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REFERENCE: B-4770

PROJECT: 38542

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY JOHNSTON
PROJECT DESCRIPTION BRIDGE NO. 32 ON -L- (SR 1185)
OVER HANNAH CREEK AT STA. 16+10

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND
3	SITE PLAN
4	PROFILE
5-8	BORE LOG(S)
9	SITE PHOTOGRAPH(S)

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4770	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:
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.

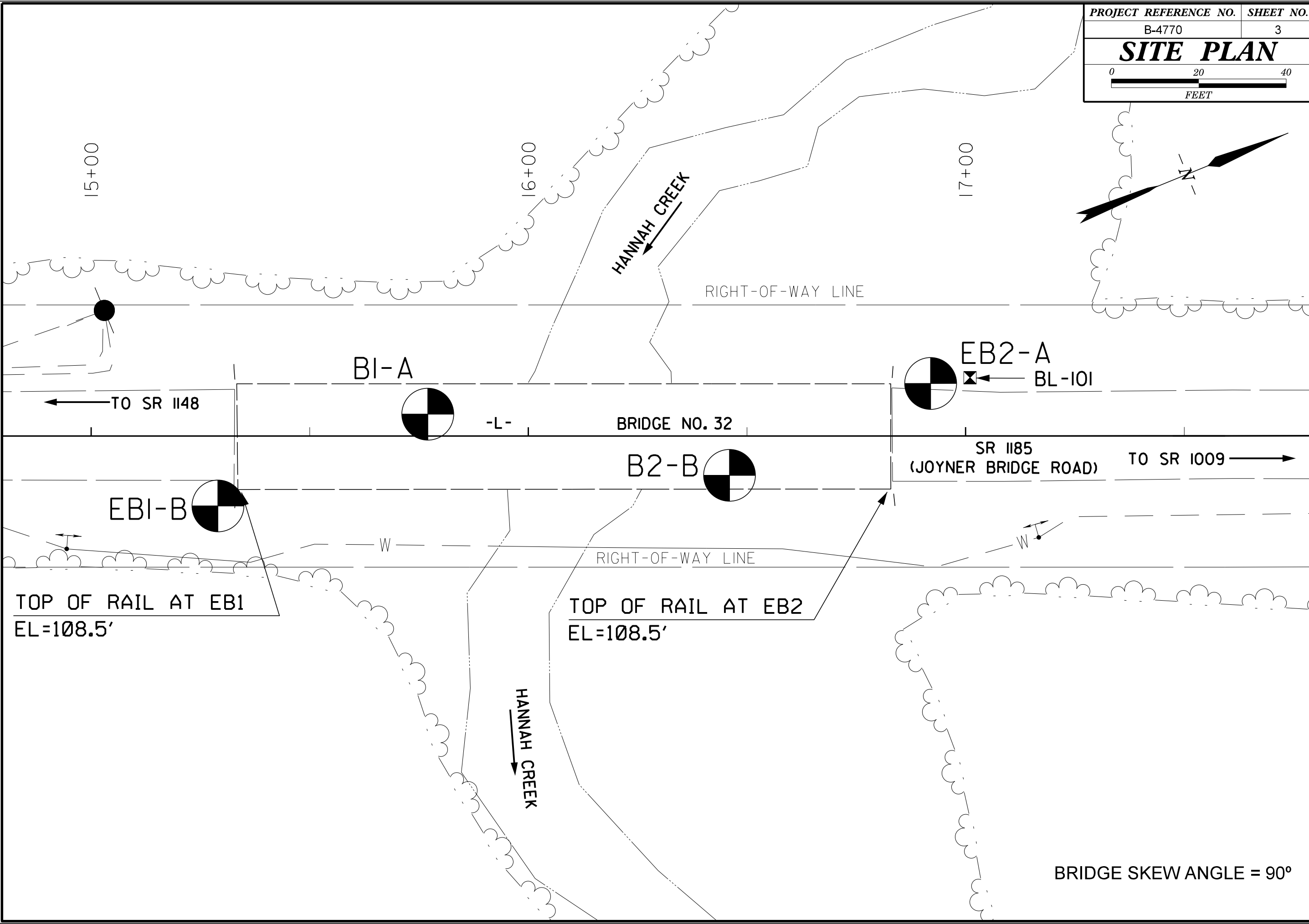
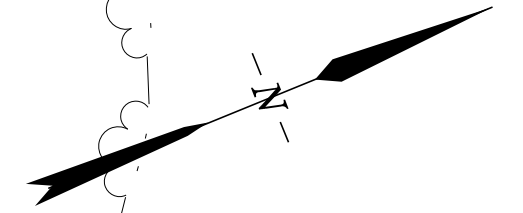
PERSONNEL
GEOSYNTEC
MID-ATLANTIC
DRILLING

INVESTIGATED BY WESTON SHIN
DRAWN BY CHUCK TURLINGTON
CHECKED BY NJOROGE WAINAINA
SUBMITTED BY WESTON SHIN
DATE FEBRUARY 2016



DocuSigned by:
Woo-Kuen Shin 4/27/2016
SIGNATURE DATE

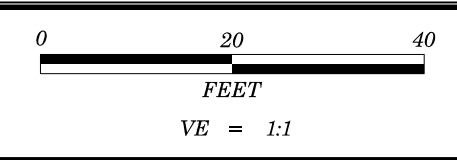
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UNLESS ALL SIGNATURES COMPLETED



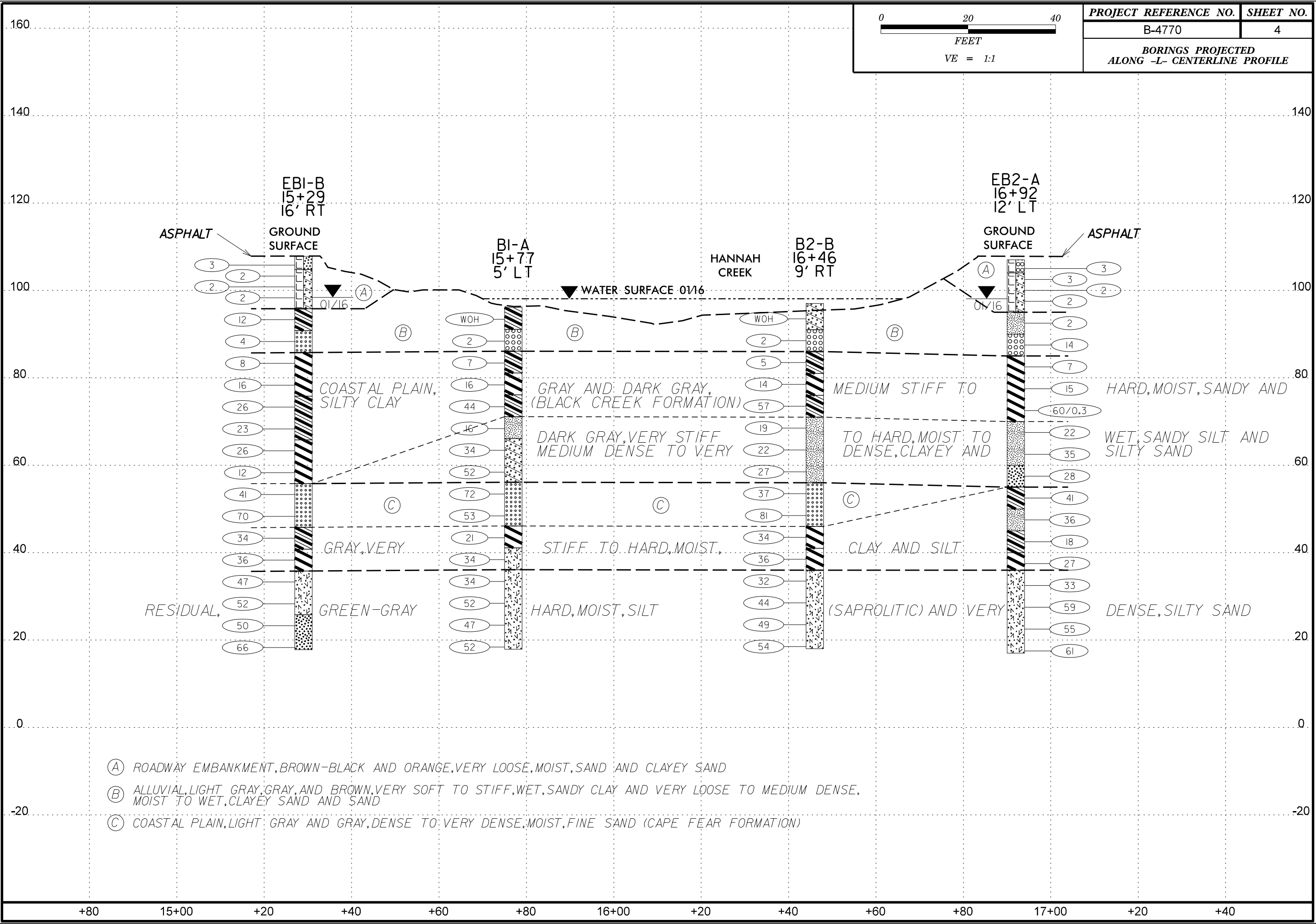
TOP OF RAIL AT EB1
EL=108.5'

TOP OF RAIL AT EB2
EL=108.5'

BRIDGE SKEW ANGLE = 90°



PROJECT REFERENCE NO.	SHEET NO.
B-4770	4
BORINGS PROJECTED ALONG -L- CENTERLINE PROFILE	



- (A) ROADWAY EMBANKMENT, BROWN-BLACK AND ORANGE, VERY LOOSE, MOIST, SAND AND CLAYEY SAND
- (B) ALLUVIAL, LIGHT GRAY, GRAY, AND BROWN, VERY SOFT TO STIFF, WET, SANDY CLAY AND VERY LOOSE TO MEDIUM DENSE, MOIST TO WET, CLAYEY SAND AND SAND
- (C) COASTAL PLAIN, LIGHT GRAY AND GRAY, DENSE TO VERY DENSE, MOIST, FINE SAND (CAPE FEAR FORMATION)

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 38542.1.1			TIP B-4770			COUNTY JOHNSTON			GEOLOGIST ROHIT WARRIER						
SITE DESCRIPTION BRIDGE NO. 32 ON -L- (SR1185) OVER HANNAH CREEK								GROUND WTR (ft)							
BORING NO. EB1-B		STATION 15+29		OFFSET 16 ft RT		ALIGNMENT -L-		0 HR. 9.0							
COLLAR ELEV. 107.8 ft		TOTAL DEPTH 90.0 ft		NORTHING 596,487		EASTING 2,197,102		24 HR. 9.4							
DRILL RIG/HAMMER EFF./DATE MID3964 CME-45C 77% 07/31/2015						DRILL METHOD Mud Rotary			HAMMER TYPE Automatic						
DRILLER Wiggins, M.			START DATE 01/18/16			COMP. DATE 01/18/16			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					
110															
106.8	106.8	1.0	1	2	1									107.8	GROUND SURFACE 0.0
105	104.3	3.5	1	1	1									104.8	ROADWAY EMBANKMENT BROWN-BLACK, SAND WITH TRACE ORGANICS 3.0
100	101.8	6.0	1	1	1										ORANGE, CLAYEY SAND
95	99.3	8.5	1	1	1										
90	94.3	13.5	1	5	7									95.8	ALLUVIAL GRAY, SANDY CLAY WITH MODERATE ORGANICS 12.0
85	89.3	18.5	3	2	2									90.8	LIGHT GRAY, FINE SAND WITH TRACE MICA 17.0
80	84.3	23.5	3	3	5									85.8	COASTAL PLAIN DARK GRAY, SILTY CLAY (BLACK CREEK FORMATION) 22.0
75	79.3	28.5	4	6	10									75.8	DARK GRAY, SILTY AND SANDY CLAY 32.0
70	74.3	33.5	4	6	20										
65	69.3	38.5	4	10	13									65.8	DARK GRAY, SILTY CLAY 42.0
60	64.3	43.5	8	10	16										
55	59.3	48.5	4	5	7									55.8	COASTAL PLAIN LIGHT GRAY TO GRAY, FINE SAND WITH TRACE MICA AND GRAVEL (CAPE FEAR FORMATION) 52.0
50	54.3	53.5	12	17	24										
45	49.3	58.5	21	30	40									45.8	LIGHT GRAY, SANDY CLAY WITH TRACE GRAVEL 62.0
40	44.3	63.5	15	15	19									40.8	MOTTLED RED AND GRAY, SILTY CLAY 67.0
35	39.3	68.5	8	14	22									35.8	RESIDUAL LIGHT GRAY TO GREEN-GRAY, SILT (SAPROLITIC) 72.0
30	34.3	73.5	11	21	26										

NCDOT BORE DOUBLE B4770_GEO_BRDG32_BH.GPJ_NC_DOT.GDT 3/4/16

WBS 38542.1.1			TIP B-4770			COUNTY JOHNSTON			GEOLOGIST ROHIT WARRIER						
SITE DESCRIPTION BRIDGE NO. 32 ON -L- (SR1185) OVER HANNAH CREEK								GROUND WTR (ft)							
BORING NO. EB1-B		STATION 15+29		OFFSET 16 ft RT		ALIGNMENT -L-		0 HR. 9.0							
COLLAR ELEV. 107.8 ft		TOTAL DEPTH 90.0 ft		NORTHING 596,487		EASTING 2,197,102		24 HR. 9.4							
DRILL RIG/HAMMER EFF./DATE MID3964 CME-45C 77% 07/31/2015						DRILL METHOD Mud Rotary			HAMMER TYPE Automatic						
DRILLER Wiggins, M.			START DATE 01/18/16			COMP. DATE 01/18/16			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					
30	29.3	78.5	20	25	27										
25	24.3	83.5	14	22	28									25.8	RESIDUAL LIGHT GRAY TO GREEN-GRAY, SILT (SAPROLITIC) (continued) 82.0
20	19.3	88.5	25	31	35									17.8	GREEN-GRAY, SILTY SAND 90.0
															Boring Terminated at Elevation 17.8 ft IN VERY DENSE SILTY SAND

GEOTECHNICAL BORING REPORT BORE LOG

WBS 38542.1.1		TIP B-4770		COUNTY JOHNSTON		GEOLOGIST ROHIT WARRIER	
SITE DESCRIPTION BRIDGE NO. 32 ON -L- (SR1185) OVER HANNAH CREEK							GROUND WTR (ft)
BORING NO. EB2-A		STATION 16+92		OFFSET 12 ft LT		ALIGNMENT -L-	
COLLAR ELEV. 107.0 ft		TOTAL DEPTH 90.0 ft		NORTHING 596,649		EASTING 2,197,137	
DRILL RIG/HAMMER EFF./DATE MID3964 CME-45C 77% 07/31/2015			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic		
DRILLER Wiggins, M.		START DATE 01/19/16		COMP. DATE 01/20/16		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					
110															
105	106.0	1.0		3	2	1									
	103.5	3.5	WOH	2	1										
100	101.0	6.0	WOH	1	1										
	98.5	8.5		1	1	1									
95	93.5	13.5	WOH	1	1										
90	88.5	18.5		4	5	9									
85	83.5	23.5		1	3	4									
80	78.5	28.5		4	6	9									
75	73.5	33.5		24	60/0.3										
70	68.5	38.5		5	9	13									
65	63.5	43.5		9	10	25									
60	58.5	48.5		13	14	14									
55	53.5	53.5		8	18	23									
50	48.5	58.5		17	17	19									
45	43.5	63.5		8	8	10									
40	38.5	68.5		7	12	15									
35	33.5	73.5		9	13	20									

WBS 38542.1.1		TIP B-4770		COUNTY JOHNSTON		GEOLOGIST ROHIT WARRIER	
SITE DESCRIPTION BRIDGE NO. 32 ON -L- (SR1185) OVER HANNAH CREEK							GROUND WTR (ft)
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DRILLER Wiggins, M.		START DATE 01/19/16		COMP. DATE 01/20/16		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					
30															
	28.5	78.5		12	24	35									
25	23.5	83.5		12	24	31									
20	18.5	88.5		17	24	37									

NCDOT BORE DOUBLE B4770_GEO_BRDG32_BH.GPJ_NC_DOT.GDT 3/4/16

SITE PHOTOGRAPH

BRIDGE NO. 32 ON -L- (SR 1185) OVER HANNAH CREEK

SHEET 9
38542.1.1 (B-4770)
JOHNSTON Co.



HANNAH
CREEK

LOOKING NORTH TOWARDS END BENT 2