

REFERENCE: BR-0118

PROJECT: 48827

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

**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

COUNTY NORTHAMPTON  
PROJECT DESCRIPTION BRIDGE NO. 93 ON -L-  
(SR 1203) OVER JACKS SWAMP AT STA. 13+92

**CONTENTS**

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4	PROFILE
5-6	BORE LOGS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0118	1	6

**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:
1. 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.
  2. 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

D.N. ARGENBRIGHT  
S.N. ZIMARINO  
R.E. SMITH

INVESTIGATED BY T.C. BOTTOMS  
DRAWN BY S.N. ZIMARINO  
CHECKED BY D.N. ARGENBRIGHT  
SUBMITTED BY D.N. ARGENBRIGHT  
DATE DECEMBER 2019



DocuSigned by:  
Tyler C. Bottoms 1/7/2020  
48A2D3BD08... SIGNATURE DATE

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

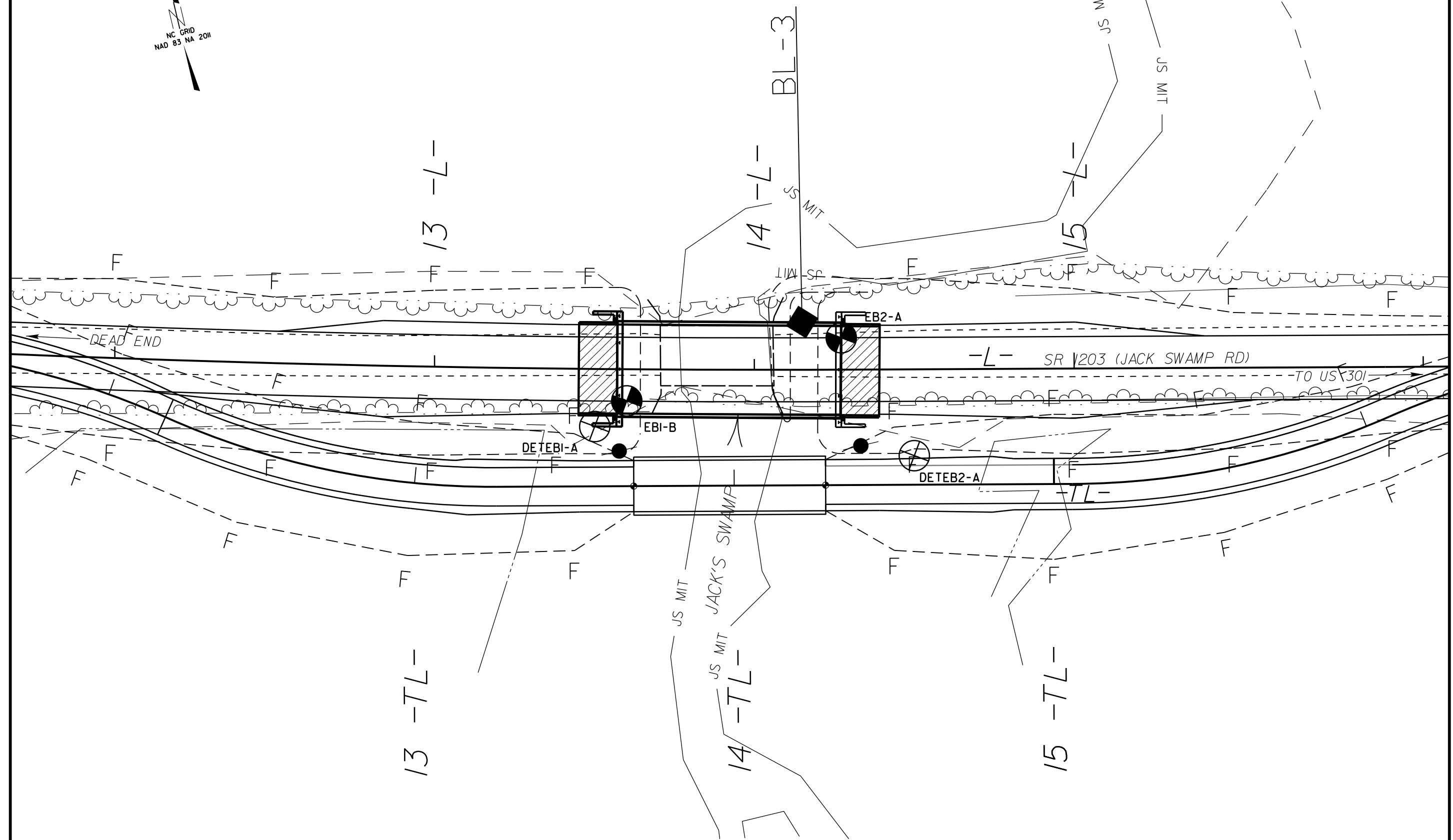
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

Table with multiple columns: SOIL DESCRIPTION, GRADATION, ROCK DESCRIPTION, TERMS AND DEFINITIONS, SOIL LEGEND AND AASHTO CLASSIFICATION, MINERALOGICAL COMPOSITION, COMPRESSIBILITY, PERCENTAGE OF MATERIAL, GROUND WATER, MISCELLANEOUS SYMBOLS, RECOMMENDATION SYMBOLS, ABBREVIATIONS, EQUIPMENT USED ON SUBJECT PROJECT, FRACTURE SPACING, BEDDING, INDOURATION, PLASTICITY, COLOR.

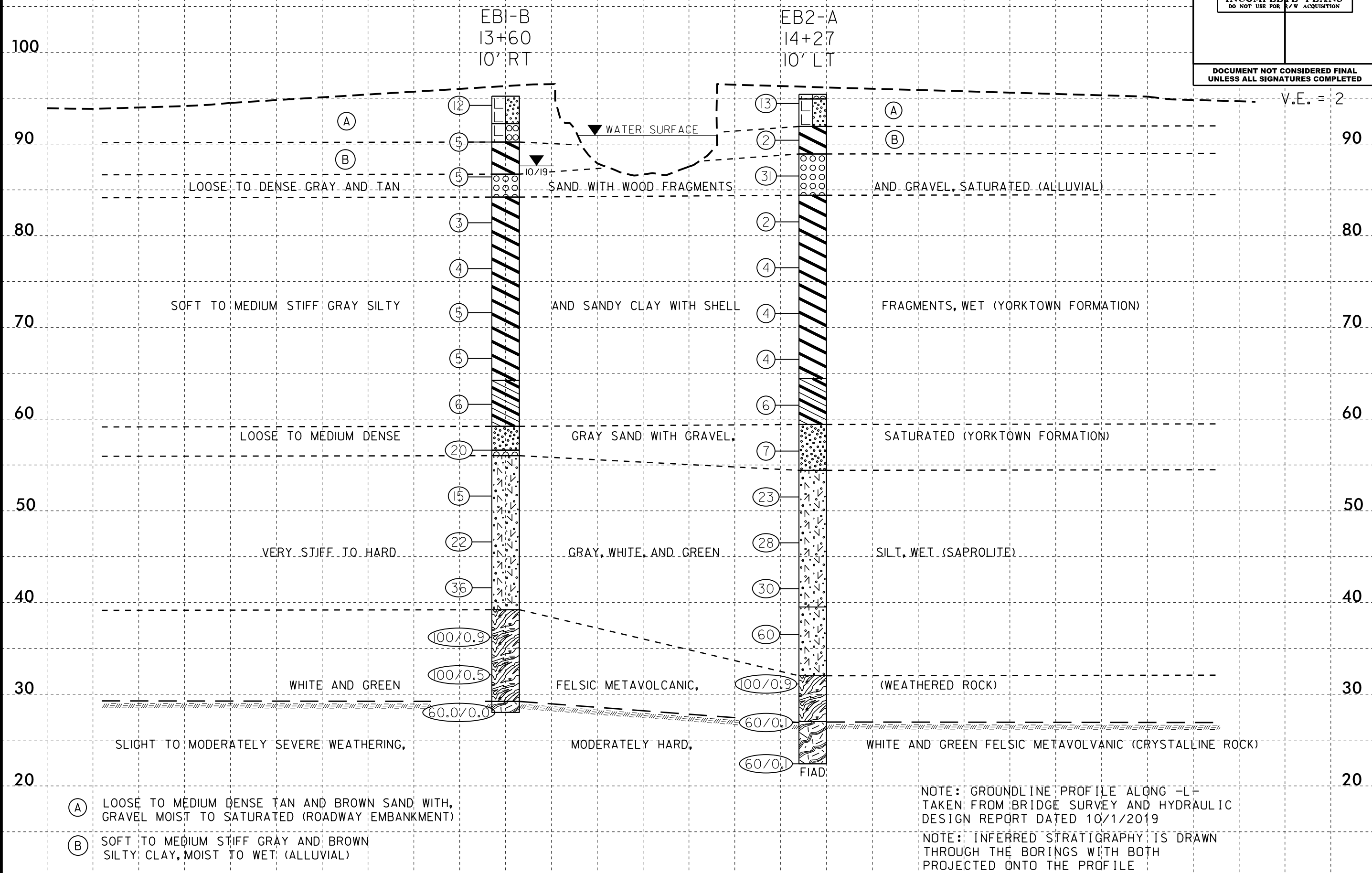
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# PROFILE THROUGH BORINGS PROJECTED ALONG -L-

PROJECT REFERENCE NO. <i>BR-0118</i>	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	



- (A) LOOSE TO MEDIUM DENSE TAN AND BROWN SAND WITH GRAVEL MOIST TO SATURATED (ROADWAY EMBANKMENT)
- (B) SOFT TO MEDIUM STIFF GRAY AND BROWN SILTY CLAY, MOIST TO WET (ALLUVIAL)

NOTE: GROUNDLINE PROFILE ALONG -L- TAKEN FROM BRIDGE SURVEY AND HYDRAULIC DESIGN REPORT DATED 10/1/2019

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE

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# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 48827.1.1		TIP BR-0118		COUNTY NORTHAMPTON		GEOLOGIST Argenbright, D. N.								
SITE DESCRIPTION BRIDGE NO. 93 ON -L- (SR 1203) OVER JACKS SWAMP							GROUND WTR (ft)							
BORING NO. EB1-B		STATION 13+60		OFFSET 10 ft RT		ALIGNMENT -L-								
COLLAR ELEV. 95.2 ft		TOTAL DEPTH 67.2 ft		NORTHING 1,009,645		EASTING 2,428,384								
DRILL RIGHAMMER EFF./DATE GFC0075 CME-45C 89% 08/19/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Smith, R. E.		START DATE 10/14/19		COMP. DATE 10/14/19		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				
100														
95	95.2	0.0	3	6	6								95.2 GROUND SURFACE 0.0	
90	91.2	4.0	4	3	2								92.2 ROADWAY EMBANKMENT 3.0	
85	87.4	7.8	WOH	2	3								90.2 TAN AND BROWN SAND WITH GRAVEL, MOIST 5.0	
80	82.4	12.8	1	1	2								86.7 ALLUVIAL GRAY SILTY CLAY, MOIST TO WET 8.5	
75	77.4	17.8	2	2	2								84.2 GRAY SAND WITH GRAVEL, SATURATED 11.0	
70	72.6	22.6	3	2	3								COASTAL PLAIN GRAY SILTY AND SANDY CLAY WITH SHELL FRAGMENTS, WET (YORKTOWN FORMATION)	
65	67.6	27.6	3	3	2									
60	62.6	32.6	2	3	3								64.2 31.0	
55	57.6	37.6	5	3	17								59.2 GRAY SAND WITH GRAVEL, SATURATED 36.0	
50	52.6	42.6	10	6	9								56.6 SAPROLITE 38.6	
45	47.6	47.6	7	9	13								56.0 GRAY, WHITE, AND GREEN SILT, WET 39.2	
40	42.6	52.6	11	16	20									
35	37.6	57.6	36	58	42/0.4								39.2 WEATHERED ROCK WHITE AND GREEN FELSIC METAVOLCANIC 56.0	
30	32.6	62.6	100/0.5											
25	28.0	67.2	60/0.0										29.2 WEATHERED ROCK WHITE AND GREEN FELSIC METAVOLCANIC 66.0	
													28.0 CRYSTALLINE ROCK WHITE AND GREEN FELSIC METAVOLCANIC 67.2	
													Boring Terminated with Tricone Refusal at Elevation 28.0 ft in Crystalline Rock	

WBS 48827.1.1		TIP BR-0118		COUNTY NORTHAMPTON		GEOLOGIST Argenbright, D. N.								
SITE DESCRIPTION BRIDGE NO. 93 ON -L- (SR 1203) OVER JACKS SWAMP							GROUND WTR (ft)							
BORING NO. EB2-A		STATION 14+27		OFFSET 10 ft LT		ALIGNMENT -L-								
COLLAR ELEV. 95.4 ft		TOTAL DEPTH 73.0 ft		NORTHING 1,009,641		EASTING 2,428,315								
DRILL RIGHAMMER EFF./DATE GFC0075 CME-45C 89% 08/19/2019		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Smith, R. E.		START DATE 10/15/19		COMP. DATE 10/15/19		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				
100														
95	95.4	0.0	2	7	6								95.4 GROUND SURFACE 0.0	
90	91.4	4.0	2	1	1								84.8 ROADWAY EMBANKMENT 8.5	
85	87.5	7.9	3	11	20								91.9 TAN AND BROWN SAND WITH GRAVEL, MOIST 3.5	
80	82.5	12.9	1	1	1								88.9 ALLUVIAL GRAY AND BROWN SILTY CLAY, MOIST TO WET 6.5	
75	77.5	17.9	2	2	2								84.4 TAN SAND WITH GRAVEL AND WOOD FRAGMENTS, SATURATED 11.0	
70	72.5	22.9	2	2	2								COASTAL PLAIN GRAY SILTY AND SANDY CLAY WITH SHELL FRAGMENTS, WET (YORKTOWN FORMATION)	
65	67.5	27.9	2	2	2									
60	62.5	32.9	2	3	3								64.4 31.0	
55	57.5	37.9	2	3	4								59.4 GRAY SAND, SATURATED 36.0	
50	52.5	42.9	4	9	14								54.4 SAPROLITE 41.0	
45	47.5	47.9	7	13	15									
40	42.5	52.9	9	14	16									
35	37.5	57.9	24	29	31								39.5 55.9	
30	32.5	62.9	27	44	56/0.4								32.0 WEATHERED ROCK WHITE AND GREEN FELSIC METAVOLCANIC 63.4	
25	27.5	67.9	98	60/0.1									27.0 CRYSTALLINE ROCK WHITE AND GREEN FELSIC METAVOLCANIC 68.4	
	22.5	72.9	60/0.1										22.4 Boring Terminated at Elevation 22.4 ft in Crystalline Rock 73.0	

NCDOT BORE DOUBLE BR0118\_GEO BRDG093.GPJ NC\_DOT.GDT 12/9/19

# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 48827.1.1		TIP BR-0118		COUNTY NORTHAMPTON		GEOLOGIST Zimarino, S. N.										
SITE DESCRIPTION DETOUR BRIDGE ON -TL- (SR 1203) OVER JACKS SWAMP							GROUND WTR (ft)									
BORING NO. DETEB1-A		STATION 13+57		OFFSET 19 ft LT		ALIGNMENT -TL-										
COLLAR ELEV. 94.8 ft		TOTAL DEPTH 6.0 ft		NORTHING 1,009,633		EASTING 2,428,315										
DRILL RIGHAMMER EFF./DATE N/A		DRILL METHOD Hand Auger		HAMMER TYPE N/A												
DRILLER Smith, R. E.		START DATE 09/16/19		COMP. DATE 09/16/19		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						
95														94.8	GROUND SURFACE	0.0
														92.8	ROADWAY EMBANKMENT TAN AND ORANGE SAND	2.0
														89.8	ALLUVIAL GRAY SAND, MOIST TO SATURATED	5.0
90														88.8	GRAY SILTY CLAY, WET	6.0
															Boring Terminated at Elevation 88.8 ft in Soft Silty Clay	

WBS 48827.1.1		TIP BR-0118		COUNTY NORTHAMPTON		GEOLOGIST Zimarino, S. N.										
SITE DESCRIPTION DETOUR BRIDGE ON -TL- (SR 1203) OVER JACKS SWAMP							GROUND WTR (ft)									
BORING NO. DETEB2-A		STATION 14+56		OFFSET 9 ft LT		ALIGNMENT -TL-										
COLLAR ELEV. 92.0 ft		TOTAL DEPTH 6.0 ft		NORTHING 1,009,601		EASTING 2,428,410										
DRILL RIGHAMMER EFF./DATE N/A		DRILL METHOD Hand Auger		HAMMER TYPE N/A												
DRILLER Smith, R. E.		START DATE 09/16/19		COMP. DATE 09/16/19		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						
95														92.0	GROUND SURFACE	0.0
														89.5	ALLUVIAL GRAY SAND, MOIST TO SATURATED	2.5
90														88.0	GRAY SILTY CLAY, WET	4.0
														86.0	GRAY SAND, SATURATED	6.0
															Boring Terminated at Elevation 86.0 ft in Loose Sand	