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Memorandum

To: Nate Benoit, P.E., MaineDOT
Cc: Tim Merritt, P.E., Stantec
From: Kitty Breskin, P.E.
Date: October 10, 2013
Subject: Westbrook Signal Foundations, WIN 19282.00

A single boring was done for investigation of soils properties to be used in foundation design for traffic signals at the intersection of Main Street and the relocated Bridge Street. This boring was drilled on August 28, 2013 by MaineDOT using a cased washboring.

Wet, soft, olive to grey clayey-SILT soils were encountered between elevation 59.9 feet and elevation 40.2 feet. No laboratory testing was done. Vane shear testing of in-situ soils was done using a 55 x 110 mm vane at depths of 10.6' - 12', and 14.6 - 16'. A vane was attempted at 19.5 feet, however the fine sand content had increased and the attempt failed.

Vane shear testing showed undrained shear strengths of undisturbed soils ranging from 357 psf to 446 psf. A strength of 400 psf is recommended for use in design of signal foundations in these soils.

The boring log and Special Provision for these foundations are attached to this memo.

Driller: MaineDOT	Elevation (ft.): 63.2	Auger ID/OD: 5" Solid Stem
Operator: Giles/Daggett	Datum: NAVD88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 8/28/2013; 07:30-12:30	Drilling Method: Cased Wash Boring	Core Barrel: N/A
Boring Location: 24+00, 21.0 ft Lt.	Casing ID/OD: NW	Water Level*: None Observed

Hammer Efficiency Factor: _____ Hammer Type: Automatic Hydraulic Rope & Cathead

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample MU = Unsuccessful Thin Wall Tube Sample attempt V = Insitu Vane Shear Test, PP = Pocket Penetrometer MV = Unsuccessful Insitu Vane Shear Test attempt	R = Rock Core Sample SSA = Solid Stem Auger HSA = Hollow Stem Auger RC = Roller Cone WOH = weight of 140lb. hammer WOR/C = weight of rods or casing WO1P = Weight of one person	S _u = Insitu Field Vane Shear Strength (psf) T _v = Pocket Torvane Shear Strength (psf) q _u = Unconfined Compressive Strength (ksf) N-uncorrected = Raw field SPT N-value Hammer Efficiency Factor = Annual Calibration Value N ₆₀ = SPT N-uncorrected corrected for hammer efficiency N ₆₀ = (Hammer Efficiency Factor/60%)*N-uncorrected
		S _{u(lab)} = Lab Vane Shear Strength (psf) WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test

Depth (ft.)	Sample Information								Elevation (ft.)	Graphic Log	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-uncorrected	N ₆₀	Casing Blows	Elevation (ft.)				
0	S1		0.33 - 2.33					62.87		4" PAVEMENT.		
								59.90		Brown, damp, fine to coarse SAND, some gravel, little silt.		
5	1D	24/22	5.00 - 7.00	2/3/3/4	6	0				Olive, wet, soft, clayey-SILT, trace fine sand.		
10	2D V1	24/24	10.00 - 12.00 10.63 - 11.00	WOH/WOH/WOH/2 Su=357/89 psf	---	8		54.40		Grey, wet, soft, clayey-SILT, little fine sand. 55x110 mm vane raw torque readings: V1: 8.0/2.0 ft-lbs V2: 9.0/3.0 ft-lbs		
	V2		11.63 - 12.00	Su=402/134 psf		11						
						8						
						13						
15	3D V3	24/24	14.00 - 16.00 14.63 - 15.00	WOH/WOH/1/3 Su=402/134 psf	1	0	9			Similar to above. 55x110 mm vane raw torque readings: V3: 9.0/3.0 ft-lbs V4: 10.0/4.0 ft-lbs		
	V4		15.63 - 16.00	Su=446/179 psf		9						
						11						
						16						
						17		44.70				
20	4D MV	24/22	19.00 - 21.00 19.50 - 19.50	WOH/WOH/1/3 would not push	1	0	14			Grey, wet, soft, clayey-SILT, some fine sand. Failed 55x110 mm vane attempt.		
						47						
						17						
						22						
						27		40.20				
25	5D	24/17	24.00 - 26.00	2/3/2/2	5	0	21			Grey, wet, loose, silty, fine to medium SAND.		
						30						

Remarks:

