

Maine Department of Transportation
Highway Program

GEOTECHNICAL REPORT
Highway Reconstruction
Rte. 1A, Wilson Street
Brewer, Maine

Prepared by:
Karen Gross
Geotechnical Design Engineer

Penobscot County

Soils Report No. 2009-116

PIN 13077.00
Fed. No. NH-1307(700)E
October 21, 2009



Highway Program

Brad Foley, Program Manager
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Memorandum

To: Michel Morin
From: Karen Gross
Date: 10/21/09
Subject: Geotechnical Information
Brewer, Wilson Street (Rt. 1A)
PIN 13077.00

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The preliminary subsurface investigations and lab testing have been completed for the Wilson Street project in Brewer. The primary focus of these investigations was to determine the thickness of the existing HMA for widening purposes and to collect soils information for the design and installation of traffic signal structures.

Project Description

The project begins at the intersection with Greenpoint Road, and extends easterly 0.45 miles to the entrance of Walmart. The proposed scope of work includes widening the existing roadway on the westbound side of the roadway to accommodate addition travel lanes.

Existing Pavement Structure

Five pavement cores were collected to determine the average thickness of the existing HMA. Cores were collected at stations 101+00, 96+00, 90+00, 86+00, all 10 feet to the left of the existing centerline, and at station 81+50, 15 feet to the right of the existing centerline. On average, the roadway has 8 " to 8 ½ " of HMA in the travel lanes on both sides of the roadway. Photo's of the cores are attached at the end of this memo for your reference.

As-built plans were located for the original roadway construction in 1966. These plans indicate that the roadway was constructed with 7" of HMA over 24" of base gravel (31" total section). The base gravels from this period of time most closely represent our current specification for Aggregate Base Course –Type B for the upper 9", and Type C for the lower course. The difference in HMA thickness from as-built and the existing HMA is due to milling and overlays done since the original construction. Therefore, the existing overall pavement structure thickness is approximately 32" to the left of the centerline.

The existing subgrade most probably consists of sand with a layer of silt not far below it. The as-built plans indicate that the subgrade was undercut and replaced with granular borrow if poor soils were encountered. The Surficial Geology map for the Brewer Quadrangle indicates that the surficial soils consist of Presumpscot Formation (fine-grained marine silts and clays) and Glacial Till (mix of sand, gravel, silt, clay, cobbles, and boulders).

The Soil Conservation Survey (SCS) maps show three soil units at this location: Biddeford silt loam (BoA), Scantic silt loam (ScB), and Suffield silt loam (SuB, SuC). SCS maps were developed for agricultural purposes, but they contain a section with information on the engineering properties and classifications of the soils that are useful. Table 1 lists the SCS soils and related engineering properties.

Table 1: Soil Conservation Survey Engineering Properties Summary

Map Symbol	Soil	Brief Description	Classification		Permeability (in/hr)	Depth to High Water Table (ft)	Frost Susceptibility
			Unified	AASHTO			
BoA	Biddeford silt loam	marine silt & clay	ML-CL	A-6	0.20 to 0.63	at surface	high
ScB	Scantic silt loam	marine silt & clay	ML-CL	A-4, A-6	0.20 to 0.63	at surface	high
SuA	Suffield silt loam	marine silt & clay	ML-CL	A-4, A-6	0.20 to 2.0	> 5	moderate

Pavement Design Recommendations

The scope of this project is to widen the existing pavement structure on the westbound side of the road, and match the new pavement materials depths as close as possible to the existing structure. I have completed a design check to ensure what we are matching into will meet the future design period (20 years). These as-built designs are attached for your reference.

Wilson Street is classified as a principal arterial on the National Highway System (NHS). In accordance with Chapter 13 of the Highway Design Guide, the recommended input values for the pavement design are a reliability level of 95%, an initial and terminal serviceability of 4.5 and 2.5 respectively, and an overall standard deviation of 0.45. The ESAL'S as calculated from the traffic data and for a 20-year design period are 2,270,300. Based on the geology and as-built information, a resilient modulus (M_r) value of 3500 psi to 4000 psi is recommended for the pavement structure design. A M_r value of 3500 psi will result in a more conservative design.

As you can see from the as-built pavement design outputs, the existing structure is considered slightly over-designed (8" HMA over 9" base gravel, 15" subbase gravel). Please note that this only considers the existing layer thicknesses and not the quality or condition of the existing HMA.

I also ran a few more designs to see what actually meets future structural requirements in case you need to consider the project budget. A total structure thickness of 32" was used to match the existing total thickness as close as possible, The goal in doing these designs was to reduce the required thickness of HMA needed to meet design requirements.

The following designs meet future structural requirements:

Mr = 3500 psi

Subbase Option:

7.5" HMA

24.5" Subbase gravel

Mr = 4000 psi

Subbase Option:

7" HMA

25" Subbase gravel



Highway Program

Mr = 3500 psi

Base Gravel Option:

- 6" HMA
- 13" Base Course gravel
- 13" Subbase gravel

Mr = 4000 psi

Base Gravel Option:

- 5" HMA
- 14" Base Course gravel
- 13" Subbase gravel

All pavement designs are attached at the end of this memo for your reference.

Traffic Signal Structure Locations

Subsurface information was collected at the proposed light base structures using standard penetration testing and split spoon samples at all locations. In general, there is approximately 3' to 3.5' of sand overlying silt or sand with variable amounts of silt. The silt deposit is located on the left side of the roadway, and the sand with silt deposit lies on the right side of the roadway (based on design stationing). The soils information from the investigations correlates with the published geology information.

Refusal was encountered at 10.7' below the ground surface (bgs) in boring HB-BREW-101, at 11.5' bgs in boring HB-BREW-102, at 5.4' bgs in boring HB-BREW-103, and at 8.3' in boring HB-BREW-104. Groundwater was encountered at 8.0' bgs in boring HB-BREW-101 and at 8.2' bgs in boring HB-BREW-102 at the time of drilling. Groundwater was not encountered in borings HB-BREW-103 and HB-BREW-104, however it was noted that the soils were wet at approximately 3.50 feet below the ground surface in both borings. Please note that groundwater fluctuations occur seasonally and can vary with temperature and precipitation.

Lab testing was performed on five samples to determine gradations, classifications, and soil index properties. Testing was done on samples primarily in the anticipated bearing layer for the signal structure foundation. The Table 2 summarizes the field information collected including the soil layer depths, blow counts (corrected), depth to refusal, depth to groundwater, the AASHTO and Unified Soils Classifications, and soil index properties.

Table 2: Boring and Lab Testing Summary

Boring #	Station	Offset (ft)	Depth of Soil Layer from Surface (ft)	Soil Type	Blow Count (N ₆₀)	Refusal (ft bgs)	Water (ft bgs)	Lab Test Results (AASHTO and UC)
HB-BREW-101	82+66	42.0 Rt	0.00 – 0.30	Topsoil				
			0.30 – 3.00	SAND, little gravel				
			3.00 – 10.70	SAND, some silt	29	8.00	A-1-b, SM wc=9.7%	
			10.70 -	Refusal		10.70		
HB-BREW-102	82+45	49.0 Lt	0.00 -0.30	Topsoil				
			0.30 – 3.50	SAND				
			3.50 – 10.50	clayey-SILT	25	8.2	A-6, CL wc=20.3%, LL=31, PI=12	
			10.50 – 11.50	silty SAND, some gravel	85		A-4, SM wc=12.4%	
			11.50 -	Refusal		11.5		



Boring #	Station	Offset (ft)	Depth of Soil Layer from Surface (ft)	Soil Type	Blow Count (N ₆₀)	Refusal (ft bgs)	Water (ft bgs)	Lab Test Results (AASHTO and UC)
HB-BREW-103	81+47	34.0 Rt	0.00 – 0.30	Topsoil				
			0.30 – 3.50	SAND				
			3.50 – 5.40	SAND, some silt				A-2-4, SM wc=8.6%
			5.40 -	Refusal		11.5		
HB-BREW-104	81+63	35.0 Lt	0.00 – 0.30	HMAI				
			0.30 – 3.50	SAND, little gravel				
			3.50 – 7.20	SILT, trace sand and gravel	21			A-4, CL-ML wc=19.1% LL=23 PI=6
			7.20 – 8.30	SILT, some sand				
			8.30 -	Refusal				

I have attached the geology maps, boring logs, lab testing information, Geoplans, and the 1966 As-Built plans for your reference in addition to the information mentioned above. Please let me know if I can provide you with any additional information that might be needed for the final design.

BREWER 13077.00
PAVEMENT CORE-1
STATION 81+50 15 RT



BREWER 13077.00
PAVEMENT CORE-2
STATION 86+00 10 LT



BREWER 13077.00
PAVEMENT CORE-3
STATION 90+00 10 LT



BREWER 13077.00
PAVEMENT CORE-4
STATION 96+00 10 LT



BREWER 13077.00
PAVEMENT CORE-5
STATION 101+00 10 LT



Driller: MaineDOT	Elevation (ft.):	Auger ID/OD: 2.25-6.75"
Operator: E. Giguere/C. Giles	Datum: NAVD 88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 5/5/09, 08:00-09:00	Drilling Method: Hollow Stem Auger	Core Barrel: N/A
Boring Location: 82+66, 42.0 Rt.	Casing ID/OD: N/A	Water Level*: 8.0' bgs.

Hammer Efficiency Factor: 0.84 Hammer Type: Automatic Hydraulic Rope & Cathead

Definitions:
D = Split Spoon Sample R = Rock Core Sample S_u = Insitu Field Vane Shear Strength (psf) S_u(lab) = Lab Vane Shear Strength (psf)
MD = Unsuccessful Split Spoon Sample attempt SSA = Solid Stem Auger T_v = Pocket Torvane Shear Strength (psf) WC = water content, percent
U = Thin Wall Tube Sample HSA = Hollow Stem Auger q_p = Unconfined Compressive Strength (ksf) LL = Liquid Limit
MU = Unsuccessful Thin Wall Tube Sample attempt RC = Roller Cone N-uncorrected = Raw field SPT N-value PL = Plastic Limit
V = Insitu Vane Shear Test, PP = Pocket Penetrometer WOH = weight of 140lb. hammer Hammer Efficiency Factor = Annual Calibration Value PI = Plasticity Index
MV = Unsuccessful Insitu Vane Shear Test attempt WOR/C = weight of rods or casing N₆₀ = SPT N-uncorrected corrected for hammer efficiency G = Grain Size Analysis
WO1P = Weight of one person N₆₀ = (Hammer Efficiency Factor/60%)*N-uncorrected 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					
0									-0.30	HSA	SOD.	
											Brown, damp, fine to medium SAND, little gravel.	
									-3.00			
5	1D	24/20	5.00 - 7.00	3/9/12/13	21	29					Olive, moist, very stiff, SILT, some fine to medium sand, little gravel, (Till).	G#209203 A-1-b, SM WC=9.7% Non-Plastic
10	2D	8.4/8.4	10.00 - 10.70	5/50(2.4")	---				-10.70		Similar to above. Rock fragments in tip of spoon.	
											Bottom of Exploration at 10.70 feet below ground surface. REFUSAL	
15												
20												
25												

Remarks:

Driller: MaineDOT	Elevation (ft.):	Auger ID/OD: 2.25-6.75"
Operator: E. Giguere/C. Giles	Datum: NAVD 88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 5/5/09, 09:00-10:00	Drilling Method: Hollow Stem Auger	Core Barrel: N/A
Boring Location: 82+45, 49.0 Lt.	Casing ID/OD: N/A	Water Level*: 8.2' bgs.

Hammer Efficiency Factor: 0.84 Hammer Type: Automatic Hydraulic Rope & Cathead

Definitions:
D = Split Spoon Sample R = Rock Core Sample S_u = Insitu Field Vane Shear Strength (psf) S_u(lab) = Lab Vane Shear Strength (psf)
MD = Unsuccessful Split Spoon Sample attempt SSA = Solid Stem Auger T_v = Pocket Torvane Shear Strength (psf) WC = water content, percent
U = Thin Wall Tube Sample HSA = Hollow Stem Auger q_p = Unconfined Compressive Strength (ksf) LL = Liquid Limit
MU = Unsuccessful Thin Wall Tube Sample attempt RC = Roller Cone N-uncorrected = Raw field SPT N-value PL = Plastic Limit
V = Insitu Vane Shear Test, PP = Pocket Penetrometer WOH = weight of 140lb. hammer Hammer Efficiency Factor = Annual Calibration Value PI = Plasticity Index
MV = Unsuccessful Insitu Vane Shear Test attempt WOR/C = weight of rods or casing N₆₀ = SPT N-uncorrected corrected for hammer efficiency G = Grain Size Analysis
WO1P = Weight of one person N₆₀ = (Hammer Efficiency Factor/60%)*N-uncorrected C = Consolidation Test

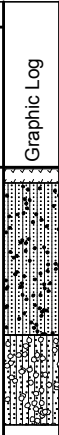
Depth (ft.)	Sample Information								Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N ₆₀	Casing Blows					
0									-0.30	HSA	SOD, Topsoil.	
											Brown, damp, fine to medium SAND, trace gravel.	
									-3.50			
5	1D	24/19	5.00 - 7.00	3/7/11/14	18	25					Olive-grey, moist, stiff, clayey-SILT, trace fine sand.	G#209204 A-6, CL WC=20.3% LL=31 PL=19 PI=12
10	2D	18/18	10.00 - 11.50	7/11/50	61	85			-10.50		Olive, wet, very hard, SILT, some fine to medium sand, little gravel. Rock fragments in tip of spoon.	G#209205 A-4, SM WC=12.4%
									-11.50		Bottom of Exploration at 11.50 feet below ground surface. REFUSAL	
15												
20												
25												

Remarks:

Driller: MaineDOT	Elevation (ft.):	Auger ID/OD: 2.25-6.75"
Operator: E. Giguere/C. Giles	Datum: NAVD 88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 5/5/09, 10:00-11:00	Drilling Method: Hollow Stem Auger	Core Barrel: N/A
Boring Location: 81+47, 34.0 Rt.	Casing ID/OD: N/A	Water Level*: None Observed

Hammer Efficiency Factor: 0.84 **Hammer Type:** Automatic Hydraulic Rope & Cathead

 Definitions: R = Rock Core Sample S_u = Insitu Field Vane Shear Strength (psf) S_u(lab) = Lab Vane Shear Strength (psf)
 D = Split Spoon Sample SSA = Solid Stem Auger T_v = Pocket Torvane Shear Strength (psf) WC = water content, percent
 MD = Unsuccessful Split Spoon Sample attempt HSA = Hollow Stem Auger q_p = Unconfined Compressive Strength (ksf) LL = Liquid Limit
 U = Thin Wall Tube Sample RC = Roller Cone N-uncorrected = Raw field SPT N-value PL = Plastic Limit
 MU = Unsuccessful Thin Wall Tube Sample attempt WOH = weight of 140lb. hammer Hammer Efficiency Factor = Annual Calibration Value PI = Plasticity Index
 V = Insitu Vane Shear Test, PP = Pocket Penetrometer WOR/C = weight of rods or casing N₆₀ = SPT N-uncorrected corrected for hammer efficiency G = Grain Size Analysis
 MV = Unsuccessful Insitu Vane Shear Test attempt WO1P = Weight of one person N₆₀ = (Hammer Efficiency Factor/60%)*N-uncorrected 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					
0									-0.30		SOD, Topsoil. Brown, damp, gravelly, fine to coarse SAND, trace silt.	
									-3.50			
5	1D	4.8/4.8	5.00 - 5.40	55	---				-5.40		Brown, wet, very hard SILT, some fine to medium sand, little gravel. Rock fragments in tip of spoon.	G#209206 A-2-4, SM WC=8.6%
											Bottom of Exploration at 5.40 feet below ground surface. REFUSAL	
10												
15												
20												
25												

Remarks:

Driller: MaineDOT	Elevation (ft.):	Auger ID/OD: 2.25-6.75"
Operator: E. Giguere/C. Giles	Datum: NAVD 88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 5/5/09, 11:00-12:30	Drilling Method: Hollow Stem Auger	Core Barrel: N/A
Boring Location: 81+63, 35.0 Lt.	Casing ID/OD: N/A	Water Level*: None Observed

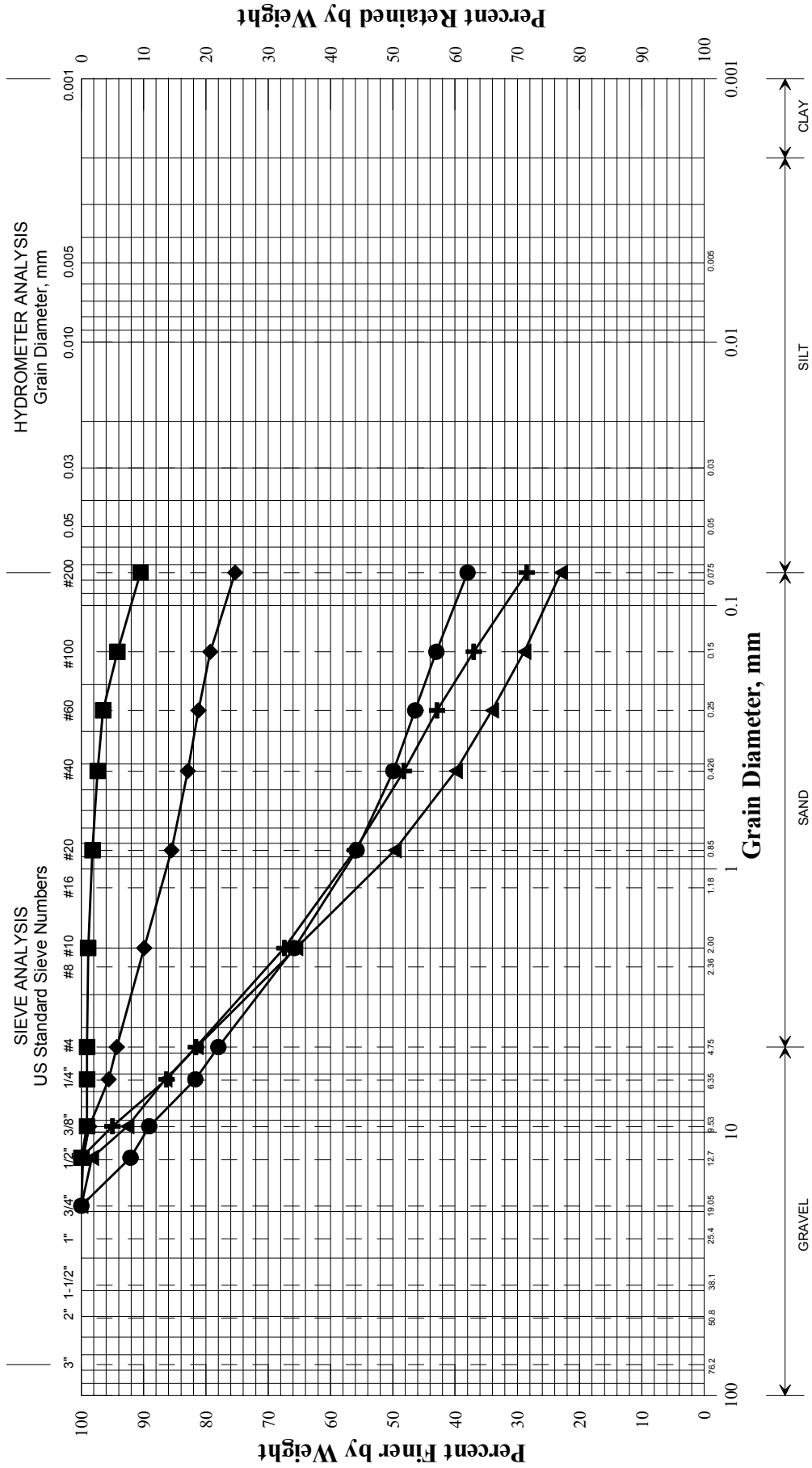
Hammer Efficiency Factor: 0.84 **Hammer Type:** Automatic Hydraulic Rope & Cathead

 Definitions: R = Rock Core Sample S_u = Insitu Field Vane Shear Strength (psf) S_{u(lab)} = Lab Vane Shear Strength (psf)
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 U = Thin Wall Tube Sample RC = Roller Cone N-uncorrected = Raw field SPT N-value
 MU = Unsuccessful Thin Wall Tube Sample attempt WOH = weight of 140lb. hammer Hammer Efficiency Factor = Annual Calibration Value
 V = Insitu Vane Shear Test, PP = Pocket Penetrometer WOR/C = weight of rods or casing N₆₀ = SPT N-uncorrected corrected for hammer efficiency
 MV = Unsuccessful Insitu Vane Shear Test attempt WO1P = Weight of one person N₆₀ = (Hammer Efficiency Factor/60%)*N-uncorrected
 LL = Liquid Limit PL = 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					
0									HSA	-0.30	PAVEMENT.	
											Brown, damp, fine to medium SAND, little gravel, trace silt.	
										-3.50		
5	1D	24/24	5.00 - 7.00	4/8/7/9	15	21					Olive, wet, stiff, clayey-SILT, trace fine sand.	G#209207 A-4, CL-ML WC=19.1% LL=23 PL=17 PI=6
										-7.20	Olive, wet, SILT, some fine to medium sand, little gravel.	
										-8.30	Bottom of Exploration at 8.30 feet below ground surface. REFUSAL	
10												
15												
20												
25												

Remarks:

State of Maine Department of Transportation
GRAIN SIZE DISTRIBUTION CURVE



UNIFIED CLASSIFICATION

Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI
+	81+47	34.0 RT	5.0-5.4	SAND, some silt, little gravel.	8.6			
◆	81+63	35.0 LT	5.0-7.0	SILT, trace sand, trace gravel.	19.1	23	17	6
■	82+45	49.0 LT	5.0-7.0	Clayey SILT, trace sand, trace gravel.	20.3	31	19	12
●	82+45	49.0 LT	10.0-11.5	Silty SAND, some gravel.	12.4			
▲	82+66	42.0 RT	5.0-7.0	SAND, some silt, little gravel.	9.7			NP
×								

PIN	013077.00
Town	Brewer
Reported by/Date	WHITE, TERRY A 6/4/2009



GEOTECHNICAL TEST REPORT

Central Laboratory

SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
209206	HB-BREW-103/1D	GEOTECHNICAL (DISTURBED)	5/5/2009	5/20/2009
Sample Type: GEOTECHNICAL		Location: ROADWAY	Station: 81+47	Offset, ft: 34.0 RT Dbfg, ft: 5.0-5.4
PIN: 013077.00		Town: Brewer	Sampler: GROSS, KAREN L	

TEST RESULTS

Sieve Analysis	
(T 27, T 11)	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	
½ in. [12.5 mm]	100.0
⅜ in. [9.5 mm]	95.0
¼ in. [6.3 mm]	86.3
No. 4 [4.75 mm]	81.6
No. 10 [2.00 mm]	67.4
No. 20 [0.850 mm]	56.1
No. 40 [0.425 mm]	48.2
No. 60 [0.250 mm]	42.9
No. 100 [0.150 mm]	37.0
No. 200 [0.075 mm]	28.5

Direct Shear (T 236)			
Shear Angle, °			
Initial Water Content, %			
Normal Stress, psi			
Wet Density, lbs/ft³			
Dry Density, lbs/ft³			
Specimen Thickness, in			

Consolidation (T 216)					
Trimmings, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			Pmin		
Dry Density, lbs/ft³			Pp		
Void Ratio			Pmax		
Saturation, %			Cc/C'c		

Miscellaneous Tests
<u>Liquid Limit @ 25 blows (T 89), %</u>
<u>Plastic Limit (T 90), %</u>
<u>Plasticity Index (T 90), %</u>
<u>Specific Gravity, Corrected to 20°C (T 100)</u>
<u>Loss on Ignition (T 267)</u>
Loss, % H ₂ O, %
<u>Water Content (T 265), %</u>
8.6

Vane Shear Test on Shelby Tubes (Maine DOT)						
Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear	Remold	U. Shear	Remold		
	tons/ft²	tons/ft²	tons/ft²	tons/ft²		

Wash Method
Procedure A

Comments:

AUTHORIZATION AND DISTRIBUTION

Reported by: **FOGG, BRIAN**

Date Reported: **5/27/2009**

Paper Copy: Lab File; Project File; Geotech File



GEOTECHNICAL TEST REPORT

Central Laboratory

SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
209207	HB-BREW-104/1D	GEOTECHNICAL (DISTURBED)	5/5/2009	5/20/2009
Sample Type: GEOTECHNICAL		Location: ROADWAY	Station: 81+63	Offset, ft: 35.0 LT Dbfg, ft: 5.0-7.0
PIN: 013077.00		Town: Brewer	Sampler: GROSS, KAREN L	

TEST RESULTS

Sieve Analysis (T 27, T 11)	Direct Shear (T 236)	Miscellaneous Tests																																																																																																														
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Wash Method
Procedure A

Comments:

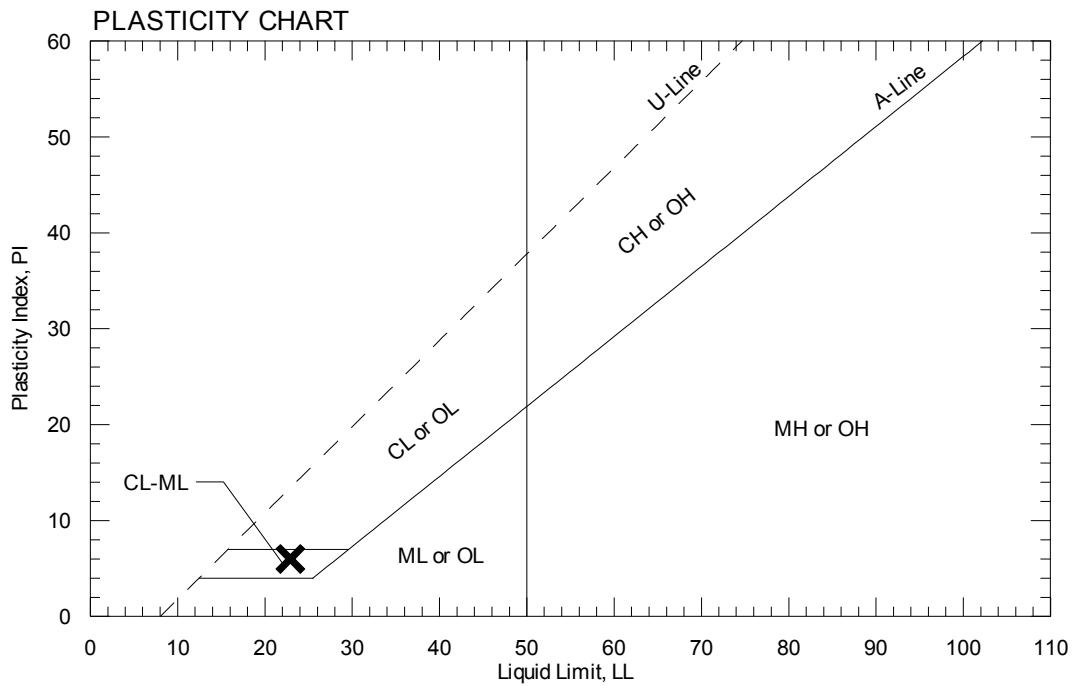
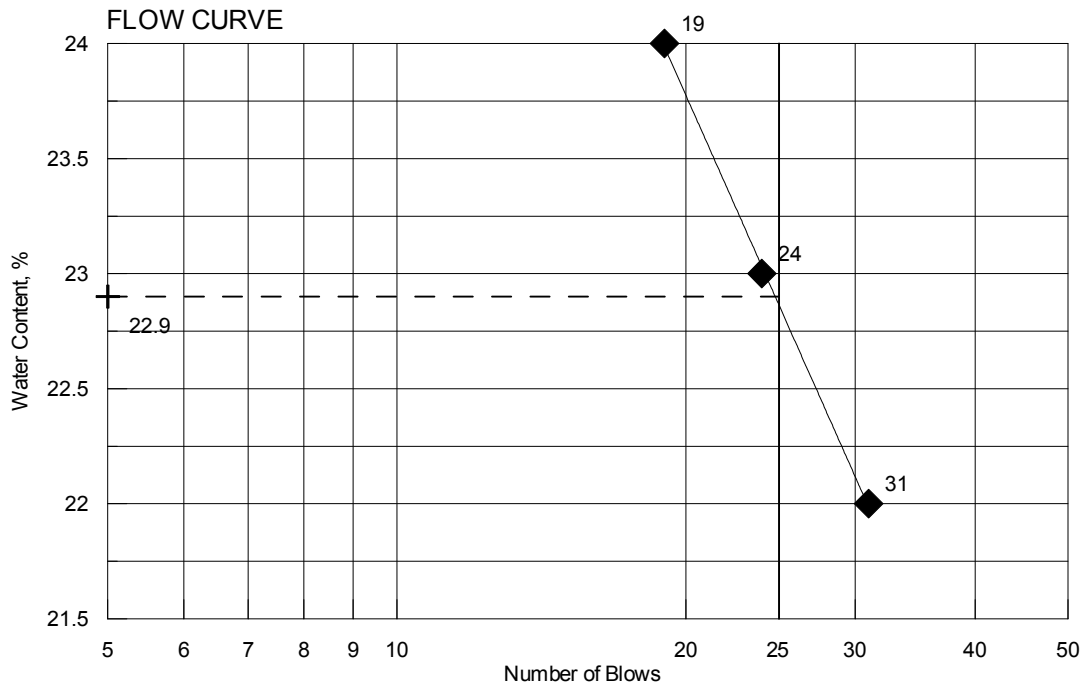
AUTHORIZATION AND DISTRIBUTION

Reported by: **FOGG, BRIAN**

Date Reported: **5/29/2009**

Paper Copy: Lab File; Project File; Geotech File

TOWN	Brewer	Reference No.	209207
PIN	013077.00	Water Content, %	19.1
Sampled	5/5/2009	Plastic Limit	17
Boring No./Sample No.	HB-BREW-104/1D	Liquid Limit	23
Station	81+63	Plasticity Index	6
Depth	5.0-7.0	Tested By	KDRES



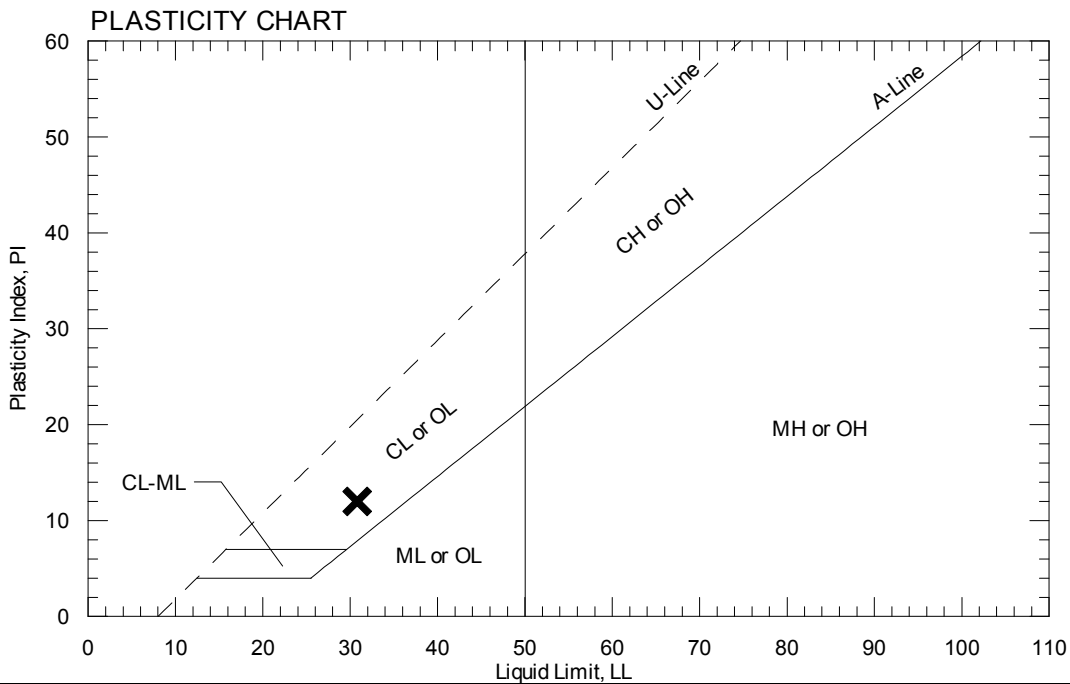
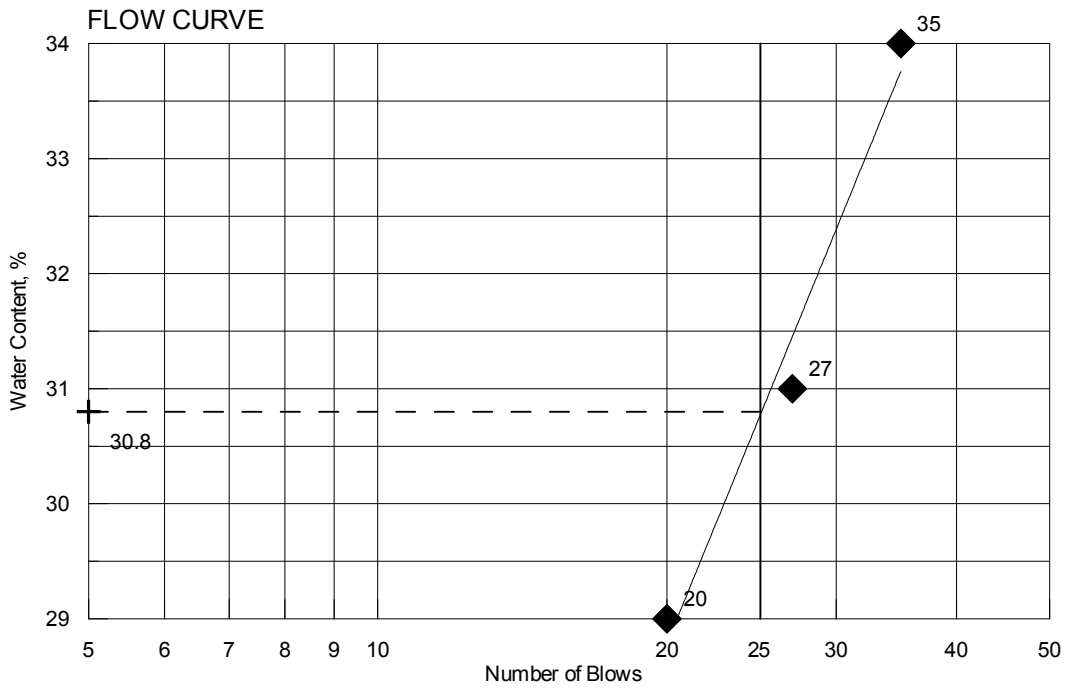
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Paper Copy: Lab File; Project File; Geotech File

TOWN	Brewer	Reference No.	209204
PIN	013077.00	Water Content, %	20.3
Sampled	5/5/2009	Plastic Limit	19
Boring No./Sample No.	HB-BREW-102/1D	Liquid Limit	31
Station	82+45	Plasticity Index	12
Depth	5.0-7.0	Tested By	KDRES



AUTHORIZATION AND DISTRIBUTION

Reported by: **FOGG, BRIAN**

Date Reported: **5/29/2009**

Paper Copy: Lab File; Project File; Geotech File



GEOTECHNICAL TEST REPORT

Central Laboratory

SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
209205	HB-BREW-102/2D	<u>GEOTECHNICAL (DISTURBED)</u>	5/5/2009	5/20/2009
Sample Type: GEOTECHNICAL		Location: ROADWAY	Station: 82+45	Offset, ft: 49.0 LT Dbfg, ft: 10.0-11.5
PIN: 013077.00		Town: Brewer	Sampler: GROSS, KAREN L	

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Comments:

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GEOTECHNICAL TEST REPORT

Central Laboratory

SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
209203	HB-BREW-101/1D	<u>GEOTECHNICAL (DISTURBED)</u>	5/5/2009	5/20/2009
Sample Type: GEOTECHNICAL		Location: ROADWAY	Station: 82+66	Offset, ft: 42.0 RT Dbfg, ft: 5.0-7.0
PIN: 013077.00		Town: Brewer	Sampler: GROSS, KAREN L	

TEST RESULTS

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Comments:

AUTHORIZATION AND DISTRIBUTION

Reported by: **FOGG, BRIAN**

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