

PROJECT: 38868.1.1 ID: R-3601

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

STRUCTURE
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 38868.1.1 (R-3601) F.A. PROJ. NHS-0017(68)
COUNTY BRUNSWICK
PROJECT DESCRIPTION BRIDGE NO.107 ON US 17 N /US 74 E /
US 76 E /NC 133 N OVER ALLIGATOR CREEK AT -LRT-
STA. III +17.50

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3601	1	20

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 1919 TOT-6850. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE 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 UN-PLACED 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 THIS 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.

PERSONNEL
C.M. WRIKE

SOME PERSONNEL

INVESTIGATED BY T.C. BOTTOMS
CHECKED BY D.N. ARGENBRIGHT
SUBMITTED BY D.N. ARGENBRIGHT
DATE MARCH 2012



DRAWN BY: C.P. TURNER

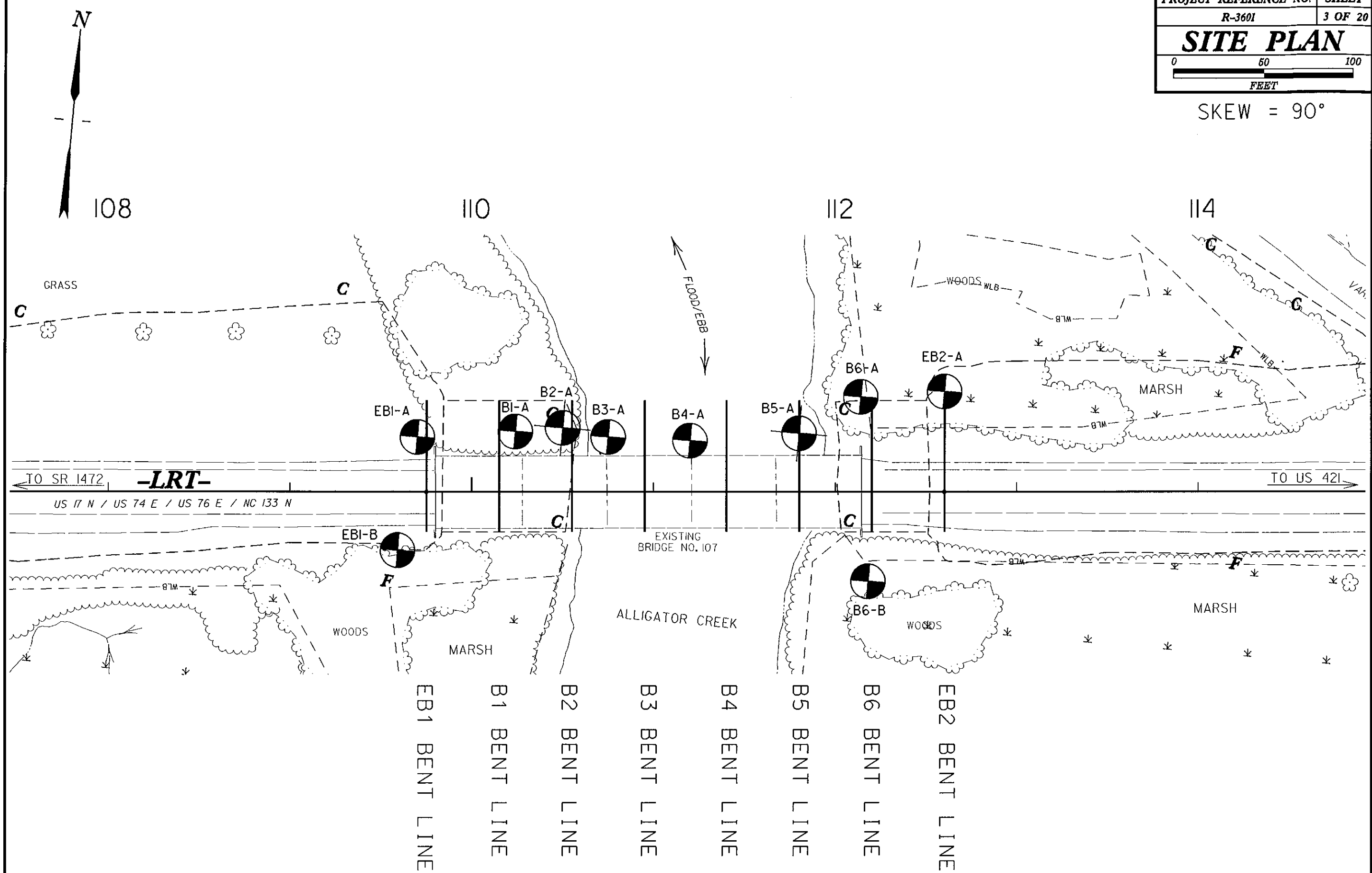
NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - 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.

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

REvised 09/23/09

SKEW = 90°



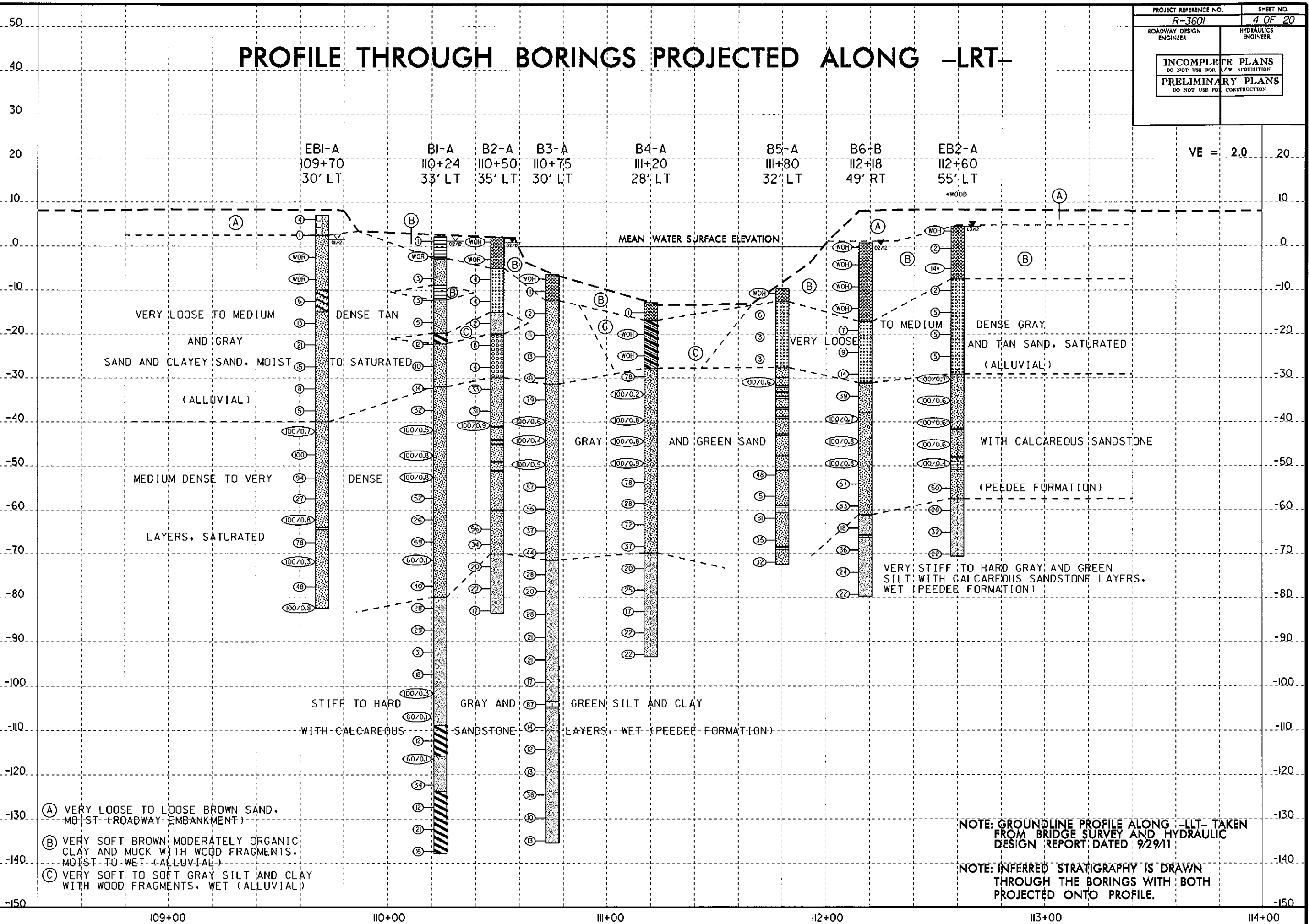
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L:\PROJECTS\2012\1359\Investigation\TIP\3601\GEO\BRDG0107\CADD\GEO\TECH\S&S\Sub\VR3601.GEO.BRDC.107.GTM.dgn

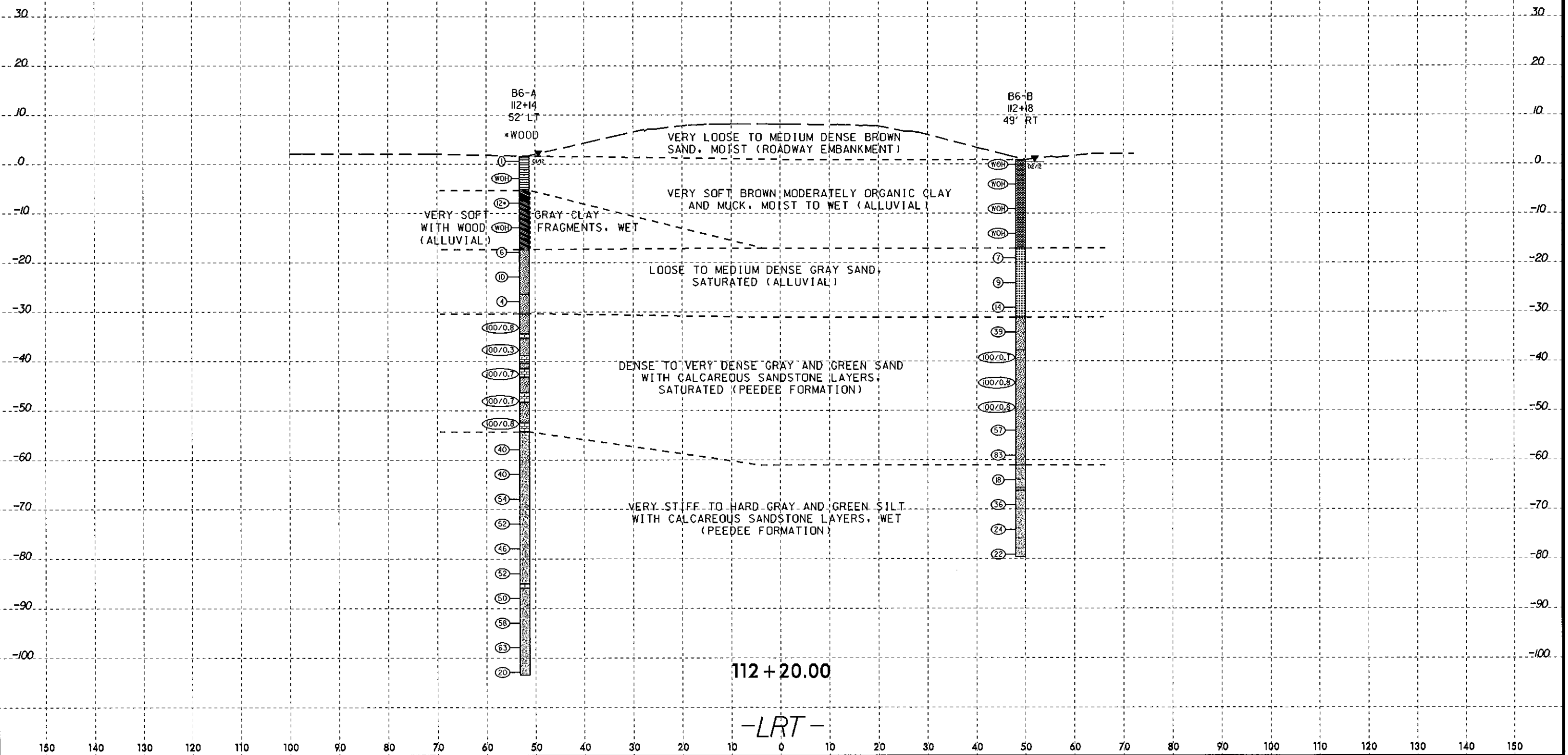
PROFILE THROUGH BORINGS PROJECTED ALONG -LRT-

PROJECT REFERENCE NO. R-3601		SHEET NO. 4 OF 20	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION		PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

VE = 2.0 20

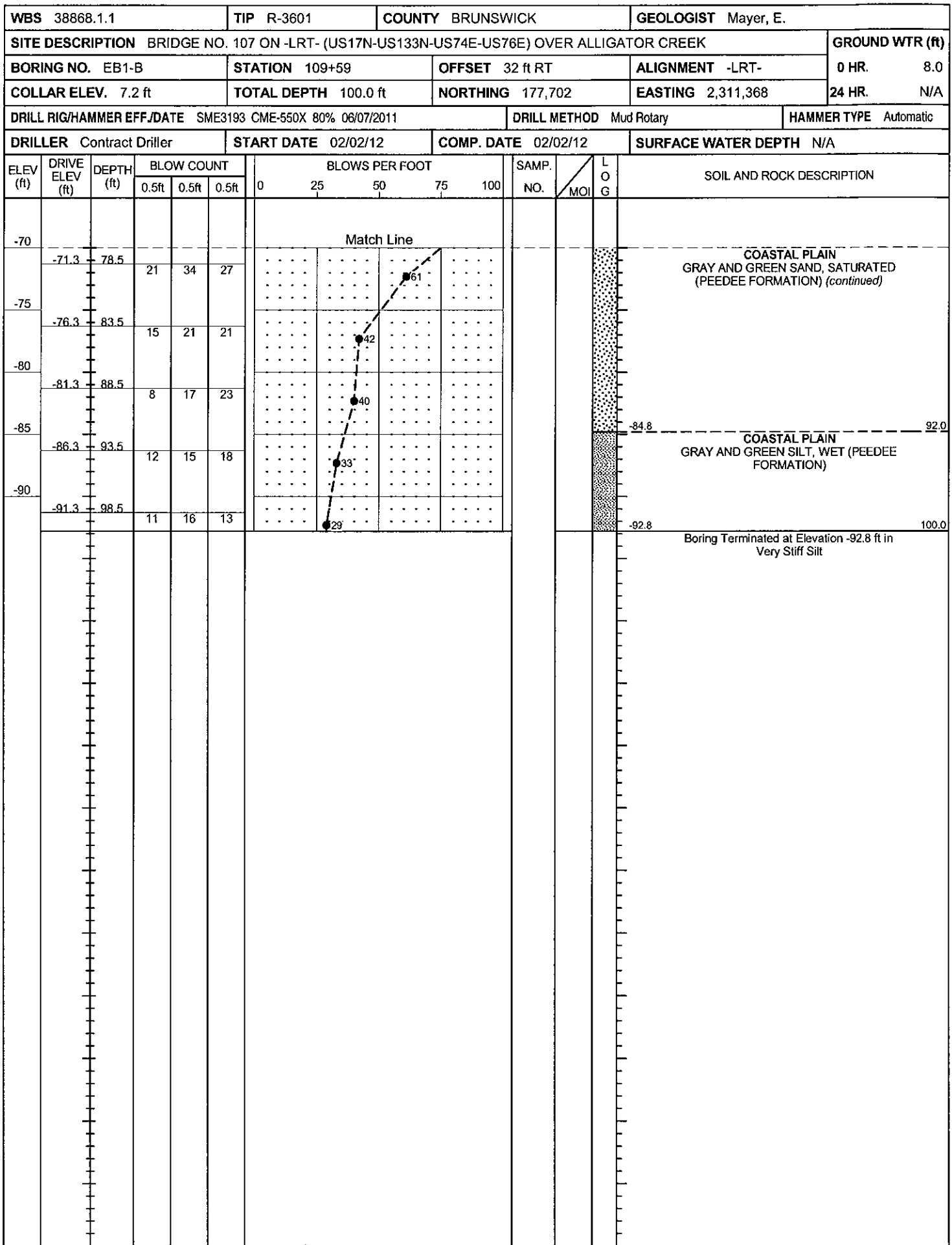
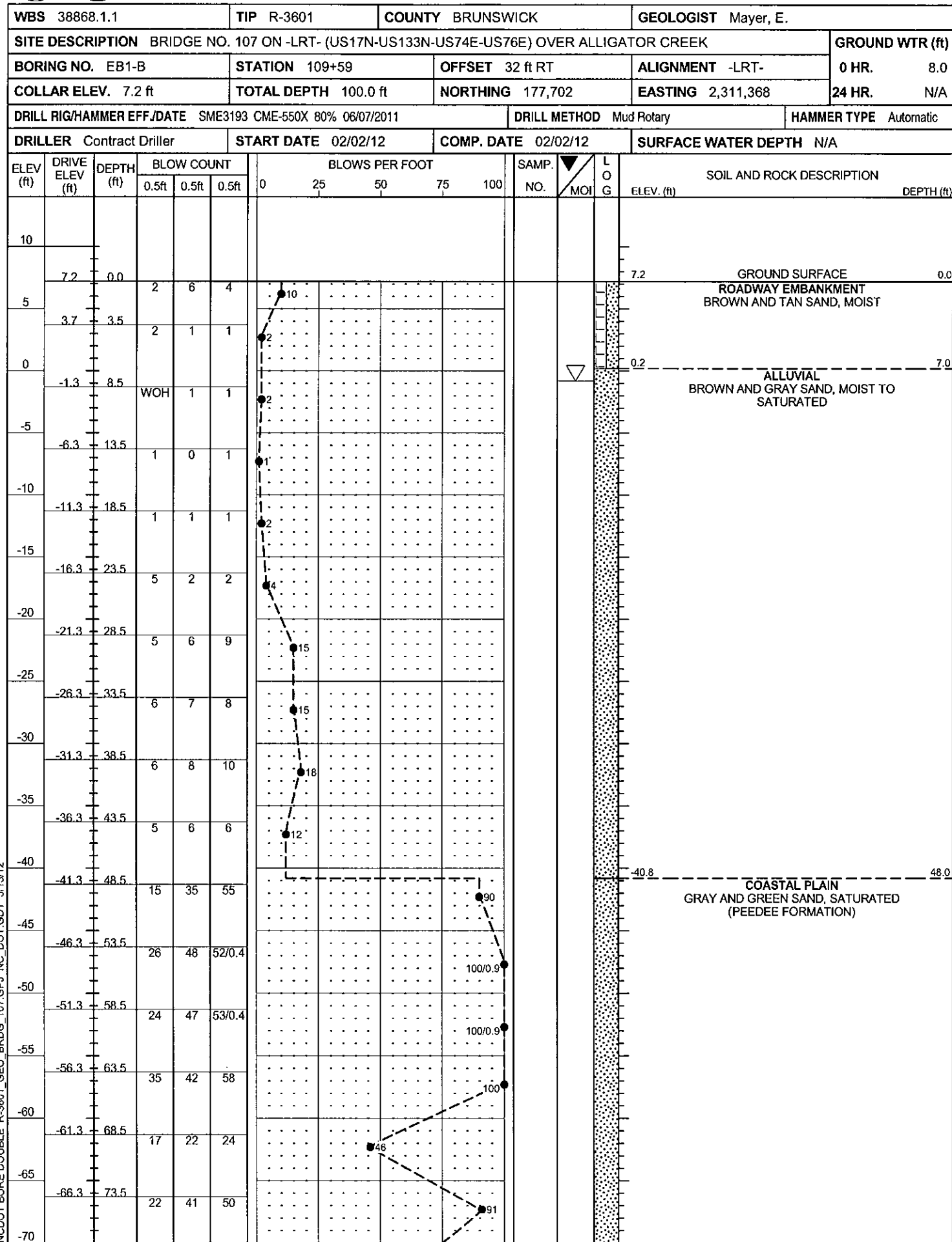


CROSS SECTION THROUGH B6 BENT LINE

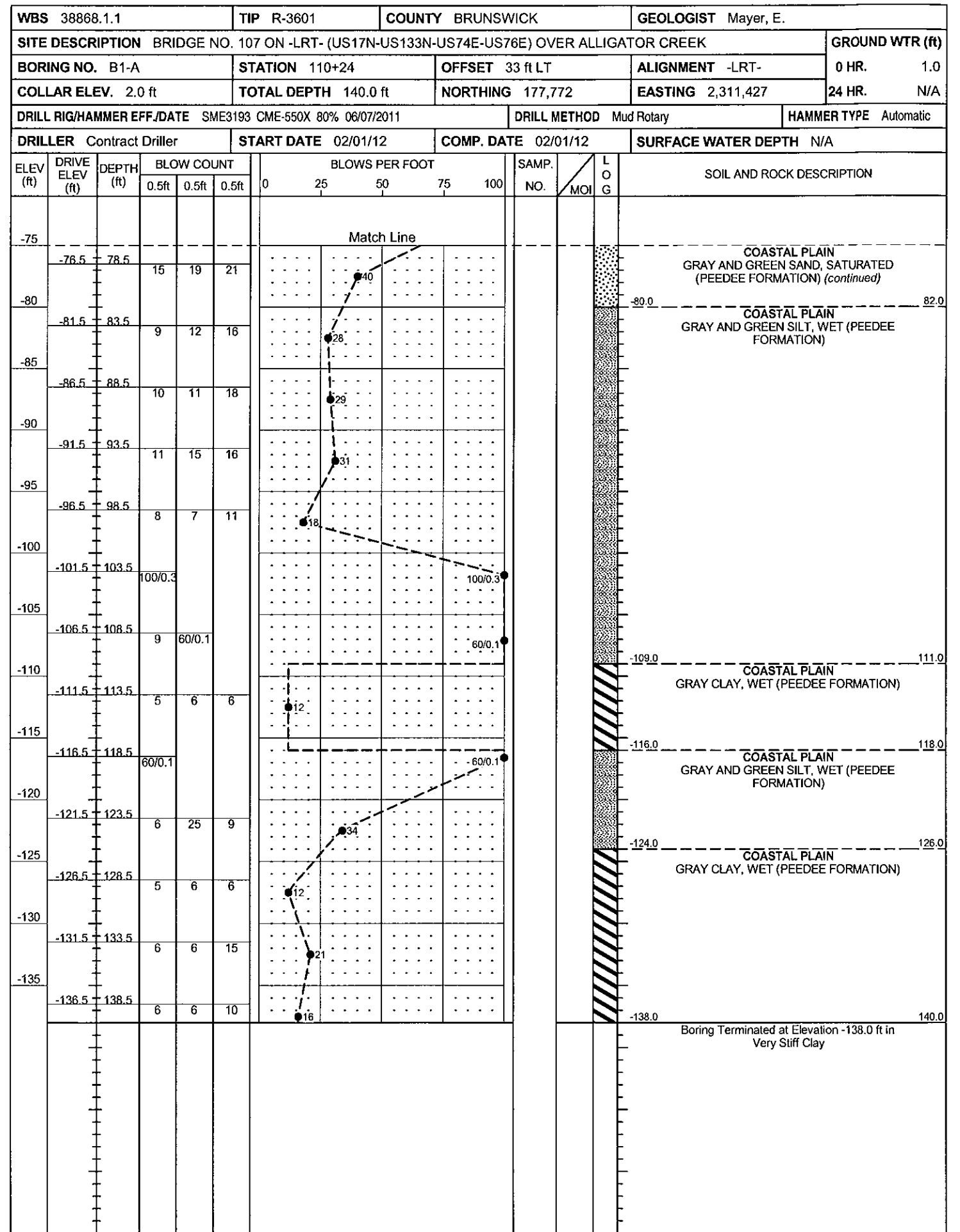
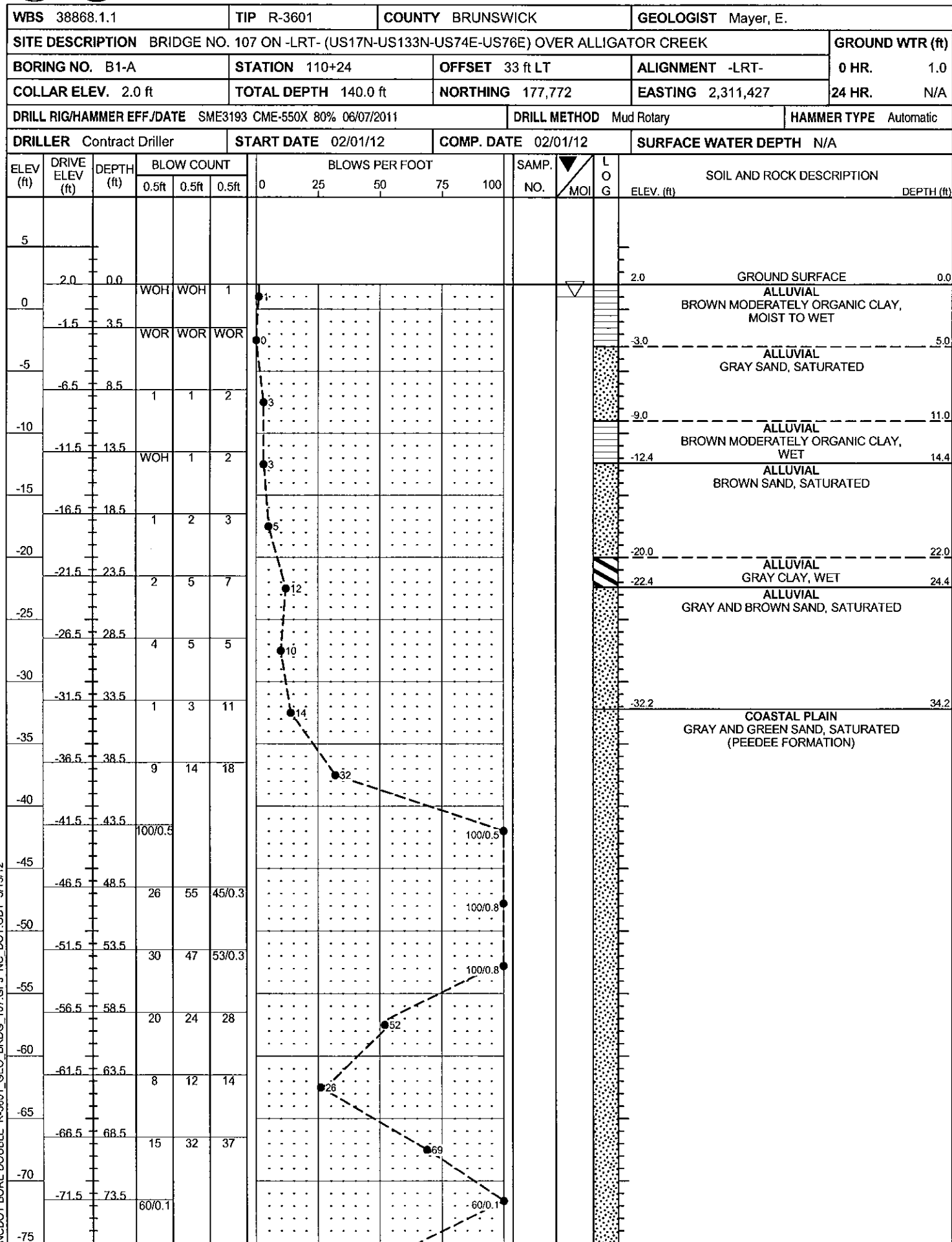


INCDOT BORE DOUBLE R-3601 GEO BRDG 107.GPJ NC_DOT.GDT 3/13/12

WBS 38868.1.1		TIP R-3601		COUNTY BRUNSWICK		GEOLOGIST Mayer, E.								
SITE DESCRIPTION BRIDGE NO. 107 ON -LRT- (US17N-US133N-US74E-US76E) OVER ALLIGATOR CREEK							GROUND WTR (ft)							
BORING NO. EB1-A		STATION 109+70		OFFSET 30 ft LT		ALIGNMENT -LRT-		0 HR. 5.5						
COLLAR ELEV. 7.1 ft		TOTAL DEPTH 89.3 ft		NORTHING 177,765		EASTING 2,311,373		24 HR. N/A						
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011				DRILL METHOD Mud Rotary			HAMMER TYPE Automatic							
DRILLER Contract Driller		START DATE 01/16/12		COMP. DATE 01/16/12		SURFACE WATER DEPTH N/A								
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	L O G	SOIL AND ROCK DESCRIPTION
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
-70						Match Line								
	-71.4	78.5	100/0.3											
-75														
	-76.4	83.5	38	24	24									
-80														
	-81.4	88.5	23	77	0.3									



NCDOT BORE DOUBLE R-3601_GEO_BRDG_107.GPJ NC DOT.GDT 3/13/12



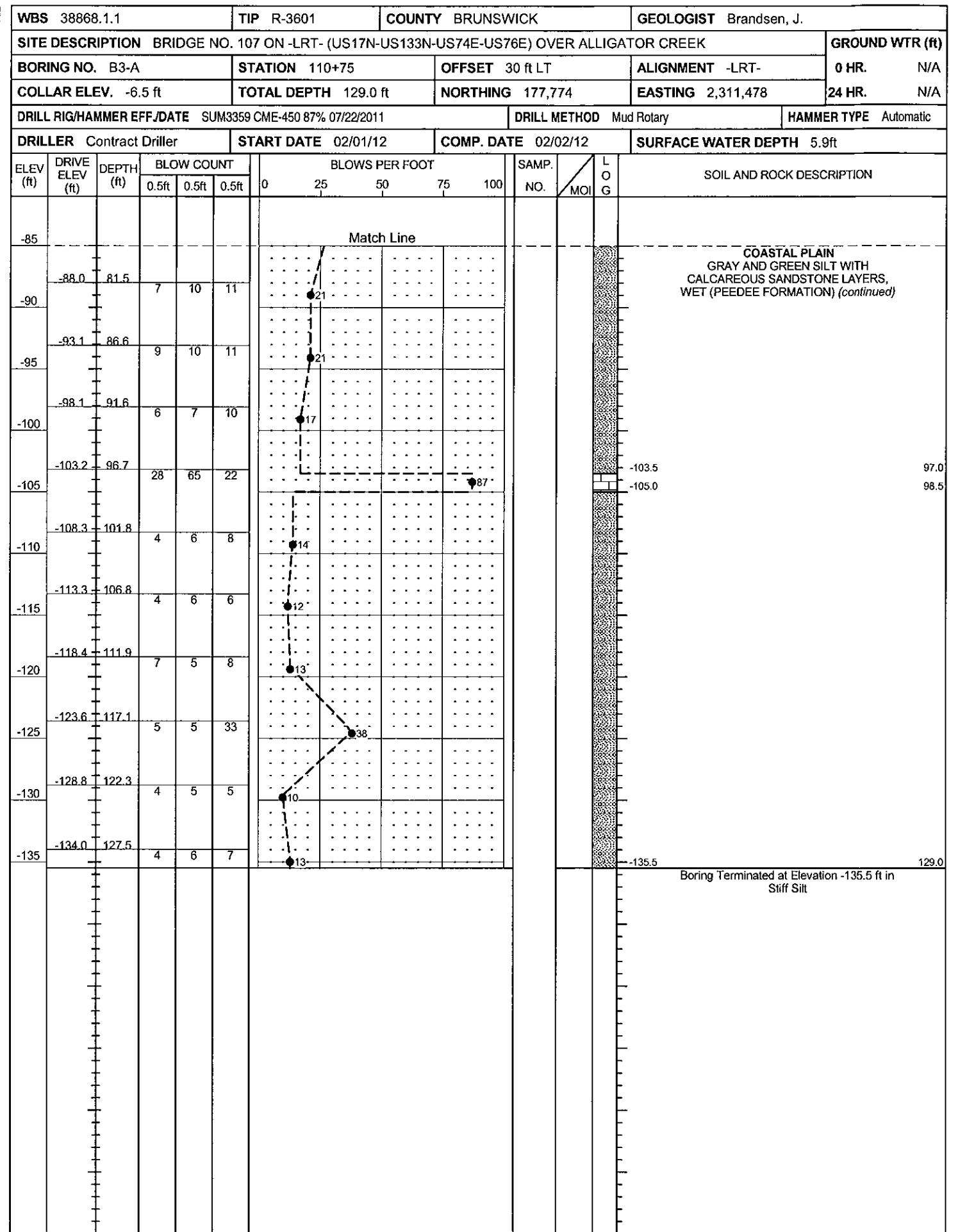
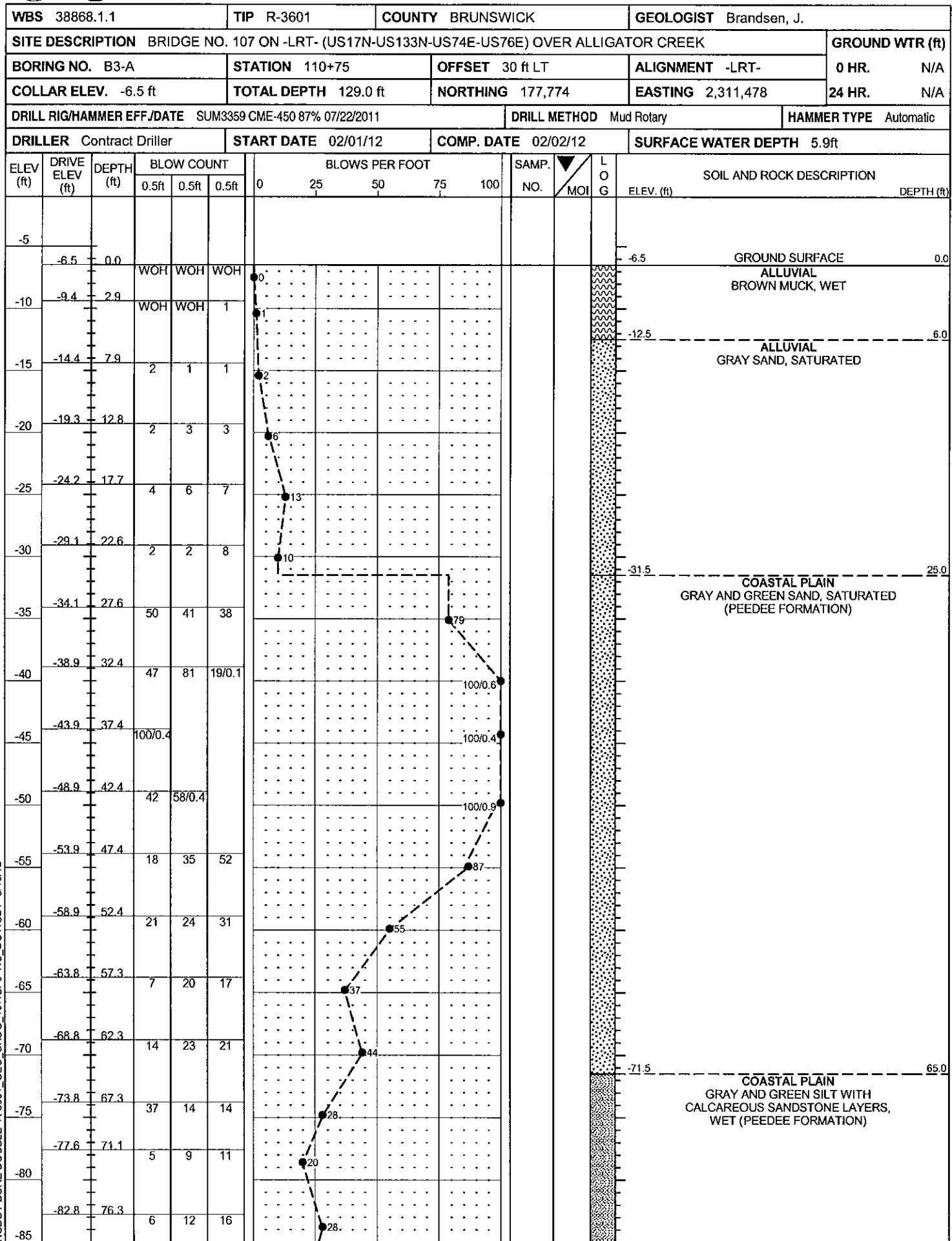
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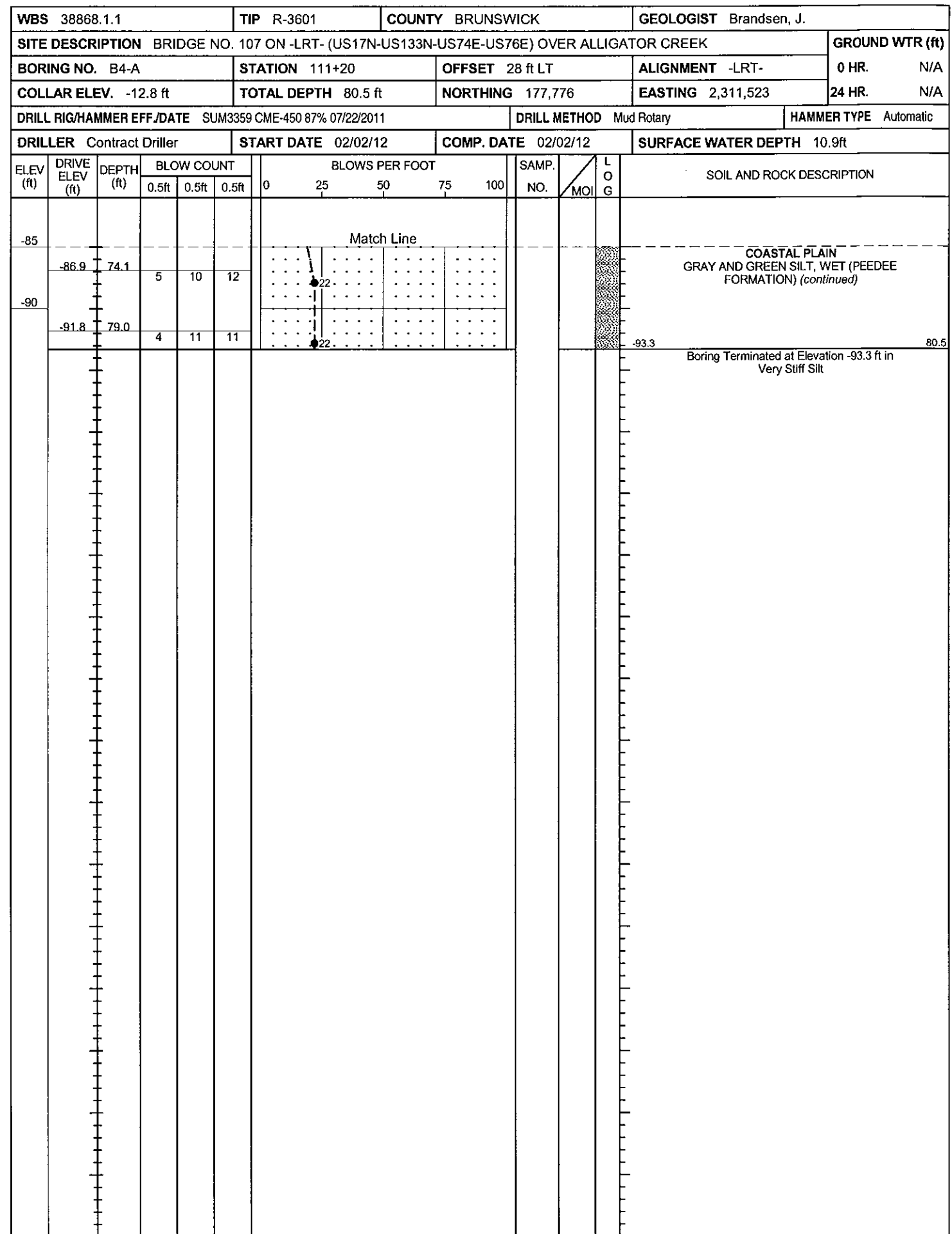
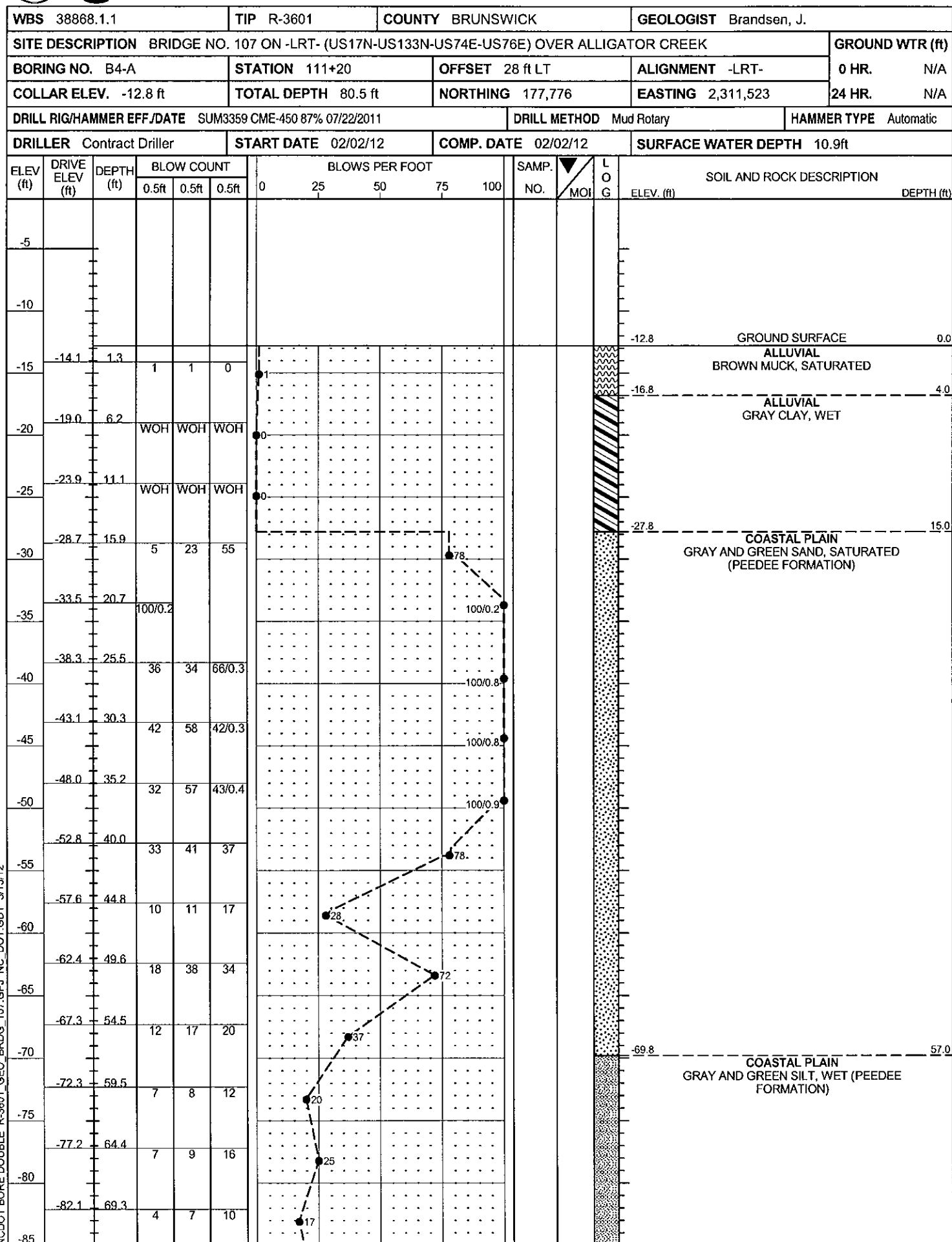


WBS 38868.1.1		TIP R-3601		COUNTY BRUNSWICK		GEOLOGIST Wrike, C. M.							
SITE DESCRIPTION BRIDGE NO. 107 ON -LRT- (US17N-US133N-US74E-US76E) OVER ALLIGATOR CREEK								GROUND WTR (ft)					
BORING NO. B2-A		STATION 110+50		OFFSET 35 ft LT		ALIGNMENT -LRT-		0 HR. N/A					
COLLAR ELEV. 2.0 ft		TOTAL DEPTH 85.4 ft		NORTHING 177,777		EASTING 2,311,452		24 HR. 0.8					
DRILL RIG/HAMMER EFF/DATE SME3193 CME-550X 80% 06/07/2011				DRILL METHOD NW Casing W/SPT & Core		HAMMER TYPE Automatic							
DRILLER Contract Driller		START DATE 02/29/12		COMP. DATE 02/29/12		SURFACE WATER DEPTH N/A							
CORE SIZE NX/NQ		TOTAL RUN 22.5 ft											
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) % RQD (ft) %		SAMP. NO.	STRATA REC. (ft) % RQD (ft) %		L O G	ELEV. (ft)	DESCRIPTION AND REMARKS	DEPTH (ft)
-40.8												Begin Coring @ 42.8 ft	
	-40.8	42.8	2.5		(0.2)	(0.0)		(0.2)	(0.0)		-41.0	COASTAL PLAIN	43.0
	-43.3	45.3			6%	0%		100%	0%		-41.2	GRAY AND GREEN SAND WITH CALCAREOUS SANDSTONE LAYERS,	43.2
-45			5.0		(0.5)	(0.0)		(0.3)	(0.0)		-44.0	SATURATED (PEEDEE FORMATION) (continued)	46.0
					10%	0%		100%	0%		-44.3		46.3
								(0.2)	(0.0)		-45.0		47.0
	-48.3	50.3			(0.2)	(0.0)		100%	0%		-45.2		47.2
-50			5.0		(0.2)	(0.0)		(0.1)	(0.0)		-49.0		51.0
					4%	0%		100%	0%		-49.1		51.1
								(0.1)	(0.0)		-51.0		53.0
	-53.3	55.3			(0.0)	(0.0)		100%	0%		-51.1		53.1
-55			5.0		(0.0)	(0.0)							
					0%	0%							
	-58.3	60.3			(0.2)	(0.0)		(0.2)	(0.0)		-60.0		62.0
-60			5.0		4%	0%		100%	0%		-60.2		62.2
	-63.3	65.3											
-65				N=56									
				N=34									
-70				N=20							-70.0	COASTAL PLAIN	72.0
				N=27								GRAY AND GREEN SILT, WET (PEEDEE FORMATION)	
-75				N=17									
-80											-83.4	Boring Terminated at Elevation -83.4 ft in Very Stiff Silt	85.4



NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT





NCDOT BORE DOUBLE R-3601 GEO. BRDG. 107.GPJ NC_DOT_GDT 3/13/12

WBS 38868.1.1			TIP R-3601			COUNTY BRUNSWICK			GEOLOGIST Wrike, C. M.						
SITE DESCRIPTION BRIDGE NO. 107 ON -LRT- (US17N-US133N-US74E-US76E) OVER ALLIGATOR CREEK									GROUND WTR (ft)						
BORING NO. B5-A			STATION 111+80			OFFSET 32 ft LT			ALIGNMENT -LRT-			0 HR.	N/A		
COLLAR ELEV. -9.6 ft			TOTAL DEPTH 62.7 ft			NORTHING 177,785			EASTING 2,311,582			24 HR.	N/A		
DRILL RIG/HAMMER EFF/DATE SUM3359 CME-450 87% 07/22/2011						DRILL METHOD NW Casing W/SPT & Core			HAMMER TYPE Automatic						
DRILLER Contract Driller			START DATE 02/06/12			COMP. DATE 02/06/12			SURFACE WATER DEPTH 12.5ft						
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
-5															
-10	-9.6	0.0												GROUND SURFACE	0.0
-15	-14.6	5.0	WOH	WOH	WOH									ALLUVIAL BROWN MUCK, WET	3.0
-20	-19.6	10.0	3	3	3									ALLUVIAL TAN SAND, SATURATED	
-25	-24.6	15.0	2	2	1										
-30	-29.8	20.2	1	1	2										
-35															
-40															
-45															
-50															
-55	-51.0	41.4	15	75	25/0.1					100/0.6				COASTAL PLAIN GRAY AND GREEN SAND WITH CALCAREOUS SANDSTONE LAYERS, SATURATED (PEEDEE FORMATION)	18.0
-60															20.2
-65															22.0
-70															22.5
-75															23.5
-80															23.7
-85															24.5
-90															25.0
-95															27.0
-100															27.5
-105															29.0
-110															29.5
-115															
-120															
-125															
-130															
-135															
-140															
-145															
-150															
-155	-55.8	46.2	6	7	8										
-160	-60.8	51.2	13	25	23										
-165															
-170	-65.8	56.2	6	7	8										
-175	-60.8	51.2	11	33	48										
-180															
-185	-68.2	58.6	12	22	13										
-190	-70.8	61.2	6	16	16										
-195															
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-785															
-790															
-7															

NCDOT BORE DOUBLE R-3601 GEO BRDG 107.GPJ NC DOT GDT 3/13/12



NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 38868.1.1		TIP R-3601		COUNTY BRUNSWICK		GEOLOGIST Wrike, C. M.						
SITE DESCRIPTION BRIDGE NO. 107 ON -LRT- (US17N-US133N-US74E-US76E) OVER ALLIGATOR CREEK						GROUND WTR (ft)						
BORING NO. B5-A		STATION 111+80		OFFSET 32 ft LT		ALIGNMENT -LRT-						
COLLAR ELEV. -9.6 ft		TOTAL DEPTH 62.7 ft		NORTHING 177,785		EASTING 2,311,582						
DRILL RIG/HAMMER EFF./DATE SUM3359 CME-450 87% 07/22/2011				DRILL METHOD NW Casing W/SPT & Core		HAMMER TYPE Automatic						
DRILLER Contract Driller		START DATE 02/06/12		COMP. DATE 02/06/12		SURFACE WATER DEPTH 12.5ft						
CORE SIZE NX/NQ		TOTAL RUN 20.1 ft										
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	RQD (ft) %	L O G	DESCRIPTION AND REMARKS	DEPTH (ft)
-30.9											Begin Coring @ 21.3 ft	
	-30.9	21.3	5.1		(1.2) 24%	(0.0) 0%		(0.5) 100%	(0.0) 0%		GRAY AND GREEN SAND WITH CALCAREOUS SANDSTONE LAYERS, SATURATED (PEEDEE FORMATION) (continued)	22.0
												22.5
												23.5
-35								(0.2) 100%	(0.0) 0%			23.7
	-36.0	26.4						(0.5) 100%	(0.0) 0%			24.5
			5.0		(1.0) 20%	(0.0) 0%		(0.5) 100%	(0.0) 0%			25.0
								(0.5) 100%	(0.0) 0%			27.0
-40								(0.5) 100%	(0.0) 0%			27.5
	-41.0	31.4						(0.5) 100%	(0.0) 0%			29.0
			5.0		(0.5) 10%	(0.0) 0%		(0.5) 100%	(0.0) 0%			29.5
-45								(0.5) 100%	(0.0) 0%			33.0
	-46.0	36.4						(0.5) 100%	(0.0) 0%			33.5
			5.0		(0.1) 2%	(0.0) 0%		(0.1) 100%	(0.0) 0%			38.0
												38.1
-50												
	-51.0	41.4										41.4
				N=48								
-55												
				N=15								
-60												49.4
				N=81								51.0
-65												
				N=35								
												58.6
-70												59.3
				N=32								
												62.7
											Boring Terminated at Elevation -72.3 ft in Dense Sand	

NCDOT CORE DOUBLE R-3601 GEO_BRDG_107.GPJ NC_DOT.GDT 3/13/12



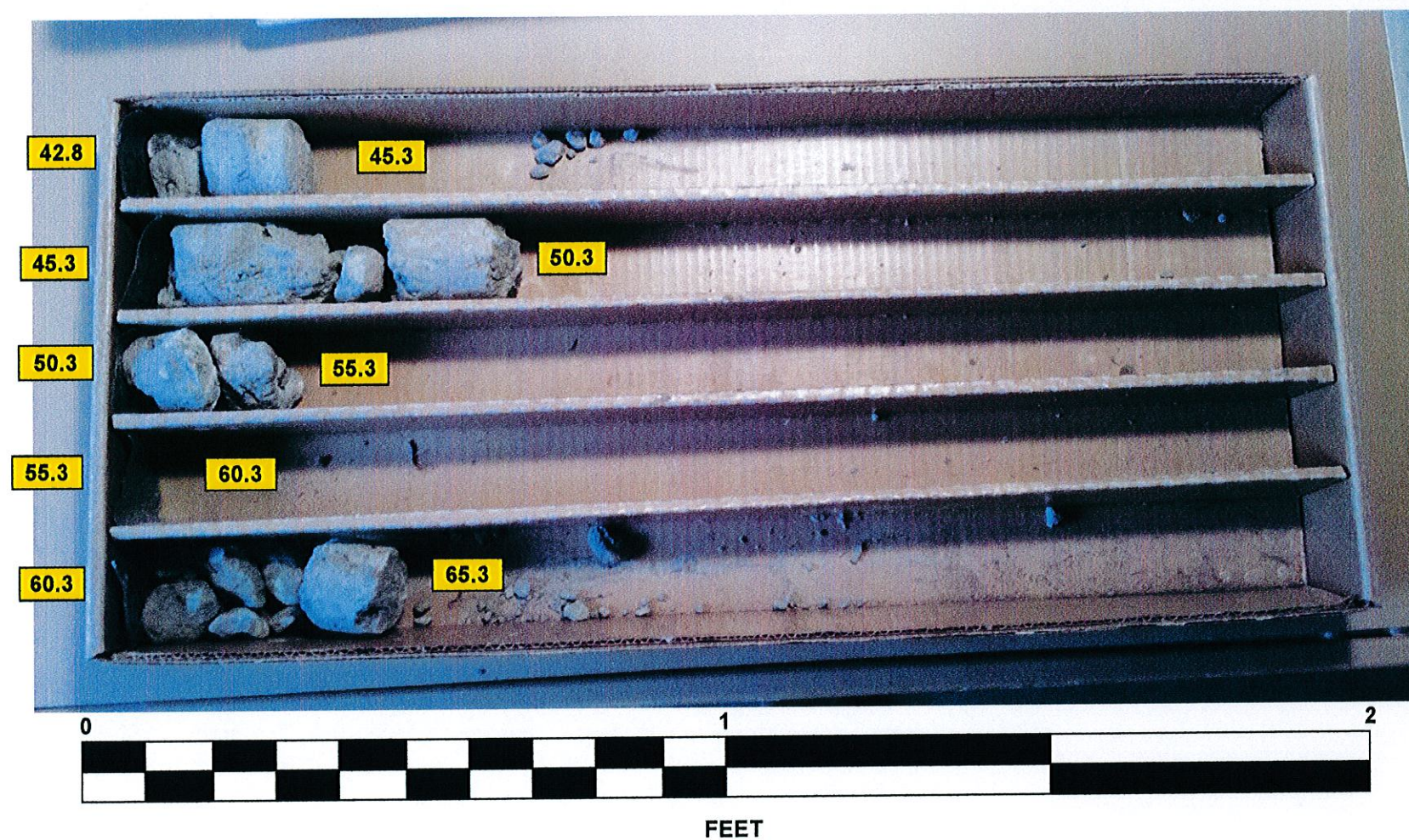
WBS 38868.1.1		TIP R-3601		COUNTY BRUNSWICK		GEOLOGIST Brandsen, J.					
SITE DESCRIPTION BRIDGE NO. 107 ON -LRT- (US17N-US133N-US74E-US76E) OVER ALLIGATOR CREEK							GROUND WTR (ft)				
BORING NO. B6-A		STATION 112+14		OFFSET 52 ft LT		ALIGNMENT -LRT-	0 HR. N/A				
COLLAR ELEV. 1.6 ft		TOTAL DEPTH 105.0 ft		NORTHING 177,808		EASTING 2,311,614	24 HR. 0.0				
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic					
DRILLER Contract Driller		START DATE 01/12/12		COMP. DATE 01/12/12		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					
-75						Match Line				COASTAL PLAIN GRAY AND GREEN SILT WITH CALCAREOUS SANDSTONE LAYERS, SATURATED (PEEDEE FORMATION) (continued)	
	-76.9	78.5	10	19	27	46					
-80						52					
	-81.9	83.5	8	20	32	50					
-85						58					
	-86.9	88.5	10	16	34	63					
-90						20					
	-91.9	93.5	12	28	30						
-95										-84.9 -85.9 86.5 87.5	
	-96.9	98.5	15	30	33						
-100											
	-101.9	103.5	10	8	12					-103.4	105.0
Boring Terminated at Elevation -103.4 ft in Very Stiff Silt											

[illegible]

[illegible]

CORE PHOTOGRAPH B2-A

Box 1 of 1 (42.8' to 45.3', 45.3' to 50.3', 50.3' to 55.3', 55.3' to 60.3', and 60.3' to 65.3')



CORE PHOTOGRAPH

B5-A

Box 1 of 1 (21.3' to 26.4', 26.4' to 31.4', 31.4' to 36.4', and 36.4' to 41.4')

