



**SUPPLEMENTAL GEOTECHNICAL INFORMATION  
INTERSTATE 95 TRAFTON ROAD INTERCHANGE  
WATERVILLE, MAINE  
MAINEDOT WIN 18129.10**

**PREPARED FOR:**

Maine Department of Transportation  
Augusta, Maine

**PREPARED BY:**

Schonewald Engineering Associates, Inc.  
Cumberland, Maine 04021

**April 2016**

SchonewaldEA Project No. 15-101

## **SUBSURFACE EXPLORATION LOGS**

### **200-SERIES TRAFTON ROAD UNDERPASS**

<div>Maine Department of Transportation</div> <div>Soil/Rock Exploration Log</div> <div>US CUSTOMARY UNITS</div>				<div>Project: I-95 Trafton Road Interchange</div> <div>Location: Waterville, Maine</div>		<div>Boring No.: HB-WAT-201</div> <div>WIN: 18129.10</div>																																																																																																																														
Driller: MaineDOT			Elevation (ft.) 208.4		Auger ID/OD: 5" Soild Stem																																																																																																																															
Operator: Wilder/Daggett			Datum: NAVD88		Sampler: Standard Split Spoon																																																																																																																															
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Driller: MaineDOT		Elevation (ft.) 207.9		Auger ID/OD: 5" OD						
Operator: Wilder/Daggett		Datum: NAVD88		Sampler: N/A						
Logged By: B. Wilder		Rig Type: CME 45C		Hammer Wt./Fall: N/A						
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Boring Location: 607+99.5, 7.9 ft Rt.		Casing ID/OD: N/A		Water Level*: None Observed						
<div>Definitions:</div> <div>D = Split Spoon Sample S = Sample off Auger Flight</div> <div>MD = Unsuccessful Split Spoon Sample attempt</div> <div>U = Thin Wall Tube Sample</div> <div>R = Rock Core Sample</div> <div>V = Insitu Vane Shear Test</div> <div>SSA = Solid Stem Auger B = Bucket Sample off Auger Flight</div> <div>Definitions:</div> <div>S<sub>u</sub> = Insitu Field Vane Shear Strength (psf)</div> <div>T<sub>v</sub> = Pocket Torvane Shear Strength (psf)</div> <div>q<sub>p</sub> = Unconfined Compressive Strength (ksf)</div> <div>S<sub>u</sub>(lab) = Lab Vane Shear Strength (psf)</div> <div>WOH = weight of 140lb. hammer</div> <div>WOR = weight of rods WOC = weight of casing</div> <div>Definitions:</div> <div>WC = water content, percent ≡ Similar or Equal too</div> <div>LL = Liquid Limit RC = Roller Cone ahead</div> <div>PL = Plastic Limit</div> <div>PI = Plasticity Index</div> <div>G = Grain Size Analysis</div> <div>C = Consolidation Test</div>										
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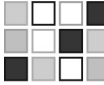
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Logged By: B. Wilder			Rig Type: CME 45C		Hammer Wt./Fall: 140#/30"																																																																																																																																																																																																																																																																																																																																																																																																																						
Date Start/Finish: 3/14/2016; 07:30-12:00			Drilling Method: Cased Wash Boring		Core Barrel: NQ-2"																																																																																																																																																																																																																																																																																																																																																																																																																						
Boring Location: 608+34.9, 7.5 ft Rt.			Casing ID/OD: NW-3"		Water Level*: None Observed																																																																																																																																																																																																																																																																																																																																																																																																																						
Hammer Efficiency Factor: 0.908			Hammer Type: Automatic <input checked="" type="checkbox"/> Hydraulic <input type="checkbox"/> Rope & Cathead <input type="checkbox"/>																																																																																																																																																																																																																																																																																																																																																																																																																								
<div>Definitions:</div> <div>D = Split Spoon Sample</div> <div>MD = Unsuccessful Split Spoon Sample attempt</div> <div>U = Thin Wall Tube Sample</div> <div>MU = Unsuccessful Thin Wall Tube Sample attempt</div> <div>V = Insitu Vane Shear Test, PP = Pocket Penetrometer</div> <div>MV = Unsuccessful Insitu Vane Shear Test attempt</div> <div>R = Rock Core Sample</div> <div>SSA = Solid Stem Auger</div> <div>HSA = Hollow Stem Auger</div> <div>RC = Roller Cone</div> <div>WOH = weight of 140lb. hammer</div> <div>WOR/C = weight of rods or casing</div> <div>WO1P = Weight of one person</div> <div>S<sub>u</sub> = Insitu Field Vane Shear Strength (psf)</div> <div>T<sub>v</sub> = Pocket Torvane Shear Strength (psf)</div> <div>q<sub>p</sub> = Unconfined Compressive Strength (ksf)</div> <div>N<sub>uncorrected</sub> = Raw field SPT N-value</div> <div>Hammer Efficiency Factor = Annual Calibration Value</div> <div>N<sub>60</sub> = SPT N<sub>uncorrected</sub> corrected for hammer efficiency</div> <div>N<sub>60</sub> = (Hammer Efficiency Factor/60%)*N<sub>uncorrected</sub></div> <div>S<sub>u(lab)</sub> = Lab Vane Shear Strength (psf)</div> <div>WC = water content, percent</div> <div>LL = Liquid Limit</div> <div>PL = Plastic Limit</div> <div>PI = Plasticity Index</div> <div>G = Grain Size Analysis</div> <div>C = Consolidation Test</div>																																																																																																																																																																																																																																																																																																																																																																																																																											
<table><tr><th rowspan="2">Depth (ft.)</th><th colspan="8">Sample Information</th><th rowspan="2">Graphic Log</th><th rowspan="2">Visual Description and Remarks</th><th rowspan="2">Laboratory Testing Results/ AASHTO and Unified Class.</th></tr><tr><th>Sample No.</th><th>Pen./Rec. (in.)</th><th>Sample Depth (ft.)</th><th>Blows (/6 in.) Shear Strength (psf) or RQD (%)</th><th>N-uncorrected</th><th>N<sub>60</sub></th><th>Casing Blows</th><th>Elevation (ft.)</th></tr><tr><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td><td>SSA</td><td></td><td rowspan="10"><div></div></td><td rowspan="10">Similar to HB-WAT-201.</td><td rowspan="10"></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td><td>26</td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>33</td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>46</td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>38</td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>52</td><td></td></tr><tr><td>10</td><td>R1</td><td>60/55</td><td>10.70 - 15.70</td><td>RQD = 18%</td><td></td><td></td><td>a85 NQ-2</td><td>197.40</td><td rowspan="10"><div></div></td><td rowspan="10">a85 blows for 0.7 ft.</td><td rowspan="10">10.70</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>15</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>192.40</td><td rowspan="10"><div></div></td><td rowspan="10">Top of Bedrock at Elev. 197.4 ft. R1:Bedrock: R1:Core Times (min:sec) 10.7-11.7 ft (1:00) 11.7-12.7 ft (1:20) 12.7-13.7 ft (1:00) 13.7-14.7 ft (1:38) 14.7-15.7 ft (2:00) 92% Recovery</td><td rowspan="10">15.70</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>20</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td rowspan="10"></td><td rowspan="10">Bottom of Exploration at 15.70 feet below ground surface.</td><td rowspan="10"></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>25</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td colspan="3"></td></tr></table>								Depth (ft.)	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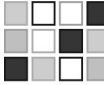


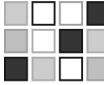


## **SUBSURFACE EXPLORATION LOGS**

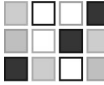





### **300-SERIES GUIDE SIGNS**

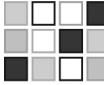
 <b>SCHONEWALD ENGINEERING ASSOCIATES, Inc.</b>		<b>PROJECT:</b> I-95 Trafton Road Interchange		<b>Boring No.:</b> HB-WAT-301					
		<b>LOCATION:</b> Waterville, Maine		<b>WIN:</b> 18129.10					
<b>Driller:</b> New England Boring Contractors		<b>Elevation (ft.):</b>		<b>Auger ID/OD:</b> 4.5" OD					
<b>Operator:</b> Enos/Share		<b>Datum:</b> NAVD88		<b>Sampler:</b> Standard Split Spoon					
<b>Logged By:</b> Schonewald		<b>Rig Type:</b> Mobile Drill B-53, track-mounted		<b>Hammer Wt./Fall:</b> 140#/30" (rope & cathead)					
<b>Date Start/Finish:</b> 3/18/16; 0835-1015		<b>Drilling Method:</b> Solid Stem Auger		<b>Core Barrel:</b> N/A					
<b>Boring Location:</b> NB Sign 3A, 15.1 ft. off EP		<b>Casing ID/OD:</b> N/A		<b>Water Level*:</b> 10 ft (open to 20.5 ft)					
<b>IN-SITU SAMPLING AND TESTING:</b> 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 MV = Unsuccessful Insitu Vane Shear Test attempt		<b>ADDITIONAL DEFINITIONS:</b> $S_u$ = Insitu Field Vane Shear Strength (psf) R = Rock Core Sample RQD = Rock Quality Designation (%) WOH = weight of 140lb. hammer WOR = weight of rods -- = not recorded		<b>BOREHOLE ADVANCEMENT METHOD:</b> SSA = solid stem auger / RC = roller cone <b>LABORATORY TEST RESULTS:</b> LL = Liquid Limit / PL = Plastic Limit / PI = Plasticity Index WC = water content, percent -#200 = percent fines from grain size analysis UCT qp = peak compressive strength of rock					
Sample Information									
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Graphic Log	Visual Description and Remarks	Lab. Testing Results
0							SSA	grass-covered embankment slope	
5	1D	24/23	5.0 - 7.0	6-7-7-7	14			1D Olive brown, mottled, damp, stiff, Clayey SILT, little fine sand. CLAY CRUST	
10	2D	24/24	10.0 - 12.0	3-4-4-5	8			2D Olive brown grading to grey at tip of spoon, upper 12 in. slightly mottled, moist, medium stiff, Clayey SILT to SILT & CLAY, trace fine sand. CLAY CRUST	
15	3D V1 V2 4D	24/24	15.0 - 17.0 15.6 - 16.0 16.6 - 17.0 17.0 - 19.0	vane interval $S_u=759 / 134$ psf $S_u=938 / 179$ psf 1-1-4-6	---   5			3D Grey with occasional black mottling, moist to saturated, CLAY & SILT. raw torque rdgs: $T_u=17.0/T_r=3.0$ ft-lbs (55 x 110 mm vane) raw torque rdgs: $T_u=21.0/T_r=4.0$ ft-lbs (55 x 110 mm vane) Grey, saturated, (soft), CLAY & SILT;	
20	5D	24/10	19.0 - 21.0	20-20-21-20	41			Changing at 18.5 ft to 4D: Grey, Silty fine SAND, with layers of CLAY & SILT. (TRANSITION) 5D Grey, moist (tight), dense, fine to medium Sandy GRAVEL, little to some Silt, trace coarse Sand. TILL	
25								Bottom of Exploration at 21.0 feet below ground surface. No refusal.	
<b>Remarks:</b> 1. Drilled at staked location; 15.1 ft. off EP.									
Stratification lines represent approximate boundaries between soil types; transitions may be gradual.								Page 1 of 1	
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.								Boring No.: HB-WAT-301	

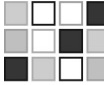
 <b>SCHONEWALD ENGINEERING ASSOCIATES, INC.</b>		<b>PROJECT:</b> I-95 Trafton Road Interchange		<b>Boring No.:</b> HB-WAT-302		
		<b>LOCATION:</b> Waterville, Maine		<b>WIN:</b> 18129.10		
<b>Driller:</b> New England Boring Contractors		<b>Elevation (ft.):</b>		<b>Auger ID/OD:</b> 4.5" OD		
<b>Operator:</b> Enos/Share		<b>Datum:</b> NAVD88		<b>Sampler:</b> Standard Split Spoon		
<b>Logged By:</b> Schonewald		<b>Rig Type:</b> Mobile Drill B-53, track-mounted		<b>Hammer Wt./Fall:</b> 140#/30" (rope & cathead)		
<b>Date Start/Finish:</b> 3/18/16; 1025-1145		<b>Drilling Method:</b> Solid Stem Auger		<b>Core Barrel:</b> N/A		
<b>Boring Location:</b> NB Sign 2A, 13.1 ft. off EP		<b>Casing ID/OD:</b> N/A		<b>Water Level*:</b> 9.5 ft (open)		
<b>IN-SITU SAMPLING AND TESTING:</b> 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 MV = Unsuccessful Insitu Vane Shear Test attempt		<b>ADDITIONAL DEFINITIONS:</b> S <sub>u</sub> = Insitu Field Vane Shear Strength (psf) R = Rock Core Sample RQD = Rock Quality Designation (%) WOH = weight of 140lb. hammer WOR = weight of rods -- = not recorded		<b>BOREHOLE ADVANCEMENT METHOD:</b> SSA= solid stem auger / RC=roller cone <b>LABORATORY TEST RESULTS:</b> LL=Liquid Limit / PL=Plastic Limit / PI=Plasticity Index WC = water content, percent -#200 = percent fines from grain size analysis UCT qp = peak compressive strength of rock		
Sample Information						
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-value	Visual Description and Remarks
0						SSA
5	1D	24/24	5.0 - 7.0	3-4-3-4	7	1D Olive brown, moist, m. stiff, Clayey SILT, trace fine sand, trace fine Gravel. CLAY CRUST
10	2D	24/24	10.0 - 12.0	2-2-2-3	4	2D Olive brown, saturated, soft, Clayey SILT to SILT & CLAY, with six seams rust-stained fine Sandy SILT, trace fine Gravel. Grey SILT & CLAY, little fine Sand in tip of spoon.
15	3D	24/7	15.0 - 17.0	12-38-39-39	77	3D Brown grey, moist (tight), v. dense, fine to coarse Sandy GRAVEL, little Silt. TILL
20	4D	22/10	20.5 - 22.3	4-10-13-50/4"	23	4D: Grey, wet, m. dense, fine to coarse Sandy GRAVEL, little Silt. TILL
25						Bottom of Exploration at 22.3 feet below ground surface. Split-spoon refusal.
<b>Remarks:</b> 1. Drilled at staked location; 13.1 ft. off EP.						
Stratification lines represent approximate boundaries between soil types; transitions may be gradual.						

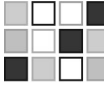
 SCHONEWALD ENGINEERING ASSOCIATES, INC.		<b>PROJECT:</b> I-95 Trafton Road Interchange  <b>LOCATION:</b> Waterville, Maine		<b>Boring No.:</b> HB-WAT-303  <b>WIN:</b> 18129.10				
<b>Driller:</b> New England Boring Contractors		<b>Elevation (ft.):</b>		<b>Auger ID/OD:</b> 4.5" OD				
<b>Operator:</b> Enos/Share		<b>Datum:</b> NAVD88		<b>Sampler:</b> Standard Split Spoon				
<b>Logged By:</b> Schonewald		<b>Rig Type:</b> Mobile Drill B-53, track-mounted		<b>Hammer Wt./Fall:</b> 140#/30" (rope & cathead)				
<b>Date Start/Finish:</b> 3/18/16; 1200-1305		<b>Drilling Method:</b> Solid Stem Auger		<b>Core Barrel:</b> N/A				
<b>Boring Location:</b> NB Sign 1A (N609553.1752, E1159496.4306)		<b>Casing ID/OD:</b> N/A		<b>Water Level*:</b> 5.8 ft (open to 14.6 ft)				
<b>IN-SITU SAMPLING AND TESTING:</b> 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 MV = Unsuccessful Insitu Vane Shear Test attempt		<b>ADDITIONAL DEFINITIONS:</b> S <sub>u</sub> = Insitu Field Vane Shear Strength (psf) R = Rock Core Sample RQD = Rock Quality Designation (%) WOH = weight of 140lb. hammer WOR = weight of rods -- = not recorded		<b>BOREHOLE ADVANCEMENT METHOD:</b> SSA = solid stem auger / RC = roller cone <b>LABORATORY TEST RESULTS:</b> LL = Liquid Limit / PL = Plastic Limit / PI = Plasticity Index WC = water content, percent -#200 = percent fines from grain size analysis UCT qp = peak compressive strength of rock				
Sample Information								
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-value	Graphic Log	Visual Description and Remarks	Lab. Testing Results
0						SSA	grass-covered embankment slope	
5	1D	24/16	5.0 - 7.0	3-7-6-8	13		Grey-brown, wet, m. dense, MISCELLANEOUS SANDY FILL with organics;	
							Changing at 6.4 ft to 1D: Red-brown, damp, Clayey SILT, some fine sand. CLAY CRUST	
							8.5	
10	2D	24/12	10.0 - 12.0	26-24-36-22	60		2D Dark grey, wet, v. dense, GRAVEL, some fine to coarse Sand, trace to little Silt. Gravel appears to be weathered rock. TILL	
15	3D	8/5	15.0 - 15.7	53-50/2"	-		3D Grey-brown, wet, GRAVEL, some fine to coarse Sand, trace to little Silt. TILL	
							18.0	
							<b>Bottom of Exploration at 18.0 feet below ground surface.</b> Auger refusal.	
20								
25								
<b>Remarks:</b> 1. Drilled at staked location; 13.6 ft. off EP.								
Stratification lines represent approximate boundaries between soil types; transitions may be gradual.							Page 1 of 1  <b>Boring No.:</b> HB-WAT-303	

\* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

 <b>SCHONEWALD ENGINEERING ASSOCIATES, INC.</b>		<b>PROJECT:</b> I-95 Trafton Road Interchange		<b>Boring No.:</b> HB-WAT-304					
		<b>LOCATION:</b> Waterville, Maine		<b>WIN:</b> 18129.10					
<b>Driller:</b> New England Boring Contractors		<b>Elevation (ft.):</b>		<b>Auger ID/OD:</b> SSA to 4 ft					
<b>Operator:</b> Enos/Share		<b>Datum:</b> NAVD88		<b>Sampler:</b> Standard Split Spoon					
<b>Logged By:</b> Schonewald		<b>Rig Type:</b> Mobile Drill B-53, track-mounted		<b>Hammer Wt./Fall:</b> 140#/30" (rope & cathead)					
<b>Date Start/Finish:</b> 3/18/16; 1310-1420		<b>Drilling Method:</b> Cased Wash Boring		<b>Core Barrel:</b> N/A					
<b>Boring Location:</b> NB Sign E5-1a (N610409.9803, E1159564.7531)		<b>Casing ID/OD:</b> 3" (NW) spun		<b>Water Level*:</b> --					
<b>IN-SITU SAMPLING AND TESTING:</b> 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 MV = Unsuccessful Insitu Vane Shear Test attempt		<b>ADDITIONAL DEFINITIONS:</b> S <sub>u</sub> = Insitu Field Vane Shear Strength (psf) R = Rock Core Sample RQD = Rock Quality Designation (%) WOH = weight of 140lb. hammer WOR = weight of rods -- = not recorded		<b>BOREHOLE ADVANCEMENT METHOD:</b> SSA = solid stem auger / RC=roller cone <b>LABORATORY TEST RESULTS:</b> LL=Liquid Limit / PL=Plastic Limit / PI=Plasticity Index WC = water content, percent -#200 = percent fines from grain size analysis UCT qp = peak compressive strength of rock					
Sample Information									
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Graphic Log	Visual Description and Remarks	Lab. Testing Results
0						SSA		grass-covered embankment slope	
								TILL based on cuttings and drilling behavior.	
								3.5 ft BGS: top of weathered rock based on drilling behavior.	
5	R1	53/52	4.0 - 8.4	RQD: 23" = 43%				4.0 ft BGS: auger refusal; seat casing. R1: Hard, typically fresh, aphanitic to fine grained, medium grey PHYLLITE, with high angle calcite veins and quartzite intrusions; high angle relic bedding visible. Close to moderately spaced, typically moderately dipping to high angle breaks; undulating, rough, typically discolored, typically open with occasional clay infilling.	
								Bottom of Exploration at 8.4 feet below ground surface.	
10									
15									
20									
25									
<b>Remarks:</b> 1. Drilled at staked location; 13.2 ft. off EP.									
Stratification lines represent approximate boundaries between soil types; transitions may be gradual.								Page 1 of 1	
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.								<b>Boring No.:</b> HB-WAT-304	

 SCHONEWALD ENGINEERING ASSOCIATES, INC.		<b>PROJECT:</b> I-95 Trafton Road Interchange  <b>LOCATION:</b> Waterville, Maine		<b>Boring No.:</b> HB-WAT-311  <b>WIN:</b> 18129.10				
<b>Driller:</b> New England Boring Contractors		<b>Elevation (ft.):</b>		<b>Auger ID/OD:</b> 4.5" OD				
<b>Operator:</b> Enos/Share		<b>Datum:</b> NAVD88		<b>Sampler:</b> Standard Split Spoon				
<b>Logged By:</b> Schonewald		<b>Rig Type:</b> Mobile Drill B-53, track-mounted		<b>Hammer Wt./Fall:</b> 140#/30" (rope & cathead)				
<b>Date Start/Finish:</b> 3/22/16; 1340-1425		<b>Drilling Method:</b> Solid Stem Auger		<b>Core Barrel:</b> N/A				
<b>Boring Location:</b> SB Sign E5-1a (N610955.3027, E1159351.5425)		<b>Casing ID/OD:</b>		<b>Water Level*:</b> 3.7 ft (open to 6.8 ft)				
<b>IN-SITU SAMPLING AND TESTING:</b> 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 MV = Unsuccessful Insitu Vane Shear Test attempt		<b>ADDITIONAL DEFINITIONS:</b> S <sub>u</sub> = Insitu Field Vane Shear Strength (psf) R = Rock Core Sample RQD = Rock Quality Designation (%) WOH = weight of 140lb. hammer WOR = weight of rods -- = not recorded		<b>BOREHOLE ADVANCEMENT METHOD:</b> SSA = solid stem auger / RC=roller cone <b>LABORATORY TEST RESULTS:</b> LL=Liquid Limit / PL=Plastic Limit / PI=Plasticity Index WC = water content, percent -#200 = percent fines from grain size analysis UCT qp = peak compressive strength of rock				
Sample Information								
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows  Graphic Log	Visual Description and Remarks	Lab. Testing Results
0						SSA	grass-lined ditch	
							FILL based on cuttings and drilling behavior.	
							-----3.5	
							3.5 ft BGS: top of native material (Brown, fine Sandy SILT).	
5							4.8 to 6.0 ft BGS: boulder; able to penetrate with augers	
							6.8 ft BGS: top of weathered rock based on drilling behavior.	
							-----7.0	
							<b>Bottom of Exploration at 7.0 feet below ground surface.</b>	
							7.0 ft BGS auger refusal	
10								
15								
20								
25								
<b>Remarks:</b> 1. Drilled at staked location; ditchline.								
Stratification lines represent approximate boundaries between soil types; transitions may be gradual.								
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.								

 <b>SCHONEWALD ENGINEERING ASSOCIATES, INC.</b>		<b>PROJECT:</b> I-95 Trafton Road Interchange		<b>Boring No.:</b> HB-WAT-312						
		<b>LOCATION:</b> Waterville, Maine		<b>WIN:</b> 18129.10						
<b>Driller:</b> New England Boring Contractors		<b>Elevation (ft.):</b>		<b>Auger ID/OD:</b> SSA to 9 ft						
<b>Operator:</b> Enos/Share		<b>Datum:</b> NAVD88		<b>Sampler:</b> Standard Split Spoon						
<b>Logged By:</b> Schonewald		<b>Rig Type:</b> Mobile Drill B-53, track-mounted		<b>Hammer Wt./Fall:</b> 140#/30" (rope & cathead)						
<b>Date Start/Finish:</b> 3/23/16; 1235-1400		<b>Drilling Method:</b> Cased Wash Boring		<b>Core Barrel:</b> N/A						
<b>Boring Location:</b> SB Sign 1B (N611813.3109, E1159411.3273)		<b>Casing ID/OD:</b> 3" (NW) spun		<b>Water Level*:</b> 2.6 ft (open)						
<b>IN-SITU SAMPLING AND TESTING:</b> 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 MV = Unsuccessful Insitu Vane Shear Test attempt		<b>ADDITIONAL DEFINITIONS:</b> S <sub>u</sub> = Insitu Field Vane Shear Strength (psf) R = Rock Core Sample RQD = Rock Quality Designation (%) WOH = weight of 140lb. hammer WOR = weight of rods -- = not recorded		<b>BOREHOLE ADVANCEMENT METHOD:</b> SSA= solid stem auger / RC=roller cone <b>LABORATORY TEST RESULTS:</b> LL=Liquid Limit / PL=Plastic Limit / PI=Plasticity Index WC = water content, percent -#200 = percent fines from grain size analysis UCT qp = peak compressive strength of rock						
Sample Information										Lab. Testing Results
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Graphic Log	Visual Description and Remarks		
0							SSA	grass-lined ditch		
5	1D	24/13	5.0 - 7.0	14-13-14-28	27			1D: Brown, wet, m. dense, Gravelly fine to medium SAND, little to some Silt, trace coarse Sand. TILL		
10	R1	41/35	9.0 - 12.4	RQD: 13" = 32%				8.4 ft BGS: top of weathered rock based on drilling behavior.  9.0 ft BGS: auger refusal; seat casing. R1: Hard, typically fresh, aphanitic to fine grained, medium grey PHYLLITE, with high angle calcite veins and quartzite intrusions; high angle relic bedding visible. Close to moderately spaced, typically moderately dipping to high angle breaks; undulating, rough, typically discolored, typically open with occasional clay infilling. Open fracture from 10.3 to 11.5 ft; vertical fracture from 11.5 to 12.4 ft.		
25										
<b>Remarks:</b> 1. Drilled at staked location.										
Stratification lines represent approximate boundaries between soil types; transitions may be gradual.										

 SCHONEWALD ENGINEERING ASSOCIATES, INC.		<b>PROJECT:</b> I-95 Trafton Road Interchange  <b>LOCATION:</b> Waterville, Maine		<b>Boring No.:</b> HB-WAT-313  <b>WIN:</b> 18129.10		
<b>Driller:</b> New England Boring Contractors		<b>Elevation (ft.):</b>		<b>Auger ID/OD:</b> 4.5" OD		
<b>Operator:</b> Enos/Share		<b>Datum:</b> NAVD88		<b>Sampler:</b> Standard Split Spoon		
<b>Logged By:</b> Schonewald		<b>Rig Type:</b> Mobile Drill B-53, track-mounted		<b>Hammer Wt./Fall:</b> 140#/30" (rope & cathead)		
<b>Date Start/Finish:</b> 3/23/16; 1110-1225		<b>Drilling Method:</b> Solid Stem Auger		<b>Core Barrel:</b> N/A		
<b>Boring Location:</b> SB Sign 2B, 14.0 ft. off EP		<b>Casing ID/OD:</b> N/A		<b>Water Level*:</b> 12.3 ft (open to 14.5 ft)		
<b>IN-SITU SAMPLING AND TESTING:</b> 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 MV = Unsuccessful Insitu Vane Shear Test attempt		<b>ADDITIONAL DEFINITIONS:</b> S <sub>u</sub> = Insitu Field Vane Shear Strength (psf) R = Rock Core Sample RQD = Rock Quality Designation (%) WOH = weight of 140lb. hammer WOR = weight of rods -- = not recorded		<b>BOREHOLE ADVANCEMENT METHOD:</b> SSA = solid stem auger / RC=roller cone <b>LABORATORY TEST RESULTS:</b> LL=Liquid Limit / PL=Plastic Limit / PI=Plasticity Index WC = water content, percent -#200 = percent fines from grain size analysis UCT qp = peak compressive strength of rock		
Sample Information						
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-value	Visual Description and Remarks
0						SSA
5	1D	24/20	5.0 - 7.0	3-3-3-3	6	1D Olive brown, moist, loose FILL consisting of mixture of fine to medium SAND, trace Silt and Clayey SILT, little fine Sand.
10	2D	24/20	10.0 - 12.0	3-2-2-2	4	2D Olive brown, moist to wet, loose FILL consisting predominately of Clayey SILT, little fine Sand with one 6 inch layer fine to medium SAND, trace Silt and three 1/4 inch layers of organics.
15	3D	24/16	15.0 - 17.0	4-16-29-28	45	Brown, wet, Sandy FILL; Changing at approx. 15.7 ft to 3D: Brown, moist, dense, Gravelly fine to coarse SAND, little to some Silt. TILL 17.5 ft Possible top of weathered rock based on drilling behavior.
20						Bottom of Exploration at 18.5 feet below ground surface. 18.5 ft auger refusal
25						
<b>Remarks:</b> 1. Drilled at staked location; 14.0 ft. off EP.						
Stratification lines represent approximate boundaries between soil types; transitions may be gradual.						

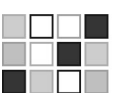



<div style="display: inline-block; vertical-align: top;"> <b>SCHONEWALD</b>  <b>ENGINEERING</b>  <b>ASSOCIATES, INC.</b> </div>		<b>PROJECT:</b> I-95 Trafton Road Interchange  <b>LOCATION:</b> Waterville, Maine		<b>Boring No.:</b> HB-WAT-314  <b>WIN:</b> 18129.10					
<b>Driller:</b> New England Boring Contractors		<b>Elevation (ft.):</b>		<b>Auger ID/OD:</b>					
<b>Operator:</b> Enos/Share		<b>Datum:</b> NAVD88		<b>Sampler:</b> Standard Split Spoon					
<b>Logged By:</b> Schonewald		<b>Rig Type:</b> Mobile Drill B-53, track-mounted		<b>Hammer Wt./Fall:</b> 140#/30" (rope & cathead)					
<b>Date Start/Finish:</b> 3/23/16; 0820-1045		<b>Drilling Method:</b> Cased Wash Boring		<b>Core Barrel:</b> N/A					
<b>Boring Location:</b> SB Sign 3B; 18.8 ft off EP		<b>Casing ID/OD:</b> 3" (NW) spun		<b>Water Level*:</b>					
<b>IN-SITU SAMPLING AND TESTING:</b> 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 MV = Unsuccessful Insitu Vane Shear Test attempt		<b>ADDITIONAL DEFINITIONS:</b> S <sub>u</sub> = Insitu Field Vane Shear Strength (psf) R = Rock Core Sample RQD = Rock Quality Designation (%) WOH = weight of 140lb. hammer WOR = weight of rods -- = not recorded		<b>BOREHOLE ADVANCEMENT METHOD:</b> SSA= solid stem auger / RC=roller cone <b>LABORATORY TEST RESULTS:</b> LL=Liquid Limit / PL=Plastic Limit / PI=Plasticity Index WC = water content, percent -#200 = percent fines from grain size analysis UCT qp = peak compressive strength of rock					
<b>Sample Information</b>									
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Graphic Log	Visual Description and Remarks	Lab. Testing Results
0						RC		grass-lined ditch	
								1 to 5 ft: multiple gravel layers	
5	1D	24/16	5.0 - 7.0	17-26-31-33	57			1D: Olive brown, damp (tight), v. dense, Gravelly fine to medium SAND, some Silt, trace coarse Sand. TILL	
								5 to 10 ft: boney; difficult advancement	
10	2D R1	5/2 60/29	10.0 - 10.4 10.5 - 15.5	50/5"				2D: same as 1D TILL R1: Cored through boulder; till at 11.5 ft based on wash water and advancement rate; till very dense; able to obtain core of till. TILL	
15	3D	24/20	15.5 - 17.5	37-39-42-54	81			3D: Grey, damp (tight), v. dense, Gravelly fine to medium SAND, some Silt, trace coarse Sand. TILL	
20								<b>Bottom of Exploration at 20.0 feet below ground surface.</b> No refusal	
25									
<b>Remarks:</b> 1. Drilled at staked location; 18.8 ft off EP.									
Stratification lines represent approximate boundaries between soil types; transitions may be gradual.								<b>Page 1 of 1</b>  <b>Boring No.: HB-WAT-314</b>	

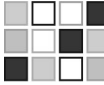



\* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

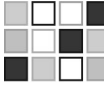
## **SUBSURFACE EXPLORATION LOGS**


**300-SERIES  
NB OFF RAMP / SB ON RAMP**





 <b>SCHONEWALD ENGINEERING ASSOCIATES, INC.</b>		<b>PROJECT:</b> I-95 Trafton Road Interchange		<b>Boring No.:</b> HB-WAT-305						
		<b>LOCATION:</b> Waterville, Maine		<b>WIN:</b> 18129.10						
<b>Driller:</b>	New England Boring Contractors	<b>Elevation (ft.)</b>								
<b>Operator:</b>	Enos/Share	<b>Datum:</b>	NAVD88							
<b>Logged By:</b>	Schonewald	<b>Rig Type:</b>	Mobile Drill B-53, track-mounted							
<b>Date Start/Finish:</b>	3/22/16; 0920-1015	<b>Drilling Method:</b>	Solid Stem Auger							
<b>Boring Location:</b>	NB off ramp Station 209+00 CL	<b>Casing ID/OD:</b>								
		<b>Auger ID/OD:</b>	4.5" OD							
		<b>Sampler:</b>	Standard Split Spoon							
		<b>Hammer Wt./Fall:</b>	140#/30" (rope & cathead)							
		<b>Core Barrel:</b>	N/A							
		<b>Water Level*:</b>	dry							
<b>IN-SITU SAMPLING AND TESTING:</b> 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 MV = Unsuccessful Insitu Vane Shear Test attempt		<b>ADDITIONAL DEFINITIONS:</b> $S_u$ = Insitu Field Vane Shear Strength (psf) R = Rock Core Sample RQD = Rock Quality Designation (%) WOH = weight of 140lb. hammer WOR = weight of rods -- = not recorded		<b>BOREHOLE ADVANCEMENT METHOD:</b> SSA= solid stem auger / RC=roller cone  <b>LABORATORY TEST RESULTS:</b> LL=Liquid Limit / PL=Plastic Limit / PI=Plasticity Index WC = water content, percent -#200 = percent fines from grain size analysis UCT qp = peak compressive strength of rock						
Sample Information										Lab. Testing Results
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Graphic Log	Visual Description and Remarks		
0							SSA	forest mat	0.3	
	1D	24/15	2.0 - 4.0	3-10-12-18	22			1D: Olive brown, damp, medium dense, SILT, some fine Sand.		
									4.2	
5								Bottom of Exploration at 4.2 feet below ground surface. 4.2 ft BGS auger refusal		
10										
15										
20										
25										
<b>Remarks:</b> Second borehole 2 feet northbound; confirm auger refusal at 4.0 ft BGS										
Stratification lines represent approximate boundaries between soil types; transitions may be gradual.										
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.										
							Page 1 of 1			
							Boring No.: HB-WAT-305			

 SCHONEWALD ENGINEERING ASSOCIATES, INC.		<b>PROJECT:</b> I-95 Trafton Road Interchange  <b>LOCATION:</b> Waterville, Maine		<b>Boring No.:</b> HB-WAT-306  <b>WIN:</b> 18129.10		
<b>Driller:</b> New England Boring Contractors		<b>Elevation (ft.):</b>		<b>Auger ID/OD:</b> 4.5" OD		
<b>Operator:</b> Enos/Share		<b>Datum:</b> NAVD88		<b>Sampler:</b> Standard Split Spoon		
<b>Logged By:</b> Schonewald		<b>Rig Type:</b> Mobile Drill B-53, track-mounted		<b>Hammer Wt./Fall:</b> 140#/30" (rope & cathead)		
<b>Date Start/Finish:</b> 3/22/16; 1020-1035		<b>Drilling Method:</b> Solid Stem Auger		<b>Core Barrel:</b> N/A		
<b>Boring Location:</b> NB off ramp Station 210+00 CL		<b>Casing ID/OD:</b>		<b>Water Level*:</b> dry		
<b>IN-SITU SAMPLING AND TESTING:</b> 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 MV = Unsuccessful Insitu Vane Shear Test attempt		<b>ADDITIONAL DEFINITIONS:</b> S <sub>u</sub> = Insitu Field Vane Shear Strength (psf) R = Rock Core Sample RQD = Rock Quality Designation (%) WOH = weight of 140lb. hammer WOR = weight of rods -- = not recorded		<b>BOREHOLE ADVANCEMENT METHOD:</b> SSA = solid stem auger / RC=roller cone <b>LABORATORY TEST RESULTS:</b> LL=Liquid Limit / PL=Plastic Limit / PI=Plasticity Index WC = water content, percent -#200 = percent fines from grain size analysis UCT qp = peak compressive strength of rock		
Sample Information						
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-value	Visual Description and Remarks
0						forest mat
	1D	24/6	2.0 - 4.0	4-5-6-11	11	1D: Olive brown, damp, medium dense, SILT, some fine Sand, trace Gravel; piece of stone in tip of spoon.
5						Bottom of Exploration at 4.8 feet below ground surface. 4.8 ft BGS auger refusal
10						
15						
20						
25						
<b>Remarks:</b>  Stratification lines represent approximate boundaries between soil types; transitions may be gradual.						
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.						Page 1 of 1  <b>Boring No.:</b> HB-WAT-306

 <b>SCHONEWALD ENGINEERING ASSOCIATES, INC.</b>				<b>PROJECT:</b> I-95 Trafton Road Interchange				<b>Boring No.:</b> HB-WAT-307			
				<b>LOCATION:</b> Waterville, Maine				<b>WIN:</b> 18129.10			
<b>Driller:</b> New England Boring Contractors				<b>Elevation (ft.):</b>				<b>Auger ID/OD:</b> 4.5" OD			
<b>Operator:</b> Enos/Share				<b>Datum:</b> NAVD88				<b>Sampler:</b> Standard Split Spoon			
<b>Logged By:</b> Schonewald				<b>Rig Type:</b> Mobile Drill B-53, track-mounted				<b>Hammer Wt./Fall:</b> 140#/30" (rope & cathead)			
<b>Date Start/Finish:</b> 3/22/16; 1040-1055				<b>Drilling Method:</b> Solid Stem Auger				<b>Core Barrel:</b> N/A			
<b>Boring Location:</b> NB off ramp Station 211+00, 5' RT				<b>Casing ID/OD:</b>				<b>Water Level*:</b> dry			
<b>IN-SITU SAMPLING AND TESTING:</b> 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 MV = Unsuccessful Insitu Vane Shear Test attempt				<b>ADDITIONAL DEFINITIONS:</b> S <sub>u</sub> = Insitu Field Vane Shear Strength (psf) R = Rock Core Sample RQD = Rock Quality Designation (%) WOH = weight of 140lb. hammer WOR = weight of rods -- = not recorded				<b>BOREHOLE ADVANCEMENT METHOD:</b> SSA = solid stem auger / RC=roller cone <b>LABORATORY TEST RESULTS:</b> LL=Liquid Limit / PL=Plastic Limit / PI=Plasticity Index WC = water content, percent -#200 = percent fines from grain size analysis UCT qp = peak compressive strength of rock			
Sample Information											
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Graphic Log	Visual Description and Remarks	Lab. Testing Results		
0						SSA		forest mat	0.3		
	MD	0/-	2.0 - 2.0	bounce				No recovery 2.1 ft BGS: possible top of weathered rock based on drilling behavior.	2.5		
								<b>Bottom of Exploration at 2.5 feet below ground surface.</b> 2.5 ft BGS auger refusal			
5											
10											
15											
20											
25											
<b>Remarks:</b> Second borehole 8 feet northbound; confirm auger refusal at 2.4 ft BGS											
Stratification lines represent approximate boundaries between soil types; transitions may be gradual.								Page 1 of 1			
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.								Boring No.: HB-WAT-307			

 <b>SCHONEWALD ENGINEERING ASSOCIATES, INC.</b>		<b>PROJECT:</b> I-95 Trafton Road Interchange		<b>Boring No.:</b> HB-WAT-308		
		<b>LOCATION:</b> Waterville, Maine		<b>WIN:</b> 18129.10		
<b>Driller:</b> New England Boring Contractors		<b>Elevation (ft.):</b>		<b>Auger ID/OD:</b> 4.5" OD		
<b>Operator:</b> Enos/Share		<b>Datum:</b> NAVD88		<b>Sampler:</b> Standard Split Spoon		
<b>Logged By:</b> Schonewald		<b>Rig Type:</b> Mobile Drill B-53, track-mounted		<b>Hammer Wt./Fall:</b> 140#/30" (rope & cathead)		
<b>Date Start/Finish:</b> 3/22/16; 1105-1150		<b>Drilling Method:</b> Solid Stem Auger		<b>Core Barrel:</b> N/A		
<b>Boring Location:</b> NB off ramp Station 212+00, 25' RT		<b>Casing ID/OD:</b>		<b>Water Level*:</b> 9.5 ft (open to 11.4 ft)		
<b>IN-SITU SAMPLING AND TESTING:</b> 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 MV = Unsuccessful Insitu Vane Shear Test attempt		<b>ADDITIONAL DEFINITIONS:</b> S <sub>u</sub> = Insitu Field Vane Shear Strength (psf) R = Rock Core Sample RQD = Rock Quality Designation (%) WOH = weight of 140lb. hammer WOR = weight of rods -- = not recorded		<b>BOREHOLE ADVANCEMENT METHOD:</b> SSA= solid stem auger / RC=roller cone <b>LABORATORY TEST RESULTS:</b> LL=Liquid Limit / PL=Plastic Limit / PI=Plasticity Index WC = water content, percent -#200 = percent fines from grain size analysis UCT qp = peak compressive strength of rock		
Sample Information						
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-value	Visual Description and Remarks
0						forest mat
	1D	24/8	2.0 - 4.0	3-3-4-4	7	1D: Olive brown, slightly mottled, damp to moist, medium stiff, Clayey SILT, little fine Sand.
5	2D	24/12	5.0 - 7.0	2-3-3-4	6	2D: Olive brown, moist, medium stiff, mottled Clayey SILT, little fine Sand grading to olive brown, SILT & CLAY at 6.5 ft.
						Apparent stratum change at 7.0 ft BGS to reddish-brown, Silty fine SAND.
						8.5 ft BGS: Material becomes gravelly based on drilling behavior.
10	3D	24/14	10.0 - 12.0	7-6-7-13	13	3D: Brown, moist, medium dense, Silty fine to medium SAND, trace Gravel, trace coarse Sand; gravel appears to be subangular pieces of bedrock.
						12.0 ft BGS Material becomes boney based on drilling behavior.
						13.5 ft BGS: possible top of weathered rock based on drilling behavior.
15						<b>Bottom of Exploration at 14.6 feet below ground surface.</b> 14.6 ft BGS auger refusal
20						
25						
<b>Remarks:</b>						
Stratification lines represent approximate boundaries between soil types; transitions may be gradual.						

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				LOCATION: Waterville, Maine				WIN: 18129.10			
Driller: New England Boring Contractors				Elevation (ft.):				Auger ID/OD: 4.5" OD			
Operator: Enos/Share				Datum: NAVD88				Sampler: Standard Split Spoon			
Logged By: Schonewald				Rig Type: Mobile Drill B-53, track-mounted				Hammer Wt./Fall: 140#/30" (rope & cathead)			
Date Start/Finish: 3/22/16; 1500-1525				Drilling Method: Solid Stem Auger				Core Barrel: N/A			
Boring Location: SB on ramp Station 514+00, 35' LT				Casing ID/OD:				Water Level*: dry			
<b>IN-SITU SAMPLING AND TESTING:</b> 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 MV = Unsuccessful Insitu Vane Shear Test attempt				<b>ADDITIONAL DEFINITIONS:</b> S <sub>u</sub> = Insitu Field Vane Shear Strength (psf) R = Rock Core Sample RQD = Rock Quality Designation (%) WOH = weight of 140lb. hammer WOR = weight of rods -- = not recorded				<b>BOREHOLE ADVANCEMENT METHOD:</b> SSA= solid stem auger / RC=roller cone <b>LABORATORY TEST RESULTS:</b> LL=Liquid Limit / PL=Plastic Limit / PI=Plasticity Index WC = water content, percent -#200 = percent fines from grain size analysis UCT qp = peak compressive strength of rock			
Sample Information											
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Graphic Log	Visual Description and Remarks			Lab. Testing Results
0						SSA		forest mat			0.3
5								7.5 ft BGS: possible top of weathered rock based on drilling behavior.			
10								Bottom of Exploration at 8.5 feet below ground surface. 8.5 ft BGS auger refusal			8.5
15											
20											
25											
Remarks:											
Stratification lines represent approximate boundaries between soil types; transitions may be gradual.											
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.											
Page 1 of 1											
Boring No.: HB-WAT-309											

 SCHONEWALD ENGINEERING ASSOCIATES, INC.		<b>PROJECT:</b> I-95 Trafton Road Interchange  <b>LOCATION:</b> Waterville, Maine		<b>Boring No.:</b> HB-WAT-310  <b>WIN:</b> 18129.10						
<b>Driller:</b> New England Boring Contractors		<b>Elevation (ft.):</b>		<b>Auger ID/OD:</b> 4.5" OD						
<b>Operator:</b> Enos/Share		<b>Datum:</b> NAVD88		<b>Sampler:</b> Standard Split Spoon						
<b>Logged By:</b> Schonewald		<b>Rig Type:</b> Mobile Drill B-53, track-mounted		<b>Hammer Wt./Fall:</b> 140#/30" (rope & cathead)						
<b>Date Start/Finish:</b> 3/22/16; 1440-1450		<b>Drilling Method:</b> Solid Stem Auger		<b>Core Barrel:</b> N/A						
<b>Boring Location:</b> SB on ramp Station 514+50, 11' LT		<b>Casing ID/OD:</b>		<b>Water Level*:</b> dry						
<b>IN-SITU SAMPLING AND TESTING:</b> 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 MV = Unsuccessful Insitu Vane Shear Test attempt		<b>ADDITIONAL DEFINITIONS:</b> S <sub>u</sub> = Insitu Field Vane Shear Strength (psf) R = Rock Core Sample RQD = Rock Quality Designation (%) WOH = weight of 140lb. hammer WOR = weight of rods -- = not recorded		<b>BOREHOLE ADVANCEMENT METHOD:</b> SSA = solid stem auger / RC = roller cone <b>LABORATORY TEST RESULTS:</b> LL = Liquid Limit / PL = Plastic Limit / PI = Plasticity Index WC = water content, percent -#200 = percent fines from grain size analysis UCT qp = peak compressive strength of rock						
Sample Information										
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing	Blows	Graphic Log	Visual Description and Remarks	Lab. Testing Results
0							SSA		grass-lined ditch	0.3
									2.0 ft BGS: blast rock / riprap encountered	
									2.8 ft BGS: possible top of weathered rock based on drilling behavior.	3.0
									<b>Bottom of Exploration at 3.0 feet below ground surface.</b> 3.0 ft BGS auger refusal	
5										
10										
15										
20										
25										
<b>Remarks:</b> Rock exposed in backslope cut.										
Stratification lines represent approximate boundaries between soil types; transitions may be gradual.										Page 1 of 1  <b>Boring No.:</b> HB-WAT-310