

Maine Department of Transportation
Highway Program

GEOTECHNICAL 100 SERIES REPORT

Route 100
Clinton, Maine
Burnham, Maine

Prepared by:
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Waldo County
Kennebec County

WIN 19151.00

March 20, 2012

Soils Report No. 2012-118

Highway Program

Brad Foley, Program Manager

Memorandum

DATE: March 20, 2012

TO: Shawn Smith

DEPT: Region 2

FROM: Scott A. Hayden

DEPT: Highway Program

SUBJECT: Final Soils: Clinton - Burnham, Route 100, WIN 19151.00
Report # 2012-118

Project Description

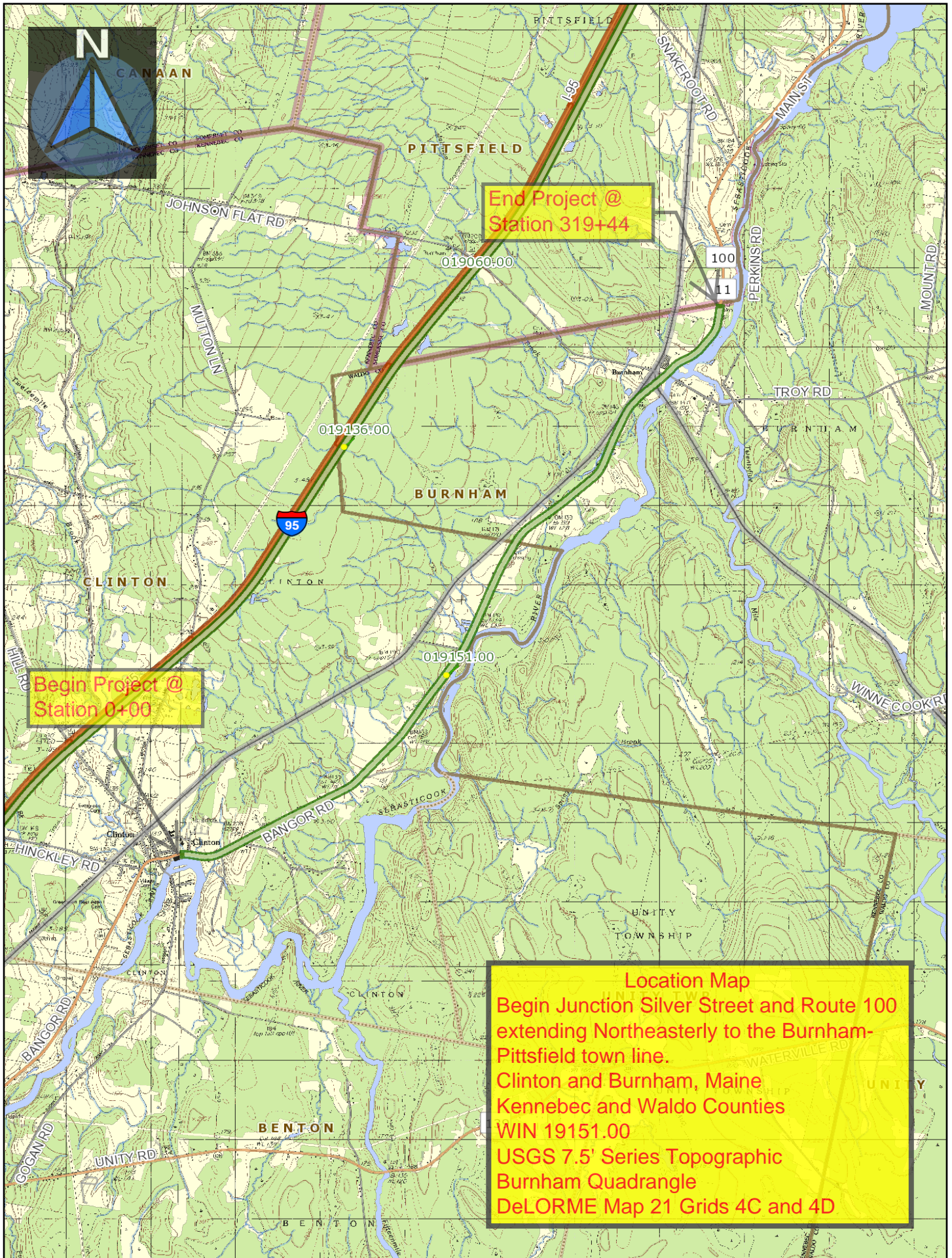
A subsurface investigation has been completed for a 6.05 mile portion of Route 100 in the towns of Clinton and Burnham. The project begins at the intersection of Silver Street (RLM 157.29, 0011X) and extends 6.05 miles northeast to the Burnham / Pittsfield town line.

The investigation included the use of a drill rig, ground penetrating radar (GPR) and falling weight deflectometer (FWD). No stationing was available at the time of the field work so a starting station of 0+00 was designated. All station reference used for data collection was determined using a distance measuring instrument (DMI). All offsets were measured from the centerline of the existing roadway.

Existing Pavement Conditions

The existing roadway consists of two 13-foot travel lanes with 4-foot gravel shoulders. Nineteen Thirty-Two as-built plans (Federal Aid Project No. 140A) indicate the original highway was configured as a two lane highway consisting of two 10-foot lanes constructed of concrete pavement with 3-foot gravel shoulders. Plans indicate the 10'x40' concrete slabs were 7 inches thick at centerline and are underlain by variable depth gravel and/or stone base. Ground Penetrating Radar and coring data confirms that the concrete pavement has not been removed and directly underlies the current bituminous pavement layer. Transverse and longitudinal reflective cracking is present throughout the project area indicating the presence of this buried concrete surface.

Since the 1932 construction the travel lanes have been widened 3 feet to the current 13-foot configuration. A severe longitudinal crack at a general offset of 10' is present throughout the project. This crack delineates the outside edge of the original 10-foot travel lane. The travel lane drops off substantially outside of this crack (see ARAN rutting data) indicating a lack of support for the applied traffic loadings.



Begin Project @
Station 0+00

End Project @
Station 319+44

Location Map
 Begin Junction Silver Street and Route 100
 extending Northeasterly to the Burnham-
 Pittsfield town line.
 Clinton and Burnham, Maine
 Kennebec and Waldo Counties
 WIN 19151.00
 USGS 7.5' Series Topographic
 Burnham Quadrangle
 DeLORME Map 21 Grids 4C and 4D

Map Scale 1:62500

The Maine Department of Transportation provides this publication for information only. Reliance upon this information is at user risk. It is subject to revision and may be incomplete depending upon changing conditions. The Department assumes no liability if injuries or damages result from this information. This map is not intended to support emergency dispatch. Road names used on this map may not match official road names.

ARAN Data

ARAN data indicates pavement distress is moderate to severe. A summary of this data is presented in Table 1. A complete listing of the ARAN data is included at the back of this report.

Table 1: Summary of 2009 ARAN Pavement Data

ARAN Pavement Data	Range	Average
Pavement Condition Rating (PCR)	1.21 – 2.36	1.78
International Roughness Index (IRI)	97 - 198	161
Rut Depth (left)	0.0" – 0.1"	0.08"
Rut Depth (right)	0.2" – 1.0"	0.68"

Pavement Condition Rating (PCR)

PCR is defined as the composite condition of the pavement on a roadway. The PCR is compiled from the severity and extent of pavement distresses such as cracking, rutting, and ride quality. The rating system uses a scale of 5.00 (perfect) to 0.00 (fully deteriorated). The PCR is the condition of the pavement only, not necessarily a reflection of the condition of the roadway base structure (See Table 2).

Table 2: Pavement Condition Rating (PCR) Description

Scale Value	Scale Rating	Description
5	Excellent	New or nearly new pavements. Free of cracks, patches or rutting.
4	Good	Pavements exhibit little to no visible signs of surface deterioration. Evidence of initial cracking or rutting.
3	Fair	Visible defects including moderate cracking, distortion and rutting. Some patching may now be present.
2	Poor	Pavement deterioration consisting of advanced cracking and severe distortion. Extensive patching and rutting also present.
1	Very Poor	Extremely deteriorated pavements. Defects include severe cracking, distortion, rutting and typically very extensive patching.

The PCR rating for this project ranges from 1.21 – 2.36 with an average PCR of 1.78. The lowest PCR values (1.21) were encountered between stations 282+00 – 319+00.

International Roughness Index (IRI)

Ride quality is expressed in terms of International Roughness Index (IRI) and is measured in inches per mile. IRI is a measurement of the inches of vertical displacement experienced by a vehicle in a mile of roadway. The lower the IRI, the smoother the ride will be (See Table 3).

Table 3: IRI Rating Scale

IRI Value (In./mile)	Ride Rating
< 100	Good Ride
100 - 170	Fair Ride
> 170	Poor Ride

The IRI value for this project ranged between 97 - 198 in/mile with an average IRI value of 161 in/mile. The poorest IRI values were encountered between stations 0+00 – 20+00

Wheel Path Rutting Values

Wheel path rutting values are measured in inches and are presented in the ARAN pavement data every 50 feet. Rutting depths ranged between 0.0” – 0.1” in the inside wheel path and 0.2” – 1.0” in the outside wheel path. The worse rutting was encountered in the outside wheel path between stations 126+00 – 188+50.

Boring/Coring/GPR Information

Subsurface explorations were conducted by Maine DOT using a CME 45C truck mounted drill rig. Bore hole logging was performed by Maine DOT. The purpose of the subsurface investigation is to obtain subsurface soil, bedrock, and ground water information.

A total of 7 power augers borings were conducted along the project (See Boring Logs). Power auger borings were conducted using 5” solid stem augers. Boring locations were determined based upon FWD deflection results and visual observations made during an on-site visit. Soils were described and sampled from the auger flights.

A total of 5 soil samples were collected from the power auger borings and tested at the Maine DOT Materials and Testing laboratory, located in Bangor Maine. Grain size and water content testing was conducted on each sample. Based upon laboratory test results, soil samples were classified according to the Unified Classification System, AASHTO Soil Classification and Maine DOT Frost Susceptibility Rating. Testing results are summarized on the attached Laboratory Testing Summary Sheet.

Existing HMA Thickness

Existing pavement thickness estimates have been provided using pavement core data, power auger boring data, and ground penetrating radar (GPR) data. See Table 6 for a summary comparison of existing pavement thickness estimates derived from coring/boring data and the GPR data.

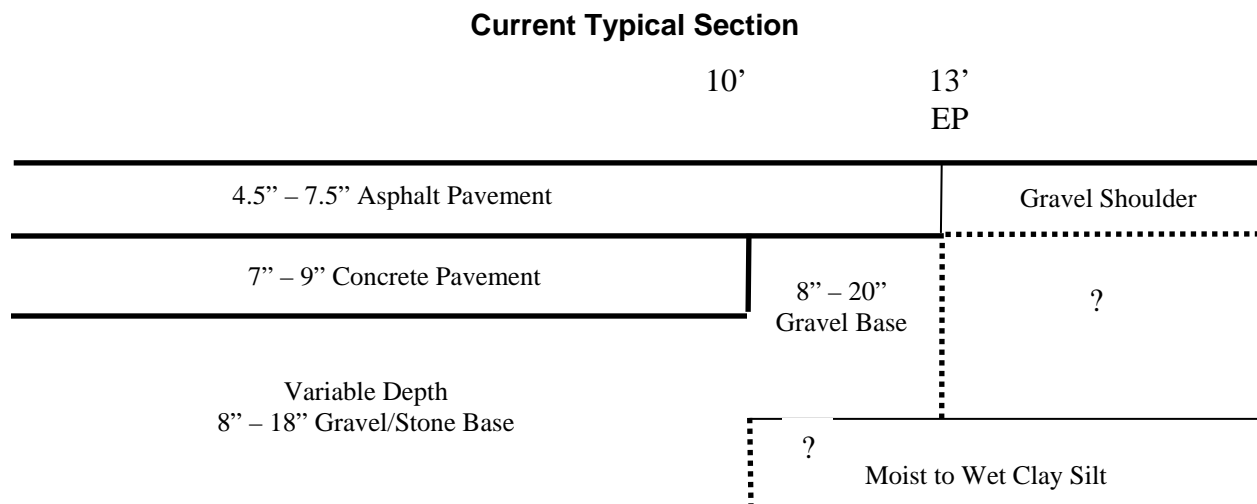
Coring/Auger Data – Twenty-nine pavement cores and 7 power auger borings were used to physically measure the existing pavement thickness.

GPR Data – GPR data was collected in the left wheel path and at the quarter point of both the North and South bound lanes. Data was also collected along the white edge line in both directions. This high speed data collection was conducted using an air launch antenna at 1 foot intervals along the entire project. GPR pavement thickness estimates were then developed using Geophysical Survey Systems Inc. (GSSI) RADAN GPR Data Processing Software. Pavement coring data is used in developing these estimates when available. These estimates are then presented as an average pavement thickness every 100 feet. These estimates have been reported separately for the North and South bound lanes and for each pass made on the white line. See attached GPR Pavement Thickness Estimates.

Existing Roadway Structure

Since the 1932 project, Route 100 has been widened to a configuration consisting of two 13-foot lanes with 4-foot gravel shoulders (34' total width). The construction timing and details concerning this widening are unknown. Borings conducted adjacent to the outside edge of the concrete (10' to 13' offset) indicate that 8" – 20" of gravel base is present beneath the asphalt pavement. The bottom of this layer may not extend to the same elevation as the bottom of the original gravel base layer located beneath the concrete pavement. Given the variable depth of gravel used in the 1932 construction and the wide variance in gravel depths encountered in the borings, a bathtub affect may exist in the current typical section.

Based upon limited power auger and pavement coring data it is anticipated that the current typical section may be similar to the schematic below.



Existing Base Material

Examination of the existing roadway base was limited to the area between the outside edge of the concrete pavement and the outside edge of the asphalt pavement (10' – 13').

Existing Base Material Type: silty gravelly SAND, A-1-b (AASHTO)

Percent Passing #200: 3% - 22%
 Range of Base Material Thickness: 7" – 20"
 Average Thickness: 14"
 Quality of Drainage (AASHTO): poor to good
 Permeability: 1' – 182' per day

Subgrade Soils

Based upon power auger boring data it is anticipated that the native subgrade soils will consist of clay SILT. These soils are very silty with 85% – 93% passing the # 200 sieve and are highly frost susceptible. These plastic soils are very sensitive to moisture and have high volume changes between wet and dry states. They have a high dry strength but lose much of this strength upon absorbing water. These soils are poorly drained and were found to be moist to wet in late November (see boring logs). Wet soil conditions were encountered as shallow as 1 foot below the top of pavement.

FWD testing indicates that these soils have a very low (<3000 psi) subgrade resilient modulus value (See FWD Data). If these soils are not well drained long term pavement performance expectations may not be realized. In addition, these soils could create construction issues due to their moisture sensitivity. Depending on subgrade soil conditions at the time of construction there is a high risk that the existing outside portion of the paved travel lane (10' – 13') could fail due to the pumping of these subgrade soils if the pavement surface is removed during the PMRAP process and the unpaved roadway is subjected to traffic loading. If a failure occurred additional base material would be required to support traffic loading. See table 5 for a listing of the low Mr areas.

FWD Analysis

FWD Deflection Plots

FWD testing was conducted along the center of the right travel lane at a 1000' interval to obtain FWD deflection data within the lateral boundaries of the underlying concrete pavement. FWD testing was also conducted along the white line at a 500' interval to obtain data within the travel lane but outside of the lateral limits of the concrete pavement. The deflections from each of these tests have been plotted. There is a dramatic difference between the two plots (See attached FWD Deflection Plots).

FWD Analysis

Due to the buried concrete pavement surface an analysis of the FWD data could not be conducted for the data collected along the center of travel lane. However, a FWD analysis was conducted on the data collected along the white line. This data was collected outside of the lateral limits of the concrete pavement.

No project specific traffic data was available for this project at the time of the FWD analysis. Traffic data from project 12851.00 (2006) was considered the best available representative information. An 18-kip P2.5 value of 158 and a future ESAL's of 692,040 were used based upon a 12 year design. Except for actual Geotechnical boring locations, pavement depths used for DARWin analysis were taken from Ground Penetrating Radar Summary sheets. Test results for location 286+19 are believed to have been taken on the concrete structure. A summary of the FWD analysis is shown in Table 4.

Table 4: Summary of FWD Analysis

Design Variables	% Fail	Range	Average	75 Percentile
Existing SN Fails to Meet Future SN	88%			
Pavement Modulus (psi)		18,822 – 525,647	73,594	35,960
Subgrade Resilient Modulus (psi)		1,346 – 6,722	3,198	2,570

Note: Data analysis in Table 4 collected on the white line outside of lateral limits of the concrete pavement surface.

Structural Number - The existing structural number fails to meet the future traffic structural number for 88% of this project (See attached FWD summary sheets).

Subgrade Resilient Modulus – Subgrade Resilient Modulus values range between 1,346 psi and 6,722 psi. A subgrade resilient modulus of 2,570 psi represents the 75th percentile. This represents a very low Mr value.

Very low (<3000psi) subgrade resilient modulus values (Mr) were encountered throughout 48% of this project. These values were encountered at an offset outside of the buried concrete pavement layer (10' – 13'). It is anticipated that these low values are due to moist to wet, moisture sensitive, clay silt subgrade soils. These low Mr values could create long term challenges in meeting future pavement performance expectations at offsets outside of the concrete pavement area (10' – 13'). Depending on the subgrade conditions at the time of construction, the roadway in these low Mr areas may be at high risk of failure due to the pumping of subgrade soils, if the pavement is removed as part of the PMRAP process and the unpaved roadway is subjected to traffic loading. If such a failure occurred, additional base material would be necessary to support traffic while the roadway remained unpaved. The areas of greatest concern are listed in Table 5 below.

Table 5: Areas of Low Subgrade Resilient Modulus Values

12+50 – 17+50	112+50 – 127+50	237+50 – 267+50
37+50 – 42+50	142+50 – 162+50	282+50 – 322+50
77+50 – 82+50	172+50 – 207+50	
92+50 – 97+50	212+50 – 217+50	

Drainage

Existing ditching is inadequate or non-existent throughout much of the project area. As previously detailed in the subgrade soil discussion, drainage to remove surface and subsurface water is critical for the short term and long term success of this project. Wet soil conditions were encountered as shallow as 1 foot below the top of pavement. The construction and/or re-establishment of adequate ditching would be helpful. Although it is beyond the scope of this project, ideally, full-depth reconstruction is needed from the outside edge of the buried concrete pavement to the ditch line to eliminate any potential subsurface bath tub structure.

ARAN DATA

Clinton - Burnham Rte 100
19151.00

ARAN DATA						
Station	RLM	Inv Yr	PCR < 3.5	IRI > 150	Rut Depth > 0.5"	
					Right (in.)	Left (in.)
0+00	157.29	2009	2.01	198	0.2	0.1
0+53	157.3	2009	2.01	198	0.2	0.1
1+06	157.31	2009	2.01	198	0.2	0.1
2+11	157.33	2009	2.01	198	0.2	0.1
2+64	157.34	2009	2.01	198	0.2	0.1
5+81	157.4	2009	2.01	198	0.2	0.1
11+09	157.5	2009	2.01	198	0.2	0.1
19+54	157.66	2009	2.01	198	0.2	0.1
22+70	157.72	2009	1.77	137	0.7	0
26+93	157.8	2009	1.77	137	0.7	0
43+82	158.12	2009	1.93	139	0.7	0.1
50+16	158.24	2009	1.93	139	0.7	0.1
70+75	158.63	2009	1.93	139	0.7	0.1
71+28	158.64	2009	1.89	118	0.7	0.1
74+45	158.7	2009	1.89	118	0.7	0.1
76+03	158.73	2009	1.89	118	0.7	0.1
76+56	158.74	2009	1.89	118	0.7	0.1
90+29	159	2009	1.89	118	0.7	0.1
98+74	159.16	2009	2.17	127	0.6	0.1
105+07	159.28	2009	2.17	127	0.6	0.1
126+72	159.69	2009	1.33	195	0.9	0.1
133+06	159.81	2009	1.33	195	0.9	0.1
139+92	159.94	2009	1.33	195	0.9	0.1
154+70	160.22	2009	1.84	156	0.9	0.1
161+04	160.34	2009	1.84	156	0.9	0.1
178+46	160.67	2009	1.84	156	0.9	0.1
178+99	160.68	2009	1.84	156	0.9	0.1
180+05	160.7	2009	1.84	156	0.9	0.1
181+10	160.72	2009	1.84	156	0.9	0.1
181+63	160.73	2009	1.84	156	0.9	0.1
182+16	160.74	2009	1.84	156	0.9	0.1
182+69	160.75	2009	1.84	156	0.9	0.1
184+27	160.78	2009	1.84	156	0.9	0.1

Clinton - Burnham Rte 100
19151.00

Station	RLM	Inv Yr	ARAN DATA			
			PCR < 3.5	IRI > 150	Rut Depth > 0.5"	
					Right	Left
184+80	160.79	2009	1.84	156	0.9	0.1
185+86	160.81	2009	1.84	156	0.9	0.1
186+38	160.82	2009	1.84	156	0.9	0.1
187+44	160.84	2009	1.84	156	0.9	0.1
188+50	160.86	2009	1.84	156	0.9	0.1
189+02	160.87	2009	1.8	160	0.6	0.1
189+55	160.88	2009	1.8	160	0.6	0.1
190+08	160.89	2009	1.8	160	0.6	0.1
190+61	160.9	2009	1.8	160	0.6	0.1
191+66	160.92	2009	1.8	160	0.6	0.1
192+19	160.93	2009	1.8	160	0.6	0.1
207+50	161.22	2009	1.8	160	0.6	0.1
214+90	161.36	2009	1.53	127	0.5	0.1
221+23	161.48	2009	1.53	127	0.5	0.1
247+63	161.98	2009	2.15	181	0.6	0.1
253+97	162.1	2009	2.15	181	0.6	0.1
264+53	162.3	2009	2.15	181	0.6	0.1
265+06	162.31	2009	2.15	181	0.6	0.1
265+58	162.32	2009	2.15	181	0.6	0.1
274+03	162.48	2009	2.15	181	0.6	0.1
274+56	162.49	2009	2.15	181	0.6	0.1
276+67	162.53	2009	2.15	181	0.6	0.1
277+20	162.54	2009	2.15	181	0.6	0.1
280+37	162.6	2009	2.36	97	0.2	0
281+42	162.62	2009	2.36	97	0.2	0
281+95	162.63	2010	1.21	186	0.7	0
286+70	162.72	2010	1.21	186	0.7	0
290+93	162.8	2010	1.21	186	0.7	0
315+22	163.26	2010	1.21	186	0.7	0
315+74	163.27	2010	1.21	186	0.7	0
316+27	163.28	2010	1.21	186	0.7	0
316+80	163.29	2010	1.21	186	0.7	0
317+33	163.3	2010	1.21	186	0.7	0
318+38	163.32	2010	1.21	186	0.7	0
318+91	163.33	2010	1.21	186	0.7	0
319+44	163.34	2010	1.35	175	1	0
AVERAGE			1.80	163	0.65	0.08

February 22, 2012

Falling Weight Deflectometer (FWD) Summary Sheet

Project #: 19151.00
Town(s): Clinton-Burnham
Route(s): #100
Date Tested: 09/12/2011
Requested By: S Hayden
Direction of Testing: South to North

# Of FWD tests: 64	# Of Power Augers/Spoons - 6
Design Life: 12	Future 18-kip ESALs (Design Life): 692,040*
Initial Serviceability: 4.5	Terminal Serviceability: 2.5
Reliability Level: 90%	Overall Standard Deviation: .45

Locations

Station (Feet)

Description

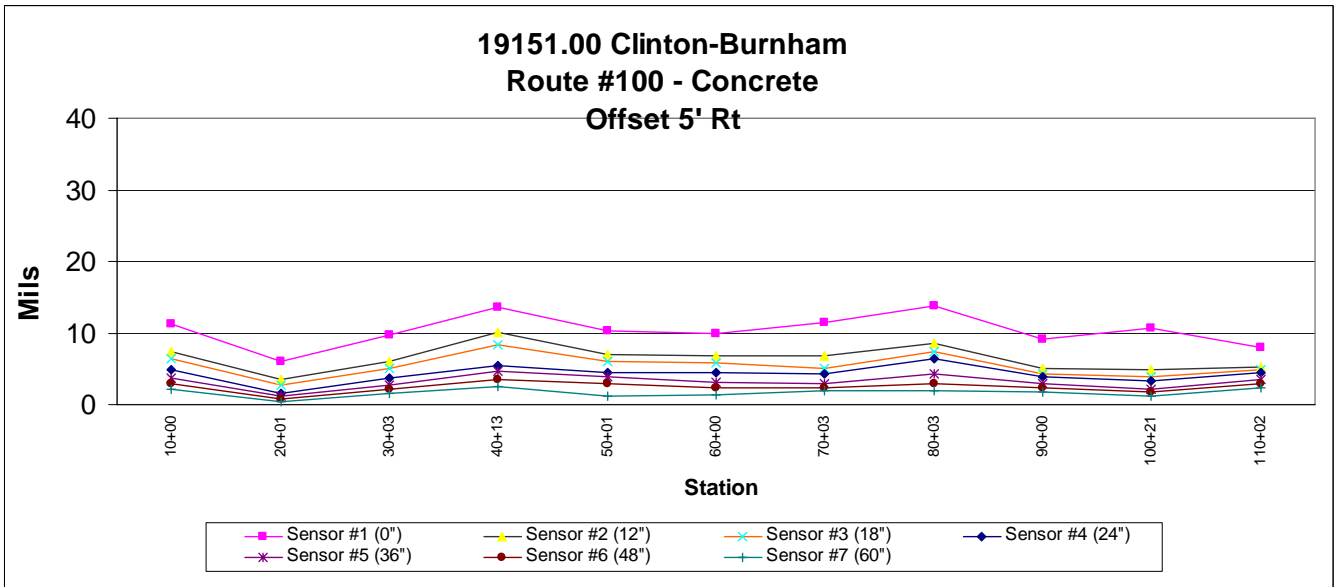
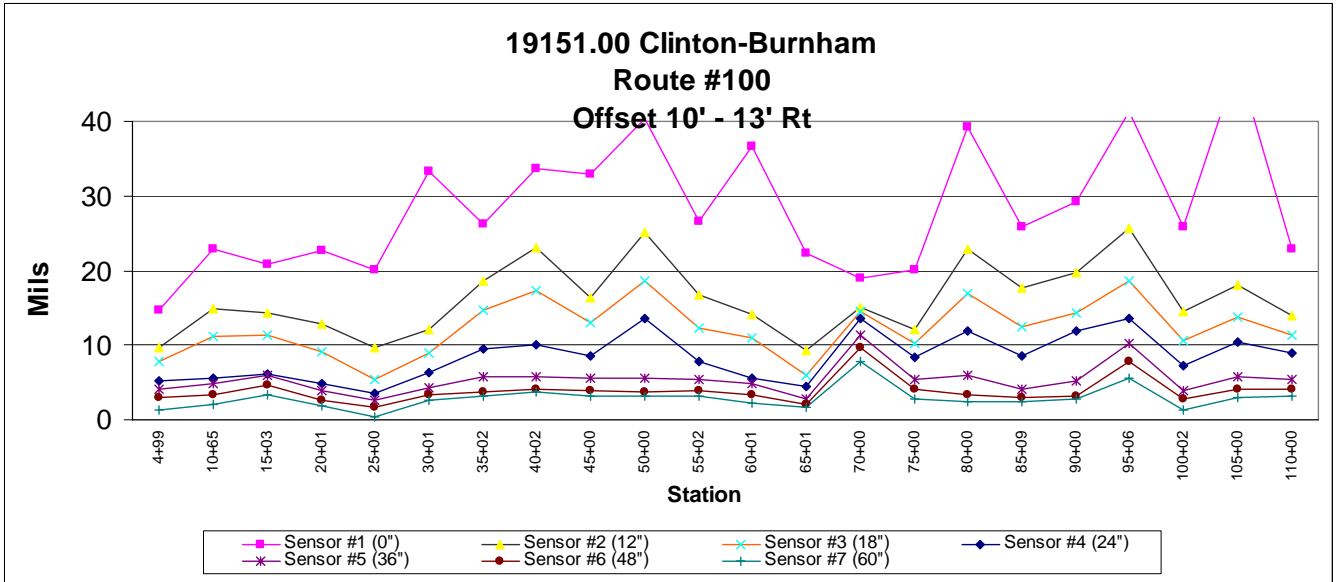
Comments:

No project specific traffic data was available for this project at the time of the FWD analysis. Traffic data from project 12851.00 (2006) was considered the best available representative information. The 18-kip P2.5 value was 158. Future ESAL's were calculated for a 12 year design (692,040).

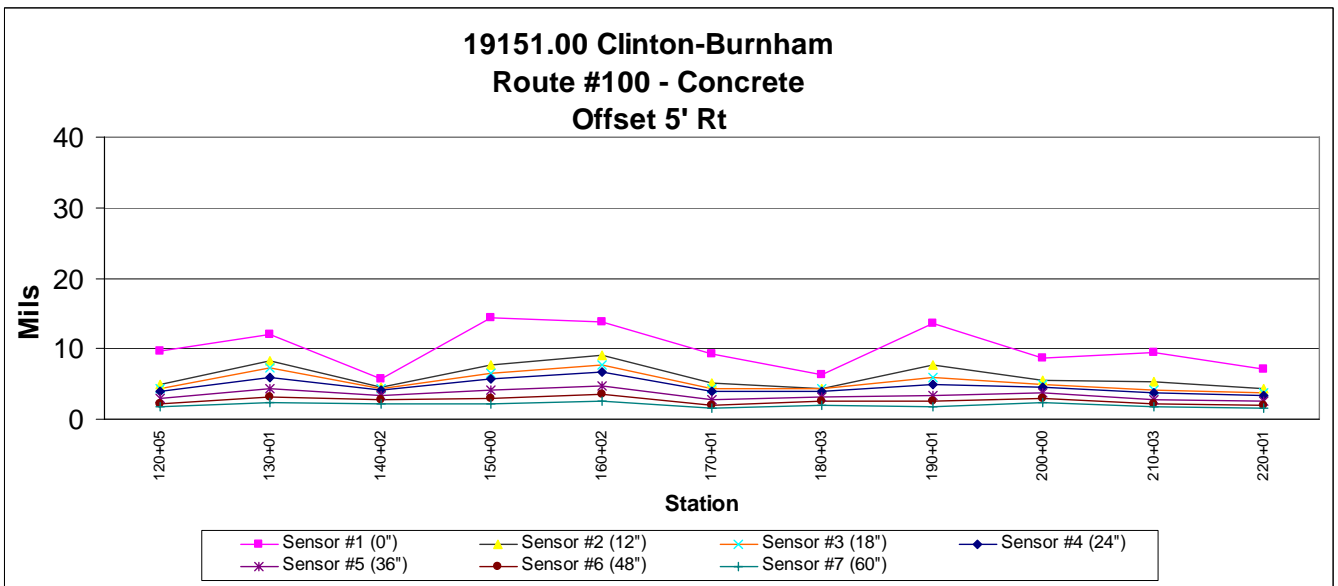
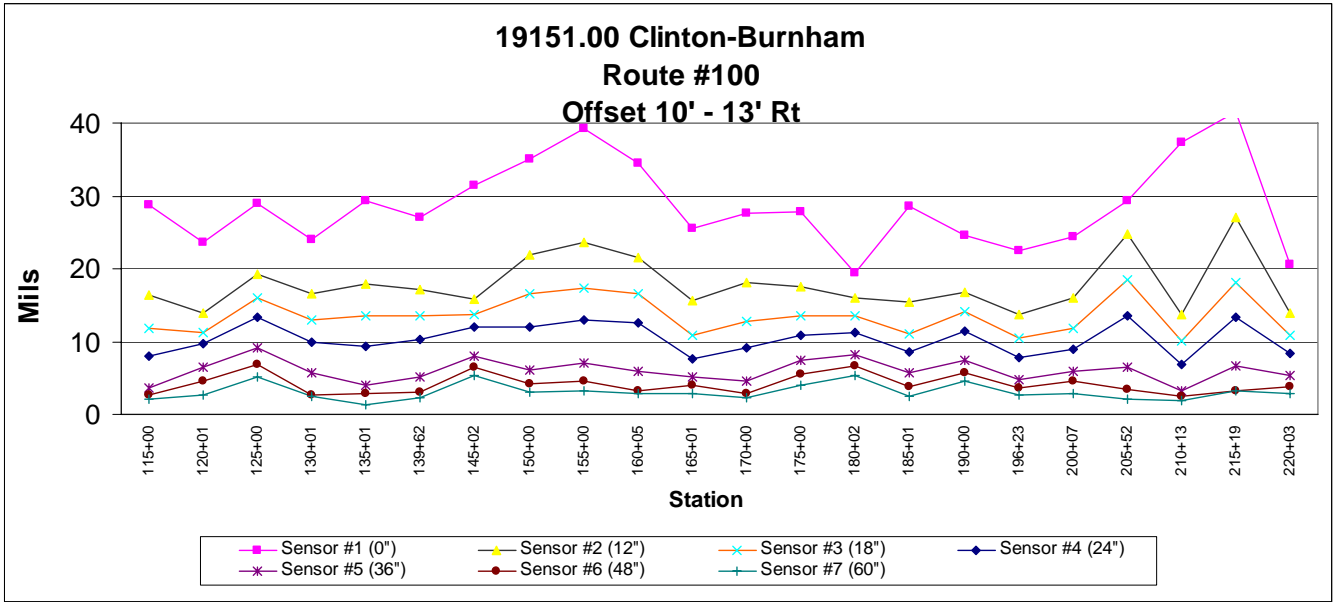
Except for actual Geotechnical boring locations, pavement depths used for DARWin analysis were taken from Ground Penetrating Radar Summary sheets.

Test results for location 286+19 are believed to have been taken on the concrete structure. All reported testing was performed at, or about the white edge line in the North Bound Lane in an effort to produce results for non-concrete locations.

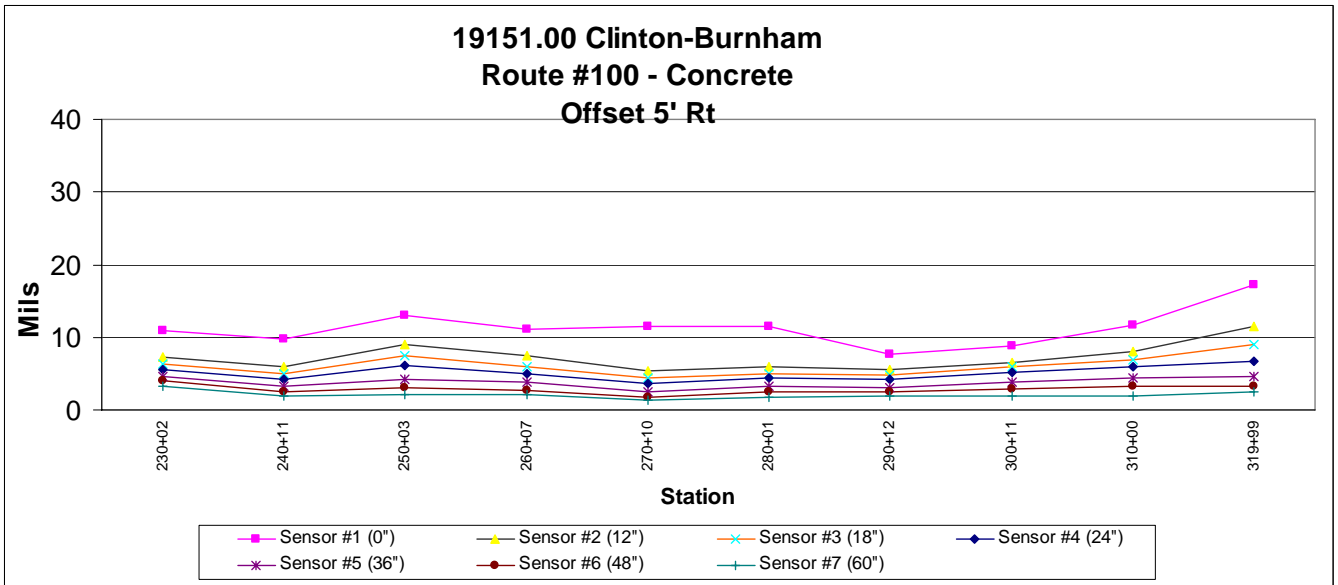
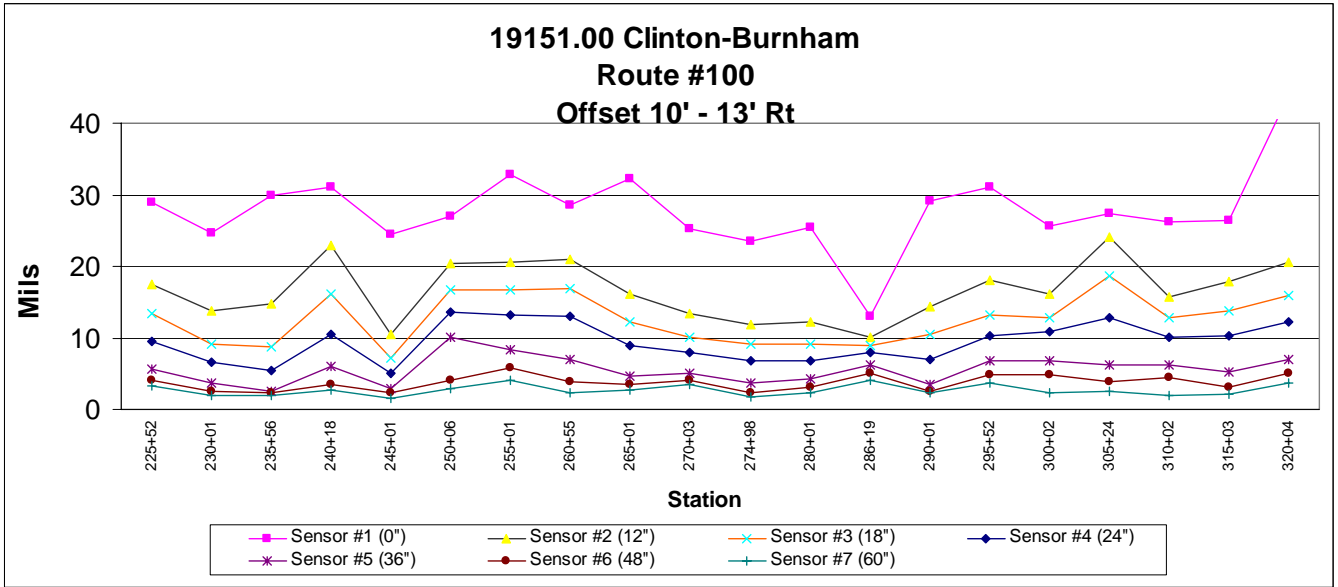
FWD Deflection Plots



FWD Deflection Plots



FWD Deflection Plots



**19151.00 Clinton/Burnham
Route #100**

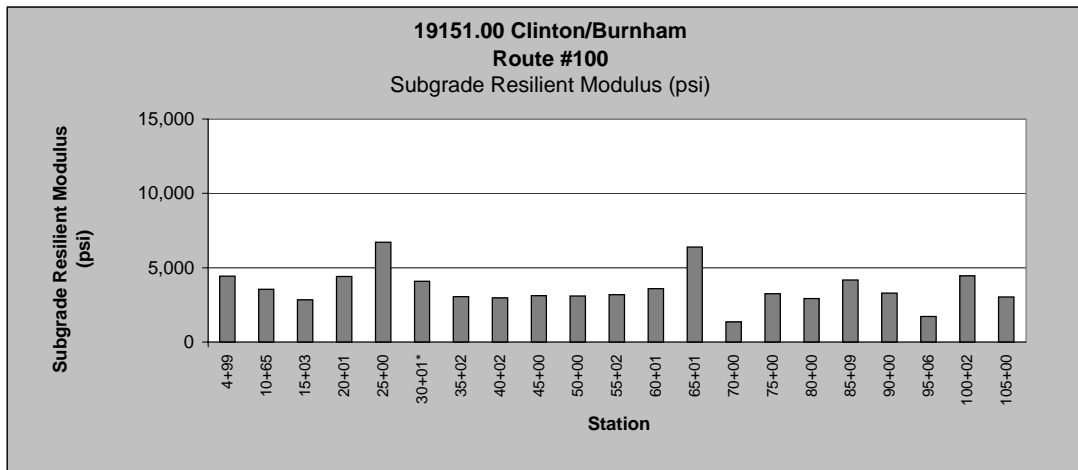
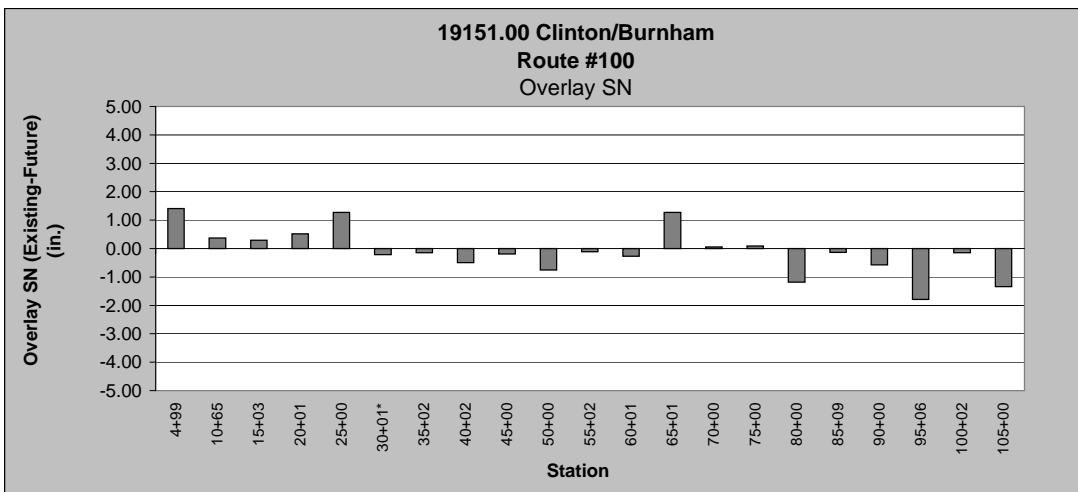
Station (Feet)	Existing Structural Number (in.)	Future Traffic Structural Number (in.)	Overlay Structural Number (Existing - Future)	Recommended Pavement Thickness (in.)	Pavement Modulus (psi)	Subgrade Resilient Modulus (psi)	Pavement Depth (in)	Combined Pavement/Gravel Depth Used for Calculation (in)
4+99	5.25	3.84	1.41	-	58,978	4,427	5.9	30.0
10+65	4.52	4.15	0.37	-	37,616	3,549	2.5	30.0
15+03	4.76	4.47	0.29	-	43,947	2,844	2.8	30.0
20+01	4.37	3.85	0.52	-	33,964	4,417	2.8	30.0
25+00	4.59	3.32	1.27	-	39,392	6,722	4.5	30.0
30+01*	3.74	3.95	-0.21	0.48	21,315	4,099	4.6	30.0
35+02	4.21	4.36	-0.15	0.34	30,295	3,051	5.8	30.0
40+02	3.90	4.40	-0.50	1.14	24,078	2,972	5.0	30.0
45+00	4.14	4.33	-0.19	0.43	28,806	3,118	5.1	30.0
50+00	3.59	4.34	-0.75	1.70	18,822	3,095	4.8	30.0
55+02	4.19	4.30	-0.11	0.25	29,919	3,186	5.3	30.0
60+01	3.86	4.13	-0.27	0.61	23,382	3,586	5.7	30.0
65+01	4.64	3.37	1.27	-	40,725	6,400	3.6	30.0
70+00	5.73	5.67	0.06	-	149,528	1,346	4.7	24.0
75+00	4.36	4.27	0.09	-	65,884	3,246	5.0	24.0
80+00	3.24	4.42	-1.18	2.68	27,101	2,936	5.5	24.0
85+09	3.79	3.92	-0.13	0.30	43,136	4,180	5.7	24.0
90+00	3.68	4.25	-0.57	1.30	39,460	3,294	5.4	24.0
95+06	3.47	5.26	-1.79	4.07	33,155	1,715	5.2	24.0
100+02	3.69	3.84	-0.15	0.34	39,861	4,458	4.0	24.0
105+00	3.03	4.37	-1.34	3.05	21,990	3,032	5.6	24.0

* Boring Location

Possible Weak Soils (<3000)

Possible Shallow Bedrock (>8000)

For actual Gravel Depths, see logdraft forms - Except for actual boring locations (*), pavement depths were taken from Ground Penetrating Radar Summary Sheet.



19151.00 Clinton/Burnham Route #100

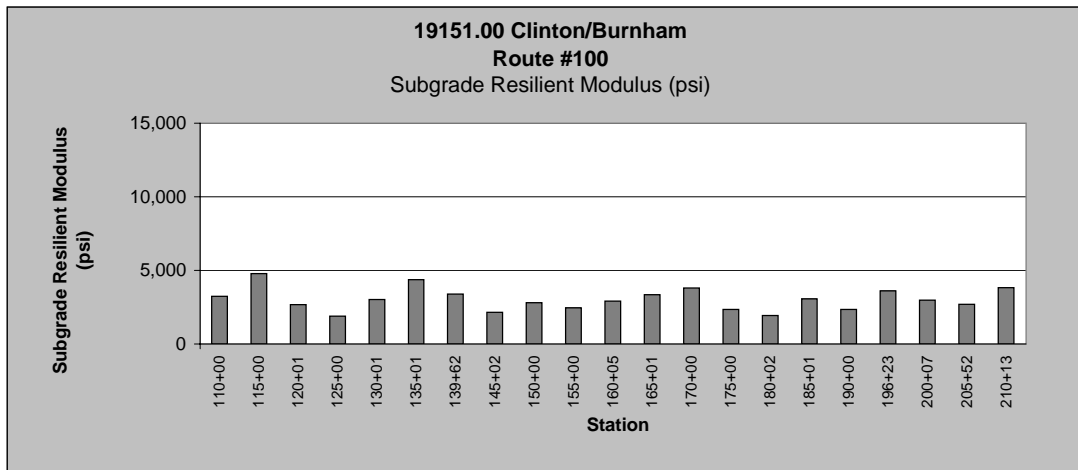
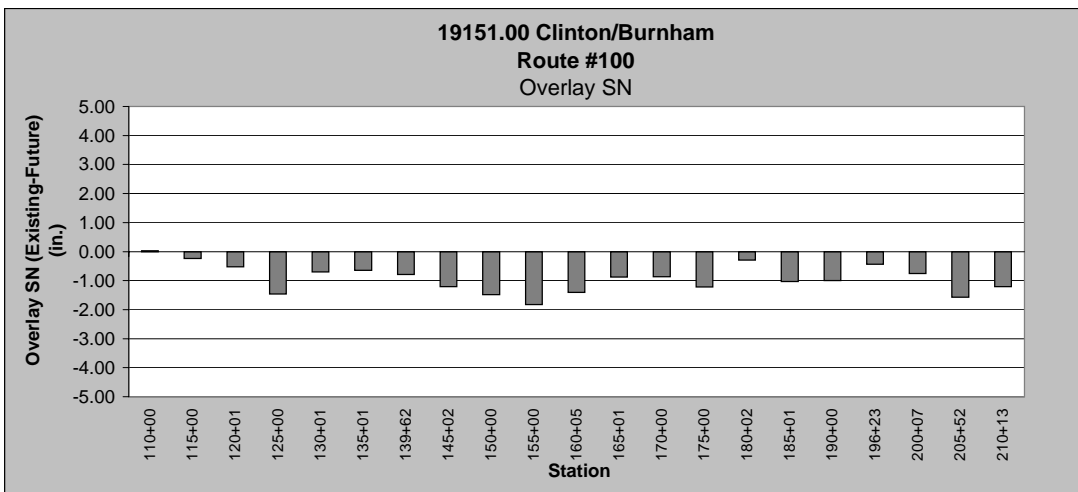
Station (Feet)	Existing Structural Number (in.)	Future Traffic Structural Number (in.)	Overlay Structural Number (Existing - Future)	Recommended Pavement Thickness (in.)	Pavement Modulus (psi)	Subgrade Resilient Modulus (psi)	Pavement Depth (in)	Combined Pavement/Gravel Depth Used for Calculation (in)
110+00	4.31	4.28	0.03	-	63,340	3,229	6.1	24.0
115+00	3.50	3.74	-0.24	0.55	33,972	4,783	6.3	24.0
120+01	4.04	4.56	-0.52	1.18	52,239	2,677	5.4	24.0
125+00	3.63	5.09	-1.46	3.32	38,112	1,897	6.8	24.0
130+01	3.68	4.38	-0.70	1.59	39,501	3,020	6.0	24.0
135+01	3.21	3.86	-0.65	1.48	26,343	4,374	5.7	24.0
139+62	3.42	4.21	-0.79	0.79	31,648	3,399	7.3	24.0
145+02	3.68	4.89	-1.21	1.21	39,530	2,151	6.4	24.0
150+00	3.00	4.48	-1.48	3.36	41,870	2,815	6.6	19.2
155+00	2.86	4.69	-1.83	4.16	36,282	2,460	6.7	19.2
160+05	3.02	4.43	-1.41	3.20	42,743	2,916	6.3	19.2
165+01	3.35	4.23	-0.88	1.89	58,332	3,346	5.6	19.2
170+00	3.18	4.05	-0.87	1.98	49,717	3,813	5.9	19.2
175+00	3.53	4.75	-1.22	2.77	67,977	2,356	6.4	19.2
180+02	4.77	5.06	-0.29	0.66	167,788	1,942	5.9	19.2
185+01	3.33	4.36	-1.03	2.34	57,306	3,061	6.6	19.2
190+00	3.76	4.76	-1.00	2.27	82,338	2,343	6.7	19.2
196+23	3.70	4.13	-0.43	0.98	78,231	3,603	7.4	19.2
200+07	3.64	4.40	-0.76	1.73	74,779	2,986	6.4	19.2
205+52	2.98	4.55	-1.57	3.57	41,208	2,693	7.6	19.2
210+13	2.83	4.04	-1.21	2.75	34,978	3,828	7.2	19.2

* Boring Location

Possible Weak Soils (<3000)

Possible Shallow Bedrock (>8000)

For actual Gravel Depths, see logdraft forms - Except for actual boring locations (*), pavement depths were taken from Ground Penetrating Radar Summary Sheet.



**19151.00 Clinton/Burnham
Route #100**

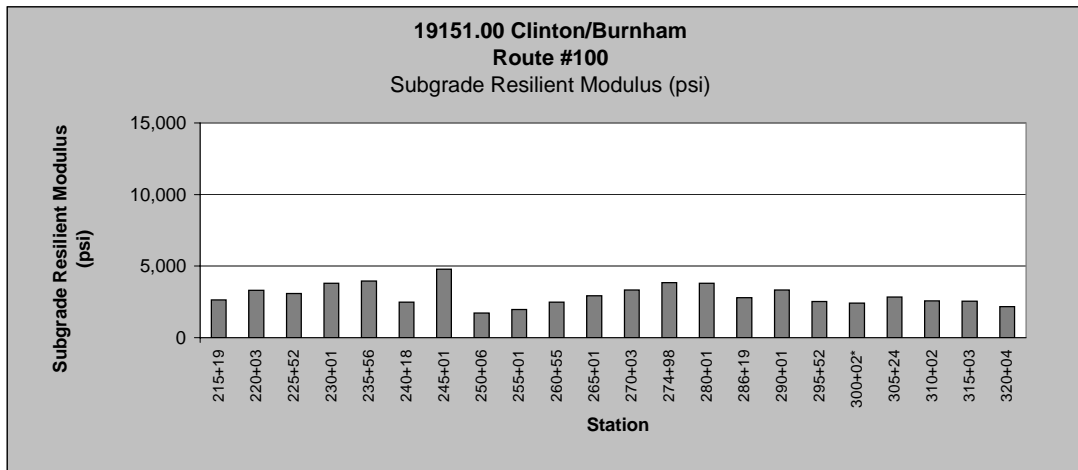
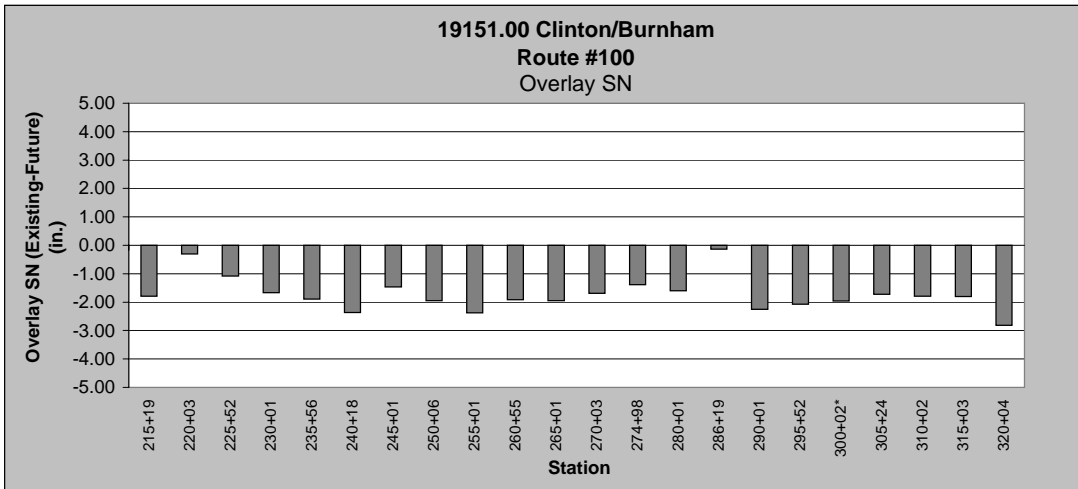
Station (Feet)	Existing Structural Number (in.)	Future Traffic Structural Number (in.)	Overlay Structural Number (Existing - Future)	Recommended Pavement Thickness (in.)	Pavement Modulus (psi)	Subgrade Resilient Modulus (psi)	Pavement Depth (in)	Combined Pavement/Gravel Depth Used for Calculation (in)
215+19	2.79	4.58	-1.79	4.07	33,612	2,643	6.5	19.2
220+03	3.95	4.25	-0.30	0.68	95,489	3,309	6.0	19.2
225+52	3.27	4.35	-1.08	2.45	54,313	3,079	6.8	19.2
230+01	2.38	4.05	-1.67	3.80	87,924	3,811	5.3	11.9
235+56	2.10	3.99	-1.89	4.30	60,421	3,964	6.3	11.9
240+18	2.31	4.68	-2.37	5.39	80,787	2,473	7.2	11.9
245+01	2.28	3.74	-1.46	3.32	76,826	4,790	5.1	11.9
250+06	3.30	5.25	-1.95	4.43	233,656	1,727	6.7	11.9
255+01	2.66	5.04	-2.38	5.41	122,152	1,964	6.8	11.9
260+55	2.76	4.67	-1.91	4.34	137,591	2,482	7.5	11.9
265+01	2.48	4.43	-1.95	4.43	98,747	2,922	8.8	11.9
270+03	2.54	4.23	-1.69	3.84	107,271	3,338	6.7	11.9
274+98	2.65	4.03	-1.38	3.14	120,977	3,850	7.5	11.9
280+01	2.46	4.06	-1.60	3.64	96,523	3,790	6.4	11.9
286+19	4.36	4.50	-0.14	0.32	525,647	2,788	8.2	12.0
290+01	1.99	4.24	-2.25	5.11	49,936	3,330	6.7	12.0
295+52	2.58	4.65	-2.07	4.70	109,442	2,517	7.4	12.0
300+02*	2.76	4.72	-1.96	4.45	133,466	2,406	4.0	12.0
305+24	2.75	4.47	-1.72	3.91	131,735	2,833	7.8	12.0
310+02	2.83	4.62	-1.79	4.07	143,310	2,572	6.0	12.0
315+03	2.83	4.63	-1.80	4.09	143,942	2,556	6.4	12.0
320+04	2.07	4.88	-2.81	6.39	56,686	2,175	7.0	12.0

* Boring Location

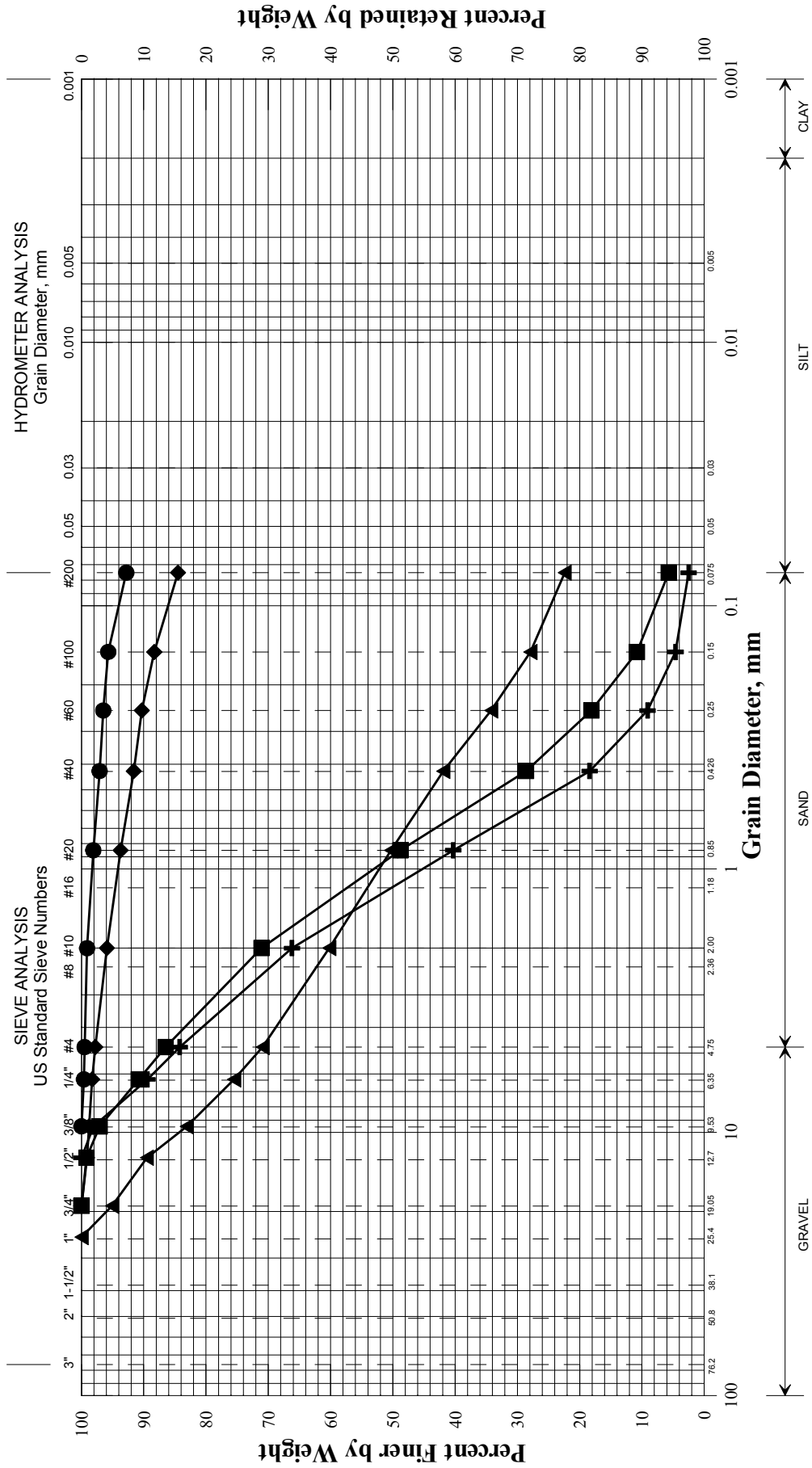
Possible Weak Soils (<3000)

Possible Shallow Bedrock (>8000)

For actual Gravel Depths, see logdraft forms - Except for actual boring locations (*), pavement depths were taken from Ground Penetrating Radar Summary Sheet.



State of Maine Department of Transportation
GRAIN SIZE DISTRIBUTION CURVE



UNIFIED CLASSIFICATION

WIN	019151.00
Town	Clinton, Burnham
Reported by/Date	WHITE, TERRY A 1/6/2012

Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI
+ HB-CLIN-101/S1	300+11	11.0 LT	0.33-1.0	SAND, trace gravel, trace silt.	8.0			
◆ HB-CLIN-101/S2	300+11	11.0 LT	1.0-4.0	SILT, little sand, trace gravel.	25.9			
■ HB-CLIN-103/S3	177+30	11.0 RT	0.42-1.6	SAND, trace gravel, trace silt.	5.3			
● HB-CLIN-103/S4	177+30	11.0 RT	1.6-4.0	SILT, trace sand, trace gravel.	25.8			
▲ HB-CLIN-106/S5	55+25	11.0 RT	1.0-3.0	SAND, some gravel, some silt.	6.5			

State of Maine - Department of Transportation
Pavement Core Summary Sheet

Town(s): Clinton

Work Number: 19151.00

Station (Feet)	Offset (Feet)	Pavement Depth (Inches)	Unbound Pavement	PC- Number	Saved Core	Comments / Date 11/28/2011
2226	9.0 Lt.	6.5				hit concrete
2226	3.0 Lt.	7.0				hit concrete
2226	3.0 Rt.	7.0				hit concrete
2226	9.0 Rt.	7.0				hit concrete
3000	6.0 Rt.	7.0				hit concrete
5525	11.0 Lt.	5.5				no concrete
5525	9.0 Lt.	7.0				hit concrete
5525	3.0 Rt.	7.0				hit concrete
5525	9.0 Rt.	5.0				hit concrete
9099	9.0 Lt.	6.0				hit concrete
9099	3.0 Lt.	6.0				hit concrete
9099	3.0 Rt.	7.0				hit concrete
9099	9.0 Rt.	7.0				hit concrete
12778	9.0 Lt.	7.0				hit concrete
12778	3.0 Lt.	7.0				hit concrete
12778	3.0 Rt.	7.0				hit concrete
12778	9.0 Rt.	6.0				hit concrete
17730	9.0 Lt.	7.0				hit concrete
17730	3.0 Lt.	7.0				hit concrete
17730	3.0 Rt.	5.0				hit concrete
17730	9.0 Rt.	5.0				hit concrete
21929	9.0 Lt.	4.5				hit concrete
21929	3.0 Lt.	6.0				hit concrete
21929	3.0 Rt.	5.5				hit concrete
21929	9.0 Rt.	5.0				hit concrete
21929	11.0 Rt.	5.0				no concrete
25640	9.0 Lt.	5.5				hit concrete
25640	3.0 Lt.	7.0				hit concrete
25640	3.0 Rt.	7.5				hit concrete
30011	5.0 Lt.	6.0				hit concrete
30011	9.0 Rt.	5.5				hit concrete
30011	11.0 Rt.	4.5				hit concrete

Ground Penetrating Radar Notes

By: Steve Colson

19151.00 Clinton/Burnham – Route #100

Ground Penetrating Radar (GPR) data was collected on project 19151.00 on November 17th, 2011. GPR data was collected at 1 foot intervals in the inner wheel paths and at the quarter point of both the North and South bound lanes using the Departments 2 gigahertz air-launched antenna. Data was also collected at the white edge line in both directions. Based on longitudinal cracking near the edge of pavement, it was assumed that the edge of concrete was just inside the white edge line over a majority of the project. Data reported for these passes represents estimated pavement depths just off the edge of concrete. Data reported from passes made at the quarter point and inner wheel path represents the estimated pavement depth over the existing concrete. GPR data was averaged and reported every 100 feet, along the entire project. Data is reported for the North bound lane, South bound lane, white edge line North bound and the white edge line South bound. Data presented for the South bound lane and South bound white edge line are approximately 800 feet shorter than the North bound lanes because construction personnel was present and had the south bound lane closed from approximately station 312+00 to 320+00.

GPR data files collected at the quarter-point and inner wheel paths had a strong, consistent reflection throughout the entire length of the project. The depth of this reflection correlated well with known pavement depths provided from pavement cores (see Photo 1).

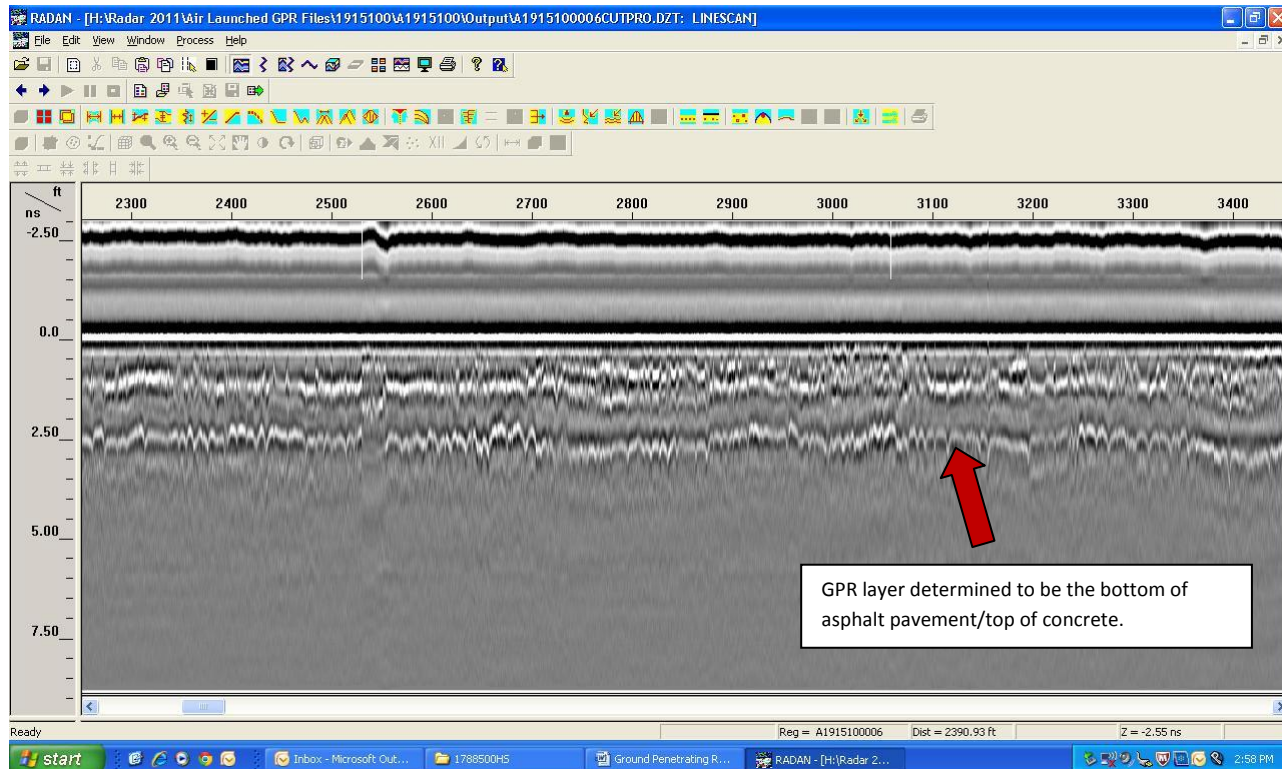


Photo 1: GPR Data Collected Over Concrete

GPR data files collected at the white edge line in each direction did not have the strong reflection that was present in the quarter-point and inner wheel path passes (see Photo 2). With only two pavement depths available off the edge of concrete (55+25-11.0 feet left and 219+29-11 feet right) and the absence of a consistent layers in the GPR data, estimated GPR pavement depths for “off concrete” passes are to be considered less accurate than the quarter-point and inner lane data.

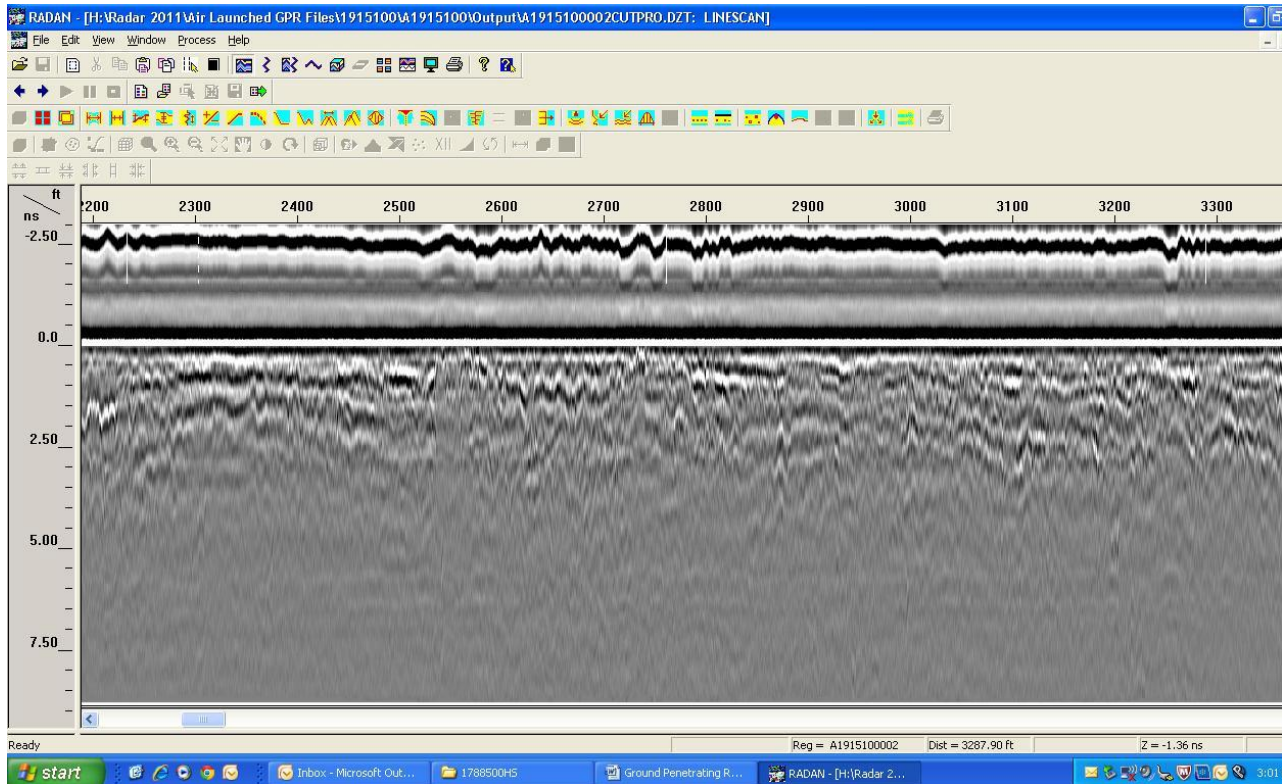


Photo 2: Weak, Inconsistent GPR Reflections – Off Concrete Pass

19151.00 Clinton/Burnham - Route 100 (Over Concrete NB)

Estimated Pavement Thickness

Ground Penetrating Radar (GPR)

Explanation of Ground Penetrating Radar (GPR) Data Collection and Analysis:

For Project 19151.00 (Clinton/Burnham), GPR data was collected in the left wheel path and at the quarter point of both the North and South bound lanes. Data was also collected at the white edge line in both directions. Data was collected at 1 foot intervals along the entire section. Data is reported separately for the North and South bound lanes and for each pass made on the white line. Pavement thickness estimates were developed using Geophysical Survey Systems Inc. (GSSI) RADAN GPR Data Processing Software. Where available, pavement thicknesses from pavement cores collected by MaineDOT personnel were used in developing the estimated GPR pavement thicknesses. Please see the attached sheet for specific details regarding unique sections identified along the project.

GPR pavement thickness averages are to be considered for estimating purposes only.

Actual pavement thickness may vary.

Analysis Distance (ft) - 100

Overall Average Thickness (in.) 6.2

Overall Minimum Thickness (in.) 4.1

Overall Maximum Thickness (in.) 8.2

19151.00 Clinton/Burnham - Route 100 (Over Concrete NB)

Station Limits	Average Depth (in)
0+00	6.7
1+00	6.9
2+00	7.3
3+00	7.0
4+00	7.2
5+00	7.1
6+00	7.0
7+00	7.7
8+00	7.0
9+00	5.6
10+00	6.4
11+00	7.2
12+00	8.2
13+00	6.8
14+00	6.3

Station Limits	Average Depth (in)
15+00	6.2
16+00	6.1
17+00	5.9
18+00	6.6
19+00	7.3
20+00	6.8
21+00	6.9
22+00	6.9
23+00	6.5
24+00	6.4
25+00	6.4
26+00	6.6
27+00	7.6
28+00	7.6
29+00	6.8

Station Limits	Average Depth (in)
30+00	6.8
31+00	7.5
32+00	7.0
33+00	7.0
34+00	7.6
35+00	7.7
36+00	7.5
37+00	7.2
38+00	6.5
39+00	6.5
40+00	6.0
41+00	6.4
42+00	5.9
43+00	5.9
44+00	5.9

Station Limits	Average Depth (in)
45+00	6.2
46+00	6.4
47+00	6.1
48+00	5.6
49+00	5.7
50+00	5.4
51+00	5.4
52+00	5.8
53+00	6.2
54+00	6.3
55+00	6.1
56+00	6.0
57+00	5.6
58+00	5.8
59+00	5.9

Station Limits		Average Depth (in)	Station Limits		Average Depth (in)	Station Limits		Average Depth (in)	Station Limits		Average Depth (in)
60+00	61+00	5.5	95+00	96+00	7.3	130+00	131+00	7.0	165+00	166+00	6.0
61+00	62+00	5.2	96+00	97+00	7.4	131+00	132+00	6.9	166+00	167+00	5.5
62+00	63+00	5.8	97+00	98+00	7.0	132+00	133+00	6.5	167+00	168+00	5.7
63+00	64+00	5.9	98+00	99+00	6.4	133+00	134+00	7.1	168+00	169+00	6.3
64+00	65+00	6.0	99+00	100+00	7.2	134+00	135+00	7.1	169+00	170+00	5.8
65+00	66+00	5.8	100+00	101+00	7.9	135+00	136+00	7.7	170+00	171+00	5.2
66+00	67+00	5.5	101+00	102+00	7.5	136+00	137+00	7.8	171+00	172+00	4.9
67+00	68+00	6.2	102+00	103+00	6.5	137+00	138+00	7.8	172+00	173+00	5.2
68+00	69+00	7.1	103+00	104+00	6.7	138+00	139+00	8.1	173+00	174+00	5.8
69+00	70+00	6.3	104+00	105+00	6.6	139+00	140+00	8.0	174+00	175+00	5.6
70+00	71+00	5.9	105+00	106+00	6.2	140+00	141+00	7.2	175+00	176+00	5.5
71+00	72+00	6.3	106+00	107+00	6.1	141+00	142+00	7.5	176+00	177+00	5.1
72+00	73+00	5.9	107+00	108+00	6.3	142+00	143+00	7.4	177+00	178+00	5.0
73+00	74+00	6.8	108+00	109+00	6.3	143+00	144+00	7.6	178+00	179+00	5.1
74+00	75+00	6.6	109+00	110+00	5.9	144+00	145+00	7.6	179+00	180+00	5.5
75+00	76+00	6.1	110+00	111+00	6.4	145+00	146+00	7.3	180+00	181+00	5.4
76+00	77+00	6.3	111+00	112+00	6.4	146+00	147+00	6.8	181+00	182+00	5.1
77+00	78+00	6.1	112+00	113+00	6.1	147+00	148+00	6.4	182+00	183+00	5.0
78+00	79+00	6.0	113+00	114+00	6.6	148+00	149+00	5.8	183+00	184+00	4.7
79+00	80+00	6.1	114+00	115+00	7.2	149+00	150+00	6.3	184+00	185+00	4.9
80+00	81+00	5.8	115+00	116+00	7.1	150+00	151+00	7.0	185+00	186+00	5.2
81+00	82+00	6.2	116+00	117+00	6.6	151+00	152+00	6.6	186+00	187+00	5.2
82+00	83+00	5.6	117+00	118+00	7.4	152+00	153+00	5.6	187+00	188+00	4.5
83+00	84+00	6.0	118+00	119+00	7.9	153+00	154+00	4.8	188+00	189+00	4.6
84+00	85+00	5.7	119+00	120+00	7.0	154+00	155+00	5.0	189+00	190+00	5.6
85+00	86+00	6.0	120+00	121+00	7.2	155+00	156+00	4.9	190+00	191+00	5.8
86+00	87+00	6.5	121+00	122+00	7.1	156+00	157+00	4.7	191+00	192+00	5.8
87+00	88+00	6.9	122+00	123+00	7.3	157+00	158+00	4.7	192+00	193+00	5.7
88+00	89+00	6.7	123+00	124+00	7.3	158+00	159+00	5.2	193+00	194+00	5.9
89+00	90+00	6.9	124+00	125+00	7.4	159+00	160+00	5.4	194+00	195+00	6.1
90+00	91+00	7.0	125+00	126+00	7.1	160+00	161+00	5.2	195+00	196+00	6.2
91+00	92+00	7.5	126+00	127+00	7.3	161+00	162+00	5.1	196+00	197+00	6.0
92+00	93+00	6.8	127+00	128+00	6.6	162+00	163+00	5.0	197+00	198+00	6.0
93+00	94+00	6.7	128+00	129+00	6.7	163+00	164+00	5.1	198+00	199+00	5.7
94+00	95+00	6.7	129+00	130+00	7.1	164+00	165+00	5.7	199+00	200+00	5.5

Station Limits		Average Depth (in)	Station Limits		Average Depth (in)	Station Limits		Average Depth (in)	Station Limits		Average Depth (in)
200+00	201+00	5.5	235+00	236+00	6.5	270+00	271+00	7.1	305+00	306+00	4.6
201+00	202+00	5.5	236+00	237+00	6.9	271+00	272+00	7.5	306+00	307+00	4.8
202+00	203+00	6.1	237+00	238+00	6.8	272+00	273+00	7.2	307+00	308+00	5.0
203+00	204+00	5.6	238+00	239+00	6.9	273+00	274+00	7.6	308+00	309+00	5.2
204+00	205+00	5.3	239+00	240+00	7.0	274+00	275+00	8.1	309+00	310+00	5.0
205+00	206+00	6.1	240+00	241+00	7.0	275+00	276+00	7.4	310+00	311+00	4.6
206+00	207+00	5.8	241+00	242+00	7.0	276+00	277+00	6.6	311+00	312+00	4.8
207+00	208+00	5.7	242+00	243+00	7.1	277+00	278+00	6.2	312+00	313+00	5.1
208+00	209+00	5.8	243+00	244+00	7.2	278+00	279+00	4.9	313+00	314+00	4.6
209+00	210+00	5.9	244+00	245+00	7.4	279+00	280+00	4.8	314+00	315+00	4.5
210+00	211+00	5.1	245+00	246+00	7.8	280+00	281+00	5.1	315+00	316+00	4.4
211+00	212+00	5.5	246+00	247+00	7.8	281+00	282+00	4.8	316+00	317+00	4.1
212+00	213+00	5.3	247+00	248+00	7.8	282+00	283+00	4.1	317+00	318+00	4.4
213+00	214+00	4.9	248+00	249+00	7.8	283+00	284+00	4.3	318+00	319+00	4.7
214+00	215+00	5.2	249+00	250+00	6.7	284+00	285+00	4.9	319+00	320+00	4.4
215+00	216+00	5.1	250+00	251+00	7.4	285+00	286+00	5.2			
216+00	217+00	4.9	251+00	252+00	7.4	286+00	287+00	5.4			
217+00	218+00	4.8	252+00	253+00	6.6	287+00	288+00	4.8			
218+00	219+00	5.3	253+00	254+00	6.6	288+00	289+00	4.7			
219+00	220+00	5.5	254+00	255+00	6.7	289+00	290+00	4.8			
220+00	221+00	5.6	255+00	256+00	7.0	290+00	291+00	4.9			
221+00	222+00	5.8	256+00	257+00	7.7	291+00	292+00	4.4			
222+00	223+00	5.8	257+00	258+00	7.6	292+00	293+00	4.9			
223+00	224+00	5.6	258+00	259+00	7.4	293+00	294+00	4.8			
224+00	225+00	5.6	259+00	260+00	7.1	294+00	295+00	4.9			
225+00	226+00	5.4	260+00	261+00	7.1	295+00	296+00	5.0			
226+00	227+00	5.5	261+00	262+00	7.1	296+00	297+00	5.2			
227+00	228+00	5.7	262+00	263+00	7.5	297+00	298+00	5.6			
228+00	229+00	5.6	263+00	264+00	6.8	298+00	299+00	5.2			
229+00	230+00	5.7	264+00	265+00	6.5	299+00	300+00	5.8			
230+00	231+00	6.1	265+00	266+00	6.3	300+00	301+00	5.1			
231+00	232+00	6.4	266+00	267+00	6.2	301+00	302+00	4.8			
232+00	233+00	6.0	267+00	268+00	6.3	302+00	303+00	4.5			
233+00	234+00	6.5	268+00	269+00	6.7	303+00	304+00	4.5			
234+00	235+00	6.7	269+00	270+00	6.6	304+00	305+00	4.7			

19151.00 Clinton/Burnham - Route 100 (Over Concrete SB)

Estimated Pavement Thickness

Ground Penetrating Radar (GPR)

Explanation of Ground Penetrating Radar (GPR) Data Collection and Analysis:

For Project 19151.00 (Clinton/Burnham), GPR data was collected in the left wheel path and at the quarter point of both the North and South bound lanes. Data was also collected at the white edge line in both directions. Data was collected at 1 foot intervals along the entire section. Data is reported separately for the North and South bound lanes and for each pass made on the white line. Pavement thickness estimates were developed using Geophysical Survey Systems Inc. (GSSI) RADAN GPR Data Processing Software. Where available, pavement thicknesses from pavement cores collected by MaineDOT personnel were used in developing the estimated GPR pavement thicknesses. Please see the attached sheet for specific details regarding unique sections identified along the project.

GPR pavement thickness averages are to be considered for estimating purposes only.

Actual pavement thickness may vary.

Analysis Distance (ft) - 100

Overall Average
Thickness (in.)

6.3

Overall Minimum
Thickness (in.)

4.3

Overall Maximum
Thickness (in.)

8.8

19151.00 Clinton/Burnham - Route 100 (Over Concrete SB)

Station Limits	Average Depth (in)	Station Limits	Average Depth (in)	Station Limits	Average Depth (in)	Station Limits	Average Depth (in)
0+00	6.7	15+00	6.2	30+00	6.6	45+00	7.9
1+00	6.6	16+00	6.8	31+00	6.5	46+00	7.5
2+00	6.9	17+00	6.8	32+00	6.5	47+00	7.2
3+00	7.6	18+00	7.2	33+00	7.7	48+00	7.6
4+00	7.1	19+00	7.5	34+00	7.8	49+00	7.9
5+00	7.6	20+00	7.1	35+00	8.0	50+00	7.7
6+00	6.9	21+00	6.7	36+00	7.8	51+00	7.2
7+00	7.1	22+00	6.9	37+00	7.5	52+00	7.5
8+00	7.0	23+00	6.5	38+00	7.5	53+00	7.4
9+00	6.9	24+00	6.6	39+00	7.3	54+00	7.8
10+00	6.8	25+00	7.2	40+00	7.5	55+00	7.6
11+00	7.3	26+00	7.1	41+00	7.8	56+00	7.5
12+00	7.6	27+00	7.0	42+00	7.9	57+00	7.9
13+00	7.2	28+00	6.4	43+00	7.4	58+00	8.4
14+00	7.2	29+00	6.0	44+00	6.9	59+00	8.1
15+00	7.2	30+00	6.0	45+00	6.9	60+00	8.1

Station Limits		Average Depth (in)	Station Limits		Average Depth (in)	Station Limits		Average Depth (in)	Station Limits		Average Depth (in)
60+00	61+00	8.3	95+00	96+00	5.5	130+00	131+00	7.8	165+00	166+00	7.5
61+00	62+00	7.8	96+00	97+00	5.7	131+00	132+00	7.4	166+00	167+00	7.4
62+00	63+00	7.8	97+00	98+00	5.6	132+00	133+00	6.7	167+00	168+00	7.1
63+00	64+00	8.2	98+00	99+00	6.0	133+00	134+00	6.1	168+00	169+00	7.0
64+00	65+00	7.8	99+00	100+00	6.3	134+00	135+00	6.2	169+00	170+00	6.6
65+00	66+00	7.3	100+00	101+00	6.3	135+00	136+00	6.5	170+00	171+00	6.6
66+00	67+00	7.8	101+00	102+00	5.4	136+00	137+00	6.2	171+00	172+00	6.0
67+00	68+00	7.5	102+00	103+00	4.8	137+00	138+00	6.3	172+00	173+00	5.9
68+00	69+00	7.9	103+00	104+00	5.1	138+00	139+00	6.7	173+00	174+00	5.9
69+00	70+00	7.3	104+00	105+00	4.7	139+00	140+00	7.0	174+00	175+00	6.4
70+00	71+00	7.8	105+00	106+00	4.8	140+00	141+00	6.5	175+00	176+00	6.9
71+00	72+00	8.8	106+00	107+00	5.6	141+00	142+00	6.7	176+00	177+00	7.0
72+00	73+00	8.2	107+00	108+00	5.5	142+00	143+00	6.4	177+00	178+00	7.4
73+00	74+00	5.8	108+00	109+00	5.5	143+00	144+00	5.9	178+00	179+00	7.3
74+00	75+00	5.3	109+00	110+00	5.8	144+00	145+00	5.9	179+00	180+00	7.3
75+00	76+00	5.0	110+00	111+00	5.7	145+00	146+00	6.2	180+00	181+00	7.3
76+00	77+00	4.9	111+00	112+00	5.6	146+00	147+00	6.7	181+00	182+00	7.3
77+00	78+00	4.9	112+00	113+00	5.5	147+00	148+00	7.1	182+00	183+00	7.0
78+00	79+00	5.0	113+00	114+00	6.2	148+00	149+00	7.7	183+00	184+00	6.4
79+00	80+00	5.8	114+00	115+00	6.1	149+00	150+00	7.0	184+00	185+00	6.5
80+00	81+00	6.1	115+00	116+00	5.8	150+00	151+00	6.3	185+00	186+00	6.8
81+00	82+00	5.8	116+00	117+00	6.2	151+00	152+00	5.5	186+00	187+00	7.1
82+00	83+00	5.7	117+00	118+00	6.6	152+00	153+00	6.1	187+00	188+00	7.1
83+00	84+00	5.7	118+00	119+00	6.3	153+00	154+00	6.2	188+00	189+00	7.2
84+00	85+00	5.5	119+00	120+00	5.7	154+00	155+00	7.0	189+00	190+00	7.3
85+00	86+00	5.7	120+00	121+00	5.7	155+00	156+00	6.8	190+00	191+00	7.5
86+00	87+00	5.3	121+00	122+00	6.3	156+00	157+00	6.8	191+00	192+00	7.5
87+00	88+00	4.8	122+00	123+00	6.0	157+00	158+00	7.1	192+00	193+00	7.5
88+00	89+00	4.8	123+00	124+00	6.3	158+00	159+00	7.3	193+00	194+00	7.9
89+00	90+00	5.0	124+00	125+00	6.3	159+00	160+00	7.5	194+00	195+00	7.4
90+00	91+00	5.6	125+00	126+00	5.6	160+00	161+00	7.2	195+00	196+00	7.4
91+00	92+00	5.3	126+00	127+00	5.7	161+00	162+00	7.0	196+00	197+00	7.2
92+00	93+00	5.2	127+00	128+00	6.6	162+00	163+00	6.9	197+00	198+00	6.7
93+00	94+00	5.1	128+00	129+00	7.0	163+00	164+00	7.0	198+00	199+00	5.8
94+00	95+00	6.0	129+00	130+00	7.6	164+00	165+00	7.1	199+00	200+00	5.3

Station Limits		Average Depth (in)	Station Limits		Average Depth (in)	Station Limits		Average Depth (in)	Station Limits		Average Depth (in)
200+00	201+00	5.0	235+00	236+00	6.4	270+00	271+00	5.5	305+00	306+00	5.6
201+00	202+00	4.7	236+00	237+00	5.6	271+00	272+00	5.3	306+00	307+00	6.0
202+00	203+00	5.3	237+00	238+00	5.4	272+00	273+00	5.3	307+00	308+00	6.4
203+00	204+00	5.8	238+00	239+00	4.7	273+00	274+00	5.4	308+00	309+00	6.4
204+00	205+00	5.2	239+00	240+00	4.9	274+00	275+00	5.6	309+00	310+00	5.8
205+00	206+00	5.7	240+00	241+00	5.1	275+00	276+00	5.4	310+00	311+00	5.3
206+00	207+00	5.8	241+00	242+00	4.9	276+00	277+00	4.8	311+00	312+00	5.9
207+00	208+00	5.9	242+00	243+00	5.2	277+00	278+00	4.3			
208+00	209+00	6.1	243+00	244+00	5.7	278+00	279+00	5.0			
209+00	210+00	5.9	244+00	245+00	5.5	279+00	280+00	5.4			
210+00	211+00	5.4	245+00	246+00	5.6	280+00	281+00	5.7			
211+00	212+00	5.6	246+00	247+00	5.2	281+00	282+00	5.5			
212+00	213+00	5.7	247+00	248+00	5.8	282+00	283+00	4.9			
213+00	214+00	5.5	248+00	249+00	5.9	283+00	284+00	5.1			
214+00	215+00	5.3	249+00	250+00	6.0	284+00	285+00	5.1			
215+00	216+00	5.6	250+00	251+00	5.8	285+00	286+00	5.5			
216+00	217+00	5.2	251+00	252+00	5.3	286+00	287+00	5.7			
217+00	218+00	5.2	252+00	253+00	5.7	287+00	288+00	5.7			
218+00	219+00	5.4	253+00	254+00	5.5	288+00	289+00	6.0			
219+00	220+00	5.6	254+00	255+00	5.4	289+00	290+00	6.4			
220+00	221+00	6.0	255+00	256+00	6.2	290+00	291+00	6.3			
221+00	222+00	5.8	256+00	257+00	6.4	291+00	292+00	6.5			
222+00	223+00	6.0	257+00	258+00	5.4	292+00	293+00	6.8			
223+00	224+00	5.5	258+00	259+00	5.6	293+00	294+00	6.5			
224+00	225+00	5.6	259+00	260+00	6.4	294+00	295+00	6.2			
225+00	226+00	5.4	260+00	261+00	6.5	295+00	296+00	6.2			
226+00	227+00	5.7	261+00	262+00	6.5	296+00	297+00	6.2			
227+00	228+00	5.3	262+00	263+00	5.6	297+00	298+00	6.4			
228+00	229+00	5.7	263+00	264+00	5.6	298+00	299+00	6.4			
229+00	230+00	6.3	264+00	265+00	5.3	299+00	300+00	6.4			
230+00	231+00	6.8	265+00	266+00	4.9	300+00	301+00	5.9			
231+00	232+00	6.3	266+00	267+00	6.0	301+00	302+00	6.1			
232+00	233+00	5.8	267+00	268+00	6.1	302+00	303+00	6.1			
233+00	234+00	5.9	268+00	269+00	5.7	303+00	304+00	5.3			
234+00	235+00	5.8	269+00	270+00	5.6	304+00	305+00	5.5			

Station Limits		Average Depth (in)	Station Limits		Average Depth (in)	Station Limits		Average Depth (in)	Station Limits		Average Depth (in)
60+00	61+00	5.7	95+00	96+00	5.2	130+00	131+00	6.9	165+00	166+00	5.6
61+00	62+00	6.3	96+00	97+00	6.3	131+00	132+00	7.4	166+00	167+00	5.6
62+00	63+00	6.4	97+00	98+00	6.0	132+00	133+00	6.8	167+00	168+00	6.2
63+00	64+00	4.2	98+00	99+00	6.6	133+00	134+00	5.7	168+00	169+00	6.7
64+00	65+00	3.6	99+00	100+00	4.0	134+00	135+00	5.9	169+00	170+00	6.7
65+00	66+00	4.9	100+00	101+00	4.1	135+00	136+00	5.7	170+00	171+00	5.9
66+00	67+00	6.0	101+00	102+00	5.2	136+00	137+00	5.4	171+00	172+00	6.3
67+00	68+00	5.4	102+00	103+00	5.3	137+00	138+00	6.9	172+00	173+00	7.4
68+00	69+00	6.1	103+00	104+00	4.8	138+00	139+00	7.7	173+00	174+00	6.9
69+00	70+00	6.1	104+00	105+00	6.2	139+00	140+00	7.3	174+00	175+00	7.4
70+00	71+00	4.7	105+00	106+00	5.6	140+00	141+00	7.7	175+00	176+00	6.4
71+00	72+00	3.4	106+00	107+00	5.9	141+00	142+00	5.8	176+00	177+00	6.0
72+00	73+00	5.2	107+00	108+00	5.9	142+00	143+00	5.8	177+00	178+00	6.9
73+00	74+00	5.2	108+00	109+00	5.7	143+00	144+00	5.5	178+00	179+00	6.4
74+00	75+00	5.6	109+00	110+00	6.1	144+00	145+00	7.6	179+00	180+00	5.9
75+00	76+00	5.0	110+00	111+00	6.3	145+00	146+00	6.4	180+00	181+00	6.0
76+00	77+00	5.7	111+00	112+00	6.3	146+00	147+00	5.3	181+00	182+00	5.9
77+00	78+00	6.0	112+00	113+00	6.8	147+00	148+00	5.6	182+00	183+00	5.9
78+00	79+00	6.2	113+00	114+00	6.7	148+00	149+00	6.3	183+00	184+00	6.9
79+00	80+00	6.2	114+00	115+00	6.7	149+00	150+00	6.6	184+00	185+00	7.0
80+00	81+00	5.5	115+00	116+00	6.3	150+00	151+00	6.9	185+00	186+00	6.6
81+00	82+00	6.3	116+00	117+00	6.0	151+00	152+00	8.2	186+00	187+00	6.1
82+00	83+00	5.9	117+00	118+00	5.4	152+00	153+00	8.0	187+00	188+00	6.3
83+00	84+00	6.0	118+00	119+00	6.2	153+00	154+00	6.9	188+00	189+00	7.1
84+00	85+00	6.1	119+00	120+00	5.4	154+00	155+00	6.7	189+00	190+00	6.7
85+00	86+00	5.7	120+00	121+00	5.9	155+00	156+00	7.5	190+00	191+00	7.0
86+00	87+00	5.9	121+00	122+00	5.8	156+00	157+00	6.9	191+00	192+00	8.1
87+00	88+00	6.2	122+00	123+00	5.8	157+00	158+00	6.7	192+00	193+00	7.1
88+00	89+00	5.8	123+00	124+00	5.6	158+00	159+00	6.9	193+00	194+00	6.9
89+00	90+00	5.7	124+00	125+00	6.8	159+00	160+00	6.3	194+00	195+00	6.8
90+00	91+00	5.4	125+00	126+00	6.8	160+00	161+00	6.3	195+00	196+00	7.3
91+00	92+00	6.3	126+00	127+00	6.2	161+00	162+00	6.7	196+00	197+00	7.4
92+00	93+00	6.4	127+00	128+00	5.7	162+00	163+00	6.1	197+00	198+00	7.5
93+00	94+00	6.3	128+00	129+00	5.8	163+00	164+00	5.7	198+00	199+00	7.5
94+00	95+00	5.1	129+00	130+00	6.0	164+00	165+00	6.3	199+00	200+00	8.2

Station Limits		Average Depth (in)	Station Limits		Average Depth (in)	Station Limits		Average Depth (in)	Station Limits		Average Depth (in)
200+00	201+00	6.4	235+00	236+00	6.3	270+00	271+00	6.7	305+00	306+00	7.8
201+00	202+00	7.5	236+00	237+00	6.4	271+00	272+00	6.4	306+00	307+00	7.7
202+00	203+00	7.6	237+00	238+00	6.1	272+00	273+00	6.8	307+00	308+00	6.8
203+00	204+00	8.1	238+00	239+00	5.7	273+00	274+00	7.5	308+00	309+00	6.4
204+00	205+00	7.5	239+00	240+00	6.3	274+00	275+00	7.9	309+00	310+00	6.0
205+00	206+00	7.6	240+00	241+00	7.2	275+00	276+00	5.5	310+00	311+00	6.0
206+00	207+00	7.4	241+00	242+00	6.3	276+00	277+00	5.4	311+00	312+00	5.8
207+00	208+00	7.5	242+00	243+00	7.3	277+00	278+00	5.7	312+00	313+00	6.9
208+00	209+00	6.5	243+00	244+00	7.8	278+00	279+00	5.3	313+00	314+00	7.8
209+00	210+00	6.1	244+00	245+00	6.3	279+00	280+00	6.4	314+00	315+00	6.4
210+00	211+00	7.2	245+00	246+00	5.1	280+00	281+00	7.2	315+00	316+00	6.6
211+00	212+00	7.3	246+00	247+00	5.8	281+00	282+00	7.0	316+00	317+00	6.8
212+00	213+00	7.2	247+00	248+00	6.7	282+00	283+00	6.5	317+00	318+00	6.7
213+00	214+00	7.9	248+00	249+00	7.9	283+00	284+00	6.1	318+00	319+00	7.1
214+00	215+00	7.1	249+00	250+00	7.3	284+00	285+00	6.4	319+00	320+00	7.0
215+00	216+00	6.5	250+00	251+00	6.7	285+00	286+00	7.4			
216+00	217+00	6.6	251+00	252+00	7.6	286+00	287+00	8.2			
217+00	218+00	5.9	252+00	253+00	8.6	287+00	288+00	7.8			
218+00	219+00	5.0	253+00	254+00	9.0	288+00	289+00	5.8			
219+00	220+00	5.1	254+00	255+00	7.6	289+00	290+00	6.7			
220+00	221+00	6.0	255+00	256+00	6.8	290+00	291+00	7.3			
221+00	222+00	6.7	256+00	257+00	6.8	291+00	292+00	7.2			
222+00	223+00	6.2	257+00	258+00	5.9	292+00	293+00	5.6			
223+00	224+00	6.4	258+00	259+00	7.4	293+00	294+00	6.4			
224+00	225+00	6.9	259+00	260+00	8.4	294+00	295+00	7.0			
225+00	226+00	6.8	260+00	261+00	7.5	295+00	296+00	7.4			
226+00	227+00	6.4	261+00	262+00	8.0	296+00	297+00	7.4			
227+00	228+00	7.9	262+00	263+00	7.8	297+00	298+00	7.0			
228+00	229+00	7.6	263+00	264+00	8.2	298+00	299+00	6.3			
229+00	230+00	6.2	264+00	265+00	9.4	299+00	300+00	6.9			
230+00	231+00	5.3	265+00	266+00	8.8	300+00	301+00	6.8			
231+00	232+00	5.9	266+00	267+00	7.2	301+00	302+00	7.4			
232+00	233+00	6.7	267+00	268+00	7.1	302+00	303+00	7.8			
233+00	234+00	6.7	268+00	269+00	7.9	303+00	304+00	7.8			
234+00	235+00	6.4	269+00	270+00	7.4	304+00	305+00	7.5			

19151.00 Clinton/Burnham - Route 100 (Off Concrete SB)

Estimated Pavement Thickness

Ground Penetrating Radar (GPR)

Explanation of Ground Penetrating Radar (GPR) Data Collection and Analysis:

For Project 19151.00 (Clinton/Burnham), GPR data was collected in the left wheel path and at the quarter point of both the North and South bound lanes. Data was also collected at the white edge line in both directions. Data was collected at 1 foot intervals along the entire section. Data is reported separately for the North and South bound lanes and for each pass made on the white line. Pavement thickness estimates were developed using Geophysical Survey Systems Inc. (GSSI) RADAN GPR Data Processing Software. Where available, pavement thicknesses from pavement cores collected by MaineDOT personnel were used in developing the estimated GPR pavement thicknesses. Please see the attached sheet for specific details regarding unique sections identified along the project.

GPR pavement thickness averages are to be considered for estimating purposes only.

Actual pavement thickness may vary.

Analysis Distance (ft) - 100

Overall Average
Thickness (in.) 5.7

Overall Minimum
Thickness (in.) 3.7

Overall Maximum
Thickness (in.) 8.3

19151.00 Clinton/Burnham - Route 100 (Off Concrete SB)

Station Limits	Average Depth (in)
0+00	4.4
1+00	3.7
2+00	4.8
3+00	4.2
4+00	4.7
5+00	6.1
6+00	5.8
7+00	4.8
8+00	5.4
9+00	5.4
10+00	5.0
11+00	5.2
12+00	4.9
13+00	4.5
14+00	5.3

Station Limits	Average Depth (in)
15+00	4.6
16+00	4.3
17+00	4.7
18+00	4.1
19+00	4.6
20+00	4.8
21+00	5.1
22+00	5.0
23+00	4.8
24+00	4.7
25+00	4.5
26+00	4.7
27+00	5.9
28+00	6.2
29+00	5.3

Station Limits	Average Depth (in)
30+00	4.9
31+00	5.0
32+00	5.2
33+00	5.6
34+00	6.4
35+00	5.1
36+00	5.8
37+00	5.3
38+00	6.3
39+00	5.5
40+00	5.2
41+00	5.7
42+00	5.9
43+00	5.9
44+00	6.2

Station Limits	Average Depth (in)
45+00	6.2
46+00	6.5
47+00	6.7
48+00	7.1
49+00	7.0
50+00	6.9
51+00	7.3
52+00	6.2
53+00	5.5
54+00	5.3
55+00	5.6
56+00	6.2
57+00	6.5
58+00	6.9
59+00	7.0

Station Limits		Average Depth (in)	Station Limits		Average Depth (in)	Station Limits		Average Depth (in)	Station Limits		Average Depth (in)
60+00	61+00	6.3	95+00	96+00	5.4	130+00	131+00	5.3	165+00	166+00	5.0
61+00	62+00	5.9	96+00	97+00	5.5	131+00	132+00	5.8	166+00	167+00	5.0
62+00	63+00	5.7	97+00	98+00	5.4	132+00	133+00	5.8	167+00	168+00	4.8
63+00	64+00	6.1	98+00	99+00	5.7	133+00	134+00	5.5	168+00	169+00	4.7
64+00	65+00	6.7	99+00	100+00	5.5	134+00	135+00	5.2	169+00	170+00	4.7
65+00	66+00	6.6	100+00	101+00	5.9	135+00	136+00	5.7	170+00	171+00	5.2
66+00	67+00	6.3	101+00	102+00	5.7	136+00	137+00	5.6	171+00	172+00	4.5
67+00	68+00	6.6	102+00	103+00	5.8	137+00	138+00	4.1	172+00	173+00	4.3
68+00	69+00	5.7	103+00	104+00	5.3	138+00	139+00	3.8	173+00	174+00	5.2
69+00	70+00	5.8	104+00	105+00	5.4	139+00	140+00	4.3	174+00	175+00	5.7
70+00	71+00	5.5	105+00	106+00	5.7	140+00	141+00	4.6	175+00	176+00	6.0
71+00	72+00	5.1	106+00	107+00	5.6	141+00	142+00	4.5	176+00	177+00	6.3
72+00	73+00	5.9	107+00	108+00	6.0	142+00	143+00	4.3	177+00	178+00	6.6
73+00	74+00	7.2	108+00	109+00	6.0	143+00	144+00	4.6	178+00	179+00	7.0
74+00	75+00	7.7	109+00	110+00	6.1	144+00	145+00	4.8	179+00	180+00	5.9
75+00	76+00	6.1	110+00	111+00	5.5	145+00	146+00	4.7	180+00	181+00	5.1
76+00	77+00	5.0	111+00	112+00	5.7	146+00	147+00	5.1	181+00	182+00	6.0
77+00	78+00	5.4	112+00	113+00	5.3	147+00	148+00	6.8	182+00	183+00	5.8
78+00	79+00	5.4	113+00	114+00	6.0	148+00	149+00	6.3	183+00	184+00	5.8
79+00	80+00	5.6	114+00	115+00	5.9	149+00	150+00	6.8	184+00	185+00	6.1
80+00	81+00	5.4	115+00	116+00	5.9	150+00	151+00	5.6	185+00	186+00	6.1
81+00	82+00	6.0	116+00	117+00	5.9	151+00	152+00	5.3	186+00	187+00	5.9
82+00	83+00	6.5	117+00	118+00	5.2	152+00	153+00	5.7	187+00	188+00	5.7
83+00	84+00	5.4	118+00	119+00	5.2	153+00	154+00	5.5	188+00	189+00	6.5
84+00	85+00	5.4	119+00	120+00	5.5	154+00	155+00	5.5	189+00	190+00	5.7
85+00	86+00	5.8	120+00	121+00	5.0	155+00	156+00	6.3	190+00	191+00	6.1
86+00	87+00	5.4	121+00	122+00	5.1	156+00	157+00	6.3	191+00	192+00	6.8
87+00	88+00	6.4	122+00	123+00	5.9	157+00	158+00	6.0	192+00	193+00	7.4
88+00	89+00	6.2	123+00	124+00	5.9	158+00	159+00	6.1	193+00	194+00	6.1
89+00	90+00	6.2	124+00	125+00	5.3	159+00	160+00	6.2	194+00	195+00	3.8
90+00	91+00	6.1	125+00	126+00	5.0	160+00	161+00	5.9	195+00	196+00	3.7
91+00	92+00	6.1	126+00	127+00	5.5	161+00	162+00	5.3	196+00	197+00	4.7
92+00	93+00	6.0	127+00	128+00	4.9	162+00	163+00	5.2	197+00	198+00	6.2
93+00	94+00	5.9	128+00	129+00	5.0	163+00	164+00	5.2	198+00	199+00	5.2
94+00	95+00	5.2	129+00	130+00	4.9	164+00	165+00	5.2	199+00	200+00	6.6

Station Limits		Average Depth (in)	Station Limits		Average Depth (in)	Station Limits		Average Depth (in)	Station Limits		Average Depth (in)
200+00	201+00	6.1	235+00	236+00	6.5	270+00	271+00	6.1	305+00	306+00	5.5
201+00	202+00	5.3	236+00	237+00	6.6	271+00	272+00	5.9	306+00	307+00	5.5
202+00	203+00	4.8	237+00	238+00	5.1	272+00	273+00	7.1	307+00	308+00	5.1
203+00	204+00	5.3	238+00	239+00	4.5	273+00	274+00	6.0	308+00	309+00	5.0
204+00	205+00	5.1	239+00	240+00	4.5	274+00	275+00	6.4	309+00	310+00	5.1
205+00	206+00	5.8	240+00	241+00	5.1	275+00	276+00	5.8	310+00	311+00	5.2
206+00	207+00	5.8	241+00	242+00	6.1	276+00	277+00	3.8	311+00	312+00	5.5
207+00	208+00	6.5	242+00	243+00	6.5	277+00	278+00	3.8			
208+00	209+00	8.0	243+00	244+00	5.1	278+00	279+00	4.2			
209+00	210+00	7.2	244+00	245+00	5.2	279+00	280+00	5.1			
210+00	211+00	6.8	245+00	246+00	4.9	280+00	281+00	4.7			
211+00	212+00	6.9	246+00	247+00	5.2	281+00	282+00	4.8			
212+00	213+00	6.6	247+00	248+00	5.5	282+00	283+00	4.9			
213+00	214+00	7.2	248+00	249+00	5.3	283+00	284+00	4.9			
214+00	215+00	8.0	249+00	250+00	5.4	284+00	285+00	5.3			
215+00	216+00	6.9	250+00	251+00	6.5	285+00	286+00	5.5			
216+00	217+00	6.8	251+00	252+00	5.9	286+00	287+00	5.4			
217+00	218+00	6.2	252+00	253+00	5.3	287+00	288+00	5.3			
218+00	219+00	6.4	253+00	254+00	6.1	288+00	289+00	5.4			
219+00	220+00	6.4	254+00	255+00	6.0	289+00	290+00	4.4			
220+00	221+00	5.3	255+00	256+00	6.4	290+00	291+00	5.4			
221+00	222+00	5.0	256+00	257+00	6.4	291+00	292+00	6.0			
222+00	223+00	5.4	257+00	258+00	5.7	292+00	293+00	5.9			
223+00	224+00	5.8	258+00	259+00	6.1	293+00	294+00	6.0			
224+00	225+00	6.2	259+00	260+00	4.9	294+00	295+00	5.6			
225+00	226+00	6.4	260+00	261+00	6.0	295+00	296+00	5.7			
226+00	227+00	6.5	261+00	262+00	5.6	296+00	297+00	5.4			
227+00	228+00	6.6	262+00	263+00	6.2	297+00	298+00	3.9			
228+00	229+00	5.9	263+00	264+00	6.8	298+00	299+00	5.8			
229+00	230+00	5.9	264+00	265+00	7.1	299+00	300+00	5.2			
230+00	231+00	7.3	265+00	266+00	7.2	300+00	301+00	5.1			
231+00	232+00	7.1	266+00	267+00	7.8	301+00	302+00	5.6			
232+00	233+00	6.9	267+00	268+00	8.3	302+00	303+00	5.2			
233+00	234+00	6.4	268+00	269+00	6.0	303+00	304+00	4.5			
234+00	235+00	6.1	269+00	270+00	5.8	304+00	305+00	5.6			

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS	Project: A portion of Route 100	Boring No.: HB-CLIN-101
	Location: Clinton and Burnham, Maine	WIN: 19151.00

Driller: MaineDOT	Elevation (ft.):	Auger ID/OD: 5" Dia.
Operator: Giguere/Giles	Datum: NAVD88	Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 11/28/11-11/28/11	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 300+11, 11.0 ft Lt	Casing ID/OD: N/	Water Level*: None Observed

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
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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-value	Casing Blows						
0	S1		0.33 - 1.00					-0.33		4" PAVEMENT. Brown, damp, fine to coarse SAND, little gravel, little silt. Olive-brown, wet, fine sandy SILT, some clay.	G#262025 A-1-b, SW WC=8.0% G#261976 A-6, CL WC=25.9%	
	S2		1.00 - 4.00					-1.00				
								-4.00				
5										Bottom of Exploration at 4.00 feet below ground surface. NO REFUSAL		
10												
15												
20												
25												

Remarks:
 Offsets are from Existing CL of Roadway.

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS	Project: A portion of Route 100	Boring No.: HB-CLIN-102
	Location: Clinton and Burnham, Maine	WIN: 19151.00

Driller: MaineDOT	Elevation (ft.):	Auger ID/OD: 5" Dia.
Operator: Giguere/Giles	Datum: NAVD88	Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 11/28/11-11/28/11	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 256+40, 11.0 ft Rt	Casing ID/OD: N/	Water Level*: None Observed

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
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (ft.)	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						SSA	-0.38		4 1/2" PAVEMENT.		
							-1.00		Brown, damp, fine to coarse SAND, little gravel, little silt. \approx S1		
									Olive-brown, moist, fine sandy SILT, some clay. \approx S2		
							-4.00		Bottom of Exploration at 4.00 feet below ground surface. NO REFUSAL		
5											
10											
15											
20											
25											

Remarks:
 Offsets are from Existing CL of Roadway.

Driller: MaineDOT	Elevation (ft.):	Auger ID/OD: 5" Dia.
Operator: Giguere/Giles	Datum: NAVD88	Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 11/28/11-11/28/11	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 177+30, 11.0 ft Rt	Casing ID/OD: N/	Water Level*: None Observed

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
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (ft.)	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	S3		0.42 - 1.60			SSA	-0.42		5" PAVEMENT.	-0.42	G#261977 A-1-b, SW-SM WC=5.3% G#261978 A-6, CL WC=25.8%
	S4		1.60 - 4.00				-1.60		Black, damp, fine to coarse SAND, little silt, trace gravel.	-1.60	
							-4.00		Olive, wet, fine sandy SILT, little clay.	-4.00	
5									Bottom of Exploration at 4.00 feet below ground surface. NO REFUSAL		
10											
15											
20											
25											

Remarks:
 Offsets are from Existing CL of Roadway.

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS	Project: A portion of Route 100 Location: Clinton and Burnham, Maine	Boring No.: HB-CLIN-104 WIN: 19151.00
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Driller: MaineDOT	Elevation (ft.):	Auger ID/OD: 5" Dia.
Operator: Giguere/Giles	Datum: NAVD88	Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 11/28/11-11/28/11	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 127+70, 11.0 ft Rt	Casing ID/OD: N/	Water Level*: None Observed

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
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (ft.)	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						SSA	-0.33		4" PAVEMENT.	-0.33	
							-2.00		Black, damp, fine to coarse SAND, little silt, little gravel. ≈S3	-2.00	
							-4.00		Olive, wet, fine sandy SILT, little clay. ≈S4	-4.00	
5						↓			Bottom of Exploration at 4.00 feet below ground surface. NO REFUSAL		
10											
15											
20											
25											

Remarks:
 Offsets are from Existing CL of Roadway.

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS	Project: A portion of Route 100	Boring No.: HB-CLIN-105
	Location: Clinton and Burnham, Maine	WIN: 19151.00

Driller: MaineDOT	Elevation (ft.):	Auger ID/OD: 5" Dia.
Operator: Giguere/Giles	Datum: NAVD88	Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 11/28/11-11/28/11	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 90+99, 11.0 ft Rt	Casing ID/OD: N/A	Water Level*: None Observed

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
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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-value	Casing Blows						
0						SSA		-0.38		4 1/2" PAVEMENT.		
								-2.00		Black, damp, fine to coarse SAND, little silt, little gravel. ≈S3		
								-4.00		Olive, moist, fine sandy SILT, little clay. ≈S4		
5										Bottom of Exploration at 4.00 feet below ground surface. NO REFUSAL		
10												
15												
20												
25												

Remarks:
 Offsets are from Existing CL of Roadway.

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS	Project: A portion of Route 100 Location: Clinton and Burnham, Maine	Boring No.: HB-CLIN-106 WIN: 19151.00
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Driller: MaineDOT	Elevation (ft.):	Auger ID/OD: 5" Dia.
Operator: Giguere/Giles	Datum: NAVD88	Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 11/28/11-11/28/11	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 55+25, 11.0 ft Rt.	Casing ID/OD: N/A	Water Level*: None Observed

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
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (ft.)	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						SSA	-0.42		5" PAVEMENT. 7" CONCRETE. Brown, damp, gravelly, fine to coarse SAND, trace silt.	G#261979 A-1-b, SM WC=6.5%	
	S5		1.00 - 3.00			↓	-1.00		Bottom of Exploration at 3.00 feet below ground surface. NO REFUSAL		
5							-3.00				
10											
15											
20											
25											

Remarks:
 Offsets are from Existing CL of Roadway.
 Near waterline and overhead wires.

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS	Project: A portion of Route 100 Location: Clinton and Burnham, Maine	Boring No.: HB-CLIN-107 WIN: 19151.00
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Driller: MaineDOT	Elevation (ft.):	Auger ID/OD: 5" Dia.
Operator: Giguere/Giles	Datum: NAVD88	Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 11/28/11-11/28/11	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 30+00, 10.5 ft Rt.	Casing ID/OD: N/A	Water Level*: None Observed

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
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (ft.)	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						SSA	-0.38		4 1/2" PAVEMENT. Brown, damp, gravelly, fine to coarse SAND, trace silt ≈S5		
5						↓	-3.00		Bottom of Exploration at 3.00 feet below ground surface. NO REFUSAL		
10											
15											
20											
25											

Remarks:
 Offsets are from Existing CL of Roadway.