

REFERENCE: B-2500AB

PROJECT: 32635

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY DARE
PROJECT DESCRIPTION NC HWY 12 OVER PEA ISLAND BREACH
SITE DESCRIPTION BRIDGE ON NC 12 OVER PEA ISLAND BREACH AT -L- STA. 3170 + 75

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND
3	SITE VICINITY
4 - 5	SITE PLANS
6 - 7	PROFILES
8 - 22	BORE LOGS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-2500AB	1	22

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF PREPARING THE SCOPE OF WORK TO BE INCLUDED IN THE REQUEST FOR PROPOSAL. 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.

SOIL AND ROCK BOUNDARIES WITHIN A BOREHOLE ARE BASED ON GEOTECHNICAL INTERPRETATION UNLESS ENCOUNTERED IN A SAMPLE. INTERPRETED BOUNDARIES MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN SAMPLED STRATA AND BOREHOLE INFORMATION MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS. 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

- R.L. DENTON, PE
- T. STETLER
- J. HETER
- K. FERGUSON
- J. WOOD. CWC
- D. CHALMERS. CWC
- W. DUGGINS, CWC

INVESTIGATED BY CATLIN ET AL.
DRAWN BY STEVEN HUDSON, LG
CHECKED BY CATLIN
SUBMITTED BY STEVEN HUDSON
DATE AUGUST 2015



DocuSigned by:
Steve Hudson 8/24/2015
SIGNATURE DATE

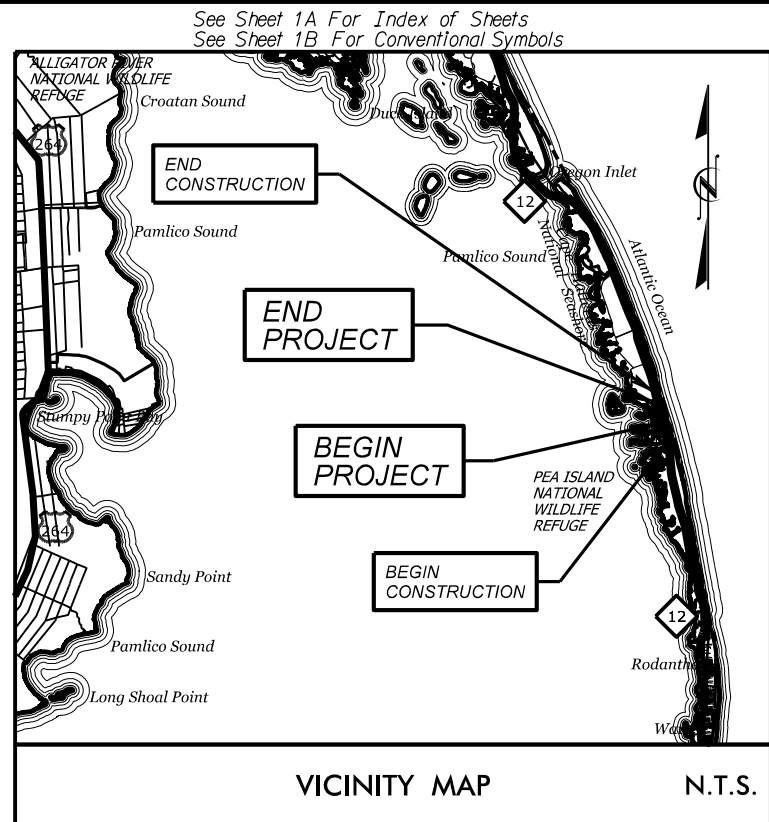
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT SUBSURFACE INVESTIGATION SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION, GRADATION, ROCK DESCRIPTION, TERMS AND DEFINITIONS, SOIL LEGEND AND AASHTO CLASSIFICATION, MINERALOGICAL COMPOSITION, COMPRESSION, PERCENTAGE OF MATERIAL, GROUND WATER, MISCELLANEOUS SYMBOLS, RECOMMENDATION SYMBOLS, ABBREVIATIONS, SOIL MOISTURE - CORRELATION OF TERMS, PLASTICITY, COLOR, EQUIPMENT USED ON SUBJECT PROJECT, FRACTURE SPACING, BEDDING, INDURATION.

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 09/08/99

TIP PROJECT: B-2500AB

CONTRACT: C203756

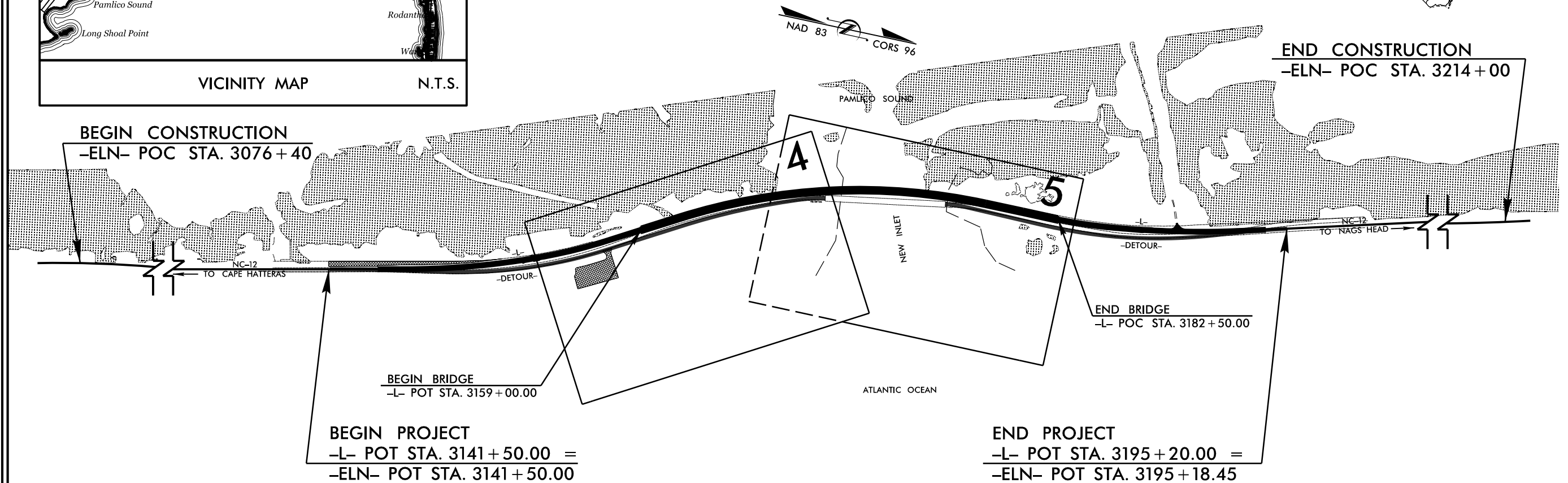
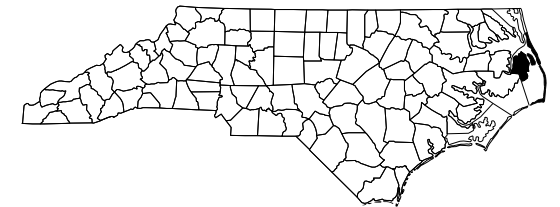


STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

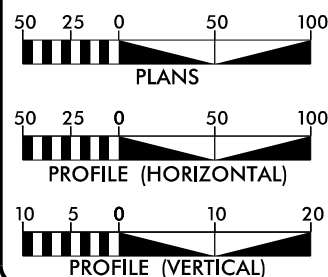
DARE COUNTY

LOCATION: PHASE II, NC-12 SHORT-TERM IMPROVEMENTS AT PEA ISLAND
TYPE OF WORK: GRADING, PAVING, DRAINAGE & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-2500AB	3	22
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
32635.1.3	BRNHF-0012(62)	P.E.	
32635.3.9	BRNHF-0012(62)	CONSTR.	



GRAPHIC SCALES



DESIGN DATA
(B-2500A DATA)

ADT 2012 = 7,300
 ADT 2032 = 10,900
 K = N/A %
 D = N/A %
 T = 6% **
 * V = 55 MPH
 ** (TTST 1%, DUAL 5%)
 FUNC CLASS=COLLECTOR
 REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-2500AB = 0.572 MILES
 LENGTH STRUCTURE TIP PROJECT B-2500AB = 0.445 MILES
 TOTAL LENGTH TIP PROJECT B-2500AB = 1.017 MILES

Prepared in the Office of:
DIVISION OF HIGHWAYS
 1000 Birch Ridge Dr., Raleigh, NC 27610

2012 STANDARD SPECIFICATIONS

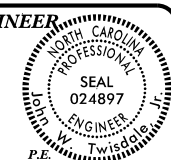
RIGHT OF WAY DATE:
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LETTING DATE:
OCTOBER 20, 2015

GARY LOVERING, PE
PROJECT ENGINEER

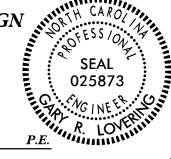
CHRISTOPHER H. LEE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

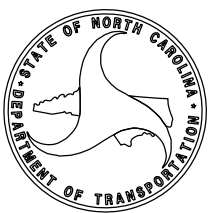


SIGNATURE:

ROADWAY DESIGN ENGINEER



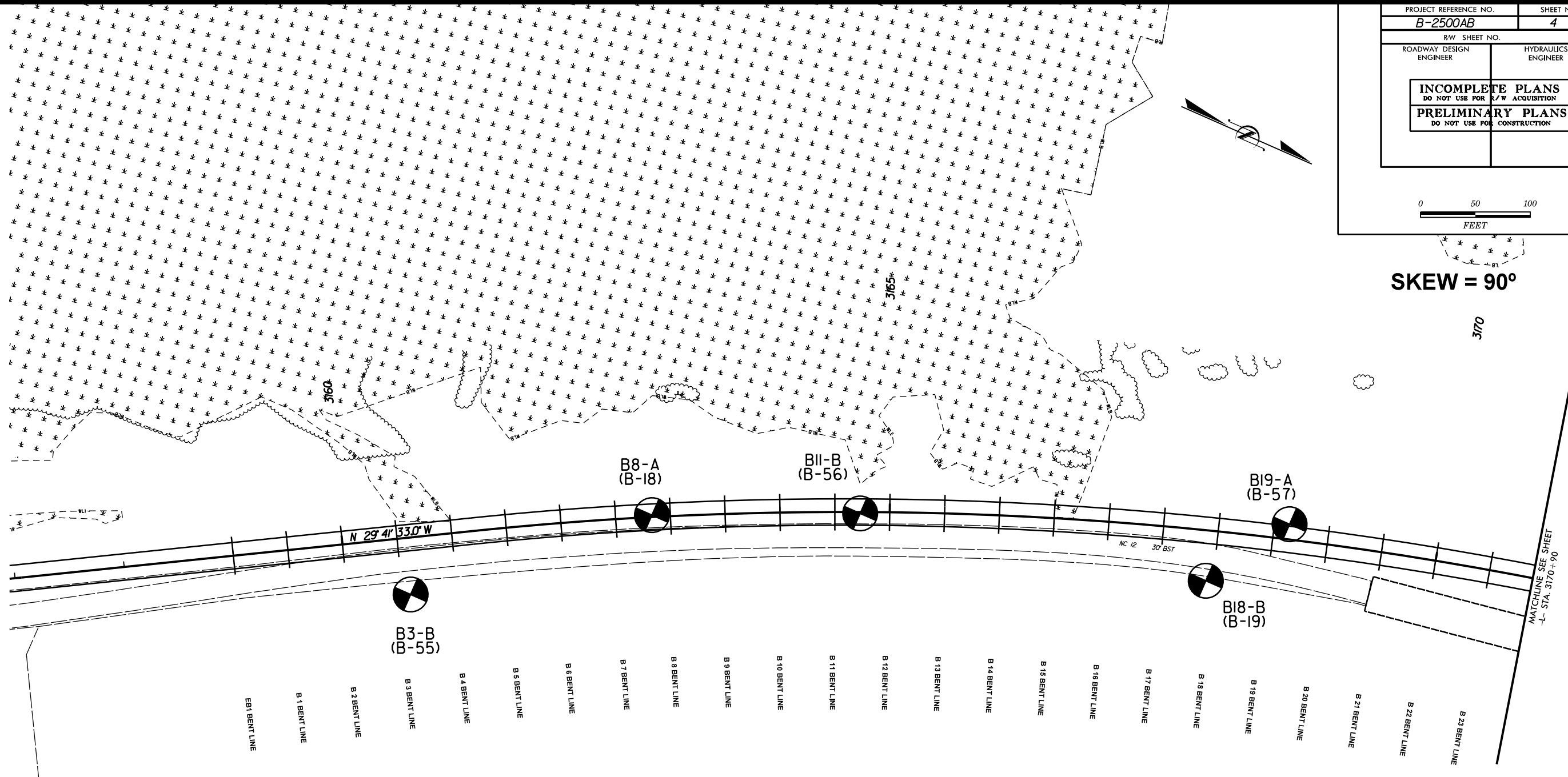
SIGNATURE:



8/17/99

20-AUG-2015 11:09 S:\wpmk19\PROJECT\15215078_NCDOT B-2500B RODANTHE BRIDGE\B2500AB\B2500AB_GEO_BRDG-Breach-Revised\CADD_GEOTECH\Site&Sub\B2500AB_GEO_RdJ_psh01.dgn

REVISIONS



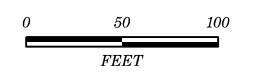
PROJECT REFERENCE NO.	SHEET NO.
B-2500AB	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
0 50 100 FEET	

SKEW = 90°

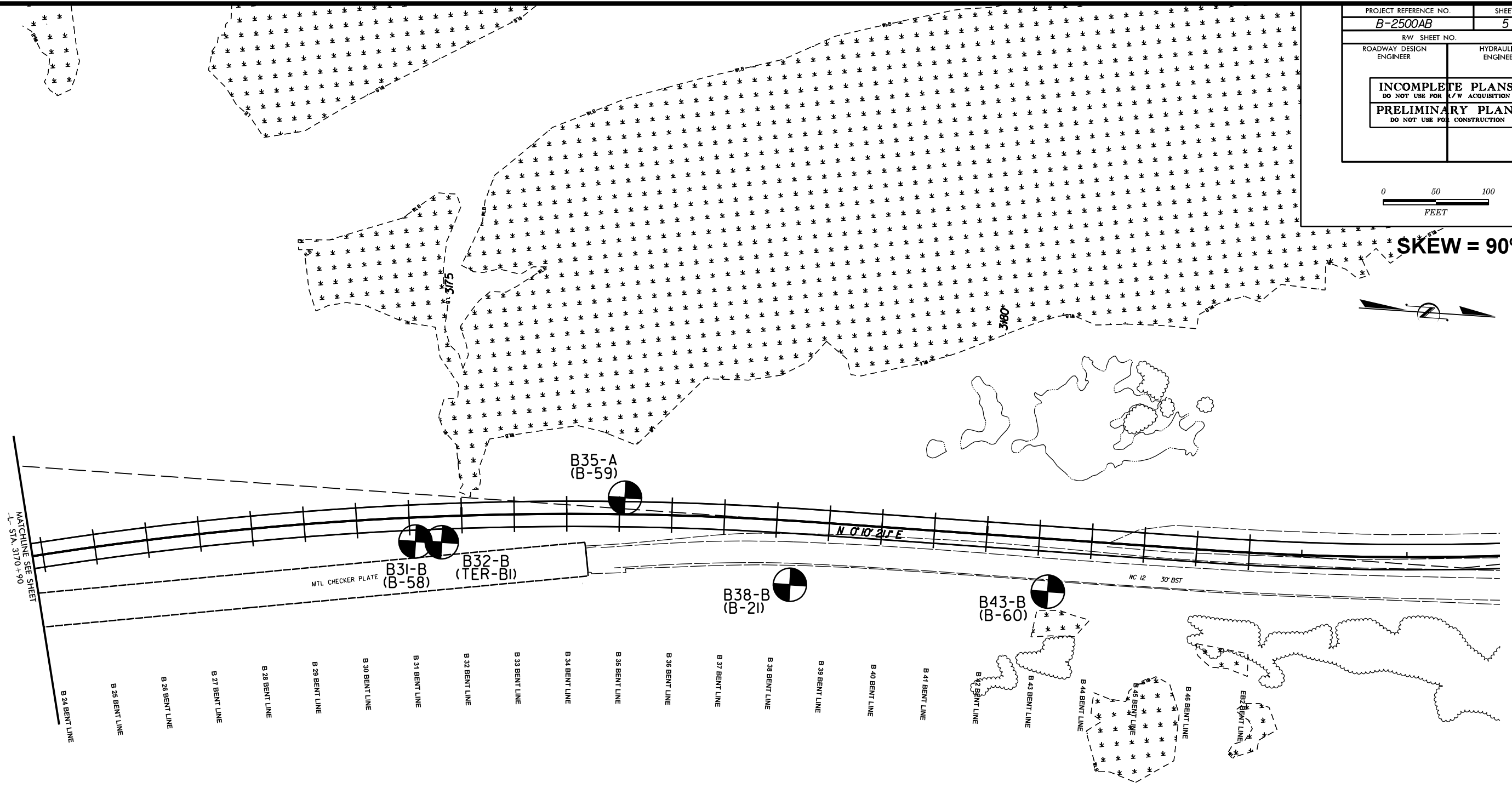
MATCHLINE SEE SHEET
L- STA. 3170 + 90

REVISIONS

PROJECT REFERENCE NO. B-2500AB	SHEET NO. 5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



SKIEW = 90°



MATCHLINE SEE SHEET
1- STA. 3170 + 90

M.T.L. CHECKER PLATE

B 24 BENT LINE

B 25 BENT LINE

B 26 BENT LINE

B 27 BENT LINE

B 28 BENT LINE

B 29 BENT LINE

B 30 BENT LINE

B 31 BENT LINE

B 32 BENT LINE

B 33 BENT LINE

B 34 BENT LINE

B 35 BENT LINE

B 36 BENT LINE

B 37 BENT LINE

B 38 BENT LINE

B 39 BENT LINE

B 40 BENT LINE

B 41 BENT LINE

B 42 BENT LINE

B 43 BENT LINE

B 44 BENT LINE

B 45 BENT LINE

B 46 BENT LINE

B 47 BENT LINE

NC 12 30' BST

N. O. I. O. I. F. E.

B 31-B (B-58)

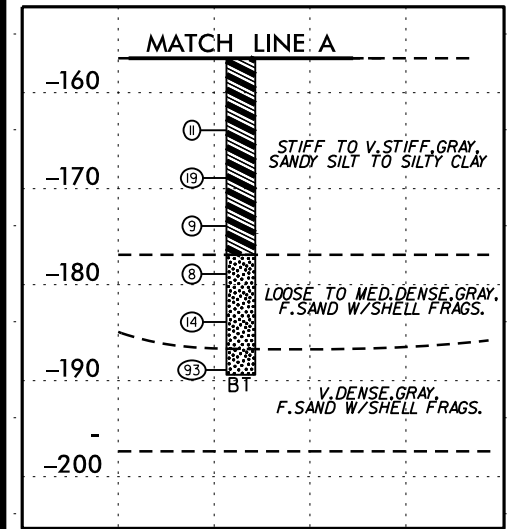
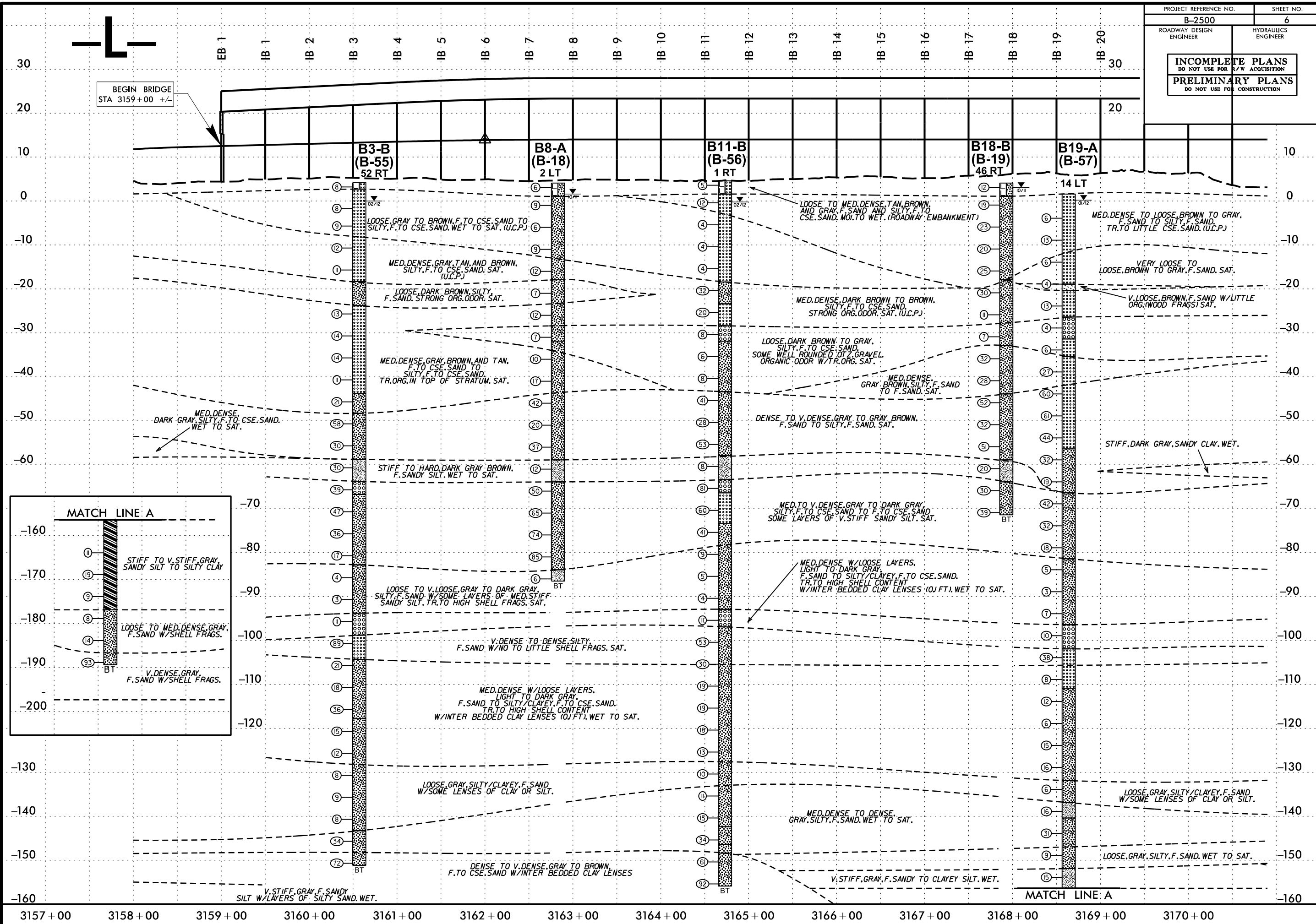
B 32-B (TER-BI)

B 35-A (B-59)

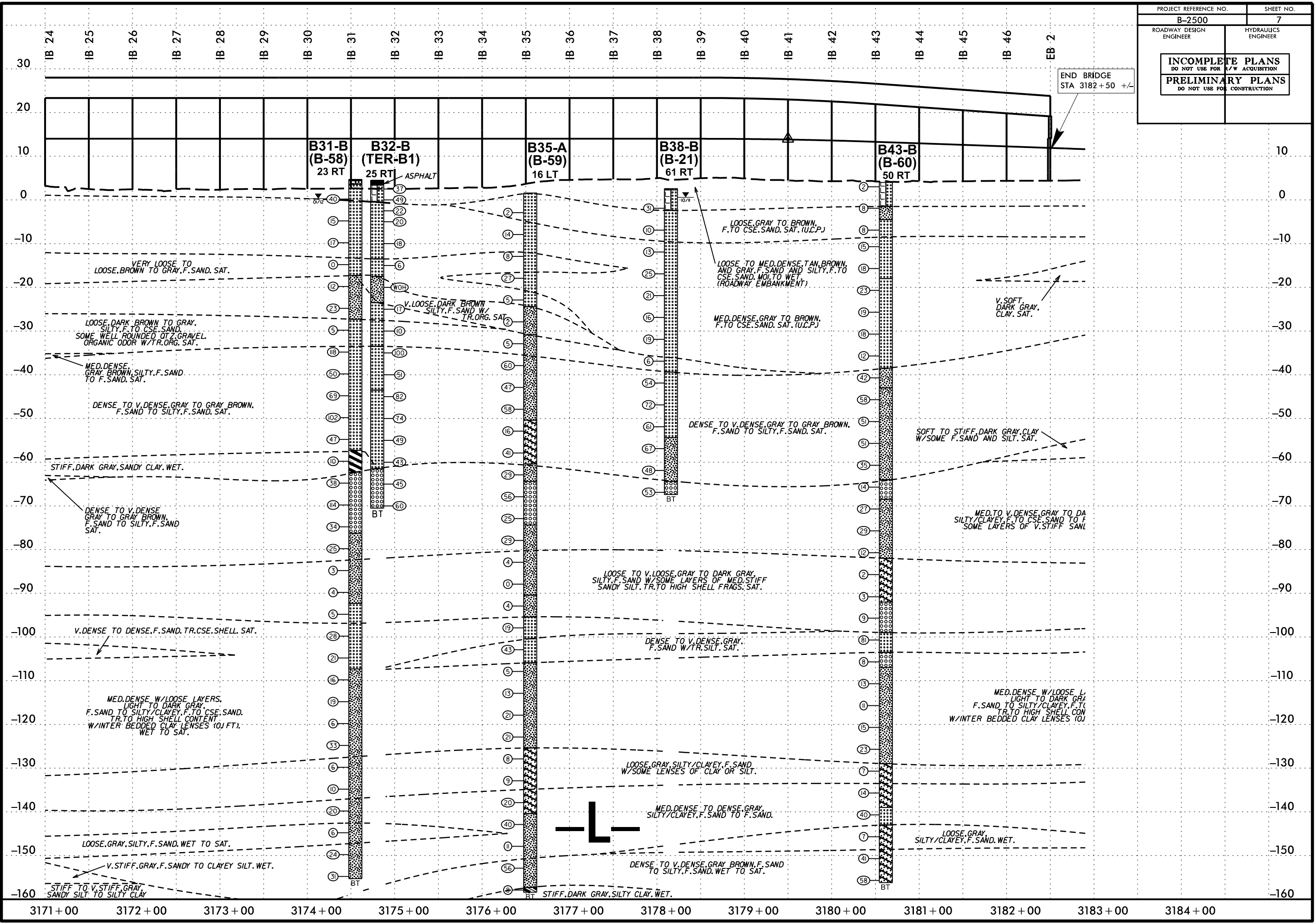
B 38-B (B-2I)

B 43-B (B-60)

B 47 BENT LINE



19-AUG-2015 16:49
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 5/14/99

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 32635		TIP B-2500AB		COUNTY DARE		GEOLOGIST Tom Stetler	
SITE DESCRIPTION BRIDGE ON NC 12 OVER PEA ISLAND BREACH AT -L- STA. 3170+75							GROUND WTR (ft)
BORING NO. B3-B (B-55)		STATION 3160+57		OFFSET 52ft RT		ALIGNMENT -L-	
COLLAR ELEV. 4.2 ft		TOTAL DEPTH 155.4 ft		NORTHING 721,284		EASTING 3,044,353	
DRILL RIG/HAMMER EFF./DATE CAT1314 CME-45B 92% 11/16/2011		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic			
DRILLER CATLIN		START DATE 01/31/12		COMP. DATE 02/01/12		SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
5	4.2	0.0											4.2	LAND SURFACE	0.0
			2	3	5	8						M	2.7	ROADWAY EMBANKMENT Light brown, f. SAND w/tr. shell frags. Geotextile fabric at base of sample. Loose.	1.5
0	-0.7	4.9				8						▼		COASTAL PLAIN Light grayish brown, f. SAND w/tr. to no shell frags. and cse. sand. Poorly graded. Loose grading to med. dense.	
-5	-4.7	8.9	4	4	5	9						Sat.			
-10	-9.7	13.9	4	5	7	12						Sat.			
-15	-14.7	18.9	3	5	6	11						Sat.			
-20	-19.7	23.9	4	5	7	12						Sat.	-18.3	Dark brown, Silty, f. SAND. Strong organic odor. Med. dense.	22.5
-25	-24.7	28.9	3	7	6	13						Sat.	-23.8	Brown to light brown, f. SAND w/tr. silt. Poorly graded. Strong "odor" at top of interval. Med. dense.	28.0
-30	-29.7	33.9	4	6	8	14						Sat.			
-35	-34.7	38.9	5	7	7	14						Sat.			
-40	-39.7	43.9	4	4	7	11						Sat.			
-45	-44.7	48.9	4	6	15	21						Sat.	-43.8	Grayish brown, Silty, f. SAND. Poorly graded. Med. to v. dense.	48.0
-50	-49.7	53.9	14	23	35	58						W			
-55	-54.7	58.9	10	15	15	30						W			
-60	-59.7	63.9	6	12	18	30						W	-58.8	Dark gray, f. Sandy SILT. Low plast. Poorly graded. V. stiff.	63.0
-65	-64.7	68.9	4	9	30	39						Sat.	-63.8	Gray, Silty, cse. to f. SAND w/shell frags. Well graded. Dense.	68.0
-70	-69.7	73.9	10	20	27	47						Sat.	-66.8	Driller noted "hard" layering at top of interval. Gray, Silty, f. SAND w/tr. shell frags. Dense to med. dense.	71.0
-75	-74.7	78.9													

WBS 32635		TIP B-2500AB		COUNTY DARE		GEOLOGIST Tom Stetler	
SITE DESCRIPTION BRIDGE ON NC 12 OVER PEA ISLAND BREACH AT -L- STA. 3170+75							GROUND WTR (ft)
BORING NO. B3-B (B-55)		STATION 3160+57		OFFSET 52ft RT		ALIGNMENT -L-	
COLLAR ELEV. 4.2 ft		TOTAL DEPTH 155.4 ft		NORTHING 721,284		EASTING 3,044,353	
DRILL RIG/HAMMER EFF./DATE CAT1314 CME-45B 92% 11/16/2011		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic			
DRILLER CATLIN		START DATE 01/31/12		COMP. DATE 02/01/12		SURFACE WATER DEPTH N/A	

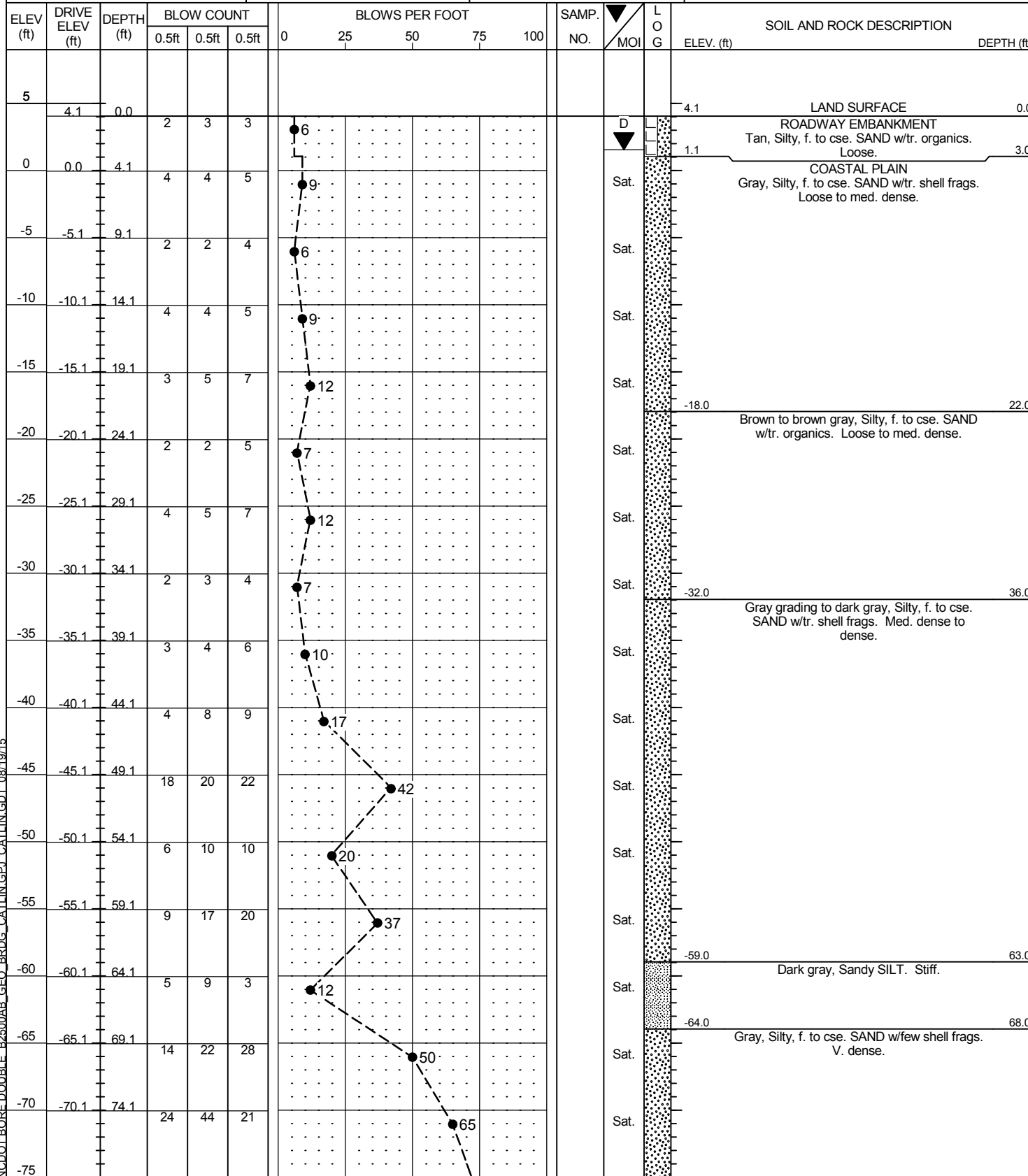
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
-75															
			10	15	21	36									
-80	-79.7	83.9	6	8	9	17									
-85	-84.7	88.9	2	2	2	4									
-90	-89.7	93.9	1	2	1	3									
-95	-94.7	98.9	3	5	6	11									
-100	-99.7	103.9	35	47	42	89									
-105	-104.7	108.9	4	8	13	21									
-110	-109.7	113.9	5	8	10	18									
-115	-114.7	118.9	9	15	21	36									
-120	-119.7	123.9	2	5	10	15									
-125	-124.7	128.9	5	4	8	12									
-130	-129.7	133.9	4	3	5	8									
-135	-134.7	138.9	2	4	5	9									
-140	-139.7	143.9	3	3	5	8									
-145	-144.7	148.9	14	13	21	34									
-150	-149.7	153.9	12	21	51	72									

NCDOT BORE DOUBLE B2500AB GEO_BRDG_CATLIN.GPI_CATLIN.GDI_08/19/15

GEOTECHNICAL BORING REPORT

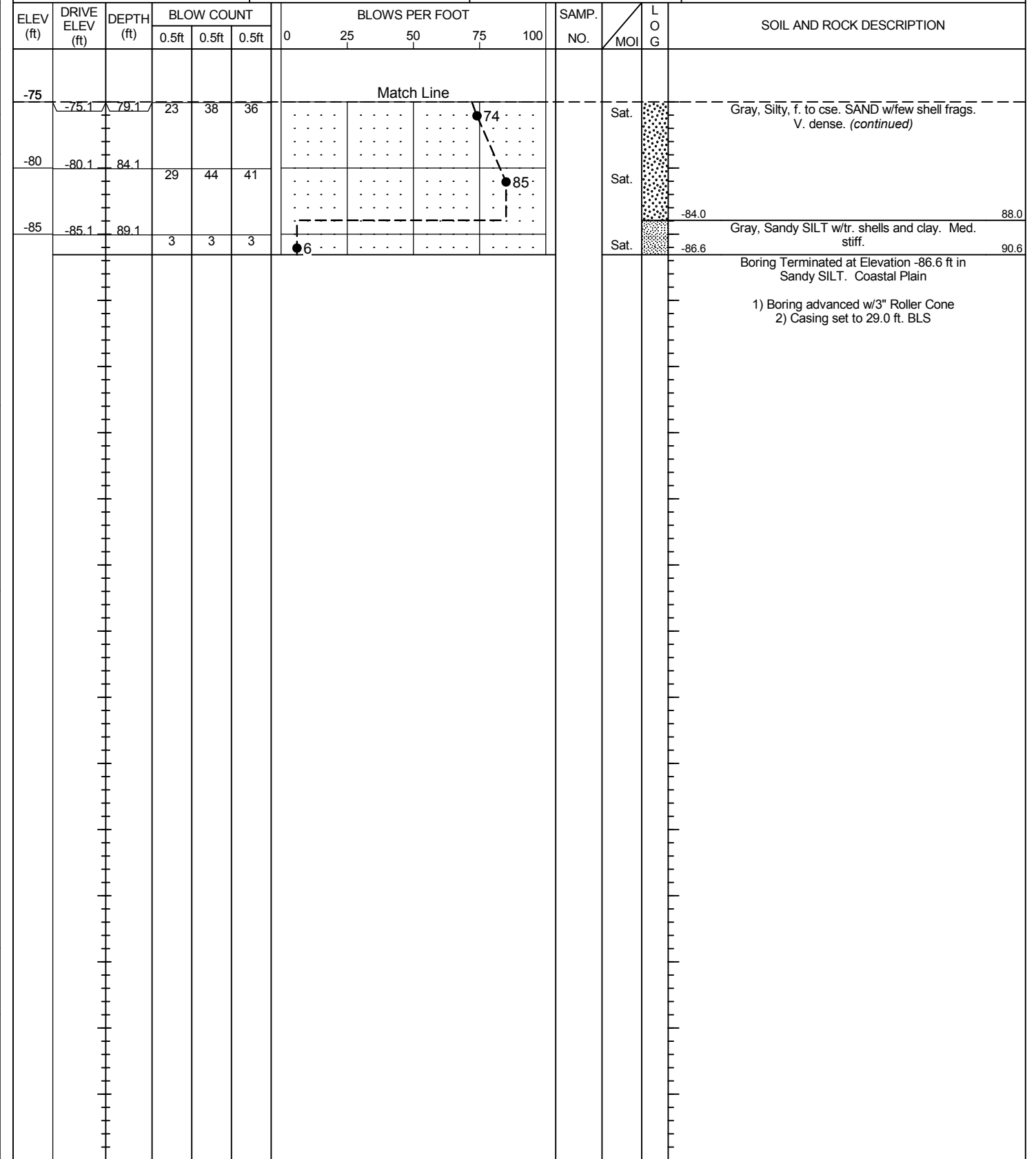
BORE LOG

WBS 32635		TIP B-2500AB		COUNTY DARE		GEOLOGIST J. Howard																															
SITE DESCRIPTION BRIDGE ON NC 12 OVER PEA ISLAND BREACH AT -L- STA. 3170+75							GROUND WTR (ft)																														
BORING NO. B8-A (B-18)		STATION 3162+83		OFFSET 2ft LT		ALIGNMENT -L-																															
COLLAR ELEV. 4.1 ft		TOTAL DEPTH 90.6 ft		NORTHING 721,456		EASTING 3,044,198																															
DRILL RIG/HAMMER EFF./DATE MAC1145 CME-55LC 87% 10/29/2010		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic																																	
DRILLER AMEC		START DATE 10/12/11		COMP. DATE 10/12/11		SURFACE WATER DEPTH N/A																															
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ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG																								
			0.5ft	0.5ft	0.5ft	0	25	50	75	100																											



NCDOT BORE DOUBLE B2500AB GEO_BRDG_CATLIN.GPI CATLIN.GDI 08/19/15

WBS 32635		TIP B-2500AB		COUNTY DARE		GEOLOGIST J. Howard																															
SITE DESCRIPTION BRIDGE ON NC 12 OVER PEA ISLAND BREACH AT -L- STA. 3170+75							GROUND WTR (ft)																														
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DRILLER AMEC		START DATE 10/12/11		COMP. DATE 10/12/11		SURFACE WATER DEPTH N/A																															
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ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG																								
			0.5ft	0.5ft	0.5ft	0	25	50	75	100																											



GEOTECHNICAL BORING REPORT

BORE LOG

WBS 32635		TIP B-2500AB		COUNTY DARE		GEOLOGIST Tom Stetler	
SITE DESCRIPTION BRIDGE ON NC 12 OVER PEA ISLAND BREACH AT -L- STA. 3170+75							GROUND WTR (ft)
BORING NO. B11-B (B-56)		STATION 3164+73		OFFSET 1ft RT		ALIGNMENT -L-	
COLLAR ELEV. 4.6 ft		TOTAL DEPTH 160.5 ft		NORTHING 721,629		EASTING 3,044,120	
DRILL RIG/HAMMER EFF./DATE CAT1314 CME-45B 92% 11/16/2011		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic			
DRILLER CATLIN		START DATE 01/26/12		COMP. DATE 01/31/12		SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
5	-4.6	0.0	1	2	3							M		LAND SURFACE	0.0
														ROADWAY EMBANKMENT Brown, f. SAND w/tr. root and shell frags. Loose.	3.0
0	0.6	4.0	5	5	7							W		COASTAL PLAIN Brown, f. SAND grading to cse. to f. SAND. Layers w/tr. cse. sand and shell frags. Loose w/med. dense at top.	
-5	-4.4	9.0	2	2	2							Sat.			
-10	-9.4	14.0	4	2	2							Sat.			
-15	-14.4	19.0	3	2	2							Sat.			
-20	-19.4	24.0	8	14	18							Sat.		Dark brown, Silty, f. SAND. Strong organic odor. Poorly graded. Dense.	23.0
-25	-24.4	29.0	6	9	11							Sat.		Light brown, f. SAND w/tr. silt. Poorly graded. Med. dense.	28.0
-30	-29.4	34.0	3	4	4							Sat.		Dark brown, Silty, cse. to f. SAND w/little white, well rounded quartzite gravels. Well graded. Loose.	33.0
-35	-34.4	39.0	2	3	3							Sat.		Grayish brown, Silty, f. SAND. Mod. to poorly graded. Loose.	36.5
-40	-39.4	44.0	2	2	6							Sat.			48.0
-45	-44.4	49.0	13	21	20							Sat.		Grayish brown, Silty, f. SAND. Poorly graded. Med. to v. dense.	48.0
-50	-49.4	54.0	12	13	15							Sat.			
-55	-54.4	59.0	15	25	28							Sat.			
-60	-59.4	64.0	3	3	5							Sat.		Dark grayish brown, f. Sandy SILT w/tr. silty clay. Low plast. Med. stiff.	62.5
-65	-64.4	69.0	18	36	45							Sat.		Gray, Silty, cse. to f. SAND w/abundant shell frags. Well graded. V. dense.	68.0
-70	-69.4	74.0	8	28	32							Sat.		Gray, f. SAND. Little shell frags. V. dense. (Driller noted hard ~2ft hard layer from 76ft to 78ft)	71.0
-75	-74.4	79.0										Sat.			78.0

WBS 32635		TIP B-2500AB		COUNTY DARE		GEOLOGIST Tom Stetler	
SITE DESCRIPTION BRIDGE ON NC 12 OVER PEA ISLAND BREACH AT -L- STA. 3170+75							GROUND WTR (ft)
BORING NO. B11-B (B-56)		STATION 3164+73		OFFSET 1ft RT		ALIGNMENT -L-	
COLLAR ELEV. 4.6 ft		TOTAL DEPTH 160.5 ft		NORTHING 721,629		EASTING 3,044,120	
DRILL RIG/HAMMER EFF./DATE CAT1314 CME-45B 92% 11/16/2011		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic			
DRILLER CATLIN		START DATE 01/26/12		COMP. DATE 01/31/12		SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
-75			10	16	25										
														Match Line	
-80	-79.4	84.0	5	4	5							Sat.		Gray, Silty, f. SAND. Tr. shell frags. Dense grading to loose. (continued)	
-85	-84.4	89.0	2	3	2							Sat.			
-90	-89.4	94.0	2	2	2							Sat.			
-95	-94.4	99.0	3	4	7							Sat.		Gray, Clayey, cse. to f. SAND w/abundant shell frags. Well graded. Med. dense.	97.5
-100	-99.4	104.0	12	22	31							W		Gray, Silty, f. SAND w/little to no shell frags and clay. Dense grading to med. dense. (NOTE: No sample return from sample collected at 144ft)	101.5
-105	-104.4	109.0	5	15	15							W			
-110	-109.4	114.0	5	8	11							W			
-115	-114.4	119.0	3	6	13							W			
-120	-119.4	124.0	5	8	10							W			
-125	-124.4	129.0	3	5	8							W			
-130	-129.4	134.0	4	5	5							W			
-135	-134.4	139.0	5	5	6							W			
-140	-139.4	144.0	7	6	9							W			
-145	-144.4	149.0	14	16	18							W		Gray, Silty, f. SAND w/little shell frags. and clay to tr. clay. Sand size increases with depth. Dense to v. dense.	147.0
-150	-149.4	154.0	27	30	31							W		Driller noted increased shell frags. in cuttings	151.0
-155	-154.4	159.0										W			153.0

NCDOT BORE DOUBLE B2500AB GEO_BRDG_CATLIN_GPL_CATLIN_GDI_08/19/15

GEOTECHNICAL BORING REPORT BORE LOG

WBS 32635		TIP B-2500AB		COUNTY DARE		GEOLOGIST Tom Stetler										
SITE DESCRIPTION BRIDGE ON NC 12 OVER PEA ISLAND BREACH AT -L- STA. 3170+75							GROUND WTR (ft)									
BORING NO. B11-B (B-56)		STATION 3164+73		OFFSET 1ft RT		ALIGNMENT -L-										
COLLAR ELEV. 4.6 ft		TOTAL DEPTH 160.5 ft		NORTHING 721,629		EASTING 3,044,120										
DRILL RIG/HAMMER EFF./DATE CAT1314 CME-45B 92% 11/16/2011				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER CATLIN		START DATE 01/26/12		COMP. DATE 01/31/12		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
-155		15	41	51												
Match Line																
Boring Terminated at Elevation -155.9 ft in Silty, f. SAND. Coastal Plain																
1. NW Casing set to 30.0ft. BLS 2. SW101 & Bentonite drilling mud																

NCDOT BORE DOUBLE B2500AB GEO_BRDG_CATLIN.GPJ CATLIN.GDI 08/19/15

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 32635		TIP B-2500AB		COUNTY DARE		GEOLOGIST J. Howard										
SITE DESCRIPTION BRIDGE ON NC 12 OVER PEA ISLAND BREACH AT -L- STA. 3170+75							GROUND WTR (ft)									
BORING NO. B18-B (B-19)		STATION 3167+93		OFFSET 46ft RT		ALIGNMENT -L-										
COLLAR ELEV. 4.1 ft		TOTAL DEPTH 75.5 ft		NORTHING 721,942		EASTING 3,044,049										
DRILL RIG/HAMMER EFF./DATE MAC1145 CME-55LC 87% 10/29/2010			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER AMEC		START DATE 10/17/11		COMP. DATE 10/17/11		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						
5	4.1	0.0	1	5	7									4.1	LAND SURFACE	0.0
															ROADWAY EMBANKMENT Tan, Silty, f. SAND. Med. dense.	3.0
0	0.1	4.0	6	9	10										COASTAL PLAIN Gray, Silty, f. SAND. Tr. shell frags. at top of strata. Med. dense.	
-5	-4.9	9.0	9	11	12											
-10	-9.9	14.0	7	9	11											
-15	-14.9	19.0	8	11	14											
-20	-19.9	24.0	9	15	15										Brown to gray brown, Silty, f. SAND w/tr. org. Cse. sand and shell frags. at base of strata. Med. dense to loose.	22.0
-25	-24.9	29.0	4	5	6											
-30	-29.9	34.0	2	3	4											
-35	-34.9	39.0	8	13	19										Gray, Silty, f. to cse. SAND w/tr. shell frags. Dense to med. dense.	37.0
-40	-39.9	44.0	11	13	15											
-45	-44.9	49.0	15	22	30										Gray, Silty, f. SAND. V. dense. Tr. shell frags. and dense in middle of strata.	48.0
-50	-49.9	54.0	10	10	22											
-55	-54.9	59.0	16	21	30											
-60	-59.9	64.0	7	9	11										Dark gray, Sandy SILT w/tr. shell frags. V. stiff.	63.0
-65	-64.9	69.0	6	7	23										Gray, Silty, f. to cse. SAND w/few to little shell frags. Dense.	68.0
-70	-69.9	74.0	14	19	20											
															Boring Terminated at Elevation -71.4 ft in Silty, f. SAND. Coastal Plain	75.5

WBS 32635		TIP B-2500AB		COUNTY DARE		GEOLOGIST J. Howard										
SITE DESCRIPTION BRIDGE ON NC 12 OVER PEA ISLAND BREACH AT -L- STA. 3170+75							GROUND WTR (ft)									
BORING NO. B18-B (B-19)		STATION 3167+93		OFFSET 46ft RT		ALIGNMENT -L-										
COLLAR ELEV. 4.1 ft		TOTAL DEPTH 75.5 ft		NORTHING 721,942		EASTING 3,044,049										
DRILL RIG/HAMMER EFF./DATE MAC1145 CME-55LC 87% 10/29/2010			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER AMEC		START DATE 10/17/11		COMP. DATE 10/17/11		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						
-75															Match Line	
																1) Boring advanced w/3" Roller Cone 2) Casing set to 29.0 ft. BLS

NCDOT BORE DOUBLE B2500AB GEO_BRDG_CATLIN.GPI CATLIN.GDI 08/19/15

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 32635		TIP B-2500AB		COUNTY DARE		GEOLOGIST Stetler/Heter										
SITE DESCRIPTION BRIDGE ON NC 12 OVER PEA ISLAND BREACH AT -L- STA. 3170+75							GROUND WTR (ft)									
BORING NO. B19-A (B-57)		STATION 3168+64		OFFSET 14ft LT		ALIGNMENT -L-										
COLLAR ELEV. 1.6 ft		TOTAL DEPTH 191.0 ft		NORTHING 721,991		EASTING 3,043,971										
DRILL RIG/HAMMER EFF./DATE CAT1314 CME-45B 92% 11/16/2011		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic												
DRILLER CATLIN		START DATE 01/20/12		COMP. DATE 01/25/12		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
5																
0																
-5	-2.9	4.5	3	3	3	6							Sat.			
-10	-7.9	9.5	5	6	7	13							Sat.			
-15	-12.9	14.5	3	2	4	6							Sat.			
-20	-17.9	19.5	2	2	2	4							Sat.			
-25	-22.9	24.5	4	6	7	13							Sat.			
-30	-27.9	29.5	2	2	2	4							Sat.			
-35	-32.9	34.5	3	3	3	6							Sat.			
-40	-37.9	39.5	3	8	19	27							Sat.			
-45	-42.9	44.5	16	29	31	60							Sat.			
-50	-47.9	49.5	8	29	32	61							Sat.			
-55	-52.9	54.5	16	23	21	44							Sat.			
-60	-57.9	59.5	8	16	16	32							Sat.			
-65	-62.9	64.5	4	9	10	19							Sat.			
-70	-67.9	69.5	9	19	23	42							Sat.			
-75	-72.9	74.5	5	15	17	32							Sat.			

WBS 32635		TIP B-2500AB		COUNTY DARE		GEOLOGIST Stetler/Heter										
SITE DESCRIPTION BRIDGE ON NC 12 OVER PEA ISLAND BREACH AT -L- STA. 3170+75							GROUND WTR (ft)									
BORING NO. B19-A (B-57)		STATION 3168+64		OFFSET 14ft LT		ALIGNMENT -L-										
COLLAR ELEV. 1.6 ft		TOTAL DEPTH 191.0 ft		NORTHING 721,991		EASTING 3,043,971										
DRILL RIG/HAMMER EFF./DATE CAT1314 CME-45B 92% 11/16/2011		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic												
DRILLER CATLIN		START DATE 01/20/12		COMP. DATE 01/25/12		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
-75																
-80	-77.9	79.5	6	8	10	18							Sat.			
-85	-82.9	84.5	3	3	2	5							Sat.			
-90	-87.9	89.5	2	1	2	3							Sat.			
-95	-92.9	94.5	2	3	4	7							Sat.			
-100	-97.9	99.5	5	6	4	10							Sat.			
-105	-102.9	104.5	14	21	17	38							Sat.			
-110	-107.9	109.5	4	4	4	8							Sat.			
-115	-112.9	114.5	5	5	7	12							Sat.			
-120	-117.9	119.5	2	3	3	6							Sat.			
-125	-122.9	124.5	3	7	8	15							Sat.			
-130	-127.9	129.5	5	6	10	16							W			
-135	-132.9	134.5	3	2	4	6							W			
-140	-137.9	139.5	9	6	10	16							W			
-145	-142.9	144.5	7	12	19	31							W			
-150	-147.9	149.5	4	3	6	9							W			
-155	-152.9	154.5	6	7	8	15							W			

NCDOT BORE DOUBLE B2500AB_GEO_BRDG_CATLIN_GDI_08/19/15

GEOTECHNICAL BORING REPORT BORE LOG

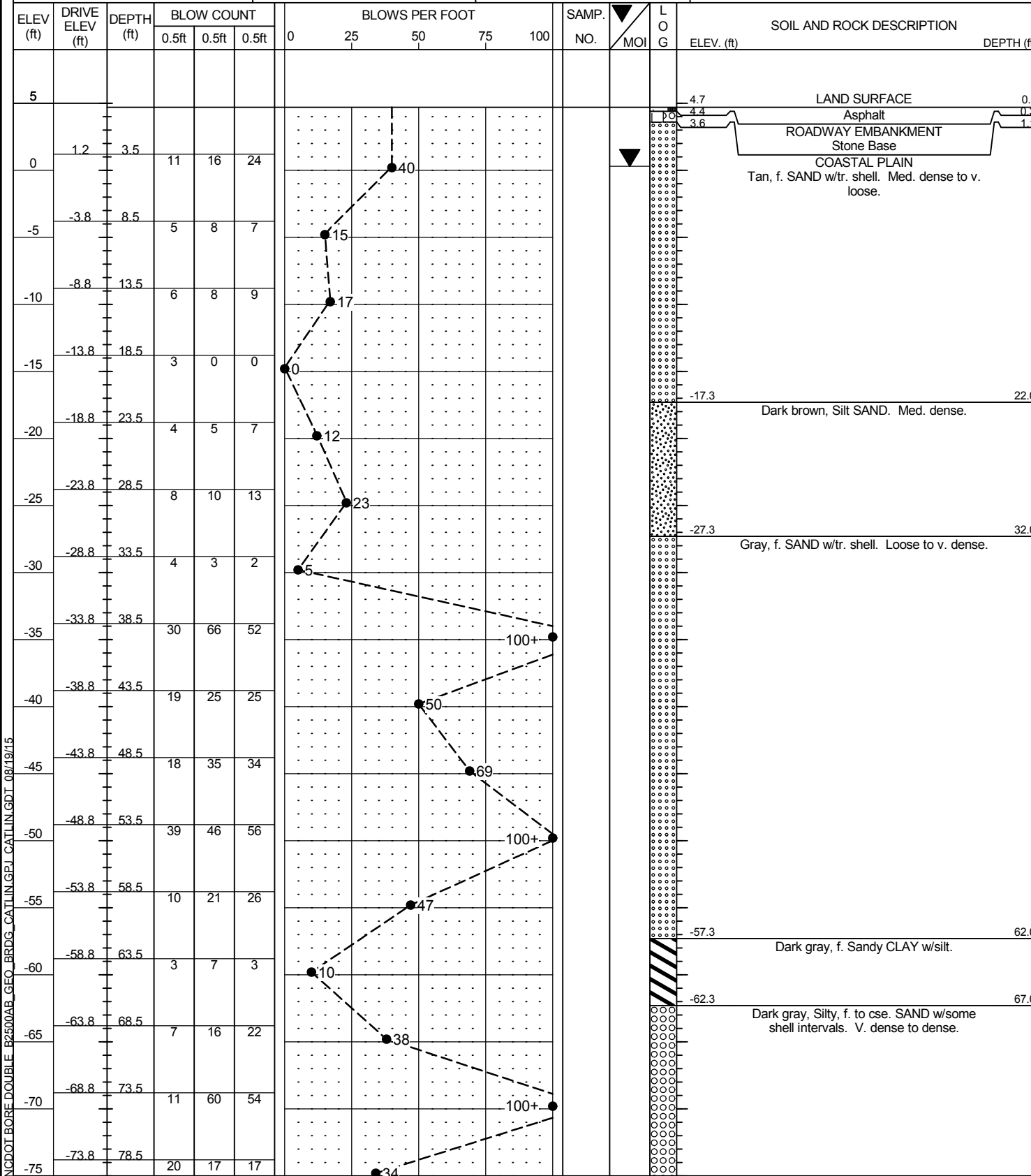
WBS 32635		TIP B-2500AB		COUNTY DARE		GEOLOGIST Stetler/Heter										
SITE DESCRIPTION BRIDGE ON NC 12 OVER PEA ISLAND BREACH AT -L- STA. 3170+75						GROUND WTR (ft)										
BORING NO. B19-A (B-57)		STATION 3168+64		OFFSET 14ft LT		ALIGNMENT -L-										
COLLAR ELEV. 1.6 ft		TOTAL DEPTH 191.0 ft		NORTHING 721,991		EASTING 3,043,971										
DRILL RIG/HAMMER EFF./DATE CAT1314 CME-45B 92% 11/16/2011				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER CATLIN		START DATE 01/20/12		COMP. DATE 01/25/12		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						ELEV. (ft)
-155																
							Match Line									
													M			
													M		-156.4	158.0
														Gray, Silty CLAY. Uniform w/tr. shell frags. Low plast. Silt content increases w/depth. Stiff to v. stiff. (No N-value from 159.5ft due to dropped drill string)		
	-162.9	164.5	5	5	6						11		M			
													M			
													M			
													M			
													M			
													M			
													M			
													M			
													M			
													M			
													W		-176.9	178.5
													W		Gray, Clayey, f. SAND w/shell frags. Some Sandy Clay at top of strata. Loose grading to v. dense.	
	-177.9	179.5	2	3	5						8		W			
													W			
													W			
													W			
													W			
													W			
													W		-189.4	191.0
													W		Boring Terminated at Elevation -189.4 ft in Silty, f. SAND. Coastal Plain	
													W		1. NW Casing set to 25.0ft. BLS 2. SW101 & Bentonite drilling mud	
	-182.9	184.5	9	6	8						14		W			
													W			
													W			
													W			
													W			
													W			
													W			
	-187.9	189.5	29	42	51						93		W			

NCDDOT BORE DOUBLE B2500AB GEO_BRDG_CATLIN.GPI CATLIN.GDI 08/19/15

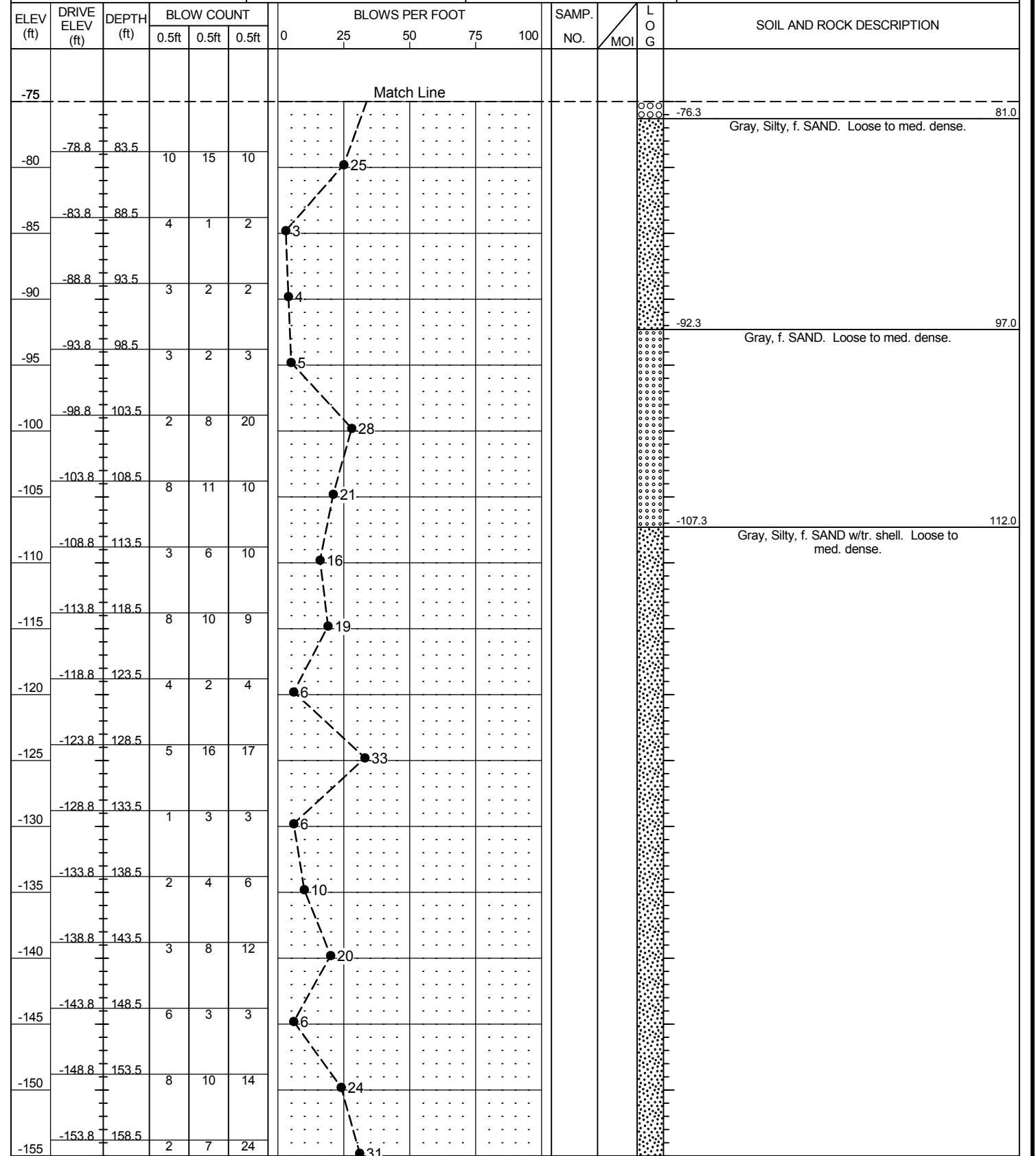
GEOTECHNICAL BORING REPORT

BORE LOG

WBS 32635	TIP B-2500AB	COUNTY DARE	GEOLOGIST TRB
SITE DESCRIPTION BRIDGE ON NC 12 OVER PEA ISLAND BREACH AT -L- STA. 3170+75			GROUND WTR (ft)
BORING NO. B31-B (B-58)	STATION 3174+55	OFFSET 23ft RT	ALIGNMENT -L-
COLLAR ELEV. 4.7 ft	TOTAL DEPTH 160.0 ft	NORTHING 722,576	EASTING 3,043,888
DRILL RIG/HAMMER EFF./DATE TER255 DIEDRICH D-50 77% 07/15/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER TERRACON	START DATE 01/24/12	COMP. DATE 01/25/12	SURFACE WATER DEPTH N/A



WBS 32635	TIP B-2500AB	COUNTY DARE	GEOLOGIST TRB
SITE DESCRIPTION BRIDGE ON NC 12 OVER PEA ISLAND BREACH AT -L- STA. 3170+75			GROUND WTR (ft)
BORING NO. B31-B (B-58)	STATION 3174+55	OFFSET 23ft RT	ALIGNMENT -L-
COLLAR ELEV. 4.7 ft	TOTAL DEPTH 160.0 ft	NORTHING 722,576	EASTING 3,043,888
DRILL RIG/HAMMER EFF./DATE TER255 DIEDRICH D-50 77% 07/15/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER TERRACON	START DATE 01/24/12	COMP. DATE 01/25/12	SURFACE WATER DEPTH N/A



NCDOT BORE DOUBLE B2500AB GEO_BRDG_CATLIN.GPI CATLIN.GDI 08/19/15

GEOTECHNICAL BORING REPORT

BORE LOG



WBS 32635		TIP B-2500AB		COUNTY DARE		GEOLOGIST TRB										
SITE DESCRIPTION BRIDGE ON NC 12 OVER PEA ISLAND BREACH AT -L- STA. 3170+75						GROUND WTR (ft)										
BORING NO. B31-B (B-58)		STATION 3174+55		OFFSET 23ft RT		ALIGNMENT -L-										
COLLAR ELEV. 4.7 ft		TOTAL DEPTH 160.0 ft		NORTHING 722,576		EASTING 3,043,888										
DRILL RIG/HAMMER EFF./DATE TER255 DIEDRICH D-50 77% 07/15/2011				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER TERRACON		START DATE 01/24/12		COMP. DATE 01/25/12		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
-155															Match Line	
																Boring Terminated at Elevation -155.3 ft in Silty, f. SAND. Coastal Plain 1. HSA to 5.3ft. 2. 2 15/16" tricone to 178.5ft. 3. NW Casing set to 90ft.

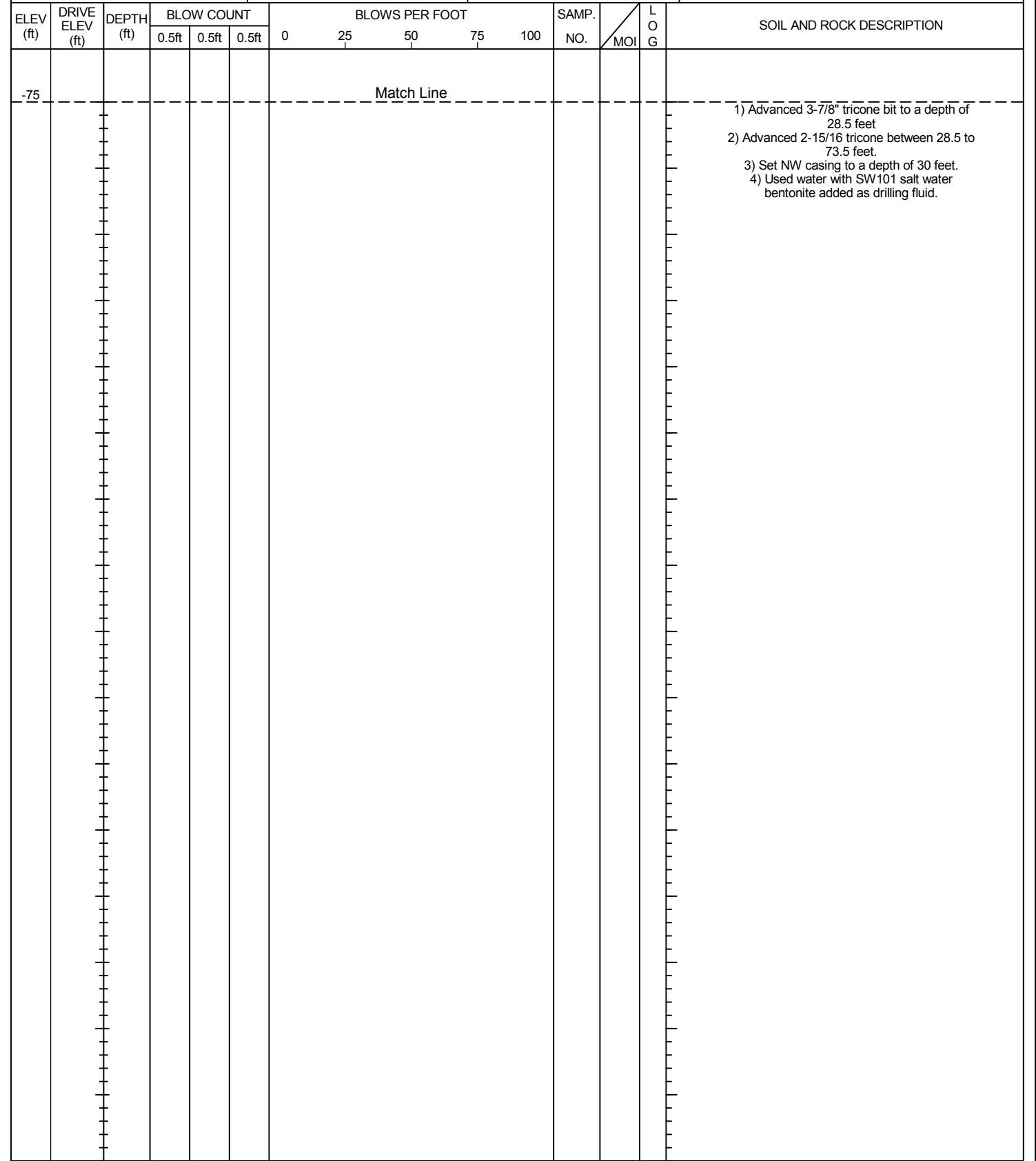
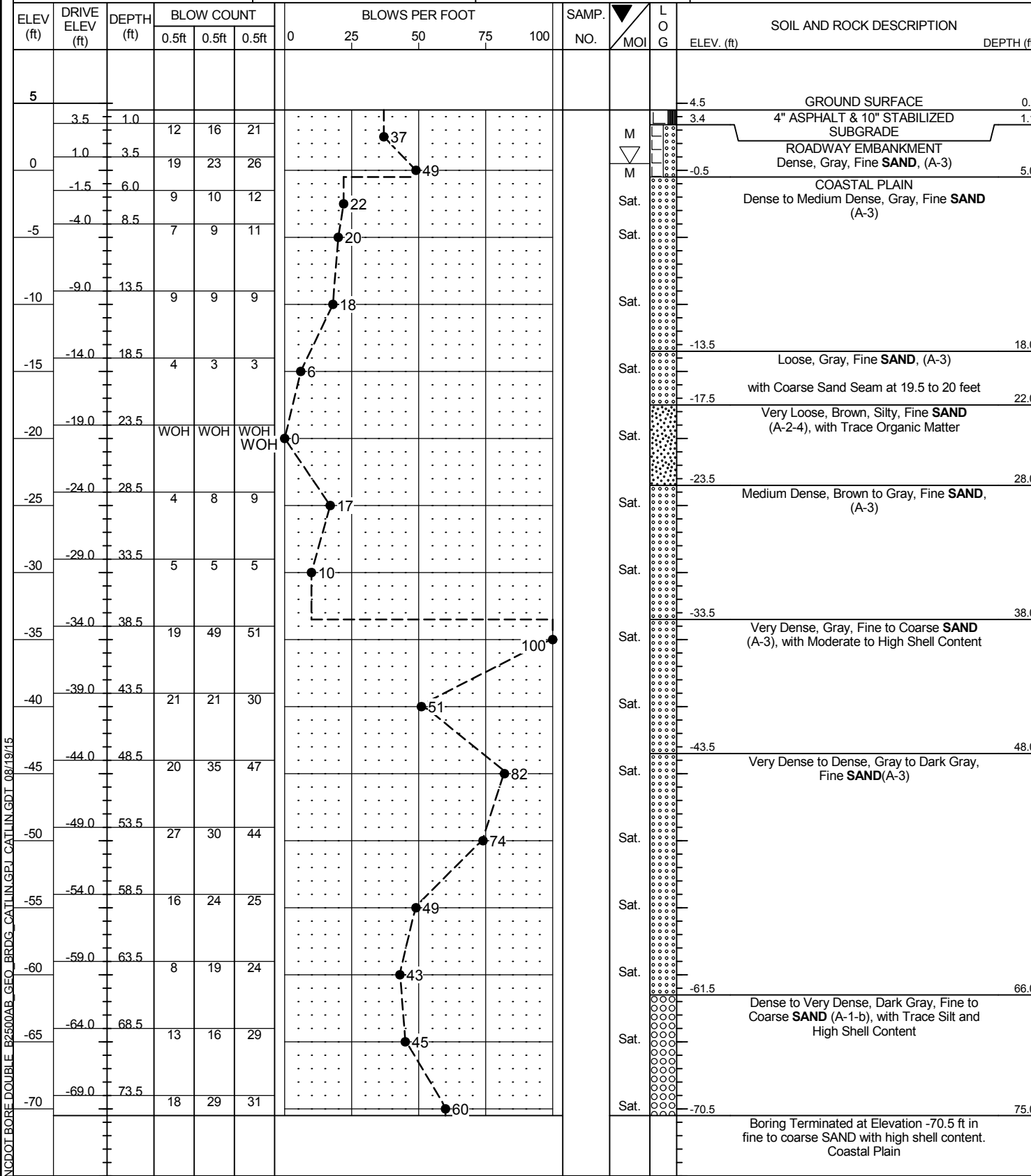
NCDOT BORE DOUBLE B-2500AB_GEO_BRDG_CATLIN.GPJ CATLIN.GDI 08/19/15

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 32635	TIP B-2500AB	COUNTY DARE	GEOLOGIST Alexander, M.J.
SITE DESCRIPTION BRIDGE ON NC 12 OVER PEA ISLAND BREACH AT -L- STA. 3170+75			GROUND WTR (ft)
BORING NO. B32-B (TER-B1)	STATION 3174+80	OFFSET 25ft RT	ALIGNMENT -L-
COLLAR ELEV. 4.5 ft	TOTAL DEPTH 75.0 ft	NORTHING 722,601	EASTING 3,043,887
DRILL RIG/HAMMER EFF./DATE TER255 DIEDRICH D-50 77% 07/15/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER TERRACON	START DATE 09/07/11	COMP. DATE 09/08/11	SURFACE WATER DEPTH N/A

WBS 32635	TIP B-2500AB	COUNTY DARE	GEOLOGIST Alexander, M.J.
SITE DESCRIPTION BRIDGE ON NC 12 OVER PEA ISLAND BREACH AT -L- STA. 3170+75			GROUND WTR (ft)
BORING NO. B32-B (TER-B1)	STATION 3174+80	OFFSET 25ft RT	ALIGNMENT -L-
COLLAR ELEV. 4.5 ft	TOTAL DEPTH 75.0 ft	NORTHING 722,601	EASTING 3,043,887
DRILL RIG/HAMMER EFF./DATE TER255 DIEDRICH D-50 77% 07/15/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER TERRACON	START DATE 09/07/11	COMP. DATE 09/08/11	SURFACE WATER DEPTH N/A



- 1) Advanced 3-7/8" tricone bit to a depth of 28.5 feet
- 2) Advanced 2-15/16 tricone between 28.5 to 73.5 feet.
- 3) Set NW casing to a depth of 30 feet.
- 4) Used water with SW101 salt water bentonite added as drilling fluid.

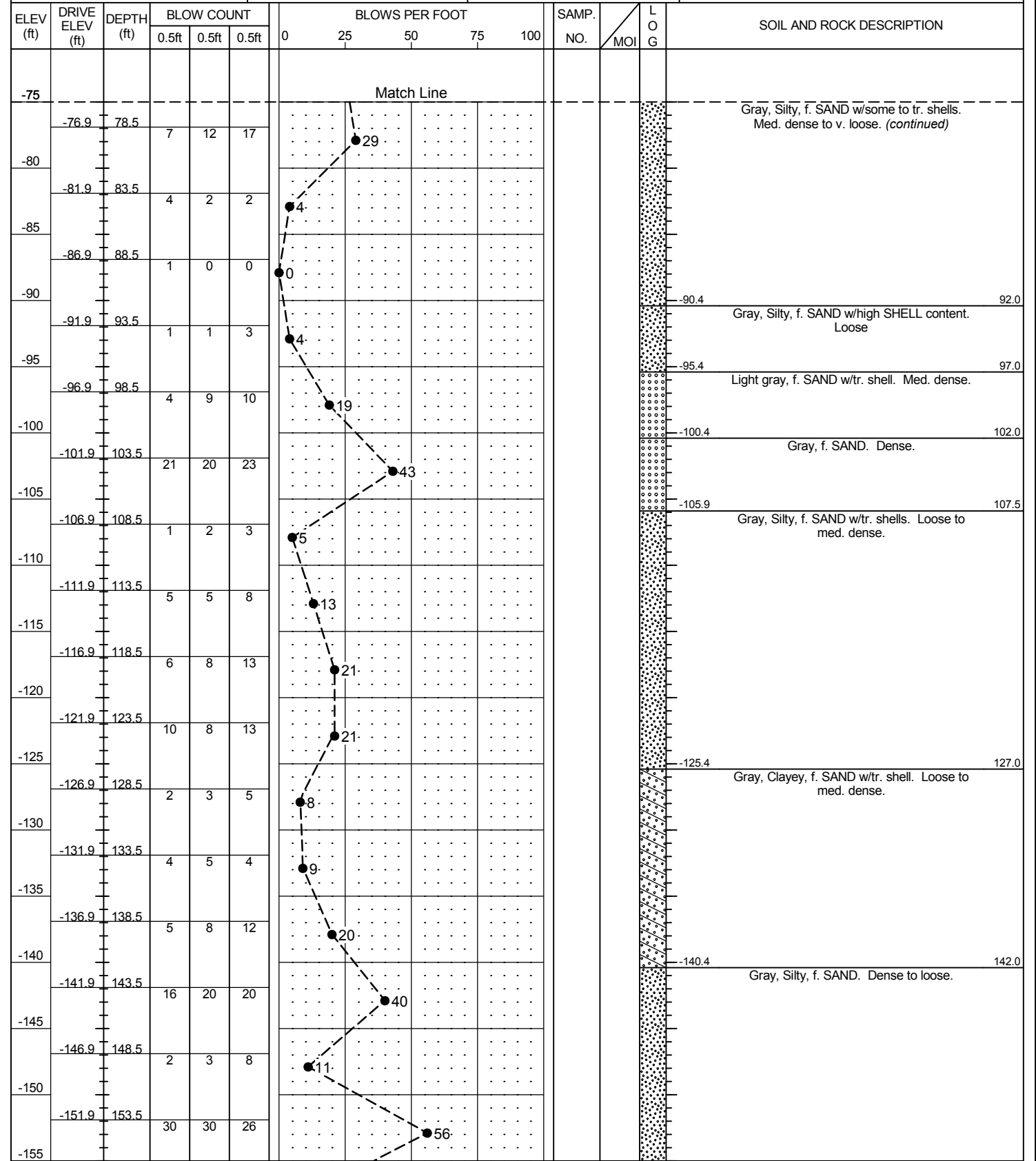
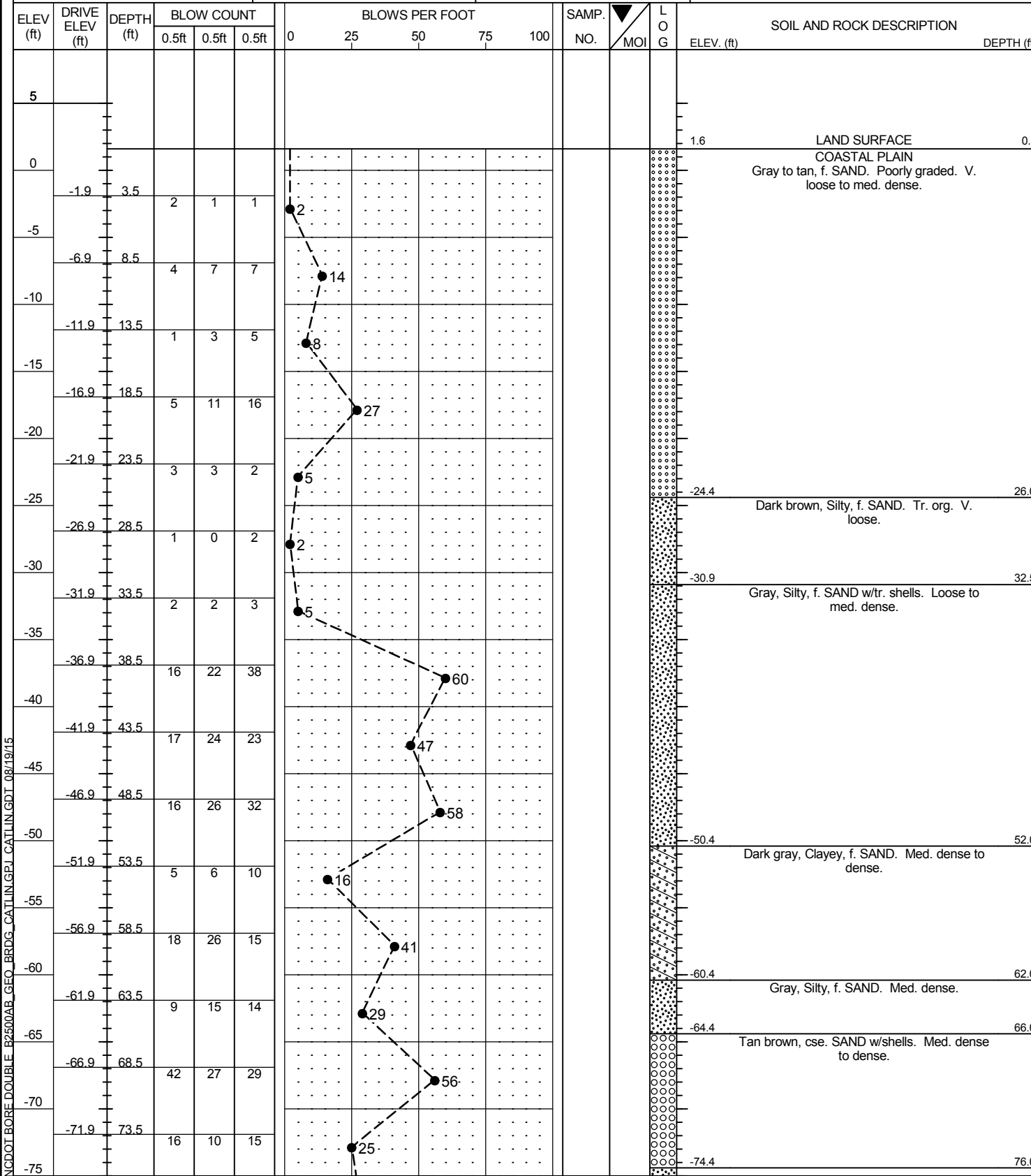
NCDOT BORE DOUBLE B2500AB GEO_BRDG_CATLIN.GPI CATLIN.GDI 08/19/15

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 32635	TIP B-2500AB	COUNTY DARE	GEOLOGIST TRB
SITE DESCRIPTION BRIDGE ON NC 12 OVER PEA ISLAND BREACH AT -L- STA. 3170+75			GROUND WTR (ft)
BORING NO. B35-A (B-59)	STATION 3176+55	OFFSET 16ft LT	ALIGNMENT -L-
COLLAR ELEV. 1.6 ft	TOTAL DEPTH 160.0 ft	NORTHING 722,772	EASTING 3,043,833
DRILL RIG/HAMMER EFF./DATE TER255 DIEDRICH D-50 77% 07/15/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER TERRACON	START DATE 01/25/12	COMP. DATE 01/26/12	SURFACE WATER DEPTH N/A

WBS 32635	TIP B-2500AB	COUNTY DARE	GEOLOGIST TRB
SITE DESCRIPTION BRIDGE ON NC 12 OVER PEA ISLAND BREACH AT -L- STA. 3170+75			GROUND WTR (ft)
BORING NO. B35-A (B-59)	STATION 3176+55	OFFSET 16ft LT	ALIGNMENT -L-
COLLAR ELEV. 1.6 ft	TOTAL DEPTH 160.0 ft	NORTHING 722,772	EASTING 3,043,833
DRILL RIG/HAMMER EFF./DATE TER255 DIEDRICH D-50 77% 07/15/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER TERRACON	START DATE 01/25/12	COMP. DATE 01/26/12	SURFACE WATER DEPTH N/A



NCDOT BORE DOUBLE B2500AB GEO_BRDG_CATLIN.GPI CATLIN.GDI 08/19/15

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 32635		TIP B-2500AB		COUNTY DARE		GEOLOGIST TRB									
SITE DESCRIPTION BRIDGE ON NC 12 OVER PEA ISLAND BREACH AT -L- STA. 3170+75							GROUND WTR (ft)								
BORING NO. B35-A (B-59)		STATION 3176+55		OFFSET 16ft LT		ALIGNMENT -L-	0 HR. N/A								
COLLAR ELEV. 1.6 ft		TOTAL DEPTH 160.0 ft		NORTHING 722,772		EASTING 3,043,833	24 HR. N/A								
DRILL RIG/HAMMER EFF./DATE TER255 DIEDRICH D-50 77% 07/15/2011				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic									
DRILLER TERRACON		START DATE 01/25/12		COMP. DATE 01/26/12		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			ELEV. (ft)	DEPTH (ft)	
-155															
	-156.9	158.5	13	3	5	•	•	•	•	•	•	•	•	-157.3	158.9
						•	•	•	•	•	•	•	•	-158.4	160.0

NCDOT BORE DOUBLE B2500AB_GEO_BRDG_CATLIN.GPI CATLIN.GDI 08/19/15

Match Line

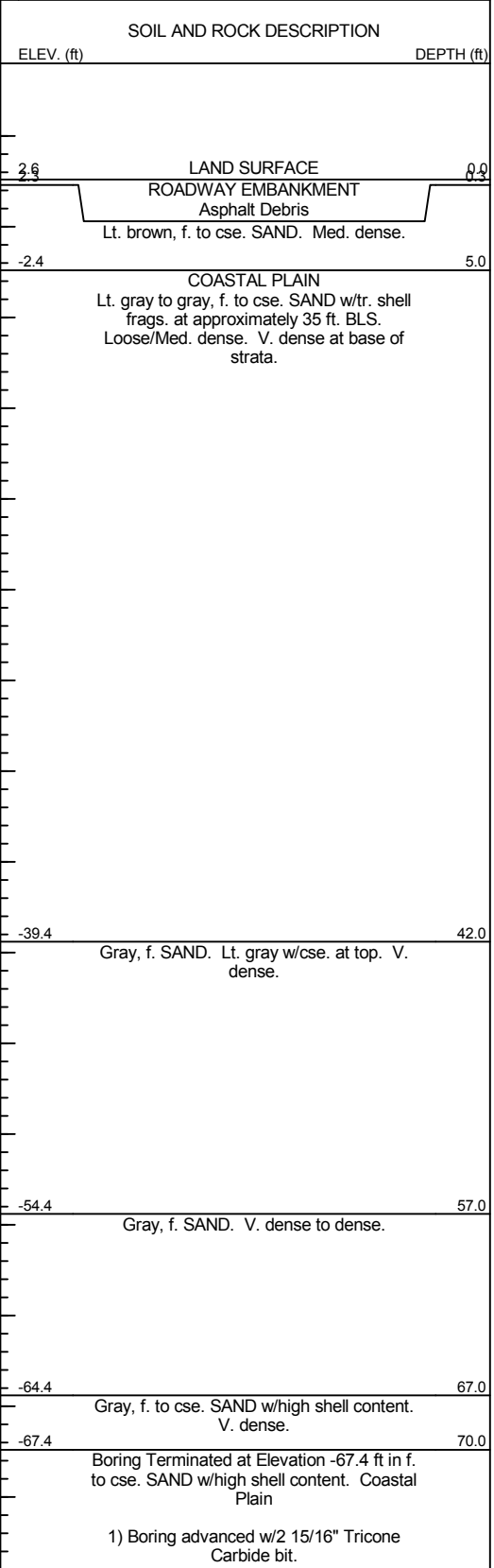
Gray, Silty, f. SAND. Dense to loose.
(continued)
 Dark gray, Silty CLAY. Med. stiff.
 Boring Terminated at Elevation -158.4 ft in Silty CLAY. Coastal Plain
 1. NW Casing set to 90ft.

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 32635		TIP B-2500AB		COUNTY DARE		GEOLOGIST A. Ezzell										
SITE DESCRIPTION BRIDGE ON NC 12 OVER PEA ISLAND BREACH AT -L- STA. 3170+75						GROUND WTR (ft)										
BORING NO. B38-B (B-21)		STATION 3178+16		OFFSET 61ft RT		ALIGNMENT -L-										
COLLAR ELEV. 2.6 ft		TOTAL DEPTH 70.0 ft		NORTHING 722,934		EASTING 3,043,905										
DRILL RIG/HAMMER EFF./DATE TER255 DIEDRICH D-50 77% 07/15/2011				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER TERRACON		START DATE 10/05/11		COMP. DATE 10/05/11		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL AND ROCK DESCRIPTION			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100			ELEV. (ft)	DEPTH (ft)		
5																
0	-0.9	3.5	12	16	15									2.6		0.0
-5	-5.9	8.5	3	4	6									-2.4		5.0
-10	-10.9	13.5	4	6	7											
-15	-15.9	18.5	8	11	14											
-20	-20.9	23.5	6	8	13											
-25	-25.9	28.5	7	7	9											
-30	-30.9	33.5	6	8	11											
-35	-35.9	38.5	3	3	3											
-40	-40.9	43.5	9	22	32									-39.4		42.0
-45	-45.9	48.5	22	33	39											
-50	-50.9	53.5	22	31	30											
-55	-55.9	58.5	21	33	34									-54.4		57.0
-60	-60.9	63.5	20	30	18											
-65	-65.9	68.5	23	26	27									-64.4		67.0
														-67.4		70.0

NCDOT BORE DOUBLE B2500AB_GEO_BRDG_CATLIN.GDI 08/19/15



1) Boring advanced w/2 15/16" Tricone Carbide bit.

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 32635		TIP B-2500AB		COUNTY DARE		GEOLOGIST Tom Stetler	
SITE DESCRIPTION BRIDGE ON NC 12 OVER PEA ISLAND BREACH AT -L- STA. 3170+75							GROUND WTR (ft)
BORING NO. B43-B (B-60)		STATION 3180+62		OFFSET 50ft RT		ALIGNMENT -L-	
COLLAR ELEV. 4.0 ft		TOTAL DEPTH 160.2 ft		NORTHING 723,179		EASTING 3,043,895	
DRILL RIG/HAMMER EFF./DATE CAT1314 CME-45B 92% 11/16/2011			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic		
DRILLER CATLIN		START DATE 02/14/12		COMP. DATE 02/15/12		SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
5	4.0	0.0												LAND SURFACE	0.0
			2	1	1								M	ROADWAY EMBANKMENT Tan, f. SAND w/tr. gravel and shell frags. V. loose.	
0	-0.9	4.9											Sat.	COASTAL PLAIN Dark brownish gray, Silty, f. SAND w/little interlayered cse. sand. Loss of circulation. Geotextile fabric noted @ approx. 5.5ft. Brownish gray to gray, f. SAND. Tr. cse. at top. Loose to med. dense.	5.5
-5	-5.9	9.9											Sat.		8.5
-10	-9.7	13.7											Sat.		
-15	-14.7	18.7											Sat.		
-20	-19.7	23.7											Sat.	Brownish gray to grayish brown, f. SAND w/tr. silt. Med. dense	22.0
-25	-24.7	28.7											Sat.		
-30	-29.7	33.7											Sat.		
-35	-34.7	38.7											Sat.		
-40	-39.7	43.7											Sat.		
-45	-44.7	48.7											W	Brown gray, Silty, f. SAND w/tr. cse. and little shell frags. Dense.	42.5
-50	-49.7	53.7											W	Brownish gray, Silty, f. SAND. Poorly graded. V. dense to dense.	47.0
-55	-54.7	58.7											W		
-60	-59.7	63.7											W		
-65	-64.7	68.7											W		
-70	-69.7	73.7											Sat.		
-75	-74.7	78.7											Sat.	Gray, Silty, cse. to f. SAND w/mod. shell content. Med. dense.	68.0
													Sat.	Gray, Silty, f. SAND w/no to tr. shell frags. Med. dense.	72.5

WBS 32635		TIP B-2500AB		COUNTY DARE		GEOLOGIST Tom Stetler	
SITE DESCRIPTION BRIDGE ON NC 12 OVER PEA ISLAND BREACH AT -L- STA. 3170+75							GROUND WTR (ft)
BORING NO. B43-B (B-60)		STATION 3180+62		OFFSET 50ft RT		ALIGNMENT -L-	
COLLAR ELEV. 4.0 ft		TOTAL DEPTH 160.2 ft		NORTHING 723,179		EASTING 3,043,895	
DRILL RIG/HAMMER EFF./DATE CAT1314 CME-45B 92% 11/16/2011			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic		
DRILLER CATLIN		START DATE 02/14/12		COMP. DATE 02/15/12		SURFACE WATER DEPTH N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
-75															
			6	14	15									Match Line	
-80	-79.7	83.7											Sat.	Gray, Silty, f. SAND w/no to tr. shell frags. Med. dense. (continued)	
-85	-84.7	88.7											Sat.	Gray, Silty, f. SAND w/tr. to little clay and tr. shell frags. V. loose.	86.0
-90	-89.8	93.8											Sat.		
-95	-94.7	98.7											Sat.	Gray, Silty to Clayey, cse. to f. SAND. Well graded w/little shell frags. Loose.	96.0
-100	-99.7	103.7											Sat.	Gray, f. SAND w/tr. silt and shell frags. V. dense.	103.0
-105	-104.7	108.7											Sat.	Gray, Silty to Clayey, cse. to f. SAND w/little shell frags. Well graded. Loose.	107.5
-110	-109.7	113.7											W	Gray, Silty, f. SAND w/little interlayered to tr. clay. Med. dense.	111.0
-115	-114.7	118.7											W		
-120	-119.7	123.7											W		
-125	-124.7	128.7											W		
-130	-129.7	133.7											W	Gray, Silty to Clayey, f. SAND w/little Sandy Silt and tr. shells. Loose to med. dense.	133.0
-135	-134.7	138.7											W		
-140	-139.7	143.7											W	Gray, f. SAND w/tr. silt and shell frags. Dense.	143.0
-145	-144.7	148.7											W	Gray, Silty to Clayey, f. SAND grades to include interlayered f. Sandy Silt. Loose to V. dense.	147.0
-150	-149.7	153.7											W		
-155	-154.7	158.7											W		

NCDOT BORE DOUBLE B2500AB GEO_BRDG_CATLIN.GDI 08/19/15

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 32635		TIP B-2500AB		COUNTY DARE		GEOLOGIST Tom Stetler									
SITE DESCRIPTION BRIDGE ON NC 12 OVER PEA ISLAND BREACH AT -L- STA. 3170+75							GROUND WTR (ft)								
BORING NO. B43-B (B-60)		STATION 3180+62		OFFSET 50ft RT		ALIGNMENT -L-									
COLLAR ELEV. 4.0 ft		TOTAL DEPTH 160.2 ft		NORTHING 723,179		EASTING 3,043,895									
DRILL RIG/HAMMER EFF./DATE CAT1314 CME-45B 92% 11/16/2011				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic									
DRILLER CATLIN		START DATE 02/14/12		COMP. DATE 02/15/12		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					ELEV. (ft)
-155		9	27	31									W		160.2
Match Line Boring Terminated at Elevation -156.2 ft in Silty, f. SAND. Coastal Plain 1. NW Casing set to 9.9ft. BLS 2. SW101 & Bentonite drilling mud															

NCDOT BORE DOUBLE B2500AB_GEO_BRDG_CATLIN.GPI CATLIN.GDI 08/19/15