

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-4707	1	12

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

**STRUCTURE  
SUBSURFACE INVESTIGATION**

COUNTY GUILFORD  
 PROJECT DESCRIPTION US 29 AND SR 4771 (REEDY FORK PARKWAY) INTERCHANGE IMPROVEMENTS; IMPROVE ROADWAY, MODIFY INTERCHANGE AND REPLACE BRIDGE 360  
 SITE DESCRIPTION BRIDGE NO. 360 ON SR 4771 (REEDY FORK PARKWAY) OVER US 29 BETWEEN SR 2526 AND SR 2790

**CONTENTS**

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4	PROFILE
5-7	CROSS SECTION(S)
8-12	BORE LOG(S)

**REFERENCE: R-4707**

**PROJECT: 36599**

**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

J. HOWARD

M. LEAR

S. HARDEE

INVESTIGATED BY WOOD E&IS

DRAWN BY R. RAHIE

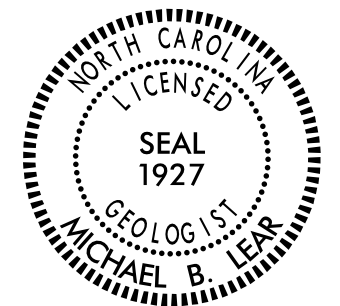
CHECKED BY S. JOHNSON

SUBMITTED BY M. LEAR

DATE APRIL, 2019

**wood.**

WOOD E&IS, Inc.  
4021 STIRRUP CREEK DRIVE, SUITE 100  
DURHAM, NORTH CAROLINA 27703  
(919) 381-9900



DocuSigned by:

*Michael B. Lear*

4/16/2019

080B6C28A029442

SIGNATURE

DATE

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

SOIL DESCRIPTION
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 LEGEND AND AASHTO CLASSIFICATION
GENERAL CLASS. GRANULAR MATERIALS (> 35% PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS

TEXTURE OR GRAIN SIZE
U.S. STD. SIEVE SIZE 4 10 40 60 200 270
OPENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053

SOIL MOISTURE - CORRELATION OF TERMS
SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION

PLASTICITY
NON PLASTIC SLIGHTLY PLASTIC MODERATELY PLASTIC HIGHLY PLASTIC
PLASTICITY INDEX (PI) DRY STRENGTH 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
ORGANIC MATERIAL GRANULAR SOILS SILT - CLAY SOILS OTHER MATERIAL
TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10%

GROUND WATER
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
ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION
SOIL SYMBOL
ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT

RECOMMENDATION SYMBOLS
UNDERCUT
SHALLOW UNDERCUT
UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE
UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK

ABBREVIATIONS
AR - AUGER REFUSAL
BT - BORING TERMINATED
CL - CLAY
CPT - CONE PENETRATION 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.

WEATHERING
FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.
VERY SLIGHT (V SL.) ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN.

ROCK HARDNESS
VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.
HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY.

FRACTURE SPACING
TERM SPACING THICKNESS
VERY WIDE MORE THAN 10 FEET 4 FEET
WIDE 3 TO 10 FEET 1.5 - 4 FEET

TERMS AND DEFINITIONS
ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
AQUIFER - A WATER BEARING FORMATION OR STRATA.
ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.

WEATHERING (CONT.)
MODERATE (MOD.) SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED.

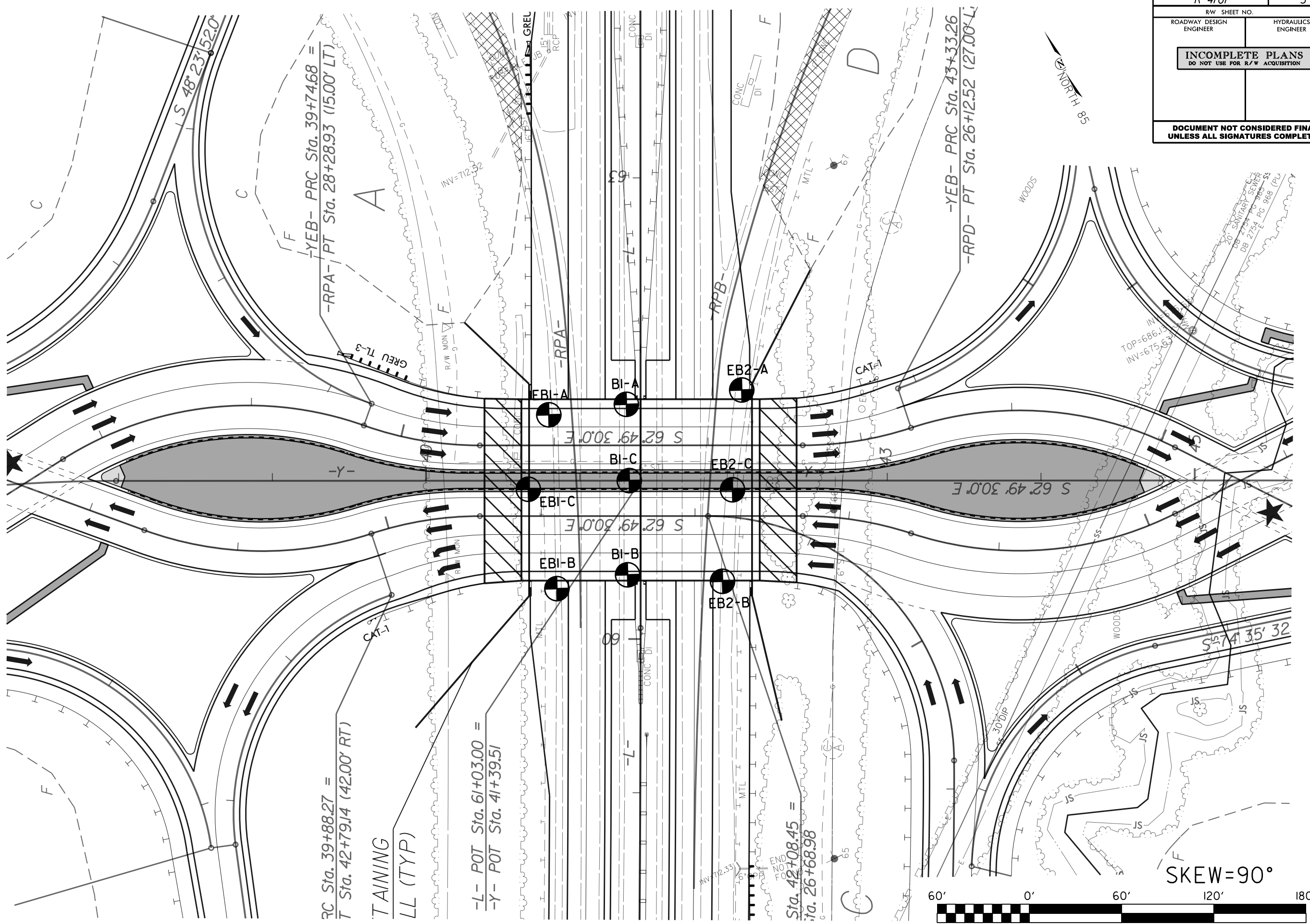
ROCK HARDNESS (CONT.)
MODERATELY HARD CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK.

TERMS AND DEFINITIONS (CONT.)
DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.
DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.

FRAC. SPAC. (CONT.)
VERY CLOSE LESS THAN 0.16 FEET
VERY CLOSE LESS THAN 0.16 FEET

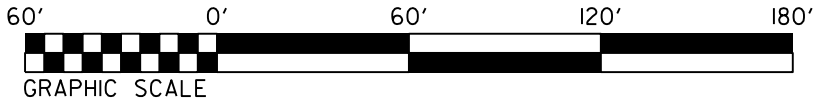
INDURATION
FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.
FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.

PROJECT REFERENCE NO. <b>R-4707</b>	SHEET NO. <b>3</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	



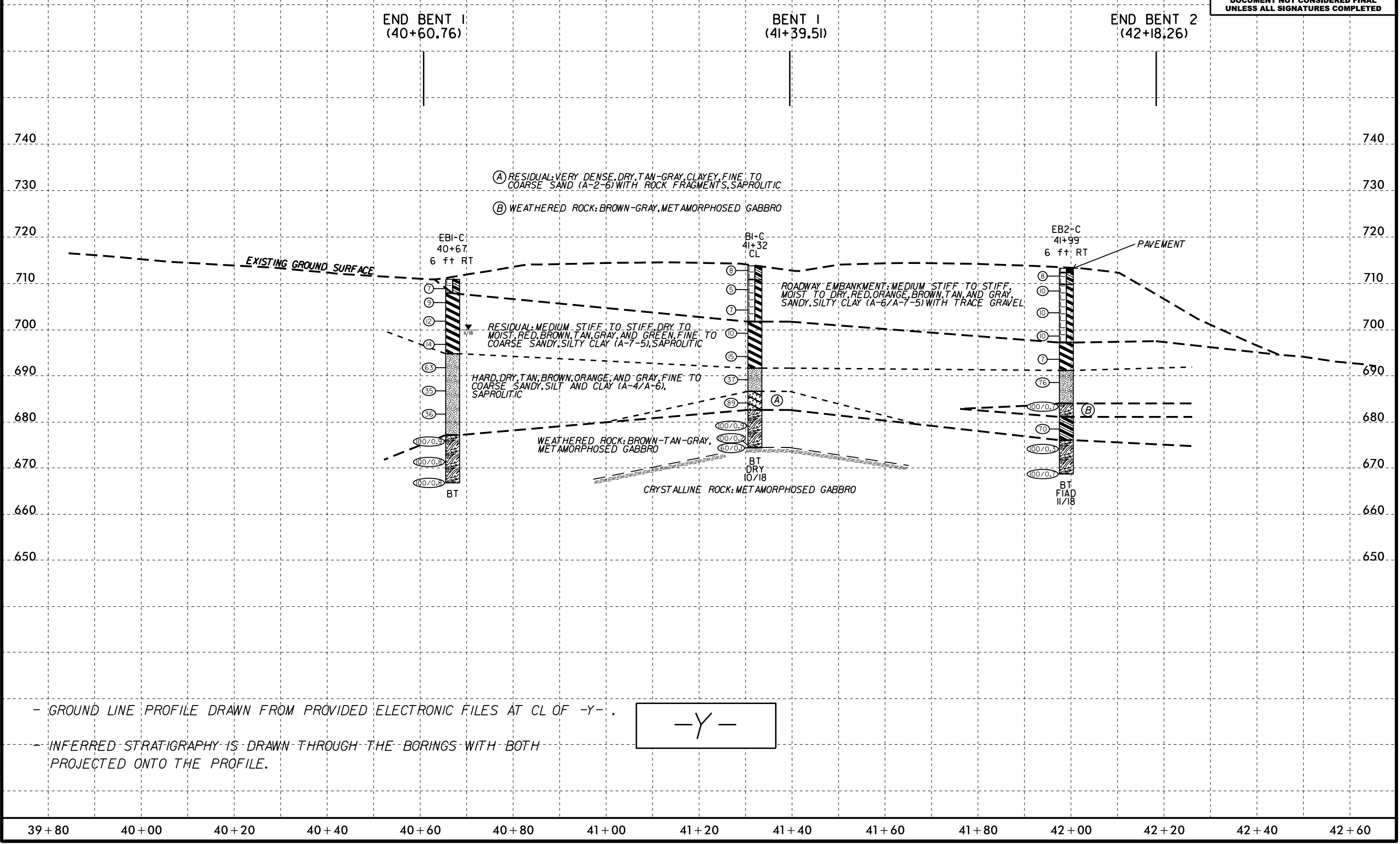
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**SKEW=90°**

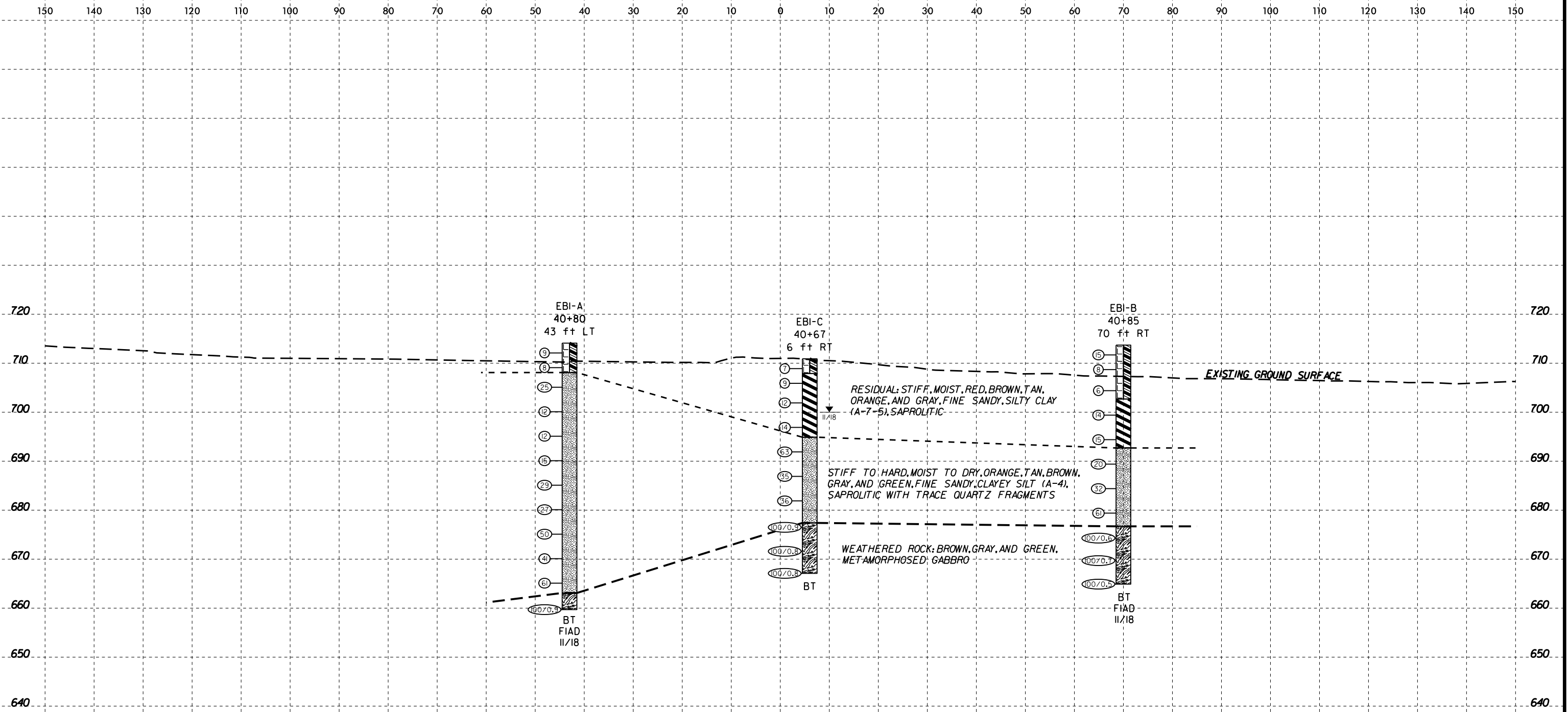


PROJECT REFERENCE NO. <b>R-4707</b>	SHEET NO. <b>4</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	

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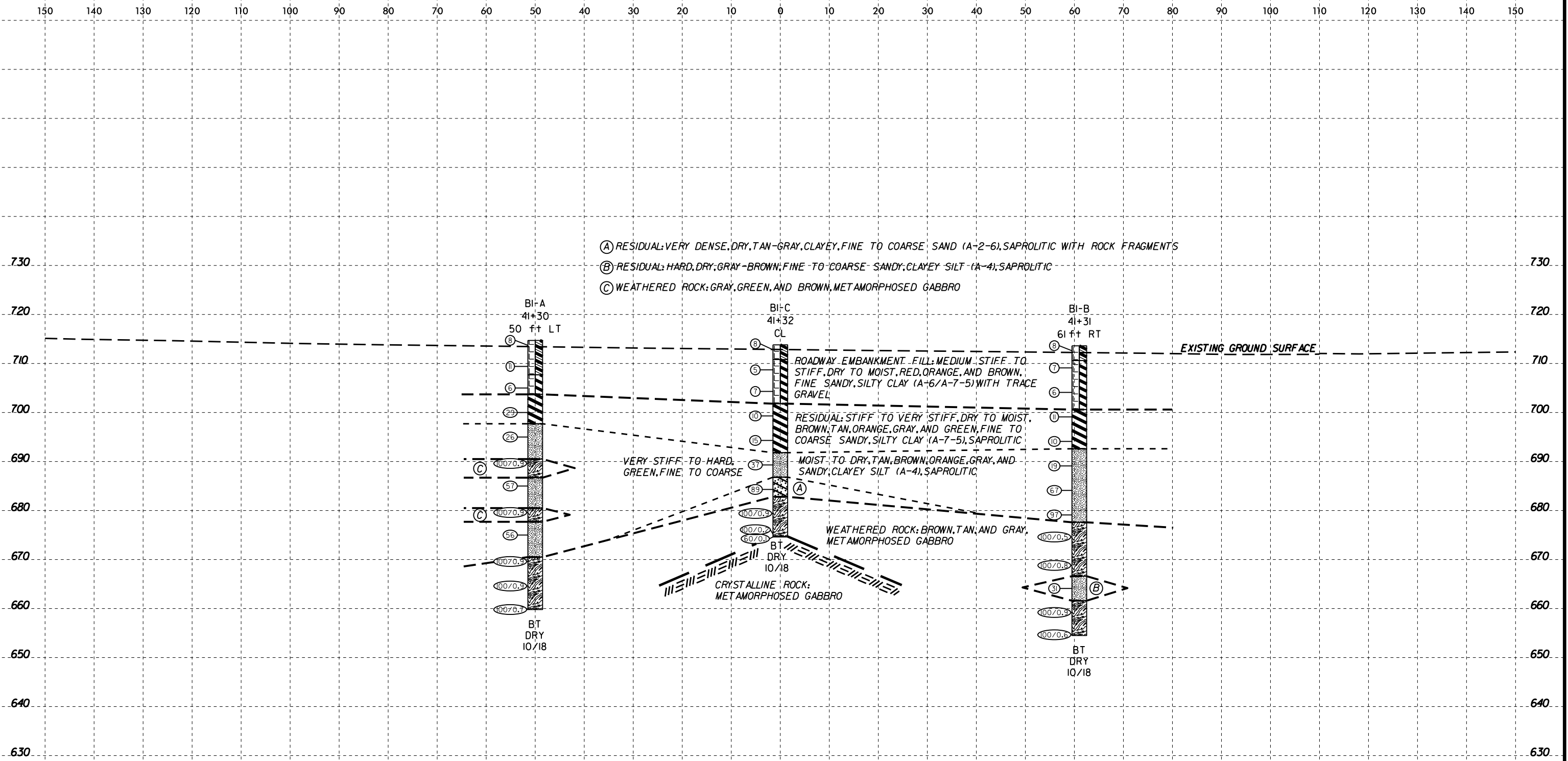


### CROSS SECTION ALONG END BENT I (STATION 40+60.76)

- GROUND LINE CROSS SECTION DRAWN FROM PROVIDED ELECTRONIC FILES ALONG LINE OF BENT, SKEW 90°.
- INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

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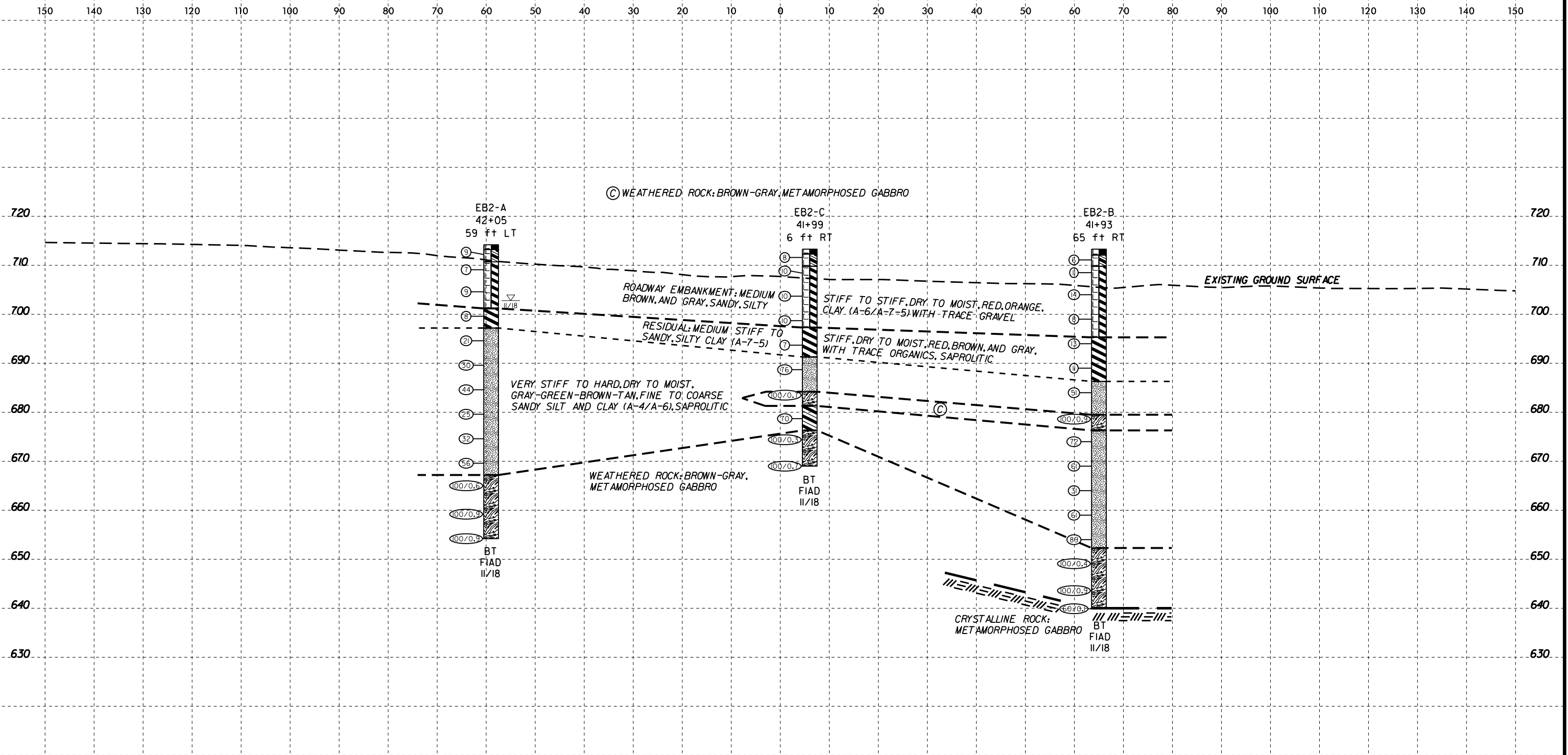
### CROSS SECTION ALONG BENT I (STATION 41 + 39.51)

- GROUND LINE CROSS SECTION DRAWN FROM PROVIDED ELECTRONIC FILES ALONG LINE OF BENT, SKEW 90°.

- INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

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### CROSS SECTION ALONG END BENT 2 (STATION 42+18.26)

- GROUND LINE CROSS SECTION DRAWN FROM PROVIDED ELECTRONIC FILES ALONG LINE OF BENT, SKEW 90°.
- INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.

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# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 36599.1.5		TIP R-4707		COUNTY GUILFORD		GEOLOGIST M. Lear										
SITE DESCRIPTION Bridge On SR 4771 (Reedy Fork Parkway) Over US 29 Between SR 2526 and SR 2790							GROUND WTR (ft)									
BORING NO. EB1-A		STATION 40+80		OFFSET 43 ft LT		ALIGNMENT -Y-										
COLLAR ELEV. 714.1 ft		TOTAL DEPTH 54.4 ft		NORTHING 882,802		EASTING 1,789,365										
DRILL RIG/HAMMER EFF./DATE SME9403 CME-550X 91% 02/02/2018		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic												
DRILLER S. Hardee		START DATE 11/14/18		COMP. DATE 11/14/18		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						
715														714.1	GROUND SURFACE	0.0
	713.1	1.0	6	4	5								M	711.1	ROADWAY EMBANKMENT Stiff, moist, tan-red-brown, silty CLAY (A-6) with trace gravel	3.0
710	710.1	4.0	3	3	5								M	707.1	RESIDUAL Stiff, moist, red-orange-tan, silty CLAY (A-7-5), Saprolitic	7.0
	706.1	8.0	6	11	14								M		Stiff to hard, moist to dry, orange-tan-brown-green, fine sandy, clayey SILT (A-4), Saprolitic	
705	701.1	13.0	5	6	6								M			
700	696.1	18.0	3	5	7								M			
695	691.1	23.0	4	6	9								M			
690	686.1	28.0	9	11	18								M			
685	681.1	33.0	14	12	15								M			
680	676.1	38.0	20	23	27								D			
675	671.1	43.0	10	18	23								D			
670	666.1	48.0	13	24	37								D			
665	661.1	53.0	30	46	54/0.4								D			
660														663.1	WEATHERED ROCK Brown, METAMORPHOSED GABBRO	51.0
														659.7	Boring Terminated at Elevation 659.7 ft in Weathered Rock: METAMORPHOSED GABBRO	54.4

NCDOT BORE DOUBLE R-4707\_GEO\_BRDGE\_GINT LOGS.GPJ\_NC\_DOT.GDT 4/8/19

WBS 36599.1.5		TIP R-4707		COUNTY GUILFORD		GEOLOGIST M. Lear										
SITE DESCRIPTION Bridge On SR 4771 (Reedy Fork Parkway) Over US 29 Between SR 2526 and SR 2790							GROUND WTR (ft)									
BORING NO. EB1-C		STATION 40+67		OFFSET 6 ft RT		ALIGNMENT -Y-										
COLLAR ELEV. 710.9 ft		TOTAL DEPTH 43.8 ft		NORTHING 882,765		EASTING 1,789,331										
DRILL RIG/HAMMER EFF./DATE SME9403 CME-550X 91% 02/02/2018		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic												
DRILLER S. Hardee		START DATE 11/12/18		COMP. DATE 11/12/18		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						
715														710.9	GROUND SURFACE	0.0
	709.9	1.0	3	3	4								M	707.9	ROADWAY EMBANKMENT Medium stiff, moist, red-brown, silty CLAY (A-6) with trace gravel	3.0
710	706.9	4.0	1	4	5								M		RESIDUAL Stiff, moist, red-brown to tan-brown, fine sandy, silty CLAY (A-7-5), Saprolitic	
	702.9	8.0	5	5	7								M			
705	697.9	13.0	3	4	10								M			
700	692.9	18.0	20	26	37								D			
695	687.9	23.0	9	15	20								D			
690	682.9	28.0	12	15	21								D			
685	677.9	33.0	33	47	53/0.4								D			
680	672.9	38.0	23	37	63/0.3								D			
675	667.9	43.0	42	58/0.3									D			
670														677.4	WEATHERED ROCK Brown-gray, METAMORPHOSED GABBRO	33.5
														667.1	Boring Terminated at Elevation 667.1 ft in Weathered Rock: METAMORPHOSED GABBRO	43.8



# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 36599.1.5		TIP R-4707		COUNTY GUILFORD		GEOLOGIST M. Lear	
SITE DESCRIPTION Bridge On SR 4771 (Reedy Fork Parkway) Over US 29 Between SR 2526 and SR 2790							GROUND WTR (ft)
BORING NO. EB1-B		STATION 40+85		OFFSET 70 ft RT		ALIGNMENT -Y-	
COLLAR ELEV. 713.7 ft		TOTAL DEPTH 48.8 ft		NORTHING 882,699		EASTING 1,789,318	
DRILL RIG/HAMMER EFF./DATE SME9403 CME-550X 91% 02/02/2018			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic		
DRILLER S. Hardee		START DATE 11/14/18		COMP. DATE 11/14/18		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						
715														713.7	GROUND SURFACE	0.0
	712.7	1.0													ROADWAY EMBANKMENT	
	709.7	4.0	2	9	6										Stiff to medium stiff, moist, red-brown-gray, silty CLAY (A-6) with gravel, geo-fabric encountered at 1.5 feet	
	705.4	8.3	2	4	4											
	700.4	13.3	2	3	3										RESIDUAL	
	695.4	18.3	3	6	8										Stiff, moist, red-orange to gray-brown, fine sandy, silty CLAY (A-7-5), Saprolitic	
	690.4	23.3	3	5	10											
	685.4	28.3	9	14	18										Very stiff to hard, tan-gray-brown-green, fine sandy, clayey SILT (A-4), Saprolitic, trace quartz fragments	
	680.4	33.3	12	23	38											
	675.4	38.3	18	60	40/0.1										WEATHERED ROCK	
	670.4	43.3	63	37/0.2											Green-brown, METAMORPHOSED GABBRO	
	665.4	48.3	100/0.5												Boring Terminated at Elevation 664.9 ft in Weathered Rock: METAMORPHOSED GABBRO	48.8

WBS 36599.1.5		TIP R-4707		COUNTY GUILFORD		GEOLOGIST J. Howard	
SITE DESCRIPTION Bridge On SR 4771 (Reedy Fork Parkway) Over US 29 Between SR 2526 and SR 2790							GROUND WTR (ft)
BORING NO. B1-A		STATION 41+30		OFFSET 50 ft LT		ALIGNMENT -Y-	
COLLAR ELEV. 714.7 ft		TOTAL DEPTH 54.9 ft		NORTHING 882,785		EASTING 1,789,413	
DRILL RIG/HAMMER EFF./DATE SME9403 CME-550X 91% 02/02/2018			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic		
DRILLER S. Hardee		START DATE 10/30/18		COMP. DATE 10/30/18		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						
715														714.7	GROUND SURFACE	0.0
	714.7	0.0	2	3	5										ROADWAY EMBANKMENT	
	710.4	4.3	2	4	7										Stiff, dry to moist, brown to orange-brown, fine sandy, silty CLAY (A-6) with trace gravel	
	706.0	8.7	2	3	3										Medium stiff, moist, brown, fine sandy, silty CLAY (A-7-5)	
	701.0	13.7	5	11	18										RESIDUAL	
	696.0	18.7	9	11	15										Very stiff, dry, orange-tan, fine sandy, silty CLAY (A-7-5), Saprolitic	
	691.0	23.7	43	56	44/0.4										Very stiff to hard, dry, tan and gray, fine to coarse sandy, clayey SILT (A-4), Saprolitic	
	686.0	28.7	21	28	29										WEATHERED ROCK	
	681.0	33.7	15	43	57/0.4										Gray-green-brown, METAMORPHOSED GABBRO	
	676.0	38.7	18	28	28										RESIDUAL	
	671.0	43.7	35	50	50/0.4										Hard, dry, gray-green-brown, fine to coarse sandy, clayey SILT (A-4), Saprolitic	
	666.0	48.7	23	25	75/0.4										WEATHERED ROCK	
	661.0	53.7	19	64	36/0.2										Gray-brown, METAMORPHOSED GABBRO	
															RESIDUAL	
															Hard, dry, gray-brown, fine to coarse sandy, clayey SILT (A-4)	
															WEATHERED ROCK	
															Brown-gray, METAMORPHOSED GABBRO	
															Boring Terminated at Elevation 659.8 ft in Weathered Rock: METAMORPHOSED GABBRO	54.9

NCDOT BORE DOUBLE R-4707\_GEO\_BRIDGE\_GINT LOGS.GPJ\_NC\_DOT.GDT 4/8/19

# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 36599.1.5		TIP R-4707		COUNTY GUILFORD		GEOLOGIST J. Howard	
SITE DESCRIPTION Bridge On SR 4771 (Reedy Fork Parkway) Over US 29 Between SR 2526 and SR 2790							GROUND WTR (ft)
BORING NO. B1-C		STATION 41+32		OFFSET CL		ALIGNMENT -Y-	
COLLAR ELEV. 713.8 ft		TOTAL DEPTH 39.2 ft		NORTHING 882,740		EASTING 1,789,392	
DRILL RIG/HAMMER EFF./DATE SME9403 CME-550X 91% 02/02/2018		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic			
DRILLER S. Hardee		START DATE 10/30/18		COMP. DATE 10/30/18		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				
715	713.8	0.0	2	3	5							M	713.8 GROUND SURFACE	0.0
710	709.7	4.1	2	2	3							M	710.8 ROADWAY EMBANKMENT Medium stiff, moist, brown-orange, fine sandy, silty CLAY (A-6) with trace gravel	3.0
705	705.3	8.5	2	3	4							M	701.8 ROADWAY EMBANKMENT Medium stiff, moist, brown-orange to red-brown, fine sandy, silty CLAY (A-7-5)	12.0
700	700.3	13.5	2	4	6							M	701.8 RESIDUAL Stiff, moist, brown-gray-green-tan, fine to coarse sandy, silty CLAY (A-7-5) with trace rock fragments, Saprolitic	12.0
695	695.3	18.5	3	6	9							M	691.8 RESIDUAL Stiff, moist, brown, silty CLAY (A-7-5), Saprolitic	13.0
690	690.3	23.5	11	16	21							M	692.6 RESIDUAL Stiff, moist, brown, silty CLAY (A-7-5), Saprolitic	21.0
685	685.3	28.5	29	34	55							D	686.8 WEATHERED ROCK Very stiff to hard, moist to dry, tan, gray, brown, and green, fine sandy, clayey SILT (A-4), Saprolitic	27.0
680	680.3	33.5	22	78/0.4								D	682.8 WEATHERED ROCK Tan-gray, METAMORPHOSED GABBRO	31.0
675	675.3 674.7	38.5 39.1	100/0.2 60/0.1									D	674.7 WEATHERED ROCK Tan-gray, METAMORPHOSED GABBRO	39.1
												D	674.6 CRYSTALLINE ROCK METAMORPHOSED GABBRO Boring Terminated with Standard Penetration Test Refusal at Elevation 674.6 ft in Crystalline Rock: METAMORPHOSED GABBRO	39.2

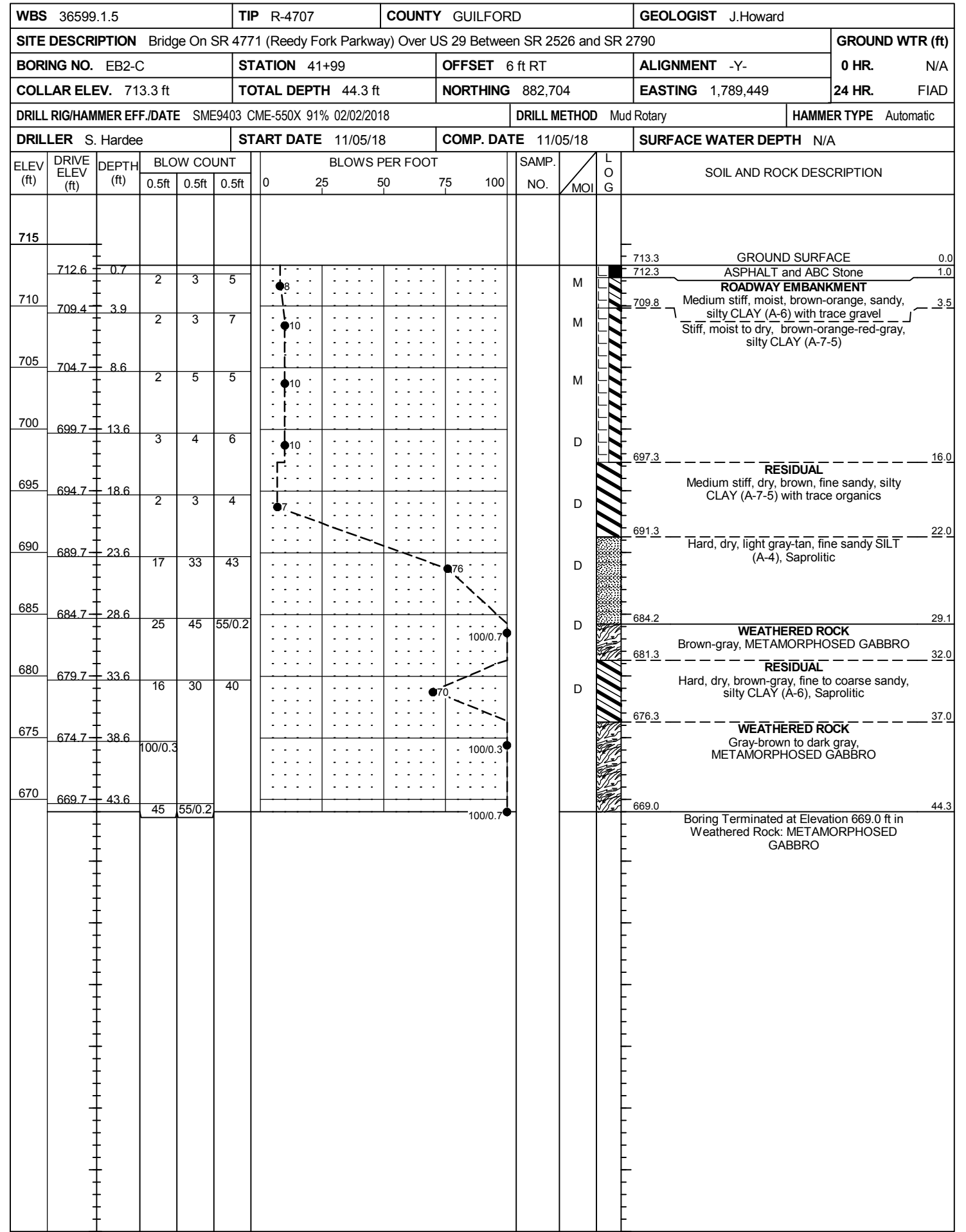
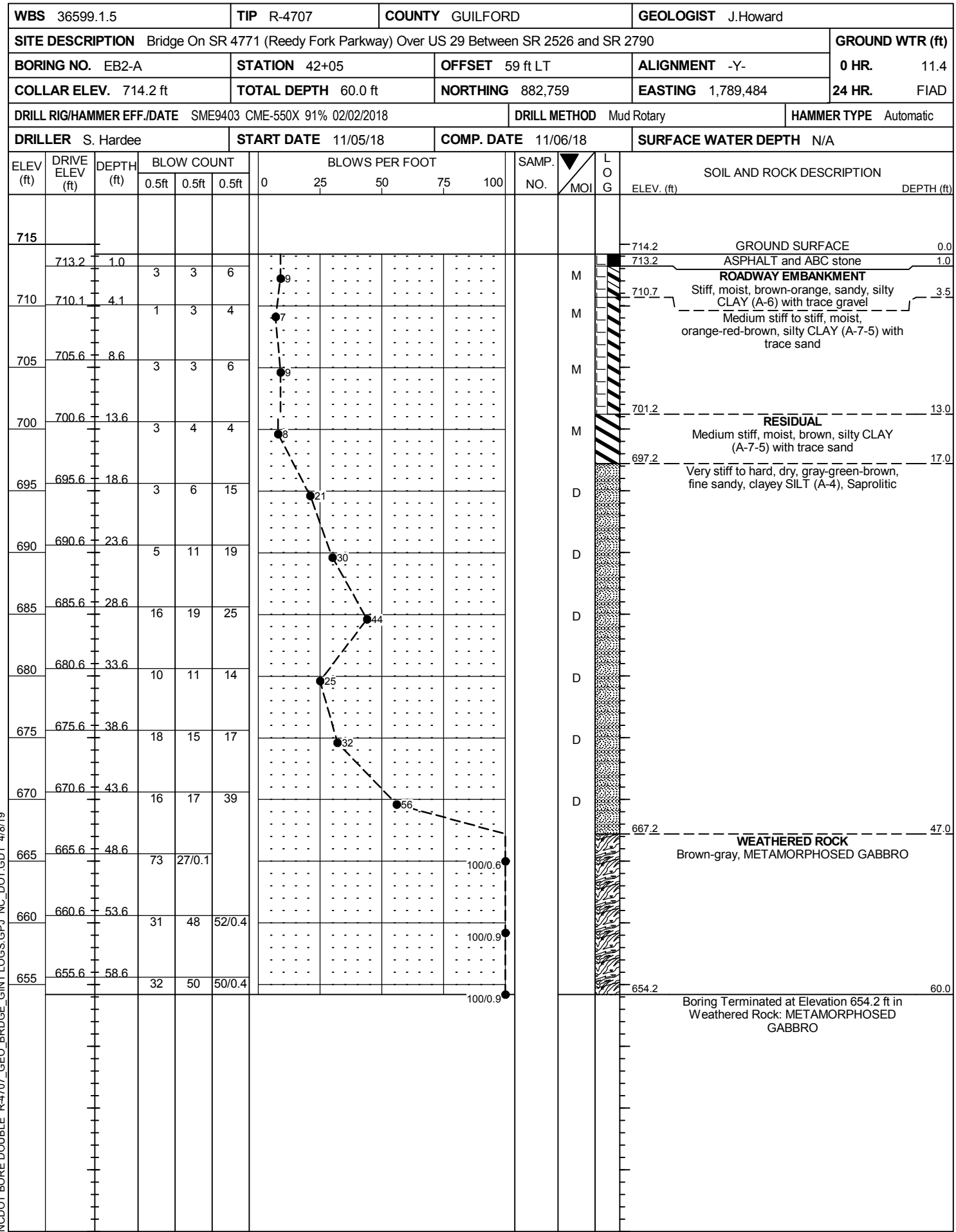
WBS 36599.1.5		TIP R-4707		COUNTY GUILFORD		GEOLOGIST J. Howard	
SITE DESCRIPTION Bridge On SR 4771 (Reedy Fork Parkway) Over US 29 Between SR 2526 and SR 2790							GROUND WTR (ft)
BORING NO. B1-B		STATION 41+31		OFFSET 61 ft RT		ALIGNMENT -Y-	
COLLAR ELEV. 713.6 ft		TOTAL DEPTH 59.1 ft		NORTHING 882,686		EASTING 1,789,363	
DRILL RIG/HAMMER EFF./DATE SME9403 CME-550X 91% 02/02/2018		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic			
DRILLER S. Hardee		START DATE 10/31/18		COMP. DATE 10/31/18		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				
715	713.6	0.0	2	4	4							M	713.6 GROUND SURFACE	0.0
710	710.1	3.5	3	3	4							M	710.6 ROADWAY EMBANKMENT Medium stiff, moist, brown-red, fine sandy, silty CLAY (A-6) with trace gravel	3.0
705	705.1	8.5	1	3	3							M	700.6 ROADWAY EMBANKMENT Medium stiff, moist, red-brown, fine sandy, silty CLAY (A-7-5) with trace gravel	13.0
700	700.1	13.5	3	4	7							M	700.6 RESIDUAL Stiff, moist, brown, silty CLAY (A-7-5), Saprolitic	13.0
695	695.1	18.5	3	4	6							M	692.6 RESIDUAL Stiff, moist, brown, silty CLAY (A-7-5), Saprolitic	21.0
690	690.1	23.5	5	8	11							M	686.8 WEATHERED ROCK Very stiff to hard, moist to dry, tan, gray, brown, and green, fine sandy, clayey SILT (A-4), Saprolitic	27.0
685	685.1	28.5	16	24	43							D	682.8 WEATHERED ROCK Tan-gray, METAMORPHOSED GABBRO	31.0
680	680.1	33.5	24	35	62							D	677.6 WEATHERED ROCK Gray-tan-brown, METAMORPHOSED GABBRO	36.0
675	675.1	38.5	100/0.5									D	666.6 WEATHERED ROCK Gray-tan-brown, METAMORPHOSED GABBRO	47.0
670	670.1	43.5	21	51	49/0.3							D	661.6 RESIDUAL Hard, dry, gray-brown, fine to coarse sandy, clayey SILT (A-4), Saprolitic	52.0
665	665.1	48.5	10	12	19							D	654.5 WEATHERED ROCK Tan-gray-brown, METAMORPHOSED GABBRO	59.1
660	660.1	53.5	37	63/0.4								D	654.5 WEATHERED ROCK Tan-gray-brown, METAMORPHOSED GABBRO	59.1
655	655.1	58.5	60	40/0.1								D	654.5 WEATHERED ROCK Tan-gray-brown, METAMORPHOSED GABBRO	59.1
												D	Boring Terminated at Elevation 654.5 ft in Weathered Rock: METAMORPHOSED GABBRO	59.1

NCDOT BORE DOUBLE R-4707\_GEO\_BRDGE\_GINT LOGS.GPJ NC\_DOT.GDT 4/8/19

# GEOTECHNICAL BORING REPORT

## BORE LOG

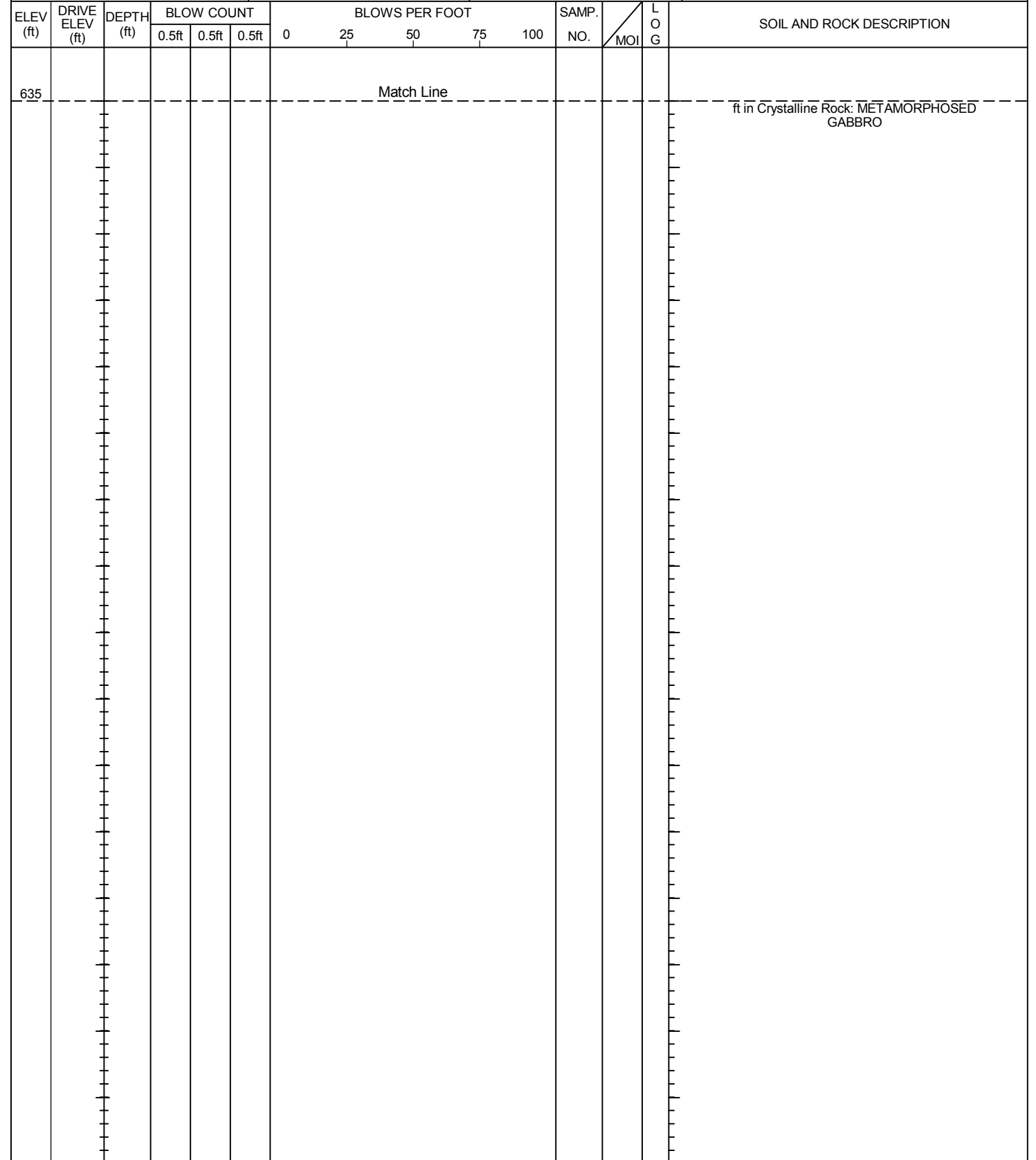
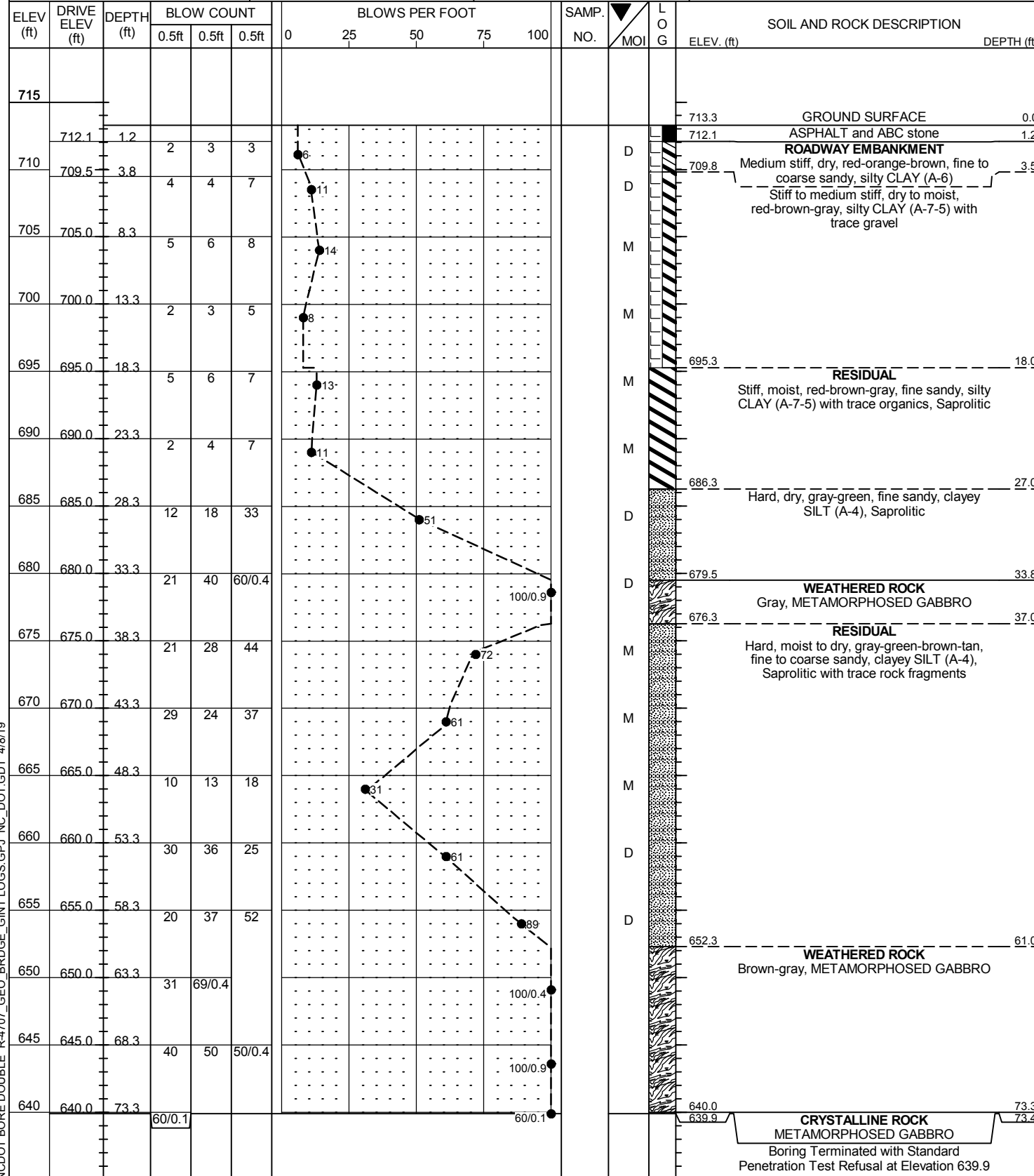


NCDOT BORE DOUBLE R-4707\_GEO\_BRIDGE\_GINT LOGS.GPJ NC\_DOT.GDT 4/8/19

# GEOTECHNICAL BORING REPORT BORE LOG

<b>WBS</b> 36599.1.5	<b>TIP</b> R-4707	<b>COUNTY</b> GUILFORD	<b>GEOLOGIST</b> J.Howard
<b>SITE DESCRIPTION</b> Bridge On SR 4771 (Reedy Fork Parkway) Over US 29 Between SR 2526 and SR 2790			<b>GROUND WTR (ft)</b>
<b>BORING NO.</b> EB2-B	<b>STATION</b> 41+93	<b>OFFSET</b> 65 ft RT	<b>ALIGNMENT</b> -Y-
<b>COLLAR ELEV.</b> 713.3 ft	<b>TOTAL DEPTH</b> 73.4 ft	<b>NORTHING</b> 882,654	<b>EASTING</b> 1,789,416
<b>DRILL RIG/HAMMER EFF./DATE</b> SME9403 CME-550X 91% 02/02/2018	<b>DRILL METHOD</b> Mud Rotary	<b>HAMMER TYPE</b> Automatic	
<b>DRILLER</b> S. Hardee	<b>START DATE</b> 10/31/18	<b>COMP. DATE</b> 10/31/18	<b>SURFACE WATER DEPTH</b> N/A

<b>WBS</b> 36599.1.5	<b>TIP</b> R-4707	<b>COUNTY</b> GUILFORD	<b>GEOLOGIST</b> J.Howard
<b>SITE DESCRIPTION</b> Bridge On SR 4771 (Reedy Fork Parkway) Over US 29 Between SR 2526 and SR 2790			<b>GROUND WTR (ft)</b>
<b>BORING NO.</b> EB2-B	<b>STATION</b> 41+93	<b>OFFSET</b> 65 ft RT	<b>ALIGNMENT</b> -Y-
<b>COLLAR ELEV.</b> 713.3 ft	<b>TOTAL DEPTH</b> 73.4 ft	<b>NORTHING</b> 882,654	<b>EASTING</b> 1,789,416
<b>DRILL RIG/HAMMER EFF./DATE</b> SME9403 CME-550X 91% 02/02/2018	<b>DRILL METHOD</b> Mud Rotary	<b>HAMMER TYPE</b> Automatic	
<b>DRILLER</b> S. Hardee	<b>START DATE</b> 10/31/18	<b>COMP. DATE</b> 10/31/18	<b>SURFACE WATER DEPTH</b> N/A



NCDOT BORE DOUBLE R-4707\_GEO\_BRIDGE\_GINT LOGS.GPJ NC\_DOT.GDT 4/8/19

640.0 639.9 73.3 73.4  
**CRYSTALLINE ROCK**  
 METAMORPHOSED GABBRO  
 Boring Terminated with Standard Penetration Test Refusal at Elevation 639.9