

PROJECT: 17BP.8.R.992 REFERENCE: N/A

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.8.R.992	1	8

**CONTENTS**

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2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4	CROSS SECTIONS
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**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

COUNTY RANDOLPH  
PROJECT DESCRIPTION BRIDGE NO. 38 ON  
SR 3255 (FARMER RD) OVER CEDAR FORK CREEK

**CAUTION NOTICE**

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

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

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

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

PERSONNEL

C. BRUINSMA, LG

PAUL WEAVER, LG

C. PASTRANA

TRIGON

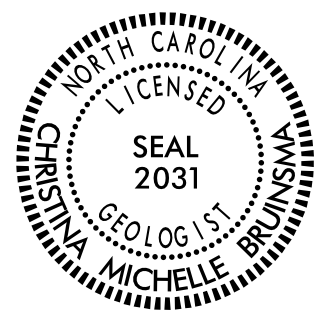
INVESTIGATED BY ESP Associates, P.A.

DRAWN BY C. BRUINSMA, LG

CHECKED BY C. BRUINSMA, LG

SUBMITTED BY C. YOUNGBLOOD, LG

DATE JULY 2019



DocuSigned by:

7/31/2019

C6DB1CBA0D0F44A  
SIGNATURE

DATE

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

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

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

SOIL LEGEND AND AASHTO CLASSIFICATION

Table with columns for GENERAL CLASS., GRANULAR MATERIALS (A-1 to A-7), SILT-CLAY MATERIALS (A-1 to A-7), ORGANIC MATERIALS (A-1, A-2 to A-6, A-7), and symbols for % PASSING, MATERIAL PASSING, GROUP INDEX, and USUAL TYPES OF MAJOR MATERIALS.

CONSISTENCY OR DENSENESS

Table mapping PRIMARY SOIL TYPE (e.g., GENERALLY GRANULAR MATERIAL) to COMPACTNESS OR CONSISTENCY (e.g., VERY LOOSE, MEDIUM DENSE) and RANGE OF STANDARD PENETRATION RESISTANCE.

TEXTURE OR GRAIN SIZE

Table showing U.S. STD. SIEVE SIZE (4, 10, 40, 60, 200, 270) and corresponding BOULDER, COBBLE, GRAVEL, COARSE SAND, FINE SAND, SILT, and CLAY percentages.

SOIL MOISTURE - CORRELATION OF TERMS

Table correlating SOIL MOISTURE SCALE (LL, PL, OM, SL) with FIELD MOISTURE DESCRIPTION (SATURATED, WET, MOIST, DRY) and GUIDE FOR FIELD MOISTURE DESCRIPTION.

PLASTICITY

Table mapping PLASTICITY INDEX (PI) ranges (0-5, 6-15, 16-25, 26 or more) to DRY STRENGTH categories (VERY LOW, SLIGHT, MEDIUM, HIGH).

COLOR

DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.

GRADATION

WELL-GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORMLY-GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.

ANGULARITY OF GRAINS

THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.

MINERALOGICAL COMPOSITION

MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE LL < 31
MODERATELY COMPRESSIBLE LL = 31 - 50
HIGHLY COMPRESSIBLE LL > 50

PERCENTAGE OF MATERIAL

Table showing percentages of ORGANIC MATERIAL, GRANULAR SOILS, SILT-CLAY SOILS, and OTHER MATERIAL (TRACE, LITTLE, MODERATELY, HIGHLY).

GROUND WATER

Water level symbols: WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING, STATIC WATER LEVEL AFTER 24 HOURS, PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA, SPRING OR SEEP.

MISCELLANEOUS SYMBOLS

Diagrammatic symbols for ROADWAY EMBANKMENT, SOIL SYMBOL, ARTIFICIAL FILL, INFERRERD SOIL BOUNDARY, INFERRERD ROCK LINE, ALLUVIAL SOIL BOUNDARY, DIP & DIP DIRECTION, TEST BORING, AUGER BORING, CORE BORING, MONITORING WELL, PIEZOMETER INSTALLATION, SLOPE INDICATOR, CONE PENETROMETER TEST, SOUNDING ROD, TEST BORING WITH CORE, SPT N-VALUE.

RECOMMENDATION SYMBOLS

Symbols for UNDERCUT, SHALLOW UNDERCUT, UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE, UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK, UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL.

ABBREVIATIONS

AR - AUGER REFUSAL, BT - BORING TERMINATED, CL - CLAY, CPT - CONE PENETRATION TEST, CSE - COARSE, DMT - DILATOMETER TEST, DPT - DYNAMIC PENETRATION TEST, e - VOID RATIO, F - FINE, FOSS. - FOSSILIFEROUS, FRAC. - FRACTURED, FRAGMENTS, HI. - HIGHLY, MED. - MEDIUM, MICA - MICACEOUS, MOD. - MODERATELY, NP - NON PLASTIC, ORG. - ORGANIC, PMT - PRESSUREMETER TEST, SAP. - SAPROLITIC, SD. - SAND, SANDY, SL. - SILT, SILTY, SLI. - SLIGHTLY, TCR - TRICONE REFUSAL, w - MOISTURE CONTENT, V - VERY, VST - VANE SHEAR TEST, WEA. - WEATHERED, Wt - UNIT WEIGHT, Wd - DRY UNIT WEIGHT.

EQUIPMENT USED ON SUBJECT PROJECT

Checklist for EQUIPMENT USED ON SUBJECT PROJECT including DRILL UNITS (CME-45C, CME-55, CME-550, VANE SHEAR TEST, PORTABLE HOIST), ADVANCING TOOLS (CLAY BITS, 6" CONTINUOUS FLIGHT AUGER, 8" HOLLOW AUGERS, HARD FACED FINGER BITS, TUNG.-CARBIDE INSERTS, CASING w/ ADVANCER, TRICONE STEEL TEETH, TRICONE TUNG.-CARB., CORE BIT), HAMMER TYPE (AUTOMATIC, MANUAL), CORE SIZE (B, H, N), and HAND TOOLS (POST HOLE DIGGER, HAND AUGER, SOUNDING ROD, VANE SHEAR TEST).

ROCK DESCRIPTION

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:

Diagrams and text for WEATHERED ROCK (WR), CRYSTALLINE ROCK (CR), NON-CRYSTALLINE ROCK (NCR), and COASTAL PLAIN SEDIMENTARY ROCK (CP). Includes descriptions of non-coastal plain material, igneous and metamorphic rocks, and cemented sediments.

WEATHERING

ROCK WEATHERING descriptions: FRESH (crystals bright, few joints), VERY SLIGHT (joints stained), SLIGHT (joints stained and discoloration), MODERATE (portions of rock show discoloration), MODERATELY SEVERE (rock except quartz discolored), SEVERE (rock except quartz discolored or stained), VERY SEVERE (mass is effectively reduced), COMPLETE (rock reduced to soil).

ROCK HARDNESS

ROCK HARDNESS descriptions: VERY HARD (cannot be scratched by knife), HARD (scratched by knife or pick), MODERATELY HARD (scratched by knife or pick), MEDIUM HARD (grooved or gouged), SOFT (grooved or gouged), VERY SOFT (carved with knife).

FRACTURE SPACING

Table mapping TERM (VERY WIDE, WIDE, MODERATELY CLOSE, CLOSE, VERY CLOSE) to SPACING (MORE THAN 10 FEET, 3 TO 10 FEET, 1 TO 3 FEET, 0.16 TO 1 FOOT, LESS THAN 0.16 FEET).

BEDDING

Table mapping TERM (VERY THICKLY BEDDED, THICKLY BEDDED, THINLY BEDDED, VERY THINLY BEDDED, THICKLY LAMINATED, THINLY LAMINATED) to THICKNESS (4 FEET, 1.5 - 4 FEET, 0.16 - 1.5 FEET, 0.03 - 0.16 FEET, 0.008 - 0.03 FEET, < 0.008 FEET).

INDURATION

INDURATION descriptions: FRIABLE (rubbing with finger frees grains), MODERATELY INDURATED (grains separated with steel probe), INDURATED (grains difficult to separate), EXTREMELY INDURATED (sharp hammer blows required).

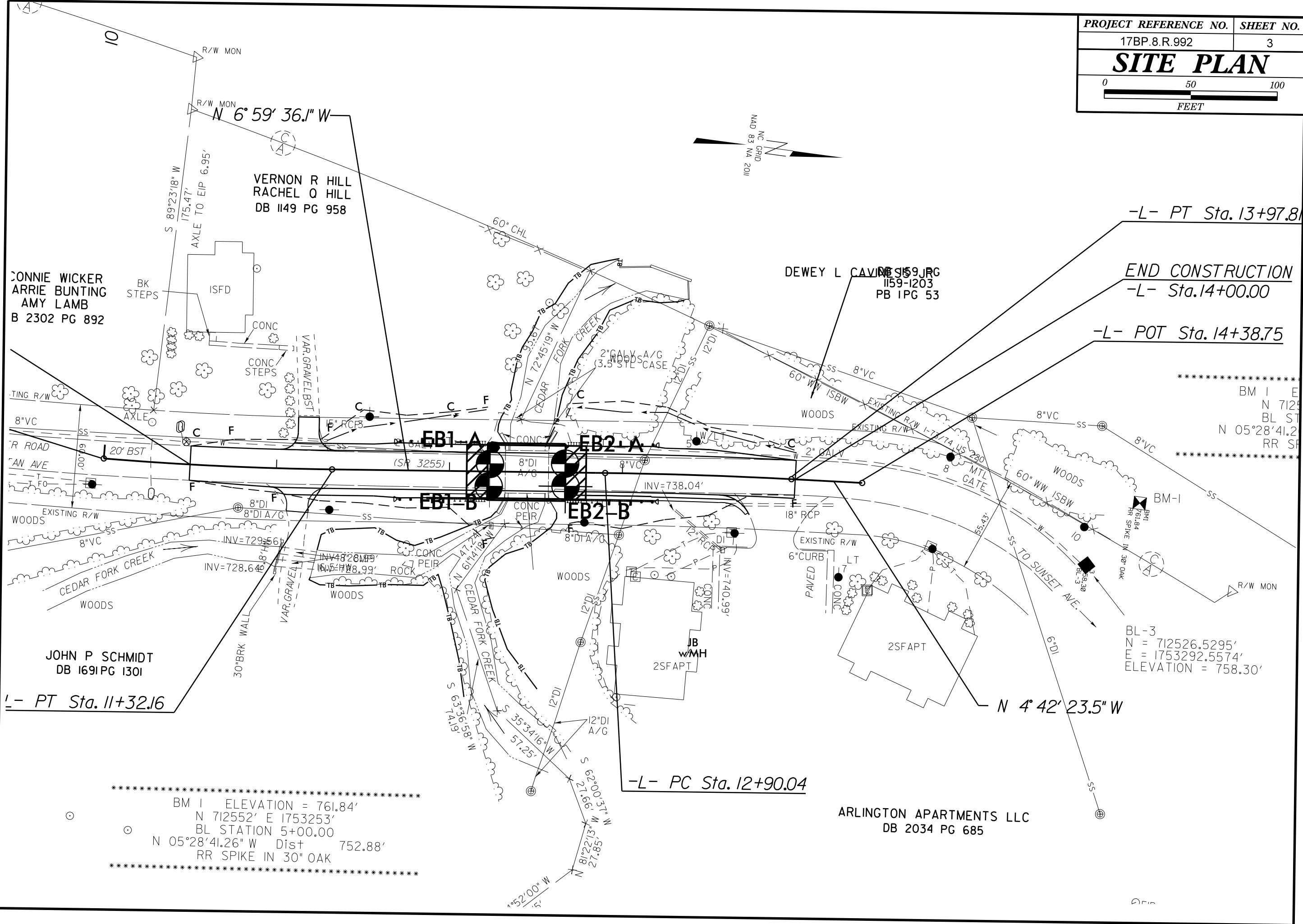
TERMS AND DEFINITIONS

DEFINITIONS: ALLUVIUM (ALLUV.) - SOILS TRANSPORTED BY WATER; AQUIFER - WATER BEARING STRATA; ARENACEOUS - SAND-DERIVED ROCKS; ARGILLACEOUS - CLAY MINERAL ROCKS; ARTESIAN - PRESSURE RISE ABOVE GROUND SURFACE; CALCAREOUS (CALC.) - CALCIUM CARBONATE; COLLUVIUM - GRAVITY DEPOSITED SOIL; CORE RECOVERY (REC.) - CORE BARREL DIVISION; DIKE - TABULAR ROCK CUTS; DIP - INCLINATION ANGLE; DIP DIRECTION (DIP AZIMUTH) - HORIZONTAL TRACE BEARING; FAULT - DISPLACEMENT ZONE; FISSILE - SPLITTING PLANES; FLOAT - DISLODGED FRAGMENTS; FLOOD PLAIN (FP) - SEDIMENT DEPOSIT; FORMATION (FM) - GEOLOGIC UNIT; JOINT - NO MOVEMENT; LEDGE - SHELF-LIKE RIDGE; LENS - SOIL/ROCK THIN OUT; MOTTLED (MOT.) - SPOTS OF DIFFERENT COLORS; PERCHED WATER - ABOVE NORMAL GROUND WATER; RESIDUAL (RES.) SOIL - WEATHERED IN PLACE; SAPROLITE (SAP.) - RETAINS RELIC STRUCTURE; SILL - INTRUSIVE ROCK BODY; SLICKENSIDE - FRICTION SURFACE; STANDARD PENETRATION TEST (SPT) - BLOW COUNT; STRATA CORE RECOVERY (SREC.) - STRATA RECOVERY PERCENTAGE; STRATA ROCK QUALITY DESIGNATION (SRQD) - ROCK QUALITY MEASURE; TOPSOIL (TS) - SURFACE ORGANIC MATTER.

BENCH MARK: BMI, N 712552' E 1753253' BL STATION 5+00.00
ELEVATION: 761.84' FEET

NOTES:
FIAD - FILLED IMMEDIATELY AFTER DRILLING

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.992	3
<b>SITE PLAN</b>	
FEET	



CONNIE WICKER  
ARRIE BUNTING  
AMY LAMB  
B 2302 PG 892

VERNON R HILL  
RACHEL O HILL  
DB 1149 PG 958

DEWEY L CAVINE JRC  
1159-1203  
PB 1PG 53

JOHN P SCHMIDT  
DB 1691 PG 1301

ARLINGTON APARTMENTS LLC  
DB 2034 PG 685

-L- PT Sta. 11+32.16

-L- PC Sta. 12+90.04

-L- PT Sta. 13+97.81

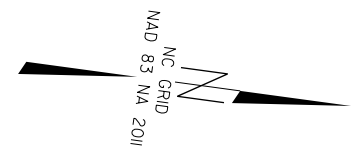
END CONSTRUCTION  
-L- Sta. 14+00.00

-L- POT Sta. 14+38.75

\*\*\*\*\*  
 BM 1 ELEVATION = 761.84'  
 N 712552' E 1753253'  
 BL STATION 5+00.00  
 N 05°28'41.26" W Dist 752.88'  
 RR SPIKE IN 30" OAK  
 \*\*\*\*\*

\*\*\*\*\*  
 BM 1 E  
 N 712552'  
 BL ST  
 N 05°28'41.26"  
 RR SPIKE  
 IN 30" OAK  
 \*\*\*\*\*

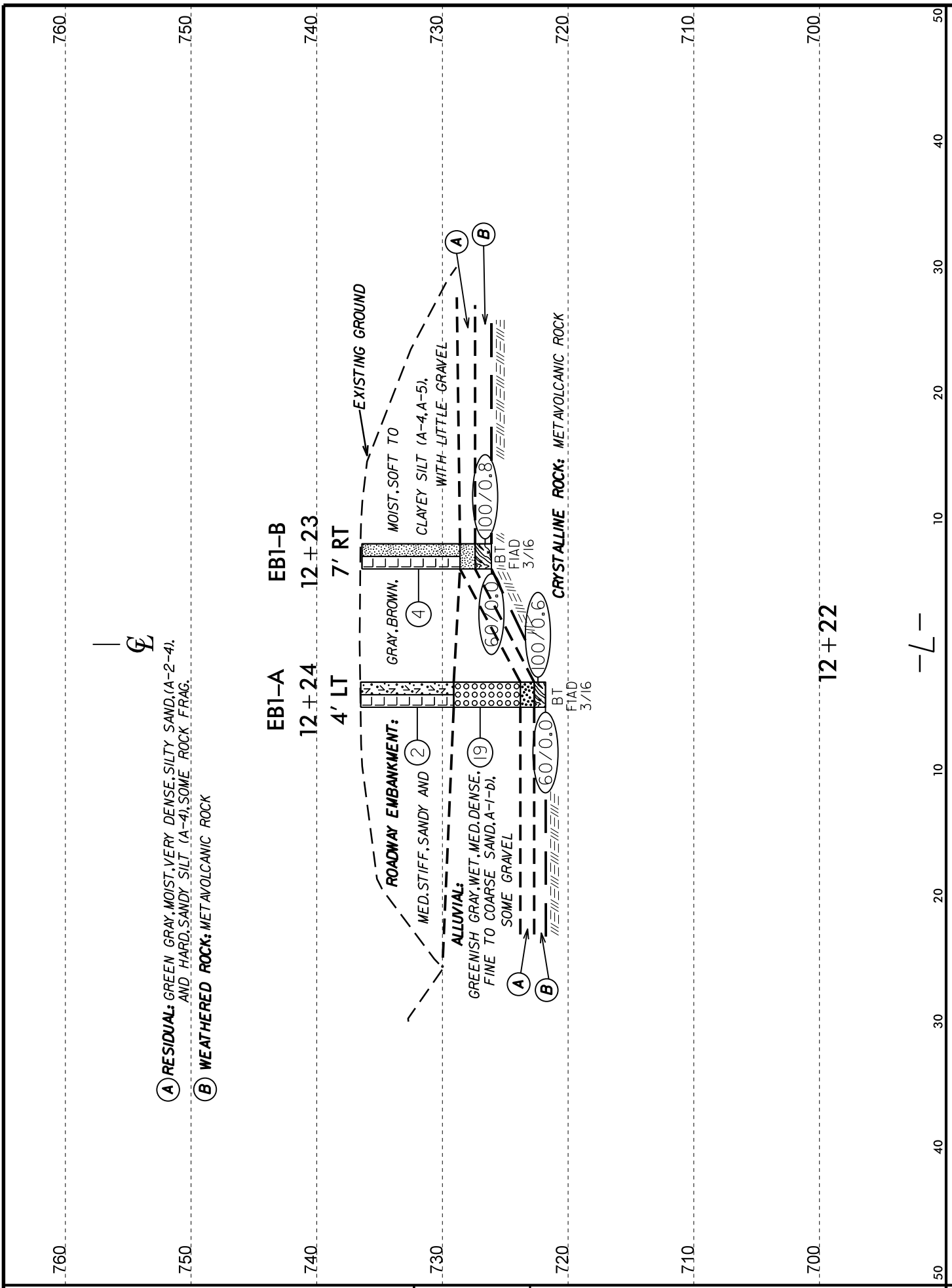
BL-3  
 N = 712526.5295'  
 E = 1753292.5574'  
 ELEVATION = 758.30'





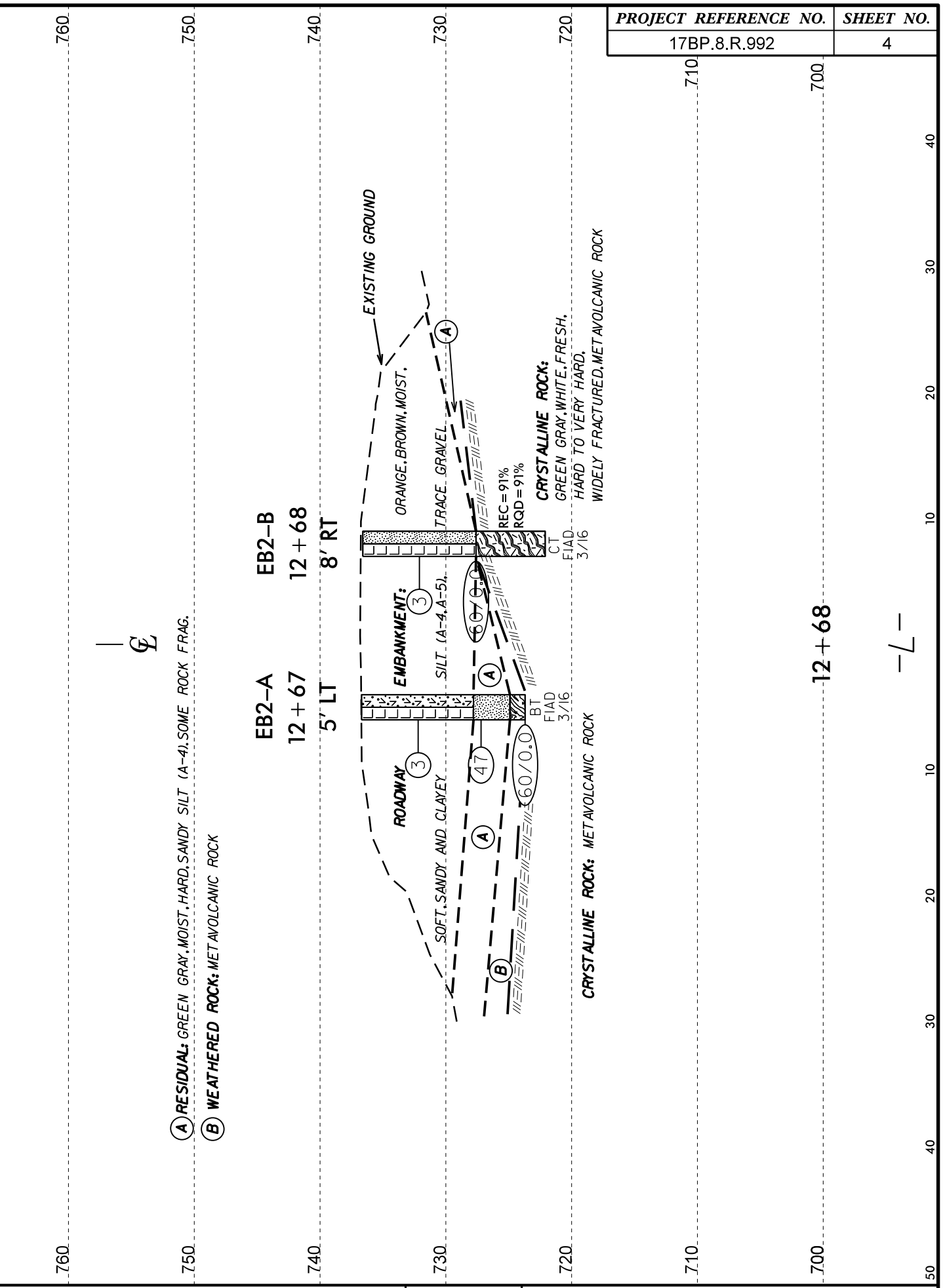
VE = 1

END BENT 1 CROSS SECTION



VE = 1

END BENT 2 CROSS SECTION



PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.992	4

# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 17BP.8.R.992		TIP N/A		COUNTY RANDOLPH		GEOLOGIST Pastrana, C.R.										
SITE DESCRIPTION Multiple Express DB Bridges Div. 8 - Bridge No. 38 on SR 3255 (Farmer Rd.) Over Cedar Creek							GROUND WTR (ft)									
BORING NO. EB1-A		STATION 12+24		OFFSET 4 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 736.5 ft		TOTAL DEPTH 14.7 ft		NORTHING 712,178		EASTING 1,753,281										
DRILL RIG/HAMMER EFF./DATE TRI9435 CME-55 84% 02/20/2015			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER Toothman, R.		START DATE 03/02/16		COMP. DATE 03/02/16		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						
740																
735	733.0	3.5	2	1	1								M	736.5 GROUND SURFACE 0.0 ROADWAY EMBANKMENT Brown to Tan Brown, Soft, Clayey SILT (A-5)		
730	728.0	8.5	3	8	11								W	729.1 ALLUVIAL 7.4 Greenish Gray, Medium Dense, Clayey, Fine to Coarse SAND (A-1-b), Some Gravel		
725	723.0	13.5	Blow Count Influenced by Gravel												723.8 RESIDUAL 12.7 722.7 721.8 WEATHERED ROCK 14.7 Moist, Greenish Gray, Very Dense, Silty, Fine to Coarse Sand (A-2-4), Some Rock Fragments Green to Gray METAVOLCANIC ROCK Boring Terminated with Standard Penetration Test Refusal at Elevation 721.8 ft On Crystalline Rock: METAVOLCANIC ROCK	
	721.8	14.7	62	38	0.1										100/0.6 60/0.0	

WBS 17BP.8.R.992		TIP N/A		COUNTY RANDOLPH		GEOLOGIST Pastrana, C.R.									
SITE DESCRIPTION Multiple Express DB Bridges Div. 8 - Bridge No. 38 on SR 3255 (Farmer Rd.) Over Cedar Creek							GROUND WTR (ft)								
BORING NO. EB1-B		STATION 12+23		OFFSET 7 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 736.4 ft		TOTAL DEPTH 10.3 ft		NORTHING 712,178		EASTING 1,753,292									
DRILL RIG/HAMMER EFF./DATE TRI9435 CME-55 84% 02/20/2015			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic									
DRILLER Toothman, R.		START DATE 03/02/16		COMP. DATE 03/02/16		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					
740															
735	732.9	3.5	2	2	2								M	736.4 GROUND SURFACE 0.0 ROADWAY EMBANKMENT Orange to Dark Brown, Soft to Medium Stiff, Fine to Coarse Sandy SILT (A-4), Little Gravel	
730	727.9	8.5	1	5	95/0.3									728.6 RESIDUAL 7.8 727.4 726.1 WEATHERED ROCK 10.3 Greenish Gray with Brown, Medium Stiff, Clayey, Coarse to Fine Sandy SILT (A-4), Some Rock Fragments Green to Gray METAVOLCANIC ROCK Boring Terminated with Standard Penetration Test Refusal at Elevation 726.1 ft On Crystalline Rock: METAVOLCANIC ROCK	
	726.1	10.3	60/0.0												100/0.8 60/0.0

NCDOT BORE DOUBLE 17.BP.8.R.992\_GEO\_BRD0038.GPJ NC\_DOT.GDT 7/12/19

# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 17BP.8.R.992		TIP N/A		COUNTY RANDOLPH		GEOLOGIST Pastrana, C.R.									
SITE DESCRIPTION Multiple Express DB Bridges Div. 8 - Bridge No. 38 on SR 3255 (Farmer Rd.) Over Cedar Creek							GROUND WTR (ft)								
BORING NO. EB2-A		STATION 12+67		OFFSET 5 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 736.7 ft		TOTAL DEPTH 13.0 ft		NORTHING 712,220		EASTING 1,753,275									
DRILL RIG/HAMMER EFF./DATE TRI9435 CME-55 84% 02/20/2015				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER Toothman, R.		START DATE 03/02/16		COMP. DATE 03/02/16		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					
740															
735	733.2	3.5	1	2	1							M	ROADWAY EMBANKMENT Orange Brown, Soft, Clayey SILT (A-5), Little Sand	0.0	
730															
	728.2	8.5	4	11	36										
725	723.7	13.0	60/0.0									D	RESIDUAL Greenish Gray, Hard, Coarse to Fine Sandy SILT (A-4), Some Rock Fragments	8.9	
													WEATHERED ROCK Green to Gray METAVOLCANIC ROCK	11.8	
													Boring Terminated with Standard Penetration Test Refusal at Elevation 723.7 ft On Crystalline Rock: METAVOLCANIC ROCK	13.0	

WBS 17BP.8.R.992		TIP N/A		COUNTY RANDOLPH		GEOLOGIST Pastrana, C.R.									
SITE DESCRIPTION Multiple Express DB Bridges Div. 8 - Bridge No. 38 on SR 3255 (Farmer Rd.) Over Cedar Creek							GROUND WTR (ft)								
BORING NO. EB2-B		STATION 12+68		OFFSET 8 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 736.6 ft		TOTAL DEPTH 14.5 ft		NORTHING 712,223		EASTING 1,753,288									
DRILL RIG/HAMMER EFF./DATE TRI9435 CME-55 84% 02/20/2015				DRILL METHOD SPT Core Boring		HAMMER TYPE Automatic									
DRILLER Toothman, R.		START DATE 03/02/16		COMP. DATE 03/02/16		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					
740															
735	733.1	3.5	1	1	2							M	ROADWAY EMBANKMENT Brown to Reddish Brown, Soft, Clayey SILT (A-5), Trace Gravel	0.0	
730															
	727.6	9.0	60/0.0												
725													CRYSTALLINE ROCK Greenish Gray with White, Fresh, Hard to Very Hard, Widely Fractured, METAVOLCANIC ROCK	9.0	
													Boring Terminated at Elevation 722.1 ft In Crystalline Rock: METAVOLCANIC ROCK	14.5	
													Encountered Boulders at 5.3' and 4.2' (at 11' Right of CL) in First Two Attempts to Drill the Boring. Moved to 7' Right of CL for This Boring to Finally Get Past the Boulders.		

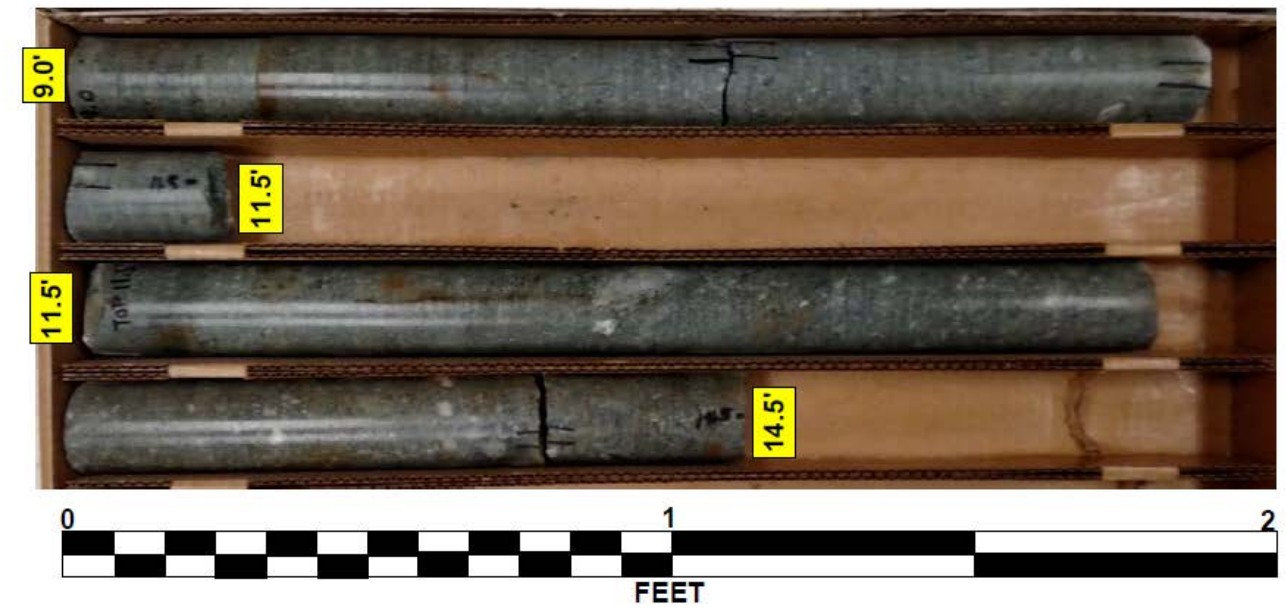
NCDOT BORE DOUBLE 17.BP.8.R.992\_GEO\_BRD0038.GPJ NC\_DOT.GDT 7/12/19

# GEOTECHNICAL BORING REPORT CORE LOG

WBS 17BP.8.R.992		TIP N/A		COUNTY RANDOLPH		GEOLOGIST Pastrana, C.R.					
SITE DESCRIPTION Multiple Express DB Bridges Div. 8 - Bridge No. 38 on SR 3255 (Farmer Rd.) Over Cedar Creek							GROUND WTR (ft)				
BORING NO. EB2-B		STATION 12+68		OFFSET 8 ft RT		ALIGNMENT -L-					
COLLAR ELEV. 736.6 ft		TOTAL DEPTH 14.5 ft		NORTHING 712,223		EASTING 1,753,288					
DRILL RIG/HAMMER EFF./DATE TRI9435 CME-55 84% 02/20/2015				DRILL METHOD SPT Core Boring		HAMMER TYPE Automatic					
DRILLER Toothman, R.		START DATE 03/02/16		COMP. DATE 03/02/16		SURFACE WATER DEPTH N/A					
CORE SIZE NQ2		TOTAL RUN 5.5 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) %	REC. (ft) %	RQD (ft) %			
727.6	727.6	9.0	2.5	3:34/0.5 N=60/0.0	(2.1) 84%	(2.1) 84%	(5.0) 91%	(5.0) 91%		Begin Coring @ 9.0 ft <b>CRYSTALLINE ROCK</b>	9.0
725	725.1	11.5	3.0	3:34/0.5 3:43/1.0 3:42/1.0	(2.9) 97%	(2.9) 97%				727.6 Greenish Gray with White, Fresh, Hard to Very Hard, Widely Fractured, METAVOLCANIC ROCK	
	722.1	14.5		3:26/1.0 4:14/1.0 4:35/1.0						722.1 Boring Terminated at Elevation 722.1 ft In Crystalline Rock: METAVOLCANIC ROCK	14.5
<p>Encountered Boulders at 5.3' and 4.2' (at 11' Right of CL) in First Two Attempts to Drill the Boring. Moved to 7' Right of CL for This Boring to Get Past the Boulders.</p>											

## CORE PHOTOGRAPH WBS No. 17BP.8.R.992 Bridge No. 38 on SR 3255 (Farmer Rd.) over Cedar Fork Creek

**EB2-B**  
9.0 Feet to 14.5 Feet





SITE PHOTO

BRIDGE NO. 0038 ON SR 3255 (FARMER ROAD) OVER CEDAR FORK CREEK



Looking Upstation from Sta. 12+00, -L-