

Maine Department of Transportation
Highway Program

GEOTECHNICAL SERIES 100 REPORT
Route 117 Strut Replacement
Denmark, Maine

Prepared by:
Scott A. Hayden, C.G.
Soils Research Scientist

Oxford County

PIN 17529.00

Soils Report 2010-113

August 10, 2010

Highway Program

Brad Foley, Program Manager

Memorandum

TO: Aaron Eaton
FROM: Scott A. Hayden
SUBJECT: Soils – Denmark, Route 117 Strut Replacement, Pin 17529.00

DATE: August 10, 2010
DEPT: Region 1
DEPT: Highway Program

Please find attached the requested boring information for the Denmark, Route 117 Strut replacement.

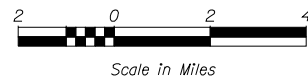
STATE OF MAINE DEPARTMENT OF TRANSPORTATION



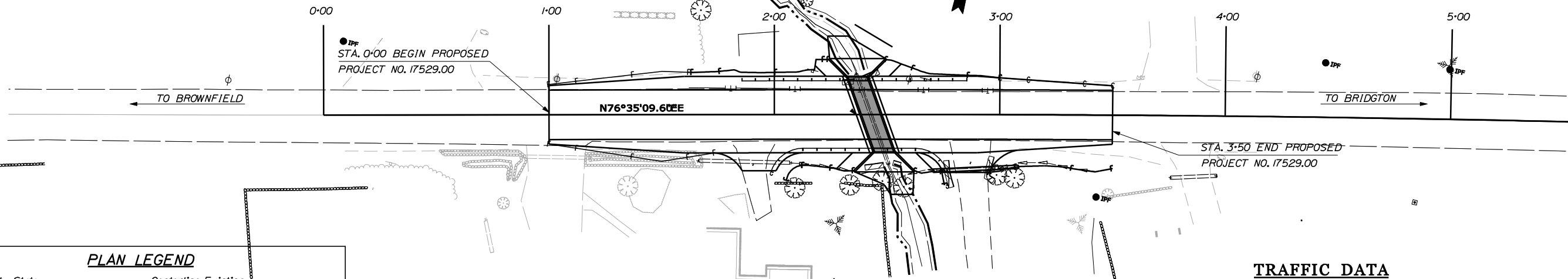
DENMARK OXFORD COUNTY ROUTE 117 STATE PROJECT NO. 17529.00 PROJECT LENGTH : 0.01 MILES REHABILITATION



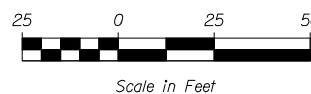
LOCATION MAP



SHEET NO. 1



LAYOUT SCALE



INDEX OF SHEETS	
Description	Sheet No.
Title Sheet	1
Typical Sections	2-3
Box Typical	4
Estimated Quantities	5
Drainage Notes	6
General Notes	7
Plan/Profile	8
Cross - Sections	9-11

PLAN LEGEND	
Town, County, State	Centerline-Existing
Property Lines	Centerline-Proposed
R/W Lines-Existing	Travelway-Existing
R/W Lines-Proposed	Travelway-Proposed
Culvert-Existing	Railroad
Culvert-Proposed	
Curbing	Catch Basins
Type 1	Existing
Type 3	Proposed
Type 5	Manholes
	Existing
	Proposed
Outline of Bodies of Water	Proposed Underdrain
Ledge	Proposed Ditch
Buildings	Existing Ditch
Trees	Utility Poles
Conifer	Existing
Deciduous	Proposed
Tree Line	Fire Hydrants
Clearing Limit Line	Existing
	Proposed
	Existing Water Line
	Existing San. Sewer
	Existing San. Sewer Manhole
	Guardrail-Existing
	Guardrail-Proposed
	Guardrail-Cable, Other

TRAFFIC DATA

Current (2010) AADT 1980
 Future (2022) AADT 2220
 Design Speed (mph) 30 mph
 Functional Class: ... Minor Collector

PROGRAM AREA: STRUTS - REGION I
 SCOPE OF WORK: STRUT REPLACEMENT

STATE OF MAINE	DEPARTMENT OF TRANSPORTATION	APPROVED	DATE
		COMMISSIONER:	CHIEF ENGINEER:

SIGNATURE	F.E. NUMBER	DATE
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PROGRAM	PROJECT MANAGER	DESIGNER	CONSULTANT	PROJECT RESIDENT	CONTRACTOR	PROJECT COMPLETION DATE
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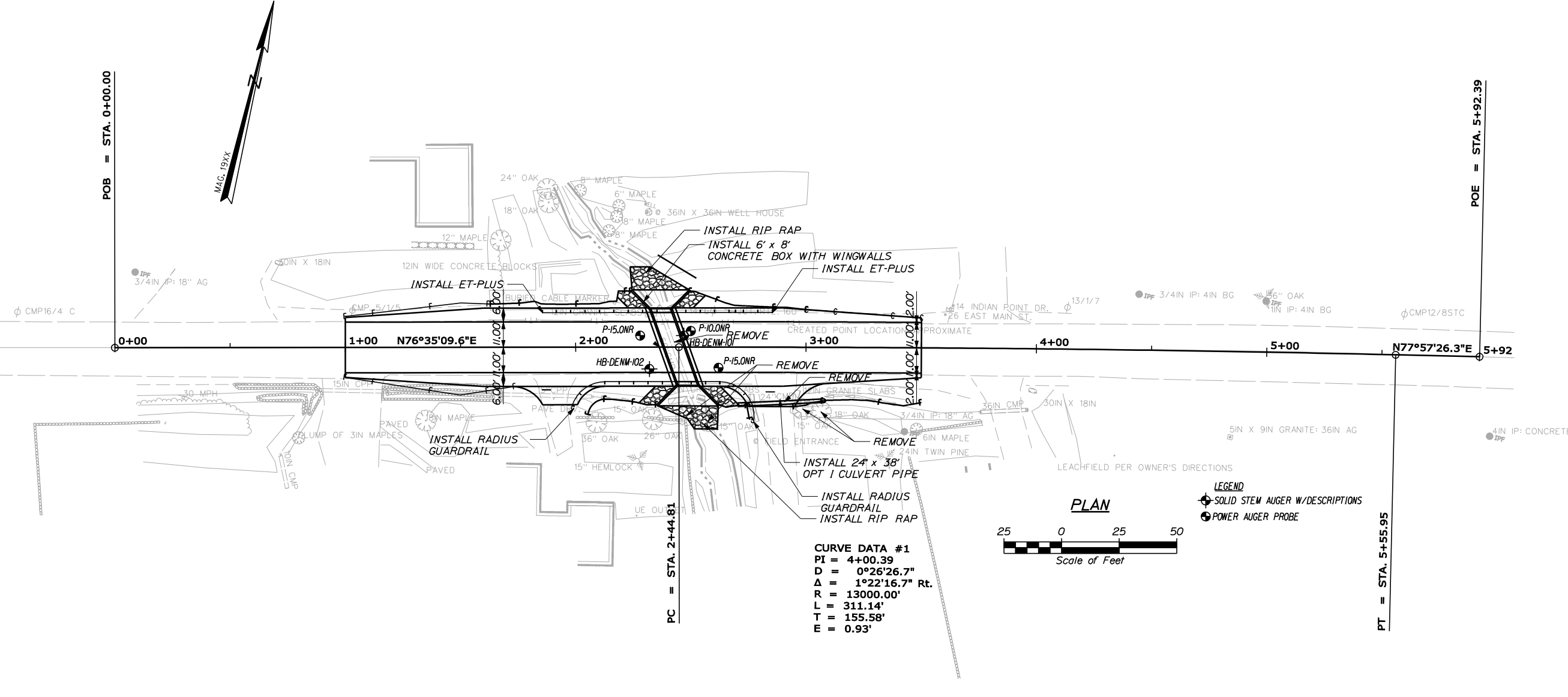
STATE PROJECT NO. 17529.00 PIN 17529.00

DENMARK
ROUTE 117
TITLE SHEET

SHEET NUMBER

1

OF 11



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
17529.00
PIN
17529.00
HIGHWAY PLANS

PROJ. MANAGER	BY	DATE	SIGNATURE	P.E. NUMBER	DATE
DESIGN-DETAILED	S.HAYDEN	JULY 2010			
CHECKED-REVIEWED	T.WHITE				
DESIGNS-DETAILED					
REVISIONS 1					
REVISIONS 2					
REVISIONS 3					
REVISIONS 4					
FIELD CHANGES					

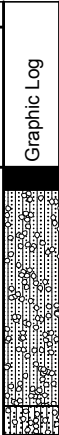

DENMARK
ROUTE 117 STRUT REHAB
GEOPLANS

SHEET NUMBER
1
OF 1

Driller: MaineDOT	Elevation (ft.): 511.2	Auger ID/OD: 5" Dia.
Operator: Giguere/Giles/Daggett	Datum: NAVD 88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 7/13/10; 11:30-12:30	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 2+47, 5.0 Lt.	Casing ID/OD: N/A	Water Level*: None Observed

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

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

Depth (ft.)	Sample Information								Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N ₆₀	Casing Blows					
0								SSA	510.75		PAVEMENT. ————0.45	G#238119 A-1-b, SW-SM WC=1.7%
	1D	24/17	1.00 - 3.00	9/10/11/10	21	29					Brown, dry, medium dense, fine to coarse SAND, some gravel, trace silt.	
5									506.20		—————5.00	G#238120 A-1-b, SM WC=6.8%
	2D	7.2/6	5.00 - 5.60	9/30(1.2")	---				505.60		Brown, wet, dense, silty, fine to medium SAND, little gravel. Bottom of Exploration at 5.60 feet below ground surface. Possible Boulder REFUSAL	
10												
15												
20												
25												

Remarks:

Driller: MaineDOT	Elevation (ft.): 511.3	Auger ID/OD: 5" Dia.
Operator: Giguere/Giles/Daggett	Datum: NAVD 88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: CME 45C	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 7/13/10; 12:30-1:30	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 2+32, 9.5 Rt.	Casing ID/OD: N/A	Water Level*: None Observed

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

Definitions: R = Rock Core Sample S_u = In situ Field Vane Shear Strength (psf) S_{u(lab)} = Lab Vane Shear Strength (psf)
D = Split Spoon Sample SSA = Solid Stem Auger T_v = Pocket Torvane Shear Strength (psf) WC = water content, percent
MD = Unsuccessful Split Spoon Sample attempt HSA = Hollow Stem Auger q_p = Unconfined Compressive Strength (ksf)
U = Thin Wall Tube Sample RC = Roller Cone N-uncorrected = Raw field SPT N-value
MU = Unsuccessful Thin Wall Tube Sample attempt WOH = weight of 140lb. hammer Hammer Efficiency Factor = Annual Calibration Value
V = In situ Vane Shear Test, PP = Pocket Penetrometer WOR/C = weight of rods or casing N₆₀ = SPT N-uncorrected corrected for hammer efficiency
MV = Unsuccessful Insitu Vane Shear Test attempt WO1P = Weight of one person N₆₀ = (Hammer Efficiency Factor/60%)*N-uncorrected
LL = Liquid Limit PL = 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	510.85		PAVEMENT. ————— 0.45	
	1D	24/12	1.00 - 3.00	5/15/12/25	27	38					Light brown, moist, medium dense, fine to coarse SAND, some gravel, trace silt.	G#238121 A-1-b, SW WC=2.2%
5									506.60		WOOD from 4.7-5.3' bgs. ————— 4.70	
	2D	6/6	5.00 - 5.50	50	---				506.00	COBBLE from 5.3-5.7' bgs. ————— 5.30	G#238122 A-1-b, SW-SM WC=14.8%	
									505.60			
10											Brown, wet, medium dense, fine to coarse SAND, some gravel, trace silt.	G#238123 A-2-4, SM WC=12.0%
	3D	24/16	10.00 - 12.00	7/11/9/11	20	28						
									499.30		Bottom of Exploration at 12.00 feet below ground surface. NO REFUSAL ————— 12.00	
15												
20												
25												

Remarks:

State of Maine - Department of Transportation
Power Auger Probe Summary Sheet

Town(s): Denmark

Project Number: 17529.00

Station (Feet)	Offset (Feet)	Pavement Depth (Feet)	Refusal (Feet)	No Refusal (Feet)	Water Depth (Ft.)	Comments / Date
2+28	5.0 Lt.	0.45		15.0		7/13/2010
2+50	7.0 Lt.	0.45		10.0		
2+62	9.0 Rt.	0.45		15.0		

State of Maine - Department of Transportation
Laboratory Testing Summary Sheet

Town(s): Denmark

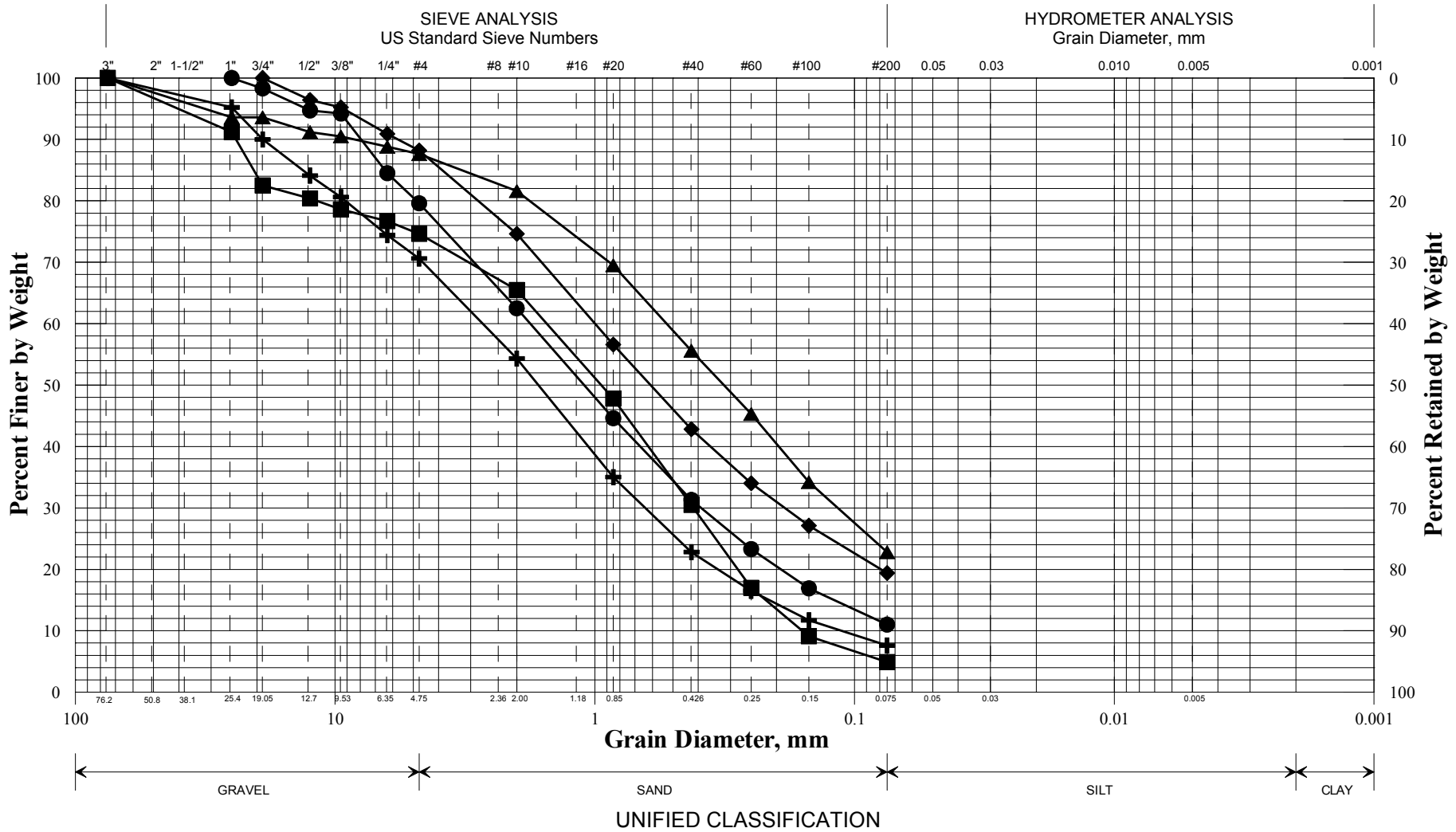
Project Number: 17529.00

Boring & Sample Identification Number	Station (Feet)	Offset (Feet)	Depth (Feet)	Reference Number	G.S.D.C. Sheet	W.C.	% Passing 200 Sieve	Classification		
								Unified	AASHTO	Frost
HB-DENM-101, 1D	2+47	5.0 Lt.	1.0-3.0	238119	1	1.7	7.6	SW-SM	A-1-b	0
HB-DENM-101, 2D	2+47	5.0 Lt.	5.0-5.6	238120	1	6.8	19.4	SM	A-1-b	II
HB-DENM-102, 1D	2+32	9.5 Rt.	1.0-3.0	238121	1	2.2	4.9	SW	A-1-b	0
HB-DENM-102, 2D	2+32	9.5 Rt.	5.0-5.5	238122	1	14.8	11.0	SW-SM	A-1-b	0
HB-DENM-102, 3D	2+32	9.5 Rt.	10.0-12.0	238123	1	12.0	22.8	SM	A-2-4	II

Classification of these soil samples is in accordance with AASHTO Classification System M-145-40. This classification is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible). The "Frost Susceptibility Rating" is based upon the MDOT and Corps of Engineers Classification Systems.

GSDC = Grain Size Distribution Curve as determined by AASHTO T 88-93 (1996) and/or ASTM D 422-63 (Reapproved 1998)
 WC = water content as determined by AASHTO T 265-93 and/or ASTM D 2216-98
 LL = Liquid limit as determined by AASHTO T 89-96 and/or ASTM D 4318-98
 PI = Plasticity Index as determined by AASHTO 90-96 and/or ASTM D4318-98

State of Maine Department of Transportation
GRAIN SIZE DISTRIBUTION CURVE



	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI
+	HB-DENM-101/1D	2+47	5.0 LT	1.0-3.0	SAND, some gravel, trace silt.	1.7			
◆	HB-DENM-101/2D	2+47	5.0 LT	5.0-5.6	SAND, little silt, little gravel.	6.8			
■	HB-DENM-102/1D	2+32	9.5 RT	1.0-3.0	SAND, some gravel, trace silt.	2.2			
●	HB-DENM-102/2D	2+32	9.5 RT	5.0-5.5	SAND, some gravel, little silt.	14.8			
▲	HB-DENM-102/3D	2+32	9.5 RT	10.0-12.0	SAND, some silt, little gravel.	12.0			
×									

PIN	
017529.00	
Town	
Denmark	
Reported by/Date	
WHITE, TERRY A	8/10/2010

UNIFIED SOIL CLASSIFICATION SYSTEM				TERMS DESCRIBING DENSITY/CONSISTENCY																							
MAJOR DIVISIONS		GROUP SYMBOLS		TYPICAL NAMES																							
COARSE-GRAINED SOILS (more than half of material is larger than No. 200 sieve size)	GRAVELS (more than half of coarse fraction is larger than No. 4 sieve size)	CLEAN GRAVELS	GW	Well-graded gravels, gravel-sand mixtures, little or no fines	<p>Coarse-grained soils (more than half of material is larger than No. 200 sieve): Includes (1) clean gravels; (2) silty or clayey gravels; and (3) silty, clayey or gravelly sands. Consistency is rated according to standard penetration resistance.</p> <p style="text-align: center;">Modified Burmister System</p> <table border="0"> <tr> <td style="text-align: center;"><u>Descriptive Term</u></td> <td style="text-align: center;"><u>Portion of Total</u></td> </tr> <tr> <td>trace</td> <td>0% - 10%</td> </tr> <tr> <td>little</td> <td>11% - 20%</td> </tr> <tr> <td>some</td> <td>21% - 35%</td> </tr> <tr> <td>adjective (e.g. sandy, clayey)</td> <td>36% - 50%</td> </tr> </table> <table border="0"> <tr> <td style="text-align: center;"><u>Density of Cohesionless Soils</u></td> <td style="text-align: center;"><u>Standard Penetration Resistance N-Value (blows per foot)</u></td> </tr> <tr> <td>Very loose</td> <td>0 - 4</td> </tr> <tr> <td>Loose</td> <td>5 - 10</td> </tr> <tr> <td>Medium Dense</td> <td>11 - 30</td> </tr> <tr> <td>Dense</td> <td>31 - 50</td> </tr> <tr> <td>Very Dense</td> <td>> 50</td> </tr> </table>	<u>Descriptive Term</u>	<u>Portion of Total</u>	trace	0% - 10%	little	11% - 20%	some	21% - 35%	adjective (e.g. sandy, clayey)	36% - 50%	<u>Density of Cohesionless Soils</u>	<u>Standard Penetration Resistance N-Value (blows per foot)</u>	Very loose	0 - 4	Loose	5 - 10	Medium Dense	11 - 30	Dense	31 - 50	Very Dense	> 50
		<u>Descriptive Term</u>	<u>Portion of Total</u>																								
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Dense	31 - 50																										
Very Dense	> 50																										
(little or no fines)	GP	Poorly-graded gravels, gravel sand mixtures, little or no fines																									
GRAVEL WITH FINES (Appreciable amount of fines)	GM	Silty gravels, gravel-sand-silt mixtures.																									
	GC	Clayey gravels, gravel-sand-clay mixtures.																									
SANDS (more than half of coarse fraction is smaller than No. 4 sieve size)	CLEAN SANDS (little or no fines)	SW	Well-graded sands, gravelly sands, little or no fines																								
		SP	Poorly-graded sands, gravelly sand, little or no fines.																								
	SANDS WITH FINES (Appreciable amount of fines)	SM	Silty sands, sand-silt mixtures																								
		SC	Clayey sands, sand-clay mixtures.																								
FINE-GRAINED SOILS (more than half of material is smaller than No. 200 sieve size)	SILTS AND CLAYS (liquid limit less than 50)	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity.																								
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.																								
		OL	Organic silts and organic silty clays of low plasticity.																								
	SILTS AND CLAYS (liquid limit greater than 50)	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.																								
		CH	Inorganic clays of high plasticity, fat clays.																								
		OH	Organic clays of medium to high plasticity, organic silts																								
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils.																									
<p>Desired Soil Observations: (in this order)</p> <p>Color (Munsell color chart) Moisture (dry, damp, moist, wet, saturated) Density/Consistency (from above right hand side) Name (sand, silty sand, clay, etc., including portions - trace, little, etc.) Gradation (well-graded, poorly-graded, uniform, etc.) Plasticity (non-plastic, slightly plastic, moderately plastic, highly plastic) Structure (layering, fractures, cracks, etc.) Bonding (well, moderately, loosely, etc., if applicable) Cementation (weak, moderate, or strong, if applicable, ASTM D 2488) Geologic Origin (till, marine clay, alluvium, etc.) Unified Soil Classification Designation Groundwater level</p>				<p>Rock Quality Designation (RQD):</p> <p>RQD = $\frac{\text{sum of the lengths of intact pieces of core}^* > 100 \text{ mm}}{\text{length of core advance}}$</p> <p>*Minimum NQ rock core (1.88 in. OD of core)</p> <p style="text-align: center;">Correlation of RQD to Rock Mass Quality</p> <table border="0"> <tr> <td style="text-align: center;"><u>Rock Mass Quality</u></td> <td style="text-align: center;"><u>RQD</u></td> </tr> <tr> <td>Very Poor</td> <td><25%</td> </tr> <tr> <td>Poor</td> <td>26% - 50%</td> </tr> <tr> <td>Fair</td> <td>51% - 75%</td> </tr> <tr> <td>Good</td> <td>76% - 90%</td> </tr> <tr> <td>Excellent</td> <td>91% - 100%</td> </tr> </table> <p>Desired Rock Observations: (in this order)</p> <p>Color (Munsell color chart) Texture (aphanitic, fine-grained, etc.) Lithology (igneous, sedimentary, metamorphic, etc.) Hardness (very hard, hard, mod. hard, etc.) Weathering (fresh, very slight, slight, moderate, mod. severe, severe, etc.) Geologic discontinuities/jointing: -dip (horiz - 0-5, low angle - 5-35, mod. dipping - 35-55, steep - 55-85, vertical - 85-90) -spacing (very close - <5 cm, close - 5-30 cm, mod. close 30-100 cm, wide - 1-3 m, very wide >3 m) -tightness (tight, open or healed) -infilling (grain size, color, etc.) Formation (Waterville, Ellsworth, Cape Elizabeth, etc.) RQD and correlation to rock mass quality (very poor, poor, etc.) ref: AASHTO Standard Specification for Highway Bridges 17th Ed. Table 4.4.8.1.2A Recovery</p>		<u>Rock Mass Quality</u>	<u>RQD</u>	Very Poor	<25%	Poor	26% - 50%	Fair	51% - 75%	Good	76% - 90%	Excellent	91% - 100%										
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Good	76% - 90%																										
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<p>Maine Department of Transportation Geotechnical Section Key to Soil and Rock Descriptions and Terms Field Identification Information</p>				<p>Sample Container Labeling Requirements:</p> <table border="0"> <tr> <td>PIN</td> <td>Blow Counts</td> </tr> <tr> <td>Bridge Name / Town</td> <td>Sample Recovery</td> </tr> <tr> <td>Boring Number</td> <td>Date</td> </tr> <tr> <td>Sample Number</td> <td>Personnel Initials</td> </tr> <tr> <td>Sample Depth</td> <td></td> </tr> </table>		PIN	Blow Counts	Bridge Name / Town	Sample Recovery	Boring Number	Date	Sample Number	Personnel Initials	Sample Depth													
PIN	Blow Counts																										
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GEOTECHNICAL TEST REPORT

Central Laboratory

SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
238119	HB-DENM-101/1D	GEOTECHNICAL (DISTURBED)	7/13/2010	7/22/2010
Sample Type: GEOTECHNICAL		Location: ROADWAY	Station: 2+47	Offset, ft: 5.0
PIN: 017529.00		Town: Denmark	Sampler: WILDER, BRUCE H	
LT Dbfg, ft: 1.0-3.0				

TEST RESULTS

Sieve Analysis (T 27, T 11)	Direct Shear (T 236)	Miscellaneous Tests
Wash Method Procedure A	Shear Angle, °	Liquid Limit @ 25 blows (T 89), %
SIEVE SIZE U.S. [SI] % Passing	Initial Water Content, %	Plastic Limit (T 90), %
3 in. [75.0 mm] 100.0	Normal Stress, psi	Plasticity Index (T 90), %
1 in. [25.0 mm] 95.2	Wet Density, lbs/ft ³	Specific Gravity, Corrected to 20°C (T 100)
¾ in. [19.0 mm] 90.0	Dry Density, lbs/ft ³	Loss on Ignition (T 267)
½ in. [12.5 mm] 84.1	Specimen Thickness, in	Loss, % H ₂ O, %
⅜ in. [9.5 mm] 80.6	Consolidation (T 216)	
¼ in. [6.3 mm] 74.4	Trimming, Water Content, %	
No. 4 [4.75 mm] 70.6	Initial	Final
No. 10 [2.00 mm] 54.3	Water Content, %	Void Ratio
No. 20 [0.850 mm] 35.0	Dry Density, lbs/ft ³	% Strain
No. 40 [0.425 mm] 22.8	Void Ratio	
No. 60 [0.250 mm] 16.5	Saturation, %	
No. 100 [0.150 mm] 11.7		
No. 200 [0.075 mm] 7.6		
		1.7
	Vane Shear Test on Shelby Tubes (Maine DOT)	
Depth taken in tube, ft	3 In.	6 In.
	U. Shear	U. Shear
	Remold	Remold
	tons/ft ²	tons/ft ²
		Water Content, %
		Description of Material Sampled at the Various Tube Depths

Comments:

AUTHORIZATION AND DISTRIBUTION

Reported by: **FOGG, BRIAN** Date Reported: **7/26/2010**



GEOTECHNICAL TEST REPORT

Central Laboratory

SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
238120	HB-DENM-101/2D	<u>GEOTECHNICAL (DISTURBED)</u>	7/13/2010	7/22/2010
Sample Type: GEOTECHNICAL		Location: ROADWAY	Station: 2+47	Offset, ft: 5.0
PIN: 017529.00		Town: Denmark	LT Dbfg, ft: 5.0-5.6	
			Sampler: WILDER, BRUCE H	

TEST RESULTS

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th colspan="2" style="text-align: center;">Sieve Analysis (T 27, T 11)</th></tr> <tr><td colspan="2" style="text-align: center;">Wash Method</td></tr> <tr><td colspan="2" style="text-align: center; color: red;">Procedure A</td></tr> <tr> <th style="text-align: center;">SIEVE SIZE U.S. [SI]</th> <th style="text-align: center;">% Passing</th> </tr> <tr><td>3 in. [75.0 mm]</td><td></td></tr> <tr><td>1 in. [25.0 mm]</td><td></td></tr> <tr><td>¾ in. [19.0 mm]</td><td style="text-align: center;">100.0</td></tr> <tr><td>½ in. [12.5 mm]</td><td style="text-align: center;">96.4</td></tr> <tr><td>⅜ in. [9.5 mm]</td><td style="text-align: center;">95.2</td></tr> <tr><td>¼ in. 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Comments:

AUTHORIZATION AND DISTRIBUTION

Reported by: **FOGG, BRIAN** Date Reported: **7/24/2010**



GEOTECHNICAL TEST REPORT

Central Laboratory

SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
238121	HB-DENM-102/1D	<u>GEOTECHNICAL (DISTURBED)</u>	7/13/2010	7/22/2010
Sample Type: GEOTECHNICAL		Location: ROADWAY	Station: 2+32	Offset, ft: 9.5
PIN: 017529.00		Town: Denmark	Sampler: WILDER, BRUCE H	
RT Dbfg, ft: 1.0-3.0				

TEST RESULTS

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GEOTECHNICAL TEST REPORT

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Sample Type: GEOTECHNICAL		Location: ROADWAY	Station: 2+32	Offset, ft: 9.5 RT Dbfg, ft: 5.0-5.5
PIN: 017529.00 Town: Denmark		Sampler: WILDER, BRUCE H		

TEST RESULTS

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Comments:

AUTHORIZATION AND DISTRIBUTION

Reported by: **FOGG, BRIAN** Date Reported: **7/26/2010**



GEOTECHNICAL TEST REPORT

Central Laboratory

SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
238123	HB-DENM-102/3D	<u>GEOTECHNICAL (DISTURBED)</u>	7/13/2010	7/22/2010
Sample Type: GEOTECHNICAL		Location: ROADWAY	Station: 2+32	Offset, ft: 9.5
PIN: 017529.00		Town: Denmark	Sampler: WILDER, BRUCE H	
RT Dbfg, ft: 10.0-12.0				

TEST RESULTS

Sieve Analysis (T 27, T 11)	
Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	100.0
1 in. [25.0 mm]	93.6
¾ in. [19.0 mm]	93.6
½ in. [12.5 mm]	91.2
⅜ in. [9.5 mm]	90.5
¼ in. [6.3 mm]	88.8
No. 4 [4.75 mm]	87.6
No. 10 [2.00 mm]	81.6
No. 20 [0.850 mm]	69.5
No. 40 [0.425 mm]	55.6
No. 60 [0.250 mm]	45.3
No. 100 [0.150 mm]	34.2
No. 200 [0.075 mm]	22.8

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), %	
12.0	

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		

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