/HAMMER EFF./DATE</b> AME9533 CME-550X 83% 01/01/2015				<b>DRILL METHOD</b> H.S. Augers		<b>HAMMER TYPE</b> Automatic	
<b>DRILLER</b> Meatyard, C.		<b>START DATE</b> 11/01/17		<b>COMP. DATE</b> 11/03/17		<b>SURFACE WATER DEPTH</b> 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)		
85														81.8	GROUND SURFACE	0.0
80	78.3	3.5	1	1	2								W	78.8	<b>ALLUVIAL</b> Black to Brown, Loose, Coarse to Fine SAND, Trace Clay	3.0
75														75.4	Gray, Soft, Fine Sandy CLAY, Slightly Plastic, Organic Odor	6.4
70	73.3	8.5	7	11	21								D	73.8	GRAVEL and COBBLES with Sand	8.0
65	68.3	13.5	100/0.4											70.2	<b>RESIDUAL</b> Green and White with Red, Hard, Clayey Fine Sandy SILT	11.6
60	63.3	18.5	60/0.0											63.3	<b>WEATHERED ROCK</b> Green and White METAMORPHOSED QUARTZ DIORITE	18.5
55	59.8	22.0	100/0.5											62.8	<b>CRYSTALLINE ROCK</b> METAMORPHOSED QUARTZ DIORITE	19.0
50	58.3	23.5	60/0.1											59.8	Mostly Core Loss in Moderately Severely Weathered METAMORPHOSED QUARTZ DIORITE	22.0
45	56.8	25.0												58.3	Weathered METAMORPHOSED QUARTZ DIORITE	23.5
40	54.0	27.8												56.8	<b>WEATHERED ROCK</b> Severely Weathered METAMORPHOSED QUARTZ DIORITE	25.0
35	53.8	28.0	60/0.0											54.0	Mostly Core Loss in Moderately Severely Weathered METAMORPHOSED QUARTZ DIORITE	27.8
														53.8	<b>CRYSTALLINE ROCK</b> METAMORPHOSED QUARTZ DIORITE	28.0
														52.9	<b>WEATHERED ROCK</b> METAMORPHOSED QUARTZ DIORITE	28.9
															Mostly Core Loss in Moderately Severely Weathered METAMORPHOSED QUARTZ DIORITE with Very Close Fracture Spacing	
															Tan to Gray and White, Slightly to Very Slightly Weathered, Hard to Very Hard METAMORPHOSED QUARTZ DIORITE with Close to Moderately Close Fracture Spacing	
														34.8	Boring Terminated at Elevation 34.8 ft in Crystalline Rock: METAMORPHOSED QUARTZ DIORITE	47.0

NCDOT BORE DOUBLE R3822\_GEO\_BRDG\_GINT LOGS.GPJ NC\_DOT\_GDT 11/7/17

# GEOTECHNICAL BORING REPORT

## CORE LOG

<b>WBS</b> 37765.1.5		<b>TIP</b> R-3822		<b>COUNTY</b> HALIFAX		<b>GEOLOGIST</b> Pastrana, C.R.					
<b>SITE DESCRIPTION</b> Bridge on Premier Boulevard Extension Over Chockoyotte Creek							<b>GROUND WTR (ft)</b>				
<b>BORING NO.</b> B2-B		<b>STATION</b> 98+83		<b>OFFSET</b> 27 ft RT		<b>ALIGNMENT</b> -L1-					
<b>COLLAR ELEV.</b> 81.8 ft		<b>TOTAL DEPTH</b> 47.0 ft		<b>NORTHING</b> 974,893		<b>EASTING</b> 2,401,537					
<b>DRILL RIG/HAMMER EFF./DATE</b> AME9533 CME-550X 83% 01/01/2015				<b>DRILL METHOD</b> H.S. Augers		<b>HAMMER TYPE</b> Automatic					
<b>DRILLER</b> Meatyard, C.		<b>START DATE</b> 11/01/17		<b>COMP. DATE</b> 11/03/17		<b>SURFACE WATER DEPTH</b> N/A					
<b>CORE SIZE</b> NW		<b>TOTAL RUN</b> 22.0 ft									
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (ft) %	RQD (ft) %	SAMP. NO.	REC. (ft) %			
62.8	62.8	19.0	3.0	9:32/1.0 7:53/1.0 13:43/1.0	(0.6) 20%	(0.0) 0%	(0.6) 20%	(0.0) 0%		Begin Coring @ 19.0 ft	19.0
60	59.8	22.0		N=100/0.5 N=60/0.0						Mostly Core Loss in Moderately Severely Weathered METAMORPHOSED QUARTZ DIORITE GSI = 5-25	22.0
										<b>WEATHERED ROCK</b>	23.5
										Severely Weathered METAMORPHOSED QUARTZ DIORITE	25.0
										<b>CRYSTALLINE ROCK</b>	
										METAMORPHOSED QUARTZ DIORITE	
55	53.8	28.0								<b>WEATHERED ROCK</b>	27.8
			4.0	2:11/1.0 4:34/1.0 4:54/1.0 5:46/1.0	(3.6) 90%	(2.5) 63%	(0.5) 56%	(0.0) 0%		METAMORPHOSED QUARTZ DIORITE	28.0
							(18.1) 100%	(13.9) 77%		<b>CRYSTALLINE ROCK</b>	28.9
										METAMORPHOSED QUARTZ DIORITE	
50	49.8	32.0	5.0	6:59/1.0 6:19/1.0 7:23/1.0 9:45/1.0 9:30/1.0	(5.0) 100%	(3.4) 68%				Mostly Core Loss in Moderately Severely Weathered METAMORPHOSED QUARTZ DIORITE with Very Close Fracture Spacing GSI = 5-25	
45	44.8	37.0	5.0	9:27/1.0 12:02/1.0 10:34/1.0 23:02/1.0 27:17/1.0	(5.0) 100%	(3.6) 72%				Tan to Gray and White, Slightly to Very Slightly Weathered, Hard to Very Hard METAMORPHOSED QUARTZ DIORITE with Close to Moderately Close Fracture Spacing Majority of joints at 10 degrees to 20 degrees Isolated fractures at 35 degrees to 45 degrees Very close fracture spacing 31.3' to 31.6', 35.9' to 36.3', 36.6' to 36.8', and 41.5' to 41.7' GSI = 65-85	
40	39.8	42.0	5.0	13:40/1.0 19:01/1.0 18:22/1.0 8:41/1.0 5:57/1.0	(5.0) 100%	(4.4) 88%					
35	34.8	47.0								Boring Terminated at Elevation 34.8 ft in Crystalline Rock: METAMORPHOSED QUARTZ DIORITE	47.0

NCDOT CORE DOUBLE R3822\_GEO\_BRDG\_GINT LOGS - CORE LOGS.GPJ NC\_DOT.GDT 11/17/17

### CORE PHOTOGRAPHS

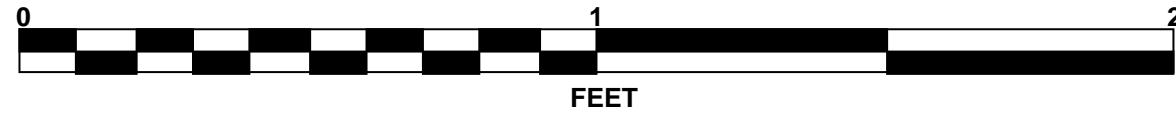
WBS No. 37765.1.5

TIP No. R-3822

Project Description: Bridge on Premier Blvd. Ext. Over Chockoyotte Creek  
Halifax County, North Carolina

B2-B (-L1-, STA. 98+83, 27' RT)

Box 1: 13.0 Feet to 22.0 Feet



Box 2: 28.0 Feet to 37.0 Feet



### CORE PHOTOGRAPHS

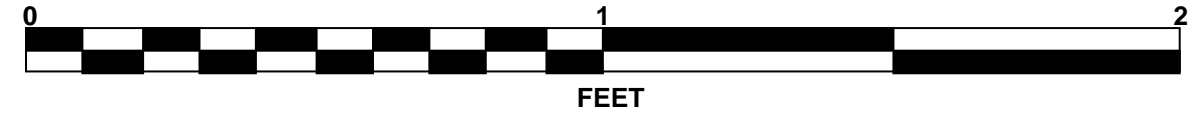
WBS No. 37765.1.5

TIP No. R-3822

Project Description: Bridge on Premier Blvd. Ext. Over Chockoyotte Creek  
Halifax County, North Carolina

B2-A (-L1-, STA. 98+83, 27' RT)

Box 3: 37.0 Feet to 45.2 Feet



Box 4: 45.2 Feet to 47.0 Feet



# GEOTECHNICAL BORING REPORT

## BORE LOG

<b>WBS</b> 37765.1.5		<b>TIP</b> R-3822		<b>COUNTY</b> HALIFAX		<b>GEOLOGIST</b> Pastrana, C.R.	
<b>SITE DESCRIPTION</b> Bridge on Premier Boulevard Extension Over Chockoyotte Creek							<b>GROUND WTR (ft)</b>
<b>BORING NO.</b> B3-A		<b>STATION</b> 99+83		<b>OFFSET</b> 27 ft LT		<b>ALIGNMENT</b> -L1-	<b>0 HR.</b> N/A
<b>COLLAR ELEV.</b> 80.8 ft		<b>TOTAL DEPTH</b> 46.3 ft		<b>NORTHING</b> 974,995		<b>EASTING</b> 2,401,488	<b>24 HR.</b> 2.1
<b>DRILL RIG/HAMMER EFF./DATE</b> AME9533 CME-550X 83% 01/01/2015				<b>DRILL METHOD</b> H.S. Augers		<b>HAMMER TYPE</b> Automatic	
<b>DRILLER</b> Meatyard, C.		<b>START DATE</b> 10/18/17		<b>COMP. DATE</b> 10/19/17		<b>SURFACE WATER DEPTH</b> N/A	

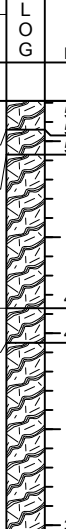
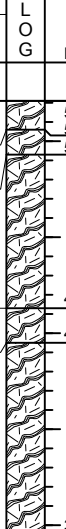
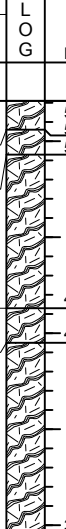
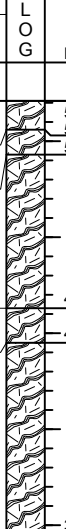
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
85																
80														80.8	GROUND SURFACE	0.0
75	77.3	3.5	3	30	11									76.8	<b>ALLUVIAL</b> Gray, Loose to Medium Dense, Clayey Coarse to Fine SAND, Organic Odor, Some Gravel Note: Blow count influenced by gravel and cobbles	4.0
70	72.3	8.5	5	11	13									73.2	GRAVEL and COBBLES with Sand	7.8
65	67.3	13.5	26	74/0.3										69.5	<b>RESIDUAL</b> Greenish Brown to Red, Very Stiff, Coarse to Fine Sandy Clayey SILT	11.3
60	62.3	18.5	100/0.2												<b>WEATHERED ROCK</b> White and Green METAMORPHOSED QUARTZ DIORITE	
55	57.3	23.5	60/0.1											57.1	<b>CRYSTALLINE ROCK</b> Mostly Core Loss in Moderately Severely to Moderately Weathered, Medium Hard to Moderately Hard METAMORPHOSED QUARTZ DIORITE with Very Close Fracture Spacing	23.7
50	54.5	26.3	60/0.0											55.6	Gray with Red and White, Moderately to Slightly Weathered, Moderately Hard to Hard METAMORPHOSED QUARTZ DIORITE with Very Close to Close Fracture Spacing	25.2
45														54.3	Greenish Gray to Gray with White, Slightly to Very Slightly Weathered, Hard to Very Hard METAMORPHOSED QUARTZ DIORITE with Close to Moderately Close Fracture Spacing	26.5
40														46.3	Greenish Gray to Gray with White, Slightly to Very Slightly Weathered, Hard to Very Hard METAMORPHOSED QUARTZ DIORITE with Very Close to Close Fracture Spacing	34.5
35														44.5	Greenish Gray to Gray with White and Red, Very Slightly Weathered to Fresh, Hard to Very Hard METAMORPHOSED QUARTZ DIORITE with Moderately Close to Wide Fracture Spacing	36.3
														34.5	Boring Terminated at Elevation 34.5 ft in Crystalline Rock: METAMORPHOSED QUARTZ DIORITE	46.3

NCDOT BORE DOUBLE R3822\_GEO\_BRDG\_GINT LOGS.GPJ NC\_DOT.GDT 11/7/17



# GEOTECHNICAL BORING REPORT

## CORE LOG

<b>WBS</b> 37765.1.5		<b>TIP</b> R-3822		<b>COUNTY</b> HALIFAX		<b>GEOLOGIST</b> Pastrana, C.R.						
<b>SITE DESCRIPTION</b> Bridge on Premier Boulevard Extension Over Chockoyotte Creek							<b>GROUND WTR (ft)</b>					
<b>BORING NO.</b> B3-A		<b>STATION</b> 99+83		<b>OFFSET</b> 27 ft LT		<b>ALIGNMENT</b> -L1-						
<b>COLLAR ELEV.</b> 80.8 ft		<b>TOTAL DEPTH</b> 46.3 ft		<b>NORTHING</b> 974,995		<b>EASTING</b> 2,401,488						
<b>DRILL RIG/HAMMER EFF./DATE</b> AME9533 CME-550X 83% 01/01/2015				<b>DRILL METHOD</b> H.S. Augers		<b>HAMMER TYPE</b> Automatic						
<b>DRILLER</b> Meatyard, C.		<b>START DATE</b> 10/18/17		<b>COMP. DATE</b> 10/19/17		<b>SURFACE WATER DEPTH</b> N/A						
<b>CORE SIZE</b> NQ		<b>TOTAL RUN</b> 22.6 ft										
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)	
					REC. (ft) %	RQD (ft) %	REC. (ft) %	RQD (ft) %				
57.1										Begin Coring @ 23.7 ft		
55	57.1 54.5	23.7 26.3	2.6	2:13/0.6 9:38/1.0 10:16/1.0	(1.4) 54%	(0.3) 12%	(0.3) 20%	(0.0) 0%			23.7 25.2 26.5	
50	49.5	31.3	5.0	4:30/1.0	(5.0)	(3.7)	(1.3)	(0.3)		Mostly Core Loss in Moderately Severely to Moderately Weathered, Medium Hard to Moderately Hard METAMORPHOSED QUARTZ DIORITE with Very Close Fracture Spacing GSI = 15-35	26.5	
				6:46/1.0	100%	74%	(8.0)	(6.4)				80%
				8:27/1.0								
				6:13/1.0 8:48/1.0								
45	44.5	36.3	5.0	7:23/1.0	(5.0)	(3.1)	(1.8)	(0.4)		Gray with Red and White, Moderately to Slightly Weathered, Moderately Hard to Hard METAMORPHOSED QUARTZ DIORITE with Very Close to Close Fracture Spacing Joints at 10 degrees to 30 degrees with heavy iron staining GSI = 35-55	34.5	
				7:39/1.0	100%	62%						
				7:25/1.0								
				8:34/1.0 9:27/1.0								
40	39.5	41.3	5.0	10:17/1.0	(5.0)	(4.9)	(10.0)	(9.7)		Greenish Gray to Gray with White, Slightly to Very Slightly Weathered, Hard to Very Hard METAMORPHOSED QUARTZ DIORITE with Close to Moderately Close Fracture Spacing Fractures from 45 degrees to 90 degrees Multiple near vertical fractures from 28.0' to 29.3' GSI = 65-85	36.3	
				10:54/1.0	100%	98%						
				11:09/1.0								
				12:04/1.0 11:16/1.0								
35	34.5	46.3	5.0	9:16/1.0	(5.0)	(4.8)				Greenish Gray to Gray with White, Slightly to Very Slightly Weathered, Hard to Very Hard METAMORPHOSED QUARTZ DIORITE with Very Close to Close Fracture Spacing Joints from 30 degrees to 60 degrees GSI = 45-65	46.3	
				9:02/1.0	100%	96%						
				8:46/1.0								
				11:38/1.0 9:54/1.0								
										Greenish Gray to Gray with White and Red, Very Slightly Weathered to Fresh, Hard to Very Hard METAMORPHOSED QUARTZ DIORITE with Moderately Close to Wide Fracture Spacing Joints at 10 degrees to 20 degrees GSI = 75-95  Boring Terminated at Elevation 34.5 ft in Crystalline Rock: METAMORPHOSED QUARTZ DIORITE		

NCDOT CORE DOUBLE R3822\_GEO\_BRDG\_GINT LOGS - CORE LOGS.GPJ NC\_DOT.GDT 11/17/17

### CORE PHOTOGRAPHS

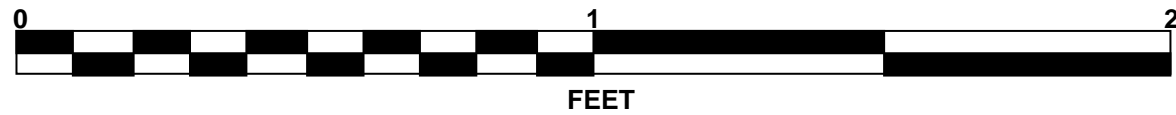
WBS No. 37765.1.5

TIP No. R-3822

Project Description: Bridge on Premier Blvd. Ext. Over Chockoyotte Creek  
Halifax County, North Carolina

B3-A (-L1-, STA. 99+83, 27' LT)

Box 1: 23.7 Feet to 32.5 Feet



Box 2: 32.5 Feet to 41.3 Feet



### CORE PHOTOGRAPHS

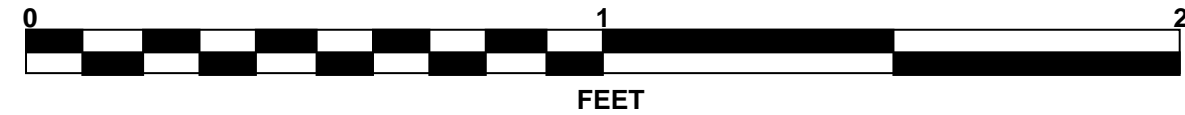
WBS No. 37765.1.5

TIP No. R-3822

Project Description: Bridge on Premier Blvd. Ext. Over Chockoyotte Creek  
Halifax County, North Carolina

B3-A (-L1-, STA. 99+83, 27' LT)

Box 3: 41.3 Feet to 46.3 Feet







# GEOTECHNICAL BORING REPORT

## CORE LOG

<b>WBS</b> 37765.1.5		<b>TIP</b> R-3822		<b>COUNTY</b> HALIFAX		<b>GEOLOGIST</b> Pastrana, C.R.					
<b>SITE DESCRIPTION</b> Bridge on Premier Boulevard Extension Over Chockoyotte Creek							<b>GROUND WTR (ft)</b>				
<b>BORING NO.</b> B3-B		<b>STATION</b> 99+83		<b>OFFSET</b> 27 ft RT		<b>ALIGNMENT</b> -L1-					
<b>COLLAR ELEV.</b> 81.0 ft		<b>TOTAL DEPTH</b> 51.4 ft		<b>NORTHING</b> 974,992		<b>EASTING</b> 2,401,542					
<b>DRILL RIG/HAMMER EFF./DATE</b> AME9533 CME-550X 83% 01/01/2015				<b>DRILL METHOD</b> H.S. Augers		<b>HAMMER TYPE</b> Automatic					
<b>DRILLER</b> Meatyard, C.		<b>START DATE</b> 10/19/17		<b>COMP. DATE</b> 10/20/17		<b>SURFACE WATER DEPTH</b> N/A					
<b>CORE SIZE</b> NQ		<b>TOTAL RUN</b> 12.9 ft									
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (ft) %	RQD (ft) %	SAMP. NO.	REC. (ft) %			
42.5	42.5	38.5	2.9	9:52/0.9 11:22/1.0 7:34/1.0	(2.0) 69%	(0.6) 21%				Begin Coring @ 38.5 ft	
40	39.6	41.4	5.0	13:09/1.0 12:55/1.0 15:36/1.0 10:12/1.0 13:49/1.0	(5.0) 100%	(2.1) 42%				Brown with Gray, Moderately Severely to Moderately Weathered, Medium Hard to Moderately Hard METAMORPHOSED QUARTZ DIORITE with Very Close to Close Fracture Spacing Numerous fractures from 0 degrees to 90 degrees with iron staining Core loss scattered throughout strata GSI = 15-35	38.5 43.4
35	34.6	46.4	5.0	4:55/1.0 5:54/1.0 6:04/1.0 7:21/1.0 8:31/1.0	(5.0) 100%	(4.2) 84%				Greenish Gray to Gray with White, Slightly to Very Slightly Weathered, Hard METAMORPHOSED QUARTZ DIORITE with Close to Moderately Close Fracture Spacing Fractures from 0 degrees to 90 degrees with iron staining Very close fracture spacing 47.9' to 48.1' and 50.3' to 50.7' GSI = 65-85	43.4 51.4
30	29.6	51.4								Boring Terminated at Elevation 29.6 ft in Crystalline Rock: METAMORPHOSED QUARTZ DIORITE	

NCDOT CORE DOUBLE R3822\_GEO\_BRDG\_GINT LOGS - CORE LOGS.GPJ NC\_DOT.GDT 11/17/17

### CORE PHOTOGRAPHS

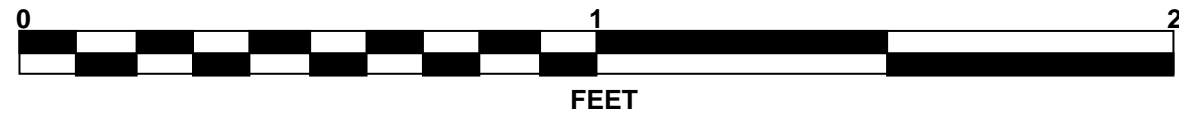
WBS No. 37765.1.5

TIP No. R-3822

Project Description: Bridge on Premier Blvd. Ext. Over Chockoyotte Creek  
Halifax County, North Carolina

B3-B (-L1-, STA. 99+83, 27' RT)

Box 1: 38.5 Feet to 46.4 Feet



### CORE PHOTOGRAPHS

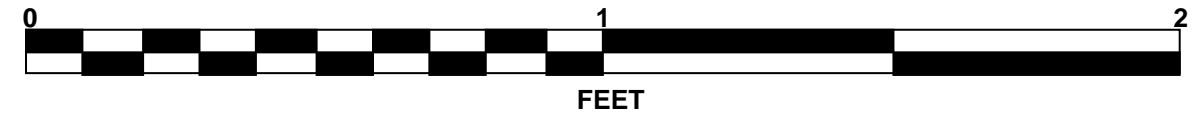
WBS No. 37765.1.5

TIP No. R-3822

Project Description: Bridge on Premier Blvd. Ext. Over Chockoyotte Creek  
Halifax County, North Carolina

B3-B (-L1-, STA. 99+83, 27' RT)

Box 2: 46.4 Feet to 51.4 Feet



# GEOTECHNICAL BORING REPORT

## BORE LOG

<b>WBS</b> 37765.1.5		<b>TIP</b> R-3822		<b>COUNTY</b> HALIFAX		<b>GEOLOGIST</b> Pastrana, C.R.										
<b>SITE DESCRIPTION</b> Bridge on Premier Boulevard Extension Over Chockoyotte Creek							<b>GROUND WTR (ft)</b>									
<b>BORING NO.</b> B4-A		<b>STATION</b> 100+53		<b>OFFSET</b> 27 ft LT		<b>ALIGNMENT</b> -L1-	<b>0 HR.</b> N/A									
<b>COLLAR ELEV.</b> 82.6 ft		<b>TOTAL DEPTH</b> 46.4 ft		<b>NORTHING</b> 975,065		<b>EASTING</b> 2,401,491	<b>24 HR.</b> 1.4									
<b>DRILL RIG/HAMMER EFF./DATE</b> AME9533 CME-550X 83% 01/01/2015				<b>DRILL METHOD</b> H.S. Augers		<b>HAMMER TYPE</b> Automatic										
<b>DRILLER</b> Meatyard, C.		<b>START DATE</b> 10/17/17		<b>COMP. DATE</b> 10/18/17		<b>SURFACE WATER DEPTH</b> 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)		
85														82.6	0.0	GROUND SURFACE
80	79.1	3.5	3	6	5									78.6	4.0	<b>ALLUVIAL</b> Black, Fine Sandy CLAY, Highly Organic, Slightly Plastic
75	74.1	8.5	25	40	49									76.6	6.0	Gray, Medium Dense, Clayey Fine to Coarse SAND, Trace Organics GRAVEL and COBBLES
70	69.1	13.5	26	63	37/0.2									71.1	11.5	<b>RESIDUAL</b> Greenish Brown to Red, Very Stiff, Coarse to Fine Sandy Clayey SILT
65	64.1	18.5	21	38	26									65.2	17.4	<b>WEATHERED ROCK</b> Greenish Gray with Red METAMORPHOSED QUARTZ DIORITE
60	60.2	22.4	60/0.0											61.3	21.3	<b>RESIDUAL</b> Brown and White, Very Dense, Silty Coarse to Fine SAND
55														60.2	22.4	<b>WEATHERED ROCK</b> White and Green METAMORPHOSED QUARTZ DIORITE
50																<b>CRYSTALLINE ROCK</b> Greenish Gray to Gray with White, Slightly to Very Slightly Weathered, Hard to Very Hard METAMORPHOSED QUARTZ DIORITE with Close to Moderately Close Fracture Spacing
45														45.2	37.4	Greenish Gray to Gray with White and Red, Slightly to Very Slightly Weathered, Hard to Very Hard METAMORPHOSED QUARTZ DIORITE with Moderately Close to Wide Fracture Spacing
40														36.2	46.4	Boring Terminated at Elevation 36.2 ft in Crystalline Rock: METAMORPHOSED QUARTZ DIORITE

NCDOT BORE DOUBLE R3822\_GEO\_BRDG\_GINT LOGS.GPJ NC\_DOT.GDT 11/17/17

# GEOTECHNICAL BORING REPORT

## CORE LOG

<b>WBS</b> 37765.1.5		<b>TIP</b> R-3822		<b>COUNTY</b> HALIFAX		<b>GEOLOGIST</b> Pastrana, C.R.					
<b>SITE DESCRIPTION</b> Bridge on Premier Boulevard Extension Over Chockoyotte Creek							<b>GROUND WTR (ft)</b>				
<b>BORING NO.</b> B4-A		<b>STATION</b> 100+53		<b>OFFSET</b> 27 ft LT		<b>ALIGNMENT</b> -L1-					
<b>COLLAR ELEV.</b> 82.6 ft		<b>TOTAL DEPTH</b> 46.4 ft		<b>NORTHING</b> 975,065		<b>EASTING</b> 2,401,491					
<b>DRILL RIG/HAMMER EFF./DATE</b> AME9533 CME-550X 83% 01/01/2015				<b>DRILL METHOD</b> H.S. Augers		<b>HAMMER TYPE</b> Automatic					
<b>DRILLER</b> Meatyard, C.		<b>START DATE</b> 10/17/17		<b>COMP. DATE</b> 10/18/17		<b>SURFACE WATER DEPTH</b> N/A					
<b>CORE SIZE</b> NQ		<b>TOTAL RUN</b> 24.0 ft									
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (%)	RQD (%)	REC. (%)	RQD (%)			
66.2	60.2	22.4	4.0	2:53/1.0 7:55/1.0 5:18/1.0 6:55/1.0	(4.0) 100%	(3.0) 75%	(14.9) 99%	(11.1) 74%		Begin Coring @ 22.4 ft	22.4
	56.2	26.4	5.0	9:26/1.0 8:44/1.0 6:43/1.0 8:26/1.0 10:07/1.0	(4.9) 98%	(3.5) 70%				Greenish Gray to Gray with White, Slightly to Very Slightly Weathered, Hard to Very Hard METAMORPHOSED QUARTZ DIORITE with Close to Moderately Close Fracture Spacing Majority of joints at 0 degrees to 10 degrees with iron staining 2 joints at 70 degrees with heavy iron staining Very close fracture spacing 23.9' to 24.4', 27.7' to 27.9', 28.4' to 28.7', and 31.5' to 31.8' Several partially healed high angle fractures GSI = 65-85	
55	51.2	31.4	5.0	6:42/1.0 6:10/1.0 7:42/1.0 7:45/1.0 8:10/1.0	(5.0) 100%	(3.7) 74%					
	46.2	36.4	5.0	5:41/1.0 7:57/1.0 10:05/1.0 11:01/1.0 11:07/1.0	(5.0) 100%	(4.9) 98%	(9.0) 100%	(9.0) 100%		Greenish Gray to Gray with White and Red, Slightly to Very Slightly Weathered, Hard to Very Hard METAMORPHOSED QUARTZ DIORITE with Moderately Close to Wide Fracture Spacing 1 joint at 30 degrees with iron staining Several partially healed high angle fractures GSI = 75-95	45.2
45	41.2	41.4	5.0	8:26/1.0 10:08/1.0 9:46/1.0 9:22/1.0 9:37/1.0	(5.0) 100%	(5.0) 100%					
	36.2	46.4								Boring Terminated at Elevation 36.2 ft in Crystalline Rock: METAMORPHOSED QUARTZ DIORITE	46.4

NCDOT CORE DOUBLE R3822\_GEO\_BRDG\_GINT LOGS - CORE LOGS.GPJ NC\_DOT.GDT 11/17/17



### CORE PHOTOGRAPHS

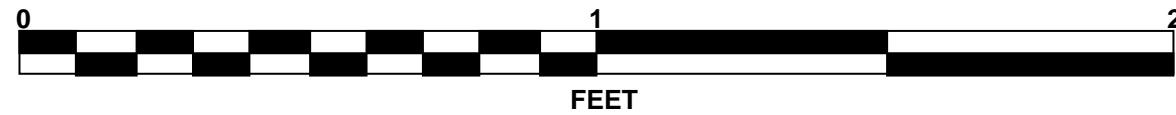
WBS No. 37765.1.5

TIP No. R-3822

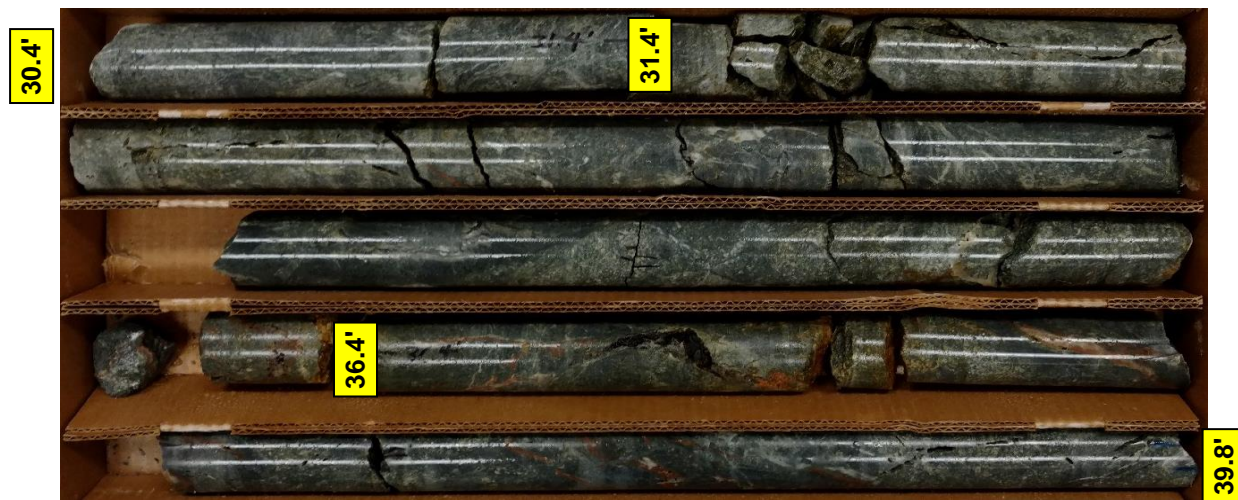
Project Description: Bridge on Premier Blvd. Ext. Over Chockoyotte Creek  
Halifax County, North Carolina

B4-A (-L1-, STA. 100+53, 27' LT)

Box 1: 22.4 Feet to 30.44 Feet



Box 2: 30.4 Feet to 39.8 Feet



### CORE PHOTOGRAPHS

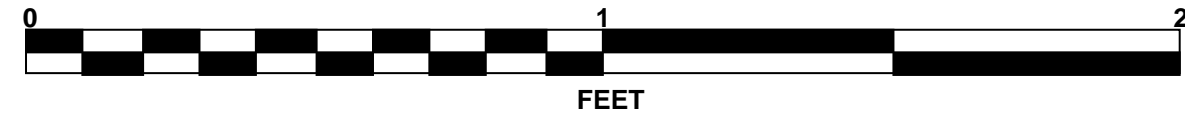
WBS No. 37765.1.5

TIP No. R-3822

Project Description: Bridge on Premier Blvd. Ext. Over Chockoyotte Creek  
Halifax County, North Carolina

B4-A (-L1-, STA. 100+53, 27' LT)

Box 3: 39.8 Feet to 46.4 Feet



# GEOTECHNICAL BORING REPORT

## BORE LOG

<b>WBS</b> 37765.1.5		<b>TIP</b> R-3822		<b>COUNTY</b> HALIFAX		<b>GEOLOGIST</b> Pastrana, C.R.										
<b>SITE DESCRIPTION</b> Bridge on Premier Boulevard Extension Over Chockoyotte Creek							<b>GROUND WTR (ft)</b>									
<b>BORING NO.</b> B4-B		<b>STATION</b> 100+53		<b>OFFSET</b> 27 ft RT		<b>ALIGNMENT</b> -L1-										
<b>COLLAR ELEV.</b> 83.6 ft		<b>TOTAL DEPTH</b> 51.6 ft		<b>NORTHING</b> 975,062		<b>EASTING</b> 2,401,545										
<b>DRILL RIG/HAMMER EFF./DATE</b> AME9533 CME-550X 83% 01/01/2015				<b>DRILL METHOD</b> H.S. Augers		<b>HAMMER TYPE</b> Automatic										
<b>DRILLER</b> Meatyard, C.		<b>START DATE</b> 10/23/17		<b>COMP. DATE</b> 10/23/17		<b>SURFACE WATER DEPTH</b> 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)		
85														83.6	0.0	<b>GROUND SURFACE</b>
80	80.1	3.5	2	2	1	3							Sat.			<b>ALLUVIAL</b> Brown to Black to Gray, Soft, Silty Coarse to Fine Sandy CLAY, Little to Moderately Organic, Slightly Plastic Note: Gravel/Cobbles encountered around 8'
75	75.1	8.5	5	5	9	14							M	75.6	8.0	<b>RESIDUAL</b> Greenish Brown to Red, Stiff, Clayey Fine to Coarse Sandy SILT
70	70.1	13.5	34	66/0.2						100/0.7				71.0	12.6	<b>WEATHERED ROCK</b> Greenish Gray METAMORPHOSED QUARTZ DIORITE
65	65.1	18.5	26	31	69/0.4					100/0.9						
60	60.1	23.5	100/0.3							100/0.3						
55	55.1	28.5	31	34	66/0.4					100/0.9						
50	50.1	33.5	100/0.4							100/0.4						
45	45.1	38.5	60/0.1							60/0.1				45.1	38.5	<b>CRYSTALLINE ROCK</b> METAMORPHOSED QUARTZ DIORITE
40	41.5	42.1	60/0.0							60/0.0				41.5	42.1	Greenish Gray to Gray with White, Slightly to Very Slightly Weathered, Hard METAMORPHOSED QUARTZ DIORITE with Close Fracture Spacing
35														37.2	46.4	Greenish Gray to Gray with White, Moderately to Slightly Weathered, Hard METAMORPHOSED QUARTZ DIORITE with Very Close to Close Fracture Spacing
														32.0	51.6	Boring Terminated at Elevation 32.0 ft in Crystalline Rock: METAMORPHOSED QUARTZ DIORITE

NCDOT BORE DOUBLE R3822\_GEO\_BRDG\_GINT LOGS.GPJ NC\_DOT\_GDT 11/7/17

# GEOTECHNICAL BORING REPORT

## CORE LOG

WBS 37765.1.5		TIP R-3822		COUNTY HALIFAX		GEOLOGIST Pastrana, C.R.					
SITE DESCRIPTION Bridge on Premier Boulevard Extension Over Chockoyotte Creek							GROUND WTR (ft)				
BORING NO. B4-B		STATION 100+53		OFFSET 27 ft RT		ALIGNMENT -L1-					
COLLAR ELEV. 83.6 ft		TOTAL DEPTH 51.6 ft		NORTHING 975,062		EASTING 2,401,545					
DRILL RIG/HAMMER EFF./DATE AME9533 CME-550X 83% 01/01/2015				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic					
DRILLER Meatyard, C.		START DATE 10/23/17		COMP. DATE 10/23/17		SURFACE WATER DEPTH N/A					
CORE SIZE NQ		TOTAL RUN 9.5 ft									
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (ft) %	RQD (ft) %	SAMP. NO.	REC. (ft) %			
41.5										Begin Coring @ 42.1 ft	
40	41.5	42.1	5.0	7:07/1.0 8:45/1.0 11:30/1.0 12:10/1.0 9:59/1.0	(4.2) 84%	(2.5) 50%	(3.5) 81%	(2.5) 58%	41.5	Greenish Gray to Gray with White, Slightly to Very Slightly Weathered, Hard METAMORPHOSED QUARTZ DIORITE with Close Fracture Spacing Joints at 30 degrees to 45 degrees Most of core loss occurred at the start of the run GSI = 65-85	42.1
	36.5	47.1							37.2		46.4
35			4.5	6:14/1.0 7:59/1.0 10:57/1.0 5:58/1.0 5:17/0.5	(3.3) 73%	(0.0) 0%	(4.0) 77%	(0.0) 0%	32.0	Greenish Gray to Gray with White, Moderately to Slightly Weathered, Hard METAMORPHOSED QUARTZ DIORITE with Very Close to Close Fracture Spacing Abundant high angle fractures Very broken Core loss scattered throughout strata GSI = 25-45 Boring Terminated at Elevation 32.0 ft in Crystalline Rock: METAMORPHOSED QUARTZ DIORITE	51.6

NCDOT CORE DOUBLE R3822\_GEO\_BRDG\_GINT LOGS - CORE LOGS.GPJ NC\_DOT.GDT 11/17/17



### CORE PHOTOGRAPHS

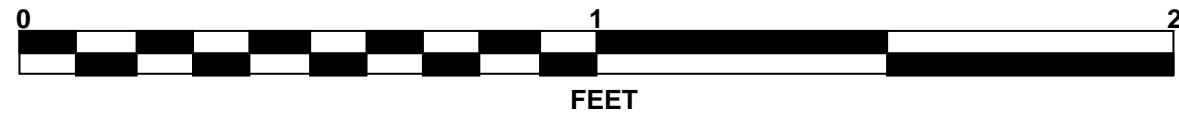
WBS No. 37765.1.5

TIP No. R-3822

Project Description: Bridge on Premier Blvd. Ext. Over Chockoyotte Creek  
Halifax County, North Carolina

B4-B (-L1-, STA. 100+53, 27' RT)

Box 1: 41.5 Feet to 51.6 Feet



# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 37765.1.5		TIP R-3822		COUNTY HALIFAX		GEOLOGIST Pastrana, C.R.										
SITE DESCRIPTION Bridge on Premier Boulevard Extension Over Chockoyotte Creek							GROUND WTR (ft)									
BORING NO. EB2-A		STATION 101+23		OFFSET 32 ft LT		ALIGNMENT -L1-										
COLLAR ELEV. 86.2 ft		TOTAL DEPTH 19.8 ft		NORTHING 975,135		EASTING 2,401,489										
DRILL RIG/HAMMER EFF./DATE AME9533 CME-550X 83% 01/01/2015			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Meatyard, C.		START DATE 10/17/17		COMP. DATE 10/17/17		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						
90																
85	82.7	3.5	2	5	6									86.2	GROUND SURFACE	0.0
80	77.7	8.5	7	11	13									83.2	ALLUVIAL Black and Gray, Soft to Medium Stiff, Silty CLAY with Gravel, Highly Organic, Slightly Plastic, Trace Sand	3.0
75	72.7	13.5	10	15	85/0.2									75.9	RESIDUAL Orange Brown to Gray, Stiff to Very Stiff, Coarse to Fine Sandy Silty CLAY, Slightly Plastic	10.3
70	67.7	18.5	46	54/0.4										72.2	Brown and White, Medium Dense, Silty Coarse to Fine SAND	14.0
	66.4	19.8	60/0.0											66.4	WEATHERED ROCK Brown and White Metamorphosed Quartz Diorite	19.8
															Boring Terminated with Standard Penetration Test Refusal at Elevation 66.4 ft on Crystalline Rock: METAMORPHOSED QUARTZ DIORITE	

WBS 37765.1.5		TIP R-3822		COUNTY HALIFAX		GEOLOGIST Pastrana, C.R.										
SITE DESCRIPTION Bridge on Premier Boulevard Extension Over Chockoyotte Creek							GROUND WTR (ft)									
BORING NO. EB2-C		STATION 101+23		OFFSET CL		ALIGNMENT -L1-										
COLLAR ELEV. 87.3 ft		TOTAL DEPTH 31.2 ft		NORTHING 975,134		EASTING 2,401,521										
DRILL RIG/HAMMER EFF./DATE AME9533 CME-550X 83% 01/01/2015			DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Meatyard, C.		START DATE 10/17/17		COMP. DATE 10/17/17		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						
90																
85														87.3	GROUND SURFACE	0.0
80														84.3	ALLUVIAL Black to Gray, Soft to Medium Stiff, Coarse to Fine Sandy Silty CLAY, Highly Organic, Slightly Plastic	3.0
75														79.3	RESIDUAL Orange Brown, Medium Stiff, Silty CLAY, Slightly Plastic	8.0
70															Orange Brown, Medium Dense, Clayey Silty Coarse to Fine SAND	
65																
60	58.8	28.5	56	44/0.2										62.3	Rock Fragments and Fine to Coarse SAND	25.0
	56.1	31.2	60/0.0											60.3	WEATHERED ROCK METAMORPHOSED QUARTZ DIORITE	27.0
														56.1	Boring Terminated with Standard Penetration Test Refusal at Elevation 56.1 ft on Crystalline Rock: METAMORPHOSED QUARTZ DIORITE	

NCDOT BORE DOUBLE R3822\_GINT LOGS - CORE LOGS.GPJ NC\_DOT.GDT 11/17/17

# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 37765.1.5		TIP R-3822		COUNTY HALIFAX		GEOLOGIST Pastrana, C.R.												
SITE DESCRIPTION Bridge on Premier Boulevard Extension Over Chockoyotte Creek							GROUND WTR (ft)											
BORING NO. EB2-B		STATION 101+23		OFFSET 32 ft RT		ALIGNMENT -L1-	0 HR. 4.0											
COLLAR ELEV. 87.1 ft		TOTAL DEPTH 38.7 ft		NORTHING 975,132		EASTING 2,401,553	24 HR. 1.1											
DRILL RIG/HAMMER EFF./DATE AME9533 CME-550X 83% 01/01/2015				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER Meatyard, C.		START DATE 10/16/17		COMP. DATE 10/16/17		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)				
90														87.1	0.0	GROUND SURFACE		
														85.6	1.5	1.5' Topsoil		
85	83.6	3.5	3	7	10								M			<b>RESIDUAL</b> Orange Brown to Light Brown, Medium Dense to Dense, Silty Coarse to Fine SAND, Little Rock Fragments		
80	78.6	8.5	10	16	14								W					
75	73.6	13.5	10	13	19								M			Red to Greenish Brown, Hard, Fine Sandy Clayey SILT		
70	68.6	18.5	13	27	50								D					
65	63.6	23.5	26	50	50/0.4											74.6	12.5	
60	58.6	28.5	100/0.3													64.2	22.9	
55	53.6	33.5	100/0.2															
50	48.6	38.5	100/0.2													48.4	38.7	
																		Boring Terminated at Elevation 48.4 ft in Weathered Rock: METAMORPHOSED QUARTZ DIORITE

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