

Maine Department of Transportation
Highway Program

Report of

**SUBSURFACE INVESTIGATION FOR
REHABILITATION AND RECONSTRUCTION
ROUTE 117
IN THE TOWN OF NORWAY, OXFORD COUNTY**

Prepared by

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Geotechnical Design Engineer

Oxford County

PIN 10020.10
Federal STP-A1002(10)X
April, 2009

Soils Report 2009-111

Maine DOT proposes to rebuild a portion of Route 117 in Norway. This is a portion of the project originally intended for this highway. The current project begins 3.06 km south of the intersection of Rte 118 and extends northerly for 1.69 km. This report is a compilation of the data for this section of the original project.

GeoPlan

Boring Logs

Lab Testing Summary Sheet

Grain Size Curves

Probe Summary Sheet

METRIC 1. All dimensions are in millimeters unless otherwise noted.
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-A1002101X	1	10

10020.10

Date: 4/6/2009

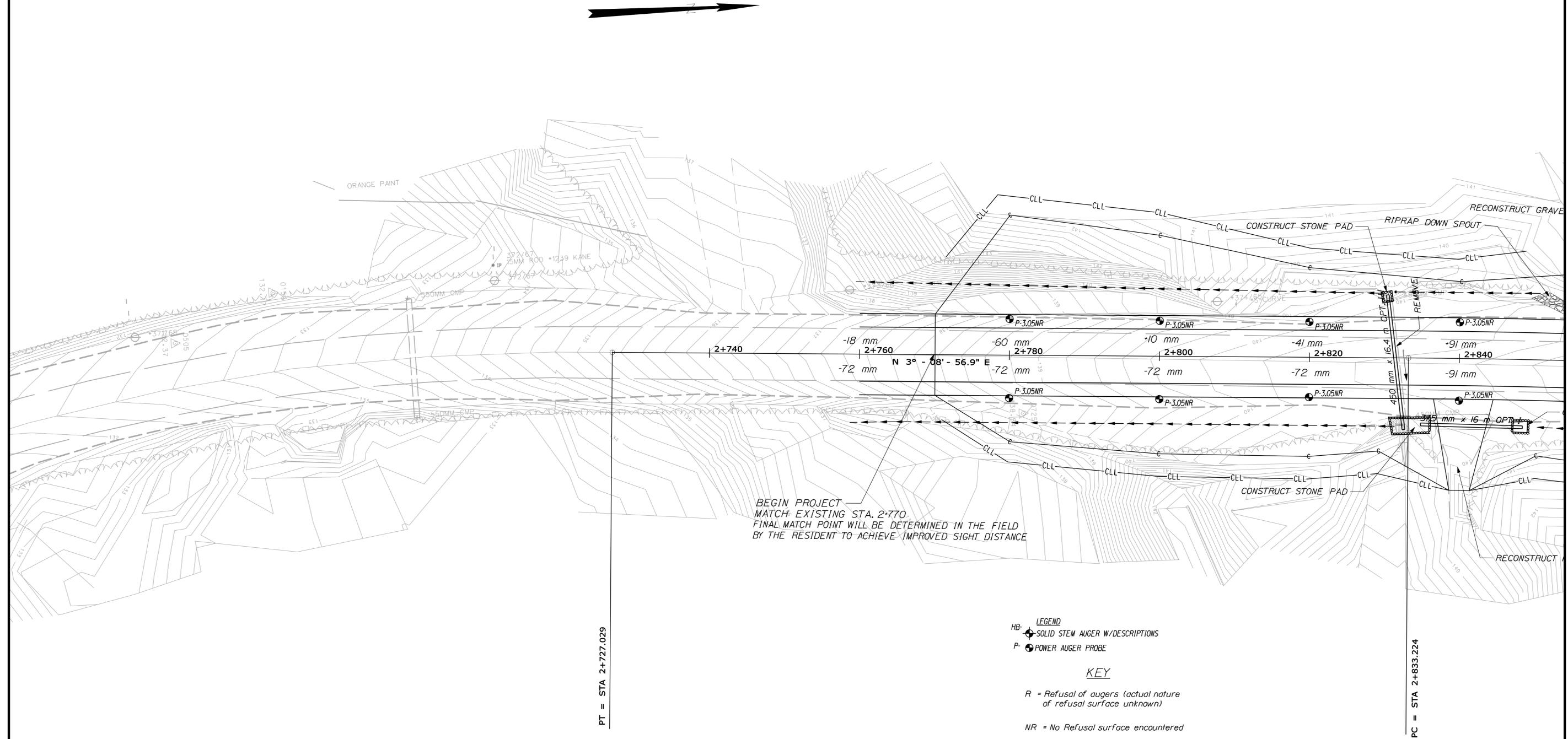
Username: terry.white

Division: GEOTECH

Filename: ... \GEOTECH\MSTA\001_Ceoplan1.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	MAR 2009
DESIGN-DETAILED		
CHECKED		
REVISIONS		
FIELD CHANGES		

PLANS



PT = STA 2+727.029

PC = STA 2+833.224

LEGEND
 HB: SOLID STEM AUGER W/DESCRIPTIONS
 P: POWER AUGER PROBE

KEY
 R = Refusal of augers (actual nature of refusal surface unknown)
 NR = No Refusal surface encountered
 W = Weathered Rock, top of

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

PLANS
 NORWAY
 ROUTE 117
GEOPLANS

SHEET OF AUGUSTA, MAINE

METRIC 1. All dimensions are in millimeters unless otherwise noted.
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-A1002101X	3	10

10020.10

CURVE DATA

PI = 3+200.956
 Δ = 14° - 07' - 24.0" Lt.
 R = 450.000 m
 L = 110.924 m
 T = 55.745 m
 E = 3.440 m

Date: 4/6/2009

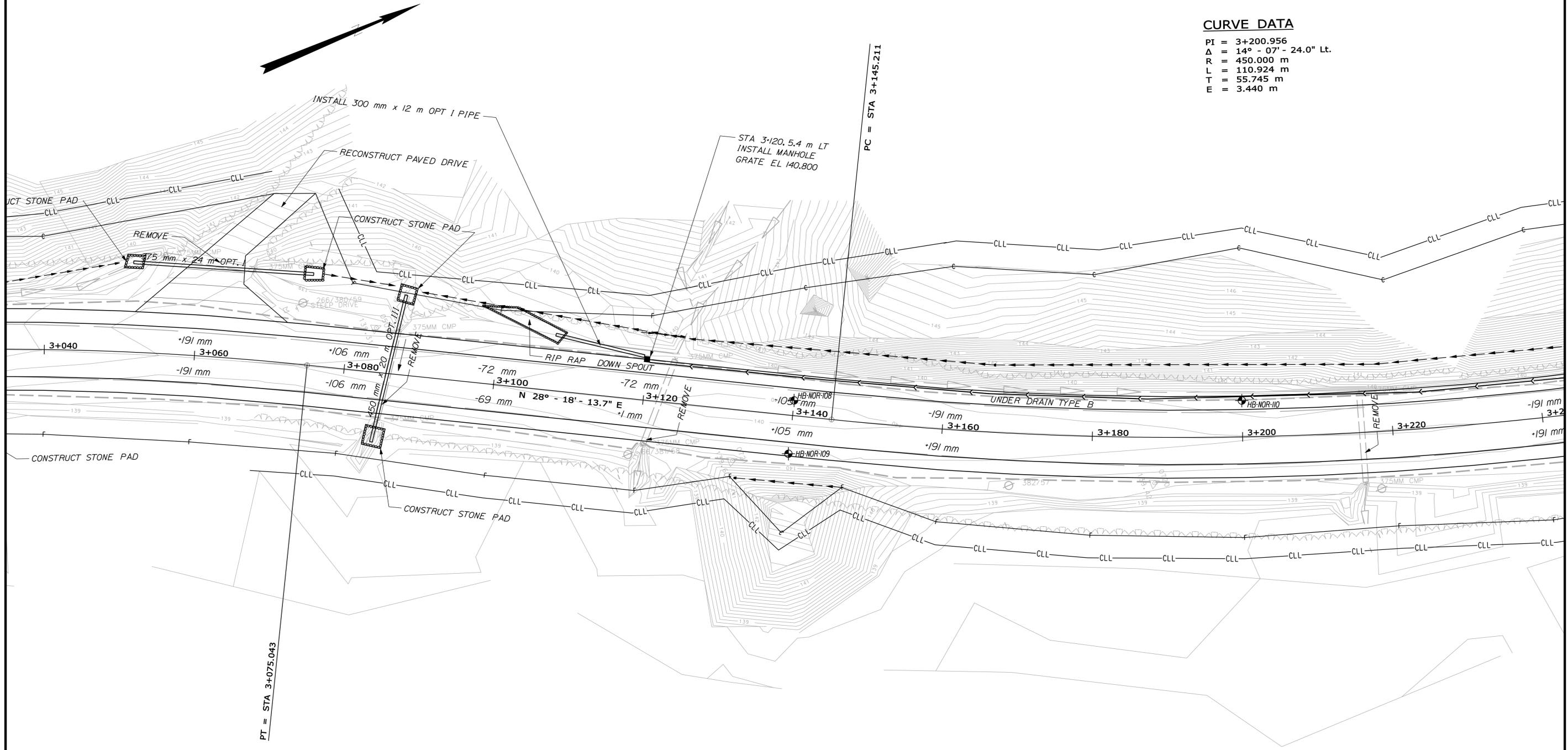
Username: terry.white

Division: GEOTECH

Filename: ... \geotech\msta\003_Geoplan3.dgn

PROJECT DESIGN ENGINEER	BY	DATE
DESIGN-DETAILED	T. WHITE	MAR 2009
CHECKED		
REVISIONS		
FIELD CHANGES		

PLANS



STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

PLANS
 NORWAY
 ROUTE 117
GEOPLANS

SHEET OF AUGUSTA, MAINE

METRIC 1. All dimensions are in millimeters unless otherwise noted.
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-A1002101X	5	10

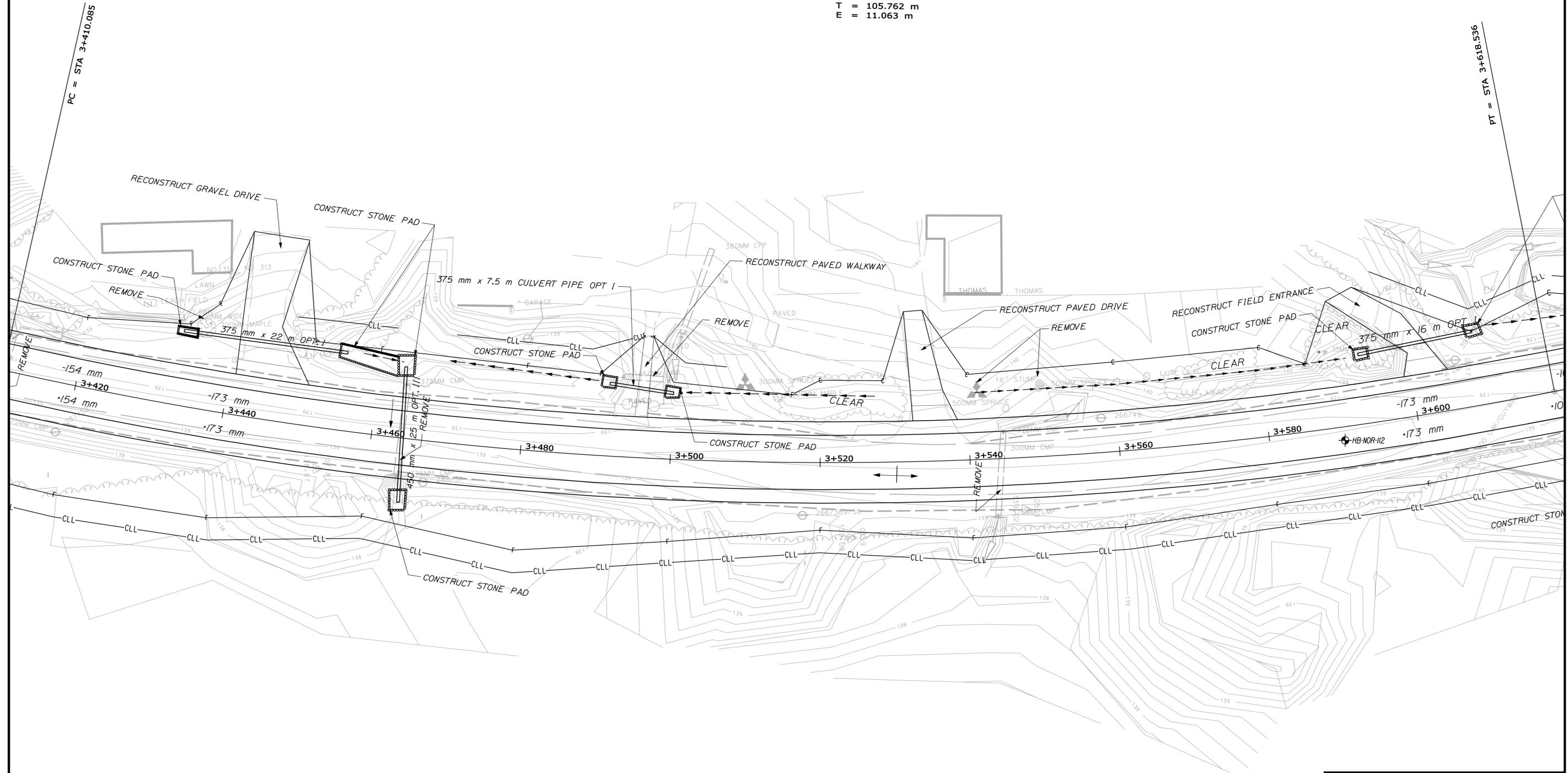
10020.10

CURVE DATA

PI = 3+515.847
 Δ = 23° - 53' - 12.2" Lt.
 R = 500.000 m
 L = 208.451 m
 T = 105.762 m
 E = 11.063 m



Date: 4/6/2009
 Username: terry.white
 Division: GEOTECH
 Filename: ... \geotech\msta\005_Geoplan5.dgn



PROJECT DESIGN ENGINEER	BY	DATE
K. BRISKIN	T. WHITE	MAR 2009
CHECKED		
REVISIONS		
FIELD CHANGES		

PLANS

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

PLANS
 NORWAY
 ROUTE 117
GEOPLANS

SHEET OF AUGUSTA, MAINE

METRIC 1. All dimensions are in millimeters unless otherwise noted.
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-A1002101X	6	10

10020.10

Date: 4/6/2009

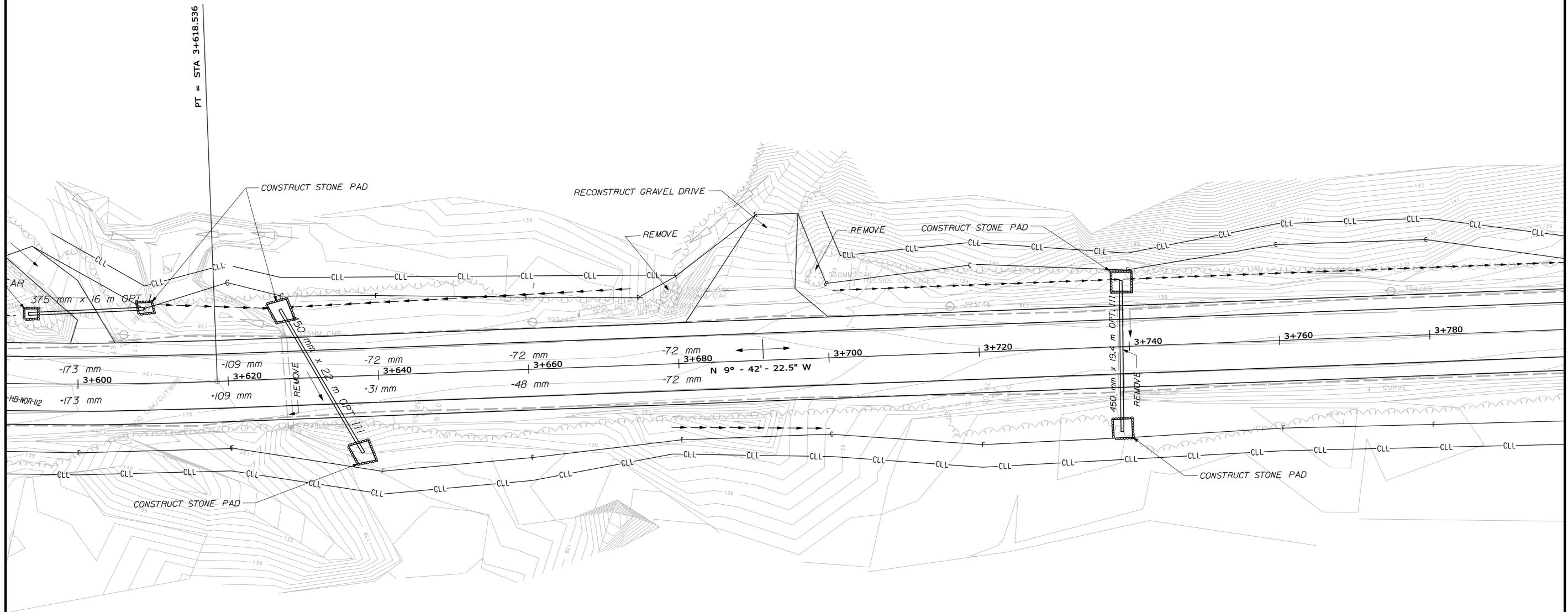
Username: terry.white

Division: GEOTECH

Filename: ... \geotech\msta\006_Geoplans.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	MAR 2009
DESIGN-DETAILED		
CHECKED		
REVISIONS		
FIELD CHANGES		

PLANS



STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

PLANS
 NORWAY
 ROUTE 117
GEOPLANS

SHEET OF AUGUSTA, MAINE

METRIC

1. All dimensions are in millimeters unless otherwise noted.
2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-A1002101X	9	10

10020.10

CURVE DATA

PI = 4+264.317
 $\Delta = 9^\circ - 06' - 19.0''$ Lt.
R = 760.000 m
L = 120.777 m
T = 60.516 m
E = 2.406 m

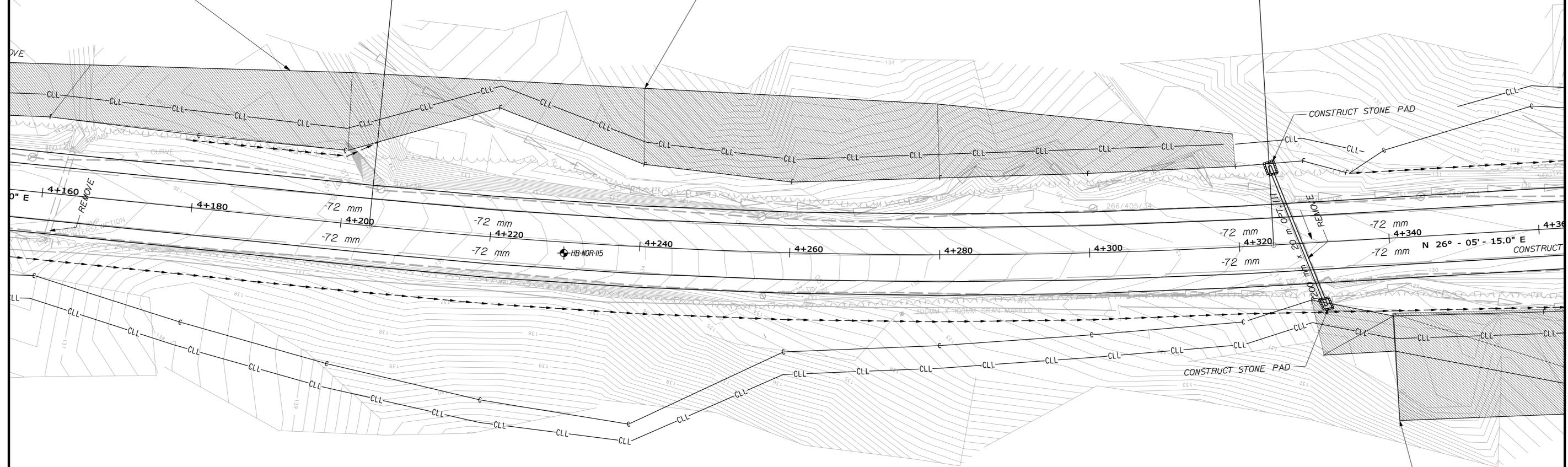
LD BY THE RESIDENT.

mit of stream relocation

PC = STA 4+203.801

CONSTRUCT STREAM RELOCATION:
EXACT LOCATION: BOTH HORIZONTAL AND VERTICAL TO BE DETERMINED IN THE FIELD BY THE RESIDENT.
SEE SPECIAL PROVISION

PT = STA 4+324.578



Date: 4/6/2009

Username: terry.white

Division: GEOTECH

Filename: ... \geotech\msta\009_Geoplan9.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRISKIN	T. WHITE	MAR 2009
DESIGN-DETAILED		
CHECKED		
REVISIONS		
FIELD CHANGES		

PLANS

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PLANS
NORWAY
ROUTE 117

GEOPLANS

METRIC 1. All dimensions are in millimeters unless otherwise noted.
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-A1002101X	10	10

10020.10

CURVE DATA

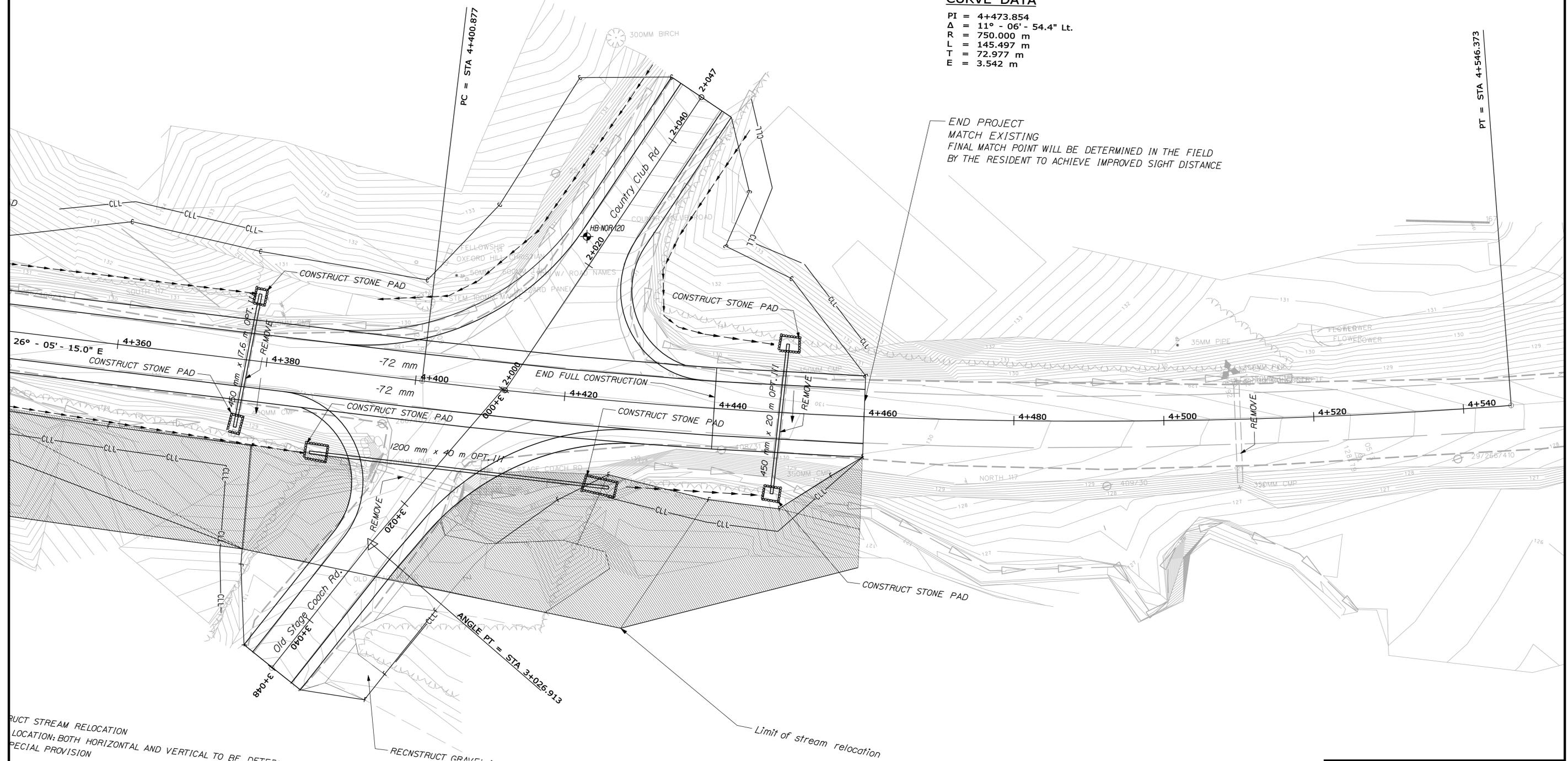
PI = 4+473.854
 $\Delta = 11^\circ - 06' - 54.4''$ Lt.
 R = 750.000 m
 L = 145.497 m
 T = 72.977 m
 E = 3.542 m

Filename: ... \geotech\msta\010_Geoplan10.dgn
 Division: GEOTECH
 Username: terry.white
 Date: 4/6/2009

PROJECT DESIGN ENGINEER	BY	DATE
K. BRISKIN	T. WHITE	MAR 2009
CHECKED		
REVISIONS		
FIELD CHANGES		

PLANS

STRUCT STREAM RELOCATION
 LOCATION: BOTH HORIZONTAL AND VERTICAL TO BE DETERMINED
 SPECIAL PROVISION



STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

PLANS
 NORWAY
 ROUTE 117
GEOPLANS

SHEET OF AUGUSTA, MAINE

Maine Department of Transportation

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 117

Location: Norway, Maine

Boring No.: HB-NOR-107

PIN: 10020.10

Driller: MDOT	Elevation (m): 140.60	Auger ID/OD: 125 mm
Operator: C. Mann	Datum: NGVD	Sampler: Standard Split Spoon
Logged By: G. Lidstone	Rig Type: CME 45C	Hammer Wt./Fall: 63.5 kg/760 mm
Date Start/Finish: 7/25/03-7/25/03	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 3+000, 4.1 Lt.	Casing ID/OD: N/A	Water Level*: 0.91 m bgs.

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 (kPa)
T_v = Pocket Torvane Shear Strength (kPa)
q_p = Unconfined Compressive Strength (Pa)
S_u(lab) = Lab Vane Shear Strength (kPa)
WOH = weight of 64 kg 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

Depth (m)	Sample Information								Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows						
0						SSA		140.45		Brown, moist, sandy GRAVEL, trace silt.		
	1D	61.0/25.4	0.30 - 0.91	12/17/20/25	37					Brown, moist, dense, fine to coarse SAND, some gravel, some silt.	G#176205 A-1-b, SM WC=11.4%	
								139.69				
1.2										Light brown, saturated, fine to coarse SAND, cobbles, some gravel, little silt.		
	2D	25.4/15.2	1.52 - 1.78	23/50(100)	---						G#176206 A-1-b, SM WC=14.3%	
2.4												
								137.56				
3.6										Bottom of Exploration at 3.05 m below ground surface. No Refusal		
4.8												
6												
7.2												
8.4												
9.6												

Remarks:

Driller: MDOT	Elevation (m): 140.00	Auger ID/OD: 125 mm
Operator: C. Mann	Datum: NGVD	Sampler: Standard Split Spoon
Logged By: G. Lidstone	Rig Type: CME 45C	Hammer Wt./Fall: 63.5 kg/760 mm
Date Start/Finish: 7/25/03-7/25/03	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 3+140, 2.0 Lt.	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 (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg 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 (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	139.87		PAVEMENT.		
	1D	22.9/17.8	0.30 - 0.53	18/50(75)	---		139.45		Brown, dry SAND, some GRAVEL, trace silt.	G#176207	
							139.36		Augered into rock.	A-1-b, SW-SM WC=2.6%	
1.2									Bottom of Exploration at 0.64 m below ground surface.		
2.4									Refusal		
3.6											
4.8											
6											
7.2											
8.4											
9.6											

Remarks:

Maine Department of Transportation

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 117

Location: Norway, Maine

Boring No.: HB-NOR-109

PIN: 10020.10

Driller: MDOT	Elevation (m): 139.81	Auger ID/OD: 125 mm
Operator: C. Mann	Datum: NGVD	Sampler: Standard Split Spoon
Logged By: G. Lidstone	Rig Type: CME 45C	Hammer Wt./Fall: 63.5 kg/760 mm
Date Start/Finish: 7/25/03-7/25/03	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 3+140, 5.1 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 (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg 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 (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA				Brown, dry, sandy GRAVEL, trace silt.	
	1D	22.9/17.8	0.30 - 0.53	18/50(75)	---		139.23				-0.58
							139.02			Augered into rock.	-0.79
1.2										Bottom of Exploration at 0.79 m below ground surface. Refusal	
2.4											
3.6											
4.8											
6											
7.2											
8.4											
9.6											

Remarks:

Maine Department of Transportation

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 117

Location: Norway, Maine

Boring No.: HB-NOR-110

PIN: 10020.10

Driller: MDOT	Elevation (m): 140.60	Auger ID/OD: 125 mm
Operator: C. Mann	Datum: NGVD	Sampler: Standard Split Spoon
Logged By: G. Lidstone	Rig Type: CME 45C	Hammer Wt./Fall: 63.5 kg/760 mm
Date Start/Finish: 7/25/03-7/25/03	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 3+200, 4.8 Lt.	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 (kPa)
T_v = Pocket Torvane Shear Strength (kPa)
q_p = Unconfined Compressive Strength (Pa)
S_u(lab) = Lab Vane Shear Strength (kPa)
WOH = weight of 64 kg 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

Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0							140.30		Brown, damp, sandy GRAVEL, trace silt.	G#176208 A-2-4, SM WC=10.8%	
	1D	61.0/27.9	0.30 - 0.91	4/5/9/16	14		139.39		Brown, moist, medium dense, silty fine SAND, some gravel, little medium to coarse sand.		
1.2							137.56		Light brown, moist, fine to medium SAND, frequent cobbles, little gravel, trace silt, trace coarse sand.	G#176209 A-1-b, SM WC=11.1%	
	2D	22.9/15.2	1.52 - 1.75	17/50(75)	---		137.56		Bottom of Exploration at 3.05 m below ground surface. No Refusal		
2.4											
3.6											
4.8											
6											
7.2											
8.4											
9.6											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

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

Maine Department of Transportation

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 117

Location: Norway, Maine

Boring No.: HB-NOR-111

PIN: 10020.10

Driller: MDOT	Elevation (m): 139.60	Auger ID/OD: 125 mm
Operator: C. Mann	Datum: NGVD	Sampler: Standard Split Spoon
Logged By: G. Lidstone	Rig Type: CME 45C	Hammer Wt./Fall: 63.5 kg/760 mm
Date Start/Finish: 7/25/03-7/25/03	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 3+280, 4.8 Lt.	Casing ID/OD: N/A	Water Level*: 1.01 m bgs.

<p>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</p>	<p>Definitions: S_u = Insitu Field Vane Shear Strength (kPa) T_v = Pocket Torvane Shear Strength (kPa) q_p = Unconfined Compressive Strength (Pa) S_u(lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing</p>	<p>Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test</p>
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	139.36		Brown, damp, sandy GRAVEL, trace silt.		
	1D	61.0/17.8	0.40 - 1.01	5/4/8/13	12		139.36		Brown, moist, medium dense, fine to coarse SAND, some gravel, trace silt.	-0.24	
1.2							138.59		Similar to above, but wet and with cobbles.	-1.01	
							138.32		Bottom of Exploration at 1.28 m below ground surface. Refusal	-1.28	
2.4											
3.6											
4.8											
6											
7.2											
8.4											
9.6											

Remarks:

Maine Department of Transportation

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 117

Location: Norway, Maine

Boring No.: HB-NOR-112

PIN: 10020.10

Driller: MDOT	Elevation (m): 139.29	Auger ID/OD: 125 mm
Operator: C. Mann	Datum: NGVD	Sampler: Standard Split Spoon
Logged By: G. Lidstone	Rig Type: CME 45C	Hammer Wt./Fall: 63.5 kg/760 mm
Date Start/Finish: 7/25/03-7/25/03	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 3+590, 1.8 Rt.	Casing ID/OD: N/A	Water Level*: None Observed

<p>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</p>	<p>Definitions: S_u = Insitu Field Vane Shear Strength (kPa) T_v = Pocket Torvane Shear Strength (kPa) q_p = Unconfined Compressive Strength (Pa) S_u(lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods WOC = weight of casing</p>	<p>Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test</p>
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	139.16		PAVEMENT.		
	1D	10.2/5.1	0.30 - 0.41	50(100)	---					Brown, damp, sandy GRAVEL, cobbles, trace silt.	-0.14
							138.53		Light brown, moist, very dense, fine to medium SAND.	-0.76	
1.2											
2.4							137.16		Bottom of Exploration at 2.13 m below ground surface. No Refusal	-2.13	
3.6											
4.8											
6											
7.2											
8.4											
9.6											

Remarks:

Maine Department of Transportation

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 117

Location: Norway, Maine

Boring No.: HB-NOR-115

PIN: 10020.10

Driller: MDOT	Elevation (m): 134.51	Auger ID/OD: 125 mm
Operator: C. Mann	Datum: NGVD	Sampler: Standard Split Spoon
Logged By: K. Breskin	Rig Type: CME 45C	Hammer Wt./Fall: 63.5 kg/760 mm
Date Start/Finish: 7/28/03-7/28/03	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 4+230, 1.7 Rt. of existing CL.	Casing ID/OD: N/A	Water Level*: 1.46 m bgs.

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 (kPa)
T_v = Pocket Torvane Shear Strength (kPa)
q_p = Unconfined Compressive Strength (Pa)
S_u(lab) = Lab Vane Shear Strength (kPa)
WOH = weight of 64 kg 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

Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	134.39		ASPHALT PAVEMENT.		
	1D	61.0/30.5	0.30 - 0.91	21/23/13/10	36		134.02		Brown, moist, dense, SAND and GRAVEL.	-0.12	
									Brown, moist, dense, fine SAND with cobbles.	-0.49	
1.2											
	2D	61.0/45.7	1.52 - 2.13	4/17/13/28	30		132.98		Brown-grey, wet, dense, fine SAND, some silt.	-1.52	
							132.38				
2.4									Bottom of Exploration at 2.13 m below ground surface. No Refusal		
3.6											
4.8											
6											
7.2											
8.4											
9.6											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

Driller: MDOT	Elevation (m): 137.89	Auger ID/OD: 125 mm
Operator: C. Mann	Datum: NGVD	Sampler: Standard Split Spoon
Logged By: K. Breskin	Rig Type: CME 45C	Hammer Wt./Fall: 63.5 kg/760 mm
Date Start/Finish: 7/28/03-7/28/03	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 4+040, 4.0 Rt. of existing CL.	Casing ID/OD: N/A	Water Level*: 1.46 m bgs.

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 (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg 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 (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA				Brown, moist, medium dense, silty SAND.	
	1D	61.0/30.5	0.30 - 0.91	2/3/4/4	7						
1.2							136.67			Dark grey, very dense SAND, some silt, trace coarse sand, trace gravel.	
	2D	61.0/61.0	1.52 - 2.13	21/35/36/51	71						G#176212 A-2-4, SM WC=8.2%
2.4							135.76			Bottom of Exploration at 2.13 m below ground surface. No Refusal	
3.6											
4.8											
6											
7.2											
8.4											
9.6											

Remarks:

Maine Department of Transportation

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 117

Location: Norway, Maine

Boring No.: HB-NOR-117

PIN: 10020.10

Driller: MDOT	Elevation (m): 138.50	Auger ID/OD: 125 mm
Operator: C. Mann	Datum: NGVD	Sampler: Standard Split Spoon
Logged By: K. Breskin	Rig Type: CME 45C	Hammer Wt./Fall: 63.5 kg/760 mm
Date Start/Finish: 7/28/03-7/28/03	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 3+960, 2.5 Lt. of existing CL.	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 (kPa)
T_v = Pocket Torvane Shear Strength (kPa)
q_p = Unconfined Compressive Strength (Pa)
S_u(lab) = Lab Vane Shear Strength (kPa)
WOH = weight of 64 kg 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

Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	138.38		ASPHALT PAVEMENT.		
	1D	61.0/45.7	0.30 - 0.91	8/12/4/5	16		138.23		Black, moist, medium dense, sandy GRAVEL, trace silt, (Macadam).	-0.12	
							138.07		Brown, moist, medium dense, sandy GRAVEL.	-0.27	
							137.92		Grey-brown, moist, loose, silty fine SAND.	-0.43	
1.2									Grey, moist, medium dense, silty fine SAND, trace gravel.	-0.58	
	2D	61.0/50.8	1.52 - 2.13	6/6/10/18	16						
							136.37		Bottom of Exploration at 2.13 m below ground surface. No Refusal	-2.13	
2.4											
3.6											
4.8											
6											
7.2											
8.4											
9.6											

G#176213
A-4, SM
WC=10.3%

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

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

Driller: MDOT	Elevation (m): 131.40	Auger ID/OD: 125 mm
Operator: C. Mann	Datum: NGVD	Sampler: N/A
Logged By: K. Breskin	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 7/28/03-7/28/03	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 4+421, 21.0 Lt. of existing CL.	Casing ID/OD: N/A	Water Level*: 1.68 m bgs.

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 (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg 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 (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	131.32		ASPHALT PAVEMENT.		
									Brown, moist, fine SAND, some gravel.	-0.08	
							130.49			-0.91	
1.2									Boulder from 1.37-1.83 m bgs.		
2.4									Boulder from 2.13-2.44 m bgs.		
							128.35		Bottom of Exploration at 3.05 m below ground surface. No Refusal	-3.05	
3.6											
4.8											
6											
7.2											
8.4											
9.6											

Remarks:
Country Club Road, no macadam.

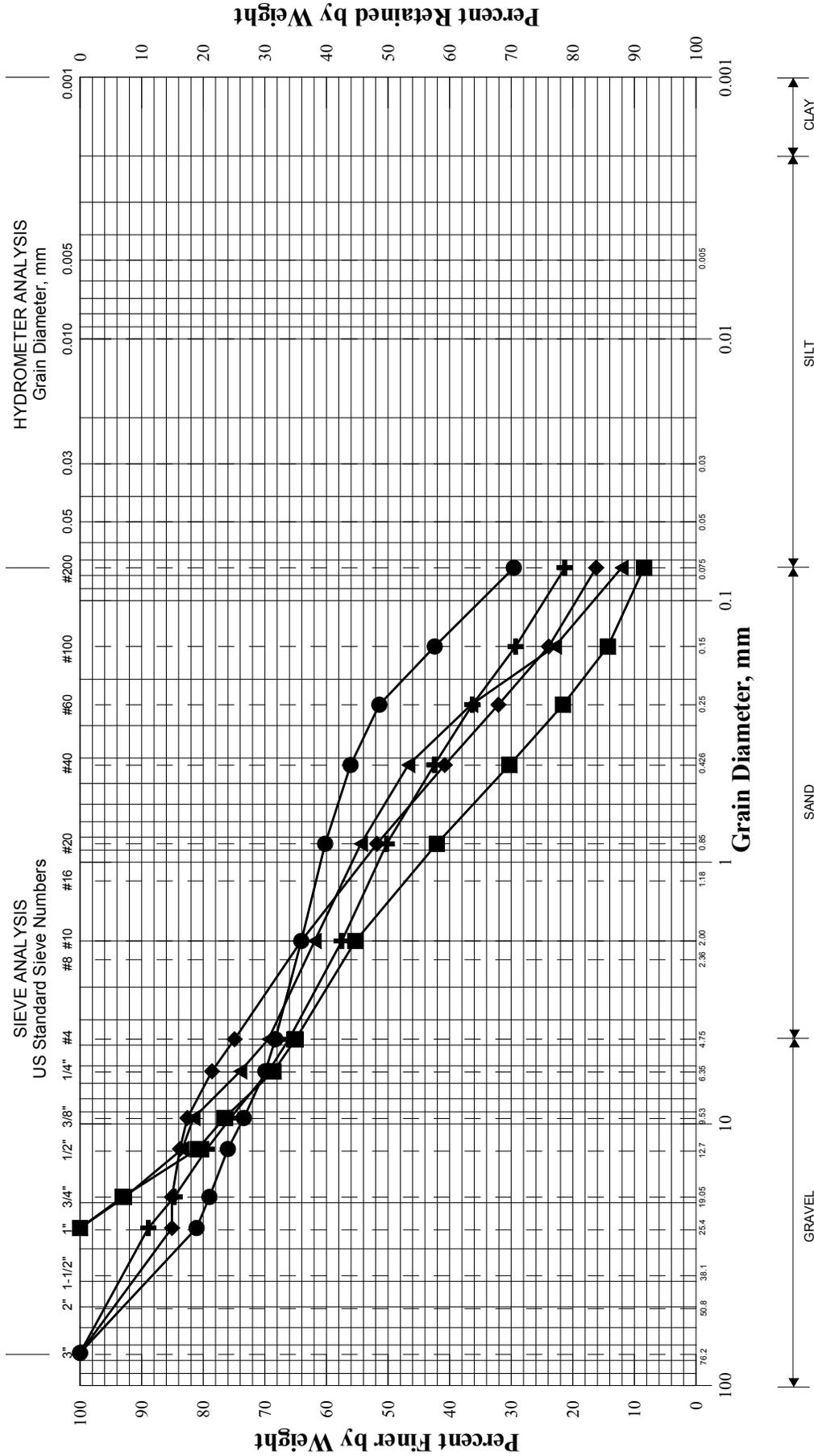
Driller: MDOT	Elevation (m): 138.20	Auger ID/OD: 125 mm
Operator: C. Mann	Datum: NGVD	Sampler: N/A
Logged By: K. Breskin	Rig Type: CME 45C	Hammer Wt./Fall: N/A
Date Start/Finish: 7/28/03-7/28/03	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 3+840, 2.6 Lt.	Casing ID/OD: N/A	Water Level*: N/A

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 (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg 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 (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA					
1.2											
2.4						▽	135.76			-2.44	Bottom of Exploration at 2.44 m below ground surface. No Refusal
3.6											
4.8											
6											
7.2											
8.4											
9.6											

Remarks:

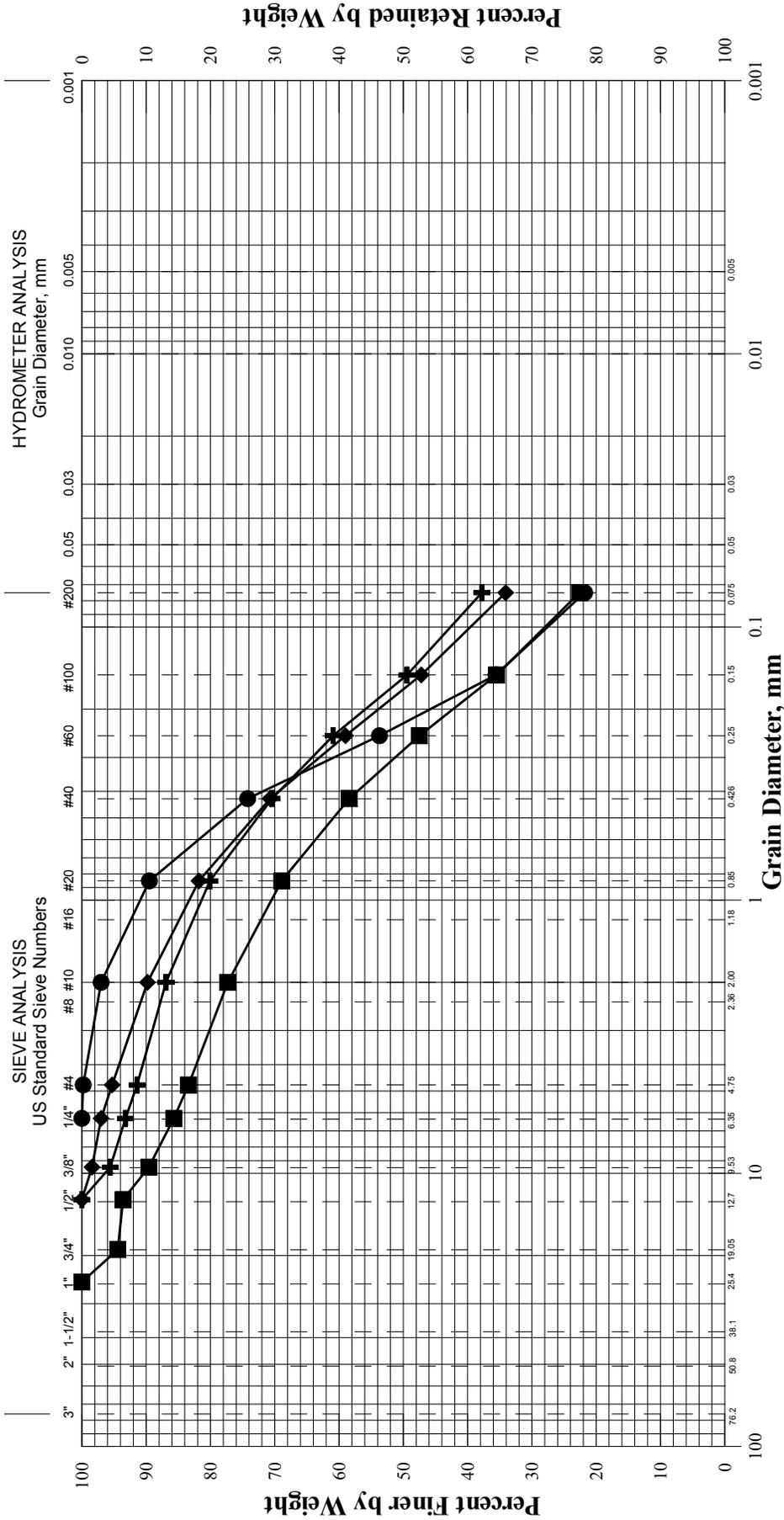
State of Maine Department of Transportation
GRAIN SIZE DISTRIBUTION CURVE



Boring No.	Sample No.	Depth (m)	Description	w%	LL	PL	PI
+	HB-NOR-107 1D	0.30-0.91	SAND, some gravel, some silt.	11.4			
◆	HB-NOR-107 2D	1.52-1.78	SAND, some gravel, little silt.	14.3			
■	HB-NOR-108 1D	0.30-0.53	SAND, some gravel, trace silt.	2.6			
●	HB-NOR-110 1D	0.30-0.91	SAND, some gravel, little silt.	10.8			
▲	HB-NOR-110 2D	1.52-1.75	SAND, some gravel, little silt.	11.1			
×							

PIN: 10020.00
Town: Norway
Reported by: T. White
Date: 8/26/03

State of Maine Department of Transportation
GRAIN SIZE DISTRIBUTION CURVE



UNIFIED CLASSIFICATION

Boring No.	Sample No.	Depth (m)	Description	w%	LL	PL	PI
HB-NOR-117	2D	1.52-2.13	Silty SAND, trace gravel.	10.3			
HB-NOR-116	2D	1.52-2.13	SAND, some silt, trace gravel.	8.2			
HB-NOR-113	1D	0.30-0.91	SAND, some silt, little gravel.	11.1			
HB-NOR-113	2D	1.52-2.13	SAND, some silt, trace gravel.	29.5			

PIN: 10020.00
Town: Norway
Reported by: T. White
Date: 8/26/03

