

REFERENCE: B-4961

PROJECT: 40152

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY GUILFORD
PROJECT DESCRIPTION BRIDGE NO. 208 ON SR 3051
OVER LITTLE ALAMANCE CREEK

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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4961	1	9

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. WANG

S. DAVIS

M. RENZA

T. WALKER

INVESTIGATED BY F&R, Inc.

DRAWN BY D. RACEY

CHECKED BY P. ALTON

SUBMITTED BY P. ALTON

DATE JULY 2015



DocuSigned by:
W. Patrick Alton 8/3/2015

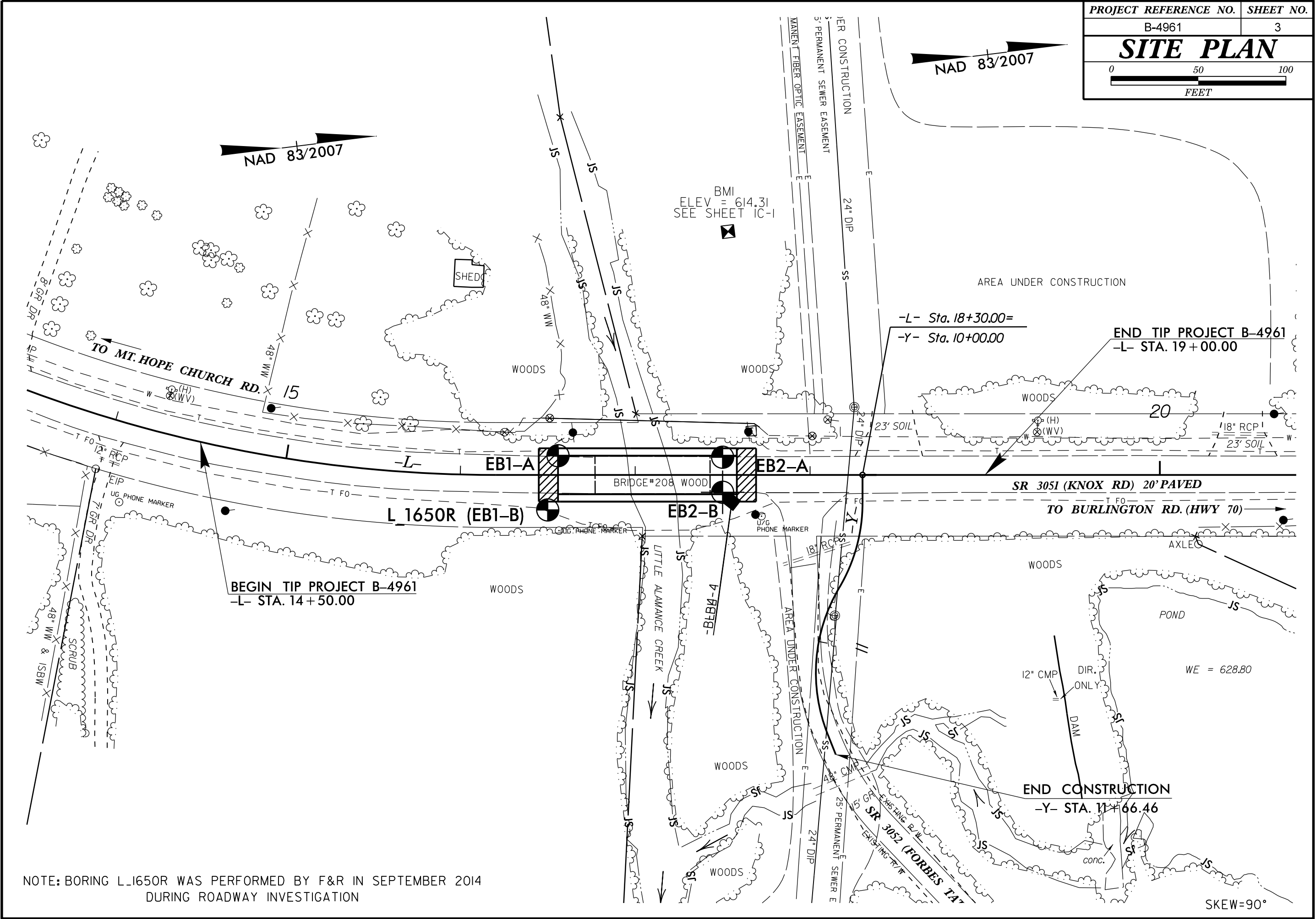
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT SUBSURFACE INVESTIGATION SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

Table with 4 main columns: SOIL DESCRIPTION, GRADATION, ROCK DESCRIPTION, and TERMS AND DEFINITIONS. Includes sub-sections like SOIL LEGEND AND AASHTO CLASSIFICATION, MISCELLANEOUS SYMBOLS, and RECOMMENDATION SYMBOLS.

NAD 83/2007

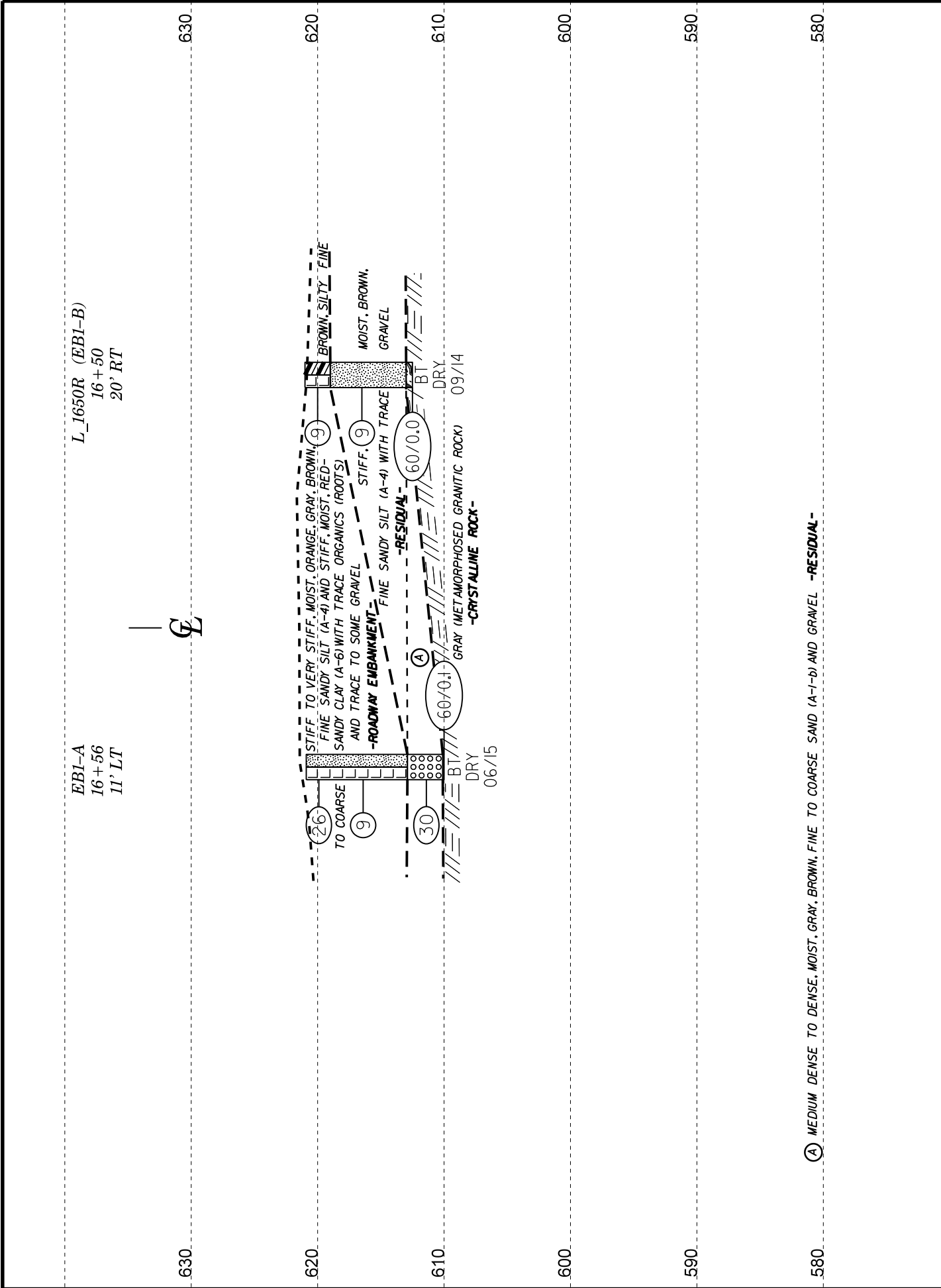
NAD 83/2007

BMI
ELEV = 614.31
SEE SHEET IC-1



NOTE: BORING L1650R WAS PERFORMED BY F&R IN SEPTEMBER 2014 DURING ROADWAY INVESTIGATION

SKEW=90°

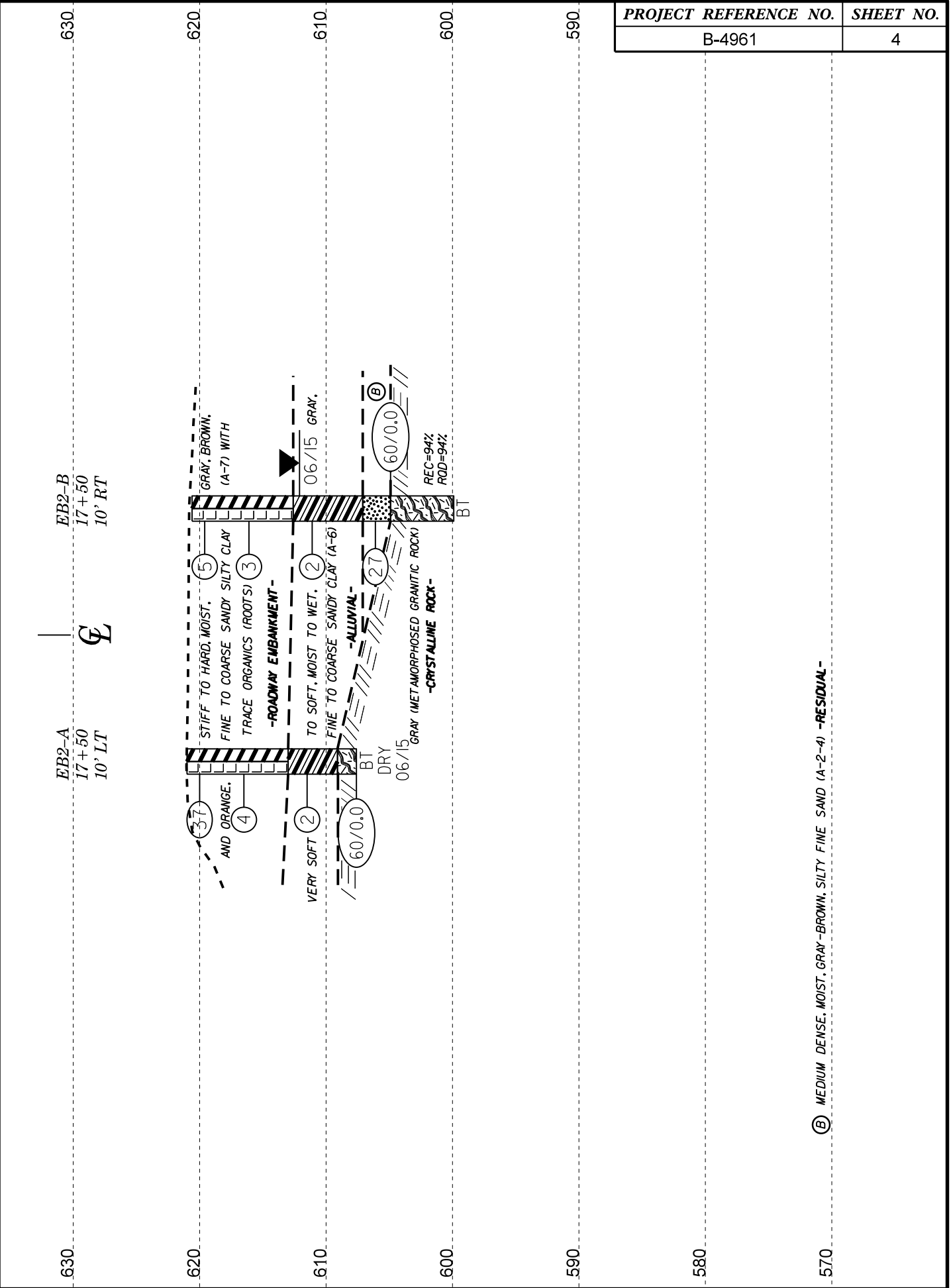


(A) MEDIUM DENSE TO DENSE, MOIST, GRAY, BROWN, FINE TO COARSE SAND (A-1-b) AND GRAVEL -RESIDUAL-



VE = 1:1

CROSS SECTION THROUGH END BENT 1



(B) MEDIUM DENSE, MOIST, GRAY-BROWN, SILTY FINE SAND (A-2-4) -RESIDUAL-



VE = 1:1

CROSS SECTION THROUGH END BENT 2



NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 40152.1.1		TIP B-4961		COUNTY GUILFORD		GEOLOGIST C. Wang									
SITE DESCRIPTION BRIDGE NO. 208 ON SR 3051 (KNOX RD.) OVER LITTLE ALAMANCE CREEK							GROUND WTR (ft)								
BORING NO. EB1-A		STATION 16+56		OFFSET 11 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 620.9 ft		TOTAL DEPTH 10.9 ft		NORTHING 843,423		EASTING 1,809,427									
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER S. Davis		START DATE 06/10/15		COMP. DATE 06/10/15		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
625															
620	620.9	0.0	3	8	18									620.9	0.0
	617.4	3.5	7	5	4										
615	612.4	8.5	22	18	12									612.9	8.0
	610.1	10.8	60/0.1											610.1	10.8
														610.0	10.9

WBS 40152.1.1		TIP B-4961		COUNTY GUILFORD		GEOLOGIST D. Racey									
SITE DESCRIPTION BRIDGE NO. 208 ON SR 3051 (KNOX RD.) OVER LITTLE ALAMANCE CREEK							GROUND WTR (ft)								
BORING NO. L_1650R (EB1-B)		STATION 16+50		OFFSET 20 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 621.0 ft		TOTAL DEPTH 8.5 ft		NORTHING 843,413		EASTING 1,809,457									
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/22/2014				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic									
DRILLER S. Davis		START DATE 09/09/14		COMP. DATE 09/09/14		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					
625															
620	621.0	0.0	4	5	4									621.0	0.0
	617.5	3.5	3	5	4									619.0	2.0
615	612.5	8.5	60/0.0											613.0	8.0
														612.5	8.5

- NOTES:
- 1) Boring L1650R (EB1-B) was performed by F&R in September 2014 during th roadway investigation
 - 2) 0.0-0.3' = Surficial Organic Soils
 - 3) Driller indicates harder drilling at 8.0'.

NCDOT BORE DOUBLE B4961_GEO_BH_BRDG0208.GPJ NC_DOT_GDT 7/20/15

WBS 40152.1.1		TIP B-4961		COUNTY GUILFORD		GEOLOGIST C. Wang								
SITE DESCRIPTION BRIDGE NO. 208 ON SR 3051 (KNOX RD.) OVER LITTLE ALAMANCE CREEK							GROUND WTR (ft)							
BORING NO. EB2-A		STATION 17+50		OFFSET 10 ft LT		ALIGNMENT -L-	0 HR. Dry							
COLLAR ELEV. 621.0 ft		TOTAL DEPTH 13.4 ft		NORTHING 843,516		EASTING 1,809,440	24 HR. Dry							
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic								
DRILLER S. Davis		START DATE 06/10/15		COMP. DATE 06/10/15		SURFACE WATER DEPTH N/A								
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
625														
620	621.0	0.0	5	10	27								M	621.0 GROUND SURFACE 0.0
615	617.5	3.5	5	2	2								M	ROADWAY EMBANKMENT GRAY, BROWN, FINE SANDY SILTY CLAY (A-7-5) WITH TRACE COARSE SAND AND ORGANICS (ROOTS)
610	612.5	8.5	5	1	1								W	613.0 ALLUVIAL GRAY, FINE TO COARSE SANDY CLAY (A-6) 8.0
	607.6	13.4	60/0.0											609.1 CRYSTALLINE ROCK GRAY (METAMORPHOSED GRANITIC ROCK) 11.9 607.6 13.4 Boring Terminated with Standard Penetration Test Refusal at Elevation 607.6 ft in CRYSTALLINE ROCK (METAMORPHOSED GRANITIC ROCK) NOTES: 1) AUGER REFUSAL AT 13.4'



NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 40152.1.1		TIP B-4961		COUNTY GUILFORD		GEOLOGIST C. Wang									
SITE DESCRIPTION BRIDGE NO. 208 ON SR 3051 (KNOX RD.) OVER LITTLE ALAMANCE CREEK							GROUND WTR (ft)								
BORING NO. EB2-B		STATION 17+50		OFFSET 10 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 620.6 ft		TOTAL DEPTH 20.7 ft		NORTHING 843,514		EASTING 1,809,459									
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015				DRILL METHOD SPT Core Boring		HAMMER TYPE Automatic									
DRILLER S. Davis		START DATE 06/10/15		COMP. DATE 06/10/15		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
625															
620	620.6	0.0	2	2	3									620.6	GROUND SURFACE
615	617.1	3.5	2	2	1										ROADWAY EMBANKMENT ORANGE, RED-BROWN, SILTY CLAY (A-7-5) WITH TRACE FINE AND COARSE SAND AND ORGANICS (ROOTS)
610	612.1	8.5	1	1	1									612.6	ALLUVIAL GRAY, SILTY FINE SANDY CLAY (A-6)
605	607.1	13.5	3	5	22									607.1	RESIDUAL GRAY, BROWN, SILTY FINE SAND (A-2-4)
600	605.0	15.7	60/0.0											604.9	CRYSTALLINE ROCK GRAY (METAMORPHOSED GRANITIC ROCK)
														599.9	Boring Terminated at Elevation 599.9 ft in CRYSTALLINE ROCK (METAMORPHOSED GRANITIC ROCK)
															NOTES: 1) AUGER REFUSAL AT 15.7', BEGIN CORING AT 15.7'

NCDOT BORE DOUBLE B4961_GEO_BH_BRDG0208.GPJ NC_DOT.GDT 7/17/15



NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

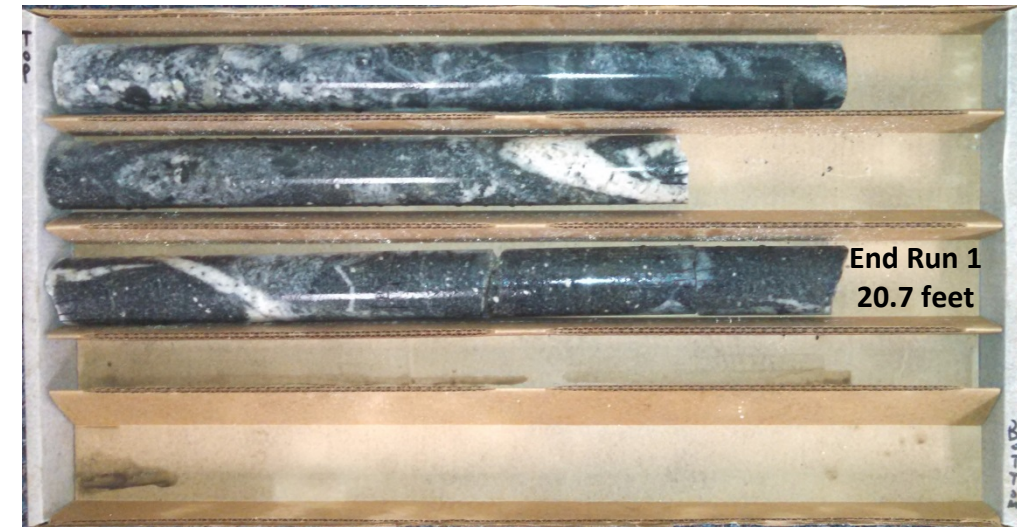
WBS 40152.1.1		TIP B-4961		COUNTY GUILFORD		GEOLOGIST C. Wang						
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BORING NO. EB2-B		STATION 17+50		OFFSET 10 ft RT		ALIGNMENT -L-						
COLLAR ELEV. 620.6 ft		TOTAL DEPTH 20.7 ft		NORTHING 843,514		EASTING 1,809,459						
DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 76% 02/25/2015				DRILL METHOD SPT Core Boring		HAMMER TYPE Automatic						
DRILLER S. Davis		START DATE 06/10/15		COMP. DATE 06/10/15		SURFACE WATER DEPTH N/A						
CORE SIZE NQ3		TOTAL RUN 5.0 ft										
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (ft)	RQD (ft)		REC. (ft)	RQD (ft)			
604.94	604.9	15.7	5.0	3:20/1.0 2:37/1.0 3:26/1.0 3:48/1.0 2:54/1.0	(4.7) 94%	(4.7) 94%		(4.7) 94%	(4.7) 94%		Begin Coring @ 15.7 ft CRYSTALLINE ROCK	15.7
600	599.9	20.7									GRAY, VERY SLIGHTLY WEATHERED TO FRESH, MODERATELY HARD TO HARD, METAMORPHOSED GRANITIC ROCK, CLOSE TO WIDE FRACTURE SPACING	20.7
											Boring Terminated at Elevation 599.9 ft in CRYSTALLINE ROCK (METAMORPHOSED GRANITIC ROCK)	
											NOTES: 1) AUGER REFUSAL AT 15.7', BEGIN CORING AT 15.7'	

NCDOT CORE DOUBLE B4961_GEO_BH_BRDG0208.GPJ NC_DOT.GDT 7/17/15

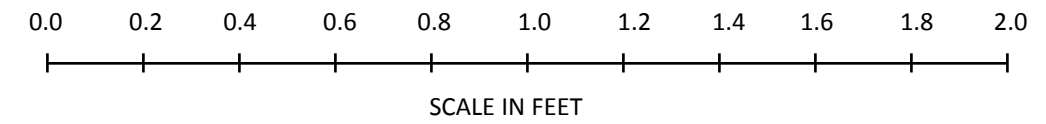


CORE PHOTOGRAPHS: Bridge No. 208 on SR 3051 over Little Alamance Creek, EB2-B 17+50, 10' RT

**Begin Run 1
15.7 feet**



**End Run 1
20.7 feet**





Bridge No. 208 on SR 3051 (Knox Road) over Little Alamance Creek SITE PHOTOGRAPHS



Photograph No. 1: View of drilling operations at boring EB1-B looking northwest



Photograph No. 3: View of Forbes Tate Road (-Y-) looking east



Photograph No. 2: View of End Bent 1 looking south



Photograph No. 4: View of Little Alamance Creek looking upstream