

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

**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

PROJ. REFERENCE NO. 34820.1.1(U-2524AE) F.A. PROJ. NA  
COUNTY GUILFORD  
PROJECT DESCRIPTION GREENSBORO/HIGH POINT ROAD FROM WEST OF VICKERY CHAPEL ROAD TO HILLTOP ROAD  
SITE DESCRIPTION NEW BRIDGE ON -L- (GREENSBORO/HIGH POINT ROAD) OVER -GWL- (GREENSBORO WESTERN LOOP, I-73)

**INVENTORY**

(INCLUDES LEFT AND RIGHT LANE BRIDGES AND RETAINING WALLS)

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**CAUTION NOTICE**

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 250-4086. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

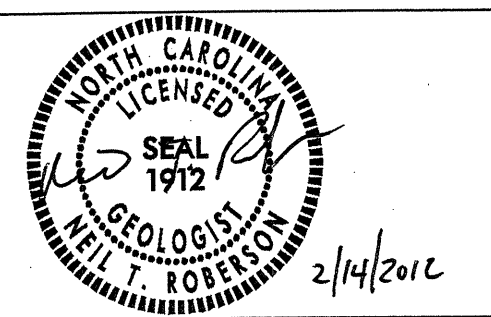
GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND 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 THIS 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.

**PROJECT: 34820.1.1 ID: U-2524AE**

PERSONNEL  
J.I. MILKOVITS, JR.  
H.R. CONLEY  
J.R. MATULA  
J.R. TURNAGE

INVESTIGATED BY J.I. MILKOVITS, JR.  
CHECKED BY T.P. MOOREFIELD  
SUBMITTED BY N.T. ROBERSON  
DATE JULY 2009



DRAWN BY: T.T. WALKER

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IS IT CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - 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.

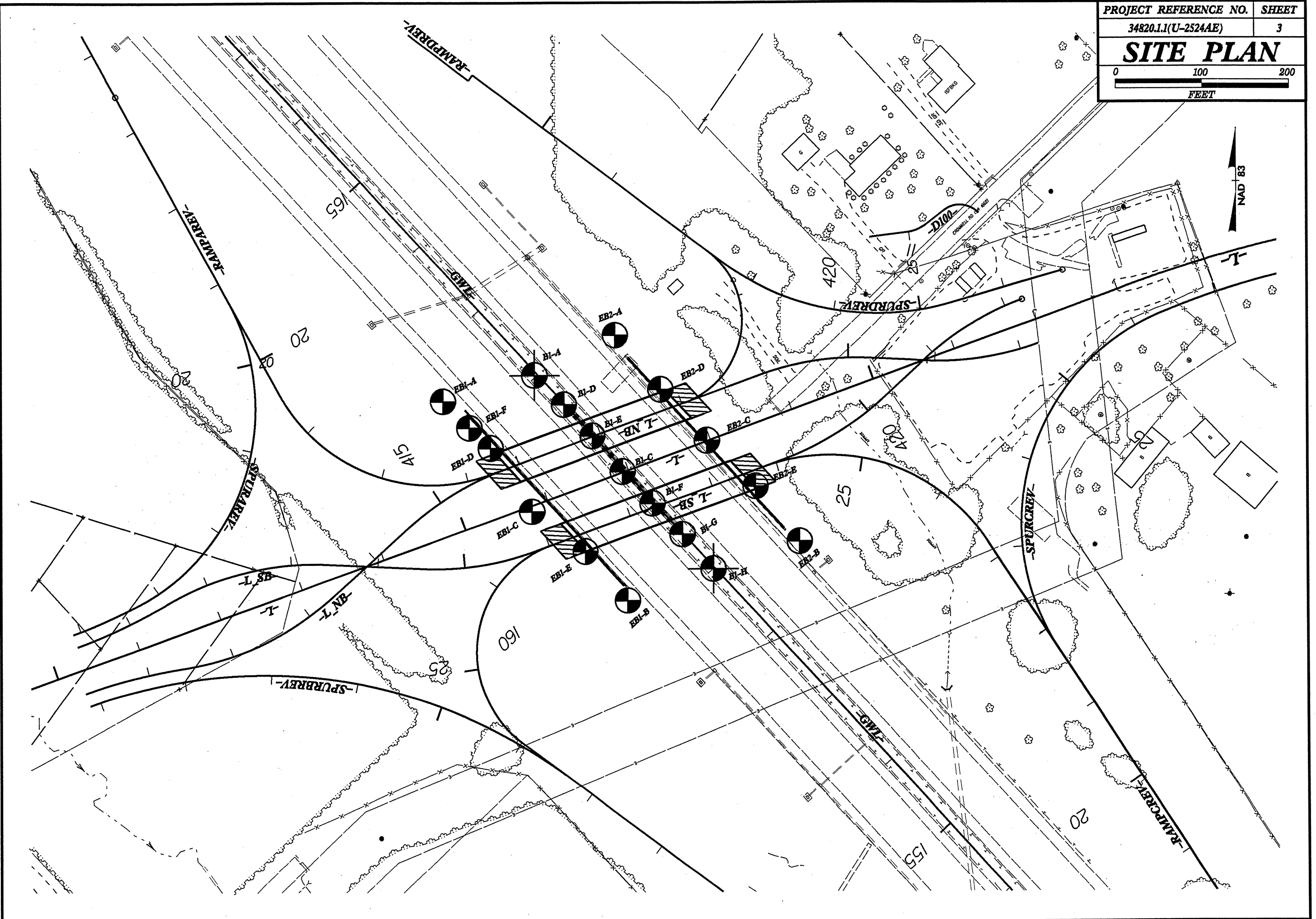
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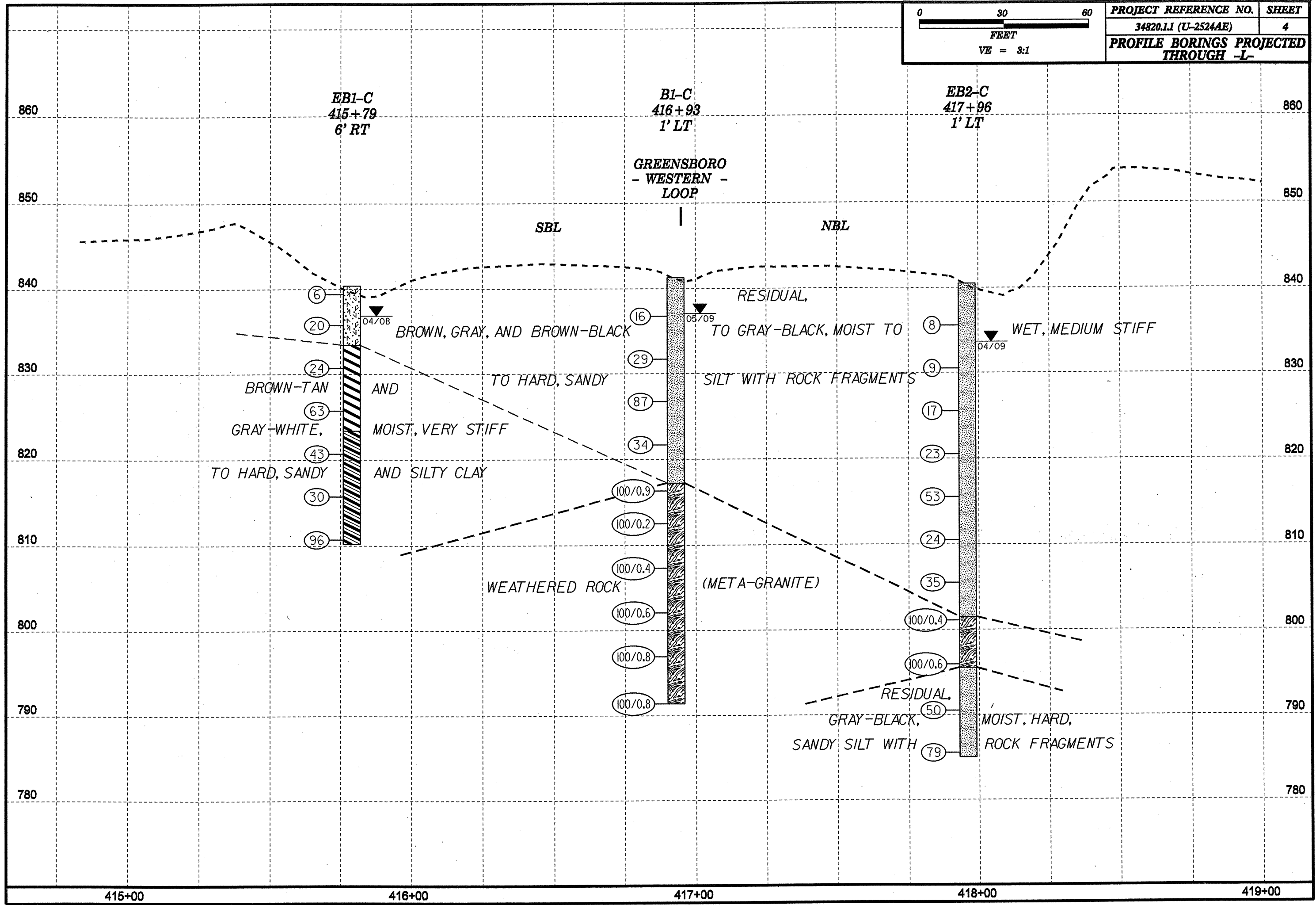
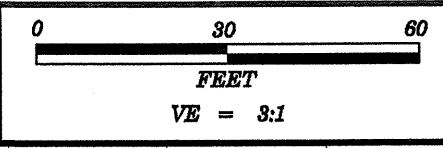
PROJECT REFERENCE NO. 34820.1(U-2524AE)	SHEET NO. 2
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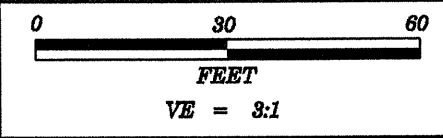
**SUBSURFACE INVESTIGATION**

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

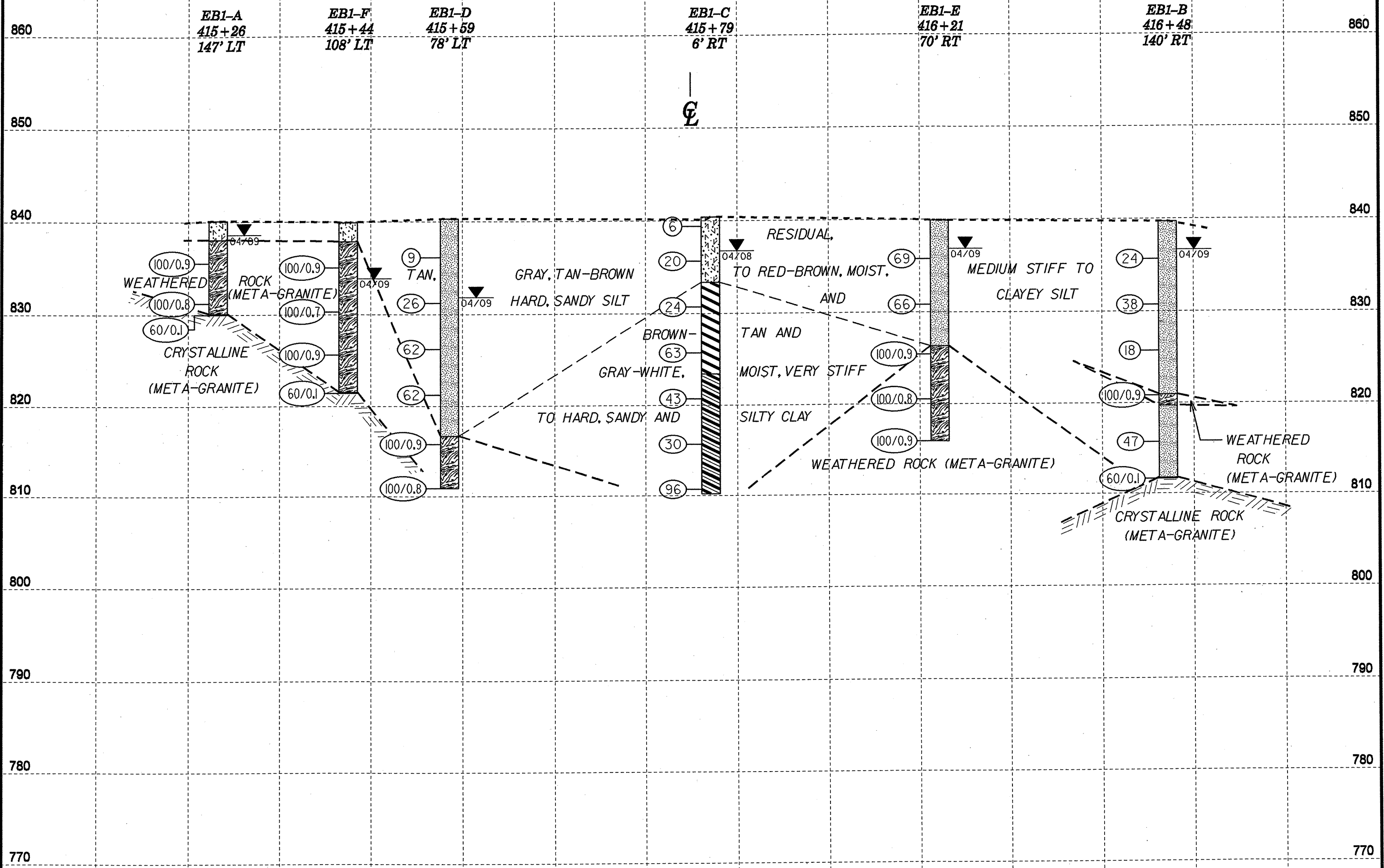
SOIL DESCRIPTION		GRADATION		ROCK DESCRIPTION		TERMS AND DEFINITIONS																																																																																																																																				
<p>SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLES:</p> <p><i>VERY STIFF, GRM, SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HEAVY PLASTIC, A-7-6</i></p>		<p><b>WELL GRADED</b> - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. <b>UNIFORM</b> - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO <b>POORLY GRADED</b>) <b>SAP-GRADED</b> - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.</p> <p><b>ANGULARITY OF GRAINS</b></p> <p>THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: <b>ANGULAR</b>, <b>SUBANGULAR</b>, <b>SUBROUNDED</b>, OR <b>ROUNDED</b>.</p>		<p>HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL, 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.</p> <p>ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:</p>		<p><b>ALLUVIUM (ALLUV.)</b> - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.</p> <p><b>AQUIFER</b> - A WATER BEARING FORMATION OR STRATA.</p> <p><b>ARENACEOUS</b> - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.</p> <p><b>ARGILLACEOUS</b> - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC.</p> <p><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.</p> <p><b>CALCAREOUS (CALC.)</b> - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.</p> <p><b>COLLUVIUM</b> - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.</p> <p><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.</p> <p><b>DIKE</b> - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.</p> <p><b>DIP</b> - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.</p> <p><b>DIP DIRECTION (DIP AZIMUTH)</b> - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.</p> <p><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.</p> <p><b>FISSILE</b> - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.</p> <p><b>FLOAT</b> - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.</p> <p><b>FLOOD PLAIN (FP)</b> - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.</p> <p><b>FORMATION (FM)</b> - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.</p> <p><b>JOINT</b> - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.</p> <p><b>LEDGE</b> - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.</p> <p><b>LENS</b> - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.</p> <p><b>MOTTLED (MOT.)</b> - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLED IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.</p> <p><b>PERCHED WATER</b> - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.</p> <p><b>RESIDUAL (RES.) SOIL</b> - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.</p> <p><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.</p> <p><b>SAPROLITE (SAP.)</b> - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.</p> <p><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.</p> <p><b>SLICKENSIDE</b> - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.</p> <p><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.</p> <p><b>STRATA CORE RECOVERY (SCREC)</b> - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.</p> <p><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.</p> <p><b>TOPSOIL (TS)</b> - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.</p>																																																																																																																																				
<p><b>SOIL LEGEND AND AASHTO CLASSIFICATION</b></p> <table border="1"> <thead> <tr> <th>GENERAL CLASS.</th> <th colspan="4">GRANULAR MATERIALS (&lt; 35% PASSING #200)</th> <th colspan="4">SILT-CLAY MATERIALS (&gt; 35% PASSING #200)</th> <th colspan="4">ORGANIC MATERIALS</th> </tr> <tr> <th>GROUP CLASS.</th> <th>A-1-a</th> <th>A-1-b</th> <th>A-2</th> <th>A-3</th> <th>A-4</th> <th>A-5</th> <th>A-6</th> <th>A-7</th> <th>A-7-5</th> <th>A-7-6</th> <th>A-7-7</th> <th>A-8</th> <th>A-9</th> <th>A-10</th> </tr> </thead> <tbody> <tr> <td>SYMBOL</td> <td>[Pattern]</td> <td>[Pattern]</td> <td>[Pattern]</td> <td>[Pattern]</td> <td>[Pattern]</td> <td>[Pattern]</td> <td>[Pattern]</td> <td>[Pattern]</td> <td>[Pattern]</td> <td>[Pattern]</td> <td>[Pattern]</td> <td>[Pattern]</td> <td>[Pattern]</td> <td>[Pattern]</td> </tr> <tr> <td>% PASSING</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> </tr> <tr> <td>LIQUID LIMIT</td> <td>50</td> <td>50</td> <td>40</td> <td>40</td> <td>40</td> <td>40</td> <td>40</td> <td>40</td> <td>40</td> <td>40</td> <td>40</td> <td>40</td> <td>40</td> <td>40</td> </tr> <tr> <td>PLASTIC INDEX</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>GROUP INDEX</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>USUAL TYPES OF MAJOR MATERIALS</td> <td colspan="2">STONE FRAGS, GRAVEL, AND SAND</td> <td colspan="2">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="2">SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER</td> <td colspan="2">HIGHLY ORGANIC SOILS</td> </tr> <tr> <td>GENERATING AS A SUBGRADE</td> <td colspan="4">EXCELLENT TO GOOD</td> <td colspan="4">FAIR TO POOR</td> <td colspan="2">FAIR TO POOR</td> <td colspan="2">POOR</td> <td colspan="2">UNSATURABLE</td> </tr> </tbody> </table> <p>PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS &gt; LL - 30</p>		GENERAL CLASS.	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ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.</p>		<p><b>WEATHERING</b></p> <p>FRESH: ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER HAMMER IF CRYSTALLINE.</p> <p>VERY SLIGHT (V SL): ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY, ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.</p> <p>SLIGHT (SL): ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH, OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED, CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.</p> <p>MODERATE (MOD): 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.</p> <p>MODERATELY SEVERE (MOD. SEV.): 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></p> <p>SEVERE (SEV.): 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, YIELDS SPT N VALUES &gt; 100 BPF</i></p> <p>VERY SEVERE (V SEV.): ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. <i>IF TESTED, YIELDS SPT N VALUES &lt; 100 BPF</i></p> <p>COMPLETE: 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.</p>	
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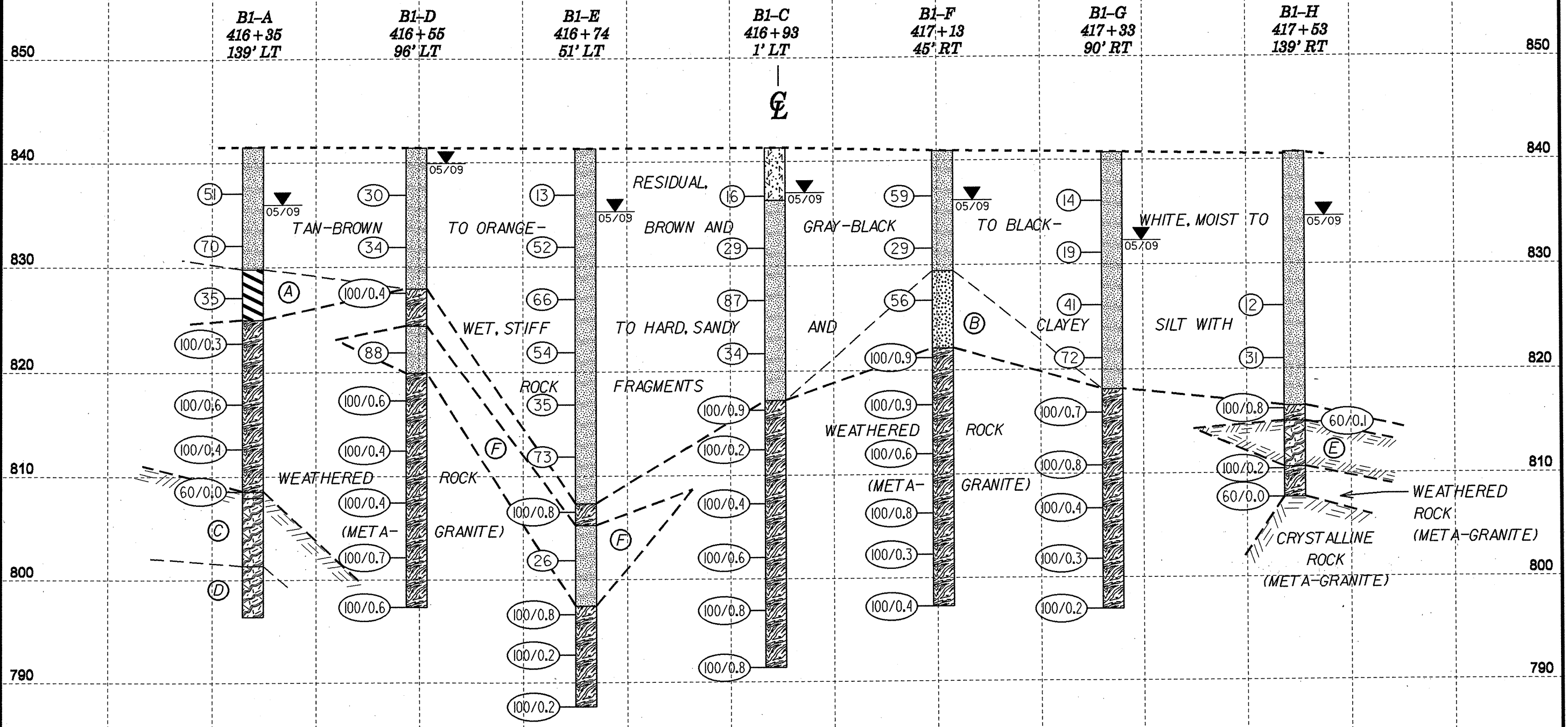
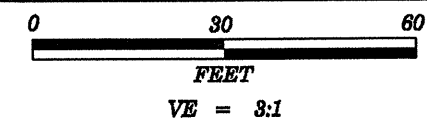




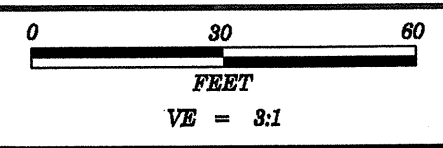
PROJECT REFERENCE NO.	SHEET
34820.1.1(U-2524AE)	5
<b>CROSS SECTION THROUGH END BENT 1</b>	



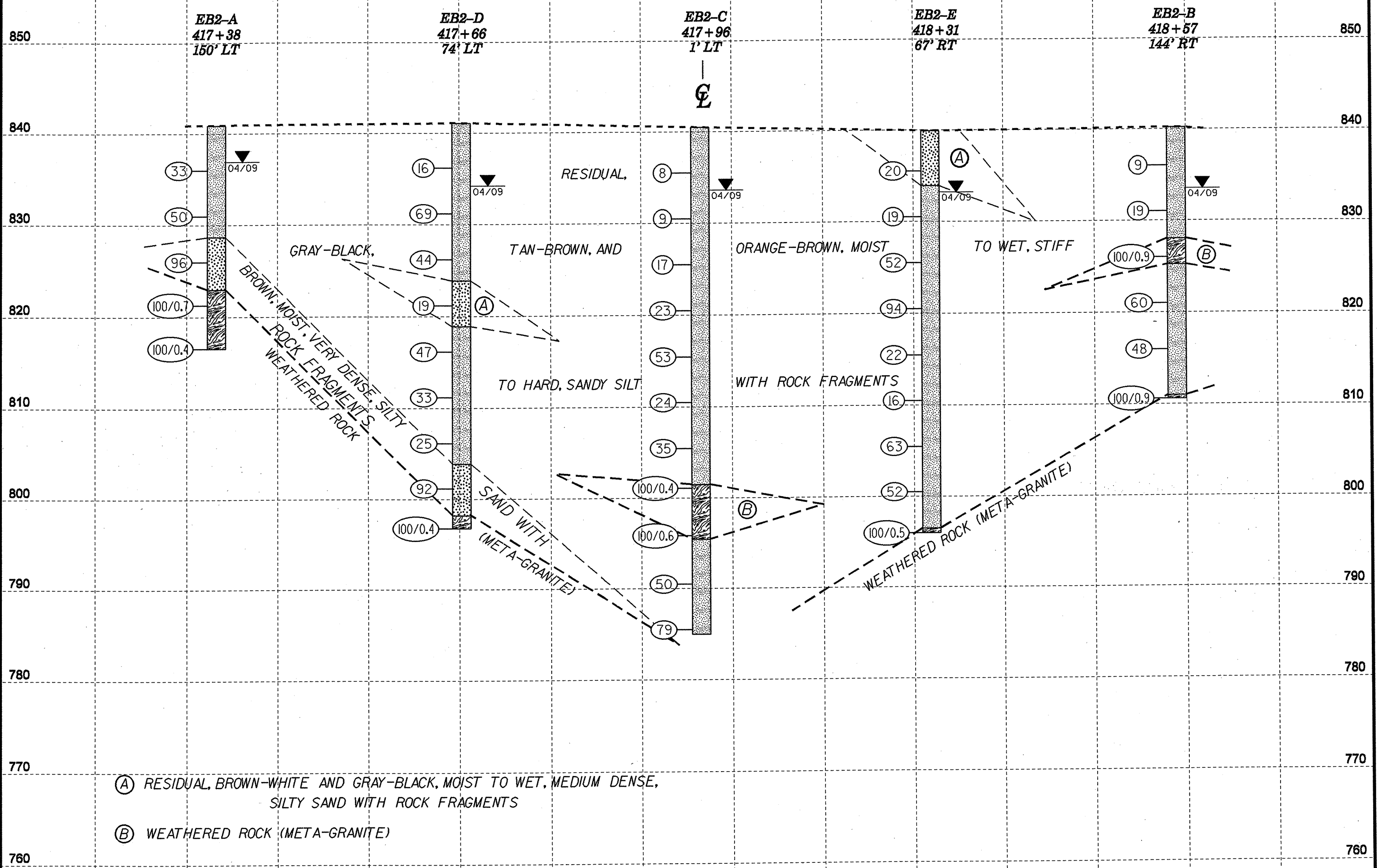




- 780 (A) RESIDUAL, RED-BROWN, MOIST TO WET, HARD, SILTY CLAY
- (B) RESIDUAL, BROWN-BLACK, WET, VERY DENSE, SILTY SAND WITH ROCK FRAGMENTS
- (C) CRYSTALLINE ROCK, LIGHT GRAY, VERY SLIGHTLY WEATHERED TO FRESH, SOUND, HARD, META-GRANITE, REC=92% RQD=86% RMR=79
- 770 (D) CRYSTALLINE ROCK, DARK GRAY, FRESH, SOUND, HARD, META-DIORITE, REC=100% RQD=100% RMR=97
- (E) CRYSTALLINE ROCK, GRAY, VERY CLOSELY FRACTURED, SLIGHTLY WEATHERED ROCK META-GRANITE, REC=42% RQD=7%
- 760 (F) RESIDUAL, TAN-BROWN, MOIST TO WET, VERY STIFF TO HARD, SANDY SILT



PROJECT REFERENCE NO.	SHEET
34820.11 (U-2524AE)	7
<b>CROSS SECTION THROUGH END BENT 2</b>	



**NCDOT GEOTECHNICAL ENGINEERING UNIT**  
**BORELOG REPORT**

WBS 34820.1.1	TIP U-2524AE	COUNTY GUILFORD	GEOLOGIST Milkovits, J. I.
SITE DESCRIPTION New Bridge on -L- (Greensboro/High Point Road) over -GWL- (Greensboro Western Loop, I-73)			GROUND WTR (ft)
BORING NO. EB1-A	STATION 415+26	OFFSET 147 ft LT	ALIGNMENT -L-
COLLAR ELEV. 840.1 ft	TOTAL DEPTH 10.1 ft	NORTHING 829,872	EASTING 1,738,631
DRILL RIG/HAMMER EFF./DATE CME-550X		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Conley, H. R.	START DATE 04/07/09	COMP. DATE 04/07/09	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					
845															
840															
835	837.0	3.1	34	47	53/0.4									838.1	2.0
830	832.0	8.1	38	62/0.3										830.1	10.0
	830.1	10.0	60/0.1											830.0	10.1

WBS 34820.1.1	TIP U-2524AE	COUNTY GUILFORD	GEOLOGIST Milkovits, J. I.
SITE DESCRIPTION New Bridge on -L- (Greensboro/High Point Road) over -GWL- (Greensboro Western Loop, I-73)			GROUND WTR (ft)
BORING NO. EB1-F	STATION 415+44	OFFSET 108 ft LT	ALIGNMENT -L-
COLLAR ELEV. 839.9 ft	TOTAL DEPTH 18.5 ft	NORTHING 829,842	EASTING 1,738,661
DRILL RIG/HAMMER EFF./DATE CME-550X		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Conley, H. R.	START DATE 04/15/09	COMP. DATE 04/15/09	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					
840														839.9	0.0
835	836.5	3.4	20	42	58/0.4									837.9	2.0
830	831.5	8.4	42	56	44/0.2										
825	826.5	13.4	10	90/0.4											
	821.5	18.4	60/0.1											821.4	18.5

NCDOT BORE DOUBLE U2524AE\_GEO\_BH.GPJ NC\_DOT.GDT 2/20/12



**NC DOT GEOTECHNICAL ENGINEERING UNIT**  
**BORELOG REPORT**

WBS 34820.1.1	TIP U-2524AE	COUNTY GUILFORD	GEOLOGIST Milkovits, J. I.	
SITE DESCRIPTION New Bridge on -L- (Greensboro/High Point Road) over -GWL- (Greensboro Western Loop, I-73)				GROUND WTR (ft)
BORING NO. EB1-D	STATION 415+59	OFFSET 78 ft LT	ALIGNMENT -L-	0 HR. 18.2
COLLAR ELEV. 840.3 ft	TOTAL DEPTH 29.4 ft	NORTHING 829,819	EASTING 1,738,686	24 HR. 8.5
DRILL RIG/HAMMER EFF./DATE CME-550X		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic	
DRILLER Conley, H. R.	START DATE 04/07/09	COMP. DATE 04/07/09	SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
845																
840															840.3	GROUND SURFACE
835	837.2	3.1	4	4	5							SS-1	M			RESIDUAL RED-BROWN TO TAN-BROWN, SANDY SILT WITH ROCK FRAGMENTS
830	832.2	8.1	6	12	14							SS-2	M			
825	827.2	13.1	29	32	30							SS-3	M			
820	822.2	18.1	21	29	33								M			
815	817.2	23.1	30	17	83/0.4										816.7	WEATHERED ROCK (META-GRANITE)
	812.2	28.1	41	41	59/0.3										810.9	Boring Terminated at Elevation 810.9 ft in WEATHERED ROCK (META-GRANITE)

WBS 34820.1.1	TIP U-2524AE	COUNTY GUILFORD	GEOLOGIST Mohs, N. D.	
SITE DESCRIPTION New Bridge on -L- (Greensboro/High Point Road) over -GWL- (Greensboro Western Loop, I-73)				GROUND WTR (ft)
BORING NO. EB1-C	STATION 415+79	OFFSET 6 ft RT	ALIGNMENT -L-	0 HR. 9.5
COLLAR ELEV. 840.4 ft	TOTAL DEPTH 30.2 ft	NORTHING 829,747	EASTING 1,738,733	24 HR. 3.6
DRILL RIG/HAMMER EFF./DATE BK-51		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic	
DRILLER Contract Driller	START DATE 04/22/08	COMP. DATE 04/22/08	SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
845																
840	840.4	0.0	3	2	4										840.4	GROUND SURFACE
835	836.7	3.7	8	10	10							SS-78	M			RESIDUAL BROWN TO GRAY, CLAYEY SILT
830	831.7	8.7	6	9	15							SS-79	M		833.4	BROWN AND TAN, SILTY CLAY
825	826.7	13.7	15	29	34								M			
820	821.7	18.7	13	22	21							SS-80	M		823.4	GRAY AND WHITE, SANDY CLAY
815	816.7	23.7	10	13	17								M			
	811.7	28.7	26	26	70								M		810.2	Boring Terminated at Elevation 810.2 ft in SANDY CLAY

**NC DOT GEOTECHNICAL ENGINEERING UNIT**  
**BORELOG REPORT**

WBS 34820.1.1	TIP U-2524AE	COUNTY GUILFORD	GEOLOGIST Milkovits, J. I.
SITE DESCRIPTION New Bridge on -L- (Greensboro/High Point Road) over -GWL- (Greensboro Western Loop, I-73)			GROUND WTR (ft)
BORING NO. EB1-E	STATION 416+21	OFFSET 70 ft RT	ALIGNMENT -L-
COLLAR ELEV. 839.9 ft	TOTAL DEPTH 24.0 ft	NORTHING 829,701	EASTING 1,738,795
DRILL RIG/HAMMER EFF./DATE CME-550X		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Conley, H. R.	START DATE 04/08/09	COMP. DATE 04/08/09	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							
840														839.9	GROUND SURFACE	0.0	
835	836.8	3.1	19	33	36							SS-4	M		RESIDUAL GRAY-BROWN TO TAN-BROWN, SANDY SILT WITH ROCK FRAGMENTS		
830	831.8	8.1	10	27	39							SS-5	M				
825	826.8	13.1	17	51	49/0.4									100/0.9	WEATHERED ROCK (META-GRANITE)	13.6	
820	821.8	18.1	14	60	40/0.3									100/0.6			
	816.8	23.1	50	50/0.4										100/0.9			
																Boring Terminated at Elevation 815.9 ft in WEATHERED ROCK (META-GRANITE)	24.0

WBS 34820.1.1	TIP U-2524AE	COUNTY GUILFORD	GEOLOGIST Milkovits, J. I.
SITE DESCRIPTION New Bridge on -L- (Greensboro/High Point Road) over -GWL- (Greensboro Western Loop, I-73)			GROUND WTR (ft)
BORING NO. EB1-B	STATION 416+48	OFFSET 140 ft RT	ALIGNMENT -L-
COLLAR ELEV. 839.7 ft	TOTAL DEPTH 28.1 ft	NORTHING 829,644	EASTING 1,738,844
DRILL RIG/HAMMER EFF./DATE CME-550X		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Conley, H. R.	START DATE 04/08/09	COMP. DATE 04/08/09	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							
840														839.7	GROUND SURFACE	0.0	
835	836.7	3.0	7	11	13							SS-6	M		RESIDUAL TAN-BROWN TO GRAY, SANDY SILT		
830	831.7	8.0	19	18	20							SS-7	M				
825	826.7	13.0	14	10	8												
820	821.7	18.0	30	70/0.4										100/0.9	WEATHERED ROCK (META-GRANITE)	18.0	
															RESIDUAL GRAY, SANDY SILT	20.0	
815	816.7	23.0	12	20	27												
	811.7	28.0	60/0.1											60/0.1	CRYSTALLINE ROCK (META-GRANITE)	28.0	
																Boring Terminated with Standard Penetration Test Refusal at Elevation 811.6 ft in CRYSTALLINE ROCK (META-GRANITE)	28.1

NC DOT BORE DOUBLE U2524AE GEO BH.GPJ NC.DOT.GDT 2/20/12

WBS 34820.1.1		TIP U-2524AE		COUNTY GUILFORD		GEOLOGIST Milkovits, J. I.									
SITE DESCRIPTION New Bridge on -L- (Greensboro/High Point Road) over -GWL- (Greensboro Western Loop, I-73)						GROUND WTR (ft)									
BORING NO. B1-A		STATION 416+35		OFFSET 139 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 841.5 ft		TOTAL DEPTH 45.1 ft		NORTHING 829,902		EASTING 1,738,737									
DRILL RIG/HAMMER EFF./DATE CME-550X		DRILL METHOD NW Casing w/ Core		HAMMER TYPE Automatic											
DRILLER Conley, H. R.		START DATE 05/19/09		COMP. DATE 05/19/09		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	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
845															
840	838.1	3.4	11	17	34									841.5	0.0
835	833.1	8.4	22	30	40										
830	828.1	13.4	6	15	20										
825	823.1	18.4	100/0.3												
820	818.1	23.4	45	50	50/0.1										
815	813.1	28.4	100/0.4												
810	808.6	32.9	60/0.0												
805															
800															

WBS 34820.1.1		TIP U-2524AE		COUNTY GUILFORD		GEOLOGIST Milkovits, J. I.						
SITE DESCRIPTION New Bridge on -L- (Greensboro/High Point Road) over -GWL- (Greensboro Western Loop, I-73)						GROUND WTR (ft)						
BORING NO. B1-A		STATION 416+35		OFFSET 139 ft LT		ALIGNMENT -L-						
COLLAR ELEV. 841.5 ft		TOTAL DEPTH 45.1 ft		NORTHING 829,902		EASTING 1,738,737						
DRILL RIG/HAMMER EFF./DATE CME-550X		DRILL METHOD NW Casing w/ Core		HAMMER TYPE Automatic								
DRILLER Conley, H. R.		START DATE 05/19/09		COMP. DATE 05/19/09		SURFACE WATER DEPTH N/A						
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		L O G	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (%)	RQD (%)		REC. (%)	RQD (%)			
808												
	808.0	33.5	1.6	1:46/1.0	(1.6)	(1.6)	RS-1	(6.1)	(5.7)		Begin Coring @ 33.5 ft	33.5
805	806.4	35.1	5.0	1:07/0.6 1:25/1.0 1:27/1.0 1:25/1.0 1:25/1.0	(4.5) 100%	(4.1) 100%	RS-2				CRYSTALLINE ROCK LIGHT GRAY, V.SLI.WEATHERED TO FRESH, SOUND, HARD, META-GRANITE	
	801.4	40.1										
800			5.0	1:31/1.0 1:36/1.0 1:22/1.0 1:32/1.0 1:32/1.0	(5.0) 100%	(5.0) 100%	RS-3	(5.0)	(5.0)		DARK GRAY, FRESH, SOUND, HARD, META-DIORITE	40.1
	796.4	45.1									Boring Terminated at Elevation 796.4 ft in CRYSTALLINE ROCK (META-DIORITE)	45.1

NCDOT BORE DOUBLE U2524AE\_GEO\_BH.GPJ\_NC\_DOT.GDT\_2/2012

**NCDOT GEOTECHNICAL ENGINEERING UNIT**  
**BORELOG REPORT**

WBS 34820.1.1	TIP U-2524AE	COUNTY GUILFORD	GEOLOGIST Milkovits, J. I.
SITE DESCRIPTION New Bridge on -L- (Greensboro/High Point Road) over -GWL- (Greensboro Western Loop, I-73)			GROUND WTR (ft)
BORING NO. B1-D	STATION 416+55	OFFSET 96 ft LT	ALIGNMENT -L-
COLLAR ELEV. 841.4 ft	TOTAL DEPTH 44.1 ft	NORTHING 829,869	EASTING 1,738,770
DRILL RIG/HAMMER EFF./DATE CME-550X		DRILL METHOD NW Casing w/ Advancer	HAMMER TYPE Automatic
DRILLER Conley, H. R.	START DATE 05/14/09	COMP. DATE 05/14/09	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
845														GROUND SURFACE	0.0
840														RESIDUAL ORANGE-BROWN-BLACK, SANDY SILT	
835	837.9	3.5	9	13	17						SS-57	W			
830	832.9	8.5	9	15	19							W			
825	827.9	13.5	100/0.4											WEATHERED ROCK (META-GRANITE)	13.5
820	822.9	18.5	17	15	73						SS-58	M		RESIDUAL TAN-BROWN, SANDY SILT WITH ROCK FRAGMENTS	17.0
815	817.9	23.5	90	10/0.1										WEATHERED ROCK (META-GRANITE)	21.5
810	812.9	28.5	100/0.4												
805	807.9	33.5	100/0.4												
800	802.9	38.5	60	40/0.2											
	797.9	43.5	50	50/0.1											
														Boring Terminated at Elevation 797.3 ft in WEATHERED ROCK (META-GRANITE)	44.1

WBS 34820.1.1	TIP U-2524AE	COUNTY GUILFORD	GEOLOGIST Milkovits, J. I.
SITE DESCRIPTION New Bridge on -L- (Greensboro/High Point Road) over -GWL- (Greensboro Western Loop, I-73)			GROUND WTR (ft)
BORING NO. B1-E	STATION 416+74	OFFSET 51 ft LT	ALIGNMENT -L-
COLLAR ELEV. 841.3 ft	TOTAL DEPTH 53.6 ft	NORTHING 829,833	EASTING 1,738,803
DRILL RIG/HAMMER EFF./DATE CME-550X		DRILL METHOD NW Casing w/ Advancer	HAMMER TYPE Automatic
DRILLER Conley, H. R.	START DATE 05/13/09	COMP. DATE 05/13/09	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
845														GROUND SURFACE	0.0
840														RESIDUAL GRAY-BLACK TO BROWN-GRAY, SANDY SILT WITH ROCK FRAGMENTS	
835	837.9	3.4	7	6	7						SS-52	M			
830	832.9	8.4	18	22	30						SS-53	M			
825	827.9	13.4	13	29	37										
820	822.9	18.4	17	23	31						SS-54	M			
815	817.9	23.4	9	15	20						SS-55	M			
810	812.9	28.4	19	33	40										
805	807.9	33.4	25	50	50/0.3									WEATHERED ROCK (META-GRANITE)	33.9
800	802.9	38.4	8	11	15						SS-56	W		RESIDUAL BROWN, SANDY SILT	36.0
795	797.9	43.4	18	38	62/0.3									WEATHERED ROCK (META-GRANITE)	43.9
790	792.9	48.4	100/0.2												
	787.9	53.4	100/0.2											Boring Terminated at Elevation 787.7 ft in WEATHERED ROCK (META-GRANITE)	53.6

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NCDOT GEOTECHNICAL ENGINEERING UNIT BORELOG REPORT

Table with 4 columns: WBS 34820.1.1, TIP U-2524AE, COUNTY GUILFORD, GEOLOGIST Milkovits, J. I. Includes site description and boring details for B1-C.

Table with 4 columns: WBS 34820.1.1, TIP U-2524AE, COUNTY GUILFORD, GEOLOGIST Milkovits, J. I. Includes site description and boring details for B1-F.

Table with 4 columns: DRILLER Conley, H. R., START DATE 05/12/09, COMP. DATE 05/12/09, SURFACE WATER DEPTH N/A.

Table with 4 columns: DRILLER Conley, H. R., START DATE 05/07/09, COMP. DATE 05/07/09, SURFACE WATER DEPTH N/A.

Main data table for boring B1-C. Columns include ELEV (ft), DRIVE ELEV (ft), DEPTH (ft), BLOW COUNT (0.5ft, 0.5ft, 0.5ft), BLOWS PER FOOT (0, 25, 50, 75, 100), SAMP. NO., LOG, SOIL AND ROCK DESCRIPTION, and DEPTH (ft).

Main data table for boring B1-F. Columns include ELEV (ft), DRIVE ELEV (ft), DEPTH (ft), BLOW COUNT (0.5ft, 0.5ft, 0.5ft), BLOWS PER FOOT (0, 25, 50, 75, 100), SAMP. NO., LOG, SOIL AND ROCK DESCRIPTION, and DEPTH (ft).

Table showing boring termination details for B1-C: Boring Terminated at Elevation 791.4 ft in WEATHERED ROCK (META-GRANITE).

Table showing boring termination details for B1-F: Boring Terminated at Elevation 797.2 ft in WEATHERED ROCK (META-GRANITE).

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**NCDOT GEOTECHNICAL ENGINEERING UNIT**  
**BORELOG REPORT**

WBS 34820.1.1		TIP U-2524AE		COUNTY GUILFORD		GEOLOGIST Milkovits, J. I.									
SITE DESCRIPTION New Bridge on -L- (Greensboro/High Point Road) over -GWL- (Greensboro Western Loop, I-73)						GROUND WTR (ft)									
BORING NO. B1-H		STATION 417+53		OFFSET 139 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 840.7 ft		TOTAL DEPTH 33.0 ft		NORTHING 829,681		EASTING 1,738,942									
DRILL RIG/HAMMER EFF./DATE CME-550X		DRILL METHOD NW Casing w/ Core		HAMMER TYPE Automatic											
DRILLER Conley, H. R.		START DATE 05/20/09		COMP. DATE 05/20/09		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	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
845															
840														840.7	GROUND SURFACE
															RESIDUAL BLACK AND WHITE, SANDY SILT WITH ROCK FRAGMENTS
835															
830															
825		827.0	13.7	11	8	4									
820		822.0	18.7	15	15	16									
		817.0	23.7	19	81/0.3										
815		815.0	25.7	60/0.1											
810		810.6	30.1	100/0.2											
		807.7	33.0	60/0.0											

NCDOT BORE DOUBLE U2524AE\_GEO\_BH.GPJ NC\_DOT.GDT 2/20/12



**NCDOT GEOTECHNICAL ENGINEERING UNIT**  
**CORE BORING REPORT**

WBS 34820.1.1		TIP U-2524AE		COUNTY GUILFORD		GEOLOGIST Milkovits, J. I.						
SITE DESCRIPTION New Bridge on -L- (Greensboro/High Point Road) over -GWL- (Greensboro Western Loop, I-73)						GROUND WTR (ft)						
BORING NO. B1-H		STATION 417+53		OFFSET 139 ft RT		ALIGNMENT -L-						
COLLAR ELEV. 840.7 ft		TOTAL DEPTH 33.0 ft		NORTHING 829,681		EASTING 1,738,942						
DRILL RIG/HAMMER EFF./DATE CME-550X		DRILL METHOD NW Casing w/ Core		HAMMER TYPE Automatic								
DRILLER Conley, H. R.		START DATE 05/20/09		COMP. DATE 05/20/09		SURFACE WATER DEPTH N/A						
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		L O G	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (%)	RQD (%)		REC. (%)	RQD (%)			
814.9												
	814.9	25.8	4.3	1:50/1.0 1:48/1.0 1:15/1.0 1:08/1.0	(1.8) 42%	(0.3) 7%		(1.8) 42%	(0.3) 7%		814.9	25.8
810	810.6	30.1		N=100/0.2							810.6	30.1
				N=60/0.0							807.7	33.0

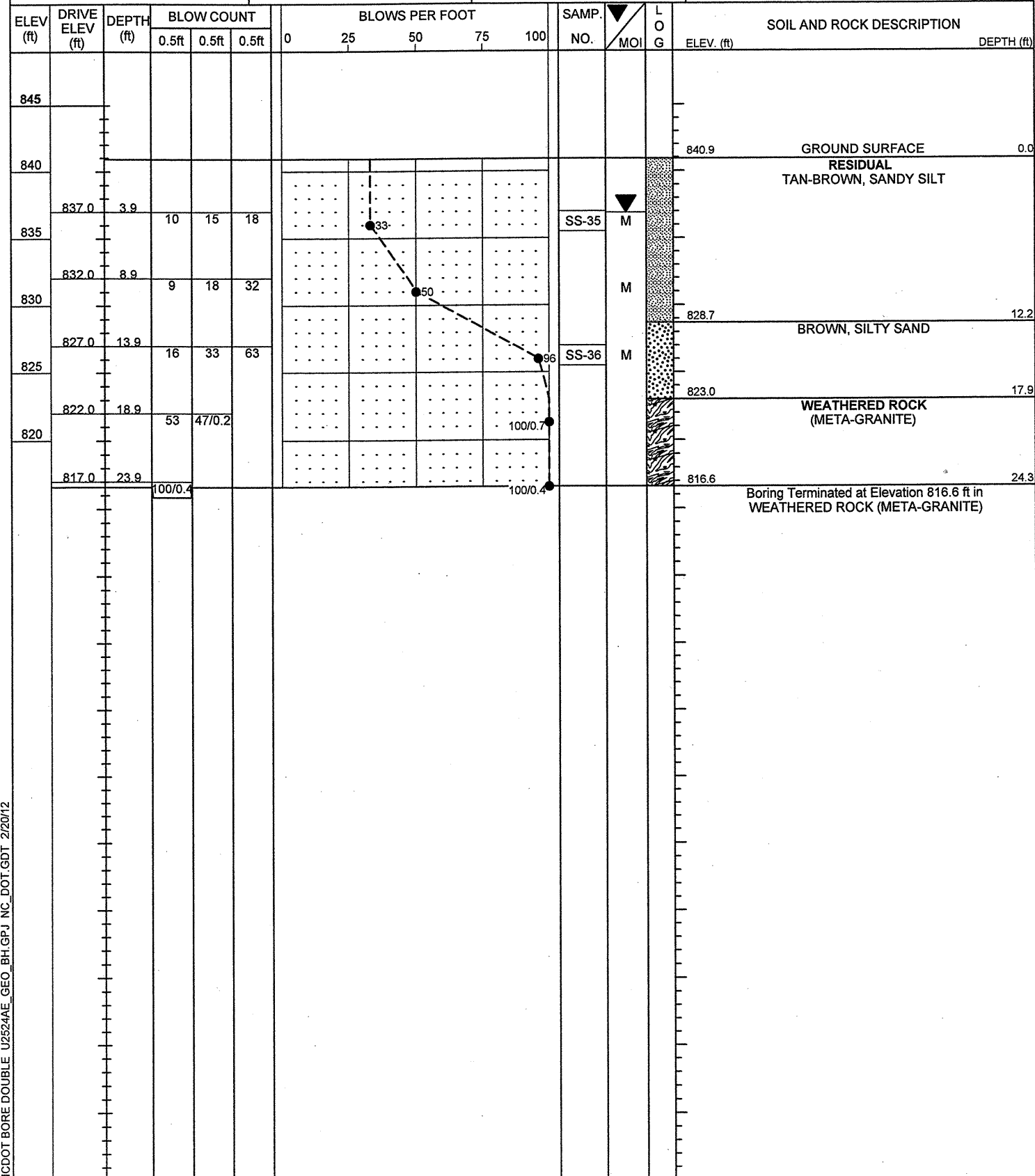
Begin Coring @ 25.8 ft  
CRYSTALLINE ROCK  
GRAY, SLIGHTLY WEATHERED, VERY CLOSELY FRACTURED, META-GRANITE

WEATHERED ROCK (META-GRANITE)

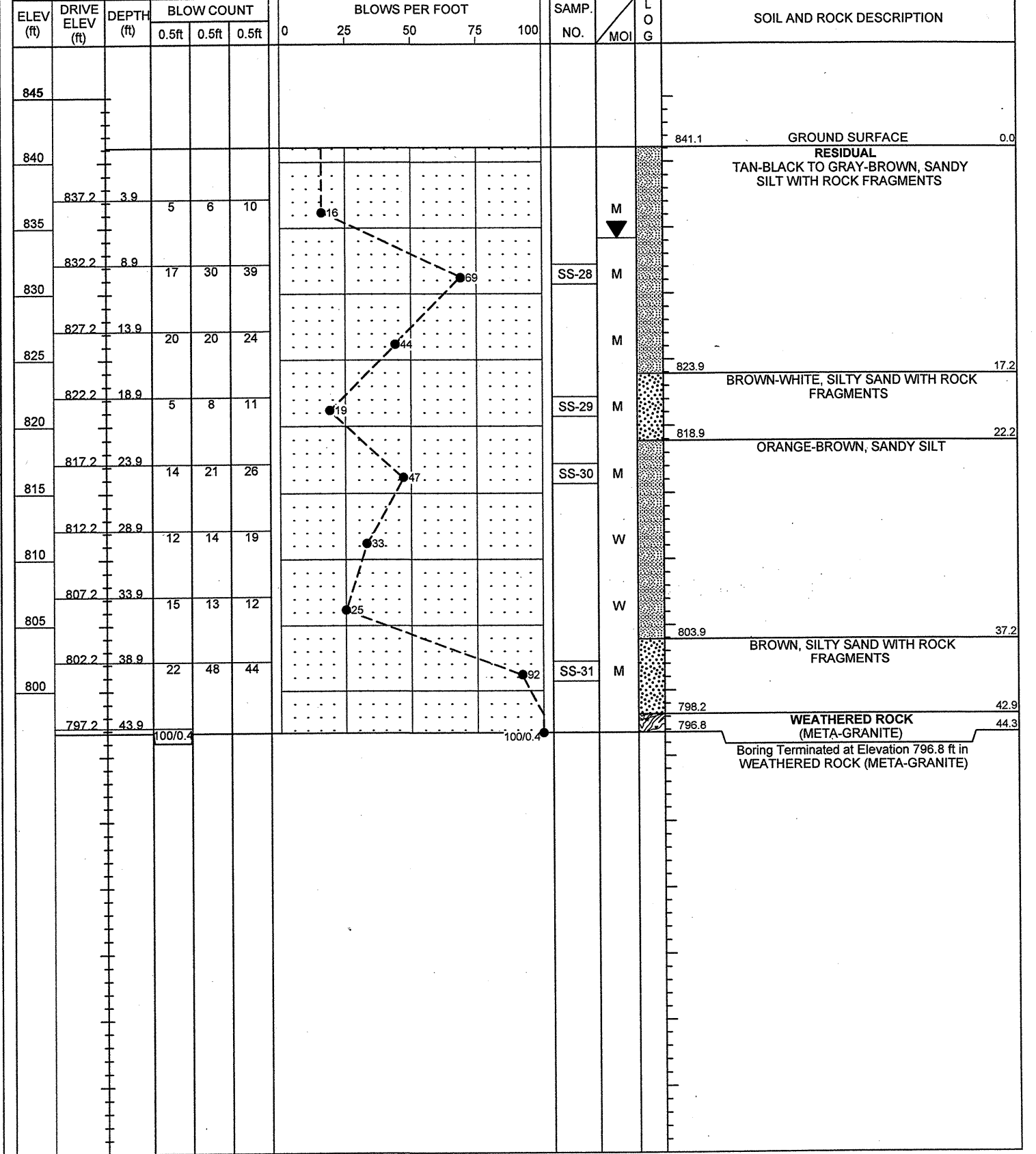
Boring Terminated with Standard Penetration Test Refusal at Elevation 807.7 ft on CRYSTALLINE ROCK (META-GRANITE)

**NC DOT GEOTECHNICAL ENGINEERING UNIT**  
**BORELOG REPORT**

WBS 34820.1.1	TIP U-2524AE	COUNTY GUILFORD	GEOLOGIST Milkovits, J. I.
SITE DESCRIPTION New Bridge on -L- (Greensboro/High Point Road) over -GWL- (Greensboro Western Loop, I-73)			GROUND WTR (ft)
BORING NO. EB2-A	STATION 417+38	OFFSET 150 ft LT	ALIGNMENT -L-
COLLAR ELEV. 840.9 ft	TOTAL DEPTH 24.3 ft	NORTHING 829,948	EASTING 1,738,829
DRILL RIG/HAMMER EFF./DATE CME-550X		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Conley, H. R.	START DATE 04/23/09	COMP. DATE 04/23/09	SURFACE WATER DEPTH N/A



WBS 34820.1.1	TIP U-2524AE	COUNTY GUILFORD	GEOLOGIST Milkovits, J. I.
SITE DESCRIPTION New Bridge on -L- (Greensboro/High Point Road) over -GWL- (Greensboro Western Loop, I-73)			GROUND WTR (ft)
BORING NO. EB2-D	STATION 417+66	OFFSET 74 ft LT	ALIGNMENT -L-
COLLAR ELEV. 841.1 ft	TOTAL DEPTH 44.3 ft	NORTHING 829,886	EASTING 1,738,882
DRILL RIG/HAMMER EFF./DATE CME-550X		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Conley, H. R.	START DATE 04/22/09	COMP. DATE 04/22/09	SURFACE WATER DEPTH N/A



NC DOT BORE DOUBLE U2524AE\_GEO\_BH.GPJ NC\_DOT.GDT 2/20/12

**NC DOT GEOTECHNICAL ENGINEERING UNIT**  
**BORELOG REPORT**

WBS 34820.1.1		TIP U-2524AE		COUNTY GUILFORD		GEOLOGIST Milkovits, J. I.										
SITE DESCRIPTION New Bridge on -L- (Greensboro/High Point Road) over -GWL- (Greensboro Western Loop, I-73)							GROUND WTR (ft)									
BORING NO. EB2-C		STATION 417+96		OFFSET 1 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 840.5 ft		TOTAL DEPTH 55.5 ft		NORTHING 829,828		EASTING 1,738,935										
DRILL RIG/HAMMER EFF./DATE CME-550X		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER Conley, H. R.		START DATE 04/21/09		COMP. DATE 04/21/09		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
845																
840																840.5
835	836.5	4.0	2	4	4							SS-23	M			
830	831.5	9.0	8	3	6								M			
825	826.5	14.0	4	8	9							SS-24	W			
820	821.5	19.0	7	11	12								W			
815	816.5	24.0	4	10	43							SS-25	M			
810	811.5	29.0	9	12	12							SS-26	W			
805	806.5	34.0	8	13	22								M			
800	801.5	39.0	100/0.4												801.5	39.0
795	796.5	44.0	85	15/0.1											795.5	45.0
790	791.5	49.0	10	28	22							SS-27				
785	786.5	54.0	11	23	56								M		785.0	55.5
Boring Terminated at Elevation 785.0 ft in RESIDUAL CLAYEY SILT																

WBS 34820.1.1		TIP U-2524AE		COUNTY GUILFORD		GEOLOGIST Milkovits, J. I.										
SITE DESCRIPTION New Bridge on -L- (Greensboro/High Point Road) over -GWL- (Greensboro Western Loop, I-73)							GROUND WTR (ft)									
BORING NO. EB2-E		STATION 418+31		OFFSET 67 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 839.9 ft		TOTAL DEPTH 43.9 ft		NORTHING 829,776		EASTING 1,738,991										
DRILL RIG/HAMMER EFF./DATE CME-550X		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic												
DRILLER Conley, H. R.		START DATE 04/17/09		COMP. DATE 04/17/09		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
840																
835	836.5	3.4	3	9	11							SS-20	M			839.9
830	831.5	8.4	8	9	10							SS-21	M			833.9
825	826.5	13.4	36	28	24								M			
820	821.5	18.4	10	53	41								W			
815	816.5	23.4	12	9	13								W			
810	811.5	28.4	12	8	8							SS-22	W			
805	806.5	33.4	19	25	38								W			
800	801.5	38.4	14	23	29								W			
	796.5	43.4	100/0.5												796.5	43.4
Boring Terminated at Elevation 796.0 ft in WEATHERED ROCK (META-GRANITE)																

NC DOT BORE DOUBLE U2524AE\_GEO\_BH.GPJ NC\_DOT\_GDT\_2/20/12

WBS 34820.1.1		TIP U-2524AE		COUNTY GUILFORD		GEOLOGIST Milkovits, J. I.								
SITE DESCRIPTION New Bridge on -L- (Greensboro/High Point Road) over -GWL- (Greensboro Western Loop, I-73)							GROUND WTR (ft)							
BORING NO. EB2-B		STATION 418+57		OFFSET 144 ft RT		ALIGNMENT -L-		0 HR. 16.7						
COLLAR ELEV. 840.2 ft		TOTAL DEPTH 29.6 ft		NORTHING 829,712		EASTING 1,739,042		24 HR. 6.7						
DRILL RIG/HAMMER EFF./DATE CME-550X				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic								
DRILLER Conley, H. R.		START DATE 04/16/09		COMP. DATE 04/16/09		SURFACE WATER DEPTH N/A								
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
845														
840														840.2 GROUND SURFACE 0.0
835	837.0	3.2	4	3	6	9					SS-18	M		RESIDUAL GRAY-BLACK, SANDY SILT
830	832.0	8.2	3	5	14	19						M		
825	827.0	13.2	34	66/0.4						100/0.9				828.0 WEATHERED ROCK (META-GRANITE) 12.2
820	822.0	18.2	54	42	18					60		W		825.2 RESIDUAL GRAY-BLACK TO TAN-BROWN, SANDY SILT WITH ROCK FRAGMENTS 15.0
815	817.0	23.2	13	22	26					48		SS-19	W	
	812.0	28.2	6	26	84/0.4					100/0.9				811.0 WEATHERED ROCK (META-GRANITE) 29.2
														810.6 WEATHERED ROCK (META-GRANITE) 29.6
														Boring Terminated at Elevation 810.6 ft in WEATHERED ROCK (META-GRANITE)

**EB1-D**

<b>SOIL TEST RESULTS</b>															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-1	78' LT	415+59	3.1-4.6	A-4(1)	32	5	24.5	24.5	34.9	16.1	100	83	57	-	-
SS-2	78' LT	415+59	8.1-9.6	A-4(0)	37	7	41.2	23.1	27.6	8.0	97	68	39	-	-
SS-3	78' LT	415+59	13.1-14.6	A-4(3)	34	6	15.1	23.9	53.0	8.0	96	87	66	-	-

**EB1-C**

<b>SOIL TEST RESULTS</b>															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-78	CL	415+75	0.0-1.5	A-5(7)	48	9	8.7	33.2	48.0	10.1	100	96	67	-	-
SS-79	CL	415+75	8.7-10.2	A-7-6(7)	44	16	25.5	21.1	39.3	14.2	92	76	54	-	-
SS-80	CL	415+75	18.7-20.2	A-6(2)	36	12	33.6	23.3	35.0	8.1	88	65	43	-	-

**EB1-E**

<b>SOIL TEST RESULTS</b>															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-4	70' RT	416+21	3.1-4.6	A-4(2)	30	5	10.9	31.8	49.3	8.0	100	95	67	-	-
SS-5	70' RT	416+21	8.1-9.6	A-4(0)	28	3	24.3	25.3	44.3	6.0	86	71	50	-	-

<b>SOIL TEST RESULTS</b>															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-6	140' RT	416+48	3.0-4.5	A-4(1)	34	5	26.3	28.9	36.7	8.0	94	78	50	-	-
SS-7	140' RT	416+48	8.0-9.5	A-4(0)	26	4	31.4	26.7	33.9	8.0	83	65	40	-	-

**BI-A**

<b>SOIL TEST RESULTS</b>															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-59	139' LT	416+35	3.4-4.9	A-4(1)	30	6	25.5	28.6	35.7	10.3	98	84	50	-	-
SS-60	139' LT	416+35	8.4-9.9	A-4(1)	29	4	19.3	27.3	41.0	12.3	99	88	58	-	-
SS-61	139' LT	416+35	13.4-14.9	A-7-5(11)	47	13	6.6	25.3	51.7	16.4	98	95	74	-	-

**BI-D**

<b>SOIL TEST RESULTS</b>															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-57	96' LT	416+55	3.5-5.0	A-4(2)	36	6	25.9	28.6	33.2	12.3	100	85	52	-	-
SS-58	96' LT	416+55	18.5-20.0	A-4(2)	36	8	19.9	31.7	36.1	12.3	91	80	50	-	-

**BI-E**

<b>SOIL TEST RESULTS</b>															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-52	51' LT	416+74	3.4-4.9	A-4(2)	34	5	21.8	25.5	38.3	14.4	99	86	59	-	-
SS-53	51' LT	416+74	8.4-9.9	A-4(0)	33	8	19.5	31.7	34.4	14.4	70	62	40	-	-
SS-54	51' LT	416+74	18.4-19.9	A-4(2)	35	7	22.4	27.5	35.7	14.4	91	78	52	-	-
SS-55	51' LT	416+74	23.4-24.9	A-4(5)	40	9	16.9	25.5	41.2	16.4	99	91	63	-	-
SS-56	51' LT	416+74	38.4-39.9	A-4(2)	35	8	32.7	20.8	28.1	18.5	100	77	51	-	-

**BI-C**

<b>SOIL TEST RESULTS</b>															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-49	1' LT	416+93	3.6-5.1	A-5(9)	44	9	2.1	28.6	48.8	20.6	98	97	77	-	-
SS-50	1' LT	416+93	8.6-10.1	A-4(0)	30	4	22.0	37.4	28.3	12.3	98	92	46	-	-
SS-51	1' LT	416+93	18.6-20.1	A-4(1)	36	5	22.0	30.2	35.5	12.3	100	92	52	-	-

**BI-F**

<b>SOIL TEST RESULTS</b>															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-47	45' RT	417+13	3.3-4.8	A-4(0)	31	6	43.6	18.8	31.5	6.1	95	63	40	-	-
SS-48	45' RT	417+13	13.3-14.8	A-2-4(0)	28	7	43.4	20.9	29.7	6.1	75	49	31	-	-

**BI-G**

<b>SOIL TEST RESULTS</b>															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-45	90' RT	417+33	3.6-5.1	A-4(1)	32	7	20.4	35.6	35.8	8.2	93	81	51	-	-
SS-46	90' RT	417+33	13.6-15.1	A-4(0)	26	4	27.6	25.2	37.0	10.2	67	54	36	-	-

**BI-B**

<b>SOIL TEST RESULTS</b>															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-43	136' RT	417+52	3.4-4.9	A-4(0)	29	3	19.2	40.1	32.5	8.2	89	78	45	-	-
SS-44	136' RT	417+52	23.4-24.9	A-4(0)	26	4	18.0	41.1	34.8	6.1	97	87	50	-	-

**EB2-A**

<b>SOIL TEST RESULTS</b>															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-35	150' LT	417+38	3.9-5.4	A-4(6)	40	7	10.7	23.8	57.4	8.1	100	94	73	-	-
SS-36	150' LT	417+38	13.9-15.4	A-2-4(0)	28	5	42.0	23.0	29.0	6.1	85	59	33	-	-

**EB2-D**

<b>SOIL TEST RESULTS</b>															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-28	74' LT	417+66	8.9-10.4	A-4(2)	31	6	23.0	24.4	42.5	10.1	95	80	56	-	-
SS-29	74' LT	417+66	18.9-20.4	A-2-4(0)	36	7	51.7	15.9	26.3	6.1	80	45	29	-	-
SS-30	74' LT	417+66	23.9-25.4	A-4(0)	33	4	34.1	19.2	36.6	10.1	95	71	49	-	-
SS-31	74' LT	417+66	38.9-40.4	A-2-4(0)	36	7	44.8	21.6	25.5	8.1	69	46	26	-	-

**EB2-C**

<b>SOIL TEST RESULTS</b>															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-23	1' LT	417+96	4.0-5.5	A-4(4)	36	9	17.8	26.8	39.3	16.1	98	87	61	-	-
SS-24	1' LT	417+96	14.0-15.5	A-4(5)	37	9	12.1	23.6	42.1	22.2	93	86	66	-	-
SS-25	1' LT	417+96	24.0-25.5	A-4(2)	36	8	20.8	23.2	41.9	14.1	79	67	50	-	-
SS-26	1' LT	417+96	29.0-30.5	A-4(2)	34	8	15.1	25.6	39.1	20.2	79	72	53	-	-
SS-27	1' LT	417+96	49.0-50.5	A-4(2)	36	7	15.5	28.7	41.7	14.1	83	74	53	-	-

**EB2-E**

<b>SOIL TEST RESULTS</b>															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-20	67' RT	418+31	3.4-4.9	A-2-4(0)	28	3	28.5	33.3	28.2	10.1	61	49	28	-	-
SS-21	67' RT	418+31	8.4-9.9	A-4(0)	31	6	38.7	18.4	34.8	8.1	93	63	45	-	-
SS-22	67' RT	418+31	33.4-34.9	A-4(3)	36	9	19.4	28.3	36.2	16.1	85	75	51	-	-

**EB2-B**

<b>SOIL TEST RESULTS</b>															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-18	144' RT	418+57	3.2-4.7	A-4(0)	32	4	24.0	33.9	34.0	8.1	91	76	47	-	-
SS-19	144' RT	418+57	23.2-24.7	A-4(0)	25	4	37.1	23.8	31.0	8.1	82	59	36	-	-

**B1-A**

<b>ROCK TEST RESULTS</b>									
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AREA (in <sup>2</sup> )	UNIT WEIGHT (lbs/ft <sup>3</sup> )	H/D RATIO	ULTIMATE LOAD (ksi)	ULTIMATE LOAD (lbf)	SEC MOD @ 40% (Mpsi)
RS-1	139' LT	416+35	33.5-34.3	2.6888	178	2.28	21.0	56,300	8.10
RS-2	139' LT	416+35	35.9-36.5	2.6888	151	2.68	17.3	46,400	7.63
RS-3	139' LT	416+35	44.3-45.1	2.6888	18	2.29	34.2	91,900	10.32

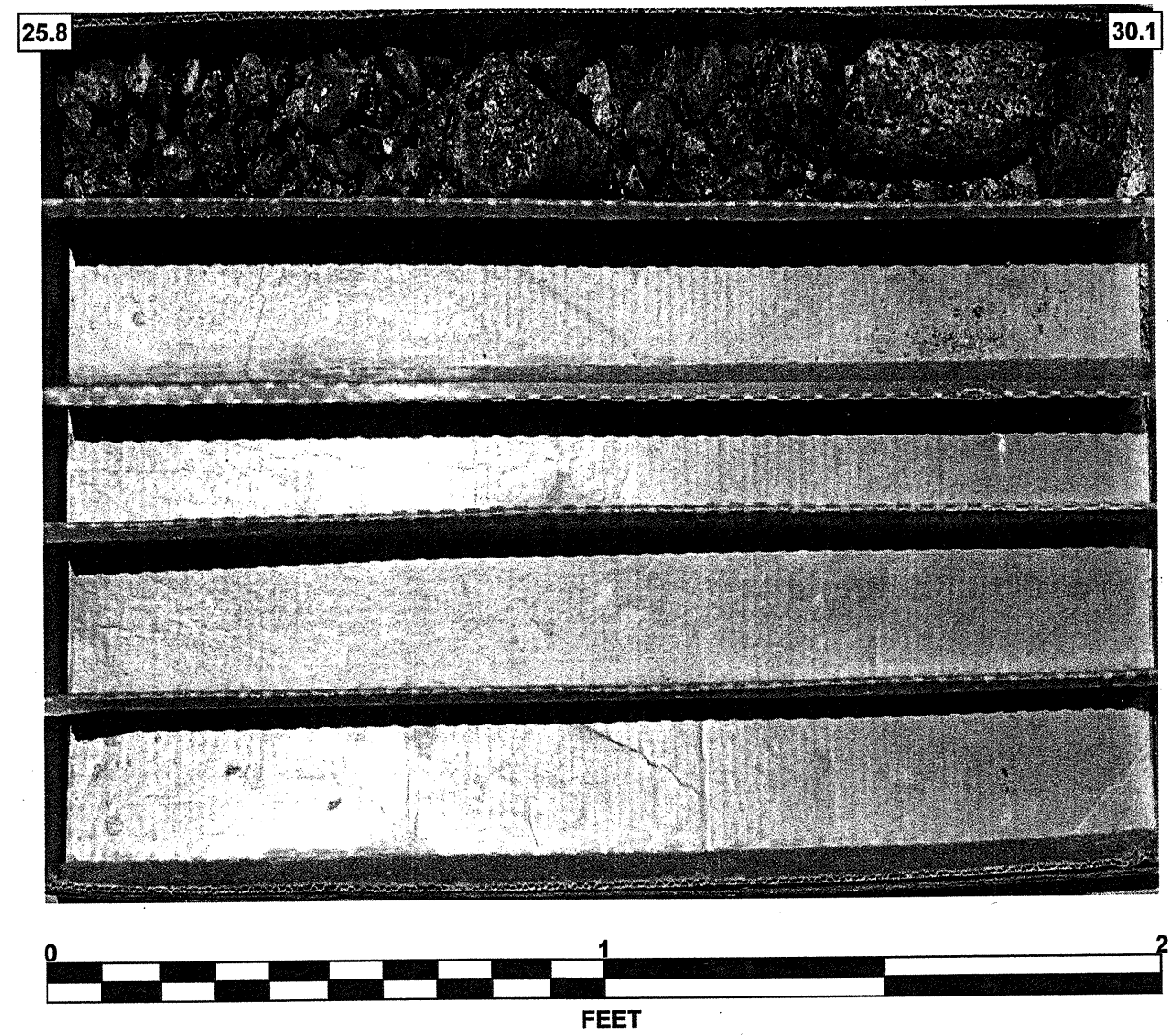


# CORE PHOTOGRAPHS

**B1-A**  
BOXES 1 & 2: 33.5 - 45.1 FEET



**B1-H**  
BOX 1: 25.8 - 30.1 FEET





# SITE PHOTOGRAPH

New Bridge on -L- (High Point/Greensboro Road) Over I-73 (-GWL-)

