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Memorandum

To: Rhobe Moulton
From: Karen Gross
Date: 11/07/15
Subject: Series 100 Soils Report 2015-118
Ellsworth, Rt. 1A
WIN 19196.00

PROJECT INFORMATION

The subsurface investigations and laboratory testing have been completed for the reconstruction/rehabilitation of Route 1A in Ellsworth. The project begins 0.35 miles northerly of the intersection of Route 179 (North Street) and extends southerly 1.35 miles to the intersection of State Street and Oak Street (RLM 62.96 to 64.32). This section of Route 1A is on the National Highway System (NHS), is classified as a principal arterial, and is a Highway Corridor Priority 1. Reconstruction is proposed from the Union River Bridge to the intersection with Route 179, and rehabilitation from Route 179 to the project end. Route 179 will be realigned with Shore Road. Reconstruction of the pavement structure will include 21" of ABC-Type B base course aggregate, 4" of Plant Mixed Recycled Asphalt Pavement (PMRAP) over the aggregate, and a 5" HMA surface over the PMRAP. Rehabilitation will included boxing out the existing shoulders to improve drainage of the pavement structure, adding variable depth ABC-Type B base course aggregate over the existing roadway aggregate, with 4" of PMRAP over the base aggregate, and a 5" HMA surface over the PMRAP.

EXISTING INFORMATION

Existing information found for this section of Rt. 1A includes as-built plans from the original construction project in the 1930's, as-built plans from 2008 for a reconstruction project of the southerly section, a history of various overlay projects, pavement management data, the Maine Geological Survey information, and the NRCS Soil Survey information . A field reconnaissance was done at various times to access the existing pavement condition and verify as-built features.

As-Built Plans

Two previously built projects were located in the MaineDOT E-plans archives.

State Highway "H" – Project No. 103-F

This project was constructed in 1932 and in relation to the current project, is located entirely within the current project limits.

The as-built typical sections indicate that the road was constructed with 10' travel lanes and 3' gravel shoulders for the entire project length. The core of the road was constructed with 5" of crushed stone over 12" to 24" of base course gravel, and 3" bituminous macadam was placed on the surface. Shoulders were constructed with 10" of shoulder gravel over earth fill in fill



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sections, and over the natural soils in cut sections. The pavement structure in the travel lanes was constructed as a “bathtub” section.

These plans also indicate that rock was excavated for roadway construction between current design Stations 1294+00 to 1324+00, and 1354+00 to 1369+00. Exact locations are not identified on the as-built plans.

Project No. NH-8843(00)E

This project was constructed in 2008 and begins 190’ north of the entrance to Wood Mill Mall and the YMCA, and extends 1345’ (0.25 mi) to the south. The start station for this project corresponds to design station 1357+60 and ends at station 1362+50.

The typical sections for this project indicate that the road was constructed with variable width travel lanes, a center turn lane, and 5’ paved shoulders with curbing. The pavement structure was constructed with 8” of HMA over 22” of subbase aggregate. Underdrain was installed to drain the pavement structure.

Overlay History

Project records indicate that several overlays were done in various sections of Route 1A within this project limits. Records indicate light resurfacing/MST projects were done in 1987, 1996, and 2008.

Pavement Management Data

The following is a summary of the 2014 pavement management information that relates to pavement condition:

<u>Distress Data</u>	<u>2014 Data</u>
International Roughness Index (IRI)	180 to 195 in/mile
Pavement Condition Rating (PCR)	2.61 to 3.26
Right Rut Depth	0.4” to 0.6”

The IRI is a measure of ride quality and the lower the number, the better the feel of the ride. A new pavement typically has IRI values of 40 to 50 in/mile. The IRI values indicate that the ride quality of the road is fair to mediocre.

The PCR is a numerical measure of all the distresses (cracking and rutting) including extent and severity. The PCR scale ranges from 0 (poor) to 5 (excellent). PCR values between 2 and 4 indicate that the roadway is in fair condition.

Geology Information

The Maine Geological Survey Surficial Geology map for the Ellsworth Quadrangle indicates that the surficial soils are Till and Thin Drift. Till is a mix of many particle sizes ranging from the clay and silt to large boulders. It typically is predominately a mix of sand and silt with some gravel. Thin Drift typically overlies shallow bedrock and in this case, the maps indicate that Till is the deposit that overlies the shallow bedrock.

The Soil Survey for Hancock County (NRCS) indicates that the surficial soils predominately consist of silt and sand, with more clay size particle from Lakes Lane to the end of the project.



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These soil deposits are classified as SM, ML, and CL-ML under the USCS Classification System, and A-2-4, A-4, and A-6 under the AASHTO Classification system as per the soils Survey Engineering Properties information.

Reconnaissance

Current distresses as seen in field observations include transverse and block cracking throughout the project limits, and longitudinal cracking in the right wheel path at several locations. The transverse and block cracking are considered functional distresses (due to a harsh environment and aging), whereas the longitudinal cracking in the wheel path is due to structural issues. Rutting also observed in outer wheel path in both directions along with moderate to severe pavement edge deterioration. Rutting in the outside (right) wheel path along with pavement edge deterioration is a common distress caused by a lack of edge support associated with unpaved shoulders, but can also be due to structural deficiencies.

The existing shoulders are variable in width and are predominately a granular material, but some locations have widened and paved shoulders which appear to be for by-passing turning vehicles or turning into commercial entrances.

The section at the southerly end of the project has widened lanes (Western Ave. to the project end), paved shoulders, and curbing. Longitudinal cracks are visible and probably located at the old pavement/new pavement interface. No as built plans were located for the widening between Western Ave. and the 2008 reconstruction project (WIN 8843.00), so it is unknown how this section is constructed.

SUBSURFACE INVESTIGATIONS AND LAB TESTING INFORMATION

Subsurface information was collected at various locations along the roadway to determine the existing pavement structure material types, thicknesses, and quality. Information was collected from twenty one auger borings, two test pits, and four asphalt cores. Rod soundings were also completed to identify top of bedrock at ten proposed catch basin/drainage run locations. The following is a summary of the subsurface information collected. Full details and a boring summary table are attached at the end of this memo for your reference.

Existing HMA Thickness

The existing HMA thickness was determined from boring and asphalt core information. The base layer on the pavement cores collected at stations 1313+29 and 1331+26 consists of 2" to 3" of bituminous macadam. Macadam was also identified in a few of the borings. It is anticipated that macadam exists along the entire project length with the exception of the general vicinity of the Union River Bridge, and in the widened areas from Western Ave. to the project end. Various HMA layers can be seen on all cores and are most probably overlays done since the original construction where macadam was the surface course. The following is a summary of the HMA thickness:

<u>Collection Method</u>	<u>Thickness Range</u>	<u>Avg. Thickness</u>
Borings	6" - 10"	8"
Cores	6.75"- 10"	8.5"

Boring #	Station	Offset (ft)	HMA thickness (in)	Macadam (in)
HB-ELLS-101	1296+60	6R	8	
PC-4	1296+60	6L	9.5	
HB-ELLS-102	1301+15	6R	7	
HB-ELLS-103	1308+12	6R	6	
HB-ELLS-104	1313+29	6R	6	
HB-ELLS-121	1313+29	6L	6.5	2
PC-3	1313+29	6L	6.5	2
HB-ELLS-105	1320+50	6R	6.5	
HB-ELLS-120	1320+50	6L	8	
HB-ELLS-106	1325+50	6R	8	
HB-ELLS-119	1325+50	6L	7.5	
HB-ELLS-107	1331+26	6R	7.5	
HB-ELLS-118	1331+26	6L	8	2
PC-2	1331+26	6L	8	2
HB-EDB-101	1332+25	8.8 L	11	6" c.c.
HB-ELLS-108	1337+00	6R	7.5	
HB-ELLS-117	1337+00	6L	7.5	
HB-ELLS-109	1342+10	6R	7.5	
HB-ELLS-116	1342+10	6L	7.5	
HB-ELLS-110	1348+90	6R	7.5	
HB-ELLS-115	1348+90	6L	7	
HB-ELLS-111	1353+81	6R	7	
HB-ELLS-114	1353+81	6L	7	
HB-ELLS-112	1360+35	6R	6.75	
PC-1	1360+35	6R	6.75	
HB-ELLS-113	1360+35	6L	6.75	

The base layer on the pavement cores collected at stations 1313+29 and 1331+26 consists of 2” to 3” of bituminous macadam. Macadam was also identified in a few of the borings. It is anticipated that macadam exists along the entire project length with the exception of the general vicinity of the Union River Bridge, and in the widened areas from Western Ave. to the project end. Various HMA layers can be seen on all cores and are most probably overlays done since the original construction where macadam was the surface course.

Existing Roadway Aggregate

Boring information was used to determine the thickness of the existing aggregate in the travel lanes. The gradation and classification were determined from laboratory testing of samples collected in the borings and in test pits. The following is a summary of the existing aggregate information:



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Borings

Existing Aggregate Thickness:

19" – 48", Average = 30"

Existing Aggregate Type (from Boring samples):

SM, A-1-b, A-2-4, A-4

% Passing #200 Sieve:

17% - 40% (boring samples)

Test Pits

Existing Aggregate Thickness:

n/a

Existing Aggregate Type (from Test Pit samples):

GW, A-1-a

% Passing #200 Sieve:

2.6% - 2.7% (test pit samples)

Meets Maine DOT Specifications?:

Yes, ABC – Type B

Boring #	Station	Offset (ft)	Aggregate thickness (in)
HB-ELLS-101	1296+60	6R	48
HB-ELLS-102	1301+15	6R	22
HB-ELLS-103	1308+12	6R	29
HB-ELLS-104	1313+29	6R	34
HB-ELLS-121	1313+29	6L	30
HB-ELLS-105	1320+50	6R	29
HB-ELLS-120	1320+50	6L	27
HB-ELLS-106	1325+50	6R	22
HB-ELLS-119	1325+50	6L	26
HB-ELLS-107	1331+26	6R	31
HB-ELLS-118	1331+26	6L	31
HB-ELLS-108	1337+00	6R	19
HB-ELLS-117	1337+00	6L	32
HB-ELLS-109	1342+10	6R	31
HB-ELLS-116	1342+10	6L	32
HB-ELLS-110	1348+90	6R	34
HB-ELLS-115	1348+90	6L	29
HB-ELLS-111	1353+81	6R	28
HB-ELLS-114	1353+81	6L	29
HB-ELLS-112	1360+35	6R	48
HB-ELLS-113	1360+35	6L	41

Samples collected in the borings are small in size and therefore the gradation tends to be skewed towards the finer particle size. To get a better representation of the roadway aggregate gradation, test pit samples were collected at two locations; one representing the original core aggregate and one representing the aggregate where the roadway had been widened in the commercial area towards the end of the project. Samples tested from test pits generally a better representation of the particle size distribution since the sample size is much larger and the larger particle sizes are easily collected.

Test pit lab testing data indicates that the aggregate in the core of the roadway meets the requirements of Aggregate Base Course – Type B and the aggregate in the widened section meets the requirements of Aggregate Base Course – Type A (and therefore Type B).

As per the lab testing data, the roadway aggregate samples collected in the borings have a gradation that is very consistent from project start to end, so it is assumed that the gradation of the test pit aggregate is representative of the aggregate in the core of the roadway for the project length (including the existing widened area from Station 1348+00 to 1360+00).

Subgrade Soils

The subgrade is considered to be 30” below the pavement surface for this project. Borings indicate that the subgrade soil type is predominately a weathered marine CLAY-SILT with varying amounts of sand. This type of subgrade soil gains strength as it is drained, but can be very weak and prone to pumping if the asphalt wearing course is removed prior to installing drainage improvements and traffic is allowed to run on the gravel surface. Heavy trucks running on the gravel will typically do the most subgrade damage and it may result in permanent deformation of this type of subgrade soil that will need to be repaired.

Boring #	Station	Offset (ft)	Subgrade Soil type
HB-ELLS-101	1296+60	6R	Bedrock
HB-ELLS-102	1301+15	6R	Old Pvmt Layer (3.6")
HB-ELLS-103	1308+12	6R	weathered CLAY-SILT
HB-ELLS-104	1313+29	6R	sandy SILT
HB-ELLS-121	1313+29	6L	sandy SILT
HB-ELLS-105	1320+50	6R	SAND
HB-ELLS-120	1320+50	6L	weathered CLAY-SILT
HB-ELLS-106	1325+50	6R	weathered CLAY-SILT
HB-ELLS-119	1325+50	6L	weathered CLAY-SILT
HB-ELLS-107	1331+26	6R	weathered CLAY-SILT
HB-ELLS-118	1331+26	6L	weathered CLAY-SILT
HB-EDB-101	1332+25	8.8 L	fill
HB-ELLS-108	1337+00	6R	weathered CLAY-SILT
HB-ELLS-117	1337+00	6L	weathered CLAY-SILT
HB-ELLS-109	1342+10	6R	weathered CLAY-SILT
HB-ELLS-116	1342+10	6L	weathered CLAY-SILT
HB-ELLS-110	1348+90	6R	weathered CLAY-SILT
HB-ELLS-115	1348+90	6L	SAND
HB-ELLS-111	1353+81	6R	weathered CLAY-SILT
HB-ELLS-114	1353+81	6L	weathered CLAY-SILT
HB-ELLS-112	1360+35	6R	Bedrock
HB-ELLS-113	1360+35	6L	SAND

Existing Shoulder Aggregate

Boring information could not be collected in the shoulders due to the presence of underground utilities. It is assumed the shoulders no longer reflect the original construction of the roadway



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because of the existence of utility trenches and unknown fill materials used in utility trenches. There is no information indicating the shoulders were rebased since the original roadway construction.

Wet Soils

Wet pavement structure soils can indicate a high groundwater table or poor drainage properties of the roadway aggregate. No wet soils were encountered in the roadway borings in the existing aggregate or subgrade soils. Please note that groundwater levels can vary seasonally or with precipitation, so groundwater levels may be different during construction than at the time of drilling.

Shallow Bedrock

Refusal depths of less than 10' were encountered in borings and rod soundings at the following locations:

Station	Offset (ft)	Refusal Depth (ft)
1296+60	6' R	4.7'
1301+57	25' L	8.1'
1306+25	18' L	9.0'
1309+25	30' L	8.5'
1360+35	6' R	4.6'

It was not confirmed during drilling if these refusals are bedrock or large boulders. The Surficial Geology map for the Ellsworth Quadrangle indicates that shallow bedrock can exist along most of the project length except in the general vicinity of Davis Brook to Western Avenue (Station 1332+00 to 1340+00 approximately).

I have attached all information that I used for this report for your reference. Please let me know if I can provide you with any addition information or if you have any questions.

Attachments

Location Map

Boring Summary

Boring Logs

Lab Test Data

Asphalt Core Photo's

Pavement Management Data

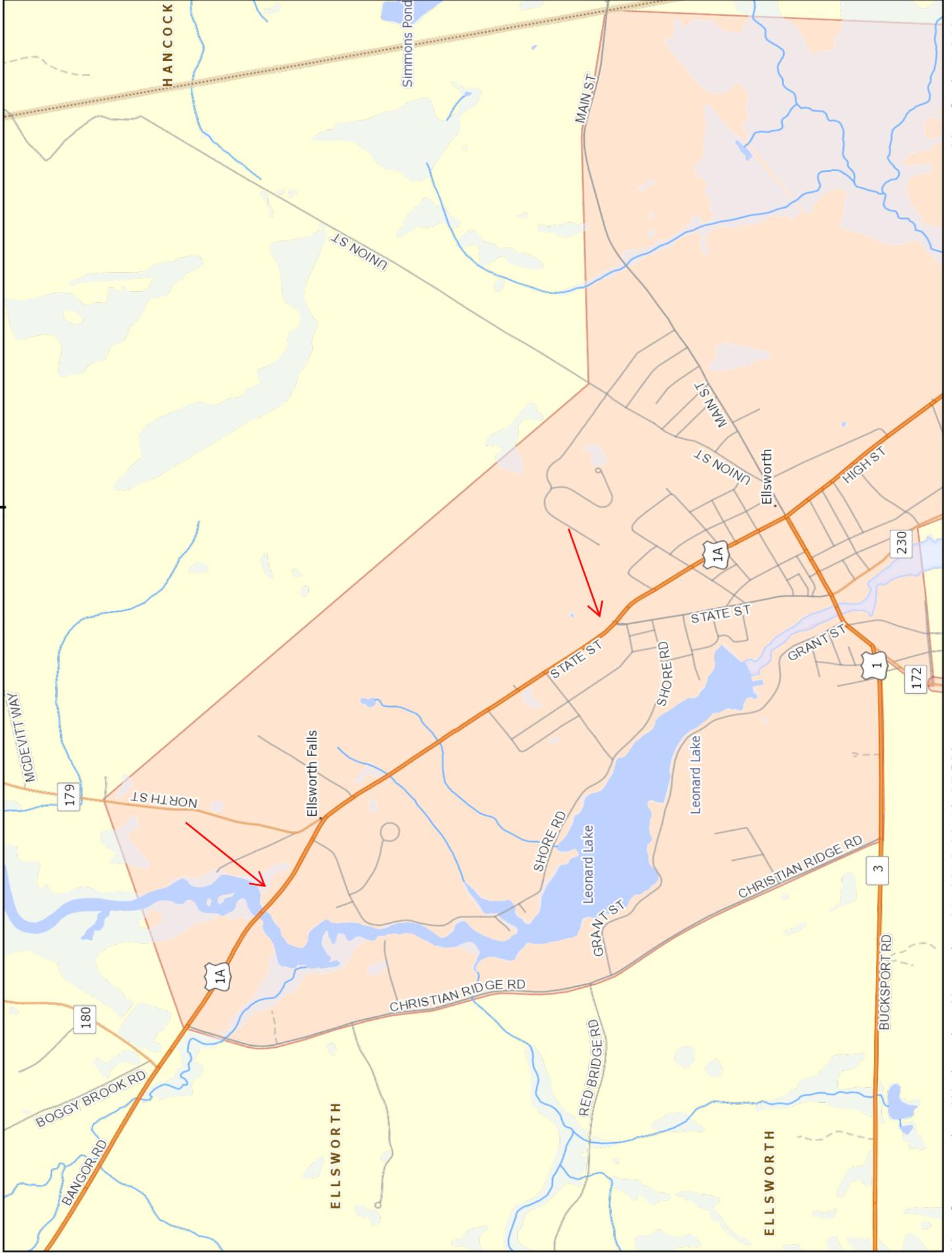
Surficial Geology Map

Soil Conservation Survey Information

As-Built Title and Typical Sheets

GEOPLANS

Maine DOT Map



Ellsworth, WIN 19196.00

Scope	Boring #	Station	Offset (ft)	Drilling Depth (ft)	Refusal Depth (ft)	Depth to H2O (ft)	HMA thickness (in)	Macadam (in)	Aggregate thickness (in)	Total Pavement thickness (in)	Aggregate % passing #200	Subgrade Soil type
Rehab	HB-ELLS-101	1296+60	6R	4.7	4.7		8		48	56	16.4	Bedrock
	PC-4	1296+60	6L				9.5					
	Sounding	1299+99	23R		NR to 10'							
	HB-ELLS-102	1301+15	6R	5			7		22	29	19.5	Old Pvmt Layer (3.6")
Reconstruction	Sounding	1301+57	25L		8.1							
	Sounding	1301+79	18L		NR to 10'							
	Sounding	1302+40	25L		NR to 10'							
	Sounding	1306+25	18L		9							
	Sounding	1307+44	35L		NR to 10'							
	HB-ELLS-103	1308+12	6R	5			6		29	35		weathered CLAY-SILT
Sounding	1309+25	30L		8.5								
Rehabilitation	Sounding	1312+41	62L		NR to 10'							
	Sounding	1312+50	15L		NR to 10'							
	Sounding	1313+15	33L		NR to 10'							
	HB-ELLS-104	1313+29	6R	5			6		34	40		sandy SILT
	HB-ELLS-121	1313+29	6L	5			6.5	2	30	38		sandy SILT
	PC-3	1313+29	6L				6.5	2				
	HB-ELLS-105	1320+50	6R	5			6.5		29	36	20.3	SAND
	HB-ELLS-120	1320+50	6L	5			8		27	35		weathered CLAY-SILT
	HB-ELLS-106	1325+50	6R	5			8		22	30	18	weathered CLAY-SILT
HB-ELLS-119	1325+50	6L	5			7.5		26	34		weathered CLAY-SILT	
Reconstruction	TP-3	1328+50	6L								2.6	
	HB-ELLS-107	1331+26	6R	5			7.5		31	38		weathered CLAY-SILT
	HB-ELLS-118	1331+26	6L	5			8	2	31	41		weathered CLAY-SILT
	PC-2	1331+26	6L				8	2				
	HB-EDB-101	1332+25	8.8 L	18		3.5	11	6" c.c.	??			fill
	HB-ELLS-108	1337+00	6R	5			7.5		19	26	21.6	weathered CLAY-SILT
HB-ELLS-117	1337+00	6L	5			7.5		32	40		weathered CLAY-SILT	
Rehabilitation	HB-ELLS-109	1342+10	6R	5			7.5		31	38	40.3	weathered CLAY-SILT
	HB-ELLS-116	1342+10	6L	5			7.5		32	40		weathered CLAY-SILT
	HB-ELLS-110	1348+90	6R	5			7.5		34	42	26.9	weathered CLAY-SILT
	HB-ELLS-115	1348+90	6L	5			7		29	36		SAND
	TP-5	1350+80	12R								2.7	
	HB-ELLS-111	1353+81	6R	5			7		28	35	19.9	weathered CLAY-SILT
	HB-ELLS-114	1353+81	6L	5			7		29	36		weathered CLAY-SILT
Overlay	HB-ELLS-112	1360+35	6R	4.6	4.6		6.75		48	55		Bedrock
	PC-1	1360+35	6R				6.75					
	HB-ELLS-113	1360+35	6L	5.5			6.75		41	48	17.3	SAND

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS		Project: A 1.36 mile portion of Route 1A	Boring No.: HB-ELLS-101
		Location: Ellsworth, Maine	WIN: 19196.00
Driller: MaineDOT	Elevation (ft.)		Auger ID/OD: 5" Dia.
Operator: Giles/Daggett	Datum: NAVD88		Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C		Hammer Wt./Fall: N/A
Date Start/Finish: 10/17/2013-10/17/2013	Drilling Method: Solid Stem Auger		Core Barrel: N/A
Boring Location: 1296+60, 6.0 ft Rt.	Casing ID/OD: N/A		Water Level*: None Observed
Definitions: D = Split Spoon Sample S = Sample off Auger Flight 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	

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		0.67 - 4.70			SSA		-0.67		8" PAVEMENT.		
										Brown, dry, fine to coarse SAND, some garvel, little silt, (Fill).	G#266848 A-1-b, SM WC=2.8%	
5								-4.70		Bottom of Exploration at 4.70 feet below ground surface. REFUSAL		
10												
15												
20												
25												

Remarks:

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS		Project: A 1.36 mile portion of Route 1A	Boring No.: HB-ELLS-102
		Location: Ellsworth, Maine	WIN: 19196.00
Driller: MaineDOT	Elevation (ft.)		Auger ID/OD: 5" Dia.
Operator: Giles/Daggett	Datum: NAVD88		Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C		Hammer Wt./Fall: N/A
Date Start/Finish: 10/17/2013-10/17/2013	Drilling Method: Solid Stem Auger		Core Barrel: N/A
Boring Location: 1301+15, 6.0 ft Rt.	Casing ID/OD: N/A		Water Level*: None Observed
Definitions: D = Split Spoon Sample S = Sample off Auger Flight 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	

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	S2		0.58 - 2.40			SSA		-0.58		7" PAVEMENT. Brown, dry, fine to coarse SAND, some gravel, little silt.	G#266849 A-1-b, SM WC=2.4%	
								-2.40		3.6" Old PAVEMENT.		
								-2.70		Brown, damp, fine to coarse SAND, some gravel, trace silt.		
								-3.50		Olive, damp, fine to medium sandy-SILT, trace gravel.		
5								-5.00		Bottom of Exploration at 5.00 feet below ground surface. NO REFUSAL		
10												
15												
20												
25												

Remarks:

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS		Project: A 1.36 mile portion of Route 1A	Boring No.: HB-ELLS-103
		Location: Ellsworth, Maine	WIN: 19196.00
Driller: MaineDOT	Elevation (ft.)		Auger ID/OD: 5" Dia.
Operator: Giles/Daggett	Datum: NAVD88		Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C		Hammer Wt./Fall: N/A
Date Start/Finish: 10/17/2013-10/17/2013	Drilling Method: Solid Stem Auger		Core Barrel: N/A
Boring Location: 1308+12, 6.0 ft Rt.	Casing ID/OD: N/A		Water Level*: None Observed
Definitions: D = Split Spoon Sample S = Sample off Auger Flight 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 ≈ = Similar or Equal too LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test	

Depth (ft.)	Sample Information								Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows						
0						SSA		-0.50		6" PAVEMENT.		
										Brown, dry, fine to coarse SAND, some gravel, trace silt. ≈S2		
	S3		2.90 - 5.00					-2.90		Olive-brown, moist, Clayey-SILT, trace fine sand.		
5								-5.00		Bottom of Exploration at 5.00 feet below ground surface. NO REFUSAL		
10												
15												
20												
25												

Remarks:

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS		Project: A 1.36 mile portion of Route 1A	Boring No.: HB-ELLS-105
		Location: Ellsworth, Maine	WIN: 19196.00
Driller: MaineDOT	Elevation (ft.)		Auger ID/OD: 5" Dia.
Operator: Giles/Daggett	Datum: NAVD88		Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C		Hammer Wt./Fall: N/A
Date Start/Finish: 10/17/2013-10/17/2013	Drilling Method: Solid Stem Auger		Core Barrel: N/A
Boring Location: 1320+50, 6.0 ft Rt.	Casing ID/OD: N/A		Water Level*: None Observed
Definitions: D = Split Spoon Sample S = Sample off Auger Flight 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	

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	S4		0.55 - 3.00			SSA		-0.55		6 1/2" PAVEMENT. Brown, dry, fine to coarse SAND, some gravel, little silt.	G#266850 A-1-b, SM WC=2.4%	
								-3.00		Grey, damp, silty, fine to medium SAND, little gravel.		
5								-5.00		Bottom of Exploration at 5.00 feet below ground surface. NO REFUSAL		
10												
15												
20												
25												

Remarks:

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS		Project: A 1.36 mile portion of Route 1A	Boring No.: HB-ELLS-106
		Location: Ellsworth, Maine	WIN: 19196.00
Driller: MaineDOT	Elevation (ft.)		Auger ID/OD: 5" Dia.
Operator: Giles/Daggett	Datum: NAVD88		Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C		Hammer Wt./Fall: N/A
Date Start/Finish: 10/17/2013-10/17/2013	Drilling Method: Solid Stem Auger		Core Barrel: N/A
Boring Location: 1325+50, 6.0 ft Rt.	Casing ID/OD: N/A		Water Level*: None Observed
Definitions: D = Split Spoon Sample S = Sample off Auger Flight 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	

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	S5		0.67 - 2.50			SSA			-0.67	8" PAVEMENT.		
									-2.50	Brown, dry, fine to coarse SAND, some gravel, little silt.	G#266576 A-1-b, SM WC=2.3%	
									-5.00	Olive-brown, damp, Clayey-SILT, trace fine sand.		
5									-5.00	Bottom of Exploration at 5.00 feet below ground surface. NO REFUSAL		
10												
15												
20												
25												

Remarks:

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS		Project: A 1.36 mile portion of Route 1A	Boring No.: HB-ELLS-108
		Location: Ellsworth, Maine	WIN: 19196.00
Driller: MaineDOT	Elevation (ft.)		Auger ID/OD: 5" Dia.
Operator: Giles/Daggett	Datum: NAVD88		Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C		Hammer Wt./Fall: N/A
Date Start/Finish: 10/17/2013-10/17/2013	Drilling Method: Solid Stem Auger		Core Barrel: N/A
Boring Location: 1337+00, 6.0 ft Rt.	Casing ID/OD: N/A		Water Level*: None Observed
Definitions: D = Split Spoon Sample S = Sample off Auger Flight 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	

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	S6		0.63 - 2.20			SSA			-0.63	7½" PAVEMENT.		
									-2.20	Brown, dry, fine to coarse SAND, some gravel, some silt.	G#266577 A-1-b, SM WC=2.7%	
									-5.00	Olive-brown, damp, Clayey-SILT, trace fine sand.		
5									-5.00	Bottom of Exploration at 5.00 feet below ground surface. NO REFUSAL		
10												
15												
20												
25												

Remarks:

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS		Project: A 1.36 mile portion of Route 1A	Boring No.: HB-ELLS-109
		Location: Ellsworth, Maine	WIN: 19196.00
Driller: MaineDOT	Elevation (ft.)		Auger ID/OD: 5" Dia.
Operator: Giles/Daggett	Datum: NAVD88		Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C		Hammer Wt./Fall: N/A
Date Start/Finish: 10/17/2013-10/17/2013	Drilling Method: Solid Stem Auger		Core Barrel: N/A
Boring Location: 1342+10, 6.0 ft Rt.	Casing ID/OD: N/A		Water Level*: None Observed
Definitions: D = Split Spoon Sample S = Sample off Auger Flight 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 ≈ = Similar or Equal too LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test	

Depth (ft.)	Sample Information								Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows						
0	S7		0.63 - 3.20			SSA			-0.63		7½" PAVEMENT. Brown, dry, silty SAND, little gravel.	G#266578 A-4, SM WC=6.8%
								-3.20	Olive-brown, damp, Clayey-SILT, trace fine sand.			
5								-5.00	Bottom of Exploration at 5.00 feet below ground surface. NO REFUSAL			
10												
15												
20												
25												

Remarks:

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS		Project: A 1.36 mile portion of Route 1A	Boring No.: HB-ELLS-110
		Location: Ellsworth, Maine	WIN: 19196.00
Driller: MaineDOT	Elevation (ft.):	Auger ID/OD: 5" Dia.	
Operator: Giles/Daggett	Datum: NAVD88	Sampler: Off Flights	
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: N/A	
Date Start/Finish: 10/17/2013-10/17/2013	Drilling Method: Solid Stem Auger	Core Barrel: N/A	
Boring Location: 1348+90, 6.0 ft Rt.	Casing ID/OD: N/A	Water Level*: None Observed	
Definitions: D = Split Spoon Sample S = Sample off Auger Flight 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	

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	S8		0.63 - 3.50			SSA		-0.63		7½" PAVEMENT. Brown, dry, fine to coarse SAND, some silt, little gravel.	G#266579 A-2-4, SM WC=3.3%	
								-3.50		Olive-brown, damp, Clayey-SILT, trace fine sand.		
5								-5.00		Bottom of Exploration at 5.00 feet below ground surface. NO REFUSAL		
10												
15												
20												
25												

Remarks:

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS		Project: A 1.36 mile portion of Route 1A	Boring No.: HB-ELLS-111
		Location: Ellsworth, Maine	WIN: 19196.00
Driller: MaineDOT	Elevation (ft.)		Auger ID/OD: 5" Dia.
Operator: Giles/Daggett	Datum: NAVD88		Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C		Hammer Wt./Fall: N/A
Date Start/Finish: 10/17/2013-10/17/2013	Drilling Method: Solid Stem Auger		Core Barrel: N/A
Boring Location: 1353+81, 6.0 ft Rt.	Casing ID/OD: N/A		Water Level*: None Observed
Definitions: D = Split Spoon Sample S = Sample off Auger Flight 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 ≈ = Similar or Equal too LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test	

Depth (ft.)	Sample Information								Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows						
0	S9		0.58 - 2.90			SSA			-0.58	7" PAVEMENT.		
										Brown, dry, fine to coarse SAND, some gravel, little silt.	-0.58	G#266581 A-1-b, SM WC=2.2%
									-2.90	Olive-brown, moist, Clayey-SILT, trace fine sand.	-2.90	
5									-5.00	Bottom of Exploration at 5.00 feet below ground surface. NO REFUSAL	-5.00	
10												
15												
20												
25												

Remarks:

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS		Project: A 1.36 mile portion of Route 1A	Boring No.: HB-ELLS-112
		Location: Ellsworth, Maine	WIN: 19196.00
Driller: MaineDOT	Elevation (ft.):	Auger ID/OD: 5" Dia.	
Operator: Giles/Daggett	Datum: NAVD88	Sampler: Off Flights	
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: N/A	
Date Start/Finish: 10/17/2013-10/17/2013	Drilling Method: Solid Stem Auger	Core Barrel: N/A	
Boring Location: 1360+35, 6.0 ft Rt.	Casing ID/OD: N/A	Water Level*: None Observed	
Definitions: D = Split Spoon Sample S = Sample off Auger Flight 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 ≈ = Similar or Equal too LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test	

Depth (ft.)	Sample Information								Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows						
0	PC-1		0.00 - 0.56			SSA		-0.56		6 3/4" PAVEMENT, core taken. Brown, dry, fine to coarse SAND, some gravel, little silt. ≈S9		
5								-4.60		Bottom of Exploration at 4.60 feet below ground surface. REFUSAL		
10												
15												
20												
25												

Remarks:

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS		Project: A 1.36 mile portion of Route 1A	Boring No.: HB-ELLS-113
		Location: Ellsworth, Maine	WIN: 19196.00
Driller: MaineDOT	Elevation (ft.)		Auger ID/OD: 5" Dia.
Operator: Giles/Daggett	Datum: NAVD88		Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C		Hammer Wt./Fall: N/A
Date Start/Finish: 10/17/2013-10/17/2013	Drilling Method: Solid Stem Auger		Core Barrel: N/A
Boring Location: 1360+35, 6.0 ft Lt.	Casing ID/OD: N/A		Water Level*: None Observed
Definitions: D = Split Spoon Sample S = Sample off Auger Flight 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 ≈ = Similar or Equal too LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test	

Depth (ft.)	Sample Information								Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows						
0	S10		0.56 - 4.00			SSA		-0.56		6 3/4" PAVEMENT. Brown, dry, gravelly SAND, little silt.	G#266582 A-1-b, SM WC=2.4%	
5	S11		4.00 - 5.50					-4.00		Brown, dry, gravelly, fine to coarse SAND, some silt.		
								-5.50		Bottom of Exploration at 5.50 feet below ground surface. NO REFUSAL		

Remarks:

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS		Project: A 1.36 mile portion of Route 1A	Boring No.: HB-ELLS-114
		Location: Ellsworth, Maine	WIN: 19196.00
Driller: MaineDOT	Elevation (ft.)		Auger ID/OD: 5" Dia.
Operator: Giles/Daggett	Datum: NAVD88		Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C		Hammer Wt./Fall: N/A
Date Start/Finish: 10/17/2013-10/17/2013	Drilling Method: Solid Stem Auger		Core Barrel: N/A
Boring Location: 1353+81, 6.0 ft Lt.	Casing ID/OD: N/A		Water Level*: None Observed
Definitions: D = Split Spoon Sample S = Sample off Auger Flight 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 ≈ = Similar or Equal too LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test	

Depth (ft.)	Sample Information								Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows						
0						SSA			-0.58	7" PAVEMENT.		
										Brown, dry, fine to coarse SAND, some gravel, little silt. ≈S10	-0.58	
	S12		3.00 - 5.00						-3.00	Olive-brown, damp, Clayey-SILT, trace fine sand.	-3.00	
5									-5.00	Bottom of Exploration at 5.00 feet below ground surface. NO REFUSAL	-5.00	
10												
15												
20												
25												

Remarks:

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS		Project: A 1.36 mile portion of Route 1A	Boring No.: HB-ELLS-115
		Location: Ellsworth, Maine	WIN: 19196.00
Driller: MaineDOT	Elevation (ft.)		Auger ID/OD: 5" Dia.
Operator: Giles/Daggett	Datum: NAVD88		Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C		Hammer Wt./Fall: N/A
Date Start/Finish: 10/18/2013-10/18/2013	Drilling Method: Solid Stem Auger		Core Barrel: N/A
Boring Location: 1348+90, 6.0 ft Lt.	Casing ID/OD: N/A		Water Level*: None Observed
Definitions: D = Split Spoon Sample S = Sample off Auger Flight 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 ≈ = Similar or Equal too LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test	

Depth (ft.)	Sample Information								Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows						
0						SSA			-0.58	7" PAVEMENT.		
										Brown, dry, fine to coarse SAND, some gravel, little silt. ≈S8	-0.58	
	S13		3.00 - 5.00						-3.00	Olive-grey, damp, silty, fine to coarse SAND, some gravel.	-3.00	
5									-5.00	Bottom of Exploration at 5.00 feet below ground surface. NO REFUSAL	-5.00	
10												
15												
20												
25												

Remarks:

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS		Project: A 1.36 mile portion of Route 1A	Boring No.: HB-ELLS-116
		Location: Ellsworth, Maine	WIN: 19196.00
Driller: MaineDOT	Elevation (ft.)		Auger ID/OD: 5" Dia.
Operator: Giles/Daggett	Datum: NAVD88		Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C		Hammer Wt./Fall: N/A
Date Start/Finish: 10/18/2013-10/18/2013	Drilling Method: Solid Stem Auger		Core Barrel: N/A
Boring Location: 1342+10, 6.0 ft Lt.	Casing ID/OD: N/A		Water Level*: None Observed
Definitions: D = Split Spoon Sample S = Sample off Auger Flight 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 ≈ = Similar or Equal too LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test	

Depth (ft.)	Sample Information								Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows						
0						SSA			-0.63	7½" PAVEMENT.		
										Brown, dry, fine to coarse SAND, some gravel, little silt. ≈S7	0.63	
	S14		3.30 - 5.00						-3.30	Olive-brown, damp, Clayey-SILT, trace fine sand.	3.30	
5									-5.00	Bottom of Exploration at 5.00 feet below ground surface. NO REFUSAL	5.00	
10												
15												
20												
25												

Remarks:

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS		Project: A 1.36 mile portion of Route 1A	Boring No.: HB-ELLS-119
		Location: Ellsworth, Maine	WIN: 19196.00
Driller: MaineDOT	Elevation (ft.)		Auger ID/OD: 5" Dia.
Operator: Giles/Daggett	Datum: NAVD88		Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C		Hammer Wt./Fall: N/A
Date Start/Finish: 10/18/2013-10/18/2013	Drilling Method: Solid Stem Auger		Core Barrel: N/A
Boring Location: 1325+50, 6.0 ft Lt.	Casing ID/OD: N/A		Water Level*: None Observed
Definitions: D = Split Spoon Sample S = Sample off Auger Flight 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	

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			-0.63	7½" PAVEMENT.		
										Brown, dry, fine to coarse SAND, some gravel, little silt. ≈S5	0.63	
	S16		2.80 - 5.00						-2.80	Olive-brown, moist, Clayey-SILT, trace fine sand.	2.80	
5									-5.00	Bottom of Exploration at 5.00 feet below ground surface. NO REFUSAL	5.00	
10												
15												
20												
25												

Remarks:

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS		Project: A 1.36 mile portion of Route 1A	Boring No.: HB-ELLS-120
		Location: Ellsworth, Maine	WIN: 19196.00
Driller: MaineDOT	Elevation (ft.)		Auger ID/OD: 5" Dia.
Operator: Giles/Daggett	Datum: NAVD88		Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C		Hammer Wt./Fall: N/A
Date Start/Finish: 10/18/2013-10/18/2013	Drilling Method: Solid Stem Auger		Core Barrel: N/A
Boring Location: 1320+50, 6.0 ft Lt.	Casing ID/OD: N/A		Water Level*: None Observed
Definitions: D = Split Spoon Sample S = Sample off Auger Flight 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 ≈ = Similar or Equal too LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test	

Depth (ft.)	Sample Information								Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows						
0						SSA			-0.63	8" PAVEMENT.		
										Brown, dry, fine to coarse SAND, some gravel, little silt. ≈S4	0.63	
									-2.90	Olive-grey, moist, Clayey-SILT, trace fine sand. ≈S15	2.90	
5									-5.00	Bottom of Exploration at 5.00 feet below ground surface. NO REFUSAL	5.00	
10												
15												
20												
25												

Remarks:

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS		Project: A 1.36 mile portion of Route 1A	Boring No.: PC-4
		Location: Ellsworth, Maine	WIN: 19196.00
Driller: MaineDOT	Elevation (ft.)		Auger ID/OD: 5" Dia.
Operator: Giles/Daggett	Datum: NAVD88		Sampler: Off Flights
Logged By: B. Wilder	Rig Type: CME 45C		Hammer Wt./Fall: N/A
Date Start/Finish: 10/18/2013-10/18/2013	Drilling Method: Solid Stem Auger		Core Barrel: N/A
Boring Location: 1296+60, 6.0 ft Lt.	Casing ID/OD: N/A		Water Level*: None Observed
Definitions: D = Split Spoon Sample S = Sample off Auger Flight 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 ≈ = Similar or Equal too LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test	

Depth (ft.)	Sample Information								Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows						
0	PC-4		0.00 - 0.79			CORE		-0.79		9½ PAVEMENT, core taken.		
										Bottom of Exploration at 0.79 feet below ground surface.		
5												
10												
15												
20												
25												

Remarks:

Driller: New England Boring	Elevation (ft.): 118.0	Auger ID/OD: 5" Solid Stem
Operator: J. Rudnicki/Maynard	Datum: NAVD88	Sampler: Standard Split Spoon
Logged By: Schonewald	Rig Type: Mobile Drill B-47 Trailer	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 12/8/2014; 11:30-14:45	Drilling Method: Cased Wash Boring	Core Barrel: NQ-2"
Boring Location: 1332+25, 8.8 ft Lt.	Casing ID/OD: NW	Water Level*: 3.5 ft bgs. (open, before wash)
Hammer Efficiency Factor: 0.6	Hammer Type: Automatic <input type="checkbox"/> Hydraulic <input type="checkbox"/> Rope & Cathead <input checked="" type="checkbox"/>	

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Insitu Vane Shear Test attempt

R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR/C = weight of rods or casing
WO1P = Weight of one person

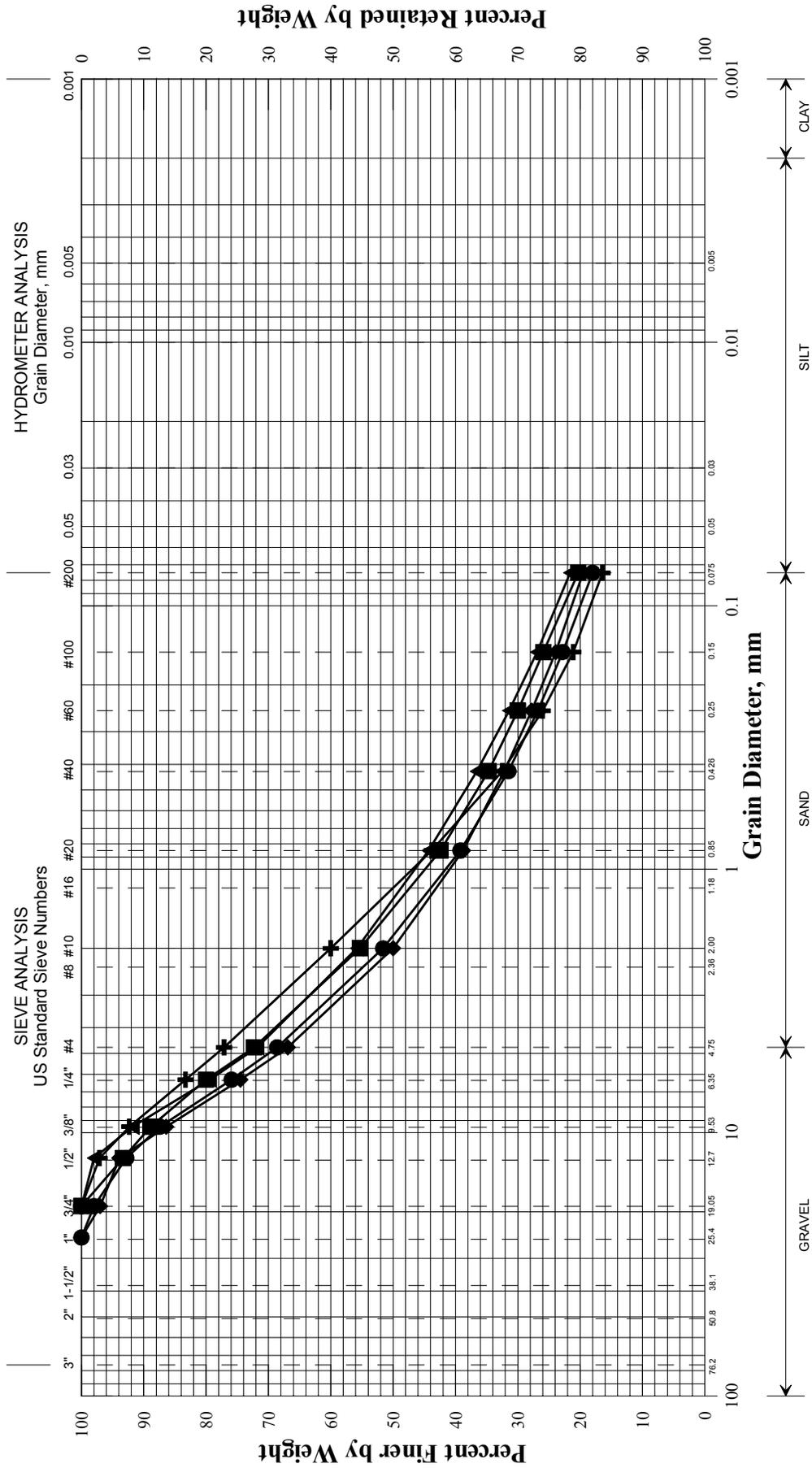
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_u = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N₆₀ = SPT N-uncorrected corrected for hammer efficiency
N₆₀ = (Hammer Efficiency Factor/60%)*N-uncorrected

S_{u(lab)} = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information								Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N ₆₀	Casing Blows					
0									SSA	117.10	11" HMA.	
										116.60	6" CONCRETE.	
5	1D	24/4	5.00 - 7.00	11/14/14/26	28	28					1D: Grey-brown, wet, medium dense, GRAVEL, some fine to coarse sand, little silt, (Fill).	
	R1	33.6/25	8.20 - 11.00						NQ-2		Possible top of Rock at 8.0 ft. bgs. Auger Refusal and NW Casing Refusal. R1: Boulder. Broke through Boulder at approx. 9.3 ft bgs into Fill.	
10												
	2D	24/7	11.00 - 13.00	13/21/20/14	41	41					2D: Grey-brown, wet, dense, fine sandy GRAVEL, some silt, trace medium to coarse sand, with minor wood; appears reworked, (Fill).	
15										103.00	Color change, difficult drilling, but less boney.	
	3D	24/12	16.00 - 18.00	24/32/71/24	103	103					3D: Grey-brown, wet, very dense, gravelly fine SAND, little silt, trace medium to coarse sand, (Till).	
20										100.00	Bottom of Exploration at 18.00 feet below ground surface. NO REFUSAL	
25												

Remarks:
Offsets from Existing Roadway Centerline.
Bottom of boring approximately 7.5 feet below proposed box culvert invert, which is at approximate elevation 107.5 feet at the boring location.

State of Maine Department of Transportation
GRAIN SIZE DISTRIBUTION CURVE

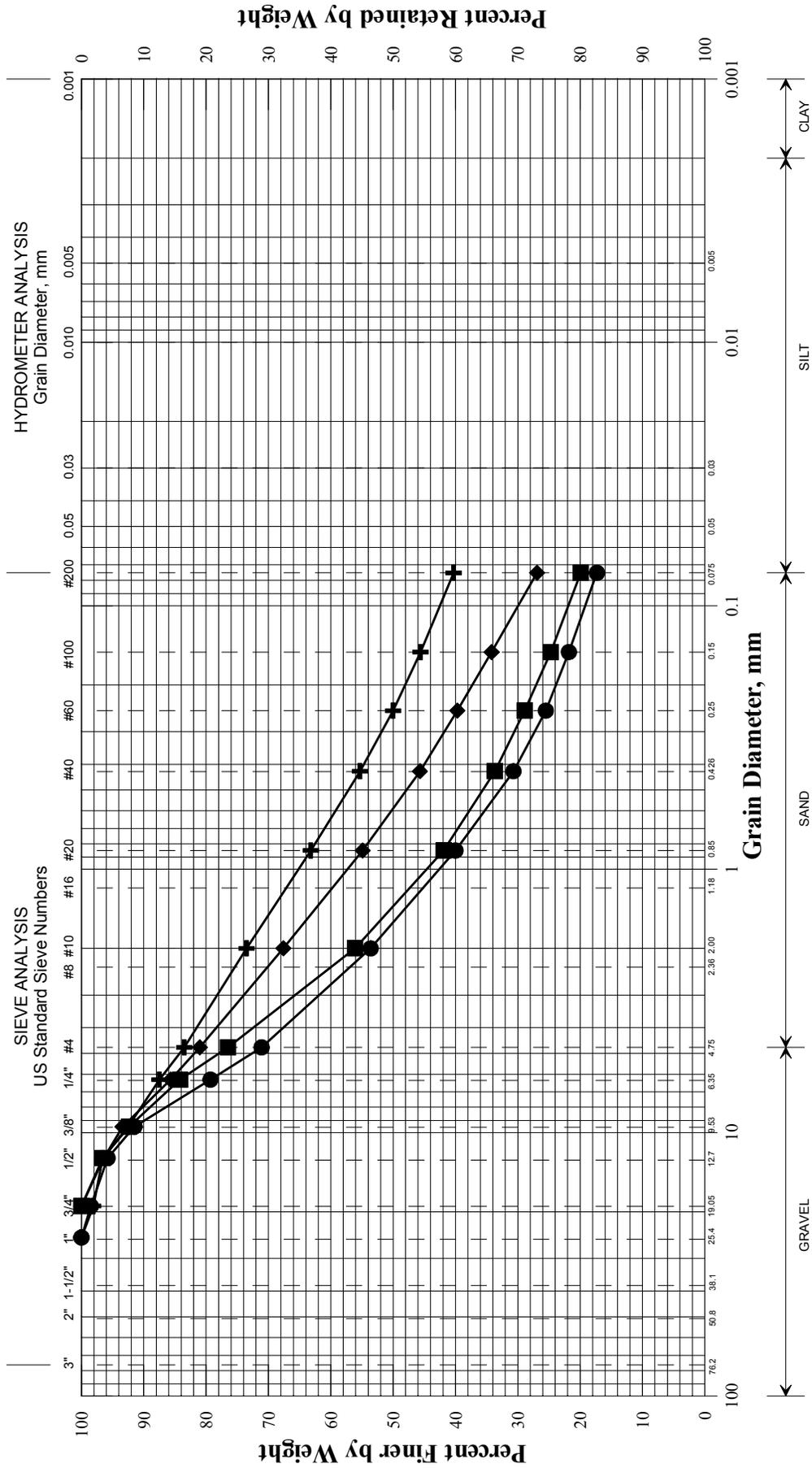


UNIFIED CLASSIFICATION

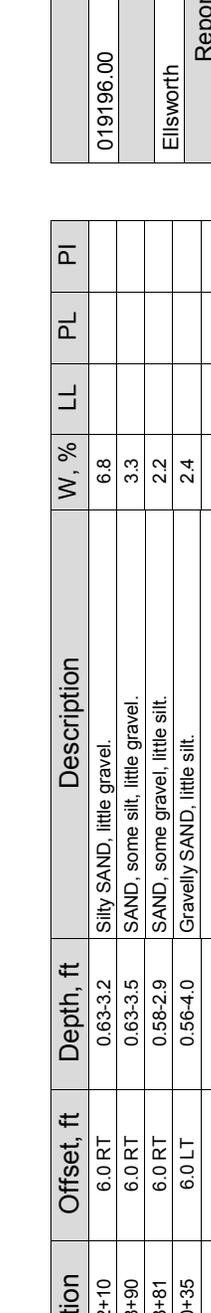
Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI
+	1296+60	6.0 RT	0.67-4.7	SAND, some gravel, little silt.	2.8			
◆	1301+15	6 RT	0.58-2.4	SAND, some gravel, little silt.	2.4			
■	1320+50	6.0 RT	0.55-3.0	SAND, some gravel, little silt.	2.4			
●	1325+60	6.0 RT	0.67-2.5	SAND, some gravel, little silt.	2.3			
▲	1337+00	6.0 RT	0.63-2.2	SAND, some gravel, some silt.	2.7			
×								

WIN	019196.00
Town	Ellsworth
Reported by/Date	WHITE, TERRY A 10/30/2013

State of Maine Department of Transportation
GRAIN SIZE DISTRIBUTION CURVE



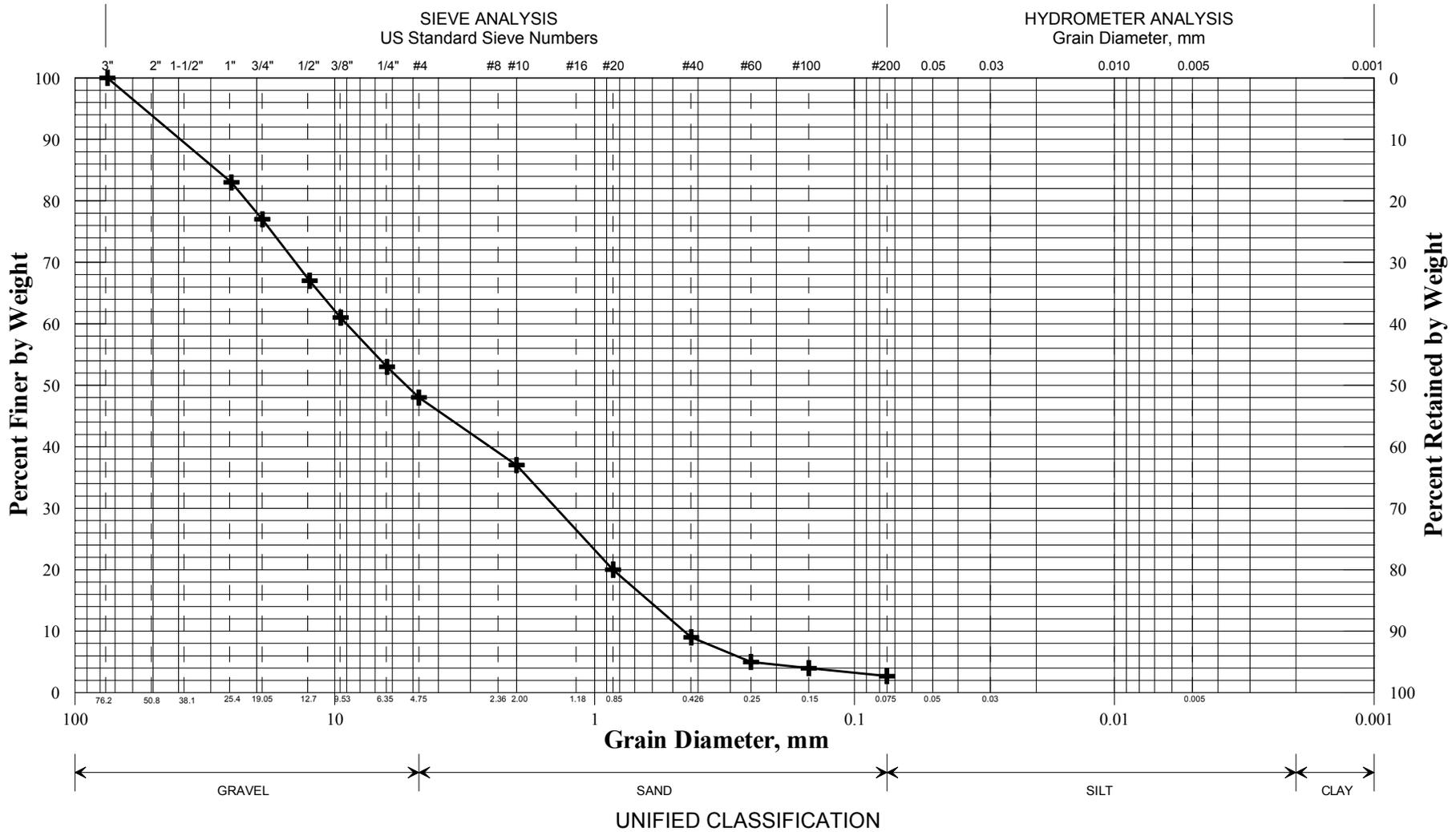
UNIFIED CLASSIFICATION



Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI
+	1342+10	6.0 RT	0.63-3.2	Silty SAND, little gravel.	6.8			
◆	1348+90	6.0 RT	0.63-3.5	SAND, some silt, little gravel.	3.3			
■	1353+81	6.0 RT	0.58-2.9	SAND, some gravel, little silt.	2.2			
●	1350+35	6.0 LT	0.56-4.0	Gravelly SAND, little silt.	2.4			
▲								
×								

WIN	019196.00
Town	Ellsworth
Reported by/Date	WHITE, TERRY A 10/30/2013

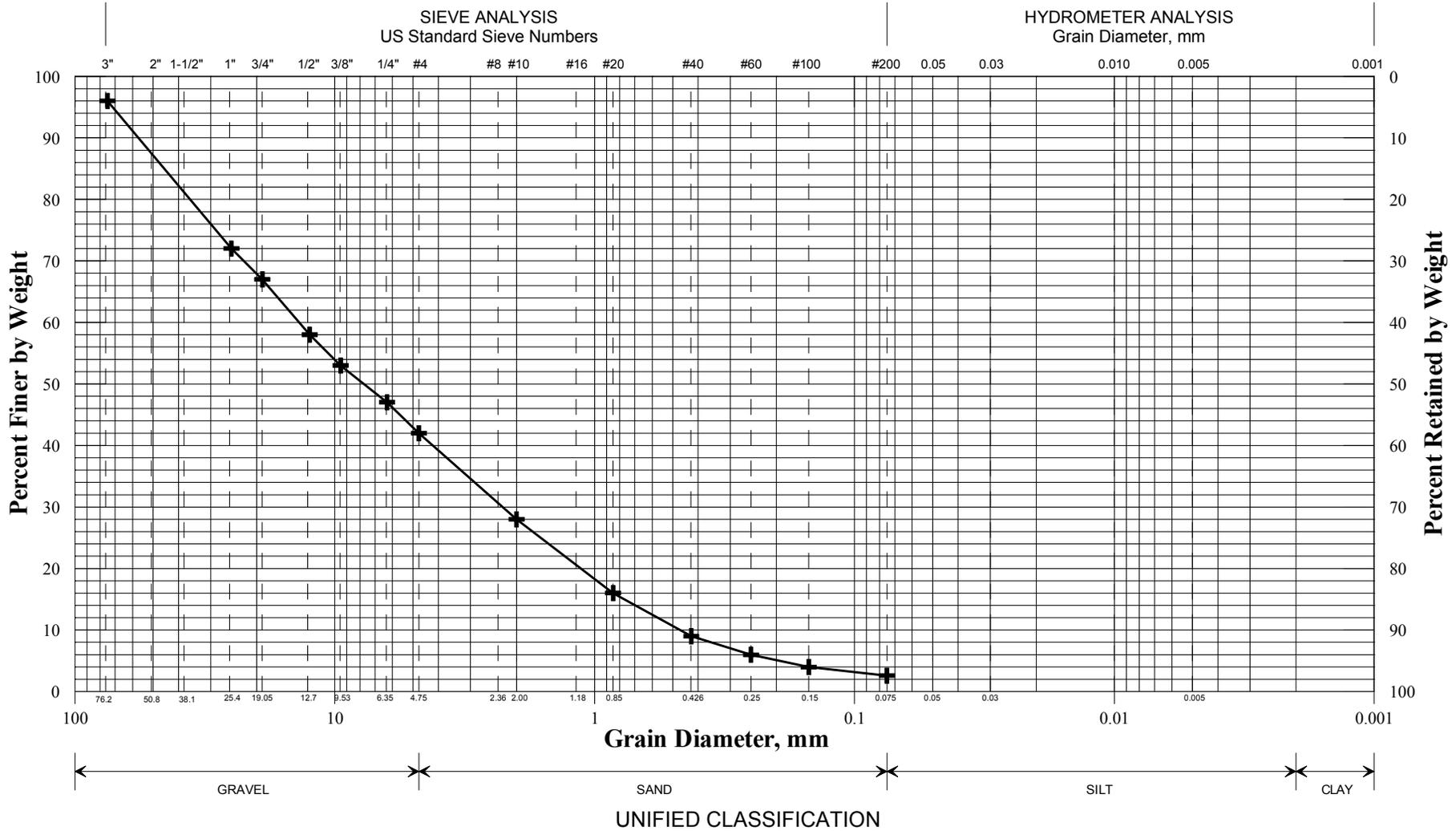
State of Maine Department of Transportation
GRAIN SIZE DISTRIBUTION CURVE



	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI
+	TP 5	1350+80	12.0 RT		Sandy GRAVEL, trace silt.	0.6			
◆									
■									
●									
▲									
×									

WIN
019196.00
Town
Ellsworth
Reported by/Date
WHITE, TERRY A 6/30/2014

State of Maine Department of Transportation
GRAIN SIZE DISTRIBUTION CURVE



	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI
+	TP3	1328+50	6.0 LT		Sandy GRAVEL, trace silt.	1.4			
◆									
■									
●									
▲									
×									

WIN
019196.00
Town
Ellsworth
Reported by/Date
WHITE, TERRY A 7/23/2014



GEOTECHNICAL TEST REPORT

Central Laboratory

SAMPLE INFORMATION

Reference No. **266848** Boring No./Sample No. **HB-ELLS-101/S1** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **10/17/2013** Received **10/24/2013**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **1296+60** Offset, ft: **6.0** RT Dbfg, ft: **0.67-4.7**

WIN/Town **019196.00 - ELLSWORTH** Sampler: **WILDER, BRUCE H**

TEST RESULTS

Sieve Analysis (T 27, T 11)	
Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	100.0
½ in. [12.5 mm]	97.1
⅜ in. [9.5 mm]	92.3
¼ in. [6.3 mm]	83.3
No. 4 [4.75 mm]	77.1
No. 10 [2.00 mm]	60.0
No. 20 [0.850 mm]	43.8
No. 40 [0.425 mm]	32.5
No. 60 [0.250 mm]	26.0
No. 100 [0.150 mm]	21.1
No. 200 [0.075 mm]	16.4

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)					
Trimblings, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			Pmin		
Dry Density, lbs/ft³			Pp		
Void Ratio			Pmax		
Saturation, %			Cc/C'c		

Miscellaneous Tests	
Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	H2O, %
Water Content (T 265), %	
2.8	

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		

Comments:

AUTHORIZATION AND DISTRIBUTION

Reported by: **FOGG, BRIAN**

Date Reported: **10/28/2013**



GEOTECHNICAL TEST REPORT

Central Laboratory

SAMPLE INFORMATION

Reference No. **266849** Boring No./Sample No. **HB-ELLS-102/S2** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **10/17/2013** Received **10/17/2013**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **1301+15** Offset, ft: **6** RT Dbfg, ft: **0.58-2.4**

WIN/Town **019196.00 - ELLSWORTH** Sampler: **WILDER, BRUCE H**

TEST RESULTS

Sieve Analysis (T 27, T 11)

Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	100.0
¾ in. [19.0 mm]	97.0
½ in. [12.5 mm]	93.9
⅜ in. [9.5 mm]	86.4
¼ in. [6.3 mm]	74.5
No. 4 [4.75 mm]	66.9
No. 10 [2.00 mm]	50.0
No. 20 [0.850 mm]	38.8
No. 40 [0.425 mm]	32.2
No. 60 [0.250 mm]	27.8
No. 100 [0.150 mm]	23.9
No. 200 [0.075 mm]	19.5

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)

Trimblings, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			Pmin		
Dry Density, lbs/ft³			Pp		
Void Ratio			Pmax		
Saturation, %			Cc/C'c		

Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	H2O, %
Water Content (T 265), %	
2.4	

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		

Comments:

AUTHORIZATION AND DISTRIBUTION

Reported by: **FOGG, BRIAN**

Date Reported: **10/28/2013**

Paper Copy: Lab File; Project File; Geotech File



GEOTECHNICAL TEST REPORT

Central Laboratory

SAMPLE INFORMATION

Reference No. **266850** Boring No./Sample No. **HB-ELLS-105/S4** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **10/17/2013** Received **10/24/2013**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **1320+50** Offset, ft: **6.0** RT Dbfg, ft: **0.55-3.0**

WIN/Town **019196.00 - ELLSWORTH** Sampler: **WILDER, BRUCE H**

TEST RESULTS

Sieve Analysis (T 27, T 11)

Wash Method

Procedure A

SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	100.0
½ in. [12.5 mm]	93.3
⅜ in. [9.5 mm]	88.9
¼ in. [6.3 mm]	80.0
No. 4 [4.75 mm]	72.3
No. 10 [2.00 mm]	55.3
No. 20 [0.850 mm]	42.4
No. 40 [0.425 mm]	34.7
No. 60 [0.250 mm]	30.0
No. 100 [0.150 mm]	25.9
No. 200 [0.075 mm]	20.3

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

Liquid Limit @ 25 blows (T 89), %

Plastic Limit (T 90), %

Plasticity Index (T 90), %

Specific Gravity, Corrected to 20°C (T 100)

Loss on Ignition (T 267)

Loss, % H₂O, %

Water Content (T 265), %

2.4

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 tons/ft²	Remold tons/ft²	U. Shear tons/ft²	Remold tons/ft²		

Comments:

AUTHORIZATION AND DISTRIBUTION

Reported by: **FOGG, BRIAN**Date Reported: **10/28/2013**

Paper Copy: Lab File; Project File; Geotech File



GEOTECHNICAL TEST REPORT

Central Laboratory

SAMPLE INFORMATION

Reference No. **266576** Boring No./Sample No. **HB-ELLS-106/S5** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **10/17/2013** Received **10/24/2013**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **1325+50** Offset, ft: **6.0** RT Dbfg, ft: **0.67-2.5**

WIN/Town **019196.00 - ELLSWORTH** Sampler: **WILDER, BRUCE H**

TEST RESULTS

Sieve Analysis (T 27, T 11)	
Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	100.0
¾ in. [19.0 mm]	98.0
½ in. [12.5 mm]	92.8
⅜ in. [9.5 mm]	87.4
¼ in. [6.3 mm]	75.9
No. 4 [4.75 mm]	68.6
No. 10 [2.00 mm]	51.6
No. 20 [0.850 mm]	39.2
No. 40 [0.425 mm]	31.5
No. 60 [0.250 mm]	26.8
No. 100 [0.150 mm]	22.8
No. 200 [0.075 mm]	18.0

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)					
Trimming, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			Pmin		
Dry Density, lbs/ft³			Pp		
Void Ratio			Pmax		
Saturation, %			Cc/C'c		

Miscellaneous Tests	
Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	H2O, %
Water Content (T 265), %	
2.3	

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		

Comments:

AUTHORIZATION AND DISTRIBUTION

Reported by: **FOGG, BRIAN**

Date Reported: **10/28/2013**



GEOTECHNICAL TEST REPORT

Central Laboratory

SAMPLE INFORMATION

Reference No. **266577** Boring No./Sample No. **HB-ELLS-108/S6** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **10/17/2013** Received **10/24/2013**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **1337+00** Offset, ft: **6.0** RT Dbfg, ft: **0.63-2.2**

WIN/Town **019196.00 - ELLSWORTH** Sampler: **WILDER, BRUCE H**

TEST RESULTS

Sieve Analysis (T 27, T 11)	
Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	100.0
½ in. [12.5 mm]	98.0
⅜ in. [9.5 mm]	91.8
¼ in. [6.3 mm]	79.4
No. 4 [4.75 mm]	71.8
No. 10 [2.00 mm]	55.8
No. 20 [0.850 mm]	44.3
No. 40 [0.425 mm]	36.6
No. 60 [0.250 mm]	31.4
No. 100 [0.150 mm]	26.9
No. 200 [0.075 mm]	21.6

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)					
Trimblings, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			Pmin		
Dry Density, lbs/ft³			Pp		
Void Ratio			Pmax		
Saturation, %			Cc/C'c		

Miscellaneous Tests	
Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	H2O, %
Water Content (T 265), %	
2.7	

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		

Comments:

AUTHORIZATION AND DISTRIBUTION

Reported by: **FOGG, BRIAN**

Date Reported: **10/28/2013**



GEOTECHNICAL TEST REPORT

Central Laboratory

SAMPLE INFORMATION

Reference No. **266578** Boring No./Sample No. **HB-ELLS-109/S7** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **10/17/2013** Received **10/24/2013**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **1342+10** Offset, ft: **6.0** RT Dbfg, ft: **0.63-3.2**

WIN/Town **019196.00 - ELLSWORTH** Sampler: **WILDER, BRUCE H**

TEST RESULTS

Sieve Analysis (T 27, T 11)	
Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	100.0
¾ in. [19.0 mm]	98.1
½ in. [12.5 mm]	96.6
⅜ in. [9.5 mm]	92.5
¼ in. [6.3 mm]	87.5
No. 4 [4.75 mm]	83.5
No. 10 [2.00 mm]	73.5
No. 20 [0.850 mm]	63.2
No. 40 [0.425 mm]	55.3
No. 60 [0.250 mm]	50.0
No. 100 [0.150 mm]	45.6
No. 200 [0.075 mm]	40.3

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)					
Trimming, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			Pmin		
Dry Density, lbs/ft³			Pp		
Void Ratio			Pmax		
Saturation, %			Cc/C'c		

Miscellaneous Tests	
Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	H2O, %
Water Content (T 265), %	
6.8	

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		

Comments:

AUTHORIZATION AND DISTRIBUTION

Reported by: **FOGG, BRIAN**

Date Reported: **10/28/2013**



GEOTECHNICAL TEST REPORT

Central Laboratory

SAMPLE INFORMATION

Reference No. **266579** Boring No./Sample No. **HB-ELLS-110/S8** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **10/17/2013** Received **10/24/2013**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **1348+90** Offset, ft: **6.0** RT Dbfg, ft: **0.63-3.5**

WIN/Town **019196.00 - ELLSWORTH** Sampler: **WILDER, BRUCE H**

TEST RESULTS

Sieve Analysis (T 27, T 11)

Wash Method

Procedure A

SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	100.0
½ in. [12.5 mm]	96.4
⅜ in. [9.5 mm]	93.4
¼ in. [6.3 mm]	85.7
No. 4 [4.75 mm]	81.0
No. 10 [2.00 mm]	67.6
No. 20 [0.850 mm]	54.9
No. 40 [0.425 mm]	45.7
No. 60 [0.250 mm]	39.7
No. 100 [0.150 mm]	34.2
No. 200 [0.075 mm]	26.9

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

Liquid Limit @ 25 blows (T 89), %

Plastic Limit (T 90), %

Plasticity Index (T 90), %

Specific Gravity, Corrected to 20°C (T 100)

Loss on Ignition (T 267)

Loss, % H₂O, %

Water Content (T 265), %

3.3

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 tons/ft²	Remold tons/ft²	U. Shear tons/ft²	Remold tons/ft²		

Comments:

AUTHORIZATION AND DISTRIBUTION

Reported by: **FOGG, BRIAN**Date Reported: **10/28/2013**

Paper Copy: Lab File; Project File; Geotech File



GEOTECHNICAL TEST REPORT

Central Laboratory

SAMPLE INFORMATION

Reference No. **266581** Boring No./Sample No. **HB-ELLS-111/S9** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **10/17/2013** Received **10/24/2013**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **1353+81** Offset, ft: **6.0** RT Dbfg, ft: **0.58-2.9**

WIN/Town **019196.00 - ELLSWORTH** Sampler: **WILDER, BRUCE H**

TEST RESULTS

Sieve Analysis (T 27, T 11)	
Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	100.0
½ in. [12.5 mm]	96.6
⅜ in. [9.5 mm]	92.4
¼ in. [6.3 mm]	84.2
No. 4 [4.75 mm]	76.5
No. 10 [2.00 mm]	56.1
No. 20 [0.850 mm]	41.9
No. 40 [0.425 mm]	33.7
No. 60 [0.250 mm]	28.9
No. 100 [0.150 mm]	24.7
No. 200 [0.075 mm]	19.9

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)					
Trimblings, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			Pmin		
Dry Density, lbs/ft³			Pp		
Void Ratio			Pmax		
Saturation, %			Cc/C'c		

Miscellaneous Tests	
Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	H2O, %
Water Content (T 265), %	
2.2	

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		

Comments:

AUTHORIZATION AND DISTRIBUTION

Reported by: **FOGG, BRIAN**

Date Reported: **10/28/2013**



GEOTECHNICAL TEST REPORT

Central Laboratory

SAMPLE INFORMATION

Reference No. **266582** Boring No./Sample No. **HB-ELLS-113/S10** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **10/17/2013** Received **10/24/2013**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **1350+35** Offset, ft: **6.0** LT Dbfg, ft: **0.56-4.0**

WIN/Town **019196.00 - ELLSWORTH** Sampler: **WILDER, BRUCE H**

TEST RESULTS

Sieve Analysis (T 27, T 11)

Wash Method

Procedure A

SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	100.0
¾ in. [19.0 mm]	98.5
½ in. [12.5 mm]	95.8
⅜ in. [9.5 mm]	91.5
¼ in. [6.3 mm]	79.3
No. 4 [4.75 mm]	71.1
No. 10 [2.00 mm]	53.6
No. 20 [0.850 mm]	40.0
No. 40 [0.425 mm]	30.7
No. 60 [0.250 mm]	25.5
No. 100 [0.150 mm]	21.8
No. 200 [0.075 mm]	17.3

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

Liquid Limit @ 25 blows (T 89), %

Plastic Limit (T 90), %

Plasticity Index (T 90), %

Specific Gravity, Corrected to 20°C (T 100)

Loss on Ignition (T 267)

Loss, % H₂O, %

Water Content (T 265), %

2.4

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		

Comments:

AUTHORIZATION AND DISTRIBUTION

Reported by: **FOGG, BRIAN**Date Reported: **10/28/2013**

Paper Copy: Lab File; Project File; Geotech File



CONSTRUCTION AGGREGATES TEST REPORT

Central Laboratory

SAMPLE INFORMATION

Reference No.	Retest of Ref. No.	I.A. Comp. No.	Sample Description
269805			EXCAVATION
Sample Type: PROCESS CONTROL	Sampler: MAINTENANCE PERSONNEL	Sampled: 7/10/2014	
Sample Location: ROADWAY	Station: 1328+50 Offset, ft: 6.0 LT Dbfg, in:	Received: 7/17/2014	
Pit/Location: EXCAVATION - ON PROJECT			
WIN/Town/Bridge: 019196.00 - ELLSWORTH			
Contractor:		Resident:	

TEST RESULTS

Sieve Analysis (T 27, T 11)			Aggregate Quality Tests		Results	Specification	Meets?
SIEVE SIZE U.S. [SI]	% Passing	Specification					
6 in. [150 mm]	100		Fractured, 2 Face (ASTM D 5821), %				
4 in. [100 mm]			Fractured, 1 Face (ASTM D 5821), %				
3 in. [75 mm]	96		Flat & Elongated Part. (ASTM D 4791), %				
2½ in. [63 mm]			Coarse Aggregate Specific Gravity (T 85)				
2 in. [50 mm]	94		Coarse Aggregate Absorption (T 85), %				
1½ in. [37.5 mm]			Organic Impurities (T 21), Plate No.				
1 in. [25.0 mm]	72		Washington Degradation (WSDOT T113)				
¾ in. [19.0 mm]	67		Micro-Deval (T 327-06), %				
5/8 in. [16.0 mm]			Method	Machine Used		Passing No. 16, %	
½ in. [12.5 mm]	58		Control Agg., Individual Result, %			Weighted Avg Loss, %	
⅜ in. [9.5 mm]	53		Control Agg., Avg. of 20 Results, %			Area Btwn Curves, %-mm	
¼ in. [6.3 mm]	47		Fine Micro-Deval (ASTM D7428-08), %				
No. 4 [4.75 mm]	42		Machine Used			Passing No. 200, %	
No. 8 [2.36 mm]			Control Agg., Current Result, %			Weighted Avg Loss, %	
No. 10 [2.00 mm]	28		Control Agg., Avg. of Last 20 Results, %			Area Btwn Curves, %-mm	
No. 16 [1.18 mm]			Los Angeles Wear (T 96), %				
No. 20 [0.850 mm]	16					Passing No. 12, %	
No. 30 [0.600 mm]						Weighted Avg Loss, %	
No. 40 [0.425 mm]	9					Area Btwn Curves, %-mm	
No. 50 [0.300 mm]			Loss on Ignition (T 267)				
No. 60 [0.250 mm]	6				Loss, %		
No. 80 [0.180 mm]					H2O, %		
No. 100 [0.150 mm]	4		Moisture-Density Relationship		Adjusted Maximum Density		
No. 200 [0.075 mm]	2.6		Test Procedure		% Retained ¾ in. Sieve		
Wash Method	Procedure A		Method		Adjusted Maximum Density, lb/ft³		
Water Content (T 265), %	1.4		Hammer Face Used		(Input this value into gauge.)		
Meets?	N/A		Optimum Moisture, %				
			Maximum Density, lb/ft³				

Comments:

Test pit No. 3 by pole 734.

Sample Meets All Requirements? **YES**

AUTHORIZATION AND DISTRIBUTION

Reported by: **FOGG, BRIAN**

Date Reported: **7/22/2014**

Distribution:

Paper Copy: Lab File

Electronic: Resident or Contact; Sampler

Distribution for Proctors:

Paper Copy: Lab File; Resident; Freeport Lab

Electronic: Resident or Contact; Sampler

Fax: Freeport Lab



CONSTRUCTION AGGREGATES TEST REPORT

Central Laboratory

SAMPLE INFORMATION

Reference No.	Retest of Ref. No.	I.A. Comp. No.	Sample Description
243299			EXCAVATION
Sample Type: PROCESS CONTROL	Sampler: PROUT, KEVIN E		Sampled: 6/20/2014
Sample Location: TEST PIT	Station: 1350+80	Offset, ft: 12.0 RT	Received: 6/23/2014
Pit/Location: EXCAVATION - ON PROJECT			
WIN/Town/Bridge: 019196.00 - ELLSWORTH			
Contractor:			Resident:

TEST RESULTS

Sieve Analysis (T 27, T 11)			Aggregate Quality Tests		Results	Specification	Meets?
SIEVE SIZE U.S. [SI]	% Passing	Specification					
6 in. [150 mm]			Fractured, 2 Face (ASTM D 5821), %				
4 in. [100 mm]			Fractured, 1 Face (ASTM D 5821), %				
3 in. [75 mm]	100		Flat & Elongated Part. (ASTM D 4791), %				
2½ in. [63 mm]			Coarse Aggregate Specific Gravity (T 85)				
2 in. [50 mm]	95		Coarse Aggregate Absorption (T 85), %				
1½ in. [37.5 mm]			Organic Impurities (T 21), Plate No.				
1 in. [25.0 mm]	83		Washington Degradation (WSDOT T113)				
¾ in. [19.0 mm]	77		Micro-Deval (T 327-06), %				
5/8 in. [16.0 mm]			Method	Machine Used		Passing No. 16, %	
½ in. [12.5 mm]	67		Control Agg., Individual Result, %			Weighted Avg Loss, %	
⅜ in. [9.5 mm]	61		Control Agg., Avg. of 20 Results, %			Area Btwn Curves, %-mm	
¼ in. [6.3 mm]	53		Fine Micro-Deval (ASTM D7428-08), %				
No. 4 [4.75 mm]	48		Machine Used			Passing No. 200, %	
No. 8 [2.36 mm]			Control Agg., Current Result, %			Weighted Avg Loss, %	
No. 10 [2.00 mm]	37		Control Agg., Avg. of Last 20 Results, %			Area Btwn Curves, %-mm	
No. 16 [1.18 mm]			Los Angeles Wear (T 96), %				
No. 20 [0.850 mm]	20					Passing No. 12, %	
No. 30 [0.600 mm]						Weighted Avg Loss, %	
No. 40 [0.425 mm]	9					Area Btwn Curves, %-mm	
No. 50 [0.300 mm]			Loss on Ignition (T 267)				
No. 60 [0.250 mm]	5				Loss, %		
No. 80 [0.180 mm]					H2O, %		
No. 100 [0.150 mm]	4		Moisture-Density Relationship		Adjusted Maximum Density		
No. 200 [0.075 mm]	2.7		Test Procedure		% Retained ¾ in. Sieve		
Wash Method	Procedure A		Method		Adjusted Maximum Density, lb/ft³ (Input this value into gauge.)		
Water Content (T 265), %	0.6		Hammer Face Used				
Meets?	N/A		Optimum Moisture, %				
			Maximum Density, lb/ft³				

Comments:

TEST PIT 5

Sample Meets All Requirements? **N/A**

AUTHORIZATION AND DISTRIBUTION

Reported by: **FOGG, BRIAN**

Date Reported: **6/26/2014**

Distribution:

Paper Copy: Lab File

Electronic: Resident or Contact; Sampler

Distribution for Proctors:

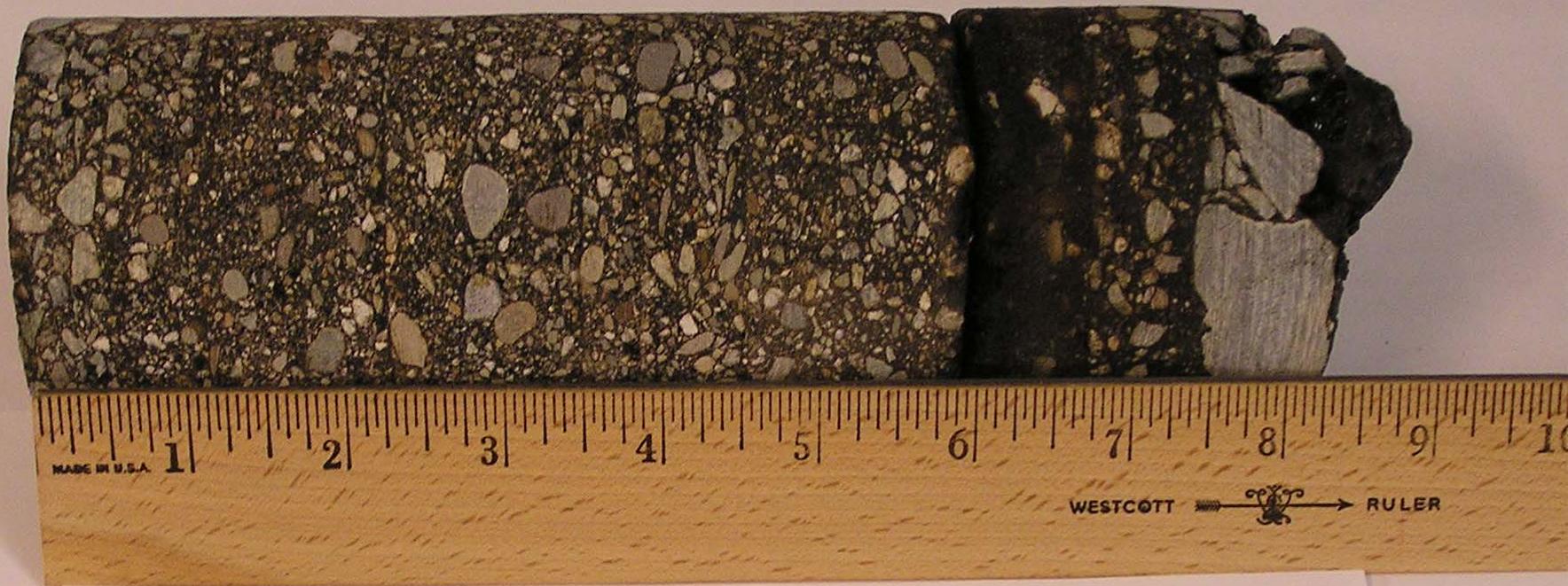
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Electronic: Resident or Contact; Sampler

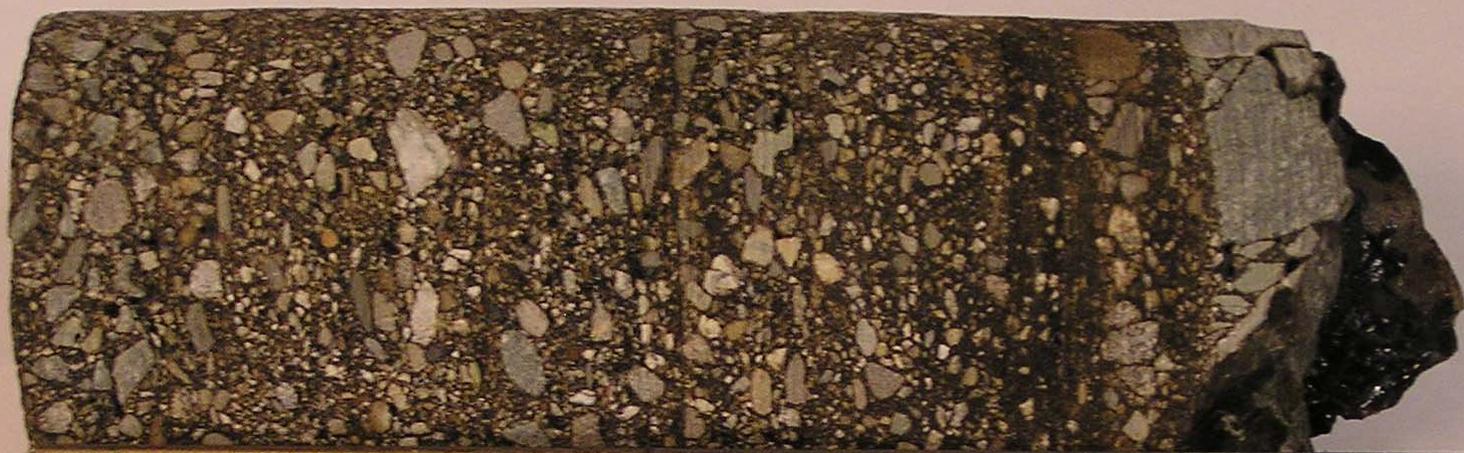
Fax: Freeport Lab



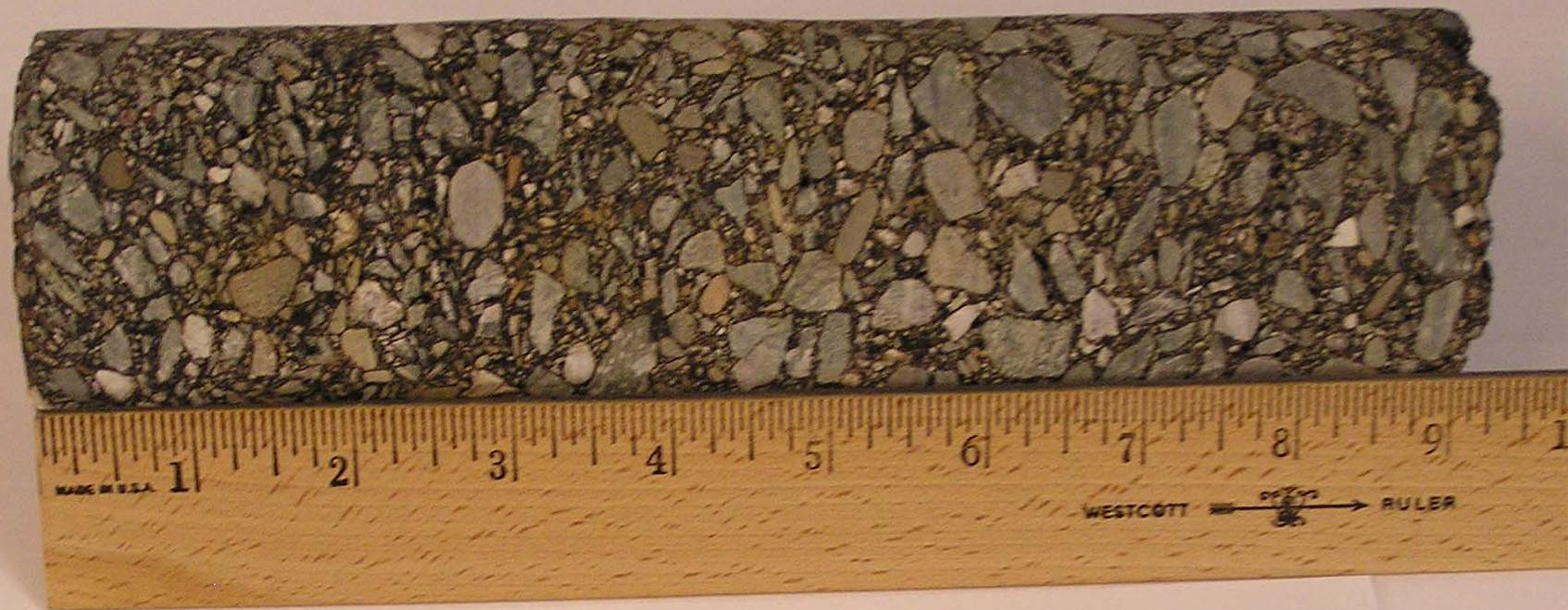
ELLSWORTH 19196.00
PC-1



ELLSWORTH 19196.00
PC-2



ELLSWORTH 19196.00
PC-3



ELLSWORTH 19196.00
PC-4



Route Log Mile
 ~ Expanded ~
Detail Report

Tide Load date: 11/07/2015
 Tide year: 2015

[Back](#)

Filter Results

Node ID

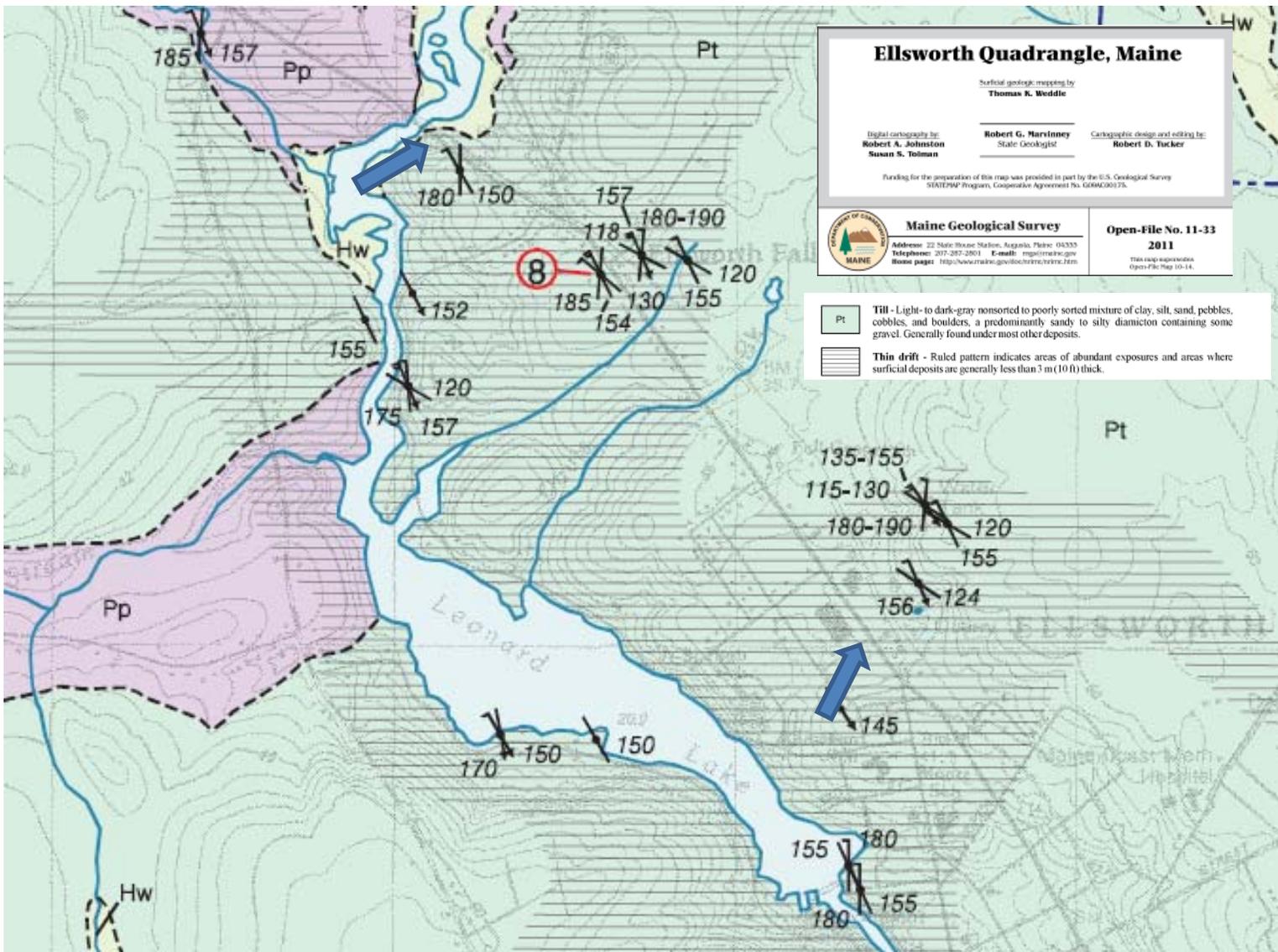
Node Description

MP

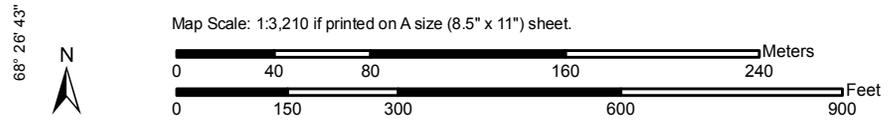
Pavement Data					
Surface	IRI	PCR	Inv Year	Rut Left	Rut Right

Ellsworth -- Primary Route: 0001A; Begin MP: 62.5, End MP: 64.5

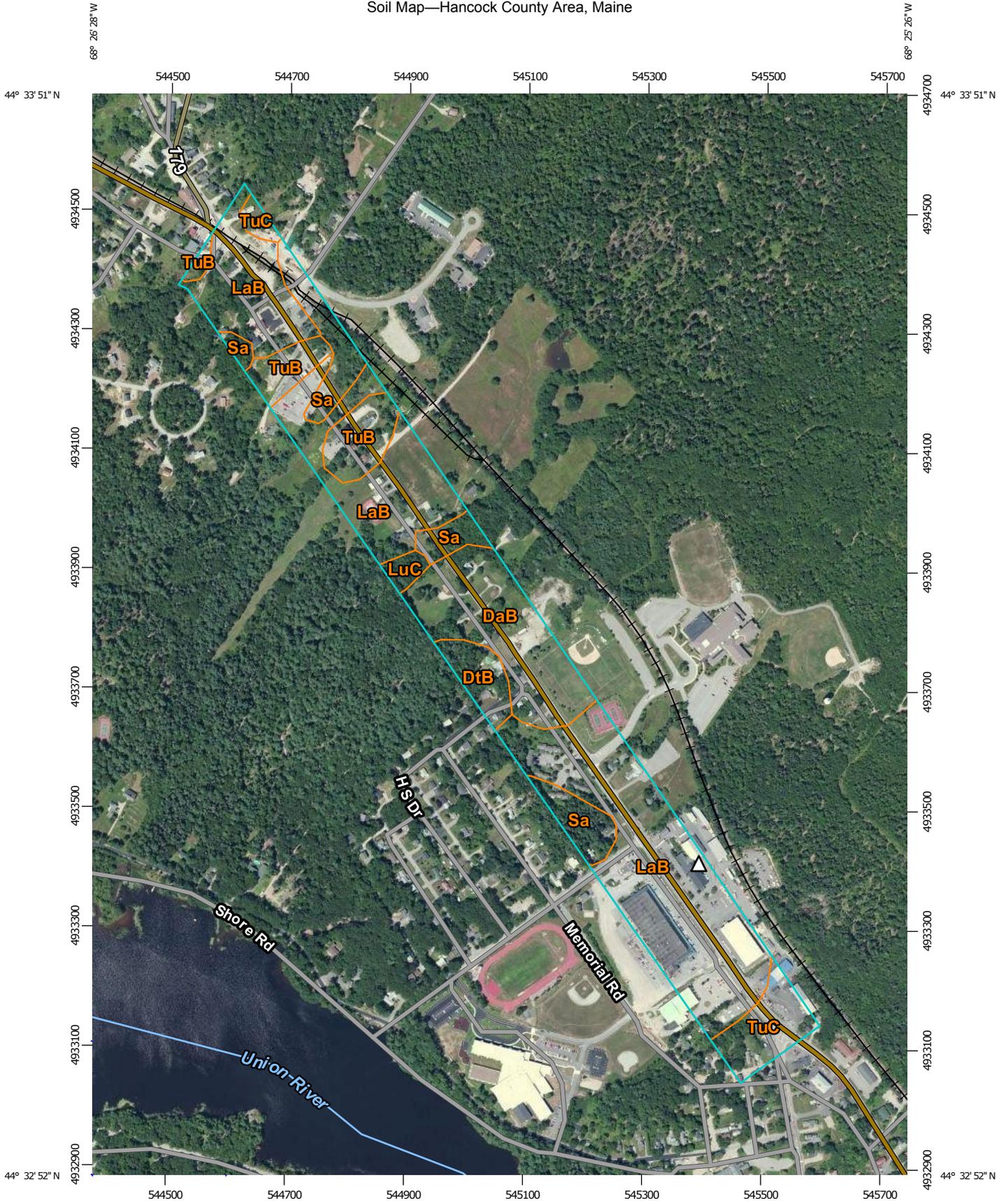
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62.80		Flexible	180	3.36	2014	.2	.5	
24002	Non Int BANGOR RD	62.92	Flexible	180	3.36	2014	.2	.5
24001	Int of BANGOR RD SHORE RD	63.19	Flexible	180	3.36	2014	.2	.5
63.25		Flexible	195	2.92	2014	.3	.6	
24000	Int of BANGOR RD NORTH ST STATE ST	63.27	Flexible	195	2.92	2014	.3	.6
23999	Int of LAKES LN STATE ST	63.37	Flexible	195	2.92	2014	.3	.6
63.69		Flexible	189	2.61	2014	.3	.6	
23998	Int of STATE ST WESTERN AV	63.84	Flexible	189	2.61	2014	.3	.6
64154	Int of ENT TO EHS STATE ST	63.94	Flexible	189	2.61	2014	.3	.6
63.96		Flexible	181	3.26	2014	.2	.4	
23997	Int of FORREST AV STATE ST	64.04	Flexible	181	3.26	2014	.2	.4
23996	Int of ENT TO FRIEND FRIEND MOTORCYCLE OAK ST STATE ST	64.29	Flexible	181	3.26	2014	.2	.4
64.35		Flexible	100	4.14	2014	0	.2	
23995	Int of DAVIS ST OAK ST	64.44	Flexible	100	4.14	2014	0	.2



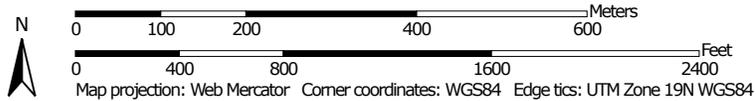
Soil Map—Hancock County Area, Maine



Soil Map—Hancock County Area, Maine



Map Scale: 1:8,820 if printed on A portrait (8.5" x 11") sheet.



Map Unit Legend

Hancock County Area, Maine (ME611)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
DaB	Dixfield fine sandy loam, 3 to 8 percent slopes	11.1	15.6%
DtB	Dixfield-Colonel complex, 3 to 8 percent slopes, very stony	2.5	3.5%
LaB	Lamoine silt loam, 3 to 8 percent slopes	39.0	54.8%
LuC	Lyman-Tunbridge complex, 0 to 15 percent slopes, very stony	0.8	1.1%
Sa	Scantic silt loam	7.5	10.6%
TuB	Tunbridge-Lyman complex, 3 to 8 percent slopes	5.6	7.8%
TuC	Tunbridge-Lyman complex, 8 to 15 percent slopes	4.7	6.6%
Totals for Area of Interest		71.2	100.0%

Report—Engineering Properties

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Engineering Properties—Hancock County Area, Maine														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
DaB—Dixfield fine sandy loam, 3 to 8 percent slopes														
Dixfield	85	C	0-6	Fine sandy loam	SC-SM, SM, CL-ML, ML	A-4, A-2	0-1	0-5	85-95	80-90	50-85	25-70	15-25	NP-10
			6-26	Gravelly sandy loam, loam, fine sandy loam	SC-SM, SM, CL-ML, ML	A-2, A-4, A-1	0-10	0-10	75-95	60-90	35-85	20-70	15-25	NP-10
			26-65	Gravelly fine sandy loam, gravelly sandy loam, loam	SM, CL-ML, ML, SC-SM	A-1, A-2, A-4	0-10	0-10	75-95	60-90	35-85	20-70	15-25	NP-10

Report—Engineering Properties

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Engineering Properties— Hancock County Area, Maine												
Map unit symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
LaB—Lamoine silt loam, 3 to 8 percent slopes												
Lamoine	0-7	*Silt loam	MH, ML	A-4, A-5, A-7	0	0	98-100	95-100	95-100	85-100	36-55	5-15
	7-17	*Silt loam, Silty clay loam, silty clay	CL, MH, ML	A-6, A-7, A-4	0	0	98-100	95-100	95-100	85-100	28-55	8-25
	17-21	*Silty clay loam, Silt loam, silty clay	CL, MH, ML	A-6, A-7, A-4	0	0	98-100	95-100	95-100	85-100	28-55	8-25
	21-65	*Silty clay, Silty clay loam, clay	CL, MH	A-6, A-7	0	0	98-100	95-100	95-100	90-100	30-60	10-25
Sa—Scantic silt loam												
Scantic	0-15	*Silt loam	MH, ML	A-4, A-5, A-7	0	0	100	95-100	90-100	70-100	36-55	5-20
	15-35	*Silty clay loam, Silt loam, clay	MH, CL	A-7, A-4, A-6	0	0	100	95-100	95-100	85-100	25-55	8-25
	35-65	*Silty clay, Clay, silty clay loam	CL, MH	A-6, A-7	0	0	100	95-100	95-100	90-100	30-60	10-25

Engineering Properties--Hancock County Area, Maine														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
TuB--Tunbridge-Lyman complex, 3 to 8 percent slopes														
Tunbridge	50	C	0-6	Fine sandy loam	ML, SM	A-4, A-2	0-1	0-5	85-100	80-95	55-95	30-85	15-20	NP-2
			6-15	Sandy loam, silt loam, fine sandy loam	SM, ML	A-5, A-2, A-4	0-2	0-15	70-100	60-95	35-95	20-85	15-50	NP-6
			15-29	Silt loam, gravelly fine sandy loam, sandy loam	ML, SM	A-2, A-4	0-2	0-15	70-100	60-95	35-95	20-85	15-20	NP-2
			29-33	Bedrock	—	—	0	—	—	—	—	—	—	—
Lyman	35	C/D	0-5	Fine sandy loam	ML, SM	A-4, A-1, A-2	0	0-15	80-95	70-90	40-85	20-80	15-35	NP-6
			5-17	Silt loam, loam, fine sandy loam	ML, SM, GM	A-1, A-2, A-4	0	0-20	65-95	60-90	35-85	20-80	15-30	NP-4
			17-21	Bedrock	—	—	0	—	—	—	—	—	—	—

Engineering Properties--Hancock County Area, Maine														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
TuC---Tunbridge-Lyman complex, 8 to 15 percent slopes														
Tunbridge	50	C	0-6	Fine sandy loam	ML, SM	A-4, A-2	0-1	0-5	85-100	80-95	55-95	30-85	15-20	NP-2
			6-15	Silt loam, fine sandy loam, sandy loam	SM, ML	A-2, A-4, A-5	0-2	0-15	70-100	60-95	35-95	20-85	15-50	NP-6
			15-29	Gravelly fine sandy loam, sandy loam, silt loam	ML, SM	A-2, A-4	0-2	0-15	70-100	60-95	35-95	20-85	15-20	NP-2
			29-33	Bedrock	---	---	0	---	---	---	---	---	---	---
Lyman	30	C/D	0-5	Fine sandy loam	ML, SM	A-4, A-1, A-2	0	0-15	80-95	70-90	40-85	20-80	15-35	NP-6
			5-17	Loam, fine sandy loam, silt loam	ML, SM, GM	A-4, A-1, A-2	0	0-20	65-95	60-90	35-85	20-80	15-30	NP-4
			17-21	Bedrock	---	---	0	---	---	---	---	---	---	---

Data Source Information

Soil Survey Area: Hancock County Area, Maine
 Survey Area Data: Version 12, Oct 2, 2009

STATE OF MAINE STATE HIGHWAY COMMISSION

PLAN AND PROFILE
STATE HIGHWAY **PP M 99**

**ELLSWORTH
HANCOCK COUNTY**

FEDERAL AID PROJECT NO. 103-F

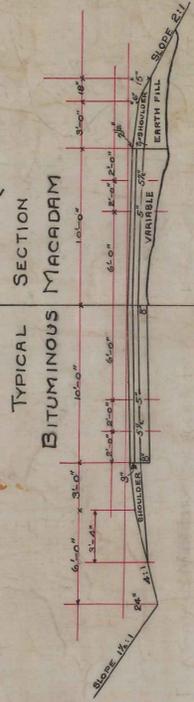
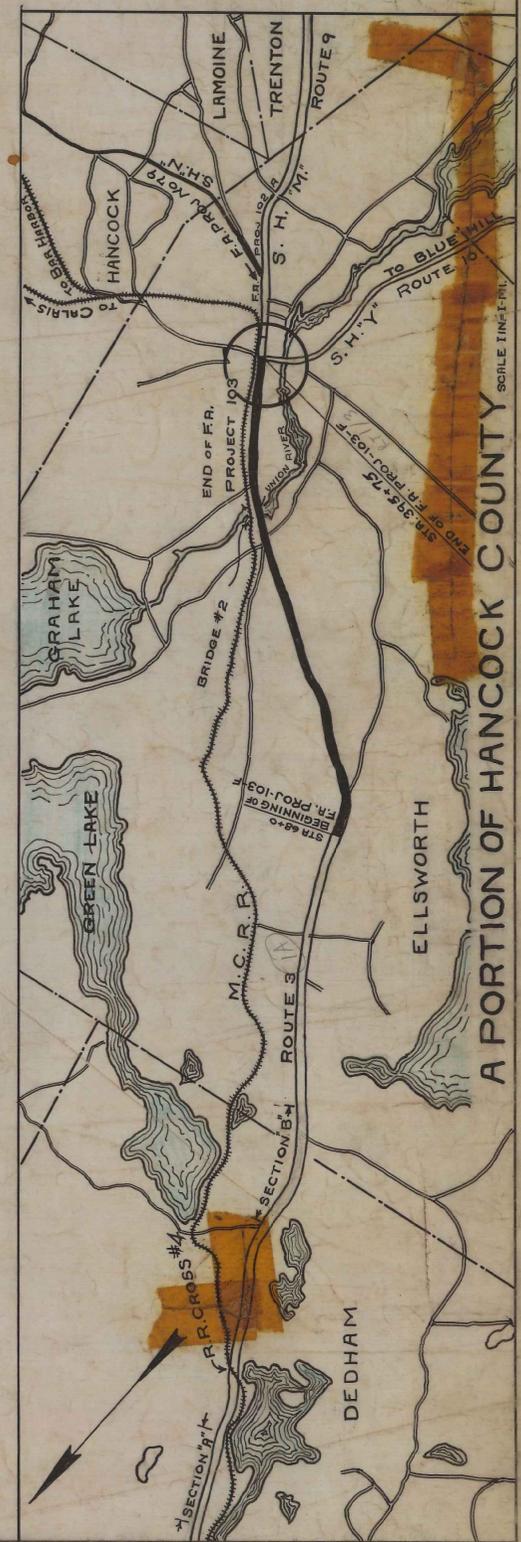
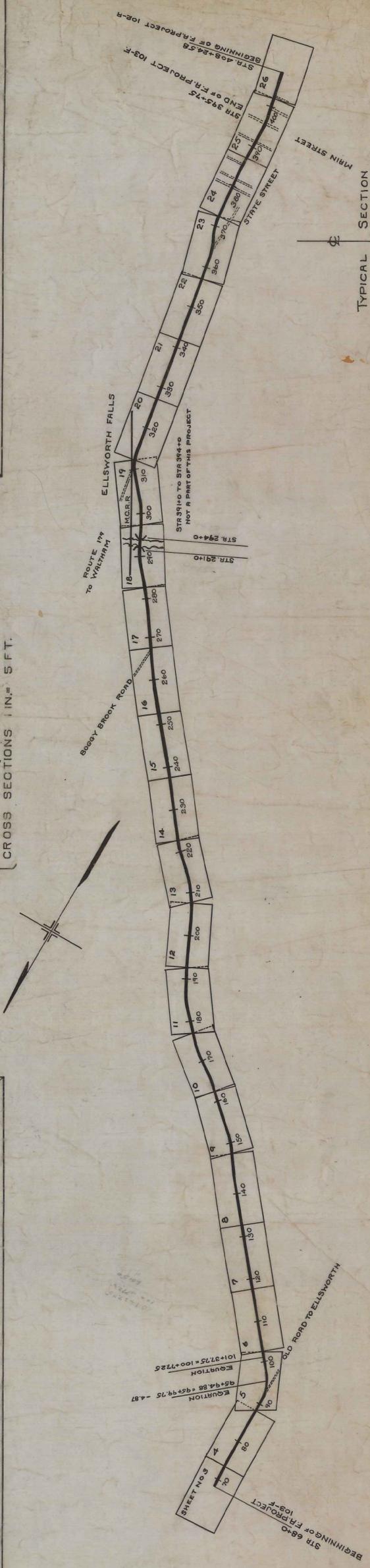
TOTAL LENGTH 6.161 MILES
 PLAN 1 IN. = 50 FT.
 PROFILE HOR. 1 IN. = 50 FT.
 VER. 1 IN. = 5 FT.
 CROSS SECTIONS 1 IN. = 5 FT.

CONVENTIONAL SIGNS

STATE OF NATIONAL LINE	SURVEY LINE
COUNTY LINE	CULVERT
TOWN LINE	DROP INLET
UNFENCED PROPERTY	TROLLEY POLE
FENCE	POWER POLE
RIGHT OF WAY LINE	TEL. POLE
TRAVELED WAY	MARSH
RAILROAD	TREES
RETAINING WALL	STONE WALL

INDEX OF SHEETS

SHEET NO.	TITLE PAGE	STA.
1	TYPICAL SECTIONS	
2	PLAN AND PROFILE	STA. 68+0 TO STA 395+75
3 TO 25	CROSS-SECTIONS	STA. "
27 TO 71	BRIDGES	STA.
	SPECIAL DETAILS	STA.



APPROVED:
 MAINE STATE HIGHWAY COMMISSION
[Signature]
 CHIEF ENGINEER

APPROVED:
 U. S. BUREAU OF PUBLIC ROADS
 DISTRICT ENGINEER
[Signature]
 CHIEF ENGINEER

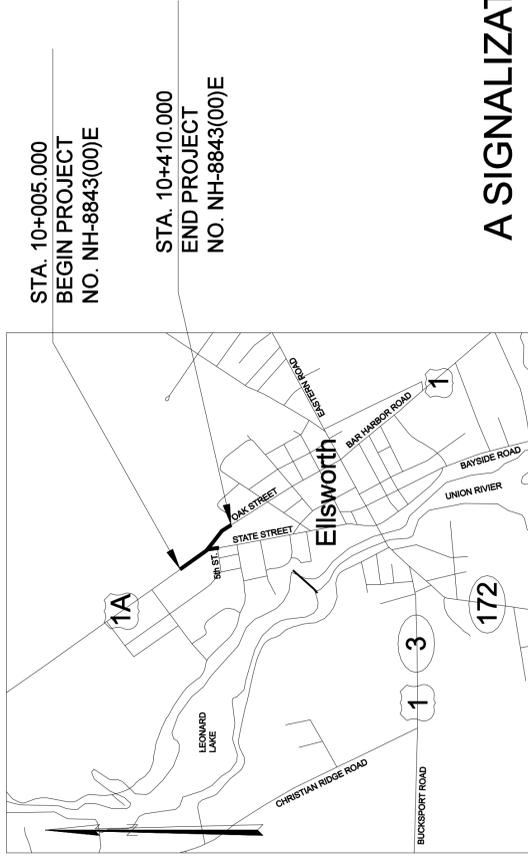
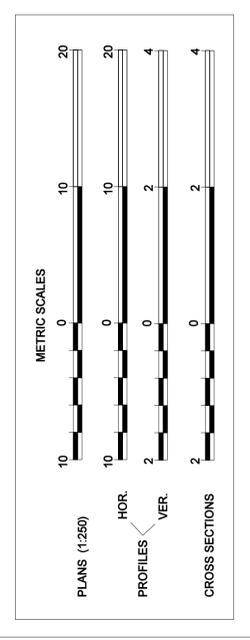
A PORTION OF HANCOCK COUNTY
 SCALE 1 IN. = 1 MI.

STATE OF MAINE DEPARTMENT OF TRANSPORTATION



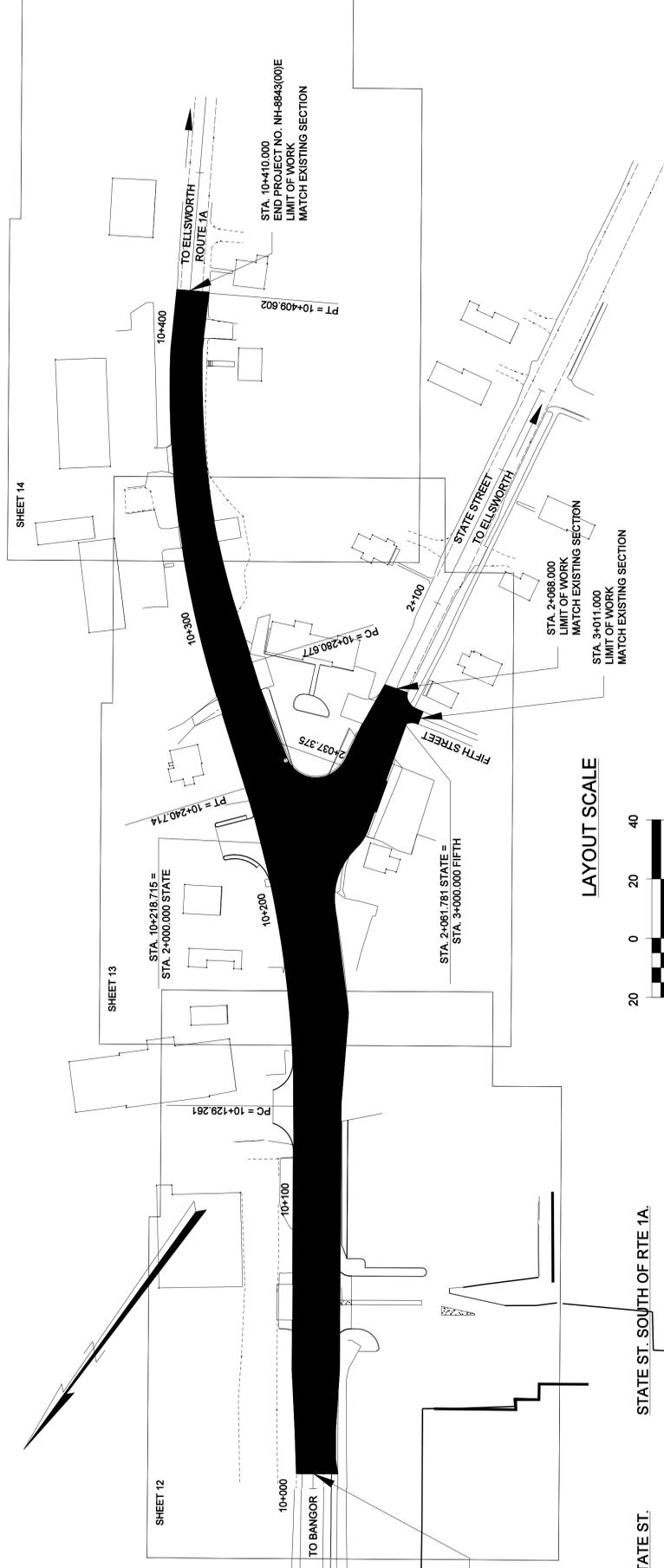
ELLSWORTH HANCOCK COUNTY U.S. ROUTE 1A PROJECT NO NH-8843(00)E PROJECT LENGTH : 0.405km

A SIGNALIZATION, GRADING, DRAINAGE, BASE AND PAVEMENT PROJECT



INDEX OF SHEETS

Description	Sheet No.
Title Sheet	1
Typical Sections	2
Estimated Quantities	3
Drainage Sheet	4
Construction Notes	5
Miscellaneous Details	6
Geometrics Layout Details	7-8
Signalization Plan & Details	9-10
Striping Details	11
Plan	12-14
Profile	15-18
Cross - Sections	19-34
Right of Way Map	35-37
Utility Plans (6 SHEETS)	

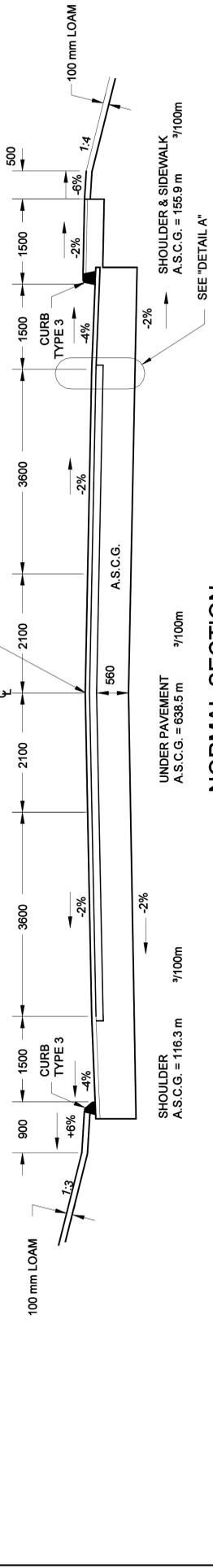


TRAFFIC DATA

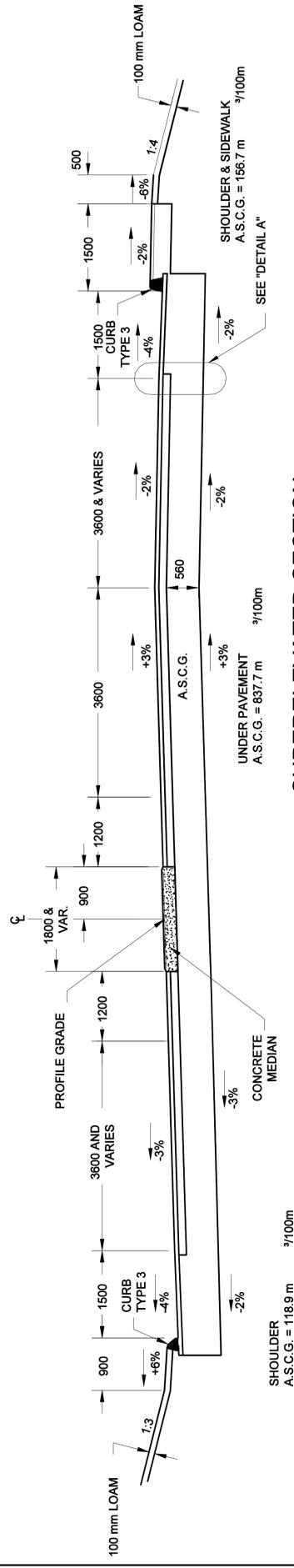
RTE 1A NORTHWEST OF STATE ST.		RTE 1A SOUTHEAST OF STATE ST.		STATE ST. SOUTH OF RTE 1A.	
Current (2003) AADT	18420	Current (2003) AADT	15820	Current (2003) AADT	4660
Future (2023) AADT	27180	Future (2023) AADT	22150	Future (2023) AADT	6530
DHV - % of AADT	10	DHV - % of AADT	10	DHV - % of AADT	10
Design Hour Volume	2752	Design Hour Volume	2152	Design Hour Volume	646
% Heavy Trucks (AADT)	8	% Heavy Trucks (AADT)	8	% Heavy Trucks (AADT)	7
% Heavy Trucks (DHV)	5	% Heavy Trucks (DHV)	5	% Heavy Trucks (DHV)	6
Directional Distribution (DHV)	56	Directional Distribution (DHV)	61	Directional Distribution (DHV)	61
80 KN Equivalent P 2.0	1124	80 KN Equivalent P 2.0	915	80 KN Equivalent P 2.0	240
80 KN Equivalent P 2.5	1071	80 KN Equivalent P 2.5	872	80 KN Equivalent P 2.5	228
Design Speed (km/h)	50	Design Speed (km/h)	50	Design Speed (km/h)	40

PROGRAM URBAN & ARTERIAL	PROJECT INFORMATION	PROJECT NO. NH-8843(00)E	TITLE SHEET
PROJECT MANAGER J. MANAIR	DESIGNER A. GODFREY/EASON	CONTRACTOR	ELLSWORTH U.S. ROUTE 1A
CONSULTANT CASEY & GODFREY	PROJECT RESIDENT	PROJECT COMPLETION DATE	SHEET NUMBER 1
SIGNATURE	P. E. NUMBER #7960	DATE DECEMBER 30, 2004	OF 37
CHIEF ENGINEER	APPROVED	STATE OF MAINE DEPARTMENT OF TRANSPORTATION	

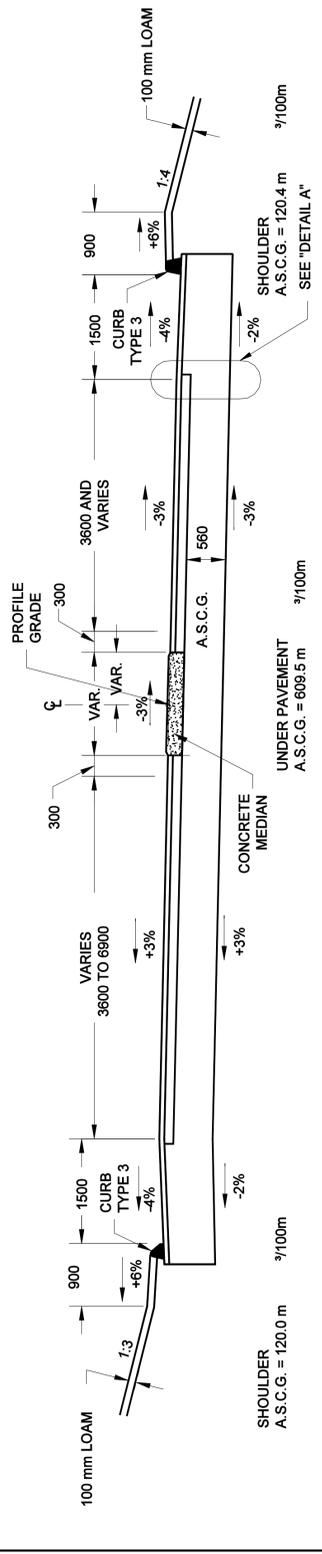
NH-8843(00)E PIN 8843.00



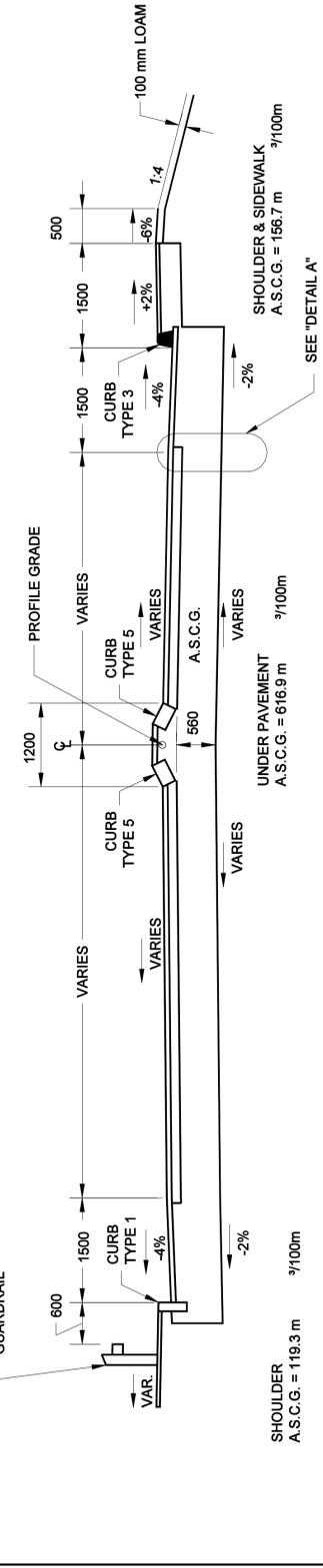
NORMAL SECTION
ROUTE 1A
STA. 10+005 TO STA. 10+130



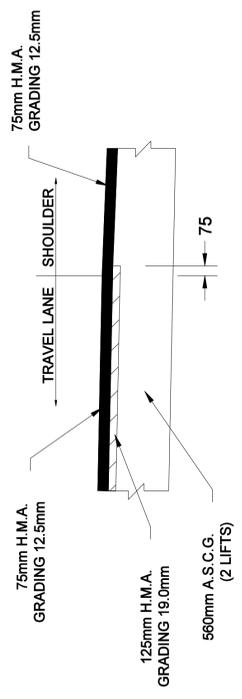
SUPERELEVATED SECTION
ROUTE 1A
STA. 10+130 TO STA. 10+220



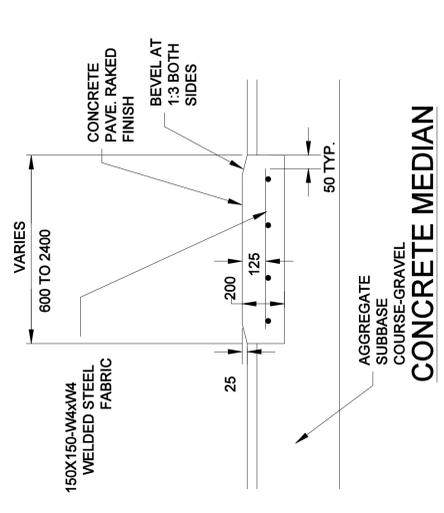
SUPERELEVATED SECTION
ROUTE 1A
STA. 10+220 TO STA. 10+410



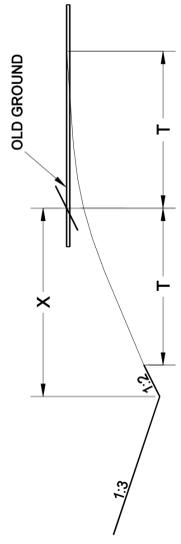
NORMAL SECTION
STATE STREET
STA. 2+020 TO STA. 2+068



DETAIL A
 NOT TO SCALE



CONCRETE MEDIAN



NOTES:

- 1: T = 1.5 m WHEN X > 1.5 m
- 2: T = X WHEN X < 1.5 m
- 3: THIS FORMULA MAY BE MODIFIED IN THE FIELD BY THE RESIDENT TO SAVE SHADE TREES

BACKSLOPE ROUNDING

NOTES:

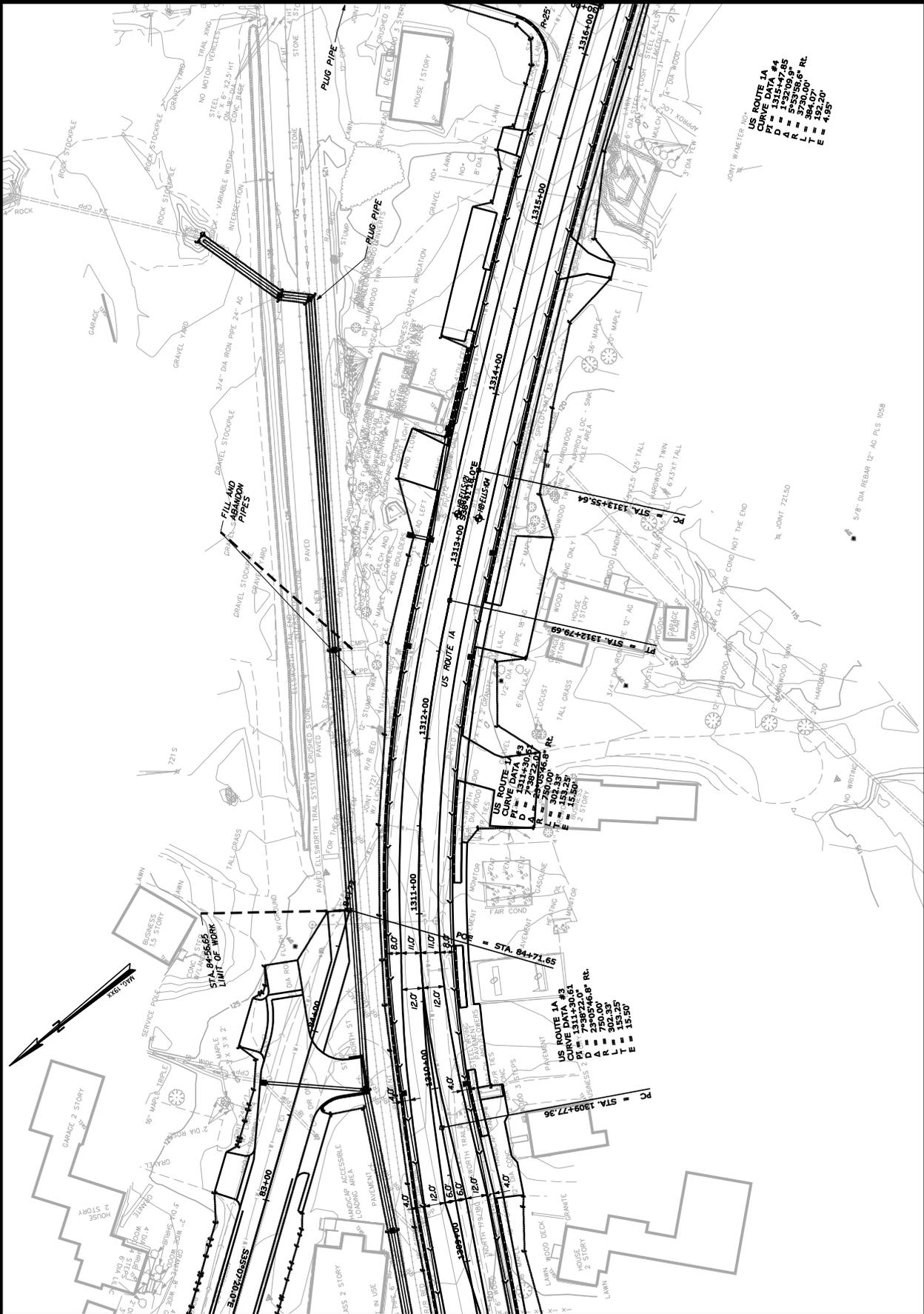
1. THE PAVEMENT BASE AND SUBBASE DEPTHS AS SHOWN ON THE PLANS ARE INTENDED TO BE NOMINAL.
2. "ROLLOVER" ALGEBRAIC DIFFERENCE IN RATES OF CROSS SLOPE SHALL NOT EXCEED 8%.
3. WHEN SUPERELEVATION EXCEEDS THE SLOPE OF THE LOW SIDE SHOULDER, THE LOW SIDE SHOULDER SHALL HAVE THE SAME SLOPE AS THE TRAVELWAY.
4. CROWNS FOR BOTH NORMAL AND SUPERELEVATION SECTIONS FOR ALL COURSES OF SUBBASE AND PAVEMENT SHALL BE STRAIGHT.

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

TYPICAL SECTIONS

PROJECT DESIGN ENGINEER	CASEY & GODFREY
CHECKED	CASEY & GODFREY
REVISIONS	CASEY & GODFREY
FIELD CHANGES	
DATE	11-03
BY	CASEY & GODFREY
DESIGN-DETAILED	CASEY & GODFREY
PLANS	

DATE	BY	REVISIONS
		1. CHECKED - REVISIONS
		2. CHECKED - REVISIONS
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		20. CHECKED - REVISIONS



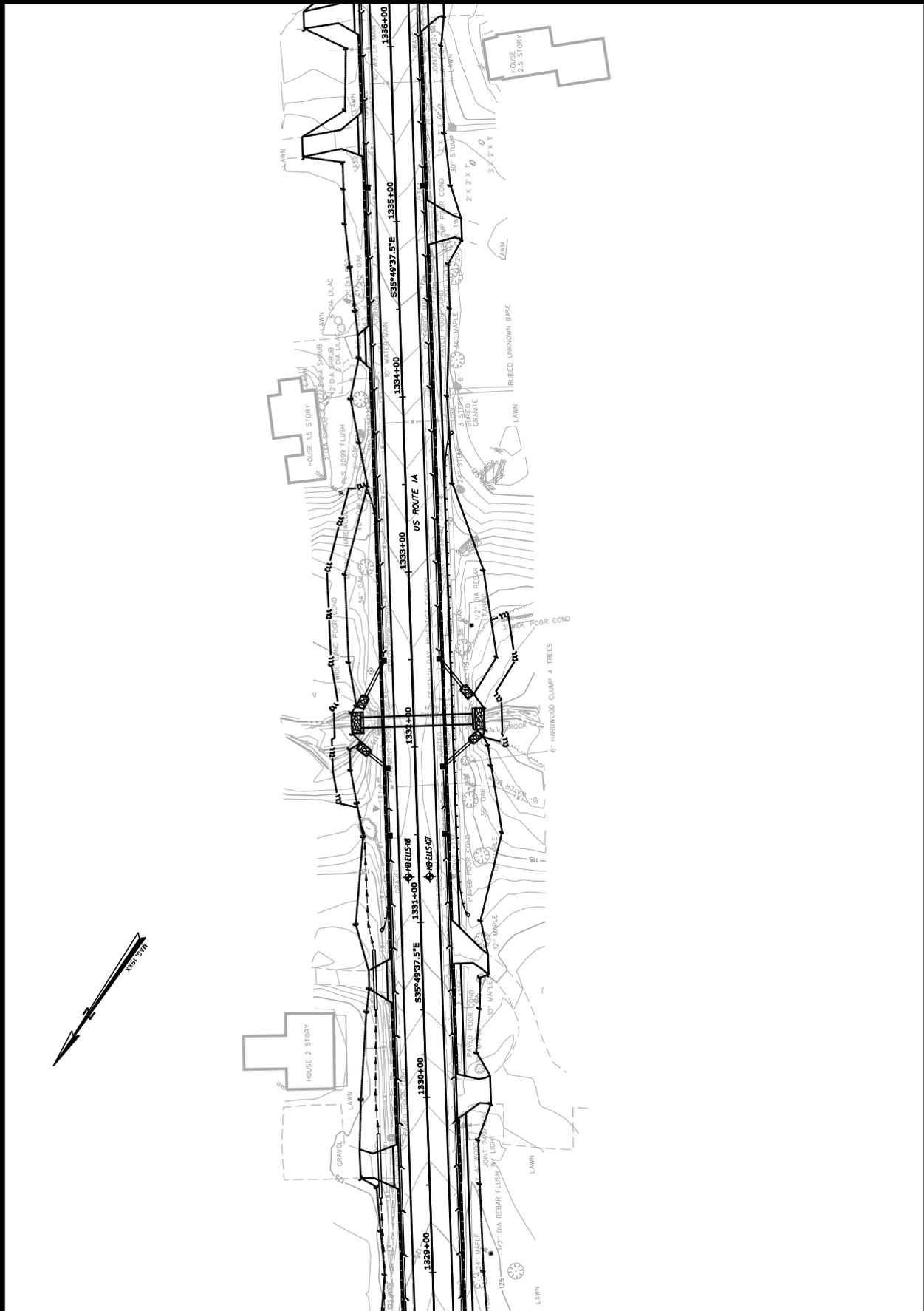
US ROUTE 1A
CURVE DATA #4
P = 1312+79.69
D = 153.25'
A = 23°05'46.8" RL
T = 750.00'
E = 153.25'

US ROUTE 1A
CURVE DATA #3
P = 1311+30.61
D = 77°35'22.0"
A = 23°05'46.8" RL
T = 750.00'
E = 153.25'

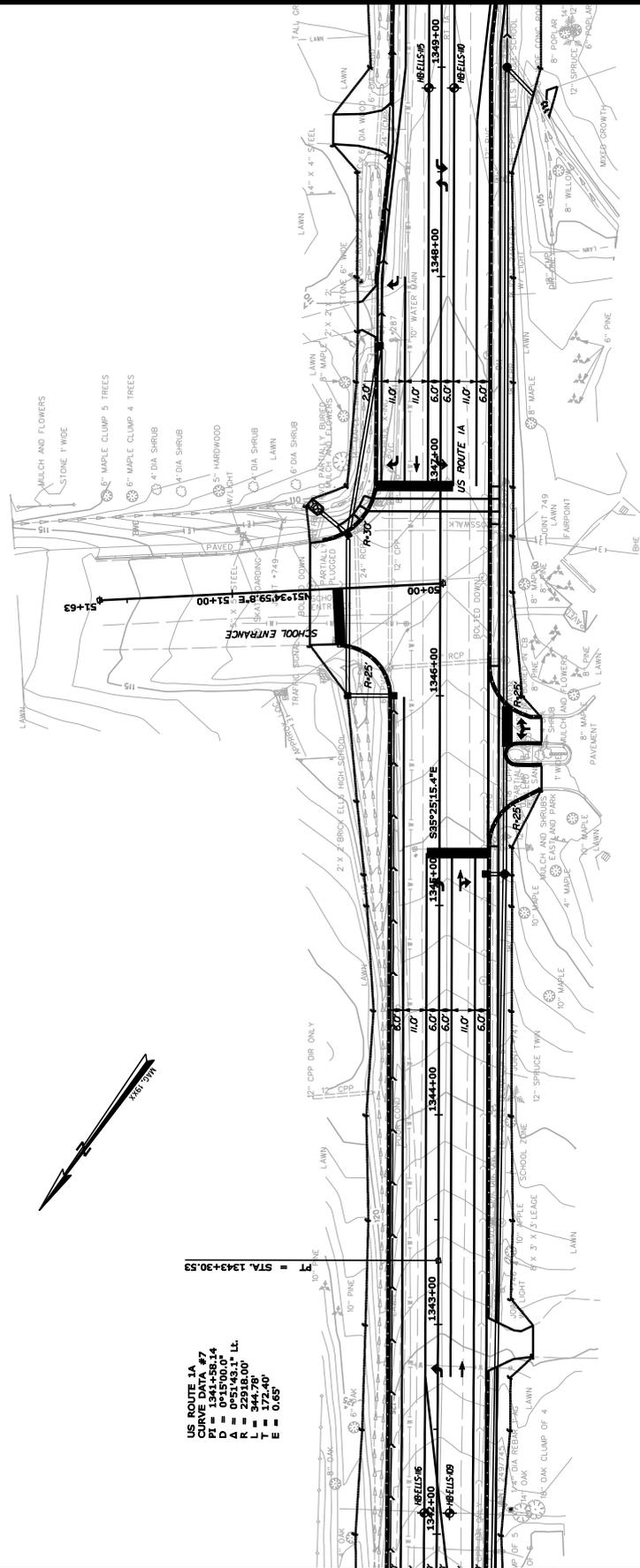
US ROUTE 1A
CURVE DATA #5
P = 1313+00
D = 153.25'
A = 23°05'46.8" RL
T = 750.00'
E = 153.25'

5/8" DIA REBAR 12" AG PLS 008

DATE	BY	REVISION
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		REVISIONS 3
		REVISIONS 2
		REVISIONS 1
		REVISIONS 0
		REVISIONS 1
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		REVISIONS 4
		REVISIONS 5
		REVISIONS 6
		REVISIONS 7
		REVISIONS 8
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		REVISIONS 11
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NO.	DATE	BY	REVISION
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97			REVISION 97
98			REVISION 98
99			REVISION 99
100			REVISION 100



US ROUTE 1A
CURVE DATA #7
PI = 1344+58.14
D = 0515.00 FT
R = 22918.00 FT
L = 344.78'
E = 172.40'
E = 0.65'



