

Addendum #1

To: Roger Naous, PE
cc: Jim Wentworth, PE
From: Kate Maguire, PE
Date: June 8, 2006
Re: Addendum #1
To MaineDOT Soils Report No. 2006-06
Final Geotechnical Design Report
Naples Bay Bridge
Naples, Maine
PIN: 11060.00

This Addendum to the Final Geotechnical Design Report for the Naples Bay Bridge is to transmit information regarding an additional boring conducted in the vicinity of the proposed pier location.

Subsurface conditions at the pier location were explored between March 21 and 22, 2006. One boring, BB-NBB-201 was drilled at the location of the proposed pier. The boring locations for all three borings drilled at the site are shown on *Sheet 2 - Boring Location Plan* and *Sheet 3 - Interpretive Subsurface Profile* attached to this addendum. Boring BB-NBB-201 was drilled to a depth of approximately 62.3 ft below the river bed surface. The boring was located in the field by use of a tape after completion of the drilling program.

The boring was drilled by the MaineDOT Materials Testing & Exploration team. Details and sampling methods used, field data obtained, and soil and groundwater conditions encountered are presented in the boring log attached to this addendum and graphically on *Sheet 5 - Boring Logs* also attached to this addendum (*Sheet 4 - Boring Logs* can be found in the original report and is unchanged by this addendum). Drilling in soil was performed using cased wash boring techniques. Soil samples were obtained at 10-ft intervals using Standard Penetration Test (SPT) methods. Drilling in bedrock was performed using diamond rock coring with a NQ-sized (1.88 inch) double tube core barrel with which rock core samples were obtained. The Rock Quality Designation (RQD) was calculated for the rock core obtained. The MaineDOT Geotechnical Team member selected the boring location and drilling methods, designated type and depth of sampling techniques, and identified field and laboratory testing requirements.

Laboratory testing for samples obtained in the boring consisted of six (6) Grain Size Analyses. The results of these laboratory tests are attached to this addendum. Moisture content information is also shown on the attached Boring Log and on *Sheet 5 - Boring Logs* attached to this addendum.

Subsurface conditions encountered in the boring were similar to those found in the abutment borings. The soil profile generally consisted of **fill soils** over-lying a layer of **sand** which is

underlain by **bedrock**. An updated interpretive subsurface profile depicting the detailed soil stratigraphy across the site is shown on *Sheet 3 - Interpretive Subsurface Profile* attached to this addendum.

Pile Length. Pile length at the abutments and pier can be estimated based on the following data:

Location	Ground Elevation	Depth to Rock	Approximate Top of Rock Elevation	Estimated Pile Length	Rock Quality Designation
Abutment #1 BB-NBB-101	277.0 ft	86.9 ft	190.1 ft	60 ft	100%
Pier BB-NBB-201	263.9 ft	57.3 ft	206.6 ft	50 ft	94%
Abutment #2 BB-NBB-102	278.0 ft	60.7 ft	217.3 ft	43 ft	43%

All recommendations made in the original report entitled: Final Geotechnical Design Report for the Replacement of: Naples Bay Bridge over Chutes River US Route 302 Naples, Maine Soils Report No. 2006-06 remain unchanged.

If you have any questions or need any additional information, please let me know.

Attachments:

- Sheet 2 - Boring Location Plan
- Sheet 3 - Interpretive Subsurface Profile
- Sheet 5 - Boring Logs
- Boring Log BB-NBB-201
- Laboratory Testing Summary Sheet
- Grain Size Distribution Curves

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS	Project: Naples Bay Bridge Over Chutes River	Boring No.: BB-NBB-201
	Location: US Route 302 Naples, Maine	PIN: 11060.00

Driller: MaineDOT	Elevation (ft.): 263.9	Auger ID/OD: N/A
Operator: Ervin Giguere	Datum: NAVD 88	Sampler: Standard Split Spoon
Logged By: K. Maguire	Rig Type: CME 45C	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 3/21/06-3/22/06	Drilling Method: Cased Wash Boring	Core Barrel: NQ-2"
Boring Location: 104+82.2, 2.5 Lt.	Casing ID/OD: NW	Water Level*: Boring in River

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S_u = Insitu Field Vane Shear Strength (psf) T_v = Pocket Torvane Shear Strength (psf) q_p = Unconfined Compressive Strength (ksf) $S_u(\text{lab})$ = Lab Vane Shear Strength (psf) WOH = weight of 140lb. hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
---	---	--

Depth (ft.)	Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.		
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Elevation (ft.)	Graphic Log						
0	MD	24/0	0.00 - 2.00	1/4/2/5	6	8	261.90	[Graphic Log]	No sample recovery. River bottom very cobbly.		G#175876 A-1-b, SP WC=17.7%			
						15						2.00		
						16								
						8								
						5								
5						6								
	ID	24/6	6.00 - 8.00	2/4/7/4	11	3						Brown, wet, medium dense, fine to coarse SAND, little gravel, trace silt.		
						16								
						73								
						117								
10						98								
						92								
						118								
						119								
						144								
15						143								
	2D	24/12	16.00 - 18.00	18/27/29/32	56	69			Brown, wet, very dense, fine to medium SAND, trace coarse sand and silt.		G#175877 A-3, SP-SM WC=14.3%			
						96								
						122								
						130								
20						129								
						178								
						139								
						140								
						123								
25														

Remarks:
 Casing and spoon driven with safty hammer.
 13.7' from Bridge Deck to Ground.

Driller: MaineDOT	Elevation (ft.): 263.9	Auger ID/OD: N/A
Operator: Ervin Giguere	Datum: NAVD 88	Sampler: Standard Split Spoon
Logged By: K. Maguire	Rig Type: CME 45C	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 3/21/06-3/22/06	Drilling Method: Cased Wash Boring	Core Barrel: NQ-2"
Boring Location: 104+82.2, 2.5 Lt.	Casing ID/OD: NW	Water Level*: Boring in River

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S_u = Insitu Field Vane Shear Strength (psf) T_v = Pocket Torvane Shear Strength (psf) q_p = Unconfined Compressive Strength (ksf) $S_u(\text{lab})$ = Lab Vane Shear Strength (psf) WOH = weight of 140lb. hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
---	---	--

Depth (ft.)	Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows ((6 in.) Shear Strength (psf) or RQD (%))	N-value	Casing Blows	Elevation (ft.)	Graphic Log				
25						124					Golden brown, wet, loose, fine to medium SAND, trace silt.	G#175878 A-3, SP WC=23.0%
	3D	24/12	26.00 - 28.00	2/2/3/4	5	68						
						78						
						110						
						110						
30						101						
						153						
						154						
						128						
						133						
35						127				Light brown, wet, medium dense, fine to medium SAND, trace coarse sand and silt.	G#175879 A-3, SP WC=20.3%	
	4D	24/8	36.00 - 38.00	6/6/7/6	13	109						
						135						
						146						
						181						
40						161						
						144						
						149						
						145						
						168						
45						152				Light brown, wet, loose, fine to medium SAND, trace coarse sand and silt.	G#175880 A-3, SP WC=18.5%	
	5D	24/12	46.00 - 48.00	3/3/4/4	7	152						
						135						
						152						
						124						
50						214.90				49.00		

Remarks:
 Casing and spoon driven with safty hammer.
 13.7' from Bridge Deck to Ground.

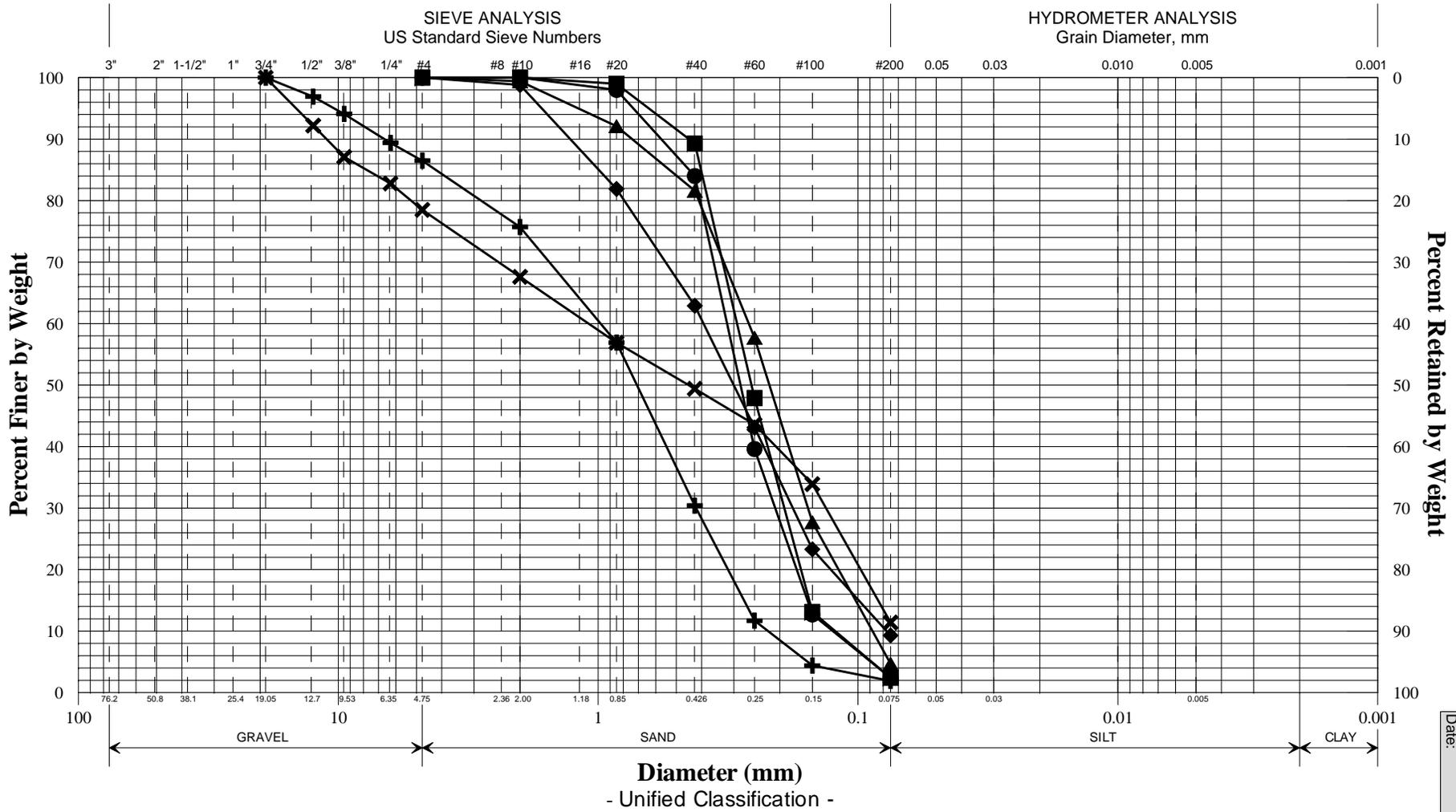
Driller: MaineDOT	Elevation (ft.): 263.9	Auger ID/OD: N/A
Operator: Ervin Giguere	Datum: NAVD 88	Sampler: Standard Split Spoon
Logged By: K. Maguire	Rig Type: CME 45C	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 3/21/06-3/22/06	Drilling Method: Cased Wash Boring	Core Barrel: NQ-2"
Boring Location: 104+82.2, 2.5 Lt.	Casing ID/OD: NW	Water Level*: Boring in River

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (psf) T _v = Pocket Torvane Shear Strength (psf) q _p = Unconfined Compressive Strength (ksf) S _u (lab) = Lab Vane Shear Strength (psf) WOH = weight of 140lb. hammer WOR = weight of rods WOC = weight of casing	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
---	---	--

Depth (ft.)	Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Elevation (ft.)	Graphic Log				
50						126					G#175881 A-1-b, SW-SM WC=13.7%	
						146						
						162						
						143						
						157						
55						158						
	6D	6/2	56.00 - 56.50	16/50(0)	---	180						
	R1	60/60	57.30 - 62.30	RQD = 94%		a36	206.60	Grey brown, wet, medium dense, fine to coarse SAND, some gravel, little silt, grey rock in nose of spoon. a36 blows for 0.3'.				
						NQ		Bedrock: White, grey, black, medium grained, hard, GRANITE. R1:Core Times (min:sec) 57.3-58.3' (3:43) 58.3-59.3' (3:13) 59.3-60.3' (2:20) VOID (?) at 60.0' bgs. 60.3-61.3' (2:50) 61.3-62.3' (2:06) 100% Recovery				
60							201.60	Bottom of Exploration at 62.30 feet below ground surface.				
65												
70												
75												

Remarks:
 Casing and spoon driven with safty hammer.
 13.7' from Bridge Deck to Ground.

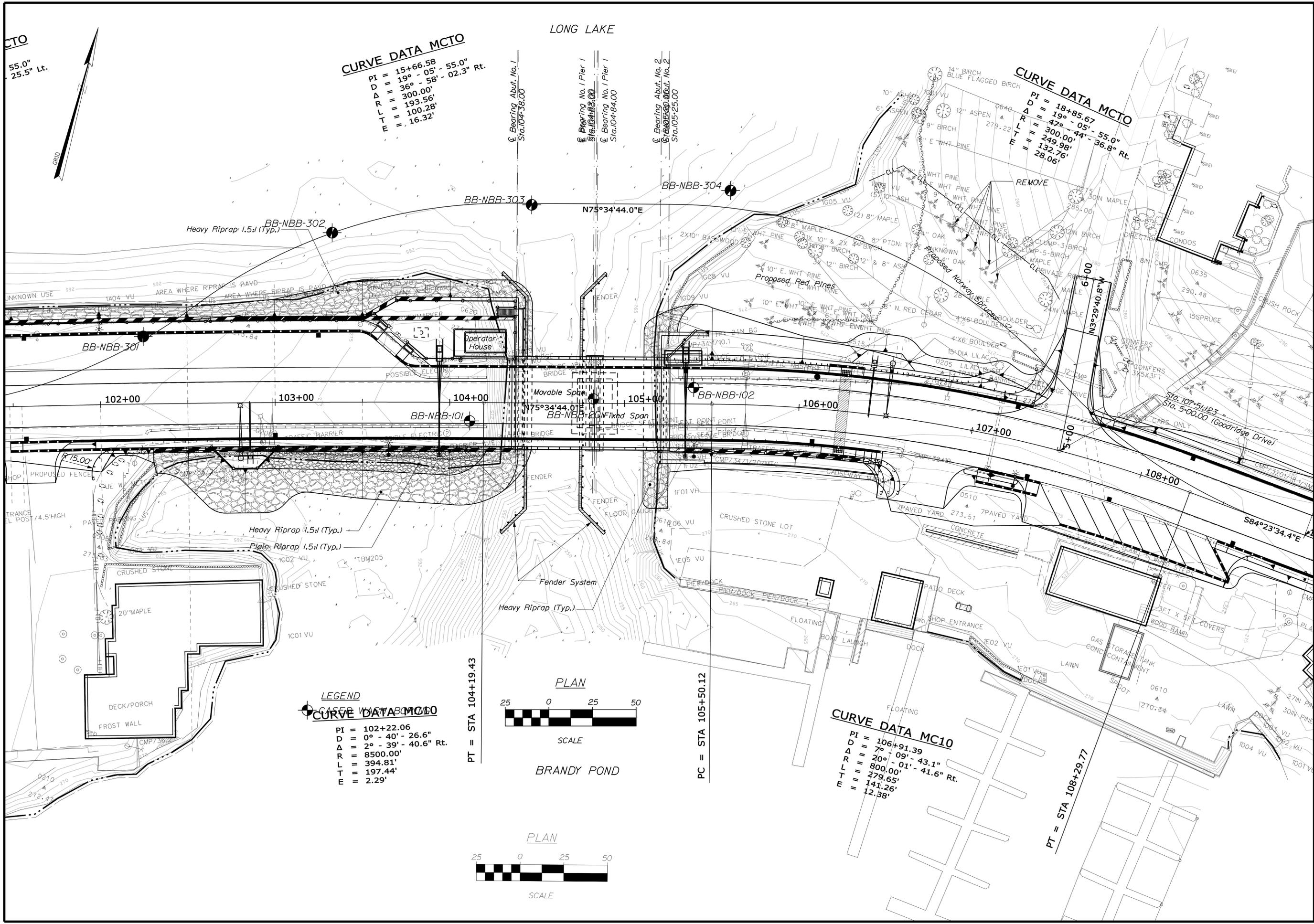
State of Maine Department of Transportation
GRAIN SIZE DISTRIBUTION CURVE



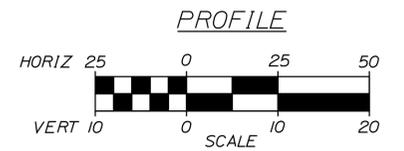
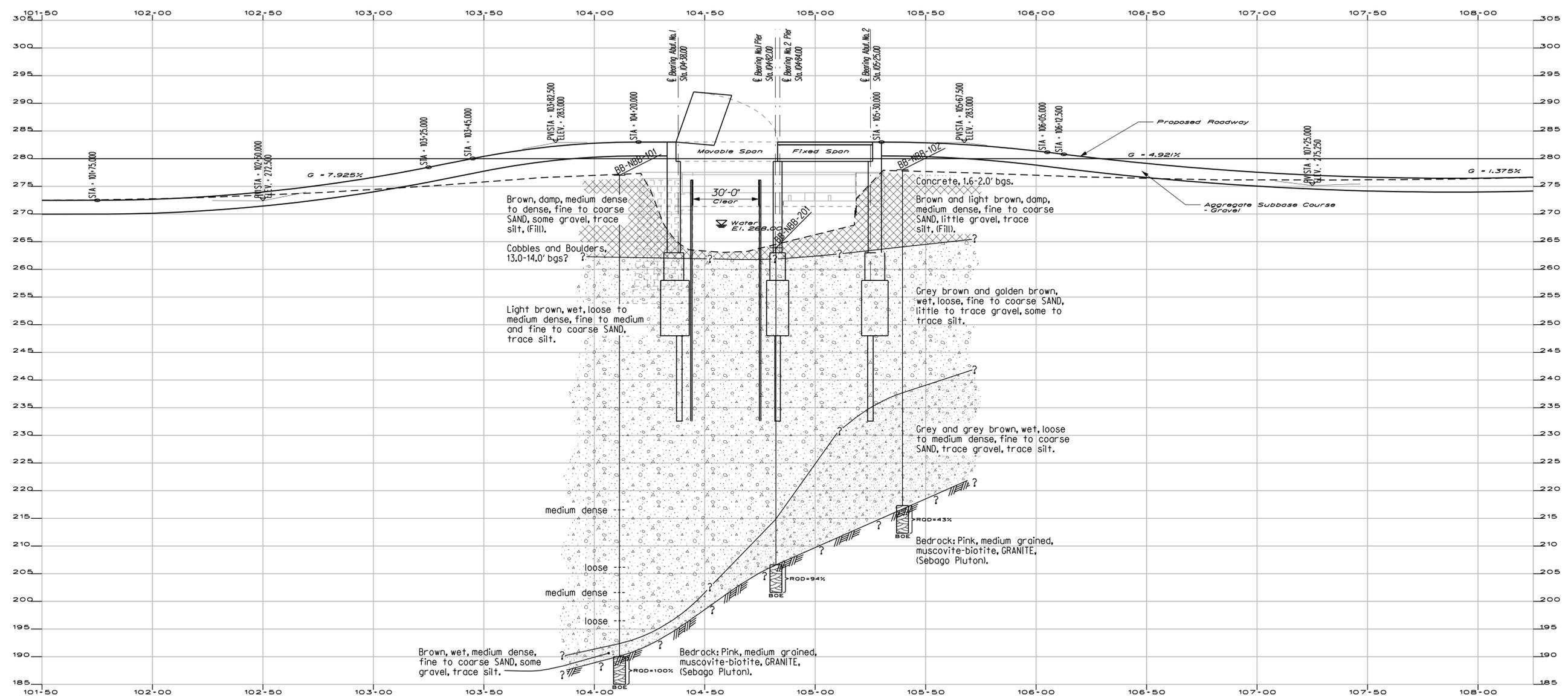
	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI
+	BB-NBB-201/1D	104+82.2	2.5 LT	6.0-8.0	SAND, little gravel, trace silt.	17.7			
◆	BB-NBB-201/2D	104+82.2	2.5 LT	16.0-18.0	SAND, trace silt.	14.3			
■	BB-NBB-201/3D	104+82.2	2.5 LT	26.0-28.0	SAND, trace silt.	23.0			
●	BB-NBB-201/4D	104+82.2	2.5 LT	36.0-38.0	SAND, trace silt.	20.3			
▲	BB-NBB-201/5D	104+82.2	2.5 LT	46.0-48.0	SAND, trace silt.	18.5			
×	BB-NBB-201/6D	104+82.2	2.5 LT	56.0-56.5	SAND, some gravel, little silt.	13.7			

Reported by:	W/WHITE, TERRY A
Date:	4/14/2006
Town:	Naples
Reported by:	W/WHITE, TERRY A
Date:	4/14/2006
PIN:	011060.00

Filename: ... \00\GEO\TECH\MSTA006_BLP1.dgn Division: GEOTECH Username: kate.magnire Date: 6/5/2008



STATE OF MAINE		DEPARTMENT OF TRANSPORTATION	
BH-A106(000)X		PIN 11060.00	
BRIDGE NO. 2047		BRIDGE PLANS	
PROJ. MANAGER	J. Wentworth	BY	T. White
CHECKED-REVIEWED	K. Magnire	DATE	NOV 2005
DESIGN DETAILED		SIGNATURE	
DESIGNS DETAILED		P.E. NUMBER	
REVISIONS 1		DATE	
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			
NAPLES BAY BRIDGE		CUMBERLAND COUNTY	
CHUTES RIVER		BORING LOCATION PLAN	
NAPLES		SHEET NUMBER	
OF 1			



Note: This generalized interpretive soil profile is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and have been developed by interpretations of widely spaced explorations and samples. Actual soil transitions may vary and are probably more erratic. For more specific information refer to the exploration logs.

STATE OF MAINE		DEPARTMENT OF TRANSPORTATION	
NAPLES BAY BRIDGE		BH-A106(000)X	
CHUTES RIVER		PIN 11060.00	
CUMBERLAND COUNTY		BRIDGE NO. 2047	
NAPLES		BRIDGE PLANS	
INTERPRETIVE SUBSURFACE PROFILE		SHEET NUMBER	
PROJ. MANAGER	J. Wentworth	BY	T. White
CHECKED-REVIEWED	K. Maguire	DATE	NOV 2005
DESIGNS DETAILED		SIGNATURE	
DESIGNS DETAILED		P.E. NUMBER	JUN 2006
REVISIONS 1	Changed 201 ledge elev.	DATE	
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

