GEOTECHNICAL ENGINEERING REPORT

Route 100/26 Infrastructure Improvements
Falmouth, Maine

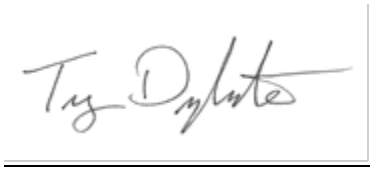
Prepared for:
Nathan Poore
Town Manager
271 Falmouth Road
Town of Falmouth

Prepared by:
Stantec Consulting Services, Inc.
288 South River Road
Building C
Bedford, New Hampshire 03110

October 5, 2018

Sign-off Sheet

This document entitled GEOTECHNICAL ENGINEERING REPORT was prepared by Stantec Consulting Services Inc. ("Stantec") for the Town of Falmouth, ME (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by: 

(signature)

Trey A. Dykstra, P.E.

Associate/Geotechnical Engineer

Reviewed by: _____

(signature)

Nicholas C. D'Agostino, P.E.

Senior Associate, Geotechnical Engineer

Table of Contents

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

1.0 INTRODUCTION

Stantec Consulting Services, Inc. (Stantec) performed a subsurface evaluation along Gray Road (Rt 100) in Falmouth, Maine (Site). The purpose of these services was to assess surficial and subsurface conditions along the roadway to provide geotechnical engineering recommendations for the design and construction of six mast arm foundations, a box culvert, sewer pump station, proposed sewer line, and a small retaining wall.

The scope of the exploration consisted of eleven (11) test borings with associated sampling. This report presents our findings of the site observations and explorations, and provides geotechnical recommendations for the mast arm foundations, box culvert, retaining wall and sewer line. Construction considerations are based upon the proposed infrastructure improvements understood at the time of this study.

As part of this work we also reviewed a geotechnical report entitled *Report on Proposed Widening of Route 100/26, Pin 9188, Falmouth, Maine*, dated October 2005 and prepared by Haley & Aldrich. Pertinent Boring logs from the report have been extracted from the Haley & Aldrich report and used for our analysis. The boring logs are provided in Appendix A. It should be noted that the boring logs prepared by Haley & Aldrich are in metric units.

2.0 PROJECT INFORMATION

The project area is located along Gray Road (Rt 100) roughly between Leighton Road and Mountain Road in Falmouth, Maine. The infrastructure improvements consist of the following elements:

- Four new traffic signals at the Gray Road and Leighton Road intersection.
- Two new traffic signals at the Gray Road and Mountain Road intersection.
- A new box culvert for Hobbs Creek at approximately Sta. 184+65 of Gray Road.
- A new sewer pump station at approximately Sta. 163+90 or Sta. 165+60 of Gray Road.
- New gravity and force main sewers along Gray Road between Leighton Road and Mill Road
- A new retaining wall along Falmouth Road from Sta 59+75 to Sta 61+00.

Subsurface conditions and design recommendations for each of the proposed infrastructure improvements are provided in separate sections of this report.

3.0 EXPLORATION AND TESTING PROCEDURES

3.1 SUBSURFACE INFORMATION

As previously mentioned two subsurface exploration programs have been prepared for the project area. The program conducted in 2002 by Haley & Aldrich was intended for the widening of the roadway. The recent program conducted in 2016 was specific to the proposed improvements along the roadway which included the proposed mast arm foundations, box culvert, sewer pump station, retaining wall and sewer line.

3.2 2002 EXPLORATION PROGRAM

The 2002 exploration program consisted of 45 test borings designated B1-02 through B43-02, B42A-02 and B43A-02. The borings were generally spaced at intervals of 130 feet along the roadway. Most of the borings were drilled by Maine Test Borings, Inc. during the period between October 9 and October 15, 2002. Borings B42A-02 and B43A-02 were drilled on October 30, 2002. Test borings were advanced using solid stem and/or hollow stem augers. Samples were obtained using a split spoon sampler driven with a 140-pound safety hammer falling 30 inches. The borings were observed by Haley & Aldrich personnel. The boring logs are included as Appendix A. It is important to note that the boring logs prepared by Haley & Aldrich are in Metric Units.

3.3 2016 EXPLORATION PROGRAM

The 2016 subsurface exploration program consisted of drilling eleven test borings. The borings were drilled from November 15, 2016 to November 18, 2016 by New England Boring Contractors, Inc. of Derry, New Hampshire under subcontract to Stantec. The borings were drilled using a Mobile B-59 drill rig and were advanced using 2.25-inch inside diameter hollow stem augers or 4-inch diameter steel casing.

The borings and probe were observed and logged by Stantec personnel who performed field tests, recorded visual classifications, and collected samples of the various soil strata encountered. Details of drilling and sampling methods are indicated on the Borehole Logs within the Appendix B of this report. The boring locations were located by survey methods and are shown on the attached project plans.

Soil samples were obtained by driving a 24-inch long, 2-inch outside diameter split spoon sampler at five-foot sampling intervals with a 140-pound safety hammer falling 30 inches, in substantial accordance with ASTM D1586, the Standard Penetration Test (SPT). The blows for each 6-inches of penetration are recorded for a total of 24-inches. The sum of the blows required to drive the sampler from 6-inches to 18-inches penetration is referred to as the Standard Penetration Resistance, or N-value, which is an index of measure of in-situ soil density or

consistency. The N-value for various soil types can be correlated with the engineering behavior of earthworks and foundations. For granular soils, N values less than 4 are considered to be very loose; between 4 and 10 loose; between 10 and 30 medium dense; between 30 and 50 dense; and greater than 50 very dense. For cohesive soils N values less than 2 are considered to be very soft; between 2 to 3 soft; between 4 and 6 firm; between 7 and 12 stiff; between 13 and 26 very stiff; and greater than 26 hard.

All soil samples recovered were stored in sealed containers and rock was placed in core boxes and returned to our office for further examination/classification. Samples will be stored for a period of six (6) months, at which time they will be disposed of unless we have been notified otherwise.

3.4 2016 EXPLORATION PROGRAM

Laboratory tests were conducted on representative soil samples obtained from the test borings to assist in classification and evaluate engineering properties. Grain size distribution, Atterberg limits, and moisture content tests were conducted in accordance ASTM D422 and ASTM D4318. Laboratory testing was conducted by GeoTesting Express of Acton, MA. Results of the tests are included in Appendix C and summarized in the tables below.

Table 1 – Laboratory Grain Size Test Summary

Boring/ Sample	Depth (feet)	Soil Description	Percent Gravel	Percent Sand	Percent Fines (1)
B-107/S-4	15-17	Brown, fine SAND, some silt (SM)	0	69.8	30.2
B-107/S-6	25-27	Light brown, medium to fine SAND, trace Silt (SP-SM)	0	92.4	7.6
B-110/S-5	8-10	Olive, medium to fine SAND, little Silt, trace Gravel (SM)	0.3	79.7	20.0
B-110/S-8	14-16	Brown, coarse to fine SAND, little Gravel, little silt (SM)	14.7	72.3	13.0

Notes: (1) Percent fines is the soil passing the #200 sieve.
(2) USCS classification is given in parenthesis.

Table 2 – Laboratory Atterberg Limit Test Summary

Boring/ Sample No.	Depth (feet)	Soil Description	Moisture Content	Liquid Limit	Plastic Limit	Plasticity Index
B-101/S-5	8-10	Olive, silty CLAY (CL)	23	34	19	15
B-103/S-4	6-8	Olive gray, silty CLAY (CL)	30	40	22	18
B-105/S-4	15-17	Olive gray, silty CLAY (CL)	30	38	19	19
B-107/S-2	5-7	Dark olive gray, silty CLAY (CH)	47	52	24	28
B-108/S-3	5-7	Olive gray, silty CLAY (CL)	24	38	21	17
B-110/S-3	4-6	Olive, silty CLAY (CL)	19	33	16	17
B-111/S-2	4-6	Olive, silty CLAY (CL)	27	39	21	18

Notes: (1) USCS classification is given in parenthesis.

4.0 MAST ARM FOUNDATIONS

4.1 GENERAL

New traffic signals are proposed at the intersection of Route 100 and Leighton Road and at the intersection of Route 100 and Mountain Road. The traffic signals will be mounted on mast arms. The Leighton Road intersection will have one mast arm at each corner of the intersection, for a total of four new mast arms. The Mountain Road intersection will have a new arm at the southwest and northeast corners, for a total of two new mast arms. The test borings drilled at gray Road and Leighton Road intersection were designated B-101 through B-104. The test borings drilled at the Gray Road and Mountain Road Intersection were designated B-108 and B-109.

4.2 SUBSURFACE CONDITIONS

The subsurface conditions encountered at the boring locations are described in detail on the Borehole Logs are located in the Appendix B of this report and are summarized in the paragraphs below. The subsurface soil conditions encountered in the soil borings consisted of the following generalized strata in order of increasing depth.

4.2.1 Asphalt

Asphalt was encountered at borings B-104 and B-109, and was 8 and 7 inches thick, respectively.

4.2.2 Fill

Fill was encountered in all borings except B-101 and ranged from 0.8 to 2.4 feet thick. The fill is likely associated with the construction of the existing roadway. The fill was generally described as a medium to coarse sand with gravel and traces of silt. Recorded N-values ranged from 7 to 21 blows per foot (bpf) which is indicative of variable loose to medium dense consistency.

4.2.3 Topsoil

A topsoil layer was encountered beneath the fill in borings B-101 and B-102 and was 4 inches thick at each location. This deposit was generally described as brown, loose, organic with silty sand.

4.2.4 Marine Silt/Clay

A deposit of marine silt and clay was encountered in all borings and ranged from 7.3 to greater than 20 feet thick. This deposit was generally described as an olive or gray silt and clay. Using the USCS system the soil classified as CL. Recorded N-values ranged from 4 to 48 bpf which is indicative of a soft to hard consistency. Recorded Torvane vane values ranged from 0.25 to 1.63 tsf.

4.2.5 Glacial Fluvial

A deposit of sandy glacial fluvial soil was encountered in borings B-101, B-103, B-104, and B-109 and was explored to a depth of 21 feet without encountering the bottom of the deposit. This deposit was generally described as a brown, coarse to fine sand, with trace silt. Using the USCS system the soil classified as SM or SP. Recorded N-values ranged from 8 to 49 bpf which is indicative of a loose to dense consistency.

4.2.6 Groundwater

Groundwater levels were observed in the completed boreholes upon completion and are presented in the table below. Hydrostatic levels may vary dramatically from those recorded at the time of the subsurface investigation. Actual groundwater levels may vary significantly over time due to seasonal changes in precipitation and temperature, snowmelt, and surrounding and on-site drainage characteristics.

Table 3 – Mast Arm Area Groundwater Data Summary

Location	Ground Surface Elevation (feet)	Depth to Groundwater (feet)	Groundwater Elevation Feet)
B-101	82.75	19	63.75
B-102	82.1	20	62.1
B-103	83.6	10	73.6
B-104	83.2	15	68.2
B-108	92.3	14	78.3
B-109	91	9	82

4.3 DISCUSSION AND RECOMMENDATIONS

The bottom of the mast arm foundations are assumed to be approximately 15 feet below the adjacent ground surface and will be located within the medium stiff to stiff marine silt and clay layer. The mast arms for the traffic signals can be founded on drilled shaft type foundations, as outlined in MaineDOT Standard Specifications 626 and 643. The required length and shaft diameter should be determined in accordance with MaineDOT Standard Detail Section 626 and the recommendations provided in the table below. The table provides the subsurface conditions at each proposed signal location and recommended soil properties for use in design (friction angle or shear strength).

Table 4 – Mast Arm Soil Conditions Summary

Location	Boring No.	Approx. Existing Ground Surface El. (feet)	Subsurface Conditions	Recommended Design Profile	Recommended Friction Angle (φ°) of Su (psf)
Leighton/Route 100 Southwest Corner	B-101	82.75	19 ft of medium stiff to hard clay	Medium Stiff Clay	Su = 800 psf
Leighton/Route 100 Southeast Corner	B-102	82.1	20 ft of medium stiff to very stiff clay	Medium Stiff Clay	Su = 800 psf
Leighton/Route 100 Northeast Corner	B-103	83.6	19 ft of medium stiff to hard clay	Medium Stiff Clay	Su = 800 psf
Leighton/Route 100 Northwest Corner	B-104	83.2	19 ft of medium stiff to very stiff clay	Medium Stiff Clay	Su = 800 psf
Mountain/Falmouth Southwest Corner	B-108	92.3	21 ft of medium stiff to very stiff clay	Medium Stiff Clay	Su = 800 psf
Mountain/Falmouth Northeast Corner	B-109	91	9 ft of stiff clay 12 ft of medium dene to dense sand	Medium Stiff Clay	Su = 800 psf

5.0 BOX CULVERT RECOMMENDATIONS

5.1 GENERAL

A concrete box culvert is proposed to be constructed at approximately Sta. 184+60. The culvert will have internal dimensions of approximately 15 feet by 6 feet. The culvert will be approximately 100 feet long and have mitered ends. Wingwalls are not proposed for the ends of the culvert. Test boring B-110 was drilled near the west end of the culvert. Haley & Aldrich test boring B33-02 was drilled near the middle of the culvert. Please note that the boring log for B33-02 uses Metric Units.

5.2 SUBSURFACE CONDITIONS

The subsurface conditions encountered at the boring locations are described in detail on the Borehole Logs located in Appendix A and B of this report, and are summarized in the paragraphs below. The conditions encountered are based on widely spaced explorations and variations in conditions should be anticipated. The subsurface soil conditions encountered in the soil borings consisted of the following generalized strata in order of increasing depth.

5.2.1 Fill

Fill was encountered in both borings and ranged from 2.1 to 6.5 feet thick. The fill is likely associated with the construction of the existing roadway. The fill directly below the asphalt was generally described as a medium to fine sand with trace gravel and silt. With depth the fill contains an increased amount of silt and clay. Recorded N-values ranged from 6 to 20 blows per foot (bpf) which is indicative of loose to medium dense consistency.

5.2.2 Marine Silt/Clay

A deposit of marine silt and clay was encountered in both borings. At B-110 this deposit was encountered from 2.1 to 6.7 feet below the ground surface and was described as an olive-gray silt and clay. Recorded N-values were 9 and 26 bpf which is indicative of a stiff to very stiff consistency. At B-33-02 this deposit was encountered from 6.5 to 22 feet below the ground surface and was described as a lean clay or silt. Recorded N-values ranged from 1 to 4 bpf which is indicative of a very soft to soft consistency. Using the USCS system the soil classified as ML or CL.

5.2.3 Glacial Fluvial

At boring B-110 a glacial fluvial deposit was encountered below the marine silt and clay deposit. The glacial fluvial deposit was explored to a depth of 25 feet without fully penetrating the deposit. This deposit was generally described as a brown, coarse to fine

sand and gravel with trace silt. Using the USCS system the soil classified as either SM or SP. Recorded N-values ranged from 13 to 38 bpf which is indicative of a medium dense to dense consistency.

5.2.4 Groundwater

Groundwater levels were observed in the completed boreholes and are presented in the table below. Hydrostatic levels may vary dramatically from those recorded at the time of the subsurface investigation. Actual groundwater levels may vary significantly over time due to seasonal changes in precipitation and temperature, snowmelt, and surrounding and on-site drainage characteristics.

Table 5 – Box Culvert Area Groundwater Data Summary

Location	Ground Surface Elevation (feet)	Depth to Groundwater (feet)	Groundwater Elevation Feet)
B-110	76.6	13.5	63.1
B-33-02	76.5	15.7	60.8

5.3 FOUNDATION RECOMMENDATIONS

We anticipate the bottom of the proposed culvert will bear approximately 8 to 10 feet below the existing ground surface. To assist the Contractor's dewatering efforts and to provide a stable work surface, we recommend 3 feet of ¾-inch diameter crushed stone be placed between the bottom of the footing and the subgrade. The crushed stone should be completely wrapped in a nonwoven geotextile fabric. The lateral limits of the crushed stone should extend 1 foot horizontally beyond the edge of the footing. The bottom of the crushed stone pad is expected to bear on the marine silt and clay deposit or on the glacial fluvial deposit.

Because the structure is four sided, the weight of the traffic loading and the weight of the structure will be spread across the bottom slab of the culvert. The proposed stress is expected to equal to or less than the existing stress on the underlying soils. Therefore settlement of the culvert is anticipated to be minimal

5.4 SEISMIC DESIGN PARAMETERS

The seismic site classification was evaluated in accordance with Section 3.10.3.1 of the AASHTO LRFD Code. The maximum boring depth was terminated in the medium dense to dense glacial fluvial deposit at a depth of 25 feet below the ground surface. Based on the soil conditions in the test borings the average SPT N values for the soils is between 15 and 50 blows per foot. Therefore in accordance with Table 3.10.3.1-1 the seismic site classification for the site is Site Class D.

An evaluation of the liquefaction potential for the existing soils was also performed. Liquefaction denotes a condition where a soil undergoes continued deformation during the course of cyclic stress applications induced by an earthquake where pore water pressure becomes equal to the confining pressure (e.g. effective stress approaches zero) and large deformations occur. Significant factors influencing liquefaction include grain size distribution of sand, fines content in-situ density, and vibration characteristics (e.g. design earthquake and acceleration coefficient). The subsurface conditions at the culvert location consist either a medium dense to dense sand or the cohesive silt and clay. Based upon the density and consistency of these materials they are not susceptible to liquefaction.

5.5 LATERAL EARTH PRESSURE RECOMMENDATIONS

We recommend the culvert side walls be backfilled horizontally with a minimum of 4 feet of compacted Maine DOT 703.19 Granular Borrow for Underwater Backfill which is considered to be Type 4 soil in accordance with the Maine DOT Bridge Design Guide (BDG). Because the culvert side walls are not allowed to rotate at the top, they should be designed based on at-rest pressure (Ko). The side walls should be designed using Ko equal to 0.47 and a unit weight of 125 pounds per cubic foot (pcf) for the backfill. The resulting equivalent fluid pressure is 60 pcf, which assumes no unbalanced hydrostatic pressure.

To prevent hydrostatic pressure foundation drainage should be provided in accordance with Section 5.4.1.9 of the Maine DOT BDG.

The walls should be also be designed for a live load surcharge equivalent to the earth fill height summarized in LRFD Tables 3.11.6.4-1 and 3.11.6.4-2.

5.6 CONSTRUCTION CONSIDERATIONS

5.6.1 Excavation Support

Construction of the culvert is expected to require an excavation approximately 10 to 12 feet below the surrounding ground surface. Therefore, a temporary excavation support system will be required. The type and design of the temporary earth support system should be the responsibility of the Contractor. It is expected that a system of steel sheet piles is a feasible method to support the excavation. The interlocking sheets will also limit groundwater infiltration from the sides of the excavation.

All excavations and support systems should be performed in accordance with current OSHA requirements under the observation and responsibility of the Contractor. Excavation slopes should be checked regularly for signs of instability and flattened as required. Temporary slopes should be protected from surface water run-off erosion by means of berms and swales located along the top of the slope and by means of plastic sheeting placed over the slope. Temporary shoring systems should be inspected periodically for excessive movement.

5.6.2 Construction Dewatering

Dewatering will be required to allow the culvert to be constructed in the dry. Due to the sandy nature of the glacial fluvial deposit, a significant amount of groundwater is expected to flow into the excavation. The use of interlocking sheet piles will reduce the flow of groundwater from the sides of the excavation. The Contractor should be prepared to remove water using a system of sumps and pumps located within the excavation. If ground water flow cannot be handled by sumps and pumps then a system of drilled well points or deep wells may be needed. In addition to the dewatering, a water diversion system will be needed to convey the flow from the stream channel from the west to the east side of the roadway.

Ultimately, the Contractor is responsible for selecting the method of dewatering and water diversion to maintain a stable surface at the bottom of the excavation. The Contractor should develop a dewatering plan capable of lowering groundwater two feet below the lowest point of excavation. The Contractor should be prepared to remove groundwater that seeps from the soil into the excavations. The specifications should require that the General Contractor divert surface water runoff away from excavations so that the foundation can be constructed in-the-dry. Precipitation that results in standing water in the excavation should be removed immediately.

6.0 PUMP STATION RECOMMENDATIONS

6.1 GENERAL

As part of the project, a pump station will be constructed along the eastern side of Gray Road. Two locations are being considered one at Sta. 163+90 and the other at Sta. 165+60. Test boring B-106 was drilled at Sta. 163+90 and test boring B-107 was drilled at Sta. 165+60. The borings encountered similar subsurface conditions at both locations. The pump station will consist of a wet well approximately 8 feet in diameter constructed of precast concrete rings. The well is expected to be approximately 25 feet below the ground surface. A submersible pump will be installed at the bottom of the well.

6.2 SUBSURFACE CONDITIONS

The subsurface conditions encountered at the boring locations are described in detail on the Borehole Logs located in the Appendix B of this report, and are summarized in the paragraphs below. The subsurface soil conditions encountered in the soil borings consisted of the following generalized strata in order of increasing depth.

6.2.1 Asphalt

Asphalt was encountered at B-106 and B-107, and was 6 and 12 inches thick, respectively.

6.2.2 Roadway Base

A thin layer of roadway base course material was encountered at B-106 and B-107, and was 7 and 12 inches thick, respectively. The base course was described as medium to coarse sand and gravel with trace silt.

6.2.3 Marine Silt and Clay Deposit

A deposit of marine silt and clay was encountered in B-106 and B-107 to depths of 15.5 and 10 feet below the ground surface, respectively. This deposit was generally described as an olive-gray silt and clay. Using the USCS system the soil classified as ML or CL. Recorded N-values ranged from 2 to 9 bpf which is indicative of a very soft to stiff consistency.

6.2.4 Glacial Fluvial

A glacial fluvial was encountered in B-106 and B-107 to depths of 33 and 36.5 feet, respectively overlaying the bedrock. This deposit was generally described as a light brown or tan medium to fine sand varying lesser amounts of gravel and silt. Using the USCS system the soil classified as either SM or SP. Recorded N-values generally ranged from 6 to 13 bpf which is indicative of a loose to dense consistency.

6.2.5 Bedrock

Although bedrock was not cored at the pump station locations, based on drilling refusal the depth to the bedrock surface is expected to vary between 33.0 and 36.5 feet below the ground surface. A summary of the bedrock depth is provided in the table below.

Table 6 – Pump Station Area Bedrock Depth Summary

Location	Ground Surface Elevation (feet)	Depth to Bedrock (feet)	Top of Bedrock Elevation Feet)
B-106	52	33.0	19.0
B-107	49	36.5	12.5

6.2.6 Groundwater

Groundwater levels were observed in the completed boreholes and are presented in the table below. Hydrostatic levels may vary dramatically from those recorded at the time of the subsurface investigation. Actual groundwater levels may vary significantly over time due to seasonal changes in precipitation and temperature, snowmelt, and surrounding and on-site drainage characteristics.

Table 7 – Pump Station Area Groundwater Data Summary

Location	Ground Surface Elevation (feet)	Depth to Groundwater (feet)	Groundwater Elevation Feet)
B-106	52	20	31.5
B-107	49	16	32.8

6.3 DESIGN PARAMETERS

6.3.1 Bearing and Settlement

We anticipate the proposed final grade for the pump station at Sta. 163+90 will be at approximately El. 51. The bottom of the proposed wet well will be at approximately El. 26. The proposed final grade for the pump station at Sta. 165+60 will be at approximately El. 48. The bottom of the proposed wet well will be at approximately El. 23. In both cases the wet wells are expected to bear on the sandy glacial fluvial deposit.

To provide a stable working surface and to aid in dewatering we recommend founding the proposed wet well on one foot of ¾ inch crushed stone wrapped in a non-woven filter fabric placed directly on the glacial fluvial sand. The filter fabric should be a Mirafi 140N or equivalent. Constructed as recommended herein, the total post-construction settlement is anticipated to be less than ½ inch.

6.3.2 Seismic Design Parameters

The seismic site classification was evaluated in accordance with the 2012 International Building Code(IBC) The borings drilled at the Site were terminated on bedrock. Based upon the average N values for the upper 100 feet of the soil and rock profile, in accordance with Section 1613.5.2 of the 2012 IBC the recommended site classification for the seismic design of the structure is seismic site Class "D" (stiff soil).

6.3.3 Lateral Earth Pressures

The walls of the wet well should be designed to resist the combined lateral forces resulting from earth pressure, water pressure and pressure from surcharge loadings. Backfill materials behind these walls should consist of a zone of granular fill with a minimum width of 2 feet. Because the walls of the wet well will be restrained they should be designed based on at-rest earth pressure. Lateral earth pressures for the structural design of walls are provided below:

Table 8 – Pump Station Lateral Earth Pressure Summary

Wall Condition	Backfill Type	Coefficient of At-rest Earth Pressure (Ko)	Equivalent Fluid Pressure (psf)	
			Above Water	Below Water
Restrained (at-rest pressure)	Granular	Ko = 0.5	65	100

The parameters contained in the table above are based on:

- Restrained walls.
- Level backfill behind wall.
- Backfill with the following properties: $\varphi = 36°$; $c = 0$; $\gamma_{dry} = 125$ pcf; $\gamma_{moist} = 130$ pcf
- Backfill within 3 feet of wall to be compacted utilizing light weight compaction equipment.
- No surcharge loading.
- No factors of safety have been included.
- No dynamic loading.

Walls should be designed to accommodate surcharge loads, if present. A surcharge load should be applied using uniformly distributed pressure superimposed along the back face of the wall with a magnitude equal to the surcharge pressure multiplied by the appropriate earth pressure coefficient. A minimum surcharge load of 250 psf should be included to account for vehicle and construction equipment loadings.

6.3.1 Uplift Resistance

Because the wet well will be significantly below the ground water level, it should be designed to resist buoyancy forces. Typically, buoyancy forces can be resisted by the dead weight of the wet well structure. If the dead weight of the structure is not enough to resist buoyancy forces, then the base thickness of the structure should be increased and extended beyond the sides to provide additional uplift resistance. The outside of the structure should be damp-proofed and any joints between precast units should have a water tight seal.

6.4 CONSTRUCTION CONSIDERATIONS

6.4.1 Excavation Support

Construction of the wet well is expected to require an excavation approximately 25 feet below the surrounding ground surface. Therefore, a temporary excavation support system will be required. The type and design of the temporary earth support system should be the responsibility of the Contractor. It is expected that internally braced steel sheet piles is a feasible method to support the excavation. The interlocking sheets will also limit groundwater infiltration from the sides of the excavation.

All excavations and support systems should be performed in accordance with current OSHA requirements under the observation and responsibility of the Contractor. Excavation slopes should be checked regularly for signs of instability and flattened as required. Temporary slopes should be protected from surface water run-off erosion by means of berms and swales located along the top of the slope and by means of plastic sheeting placed over the slope. Temporary shoring systems should be inspected periodically for excessive movement.

6.4.2 Construction Dewatering

Groundwater observed in the test borings at the time of drilling was at approximately El. 33. The bottom of the excavation is expected to be approximately El. 23. Significant dewatering is expected to allow the wet well to be constructed in the dry. Since the borings were drilled in November, the water elevations are expected to rise during the spring and summer months. Due to the sandy nature of the soil and relatively shallow ground water, a significant amount of groundwater is expected to flow into the excavation. The use of interlocking sheet piles will reduce the flow of groundwater from the sides of the excavation. The temporary shoring should be seated into the bedrock to reduce the groundwater flow into the excavation. However, water is expected to flow through the gaps between the bottom of the sheets and the bedrock surface. The Contractor should be prepared to remove water using a system of sumps and pumps located within the excavation. If ground water flow cannot be handled by sumps and pumps, then a system of drilled well points or deep wells may be needed.

Ultimately, the Contractor is responsible for selecting the method of dewatering to maintain a stable surface at the bottom of the excavation. The Contractor should develop a dewatering plan capable of lowering groundwater two feet below the lowest point of excavation. The Contractor should be prepared to remove groundwater that seeps from the soil into the excavations. The specifications should require that the General Contractor divert surface water runoff away from excavations so that the foundation can be constructed in-the-dry. Precipitation that results in standing water in the excavation should be removed immediately.

7.0 SEWER LINE

7.1 GENERAL

New gravity and force main sewer pipelines are proposed between Sta. 143+50 and Sta. 172+00. Based on the available plans the location of the force and gravity sewers are as follows:

- Gravity Sewer: Sta. 143+50 to Sta. 150+50
- Gravity Sewer: Sta. 157+50 to Sta. 165+50 (pump station)
- Gravity Sewer: Sta. 172+00 to Sta. 165+50 (pump station)
- Force Main: Sta. 165+50 (pump station) to Sta. 150+50

The gravity sewer will range from approximately 8 to 16 feet below the ground surface. The force main will range from approximately 6 to 16 feet below the ground surface. Where the gravity sewer and force main pipelines share an alignment they will be placed in the same trench at roughly the same elevation.

7.2 SUBSURFACE CONDITIONS

Test borings drilled in the area of the proposed pipelines include B1-02 through B25-02 drilled in 2002 and observed by Haley & Aldrich, and B-105, B-106 and B-107 drilled in 2016 and observed by Stantec. The 2002 test borings are included in Appendix A. The 2016 test boring logs are included in Appendix B. In general, the test borings encountered asphalt pavement overlying, roadway/fill, marine silt and clay deposit, glacial fluvial deposit and glacial till. Drilling refusal on boulders or bedrock was encountered at location of B-106, B-107 and B19-02.

The subsurface conditions are summarized in the paragraphs below. The conditions encountered are based on widely spaced explorations and variations in conditions should be anticipated. The subsurface soil conditions encountered in the soil borings consisted of the following generalized strata in order of increasing depth.

7.2.1 Asphalt

Bituminous asphalt pavement was encountered at all the borings except B10-02. The asphalt ranged in thickness from 3.5 to 12 inches.

Concrete pavement was encountered below the asphalt pavement at B4-02, B8-02, B12-02, B13-02, B14-02, B15-02, B17-02, B18-02, B21-02 and B25-02. The thickness of the concrete pavement ranged from 3.5 to 13 inches.

7.2.2 Fill

Fill associated with the existing roadway was encountered in all the borings. The fill ranged in thickness from 6 inches to 17.0 feet, but was generally 2 to 4 feet thick. The deposit generally consists of sand with lesser amounts of gravel and silt. At some locations the fill consisted of lean clay. Recorded N-values ranged from 3 and 44 bpf which is indicative of a very loose to dense consistency. Using the USCS system the soil classified as SM, SP.

7.2.3 Marine Deposit – Silt and Clay

A deposit of marine silt and clay was encountered in most of the borings. When fully penetrated by the boring, the deposit ranged from 5.7 to 13.6 feet thick. The deposit was described as an olive-gray silt and clay or lean clay. Recorded N-values ranged from 2 to 21 bpf which is indicative of a firm to very stiff consistency. Using the USCS system the soil classified as ML or CL.

7.2.4 Marine Deposit – Fine Sand

A deposit of marine sand was encountered at borings B1-02, B2-02, B3-02, B5-02, B17-02, B18-02, and B20-02. When fully penetrated the sandy portion of the marine deposit ranged from 4.1 to 4.7 feet thick. The deposit was generally described as poorly-graded fine sand with trace silt. Recorded N-values ranged from 5 to 19 bpf which is indicative of a loose to medium dense consistency. Using the USCS system the soil classified as SP.

7.2.5 Glacial Fluvial Deposit

A deposit of glacial fluvial sand was encountered at B8-02, B-106, and B-107. When fully penetrated this deposit ranged from 17.8 to 26.5 feet thick. The deposit was generally described as light brown or light tan, fine to medium sand, trace silt. Recorded N-values ranged from 6 to 57 bpf which is indicative of a loose to very dense consistency. Using the USCS system the soil classified as SM or SP.

7.2.6 Glacial Till

A deposit of glacial till was encountered at B-19-02 and was 2.1 feet thick. The deposit was generally described as gray, gravelly lean clay. Recorded N-value was 50 bpf which is indicative of a very dense consistency. Using the USCS system the soil classified as CL.

7.2.7 Drill Refusal

Drill refusal was encountered in borings B19-02, B-106 and B-107 at a depth of 12 feet, 33 feet and 36.5 feet, respectively. The refusals are considered an indication of bedrock or boulders.

7.2.8 Groundwater

Groundwater levels observed in the completed boreholes drilled along the alignment of the proposed sewer ranged from a depth of 1.5 to 20.5 feet below the ground surface. Hydrostatic levels may vary dramatically from those recorded at the time of the subsurface investigation. Actual groundwater levels may vary significantly over time due to seasonal changes in precipitation and temperature, snowmelt, and surrounding and on-site drainage characteristics.

7.3 RECOMMENDATIONS

Based the conditions encountered in the test borings and the proposed depth of the pipelines, we anticipate the majority of the gravity sewer and force main pipelines will be founded in the marine silt and clay deposit. Near the proposed pump station, where the sewer line is the deepest, it will likely be founded in the sandy glacial fluvial deposit. Both deposits are suitable for supporting the proposed pipelines provided the final bearing surface is not disturbed during the excavation and that the trenches are properly dewatered.

In areas where the marine silt and clay deposit is encountered at the proposed subgrade, the final two feet of excavation should be conducted with a smooth edge bucket. Using a smooth edge bucket will help limit the disturbance to the clay subgrade. If the clay subgrade becomes disturbed the Contractor should not attempt to recompact the clay, rather the disturbed clay should be removed and replaced with ¾-inch crushed stone wrapped in a filter fabric. The fabric should consist of Mirafi 140N or equivalent.

In areas where granular deposits are encountered, disturbed soils can either be replaced by over excavating and replacing with ¾-inch crushed stone wrapped in a filter fabric or recompacted with small vibratory plate compactor. However, vibratory plate compactor should not be used in areas where the subgrade is saturated. The vibrations from the plate compacted will further increase the disturbance of the sandy soils.

Based on drilling refusal encountered at the location of B19-02, it is possible bedrock will be encountered during the excavation of the sewer trench. The bedrock in the coastal area of Maine is known to be highly variable and bedrock may be encountered in other areas of the proposed sewer line. The Contractor should be prepared to remove bedrock by either mechanical methods such as hoe-ramming, blasting methods if allowed by the Town or by chemical methods such as expansive grout.

7.4 CONSTRUCTION RECOMMENDATIONS

7.4.1 Excavation Support

Given the anticipated depths of the proposed sewer pipelines and proximity to the vehicular traffic, temporary support of the trench excavation will be required. The type and design of the temporary earth support system should be the responsibility of the Contractor. Temporary earth support for these types of excavation generally consists trench boxes or slide rail type trench boxes. All excavations and support systems should be performed in accordance with current OSHA requirements under the observation and responsibility of the Contractor. Temporary shoring systems should be inspected periodically for excessive movement.

7.4.2 Construction Dewatering

Dewatering will be required for the construction of the proposed sewer lines. The Contractor should be prepared to remove water using a system of sumps and pumps located within the excavation. If ground water flow cannot be handled by sumps and pumps then a system of drilled well points or deep wells may be needed. Ultimately, the Contractor is responsible for selecting the method of dewatering and water diversion to maintain a stable surface at the bottom of the excavation. The Contractor should develop a dewatering plan capable of lowering groundwater two feet below the lowest point of excavation. Precipitation that results in standing water in the excavation should be removed immediately.

8.0 RETAINING WALL RECOMMENDATIONS

8.1 GENERAL

A retaining is proposed along the north side of Falmouth Road from approximately Sta. 59+75 to Sta. 61+00. The maximum height of the wall is expected to be approximately 4 feet. The wall will be a Contractor designed wall and will likely be a precast concrete modular block wall. Test boring B-111 was located in the area of the proposed wall.

8.2 SUBSURFACE CONDITIONS

The subsurface conditions encountered at the boring locations are described in detail on the Borehole Logs located in the Appendix B of this report, and are summarized in the paragraphs below. The subsurface soil conditions encountered in the soil boring consisted of the following generalized strata in order of increasing depth.

8.2.1 Asphalt

Asphalt was encountered at B-111, and was 6 inches thick.

8.2.2 Roadway Base

A thin layer of roadway base course material was encountered at B-111 was approximately 18 inches thick. The base course was described as medium to coarse sand and gravel with trace silt.

8.2.3 Marine Silt/Clay

A deposit of marine silt and clay was encountered in the boring and was explored to a depth of 15 feet below the ground surface without penetrating the deposit. The deposit was described as an olive-gray silt and clay. Recorded N-values ranged from 5 and 22 bpf which is indicative of a firm to very stiff consistency. Using the USCS system the soil classified as ML or CL.

8.2.4 Groundwater

Groundwater level was observed in the completed B-111 at 13.5 feet below the ground surface. Hydrostatic levels may vary dramatically from those recorded at the time of the subsurface investigation. Actual groundwater levels may vary significantly over time due to seasonal changes in precipitation and temperature, snowmelt, and surrounding and on-site drainage characteristics.

8.3 FOUNDATION RECOMMENDATIONS

Based on the subsurface conditions encountered in the boring, conventional shallow spread footings can be used to support the proposed structure. We anticipate the marine silt and clay deposit will be encountered at the bearing elevation of the wall. The footings for the wall should be designed in accordance with the following:

- To provide a firm and stable surface for the wall, the bottom of the wall should be placed on 12 inches of compacted Maine DOT 703.19 Granular Borrow for Underwater Backfill or on 12 inches of ¾ inch crushed stone wrapped in a non-woven filter fabric.
- For the Strength Limit State a nominal bearing resistance (qn) of 9.0 kips per square foot (ksf) is recommended in combination with a resistance factor (φb) of 0.45 for footings bearing on undisturbed marine silt and clay deposit. The resistance factor is based on Table 10.5.5.2.2-1 of the AASHTO LRFD code.
- For the Service Limit State a factored bearing resistance of 3.0 ksf is recommended. This factored resistance is based on a resistance factor of 1.0.
- Based on the anticipated loading and relatively low wall height, settlement of footings bearing on alluvium is expected to be less than 1 inch. The maximum differential settlement along the wall footing is expected to be less than ½ inch over the length of the wall.
- Assuming the wall will be a precast concrete modular block type wall, the bottom of the footings should be founded a minimum depth of 2 feet below the surrounding ground surface.

8.4 LATERAL EARTH PRESSURE RECOMMENDATIONS

The proposed retaining wall should be designed based on the following lateral earth pressure recommendations:

- We recommend the walls that retain earth be backfilled horizontally with a minimum of 3 feet of compacted Maine DOT 703.19 Granular Borrow for Underwater Backfill which is considered to be Type 4 soil in accordance with the Maine DOT Bridge Design Guide (BDG). The 4 feet of Granular Borrow for Underwater Backfill will provide free draining and less frost susceptible materials in the zone behind the wall.
- Because the retaining wall is free to rotate at the top, it should be designed based on active earth pressure (Ka) and Maine DOT Type 4 backfill. Assuming the wall has a level backfill it should be designed using Ka equal to 0.31 and a unit weight of 125 pounds per

cubic foot (pcf) for the backfill. The resulting equivalent fluid pressure is 40 pcf, which assumes no unbalanced hydrostatic pressure.

- Walls with a backfill slope of 2 horizontal to 1 vertical (2H:1V) should be designed using Ka equal to 0.48 and a unit weight of 125 pcf for the backfill. The resulting equivalent fluid pressure is 60 pcf, which assumes no unbalanced hydrostatic pressure.

- The wall should be properly drained to prevent hydrostatic pressure from developing behind the wall.

- For calculating nominal sliding resistance (R_n) for footings bearing on a clean granular soil or crushed stone wrapped in a geotextile filter fabric we recommend the coefficient of friction and resistance factor in the table below. The nominal passive resistance (R_{ep}) for soil in front of the retaining walls should be ignored.

Table 9 – Retaining Wall Summary of Sliding Factors

Footing Type	Coefficient of Friction (Tanδ) Table 3.11.5.3-1	Resistance Factor (φ_τ) Table 10.5.5.2.2-1
Precast	0.40	0.90
Cast-in-place	0.45	0.80

8.5 CONSTRUCTION CONSIDERATIONS

8.5.1 Excavation Support

Construction of the retaining may require temporary excavation support system. The type and design of the temporary earth support system should be the responsibility of the Contractor. All excavations and support systems should be performed in accordance with current OSHA requirements under the observation and responsibility of the Contractor. Excavation slopes should be checked regularly for signs of instability and flattened as required. Temporary slopes should be protected from surface water run-off erosion by means of berms and swales located along the top of the slope and by means of plastic sheeting placed over the slope. Temporary shoring systems should be inspected periodically for excessive movement.

8.5.2 Construction Dewatering

Dewatering may be required for the construction of the retaining wall. The Contractor should be prepared to remove water using a system of sumps and pumps located within the excavation. If ground water flow cannot be handled by sumps and pumps then a system of drilled well points or deep wells may be needed.

Ultimately, the Contractor is responsible for selecting the method of dewatering and water diversion to maintain a stable surface at the bottom of the excavation. The Contractor should develop a dewatering plan capable of lowering groundwater two feet below the lowest point of excavation. The Contractor should be prepared to remove groundwater that seeps from joints in the bedrock and from the soil into the excavations. The specifications should require that the General Contractor divert surface water runoff away from excavations so that the foundation can be constructed in-the-dry. Precipitation that results in standing water in the excavation should be removed immediately.

9.0 GENERAL CONSTRUCTION CONSIDERATIONS

9.1 STRIPPING

All vegetation, mulch, trees, root balls, topsoil, topsoil fill, root mat, and other materials with significant organic content should be stripped from within the area of proposed structures such as the culvert and retaining wall. Topsoil may be stockpiled for re-use in non-structural areas. The extent of stripping should be determined during construction based on observations of stability and organic content.

9.2 MATERIAL REUSE

Stantec anticipates that the excavated granular soils will not be suitable for reused as Maine DOT Item No. 703.19, Granular Borrow for Underwater Backfill, but can be used as common fill. The excavated marine silt and clay deposit is not expected to be suitable for reuse as Granular Borrow for Underwater Backfill or as common fill. Reuse of the existing materials will be contingent on careful inspection in the field by the Owner's Resident Engineer. Any deleterious materials and miscellaneous debris that may be encountered during excavation activities within the fill should be removed from the site. On-site materials placed as backfill material should be sealed on a daily basis using a smooth drum roller to promote drainage and prevent ponding of storm water. Alternatively, imported fill materials may be used to attain the desired grades and expedite earthwork operations during wet weather periods.

9.3 SUBGRADE STABILIZATION

The subgrade soils encountered at the box culvert and retaining walls sites may require stabilization in their existing condition. Once exposed, the on-site soils are considered to be sensitive to weather and construction traffic disturbance and specifications should contain provisions for subgrade repair. The subgrade should be graded to promote positive runoff to a suitable drainage feature at all times during construction, and all excavations and exposed subgrades should be maintained in a moist, but unsaturated, condition throughout construction. The degree of subgrade disturbance will be dependent on the Contractor's means and methods, such as coordinating site activities around anticipated precipitation, and protecting exposed subgrades due to disturbance from excess moisture and construction equipment traffic.

Subgrade repair can include one or more of the following:

- Scarification, moisture conditioning, and recompaction (sand/gravel soils only).
- Over excavation to a stable subgrade.
- Partial over excavation and stabilization with coarse graded aggregate and/or geotextile.

Frozen subgrade should be stripped and replaced with compacted Maine DOT Item No. 703.19, Granular Borrow for Underwater Backfill. Optionally, the frozen subgrade may be thawed by means approved by Stantec, scarified, and recompacted.

Every effort should be made to minimize disturbance of the on-site soils by construction traffic and surface runoff. The on-site soils are moisture sensitive and will deteriorate when subjected to repeated construction traffic and likely will require removal and replacement. The services of a Geotechnical Engineer should be retained to inspect soil conditions during construction and verify the suitability of prepared foundation and floor slab subgrade for support of design loads.

9.4 STRUCTURAL FILL, PLACEMENT AND COMPACTION

Maine DOT Item No. 703.19, Granular Borrow for Underwater Backfill should meet the requirements of State of Maine Department of Transportation Standard Specifications. Any imported material placed as fill to raise elevations or restore design grades should consist of clean soil and/or aggregate, free of organics, clay lumps, deleterious materials, ice, snow, and waste of any kind, and meet the following gradation: should be comprised of clean soil and/or aggregate, free of organics, deleterious materials, ice, snow, and waste of any kind, and meet the following gradation:

Table 10 – Granular Borrow for Underwater Backfill Gradation Requirements

Sieve Size	% Passing by Weight
3-inch	100
No. 4	0 – 70
No. 200	0 – 10

The soil moisture content range should be ±3 percent of its optimum moisture content and Structural Fill should be placed in uniform lifts not exceeding 10 inches loose thickness compacted to at least 95% of Maximum Dry Density as determined by ASTM D1557 (Modified Proctor). The percent compaction is determined in the field by ASTM D-6938 (nuclear densometer). A minimum of two in place density tests should be performed for each lift of fill placed.

9.5 BACKFILL TESTING

The project specifications should require the Contractor to submit test results provided by an approved soils testing laboratory along with a sample of the imported fill material or any on-site material proposed for reuse as backfill material. The proposed materials should include gradation testing (ASTM D422) and moisture-density relationship testing (ASTM D1557) submitted for approval. The placement of all fill and backfill should be monitored by a qualified soils technician to observe and make accurate records regarding proof-rolling operations of the

subgrade prior to backfill placement, types of materials used, thickness of lifts, densities, percent compaction, type of compaction equipment and number of passes, etc.

9.6 WINTER CONSTRUCTION

Frozen subgrade should be removed and replaced with compacted Structural Fill. If excavation and backfilling operations are conducted during winter months, at the end of each day, the fill should be covered with a sacrificial 6-inch thick layer of fill that is to be stripped off at the start of the day to remove any hoar frost. The subgrade would then be recompacted and field density testing performed to ensure that the required compaction has been achieved. Optionally, the subgrade of the building footprint may be protected with insulated blankets and heated with circulated glycol lines to prevent the subgrade from freezing. Imported and/or on-site stockpiled backfill material should be covered with insulated blankets to minimize snow intrusion and/or rainfall infiltration. Any surficial frozen soil in the stockpile/borrow pit should be removed prior to placement in the work area.

10.0 LIMITATIONS

10.1 USE OF REPORT

This report has been prepared for the exclusive use of The Town of Falmouth and their respective assigns and designees. This report is not intended for the use or reliance of other (third) parties, without the express consent of Stantec and Town of Falmouth. Any use, which a third party makes of this report, or any reliance on decisions made based on this report, is the responsibility of such third parties. Further, the findings of this study apply only to the specific Site and project described herein. The findings herein are inapplicable to other Sites, and to developments of different grading, layout, loading, and performance requirements. Stantec accepts no responsibility for damages, real or perceived, suffered by parties as a result of decisions made or actions based on the unintended and/or inappropriate use of this report.

The Geotechnical Report provides recommendations and is intended for informational use requiring interpretation by the owner, design team, and Contractor for the design and construction of the project, and interpretation of final quantities and construction costs. The Geotechnical Report is not intended, or suitable, by itself, for use as a technical specification or to determine quantities. Anticipated quantities and/or costs may be provided in the Geotechnical Report; such information is an Engineer's interpretation, and may vary dramatically from Contractor bids, which are based on potentially differing interpretations, and several other variables not available or considered by the Engineer.

10.2 SUBSEQUENT INVOLVEMENT

The geotechnical process incorporates initial exploration and recommendations as summarized herein, and is followed by continuous involvement during key design and construction benchmarks. The recommendations provided herein are based on information and assumptions regarding proposed site grading, structural loading and performance requirements. It is recommended that a Professional Engineer review final foundation, grading, and other applicable plans to assess whether or not these recommendations require modification.

During construction, additional geotechnical soil samples should be collected and analyzed in the laboratory for moisture content, gradation, and moisture density relationship tests to evaluate the reuse of onsite soils (existing fill and natural sand strata) as backfill material.

A Professional Engineer should be retained to observe excavations and subgrade preparation to assess whether the intent of these recommendations is followed during construction, and whether or not other appropriate and/or cost-effective solutions may be warranted based on the actual conditions encountered. Further, a soil exploration is a random sampling of a Site. During the project, should any conditions at the Site be encountered that differ from those summarized in the report, Stantec should be notified immediately in order to permit reassessment of these conditions and the recommendations contained in the report.

10.3 REPRESENTATION AND INTERPRETATION OF DATA

Surficial and subsurface information presented herein is based on field measurements obtained during the course of the exploration and site reconnaissance. The precision and accuracy of surficial data is a function of the references, benchmarks, methods and instruments employed, as summarized in the report. Subsurface data is based on measurements within the borehole or test pit using the sampling methods described on the exploration logs. The completeness, precision, and accuracy of such data is a function of the frequency and type of exploration and sampling employed, as well as the precision and accuracy of the surface location and elevation of the borehole, and may vary from actual conditions encountered during excavations. Subsurface conditions between, beyond and below explorations, may vary dramatically from the nearest exploration, due to natural geologic action, deposition and weathering, or man-made activities.

Groundwater levels were recorded during the time periods and frequencies noted on the explorations. It is important to note that groundwater levels are disrupted by the exploration, and require equilibration periods to determine actual hydrostatic levels, which exceed the duration of the measurement period. Multiple hydrostatic groundwater levels may exist, including perched or trapped water, which may not necessarily be accurately represented by one water level reading. Groundwater levels fluctuate due to seasonal variations, adjacent surface water bodies, precipitation, and on-Site and nearby land use.

PROJECT PLANS WITH TEST BORINGS

Stantec

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PLAN LEGEND

Town, County, State
Property Lines
R/W Lines-Existing
R/W Lines-Proposed
Perm. Drainage Ease. Line
Perm. Const. Ease. Line
Temp. Const. Ease. Line
Culvert-Existing
Culvert Proposed
Curbing — Existing — Proposed
Type 1
Type 3
Type 5
Outline of Bodies of Water
Ledge
Buildings
Trees — Conifer — Deciduous
Tree Line
Clearing Limit Line — CLL
Proposed Ornamental Trees

Centerline-Existing
Centerline-Proposed — 10+00
Travelway-Existing
Travelway-Proposed
Railroad
Catch Basins — Existing — Proposed
Manholes — Existing — Proposed
Proposed Underdrain
Proposed Ditch
Existing Ditch
Utility Poles — Existing — Proposed
Fire Hydrants — Existing — Proposed
Existing Water Line
Existing San. Sewer
Existing San. Sewer Manhole
Guardrail-Existing
Guardrail-Proposed
Guardrail-Cable, Other
Proposed Pedestrian Lighting

FALMOUTH

CUMBERLAND COUNTY

MAINE ROUTE 100/26

STATE WIN 21784.00

PROJECT LENGTH: 1.510 MILES

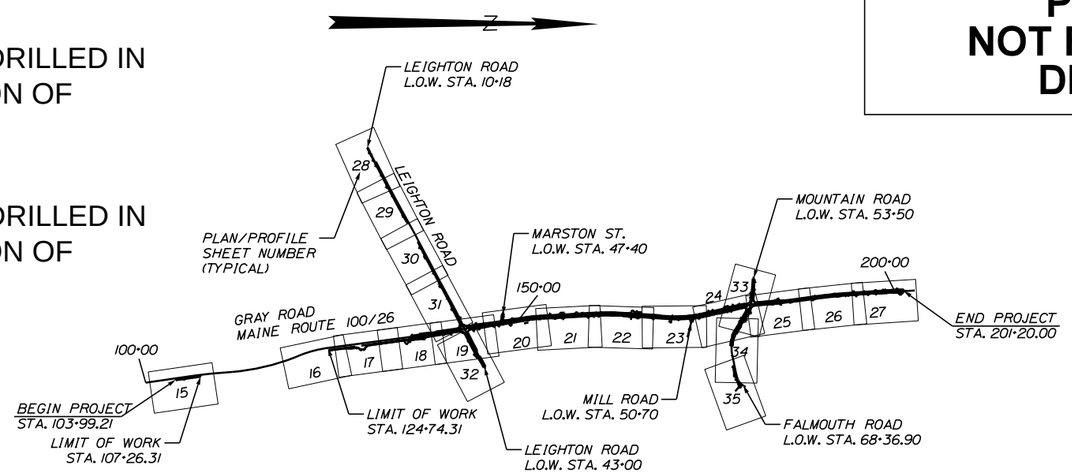
INDEX OF SHEETS

PROGRESS PRINT
NOT FOR CONSTRUCTION
DECEMBER 5, 2016

BORING LOCATION LEGEND

BI-02 LOCATION OF TEST BORING DRILLED IN 2002 UNDER THE SUPERVISION OF HALEY & ALDRICH, INC.

B-101 LOCATION OF TEST BORING DRILLED IN 2016 UNDER THE SUPERVISION OF STANTEC CONSULTING, INC.



TRAFFIC DATA

	ME RTE 100/26 SOUTH OF LEIGHTON RD	ME RTE 100/26 LEIGHTON RD TO MOUNTAIN RD	ME RTE 100/26 NORTH OF MOUNTAIN RD
Current (2017) AADT	12,940	10,320	7700
Future (2029) AADT	15,530	12,380	9240
DHV - % of AADT	11%	11%	11%
Design Hour Volume	1739	1377	1039
% Heavy Trucks (AADT)	3%	4%	5%
% Heavy Trucks (DHV)	1%	1%	1%
Directional Distribution (DHV)	71%	73%	74%
18 kip Equivalent P 2.0	187	160	152
18 kip Equivalent P 2.5	178	152	145
Design Speed (mph)	35	35	35
Functional Class:	MINOR RURAL ARTERIAL		
Corridor Priority:	3	3	3

LAYOUT SCALE

1000 0 1000 2000

Scale in Feet

PROJECT LOCATION: ROUTE 100/26 - 100' NORTH OF ROBERTS ROAD TO 200' NORTH OF LIBBY BRIDGE. LEIGHTON RD FROM BROOK ST TO 500' EAST OF ROUTE 100/26. MOUNTAIN RD AND FALMOUTH ST - 300' WEST OF ROUTE 100/26 TO WINN ST.

PROGRAM AREA: MULTIMODAL / LAP

SCOPE OF WORK: HIGHWAY RECONSTRUCTION WITH ALIGNMENT, DRAINAGE, AND INTERSECTION IMPROVEMENTS. LANDSCAPING, AND PUBLIC SAN. SEWER

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

WIN 21784.00

PROJECT INFORMATION

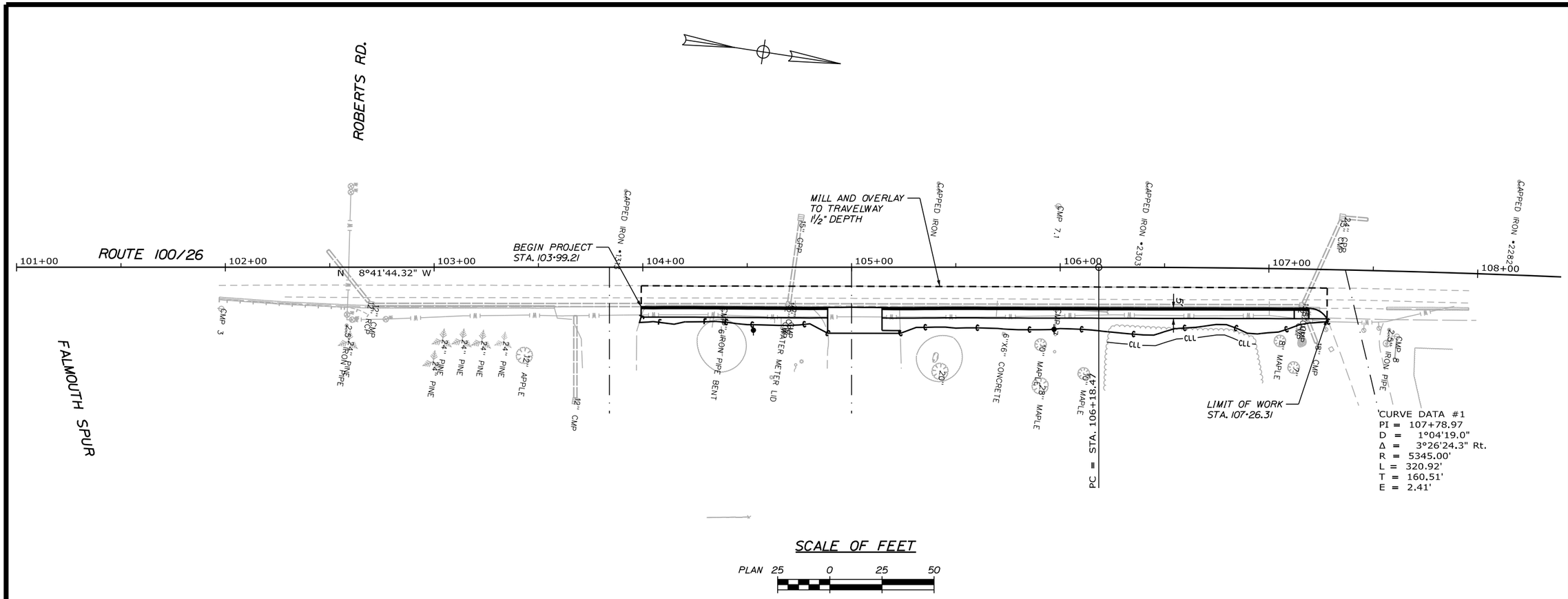
		SIGNATURE	P.E. NUMBER	DATE
PROGRAM	MULTIMODAL LAP			
PROJECT MANAGER	NATE BENOIT			
DESIGNER	MARK DEBOWSKI			
CONSULTANT	STANTEC			
PROJECT RESIDENT				
CONTRACTOR				
PROJECT COMPLETION DATE				

FALMOUTH
MAINE ROUTE 100/26

TITLE SHEET

SHEET NUMBER
1
OF 179

Filename: ...\00\HIGHWAY\MSTA\001_Title.dgn Division: HIGHWAY Username: mdebowski Date:12/5/2016



SCALE OF FEET

PLAN 25 0 25 50

NO PROFILE SHOWN BECAUSE ONLY SIDEWALK IS PROPOSED.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

WIN WIN HIGHWAY PLANS

PROJ. MANAGER	$PROJMANAGER$	BY	DATE
DESIGN-DETAILED	$DESIGNER1$	$DETAILER1$	$PRODATE1$
CHECKED-REVIEWED	$CHECKED1$	$CHECKER1$	$CHKDATE1$
DESIGN2-DETAILED2	$DESIGNER2$	$DETAILER2$	$PRODATE2$
DESIGN3-DETAILED3	$DESIGNER3$	$DETAILER3$	$PRODATE3$
REVISIONS 1	$REVISION1$		$REVDATE1$
REVISIONS 2	$REVISION2$		$REVDATE2$
REVISIONS 3	$REVISION3$		$REVDATE3$
REVISIONS 4	$REVISION4$		$REVDATE4$
FIELD CHANGES	$FIELDCHNGS$		$FIELDDATE$

P.E. NUMBER

SIGNATURE

DATE

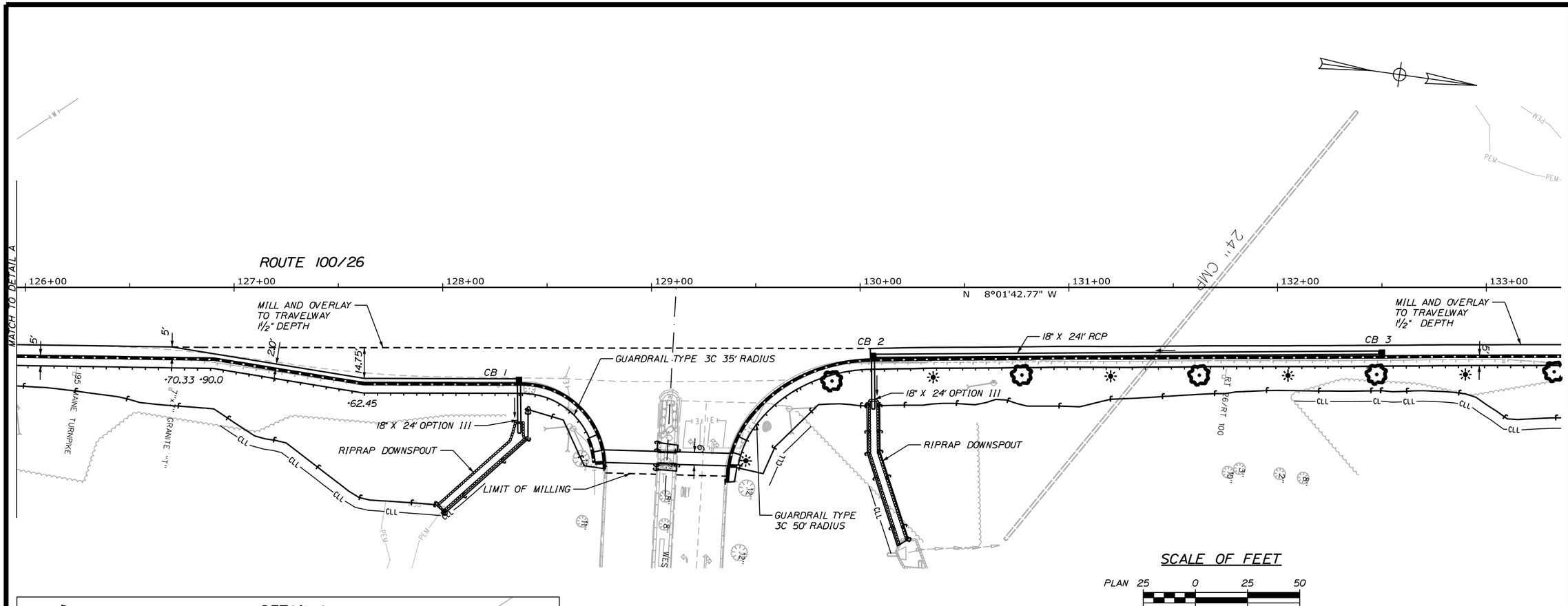
FALMOUTH
MAINE ROUTE 100\26

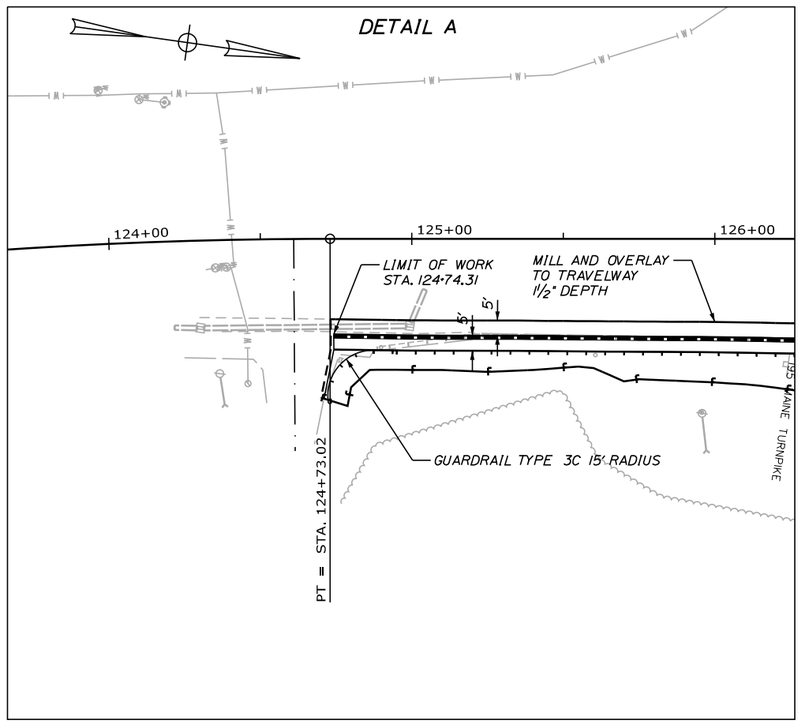
PLANS

SHEET NUMBER

15

OF 179





NO PROFILE SHOWN BECAUSE ONLY SIDEWALK IS BEING PROPOSED.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

WIN
WIN

HIGHWAY PLANS

PROJ. MANAGER	$PROJMANAGER%	BY	DATE
DESIGN-DETAILED	$DESIGNER1%	$DETAILER1%	$PRODATE1%
CHECKED-REVIEWED	$CHECKED1%	$CHECKED2%	$CHECKDATE%
DESIGN2-DETAILED2	$DESIGNER2%	$DETAILER2%	$PRODATE2%
DESIGN3-DETAILED3	$DESIGNER3%	$DETAILER3%	$PRODATE3%
REVISIONS 1	$REVISION1%	$REVDATE1%	P.E. NUMBER
REVISIONS 2	$REVISION2%	$REVDATE2%	
REVISIONS 3	$REVISION3%	$REVDATE3%	DATE
REVISIONS 4	$REVISION4%	$REVDATE4%	
FIELD CHANGES	$FIELDCHNGES%	$FIELDDATE%	SIGNATURE

FALMOUTH
MAINE ROUTE 100\26

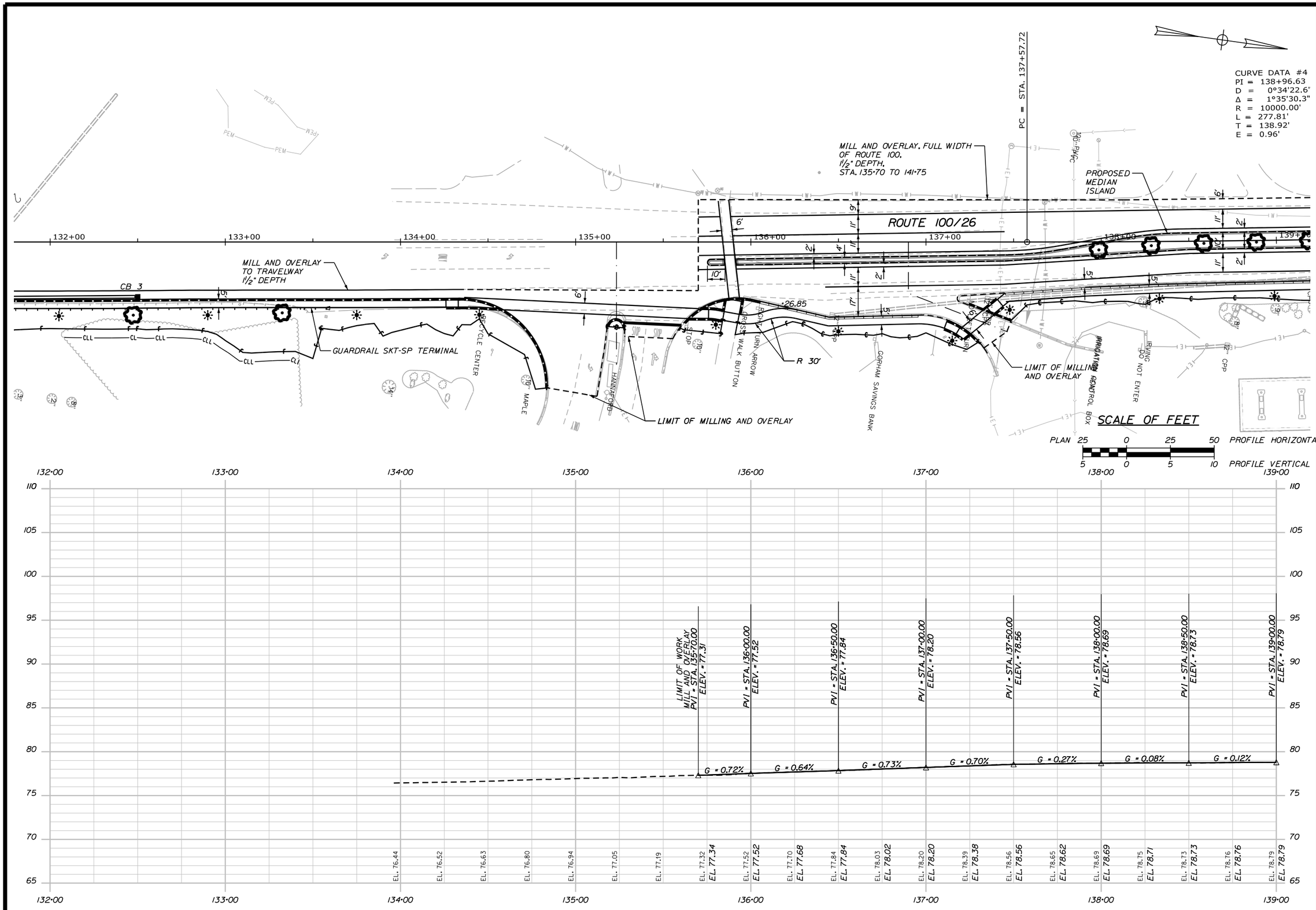
PLANS

SHEET NUMBER

16

OF 179

Filename: ...\HIGHWAY\MSTA\016_HDPlan2.dgn Division: HIGHWAY Username: mdebowski Date:12/5/2016



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

WIN
WIN

HIGHWAY PLANS

	BY	DATE
PROJ. MANAGER #PROJMANAGER#		
DESIGN-DETAILED #DESIGNER1#	#DETAILER1#	#PRODATE1#
CHECKED-REVIEWED #CHECKED1#	#CHECKED2#	#CHECKDATE#
DESIGN2-DETAILED2 #DESIGNER2#	#DETAILER2#	#PRODATE2#
DESIGN3-DETAILED3 #DESIGNER3#	#DETAILER3#	#PRODATE3#
REVISIONS 1	#REVISION1#	#REVDATE1#
REVISIONS 2	#REVISION2#	#REVDATE2#
REVISIONS 3	#REVISION3#	#REVDATE3#
REVISIONS 4	#REVISION4#	#REVDATE4#
FIELD CHANGES	#FIELDCHANGES#	#FIELDDATE#

P.E. NUMBER

SIGNATURE

DATE

FALMOUTH
MAINE ROUTE 100\26

PLANS

SHEET NUMBER

17

OF 179

JRVE DATA #4
= 138+96.63
= 0°34'22.6"
= 1°35'30.3" Lt.
= 10000.00'
= 277.81'
= 138.92'
= 0.96'

MILL AND OVERLAY. FULL WIDTH OF ROUTE 100. 1½" DEPTH. STA. 135+70 TO 141+75

PT = STA. 140+35.53

PROPOSED MEDIAN ISLAND

PT = STA. 36+50.76

LIMIT OF FULL DEPTH RECONSTRUCTION RTE 100/26 STA. 141+75

REMOVE CULVERT TO STA. 141+50

PLUG, FILL, & ABANDON CB

ROUTE 100/26

LEFT TURN

DO NOT ENTER

IRRIGATION HEAD

LIMIT OF MILL AND OVERLAY

STA. 37+32.64 LEIGHTON RD. =
STA. 142+82.55 US 100/ RTE. 26

CURVE DATA #6
PI = STA. 37+98.27
PI = 1+08.45
D = 1°44'23"
Δ = 5000.00'
R = 3351.83'
L = 273.92'
T = 136.99'
E = 0.58'

LEIGHTON ROAD

FOR CONTINUATION SEE SHEET NO. 31

FOR CONTINUATION SEE SHEET NO. 32

REMOVE CULVERT

18" X 100' RCP

INSTALL CB 5

REMOVE CULVERTS, CB. AND MHS

REMOVE CB 5

REMOVE CB

18" UD TYPE C

6" UD TYPE B

PAVED DRIVE

PAGE WIRE FENCE LEACHFIELD

LINE OF MED. LARGE HARDWOODS

BEGIN LANE TAPER STA. 145+35.00

PT = STA. 38+74.18

SCALE OF FEET

PLAN 25 0 25 50 PROFILE HORIZONTAL
5 0 5 10 PROFILE VERTICAL

PVI = STA. 139+00.00 ELEV. = 78.79
PVI = STA. 139+50.00 ELEV. = 78.91
PVI = STA. 140+00.00 ELEV. = 79.23
PVI = STA. 140+50.00 ELEV. = 79.64
PVI = STA. 141+00.00 ELEV. = 80.30
PVI = STA. 141+50.00 ELEV. = 81.07
BEGIN FULL DEPTH RECONSTRUCTION STA. 141+75.00
PVI = STA. 142+00.00 ELEV. = 81.85
PVC = STA. 142+66.42 ELEV. = 83.00
V.C.L. = 300'
SSD = 317'
E = -2.427'
PVI = STA. 144+16.42 ELEV. = 85.58
HIGH POINT = STA. 143+46.33 ELEV. = 83.69
PVT = STA. 145+66.42 ELEV. = 78.46

G = 0.00%
G = 0.24%
G = 0.64%
G = 0.82%
G = 1.33%
G = 1.53%
G = 1.56%
G = 1.72%
G = -4.75%

EL.	EL.
78.79	EL. 78.79
78.75	EL. 78.85
78.91	EL. 78.91
79.07	EL. 79.07
79.23	EL. 79.23
79.42	EL. 79.44
79.64	EL. 79.64
79.94	EL. 79.97
80.30	EL. 80.30
80.69	EL. 80.69
81.07	EL. 81.07
81.46	EL. 81.46
81.86	EL. 81.85
82.26	EL. 82.28
82.73	EL. 82.71
83.10	EL. 83.14
83.42	EL. 83.45
83.63	EL. 83.64
83.65	EL. 83.68
83.49	EL. 83.60
83.16	EL. 83.37
82.99	EL. 83.02
82.50	EL. 82.53
81.87	EL. 81.90
81.03	EL. 81.14
80.09	EL. 80.24
79.02	EL. 79.21
77.92	EL. 78.05
76.79	EL. 76.87

PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

WIN
WIN

HIGHWAY PLANS

PROJ. MANAGER	#PROJMANAGER			DATE
DESIGN-DETAILED	$DESIGNER1	$DETAILER1	$PRODATE1	$DETAILDATE1
CHECKED-REVIEWED	$CHECKED1	$CHECKED2	$CHECKDATE	SIGNATURE
DESIGN2-DETAILED2	$DESIGNER2	$DETAILER2	$PRODATE2	$DETAILDATE2
DESIGN3-DETAILED3	$DESIGNER3	$DETAILER3	$PRODATE3	$DETAILDATE3
REVISIONS 1	$REVISION1	$REVEDIT1	P.E. NUMBER	
REVISIONS 2	$REVISION2	$REVEDIT2		
REVISIONS 3	$REVISION3	$REVEDIT3	DATE	
REVISIONS 4	$REVISION4	$REVEDIT4	DATE	
FIELD CHANGES	$FIELDCHANGES	$FIELDEDIT	DATE	

FALMOUTH
MAINE ROUTE 100\26

PLANS

SHEET NUMBER
19
OF 179

FOR MARSTON STREET PROFILE SEE SHEET NO. 38

POB = STA. 47+00.00

LIMIT OF WORK MARSTON ST. STA. 47+40

72" X 88' OPTION III

REMOVE CULVERTS, CATCH BASINS, AND MANHOLE

REMOVE CULVERT

18" X 48' OPT. III

18" X 55' OPT. III

REMOVE CULVERT

STA. 48+50 MARSTON ST. = STA. 147+75.05 US 100/ RTE. 26

MARSTON ST.

S 81°03'31" E 324.41'

CB 7

CB 6

REMOVE, CB

REMOVE

END LANE TAPER STA. 146+50.00

18" U.D. TYPE C

POE = STA. 48+50.00

72" X 96' RCP

6" U.D. TYPE B

ROUTE 100/26

146+00

147+00

148+00

149+00

150+00

151+00

152+00

153+00

CB 8

CB 9

12" U.D. TYPE C

18" X 28' RCP

6" U.D. TYPE B

REMOVE CULVERT

30" X 104' RCP

6" U.D. TYPE B

CB 10

18" X 16' OPT III

REMOVE

RIPRAP DOWNSPOUT

REMOVE CULVERT AND HEADWALL

18" X 70' OPTION I

RIPRAP DOWNSPOUT

REMOVE

RIPRAP DOWNSPOUT

GUARDRAIL TYPE 3C 15' RADIUS (TYP.)

CB 12

12" X 32' OPT III

12" X 44' OPT. III

CB 11

REMOVE

PC = STA. 150+43.42

POE = STA. 3+

POB = STA. 3+

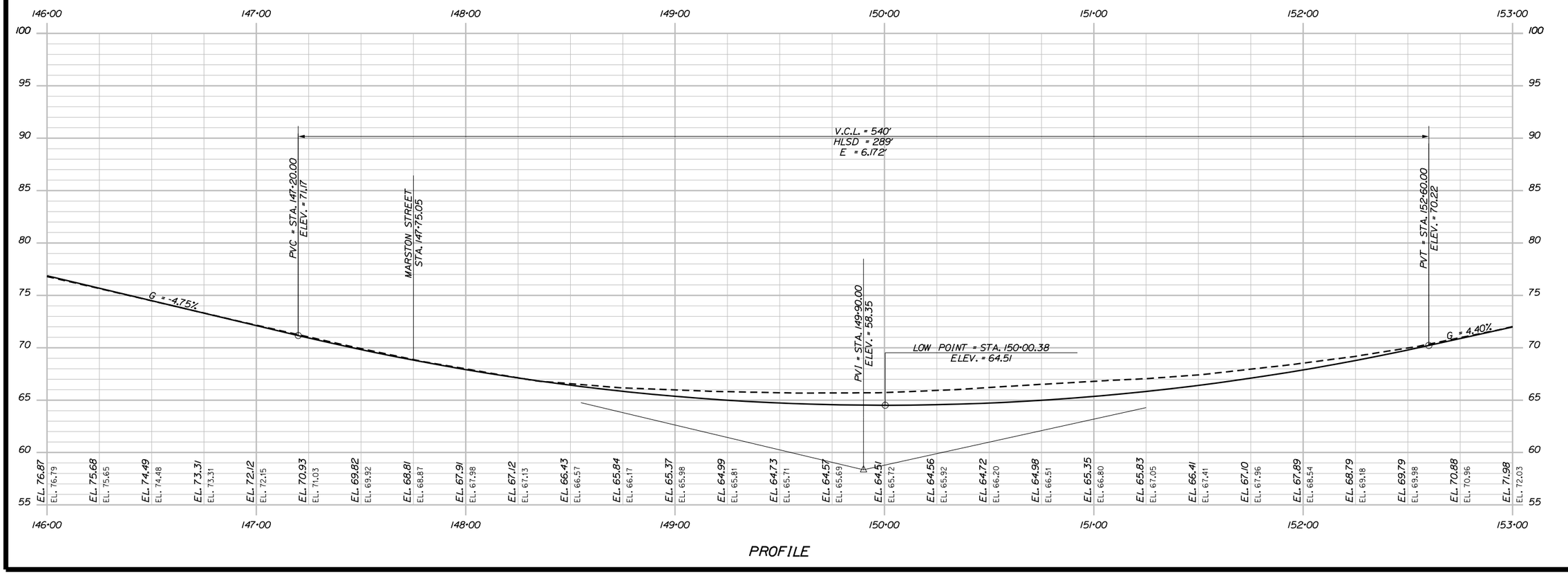
STA. 153+21.13

CURVE DATA #5
PI = 151+83.41
D = 2°10'57.7"
Δ = 6°06'19.3" Rt.
R = 2625.00'
L = 279.72'
T = 139.99'
E = 3.73'

SCALE OF FEET

PLAN 25 0 25 50 PROFILE HORIZONTAL

5 0 5 10 PROFILE VERTICAL



PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

WIN
WIN

HIGHWAY PLANS

PROJ. MANAGER	$PROJMANAGER$	BY	DATE
DESIGN-DETAILED	$DESIGNER1$	$DETAILER1$	$PROJDATE1$
CHECKED-REVIEWED	$CHECKED1$	$CHECKER1$	$PROJDATE1$
DESIGN2-DETAILED2	$DESIGNER2$	$DETAILER2$	$PROJDATE2$
DESIGN3-DETAILED3	$DESIGNER3$	$DETAILER3$	$PROJDATE3$
REVISIONS 1	$REVISION1$		
REVISIONS 2	$REVISION2$		
REVISIONS 3	$REVISION3$		
REVISIONS 4	$REVISION4$		
FIELD CHANGES	$FIELDCHANGE1$		

P.E. NUMBER

SIGNATURE

DATE

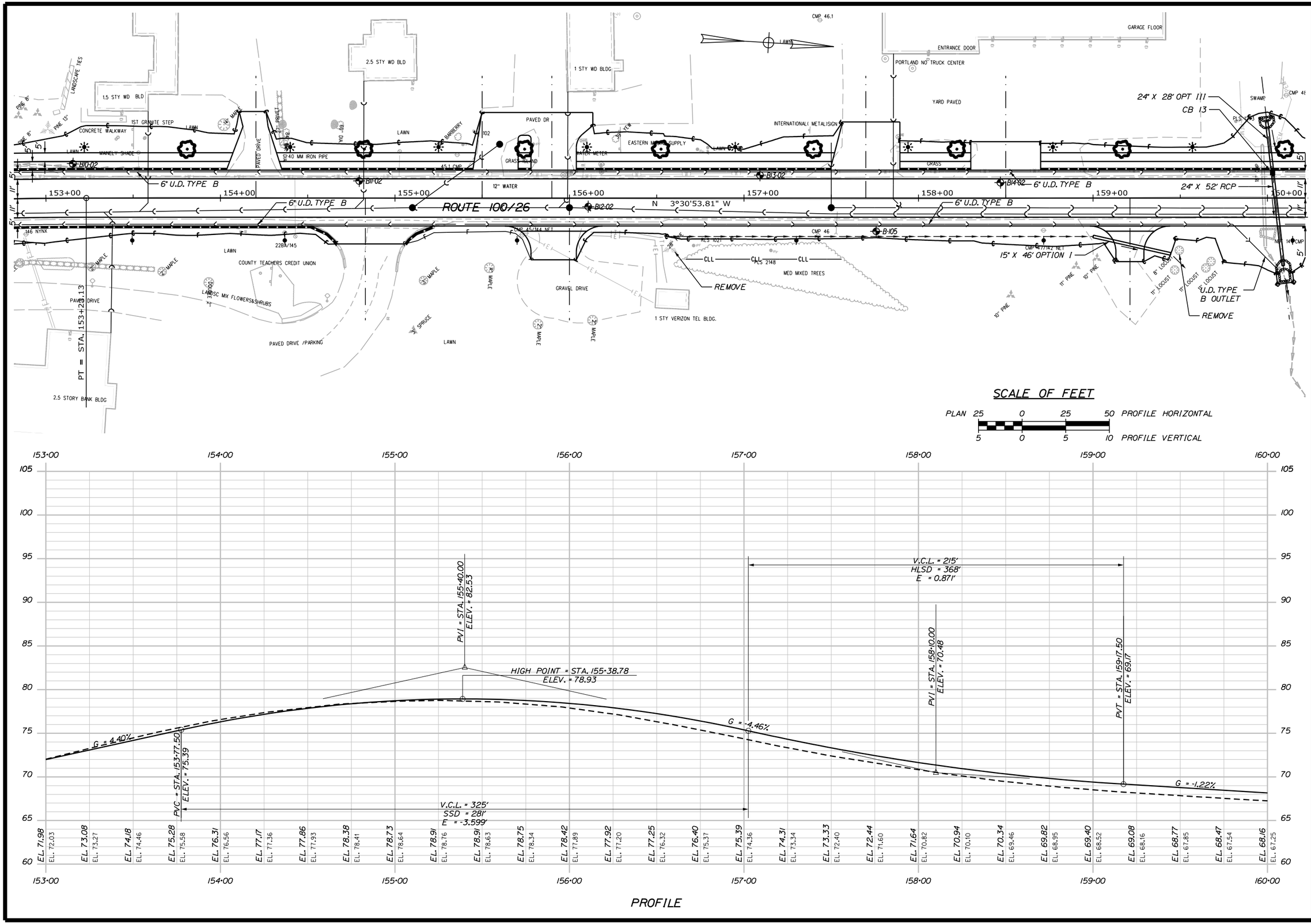
FALMOUTH
MAINE ROUTE 100\26

PLANS

SHEET NUMBER

20

OF 179



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

WIN WIN

HIGHWAY PLANS

	BY	DATE
PROJ. MANAGER $PROJMANAGER$		
DESIGN-DETAILED $DESIGNERDT$	$DETAILER$	$PROJDATE$
CHECKED-REVIEWED $CHECKED$	$CHECKED$	$CHECKDATE$
DESIGN2-DETAILED2 $DESIGNER2$	$DETAILER2$	$PROJDATE2$
DESIGN3-DETAILED3 $DESIGNER3$	$DETAILER3$	$PROJDATE3$
REVISIONS 1 $REVISION1$		$REVDATE1$
REVISIONS 2 $REVISION2$		$REVDATE2$
REVISIONS 3 $REVISION3$		$REVDATE3$
REVISIONS 4 $REVISION4$		$REVDATE4$
FIELD CHANGES $FIELDCHANGES$		$FIELDDATE$

SIGNATURE

P.E. NUMBER

DATE

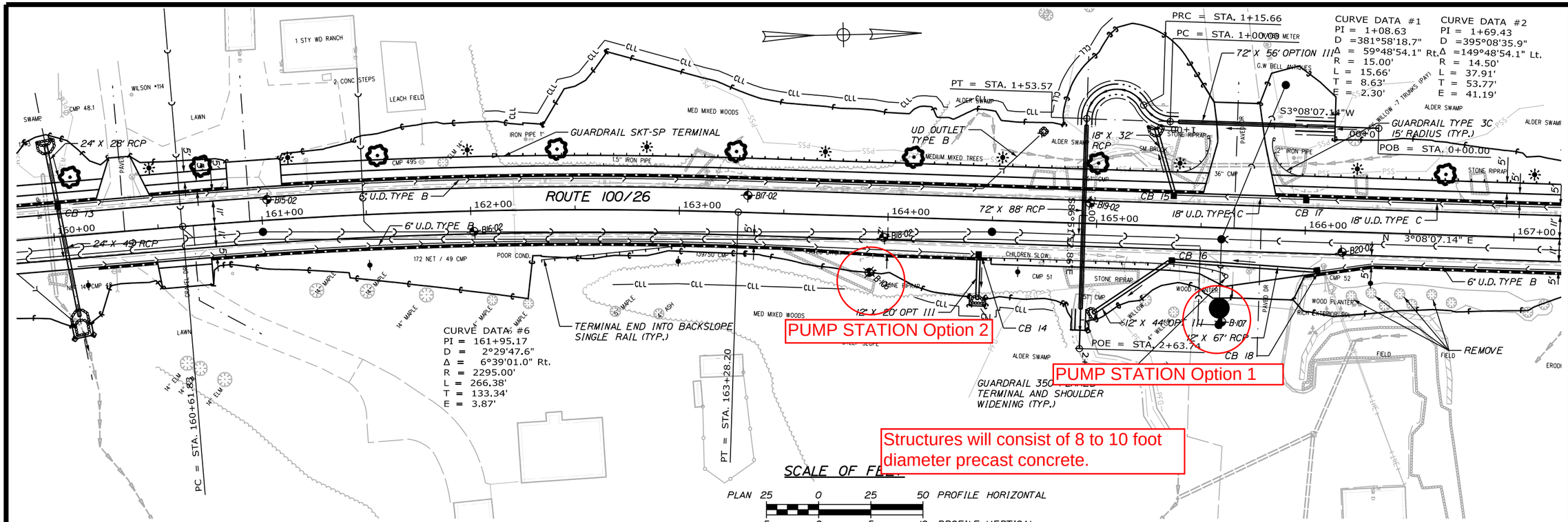
FALMOUTH
MAINE ROUTE 100\26

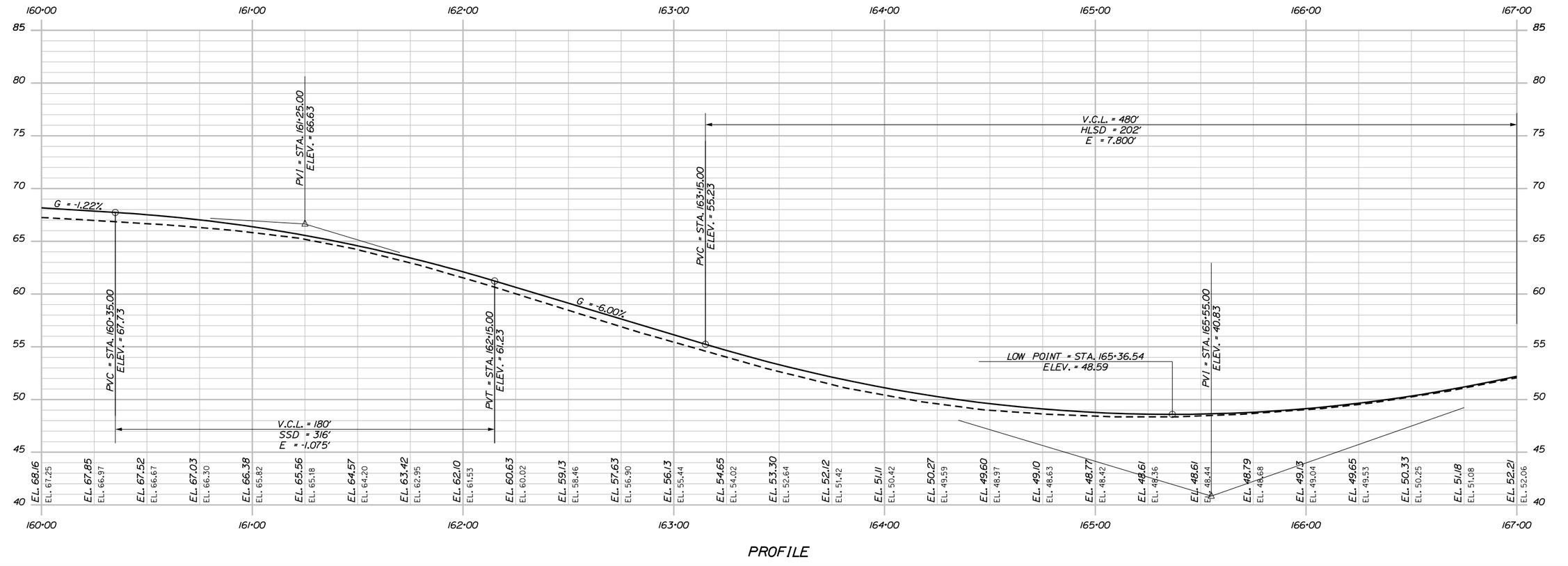
PLANS

SHEET NUMBER

21

OF 179





STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

HIGHWAY PLANS

WIN
WIN

	BY	DATE
PROJ. MANAGER	$PROJMANAGER%	
DESIGN-DETAILED	$DESIGNER1%	$DETAILED1%
CHECKED-REVIEWED	$CHECKED1%	$CHECKDATE1%
DESIGN2-DETAILED2	$DESIGNER2%	$DETAILED2%
DESIGN3-DETAILED3	$DESIGNER3%	$DETAILED3%
REVISIONS 1	$REVISION1%	$REVISIONDATE1%
REVISIONS 2	$REVISION2%	$REVISIONDATE2%
REVISIONS 3	$REVISION3%	$REVISIONDATE3%
REVISIONS 4	$REVISION4%	$REVISIONDATE4%
FIELD CHANGES	$FIELDCHANGE1%	$FIELDDATE1%

P.E. NUMBER

SIGNATURE

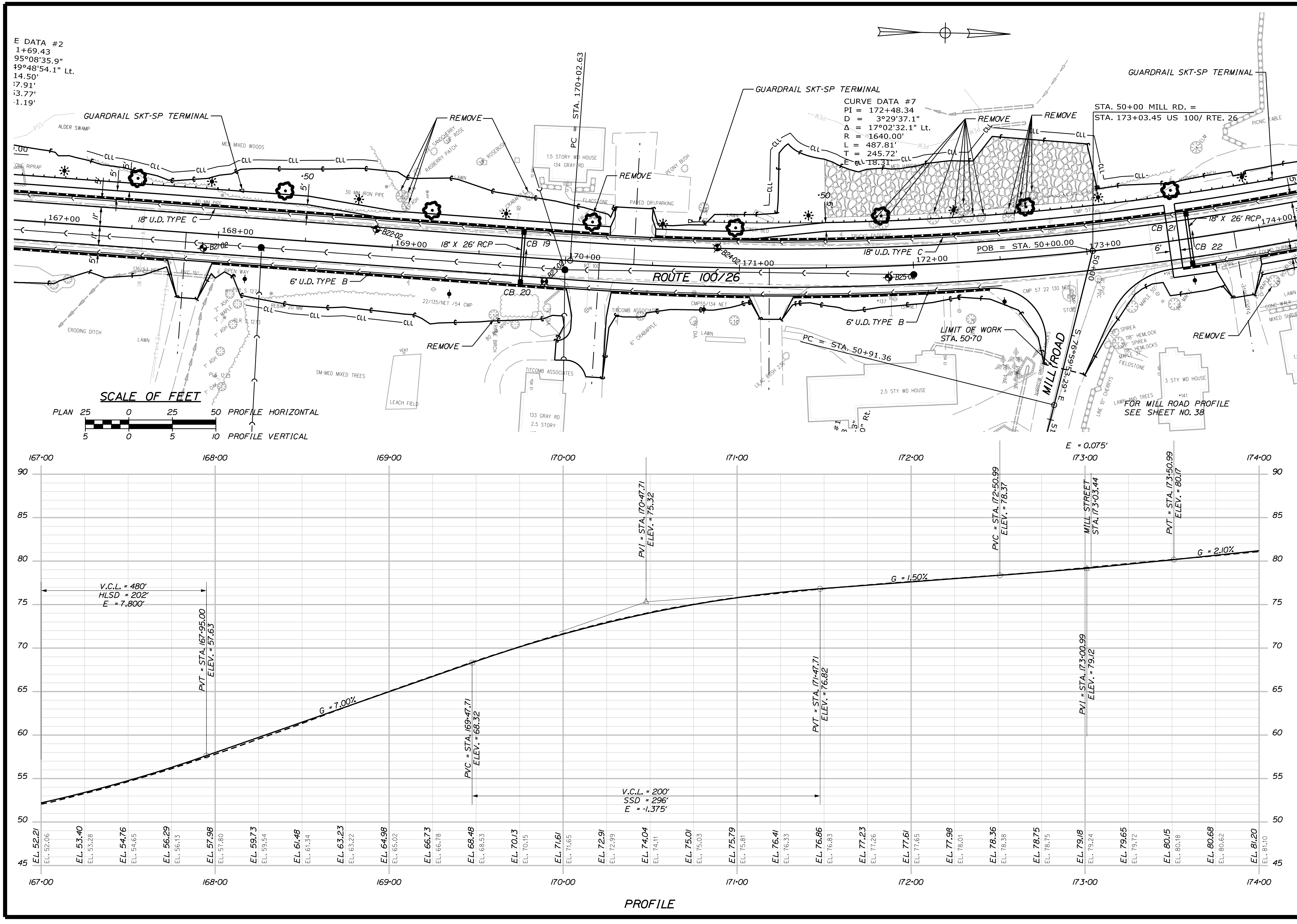
DATE

FALMOUTH
MAINE ROUTE 100\26

PLANS

SHEET NUMBER
22
OF 179

Filename: ...\HIGHWAY\MSTA\023_HDPlan8.dgn Division: HIGHWAY Username: mdebowski Date:12/5/2016



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

HIGHWAY PLANS

WIN
WIN

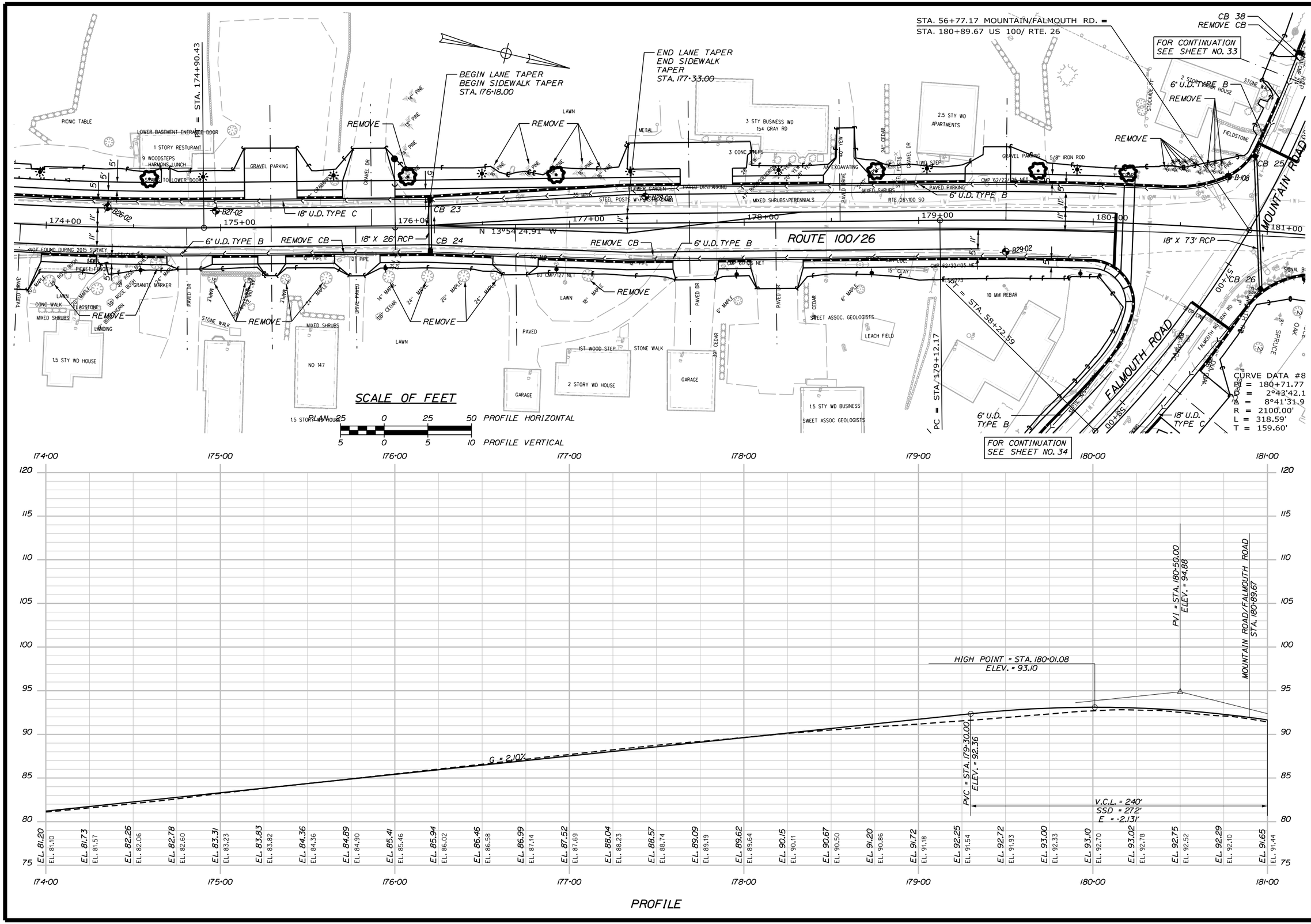
	BY	DATE
PROJ. MANAGER	$PROJMANAGER$	
DESIGN-DETAILED	$DESIGNER1$	$DETAILER1$ $PROJDATE1$
CHECKED-REVIEWED	$CHECKED1$	$CHECKDATE1$
DESIGN2-DETAILED2	$DESIGNER2$	$DETAILER2$ $PROJDATE2$
DESIGN3-DETAILED3	$DESIGNER3$	$DETAILER3$ $PROJDATE3$
REVISIONS 1	$REVISION1$	$REVDATE1$
REVISIONS 2	$REVISION2$	$REVDATE2$
REVISIONS 3	$REVISION3$	$REVDATE3$
REVISIONS 4	$REVISION4$	$REVDATE4$
FIELD CHANGES	$FIELDCHANGE$	$FIELDDATE$

SIGNATURE
P.E. NUMBER
DATE

FALMOUTH
MAINE ROUTE 100\26

PLANS

SHEET NUMBER
23
OF 179



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

WIN
WIN

HIGHWAY PLANS

	BY	DATE
PROJ. MANAGER #PROJMANAGER#		
DESIGN-DETAILED	$DESIGNER1$	$DETAILER1$ $PRODATE1$
CHECKED-REVIEWED	$CHECKED1$	$CHECKER1$ $CHECKDATE1$
DESIGN2-DETAILED2	$DESIGNER2$	$DETAILER2$ $PRODATE2$
DESIGN3-DETAILED3	$DESIGNER3$	$DETAILER3$ $PRODATE3$
REVISIONS 1	$REVISION1$	$REVDATE1$
REVISIONS 2	$REVISION2$	$REVDATE2$
REVISIONS 3	$REVISION3$	$REVDATE3$
REVISIONS 4	$REVISION4$	$REVDATE4$
FIELD CHANGES	$FIELDCHANGES1$	$FIELDDATE1$

P.E. NUMBER

SIGNATURE

DATE

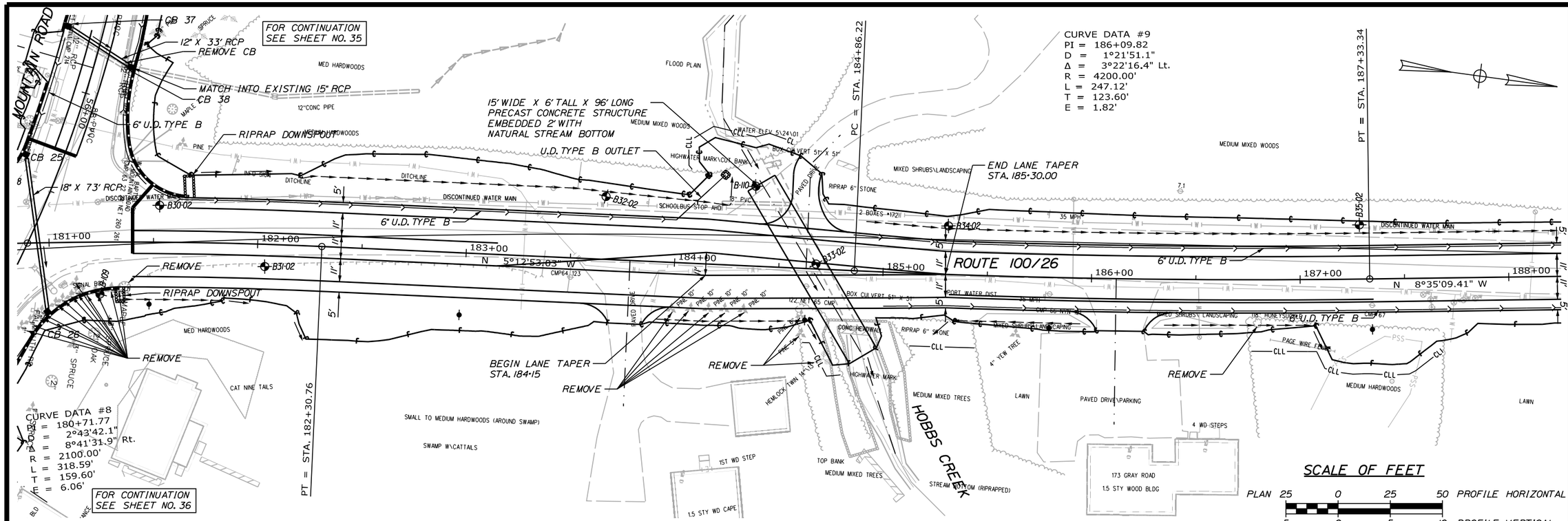
FALMOUTH
MAINE ROUTE 100\26

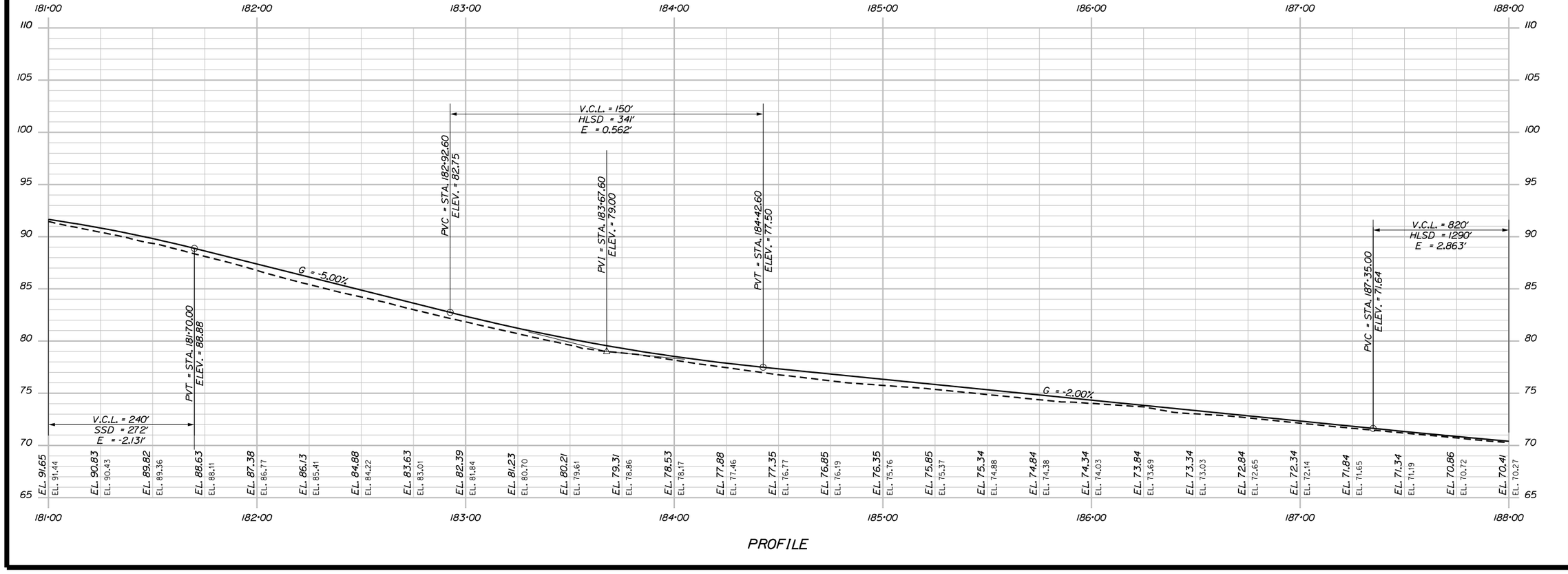
PLANS

SHEET NUMBER

24

OF 179





STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

WIN WIN

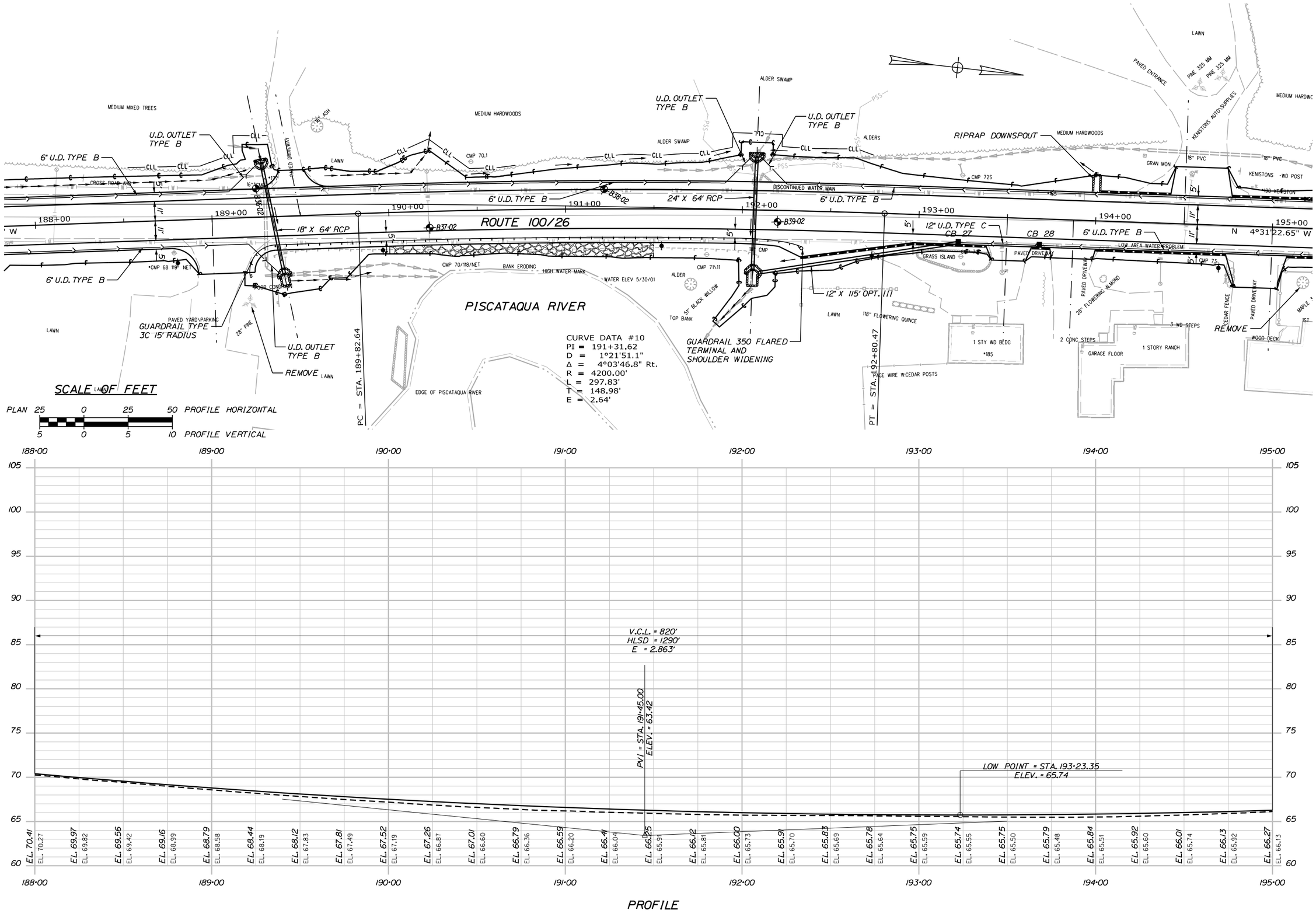
HIGHWAY PLANS

PROJ. MANAGER	$PROJMANAGER$	BY	DATE
DESIGN-DETAILED	$DESIGNER1$	$DETAILER1$	$PRODATE1$
CHECKED-REVIEWED	$CHECKED1$	$CHECKER2$	$CHKDATE2$
DESIGN2-DETAILED2	$DESIGNER2$	$DETAILER2$	$PRODATE2$
DESIGN3-DETAILED3	$DESIGNER3$	$DETAILER3$	$PRODATE3$
REVISIONS 1	$REVISION1$		$REVDATE1$
REVISIONS 2	$REVISION2$		$REVDATE2$
REVISIONS 3	$REVISION3$		$REVDATE3$
REVISIONS 4	$REVISION4$		$REVDATE4$
FIELD CHANGES	$FIELDCHANGE$		$FIELDDATE$

FALMOUTH
MAINE ROUTE 100\26

PLANS

SHEET NUMBER
25
OF 179



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

WIN
WIN

HIGHWAY PLANS

	BY	DATE
PROJ. MANAGER	$PROJMANAGER%	
DESIGN-DETAILED	$DESIGNER%	$PRODATE%
CHECKED-REVIEWED	$CHECKED%	$CHECKDATE%
DESIGN2-DETAILED2	$DESIGNER2%	$PRODATE2%
DESIGN3-DETAILED3	$DESIGNER3%	$PRODATE3%
REVISIONS 1	$REVISION1%	$REVDATE1%
REVISIONS 2	$REVISION2%	$REVDATE2%
REVISIONS 3	$REVISION3%	$REVDATE3%
REVISIONS 4	$REVISION4%	$REVDATE4%
FIELD CHANGES	$FIELDCHANGES%	$FIELDDATE%

SIGNATURE

P.E. NUMBER

DATE

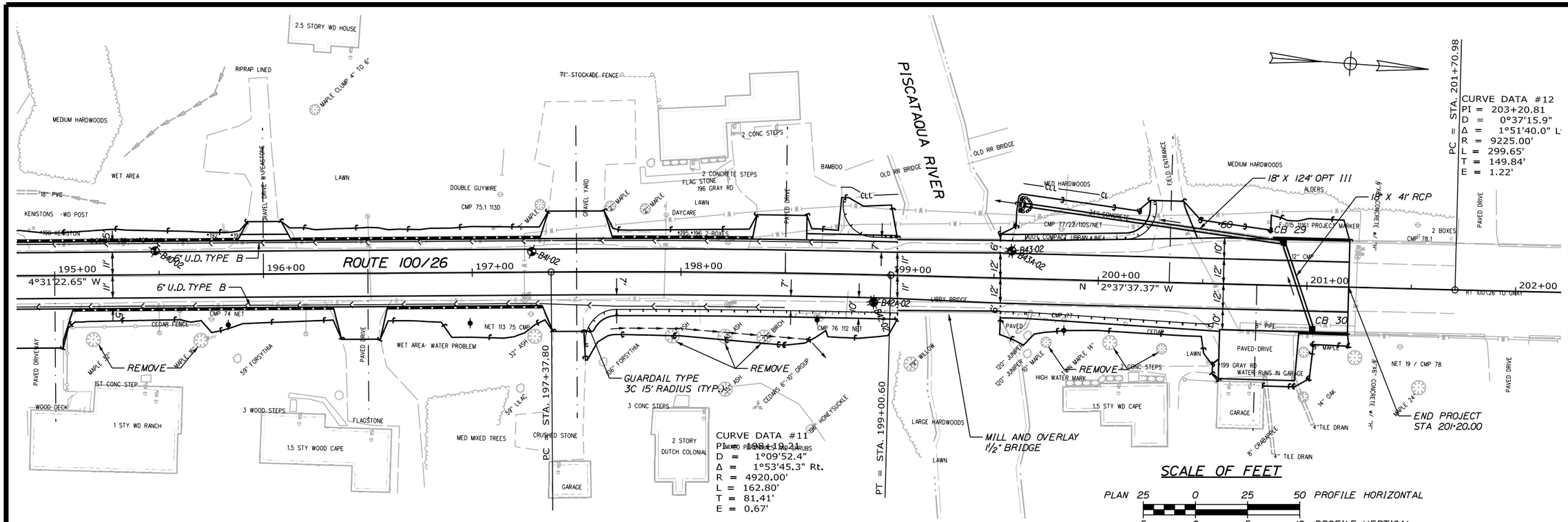
FALMOUTH
MAINE ROUTE 100\26

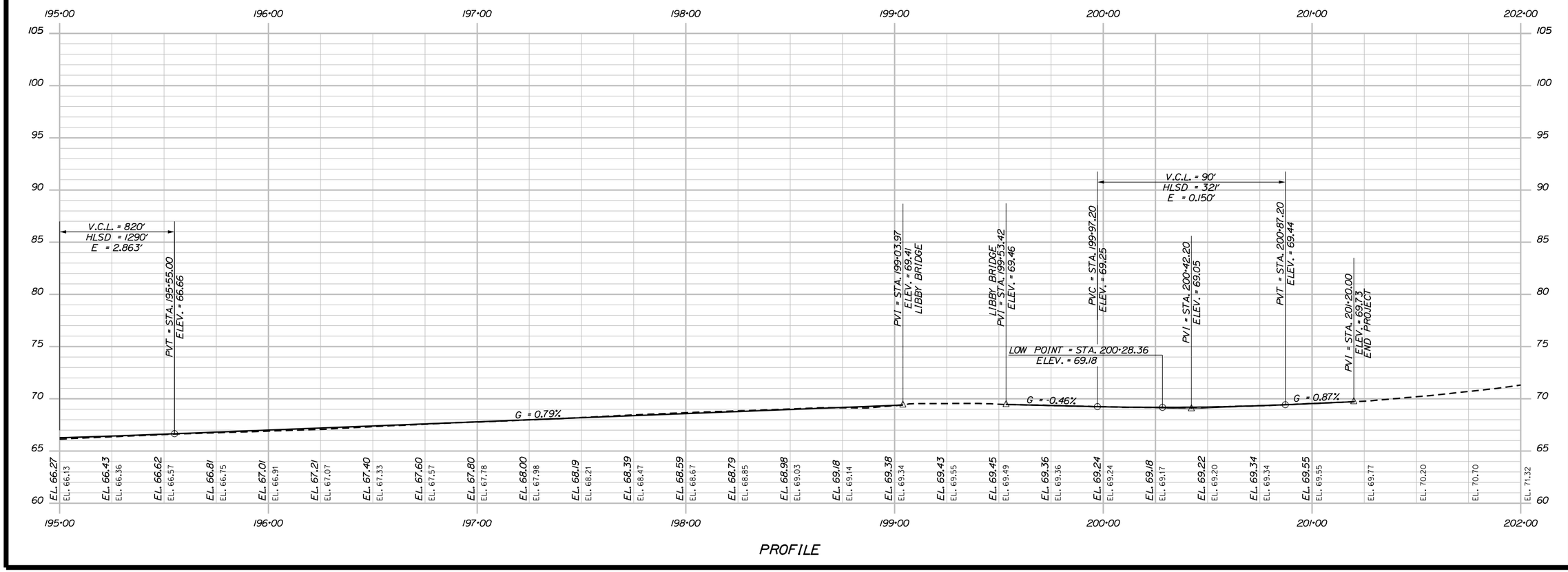
PLANS

SHEET NUMBER

26

OF 179





PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

HIGHWAY PLANS

WIN
WIN

PROJ. MANAGER	$PROJMANAGER$	BY	DATE
DESIGN-DETAILED	$DESIGNER1$	$DETAILER1$	$PRODATE1$
CHECKED-REVIEWED	$CHECKED1$	$CHECKER1$	$CHKDATE1$
DESIGN2-DETAILED2	$DESIGNER2$	$DETAILER2$	$PRODATE2$
DESIGN3-DETAILED3	$DESIGNER3$	$DETAILER3$	$PRODATE3$
REVISIONS 1	$REVISION1$		
REVISIONS 2	$REVISION2$		
REVISIONS 3	$REVISION3$		
REVISIONS 4	$REVISION4$		
FIELD CHANGES	$FIELDCHANGE$		

P.E. NUMBER

REVDATE1	REVISION1	
REVDATE2	REVISION2	
REVDATE3	REVISION3	DATE
REVDATE4	REVISION4	
FIELDDATE	FIELDCHANGE	

SIGNATURE

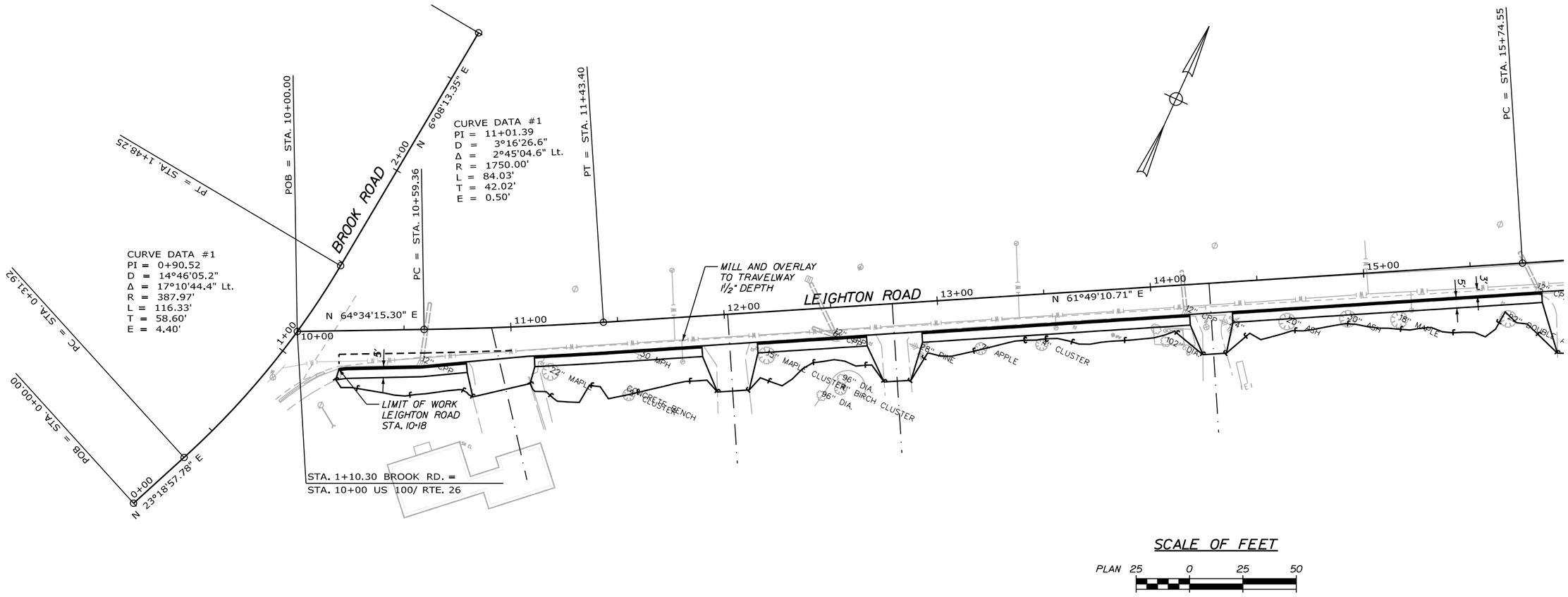
FALMOUTH
MAINE ROUTE 100\26

PLANS

SHEET NUMBER

27

OF 179



NO PROFILE SHOWN BECAUSE ONLY SIDEWALK IS BEING PROPOSED.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

WIN
WIN

HIGHWAY PLANS

PROJ. MANAGER	$PROJMANAGER%	BY	DATE
DESIGN-DETAILED	$DESIGNER1%	$DETAILER1%	$PROJDATE1%
CHECKED-REVIEWED	$CHECKED1%	$CHECKED2%	$CHECKDATE%
DESIGN2-DETAILED2	$DESIGNER2%	$DETAILER2%	$PROJDATE2%
DESIGN3-DETAILED3	$DESIGNER3%	$DETAILER3%	$PROJDATE3%
REVISIONS 1	$REVISION1%		$REVDATE1%
REVISIONS 2	$REVISION2%		$REVDATE2%
REVISIONS 3	$REVISION3%		$REVDATE3%
REVISIONS 4	$REVISION4%		$REVDATE4%
FIELD CHANGES	$FIELDCHANGES%		$FIELDDATE%

P.E. NUMBER

SIGNATURE

DATE

FALMOUTH
MAINE ROUTE 100\26

PLANS

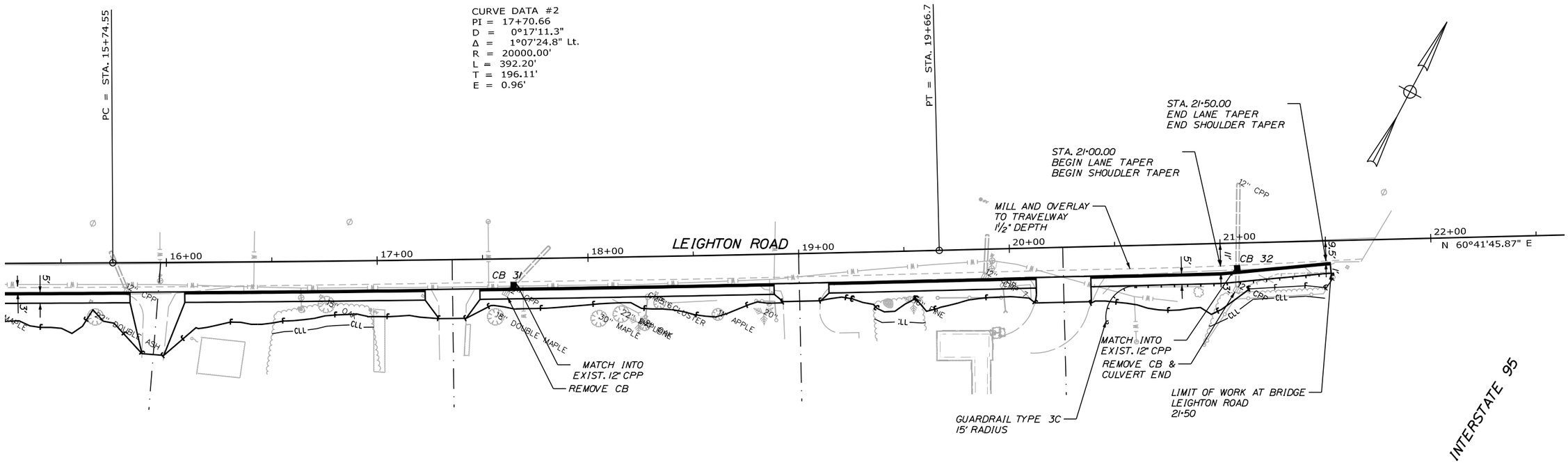
SHEET NUMBER

28

OF 179

Filename: ...\HIGHWAY\MSTA\028_HDPlan13.dgn Division: HIGHWAY Username: mdebowski Date:12/5/2016

CURVE DATA #2
PI = 17+70.66
D = 0°17'11.3"
Δ = 1°07'24.8" Lt.
R = 20000.00'
L = 392.20'
T = 196.11'
E = 0.96'



INTERSTATE 95

SCALE OF FEET

PLAN 25 0 25 50

NO PROFILE SHOWN BECAUSE ONLY SIDEWALK IS BEING PROPOSED.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

WIN WIN

HIGHWAY PLANS

PROJ. MANAGER	$PROJMANAGER$	BY	DATE
DESIGN-DETAILED	$DESIGNER1$	$DETAILER1$	$PROJDATE1$
CHECKED-REVIEWED	$CHECKED1$	$CHECKED2$	$CHECKDATE$
DESIGN2-DETAILED2	$DESIGNER2$	$DETAILER2$	$PROJDATE2$
DESIGN3-DETAILED3	$DESIGNER3$	$DETAILER3$	$PROJDATE3$
REVISIONS 1	$REVISION1$		$REVDATE1$
REVISIONS 2	$REVISION2$		$REVDATE2$
REVISIONS 3	$REVISION3$		$REVDATE3$
REVISIONS 4	$REVISION4$		$REVDATE4$
FIELD CHANGES	$FIELDCHANGES$		$FIELDDATE$

SIGNATURE

P.E. NUMBER

DATE

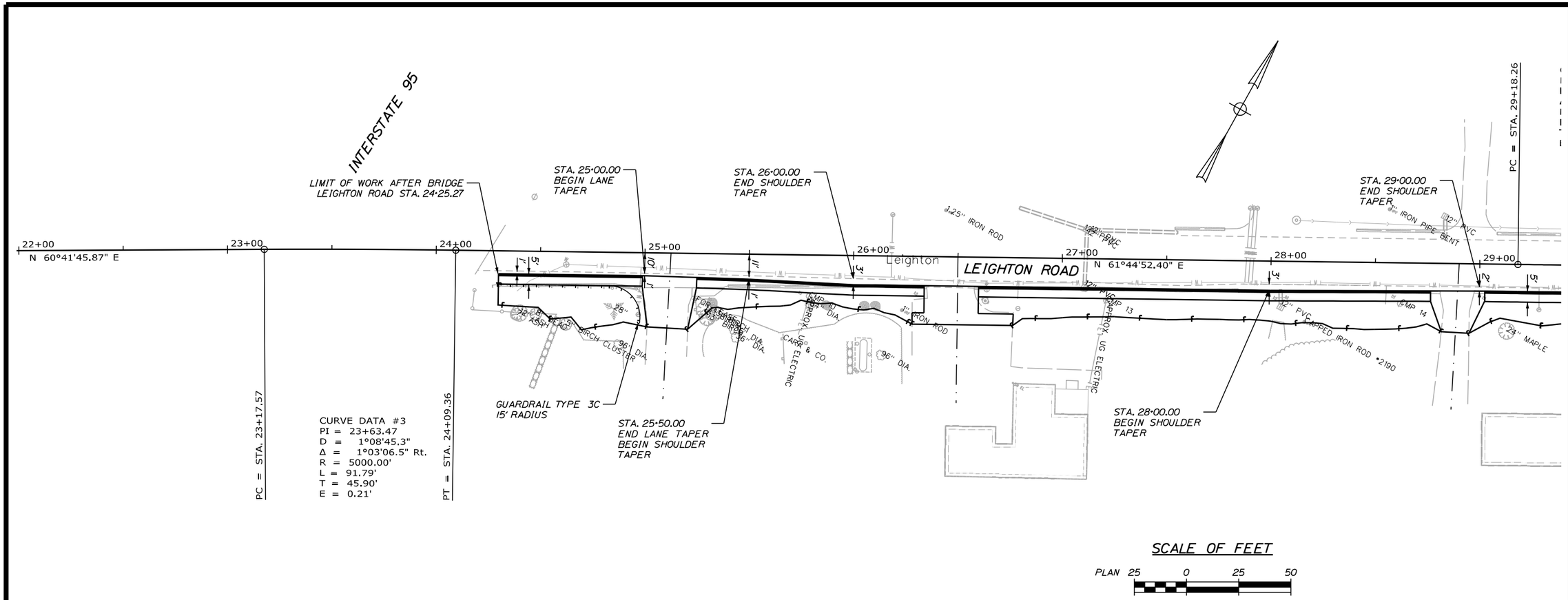
FALMOUTH
MAINE ROUTE 100\26

PLANS

SHEET NUMBER

29

OF 179



NO PROFILE SHOWN BECAUSE ONLY SIDEWALK IS BEING PROPOSED.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

WIN
WIN

HIGHWAY PLANS

PROJ. MANAGER	$PROJMANAGER$	BY	DATE
DESIGN-DETAILED	$DESIGNER1$	$DETAILER1$	$PROJDATE1$
CHECKED-REVIEWED	$CHECKED1$	$CHECKED2$	$CHECKDATE$
DESIGN2-DETAILED2	$DESIGNER2$	$DETAILER2$	$PROJDATE2$
DESIGN3-DETAILED3	$DESIGNER3$	$DETAILER3$	$PROJDATE3$
REVISIONS 1		$REVISION1$	$REVDATE1$
REVISIONS 2		$REVISION2$	$REVDATE2$
REVISIONS 3		$REVISION3$	$REVDATE3$
REVISIONS 4		$REVISION4$	$REVDATE4$
FIELD CHANGES		$FIELDCHANGES$	$FIELDDATE$

P.E. NUMBER

SIGNATURE

DATE

FALMOUTH
MAINE ROUTE 100\26

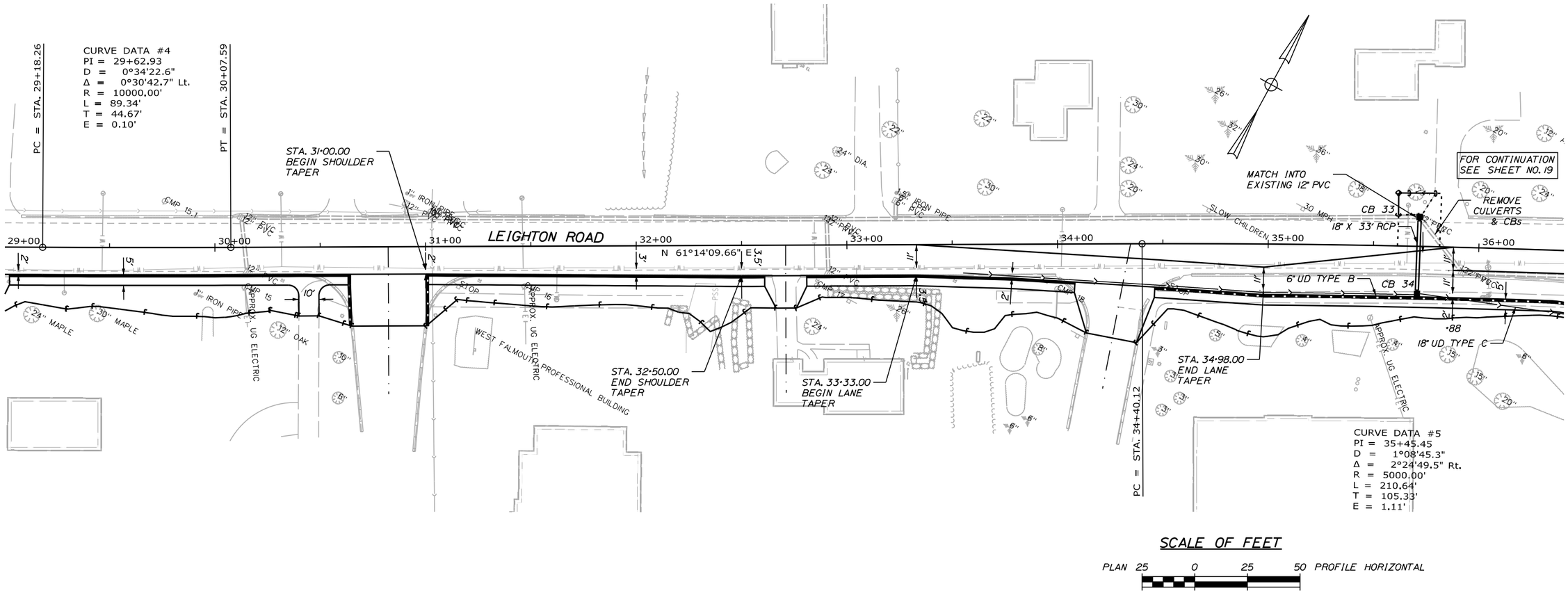
PLANS

SHEET NUMBER

30

OF 179

Filename: ...\HIGHWAY\MSTA\030_HDPlan15.dgn Division: HIGHWAY Username: mdebowski Date:12/5/2016



A GRADING PLAN WILL BE PROVIDED IN LIEU OF A PROFILE IN FINAL DESIGN.

Filename: ...\HIGHWAY\MSTA\031_HOPlan16.dgn Division: HIGHWAY Username: mdebowski Date:12/5/2016

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

WIN WIN

HIGHWAY PLANS

	BY	DATE
PROJ. MANAGER	$PROJMANAGER$	
DESIGN-DETAILED	$DESIGNER1$	$PROJDATE1$
CHECKED-REVIEWED	$CHECKED1$	$CHECKDATE$
DESIGN2-DETAILED2	$DESIGNER2$	$PROJDATE2$
DESIGN3-DETAILED3	$DESIGNER3$	$PROJDATE3$
DESIGN4-DETAILED4	$DESIGNER4$	$PROJDATE4$
DESIGN5-DETAILED5	$DESIGNER5$	$PROJDATE5$
REVISIONS 1	$REVISION1$	$REVDATE1$
REVISIONS 2	$REVISION2$	$REVDATE2$
REVISIONS 3	$REVISION3$	$REVDATE3$
REVISIONS 4	$REVISION4$	$REVDATE4$
FIELD CHANGES	$FIELDCHANGES$	$FIELDDATE$

P.E. NUMBER

SIGNATURE

DATE

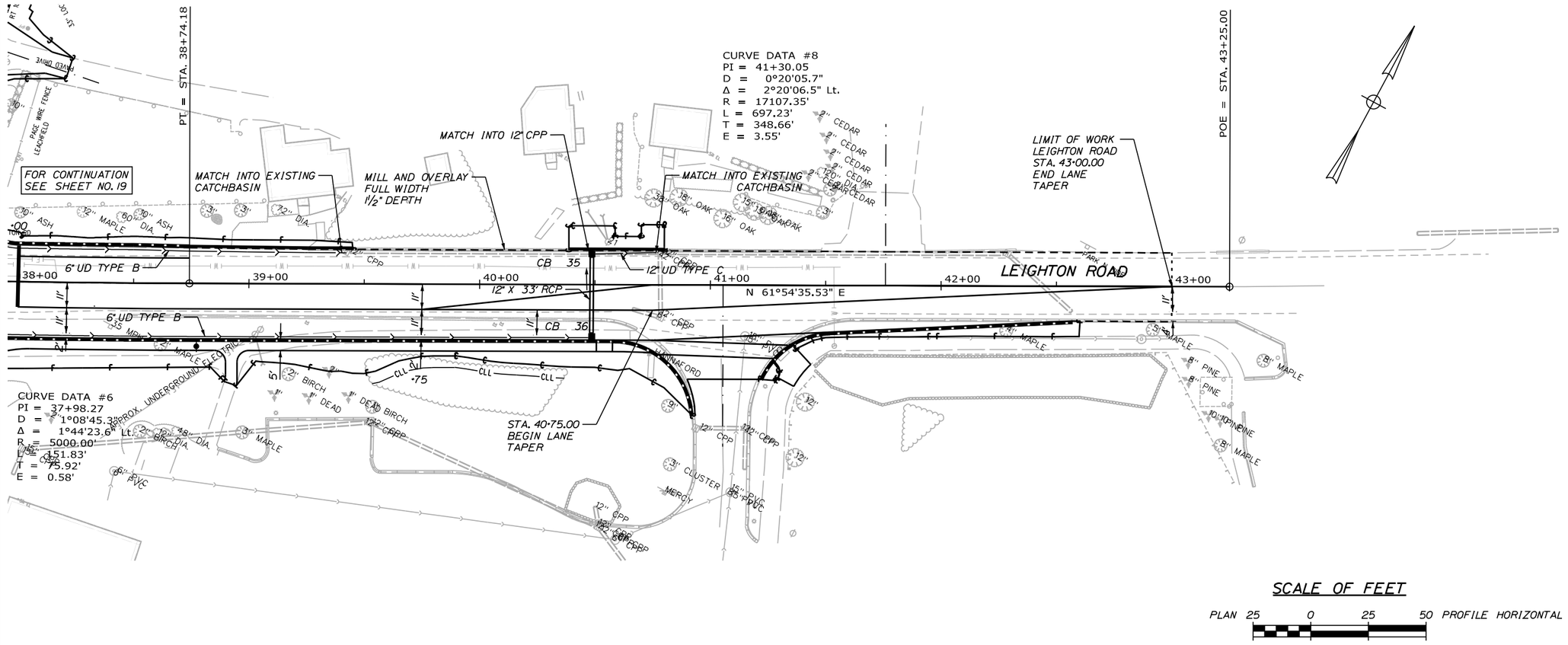
FALMOUTH
MAINE ROUTE 100\26

PLANS

SHEET NUMBER

31

OF 179



A GRADING PLAN WILL BE PROVIDED IN LIEU OF A PROFILE IN FINAL DESIGN.

Filename: ...\HIGHWAY\MSTA\032_HDPlan17.dgn Division: HIGHWAY Username: mdebowski Date:12/5/2016

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

WIN WIN HIGHWAY PLANS

PROJ. MANAGER	$PROJMANAGER$	BY	DATE
DESIGN-DETAILED	$DESIGNER1$	$DETAILER1$	$PRODATE1$
CHECKED-REVIEWED	$CHECKED1$	$CHECKED2$	$CHECKDATE$
DESIGN2-DETAILED2	$DESIGNER2$	$DETAILER2$	$PRODATE2$
DESIGN3-DETAILED3	$DESIGNER3$	$DETAILER3$	$PRODATE3$
REVISIONS 1	$REVISION1$		$REVDATE1$
REVISIONS 2	$REVISION2$		$REVDATE2$
REVISIONS 3	$REVISION3$		$REVDATE3$
REVISIONS 4	$REVISION4$		$REVDATE4$
FIELD CHANGES	$FIELDCHANGES$		$FIELDDATE$

P.E. NUMBER
SIGNATURE
DATE

FALMOUTH
MAINE ROUTE 100\26

PLANS

SHEET NUMBER
32
OF 179

FOR CONTINUATION SEE SHEET NO. 25

POB = STA. 53+00.00

MOUNTAIN ROAD

MATCH INTO EXISTING 15" RCP

RIPRAP DOWNSPOUT

REMOVE CULVERT

STA. 54+55.00 BEGIN LANE TAPER

STA. 55+70.00 END LANE TAPER

CB 38

6" U.D. TYPE B

REMOVE CB & CULVERT

MATCH INTO EXISTING CATCHBASIN

15" U.D. TYPE C

12" X 33' RCP

CB 37

REMOVE CB

6" U.D. TYPE B

CB 25

ROUTE 100/26

CB 26

RIPRAP DOWNSPOUT

18" U.D. TYPE C

12" X 30' RCP

18" U.D. TYPE C

STA. 59+55.00 END LANE TAPER

FALMOUTH ROAD

CB 39

CB 40

S 58°46'08.17" E

STA. 58+40.00 BEGIN LANE TAPER

6" U.D. TYPE B

6" U.D. TYPE B

FOR CONTINUATION SEE SHEET NO. 34

LIMIT OF WORK MOUNTAIN RD. STA. 53+33

LIMIT OF BOX WIDENING MOUNTAIN RD. STA. 53+50

CURVE DATA #1
PI = 56+81.06
D = 9°41'44.3"
Δ = 28°01'04.5" Rt.
R = 590.94'
L = 288.97'
T = 147.44'
E = 18.11'

PC = STA. 55+33.62

STA. 56+77.17 MOUNTAIN/FALMOUTH RD. =
STA. 180+89.67 US 100/ RTE. 26

PC = STA. 179+12.17

L 179.00

6" U.D. TYPE B

FOR CONTINUATION SEE SHEET NO. 24

SCALE OF FEET

PLAN 25 0 25 50

SEE SHEET 38 FOR MOUNTAIN ROAD PROFILE
SEE SHEET 39 FOR FALMOUTH ROAD PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

WIN
WIN

HIGHWAY PLANS

	BY	DATE
PROJ. MANAGER	$PROJMANAGER	
DESIGN-DETAILED	$DESIGNER1	$PRODATE1
CHECKED-REVIEWED	$CHECKED1	$CHECKDATE1
DESIGN2-DETAILED2	$DESIGNER2	$PRODATE2
DESIGN3-DETAILED3	$DESIGNER3	$PRODATE3
REVISIONS 1	$REVISION1	$REVDATE1
REVISIONS 2	$REVISION2	$REVDATE2
REVISIONS 3	$REVISION3	$REVDATE3
REVISIONS 4	$REVISION4	$REVDATE4
FIELD CHANGES	$FIELDCHNGS1	$FIELDDATE1

SIGNATURE

P.E. NUMBER

DATE

FALMOUTH
MAINE ROUTE 100\26

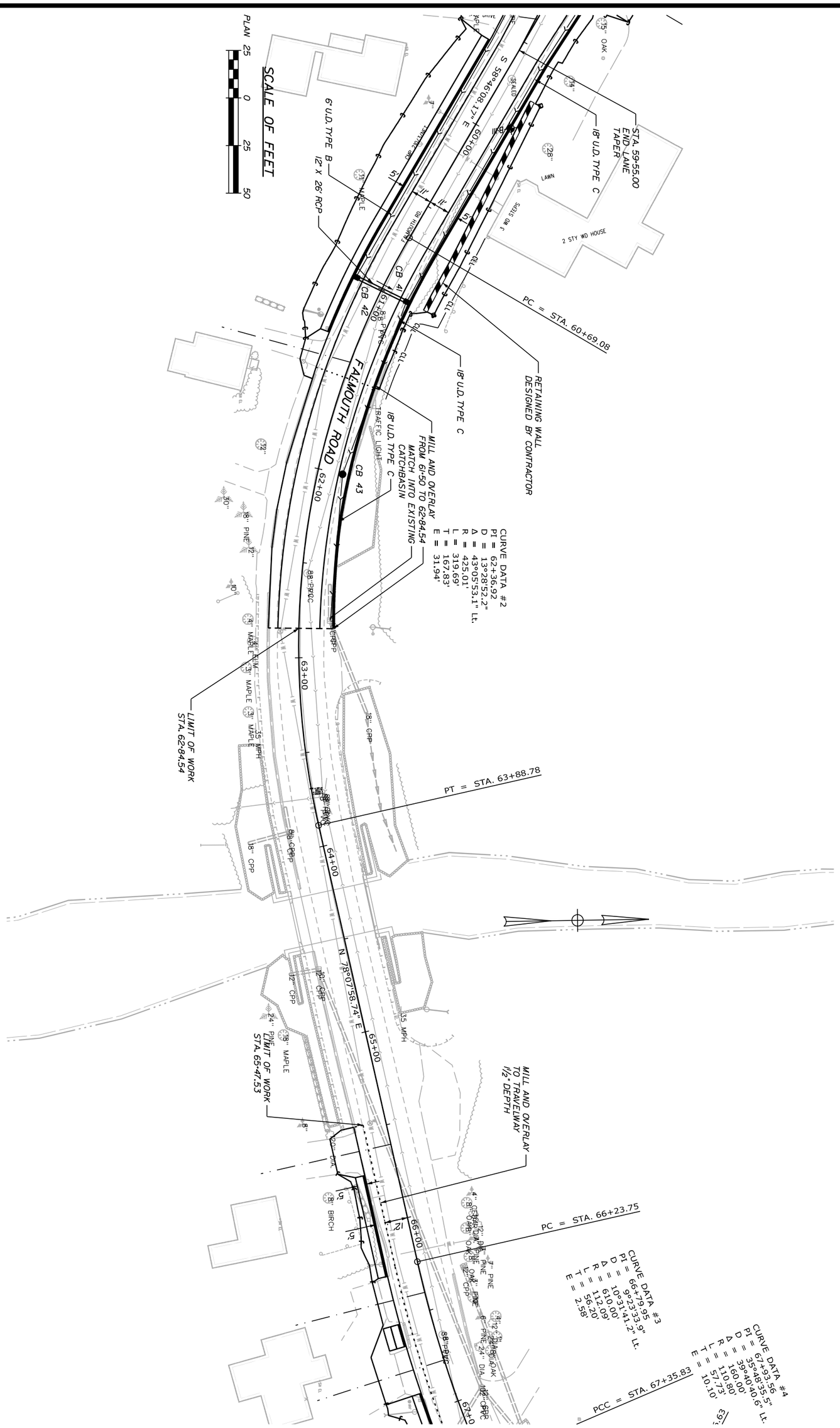
PLANS

SHEET NUMBER

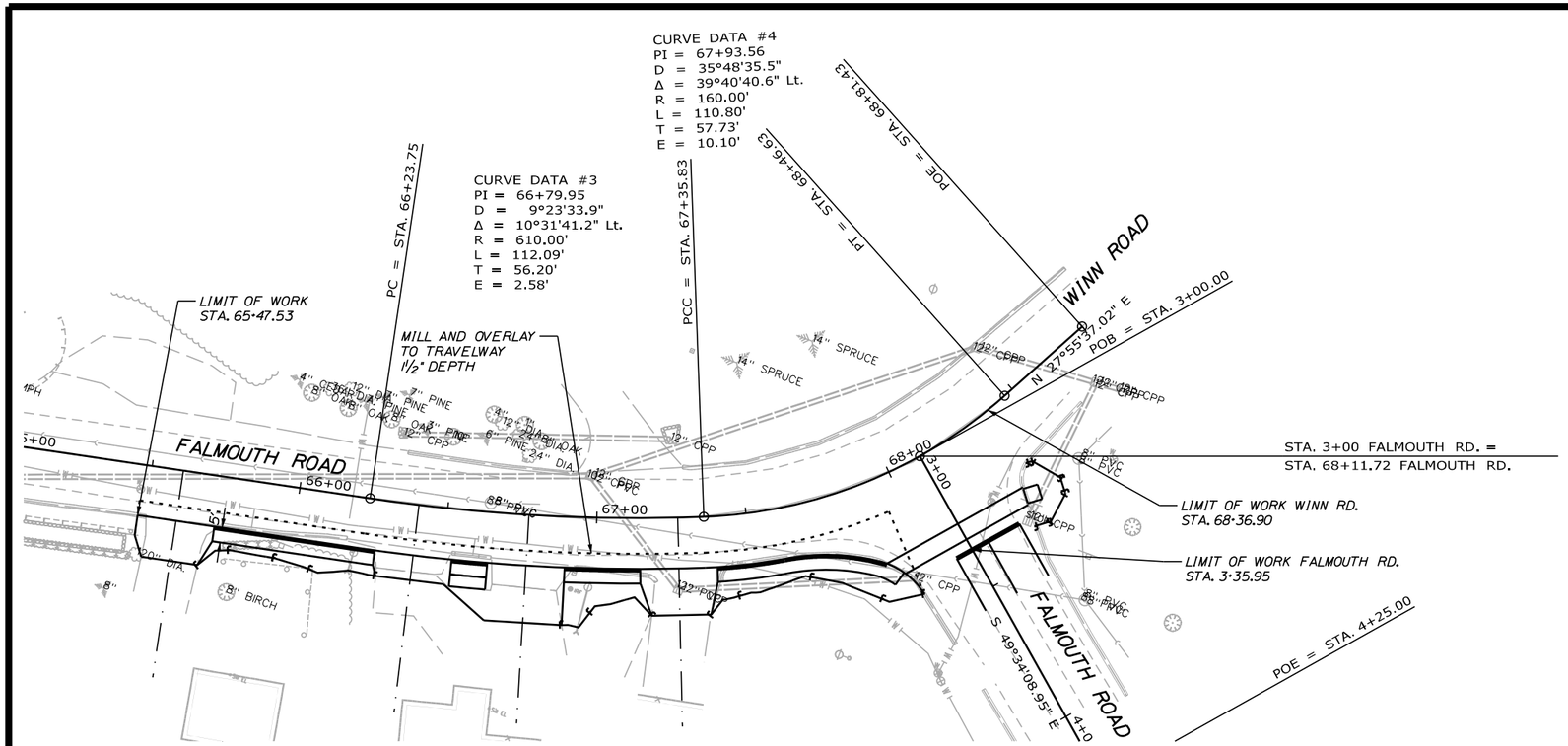
33

OF 179

FALMOUTH ROAD PROFILE SHOWN ON SHEET 39.



SHEET NUMBER 34 OF 179	FALMOUTH MAINE ROUTE 100\26 PLANS	PROJ. MANAGER $PROJMANAGER$ / BY / DATE DESIGN-DETAILED $DESIGNER1$ $DETAILER1$ $PROJDATE1$ CHECKED-REVIEWED $CHECKED1$ $CHECKED2$ $CHECKDATE$ DESIGN2-DETAILED2 $DESIGNER2$ $DETAILER2$ $PROJDATE2$ DESIGN3-DETAILED3 $DESIGNER3$ $DETAILER3$ $PROJDATE3$ REVISIONS 1 $REVISION1$ $REVDATE1$ REVISIONS 2 $REVISION2$ $REVDATE2$ REVISIONS 3 $REVISION3$ $REVDATE3$ REVISIONS 4 $REVISION4$ $REVDATE4$ FIELD CHANGES $FIELDCHANGE$ $FIELDDATE$	SIGNATURE P.E. NUMBER DATE	STATE OF MAINE DEPARTMENT OF TRANSPORTATION WIN WIN HIGHWAY PLANS



FALMOUTH ROAD PROFILE SHOWN ON SHEET 39.

Filename: ...\HIGHWAY\MSTA\035_HDPlan20.dgn Division: HIGHWAY Username: mdebowski Date:12/5/2016

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

WIN
WIN

HIGHWAY PLANS

PROJ. MANAGER	$PROJMANAGER	BY	DATE
DESIGN-DETAILED	$DESIGNER1	$DETAILER1	$PRODATE1
CHECKED-REVIEWED	$CHECKED1	$CHECKED2	$CHECKDATE
DESIGN2-DETAILED2	$DESIGNER2	$DETAILER2	$PRODATE2
DESIGN3-DETAILED3	$DESIGNER3	$DETAILER3	$PRODATE3
REVISIONS 1	$REVISION1		$REVDATE1
REVISIONS 2	$REVISION2		$REVDATE2
REVISIONS 3	$REVISION3		$REVDATE3
REVISIONS 4	$REVISION4		$REVDATE4
FIELD CHANGES	$FIELDCHNGS		$FIELDDATE

P.E. NUMBER

SIGNATURE

DATE

FALMOUTH
MAINE ROUTE 100\26

PLANS

SHEET NUMBER

35

OF 179

APPENDIX A

2002 - Test boring logs

NOTE: THESE BORING LOGS ARE IN METRIC UNITS

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-1-02
PIN: 9188.00

Driller:	M. Porter	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/9/02 / 10/9/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 0 + 100, 5 R	**Casing ID/OD:**	- / -	**Water Level*:**	3.1 m

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							-0.09		-ASPHALT ROADWAY-	
	D1	61.0/43.2	0.15 - 0.76	2/11/5/7	16				0.09	
							-0.43		Dark brown dry medium dense poorly-graded SAND with some silt and little gravel	
							-0.49		-FILL-(SP)	
	D2	61.0/61.0	0.76 - 1.37	8/11/11/15	22				0.43	
1									Light brown dry medium dense gravelly SAND, poorly-graded	
									-FILL-(SP)	
									0.49	
	D3	61.0/61.0	1.37 - 1.98	4/6/8/8	14				Olive-brown damp very stiff lean CLAY, non-plastic, mottled and laminated	
									-MARINE DEPOSIT-(CL)	
2									Olive-brown damp very stiff lean CLAY, non-plastic, mottled and laminated, occasional fine sand partings	
									-MARINE DEPOSIT-(CL)	
	D4	61.0/53.3	2.44 - 3.05	7/11/11/14	22				Olive-brown damp very stiff lean CLAY, non-plastic, mottled and laminated, occasional fine sand partings, moist	
							-2.59		-MARINE DEPOSIT-(CL)	
3									2.59	
							-3.05		Light brown damp medium dense, poorly graded fine SAND, sand is stratified with frequent silt seams and laminae	
									-MARINE DEPOSIT-(SP)	
									3.05	
4									**Bottom of Exploration at 3.05 m below ground surface.**	
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-2-02
PIN: 9188.00

Driller:	M. Porter	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/9/02 / 10/9/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 0 + 151, 5.5 L	**Casing ID/OD:**	- / -	**Water Level*:**	3.1 m

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							-0.18		-ASPHALT ROADWAY-	
									0.18	
	D1	61.0/40.6	0.30 - 0.91	21/22/12/11	34				Brown and light brown dry dense poorly- graded SAND with little gravel and trace silt -FILL-(SP)	WC=2.7 A-1-b SW-SM
1	D2	61.0/33.0	0.91 - 1.52	8/4/6/6	10		-1.28		1.28	
	D3	61.0/45.7	1.52 - 2.13	5/6/5/8	11				Light brown damp medium dense poorly-graded fine SAND with trace silt , stratified -MARINE DEPOSIT-(SP)	
2									Light brown damp medium dense poorly-graded fine SAND, occasionally stratified -MARINE DEPOSIT-(SP)	
	D4	61.0/58.4	2.44 - 3.05	7/10/9/11	19		-2.68		2.68	
3							-3.05		Tan dry medium dense poorly-graded fine SAND, occasionally stratified -MARINE DEPOSIT-(SP)	
									3.05	
									Bottom of Exploration at 3.05 m below ground surface.	
4										
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-3-02
PIN: 9188.00

Driller:	M. Porter	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/9/02 / 10/9/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 0 + 180, 4 R	**Casing ID/OD:**	- / -	**Water Level*:**	2.0 m

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							-0.12		-ASPHALT ROADWAY- 0.12	
	D1	61.0/35.6	0.15 - 0.76	13/21/10/7	31		-0.27		Black and dark brown dry dense silty SAND with trace gravel, poorly-graded, trace ash, no odor -FILL-(SM)	WC=5.3 A-1-b SW
							-0.73		0.27	
	D2	61.0/61.0	0.76 - 1.37	5/6/8/10	14				Brown dry dense gravelly SAND with trace silt, well-graded -FILL-(SW) 0.73	
1									Light brown damp dense poorly-graded fine SAND with trace silt, occasionally stratified -MARINE DEPOSIT-(SP)	
	D3	61.0/61.0	1.37 - 1.98	5/6/8/10	14					
2							-1.98		Light brown damp medium dense poorly-graded fine and medium SAND with trace silt, stratified with occasional silt laminae	
									Light brown damp medium dense poorly-graded fine and medium SAND with trace silt, stratified with occasional silt laminae -MARINE DEPOSIT-(SP) 1.98	
3									**Bottom of Exploration at 1.98 m below ground surface.**	
4										
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-4-02
PIN: 9188.00

Driller:	M. Porter	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/9/02 / 10/9/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 0 + 220, 2 L	**Casing ID/OD:**	- / -	**Water Level*:**	Dry

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							-0.24		-ASPHALT ROADWAY- 0.24	
							-0.43		-CONCRETE ROADWAY-(Old Road Surface) 0.43	
	D1	61.0/33.0	0.46 - 1.07	8/10/11/9	21		-0.73		Brown and gray damp gravelly SAND with little silt and trace lean clay, poorly- graded, medium dense -FILL-(SP)	
1							-1.01		0.73	
	D2	61.0/61.0	1.07 - 1.68	4/5/4/4	9		-1.19		Gray damp medium dense poorly-graded SAND with some silt and gravel -FILL-(SP) 1.01	
	D3	61.0/0.0	1.68 - 2.29	3/2/2/4	4				Gray-brown damp medium dense poorly-graded fine sand, stratified -MARINE DEPOSIT-(SP) 1.19	
2							-2.29		Gray and gray-brown damp stiff lean CLAY with trace fine sand, slightly plastic, mottled and laminated -MARINE DEPOSIT-(CL)	
3									Gray and gray-brown damp stiff lean CLAY with trace fine sand, moderately plastic, mottled and laminated -MARINE DEPOSIT-(CL) 2.29	
4									**Bottom of Exploration at 2.29 m below ground surface.**	
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-5-02
PIN: 9188.00

Driller:	T. Schaefer	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/10/02 / 10/10/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 0 + 250, 4 R	**Casing ID/OD:**	- / -	**Water Level*:**	2.1 m

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							-0.21		-ASPHALT ROADWAY- 0.21	
	D1	61.0/40.6	0.30 - 0.91	10/6/6/6	12				Brown damp medium dense poorly-graded SAND with some silt and gravel, trace asphalt -FILL-(SP)	
1	D2	61.0/0.0	0.91 - 1.52	5/5/5/6	10		-1.10		1.10 Gray-brown damp medium dense silty fine SAND with trace coarse sand and fine gravel, trace clay, poorly-graded, occasional coarse sand and fine gravel seams, occasionally stratified -MARINE DEPOSIT-(SM)	
	D3	61.0/35.6	1.52 - 2.13	4/2/3/3	5		-1.77		1.77 Gray-brown damp medium stiff fine sandy SILT with some lean CLAY, non-plastic, occasional sand partings and seams -MARINE DEPOSIT-(ML)	
2							-2.13		2.13 **Bottom of Exploration at 2.13 m below ground surface.**	
3										
4										
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-6-02
PIN: 9188.00

Driller:	T. Schaefer	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/10/02 / 10/10/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 0 + 285, 3.5 R	**Casing ID/OD:**	- / -	**Water Level*:**	2.1 m

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							-0.21		-ASPHALT ROADWAY- 0.21	
	D1	61.0/33.0	0.30 - 0.91	8/12/7/4	19		-0.55		Brown and dark brown to damp medium dense poorly-graded SAND with some silt and gravel -FILL-(SP) 0.55	
1	D2	61.0/35.6	0.91 - 1.52	5/6/7/7	13		-1.10		Gray-brown damp medium dense sandy SILT with some clay, poorly-graded, frequent silt and clay laminations -FILL-(SM) 1.10	
	D3	61.0/50.8	1.52 - 2.13	4/5/8/9	13		-1.65		Gray-brown damp medium dense sandy SILT with some clay, poorly-graded, frequent clay layers are laminated and mottled -FILL-(SM) 1.65	
2							-2.13		Olive-gray damp stiff lean CLAY, non-plastic, mottled and lamianted -MARINE DEPOSIT-(CL) 2.13	
									Bottom of Exploration at 2.13 m below ground surface.	
3										
4										
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-7-02
PIN: 9188.00

Driller:	T. Schaefer	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/10/02 / 10/10/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 0 + 316, 3.8 R	**Casing ID/OD:**	- / -	**Water Level*:**	

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.24		0.24	
	D1	61.0/35.6	0.30 - 0.91	6/4/3/4	7				Black and brown dry to damp medium stiff lean CLAY with some gravel, little sand and asphalt, non-plastic -FILL-(Cohesive) (CL)	
1	D2	61.0/33.0	0.91 - 1.52	4/4/4/3	8		-0.91		0.91 Olive-gray damp medium stiff lean CLAY with trace gravel and fine sand, non-plastic, appears disturbed -FILL-(Cohesive) (CL)	
	D3	61.0/43.2	1.52 - 2.13	1/1/2/2	3				Note: clay fill is the main constituent in sample D1 from 0.52-0.91 m	
2							-1.80		1.80 Gray moist soft silty CLAY with some fine sand, slightly plastic, laminated with occasional sand partings -FILL-(CL)	
3	D4	61.0/40.6	3.05 - 3.66	1/3/4/4	7				Gray wet medium stiff CLAY with some silt and trace fine sand, non-plastic, occasional fine sand partings -FILL-(CL)	
4										
	D5	61.0/55.9	4.57 - 5.18	3/5/4/7	9				Gray moist stiff CLAY with some fine sand and trace silt, non-plastic, frequent fine sand partings -FILL-(CL)	
5							-5.15		5.15	
							-5.18		Gray-brown moist loose poorly-graded fine SAND with some silt, stratified -MARINE DEPOSIT-(SP)	
6									5.18 **Bottom of Exploration at 5.18 m below ground surface.**	
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-8-02
PIN: 9188.00

Driller:	T. Schaefer	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/10/02 / 10/10/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 0 + 340, 3 L	**Casing ID/OD:**	- / -	**Water Level*:**	Dry

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.30		0.30	
							-0.52		-CONCRETE ROADWAY-(Old Road)	
									0.52	
1	D1	33.0/15.2	0.61 - 0.94	3/3/50 (2.5 cm)	6				Gray and brown damp loose gravelly SAND with some lean clay and silt, poorly-graded -FILL-(SP)	
							-1.31		Note: auger used through boulder from 0. 94-1.31 m	
	D2	61.0/33.0	1.37 - 1.98	2/3/2/4	5				1.31 Gray-brown damp medium stiff lean CLAY with trace sand and fine gravel, non-plastic, occasionally mottled with fine sand partings, appears disturbed -FILL-(CL) (Reworked Natural)	
2										
3							-2.90		2.90	
	D3	61.0/7.6	3.05 - 3.66	29/27/17/16	44				Brown damp dense silty SAND with some gravel and little lean clay, poorly-graded, mild petroleum odor -FILL-(SM)	
							-3.66		Note: drill action indicates occasional cobbles from 3.66-4.57 m	
4									3.66	
	D4	61.0/53.3	4.57 - 5.18	17/18/10/11	28				Light brown moist medium dense well-graded SAND with little gravel, trace silt -GLACIO FLUVIAL DEPOSIT-	
5										
	D5	61.0/61.0	5.18 - 5.79	14/13/11/14	24				Light brown moist medium dense well-graded SAND with little gravel, trace silt -GLACIO FLUVIAL DEPOSIT-	
							-5.79		5.79	
6									**Bottom of Exploration at 5.79 m below ground surface.**	
7										

Remarks:

Very difficult to tell the difference between the fill and the natural

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-9-02
PIN: 9188.00

Driller:	T. Schaefer	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/10/02 / 10/10/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 0 + 370, 3.2 R	**Casing ID/OD:**	- / -	**Water Level*:**	0.5 m

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.27		0.27	
	D1	61.0/38.1	0.30 - 0.91	9/11/11/11	22				Light brown wet medium dense well-graded SAND with little gravel -FILL-(SW)	
1	D2	61.0/40.6	0.91 - 1.52	11/4/4/5	8					
							-1.34		1.34	
	D3	61.0/38.1	1.52 - 2.13	4/6/8/10	14				Gray wet medium stiff lean CLAY, slightly plastic, laminated -MARINE DEPOSIT-(CL)	
2									Gray wet stiff lean CLAY, moderately plastic, mottled and laminated -MARINE DEPOSIT-(CL)	
							-2.13		2.13	
									Bottom of Exploration at 2.13 m below ground surface.	
3										
4										
5										
6										
7										

Remarks:

Water level taken after 0.5 hours without augers

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-10-02
PIN: 9188.00

Driller:	T. Schaefer	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/10/02 / 10/10/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 0 + 400, 6 L	**Casing ID/OD:**	- / -	**Water Level*:**	1.8 m

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	D1	61.0/27.9	0.00 - 0.61	3/6/6/4	12		-0.06		-TOPSOIL-	
									0.06	
									Brown damp medium dense poorly-graded SAND with some silt and little gravel -FILL-(SP)	
	D2	61.0/38.1	0.61 - 1.22	3/4/8/8	12					
1							-0.88		0.88	
									Gray-brown damp stiff lean CLAY with little silt and trace fine sand, mottled and laminated, non-plastic -MARINE DEPOSIT-(CL)	
	D3	61.0/35.6	1.22 - 1.83	9/9/9/10	18					
									Gray-brown damp very stiff lean CLAY with trace silt, very slightly plastic, mottled and laminated -MARINE DEPOSIT-(CL)	
2							-1.83		1.83	
									Bottom of Exploration at 1.83 m below ground surface.	
3										
4										
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-11-02
PIN: 9188.00

Driller:	T. Schaefer	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/10/02 / 10/10/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 0 + 450, 3 L	**Casing ID/OD:**	- / -	**Water Level*:**	Dry

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							-0.21		-ASPHALT ROADWAY- 0.21	
									Note: auger used through a cobble from 0.30-0.43 m	
	D1		0.61 - 1.22	2/3/3/4	6		-0.70		Brown dry loose poorly-graded gravelly SAND with little silt -FILL-(SP) 0.70	
1									Olive-brown damp medium stiff lean CLAY with trace silt, mottled and laminated, non-plastic -MARINE DEPOSIT-(CL)	
	D2	61.0/33.0	1.22 - 1.83	5/7/7/8	14					
							-1.83		Olive-gray damp stiff lean CLAY, slightly plastic, mottled and laminated -MARINE DEPOSIT-(CL) 1.83	
2									**Bottom of Exploration at 1.83 m below ground surface.**	
3										
4										
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-12-02
PIN: 9188.00

Driller:	T. Schaefer	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/10/02 / 10/10/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 0 + 490, 1.5 R	**Casing ID/OD:**	- / -	**Water Level*:**	1.8 m

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							-0.21		-ASPHALT ROADWAY- 0.21	
	D1	61.0/33.0	0.30 - 0.91	15/30/12/11	42		-0.30		-CONCRETE ROADWAY-(Old Road) 0.30	
1	D2	61.0/27.9	0.91 - 1.52	2/6/6/8	12		-0.79		Brown and light gray dry dense gravelly SAND with little silt, poorly-graded -FILL-(SP) 0.79	WC=14.0 A-1-b SM
	D3	30.5/15.2	1.52 - 1.83	2/5	7		-1.83		Olive damp stiff lean CLAY with trace silt, non-plastic, mottled and laminated -MARINE DEPOSIT-(CL)	WC=31.5 LL=45.2 PL=23.2 A-7-5 CL
2									Olive damp stiff lean CLAY with trace silt, non-plastic, mottled and laminated -MARINE DEPOSIT-(CL)	WC=29.2 LL=42.0 PL=22.2 A-7-5 CL
3									Olive dry to damp medium stiff lean CLAY with trace silt, non-plastic, mottled and laminated -MARINE DEPOSIT-(CL) 1.83	
4									**Bottom of Exploration at 1.83 m below ground surface.**	
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-13-02
PIN: 9188.00

Driller:	T. Schaefer	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/10/02 / 10/10/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 0 + 520, 4 L	**Casing ID/OD:**	- / -	**Water Level*:**	2.0 m

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.30		0.30	
							-0.46		-CONCRETE ROADWAY-(Old Road)	
									0.46	
1	D1	61.0/40.6	0.76 - 1.37	2/3/2/4	5		-0.76		Note: frequent cobbles from 0.46-0.76 m, auger used to get through them, probable -FILL-	
									0.76	
	D2	61.0/43.2	1.37 - 1.98	7/9/9/9	18				Gray damp medium stiff silty lean CLAY with some fine sand, non-plastic, laminated with frequent sand partings -MARINE DEPOSIT-(CL)	
2							-1.98		Olive-gray damp very stiff lean CLAY with trace silt, very slightly plastic, mottled and laminated -MARINE DEPOSIT-(CL)	
									1.98	
									Bottom of Exploration at 1.98 m below ground surface.	
3										
4										
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-14-02
PIN: 9188.00

Driller:	T. Schaefer	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/10/02 / 10/10/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 0 + 562, 2.7 L	**Casing ID/OD:**	- / -	**Water Level*:**	1.8 m

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.30		0.30	
							-0.46		-CONCRETE ROADWAY-(Old Road)	
									0.46	
	D1	61.0/43.2	0.61 - 1.22	3/3/5/5	8		-0.61		Note: probable -FILL- with cobbles from 0.46-0.61 m	
1									0.61	
	D2	61.0/35.6	1.22 - 1.83	8/8/9/10	17				Gray-brown dry to damp medium stiff lean CLAY with some silt, trace fine sand, laminated with occasional fine sand partings, very mild petroleum odor -MARINE DEPOSIT-(CL)	
2							-1.83		Gray-brown dry to damp very stiff lean CLAY with little silt and trace fine sand, laminated with occasional fine sand partings, very mild petroleum odor -MARINE DEPOSIT-(CL)	
									1.83	
3									**Bottom of Exploration at 1.83 m below ground surface.**	
4										
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-15-02
PIN: 9188.00

Driller:	T. Schaefer	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/10/02 / 10/10/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 0 + 640, 3 L	**Casing ID/OD:**	- / -	**Water Level*:**	Dry

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.30		0.30	
									-CONCRETE ROADWAY-(Old Road)	
							-0.61		0.61	
									Note: auger used through several cobbles from 0.61-0.85 m	
1	D1	61.0/40.6	0.91 - 1.52	4/3/5/7	8		-0.94		0.94	
									Olive-gray damp medium stiff lean CLAY with trace silt, non-plastic, mottled and laminated	
									-MARINE DEPOSIT-(CL)	
	D2	61.0/38.1	1.52 - 2.13	12/11/10/11	21				Olive-gray damp very stiff lean CLAY with trace silt, slightly plastic, mottled and laminated	
2									-MARINE DEPOSIT-(CL)	
							-2.13		2.13	
									Bottom of Exploration at 2.13 m below ground surface.	
3										
4										
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-16-02
PIN: 9188.00

Driller:	T. Schaefer	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/10/02 / 10/10/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 0 + 670, 3 R	**Casing ID/OD:**	- / -	**Water Level*:**	Dry

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.30		0.30	
									Note: frequent cobbles from 0.30-0.61 m, probable -FILL-	
	D1	61.0/33.0	0.61 - 1.22	5/3/2/4	5				Brown dry loose gravelly SAND with little silt, poorly-graded -FILL-(SP)	
1							-0.94		0.94	
	D2	61.0/61.0	1.22 - 1.83	6/5/5/5	10				Olive-gray damp medium stiff lean CLAY with trace fine sand and silt, non-plastic, mottled and laminated -MARINE DEPOSIT-	
									Olive-gray damp stiff lean CLAY with trace silt, slightly plastic, mottled and laminated -MARINE DEPOSIT-(CL)	
2							-1.83		1.83	
									Bottom of Exploration at 1.83 m below ground surface.	
3										
4										
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-17-02
PIN: 9188.00

Driller:	T. Schaefer	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/10/02 / 10/10/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 0 + 710, 2.5 L	**Casing ID/OD:**	- / -	**Water Level*:**	3.4 m

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.30		0.30	
							-0.46		-CONCRETE ROADWAY-(Old Road)	
	D1	61.0/0.0	0.61 - 1.22	4/3/4/2	7		-0.64		0.46 Note: cutting head used through cobble from 0.46-0.58 m	
1									0.64 NO RECOVERY, drove a piece of gravel	WC=26.0 LL=31.3 PL=18.2 A-6 CL
	D2	61.0/22.9	1.22 - 1.83	5/6/6/7	12				Olive-brown dry to damp stiff lean CLAY with trace silt and fine sand, non- plastic, partially dessicated, mottled and laminated -MARINE DEPOSIT-(CL)	
2										
3	D3	61.0/61.0	3.05 - 3.66	1/2/2/3	4				Olive-brown wet soft to medium stiff lean CLAY with little fine sand, slightly to moderately plastic, laminated with frequent sand partings and seams -MARINE DEPOSIT-(CL)	
4										
	D4	61.0/33.0	4.57 - 5.18	1/1/7/10	8					
5							-4.91		4.91 Gray wet medium dense poorly-graded fine SAND with trace clay	
							-5.18		-MARINE DEPOSIT- 5.18 **Bottom of Exploration at 5.18 m below ground surface.**	
6										
7										

Remarks:

Water level taken after 0.3 hours with out augers

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-18-02
PIN: 9188.00

Driller:	T. Schaefer	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/10/02 / 10/10/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 0 + 730, 3 R	**Casing ID/OD:**	- / -	**Water Level*:**	3.7 m

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.30		0.30	
							-0.49		-CONCRETE ROADWAY-(Old Road)	
									0.49	
1	D1	61.0/17.8	0.61 - 1.22	3/3/4/4	7				Gray damp loose poorly-graded SAND with little gravel and trace silt, slight petroleum odor -FILL-(SP)	
	D2	61.0/35.6	1.22 - 1.83	6/7/7/9	14					
							-1.46		1.46	
2									Olive damp stiff lean CLAY with trace fine sand and silt, non-plastic, mottled and laminated, mild petroleum odor -MARINE DEPOSIT-(CL)	
3										
	D3	61.0/53.3	3.05 - 3.66	1/WOH/1/WOH	1		-3.05		3.05	
									Gray moist very loose clayey SAND with little silt, poorly-graded, trace organics including root matter, organic odor -MARINE DEPOSIT-(SC)	
4										
	D4	61.0/43.2	4.57 - 5.18	1/2/3/2	5		-4.57		4.57	
5									Gray and brown wet loose poorly-graded SAND with some silt and lean clay, poorly-graded, occasional fine sand layers, frequent clay laminae, brown fine silty sand layer from 5.06-5.15 m, no odor -MARINE DEPOSIT-(SP)	
							-5.18		5.18	
									Bottom of Exploration at 5.18 m below ground surface.	
6										
7										

Remarks:

Water level taken after 0.2 hours without augers

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-19-02
PIN: 9188.00

Driller:	T. Schaefer	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck	**Hammer Wt./Fall:**	140 lb. / 76.2 cm
Date Start/Finish:	10/11/02 / 10/11/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 0 + 760, 3 L	**Casing ID/OD:**	- / -	**Water Level*:**	3.8 m

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.30		0.30	
									Note: in 1st attempt at boring, hit re-bar at 0.37 m, moved boring S 0.30 m	
	D1	61.0/5.1	0.61 - 1.22	3/3/4/5	7				Dark brown dry to damp loose silty SAND with some gravel, poorly-graded	
1									-FILL-(SM)	
	D2	61.0/35.6	1.22 - 1.83	6/6/3/3	9				Gray-brown damp to moist stiff clayey SAND with little gravel, poorly-graded	
							-1.77		-FILL-(SL)	
2									1.77	
									Gray-brown damp to moist stiff lean CLAY with trace silt and fine sand, slightly plastic, mottled and laminated with trace organics	
									-MARINE DEPOSIT-(CL)	
3										
							-3.20		3.20	
	D3	7.6/7.6	3.35 - 3.43	50 (7.62 cm)	50				Gray wet very dense gravelly lean CLAY with some sand, non-plastic, moderately bonded	
							-3.66		-GLACIAL TILL DEPOSIT-(CL)	
4									Note: auger used from 3.44-3.66 m into boulder and refusal	
									3.66	
									Bottom of Exploration at 3.66 m below ground surface.	
5										
6										
7										

Remarks:

Water level taken after 0.2 hours without augers

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-20-02
PIN: 9188.00

Driller:	T. Schaefer	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/10/02 / 10/10/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 0 + 797, 3 R	**Casing ID/OD:**	- / -	**Water Level*:**	3.0 m

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.30		0.30	
									Note: numerous cobbles from 0.30-0.61 m	
1	D1	61.0/40.6	0.61 - 1.22	4/5/4/6	9				Brown and black damp loose gravelly well-graded SAND with little silt, no strucutre	
							-0.88		-FILL-(SW)	
									0.88	
	D2	61.0/45.7	1.22 - 1.83	6/7/7/8	14		-1.22		Gray moist loose poorly-graded fine SAND with trace silt and gravel, occasional sand layers	
2									-MARINE DEPOSIT-(SP)	
									1.22	
									Gray moist stiff clayey SAND with trace silt, poorly-graded frequent clay layers, occasional silt laminae	
							-2.13		-MARINE DEPOSIT-(SL)	
									2.13	
	D3	61.0/33.0	2.44 - 3.05	1/1/3/3	4				Gray damp to moist soft lean CLAY with trace fine sand and silt, laminated, mild petroleum odor, trace organics	
3									-MARINE DEPOSIT-(CL)	
							-3.05		3.05	
									Bottom of Exploration at 3.05 m below ground surface.	
4										
5										
6										
7										

Remarks:

Water level taken after 0.2 hours without augers

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-21-02
PIN: 9188.00

Driller:	T. Schaefer	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/10/02 / 10/10/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 0 + 850, 2.5 R	**Casing ID/OD:**	- / -	**Water Level*:**	Dry

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.30		0.30	
							-0.49		-CONCRETE ROADWAY-(Old Road)	
									0.49	
									Note: numerous cobbles from 0.49-0.76 m, probable -FILL-	
1	D1	61.0/35.6	0.76 - 1.37	2/4/6/7	10					
							-1.01		1.01	
	D2	61.0/38.1	1.37 - 1.98	7/7/8/10	15				Gray-brown damp stiff lean CLAY with trace silt, non-plastic, mottled and laminated -MARINE DEPOSIT-(CL)	
2									Olive-brown damp stiff lean CLAY, slightly plastic, mottled and laminated, very mild petroleum odor -MARINE DEPOSIT-(CL)	
							-1.98		1.98	
									Bottom of Exploration at 1.98 m below ground surface.	
3										
4										
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-22-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/14/02 / 10/14/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 0 + 880, 3 L	**Casing ID/OD:**	- / -	**Water Level*:**	1.46 m

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.30		0.30	
	D1	45.7/27.9	0.46 - 0.91	2/1/4	4				Gray-brown damp soft lean CLAY with little fine sand and coarse sand, trace asphalt, non-plastic -FILL-(CL)	
1	D2	61.0/20.3	0.91 - 1.52	4/5/6/4	11				Gray-brown damp stiff lean CLAY with little sand and trace gravel, trace asphalt, non-plastic -FILL-(CL)	
	D3	30.5/7.6	1.52 - 1.83	3/3	6		-1.52		1.52	
2							-1.83		Gray-brown wet loose silty SAND with some gravel and little clay, poorly-graded -FILL-(SM)	
									1.83	
3									**Bottom of Exploration at 1.83 m below ground surface.**	
4										
5										
6										
7										

Remarks:

Water level taken after 0.2 hours without augers

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-23-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/14/02 / 10/14/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 0 + 910, 4 R	**Casing ID/OD:**	- / -	**Water Level*:**	Dry

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							-0.15		-ASPHALT ROADWAY- 0.15	
	D1	61.0/30.5	0.15 - 0.76	4/4/6/6	10				Black and dark brown damp medium dense silty SAND with gravel, poorly-graded -FILL-(SM)	
							-0.55		0.55	
1	D2	61.0/50.8	0.76 - 1.37	3/7/10/13	17				Olive-brown damp stiff lean CLAY with trace fine sand and silt, non-plastic, mottled and laminated -MARINE DEPOSIT-(CL)	
	D3	45.7/38.1	1.37 - 1.83	10/10/11	20				Olive damp very stiff lean CLAY with trace silt, non-plastic, mottled and laminated with occasional silt laminae -MARINE DEPOSIT-(CL)	
2							-1.83		Olive damp very stiff lean CLAY with trace silt, non-plastic, mottled and laminated with occasional silt laminae -MARINE DEPOSIT-(CL) 1.83	
									Bottom of Exploration at 1.83 m below ground surface.	
3										
4										
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-24-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	6.4 cm / 11.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/14/02 / 10/14/02	**Drilling Method:**	Spin HSA	**Core Barrel:**	-
Boring Location:	Sta. 0 + 940, 3.5 L	**Casing ID/OD:**	- / -	**Water Level*:**	3.5 m

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.27		0.27	
	D1	61.0/30.5	0.30 - 0.91	9/8/2/1	10				Brown damp medium dense poorly-graded SAND with some gravel and little silt -FILL-(SP)	
							-0.61		0.61	
1	D2	61.0/33.0	0.91 - 1.52	3/2/3/4	5				Olive moist medium stiff lean CLAY with trace silt and fine sand, non-plastic, mottled and laminated with occasional silt laminae -MARINE DEPOSIT-(CL)	
	D3	30.5/20.3	1.52 - 1.83	2/4	6				Olive moist medium stiff lean CLAY with trace silt and fine sand, non-plastic, mottled and laminated with occasional silt laminae -MARINE DEPOSIT-(CL)	
2										
3	D4	61.0/58.4	3.05 - 3.66	2/3/4/6	7				Olive damp medium stiff, lean CLAY with trace fine sand, very slightly plastic, mottled and laminated with occasional fine sand partings -MARINE DEPOSIT-	
4										
	D5	61.0/61.0	4.57 - 5.18	2/1/2/2	3		-4.57		4.57	
5									Olive (changes to gray at 4.8 m) moist soft lean CLAY with trace silt, highly plastic, laminated with one silt seam in sample -MARINE DEPOSIT-(CL)	
							-5.18		5.18	
6									**Bottom of Exploration at 5.18 m below ground surface.**	
7										

Remarks:

Water level taken without augers

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-25-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/14/02 / 10/14/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 0 + 970, 2 R	**Casing ID/OD:**	- / -	**Water Level*:**	Dry

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.30		0.30	
									-CONCRETE ROADWAY-(Old Road)	
							-0.64		0.64	
	D1	61.0/43.2	0.76 - 1.37	3/6/8/12	14				Note: numerous cobble from 0.64-0.73 m probable -FILL-	
1							-0.91		0.91	
									Olive-brown dry to damp stiff lean CLAY, non-plastic, mottled and laminated -MARINE DEPOSIT-(CL)	WC=24.9 LL=36.7 PL=18.1 A-6 CL
	D2	45.7/30.5	1.37 - 1.83	11/12/13	24					
									Olive damp very stiff lean CLAY with trace silt, non-plastic, mottled and laminated -MARINE DEPOSIT-(CL)	WC=23.7 LL=33.9 PL=17.8 A-6 CL
2							-1.83		1.83	
									Bottom of Exploration at 1.83 m below ground surface.	
3										
4										
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-26-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/14/02 / 10/14/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 1 + 046, 3.5 L	**Casing ID/OD:**	- / -	**Water Level*:**	Dry

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.27		0.27	
	D1	61.0/40.6	0.46 - 1.07	4/7/4/7	11				Gray damp medium dense silty SAND with little gravel, poorly-graded, very mild petroleum odor	
							-0.61		-FILL-(SM)	
1									0.61	
	D2	61.0/48.3	1.07 - 1.68	7/11/13/15	24				Olive dry to damp stiff lean CLAY with trace silt, non-plastic, mottled and laminated, very mild petroleum odor	
									-MARINE DEPOSIT-	
	D3	15.2/15.2	1.68 - 1.83	19	19				Olive dry to damp very stiff lean CLAY with trace silt, non-plastic, mottled and laminated, very mild petroleum odor	
2							-1.83		-MARINE DEPOSIT-	
									Olive dry to damp very stiff lean CLAY with trace silt, non-plastic, mottled and laminated, very mild petroleum odor	
									-MARINE DEPOSIT-	
3									1.83	
									Bottom of Exploration at 1.83 m below ground surface.	
4										
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-27-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/14/02 / 10/14/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 1 + 065, 3 L	**Casing ID/OD:**	- / -	**Water Level*:**	Dry

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.30		0.30	
									Note: numerous cobbles from 0.30-0.61 m	
	D1	61.0/33.0	0.61 - 1.22	7/7/9/13	16				Light brown dry medium dense, gravelly SAND, poorly-graded -FILL-(SP)	
1							-1.04		1.04	
	D2	61.0/27.9	1.22 - 1.83	13/14/14/15	28				Olive dry to damp very stiff lean CLAY with trace silt, non-plastic, mottled and laminated -MARINE DEPOSIT-(CL)	
							-1.83		Olive damp very stiff lean CLAY with little fine sand, non-plastic, mottled and laminated with frequent sand partings -MARINE DEPOSIT-(CL)	
2									1.83	
									Bottom of Exploration at 1.83 m below ground surface.	
3										
4										
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-28-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/14/02 / 10/14/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 1 + 140, 5.5 L	**Casing ID/OD:**	- / -	**Water Level*:**	Dry

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	D1	61.0/22.9	0.15 - 0.76	10/10/5/4	15				Brown and dark brown dry medium dense poorly-graded SAND with some silt and gravel -FILL-(SP)	
							-0.70		0.70	
1	D2	61.0/38.1	0.76 - 1.37	5/6/6/8	12				Olive-brown dry stiff lean CLAY with little brick, non-plastic -FILL-(Reworked Natural) (CL)	
	D3	45.7/35.6	1.37 - 1.83	8/8/10	18		-1.34		Olive-brown dry stiff lean CLAY, non-plastic -FILL-(Reworked Natural) (CL) 1.34	
2							-1.83		Olive-brown dry very stiff lean CLAY, non-plastic, mottled and laminated -MARINE DEPOSIT-(CL) 1.83	
									Bottom of Exploration at 1.83 m below ground surface.	
3										
4										
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-29-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/14/02 / 10/14/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 1 + 203, 4 R	**Casing ID/OD:**	- / -	**Water Level*:**	Dry

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							-0.15		-ASPHALT ROADWAY- 0.15	
	D1	61.0/45.7	0.15 - 0.76	15/7/6/4	13				Brown and gray damp stiff sandy SILT with gravel, non-plastic, no structure, appears disturbed, marine odor -FILL-(ML) (Reworked Natural)	
1	D2	61.0/40.6	0.76 - 1.37	5/6/7/10	13		-0.94		0.94 Gray and olive stiff dry lean CLAY with trace fine sand, non-plastic, mottled, trace organics -MARINE DEPOSIT-	
	D3	45.7/45.7	1.37 - 1.83	9/8/9	17		-1.83		Gray (to 1.10 m) and olive stiff dry lean CLAY with trace fine sand, non-plastic, mottled, trace organics -MARINE DEPOSIT- 1.83 **Bottom of Exploration at 1.83 m below ground surface.**	
2										
3										
4										
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-30-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/14/02 / 10/14/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 1 + 265, 5.5 L	**Casing ID/OD:**	- / -	**Water Level*:**	0.9 m

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	D1	61.0/40.6	0.15 - 0.76	2/7/5/2	12				Dark brown moist medium dense silty SAND with little gravel, poorly-graded, trace brick -FILL-(SM)	
							-0.73		0.73	
1	D2	61.0/50.8	0.76 - 1.37	3/3/22/7	25				Gray wet very stiff sandy SILT with trace clay and gravel, laminated, non-plastic -MARINE DEPOSIT-(ML)	
							-1.31		1.31	
	D3	45.7/45.7	1.37 - 1.83	3/3/3	6				Gray wet medium stiff lean CLAY with little fine sand, slightly plastic, laminated with occasional sand layers -MARINE DEPOSIT-(CL)	
2							-1.83		1.83 **Bottom of Exploration at 1.83 m below ground surface.**	
3										
4										
5										
6										
7										

Remarks:

Water level taken after 0.1 hours without augers

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-31-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	6.4 cm / 11.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/14/02 / 10/14/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 1 + 280, 4 R	**Casing ID/OD:**	- / -	**Water Level*:**	5.6 m

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.37		0.37	
									Note: numerous cobbles from 0.37-0.61 m	
	D1	30.5/10.2	0.61 - 0.91	3/4/50 (0)	54				Black and gray damp very dense gravelly SILT with some sand and trace clay, non-plastic -FILL-(ML)	
1										
	D2	61.0/22.9	1.22 - 1.83	3/4/7/6	11		-1.28		Note: boundary obstruction from 0.91-1.22 m	
									1.28	
									Olive-brown dry to damp stiff lean CLAY with trace silt and organics, non plastic, mottled and laminated -FILL-(Reworked Natural) (CL)	
2							-1.98		Note: encountered obstruction at 1.83-1.98 m probable boulder, possible concrete	
									1.98	
									Olive damp stiff lean CLAY with trace silt, very slightly plastic mottled and laminated -MARINE DEPOSIT-(CL)	
3										
	D3	61.0/48.3	3.05 - 3.66	3/5/7/6	12					
4										
	D4	61.0/61.0	4.57 - 5.18	1/2/2/4	4				Gray-brown damp soft lean CLAY with some fine sand, very slightly plastic, laminated with frequent sand partings and layers -MARINE DEPOSIT-(CL)	
5										
6										
	D5	61.0/61.0	6.10 - 6.71	1/3/4/3	7		-6.10		6.10	
									Gray-brown moist loose silty and clayey SAND, poorly-graded, fine sand interwoven with clay and silt with occasional clay layers -MARINE DEPOSIT-(SC)	
7										
	D6	61.0/35.6	7.62 - 8.23	5/8/13/13	21		-7.86		7.86	

Remarks:

Water level taken without augers

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-31-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	6.4 cm / 11.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/14/02 / 10/14/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 1 + 280, 4 R	**Casing ID/OD:**	- / -	**Water Level*:**	5.6 m

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

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: Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
8							-8.23		Light brown wet medium dense well-graded SAND with little gravel and trace silt -GLACIO FLUVIAL DEPOSIT-(SW) 8.23 **Bottom of Exploration at 8.23 m below ground surface.**	
9										
10										
11										
12										
13										
14										
15										

Remarks:

Water level taken without augers

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-32-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	6.4 cm / 11.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/15/02 / 10/15/02	**Drilling Method:**	Spin HSA	**Core Barrel:**	-
Boring Location:	Sta. 1 + 330, 5.5 L	**Casing ID/OD:**	- / -	**Water Level*:**	2.9 m

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	D1	61.0/17.8	0.00 - 0.61	1/3/5/3	8		-0.03		-TOPSOIL-	
									0.03 Brown damp loose poorly-graded SAND with little silt and gravel -FILL-(SP)	
	D2	61.0/48.3	0.61 - 1.22	4/3/4/4	7		-0.61		0.61 Brown moist loose poorly-graded SAND with trace gravel and silt -FILL-(SP)	
1										
	D3	61.0/38.1	1.22 - 1.83	8/7/6/7	13		-1.55		1.55 Olive-brown moist stiff lean CLAY with trace fine sand, non-plastic, mottled and laminated -MARINE DEPOSIT-(CL)	
2										
3										
	D4	61.0/50.8	3.05 - 3.66	2/2/1/1	3		-3.05		3.05 Gray-brown moist very loose silty fine SAND with some medium sand, poorly-graded, occasional silt laminae, frequent medium sand layers -MARINE DEPOSIT-(SM)	
4										
	D5	61.0/33.0	4.57 - 5.18	3/1/1/1	2		-4.57		4.57 Brown (changes to gray at 4.88 m), wet, sandy SILT, non-plastic, trace organics, very soft -MARINE DEPOSIT-(ML)	
5							-5.18		5.18 **Bottom of Exploration at 5.18 m below ground surface.**	
6										
7										

Remarks:

Water level taken after 0.2 hours without augers

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-33-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	6.4 cm / 11.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/15/02 / 10/15/02	**Drilling Method:**	Spin HSA	**Core Barrel:**	-
Boring Location:	Sta. 1 + 360, 4 R	**Casing ID/OD:**	- / -	**Water Level*:**	4.8 m

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							-0.15		-ASPHALT ROADWAY- 0.15	
	D1	61.0/27.9	0.15 - 0.76	4/13/7/7	20				Brown and black damp medium dense well- graded SAND with some gravel and little asphalt, asphalt from 0.15-0.21 m and from 0.70-0.76 m	WC=4.5 A-1-a SP
							-0.76		-FILL-(SW) 0.76	
1	D2	61.0/35.6	0.76 - 1.37	2/4/5/4	9				Olive-brown moist stiff silty lean CLAY with trace sand, gravel, and asphalt, non-plastic -FILL-(CL)	
	D3	61.0/33.0	1.37 - 1.98	3/3/4/6	7		-1.58		1.58	
2							-1.95		Gray-brown moist loose silty SAND with little gravel and trace clay, poorly-graded -FILL-(SM) 1.95	
									Olive-brown moist medium stiff lean CLAY with trace fine sand, non-plastic, mottled and laminated -MARINE DEPOSIT-(CL)	
3	D4	61.0/53.3	3.05 - 3.66	1/2/2/3	4		-3.29		3.29	
4									Olive-gray moist soft silty lean CLAY with little fine sand, very slightly plastic, frequent fine sand layers -MARINE DEPOSIT-(CL)	
	D5	61.0/61.0	4.57 - 5.18	1/WOH/1/WOH	1		-4.57		4.57	
5									Gray-brown (all gray from 5.06-5.18 m), wet, very soft, fine sandy SILT with trace clay, non-plastic, frequent fine sand partings -MARINE DEPOSIT-(ML)	
6									Gray-brown saturated very stiff sandy SILT with trace gravel and lean clay, non-plastic, no structure, possible strata change at 6.64 m, but hard to tell from recovery -MARINE DEPOSIT-(ML)	
	D6	61.0/33.0	6.10 - 6.71	3/8/12/10	20					
7							-6.71		6.71	
									Bottom of Exploration at 6.71 m below ground surface.	

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-34-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/15/02 / 10/15/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 1 + 380, 2 L	**Casing ID/OD:**	- / -	**Water Level*:**	Dry

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.24		0.24	
							-0.43		-CONCRETE ROADWAY-(Old Road)	
									0.43	
	D1	61.0/10.2	0.61 - 1.22	11/7/5/5	12				Note: numerous cobbles from 0.43-0.55 m	
1							-0.94		Brown damp medium dense gravelly SAND with little silt, poorly-graded	WC=5.7 A-1-b SW-SM
	D2	61.0/17.8	1.22 - 1.83	4/4/4/3	8				-FILL-(SP)	
									0.94	
									Olive-brown damp medium stiff lean CLAY with trace silt, non-plastic, mottled and laminated	WC=32.9 LL=29.2 PL=15.3 A-6 CL
							-1.62		-MARINE DEPOSIT-(CL)	
2							-1.83		1.62	
									Gray moist medium stiff lean CLAY, highly plastic, laminated	
									-MARINE DEPOSIT-(CL)	
									1.83	
									Bottom of Exploration at 1.83 m below ground surface.	
3										
4										
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-35-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/15/02 / 10/15/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 1 + 440, 3.5 L	**Casing ID/OD:**	- / -	**Water Level*:**	Dry

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.27		0.27	
									Note: numerous cobbles from 0.27-0.85 m probable -FILL-	
1	D1	61.0/55.9	0.91 - 1.52	4/8/7/11	15		-0.94		0.94	
									Olive-brown dry stiff lean CLAY, non-plastic, laminated, dessicated -MARINE DEPOSIT-(CL)	
	D2	30.5/27.9	1.52 - 1.83	10/11	21					
2							-1.83		Olive dry to damp very stiff lean CLAY with trace fine sand, non-plastic, mottled and laminated with occasional fine sand partings -MARINE DEPOSIT-(CL)	
									1.83	
									Bottom of Exploration at 1.83 m below ground surface.	
3										
4										
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Boring No.: B-35-02

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-36-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/15/02 / 10/15/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 1 + 500, 2.7 L	**Casing ID/OD:**	- / -	**Water Level*:**	3.1 m

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.30		0.30	
									Note: numerous cobbles from 0.30-0.67 m	
1	D1	61.0/25.4	0.76 - 1.37	6/4/6/3	10				Light brown damp medium dense poorly-graded SAND with trace gravel and little clay -FILL-(SP)	
	D2	45.7/30.5	1.37 - 1.83	2/2/2	4		-1.62		1.62	
2									Gray-brown moist soft lean CLAY with some silt and trace fine sand, slightly plastic, frequent silt laminae -MARINE DEPOSIT-(CL)	
3										
	D3	61.0/61.0	3.35 - 3.96	1/WOH/1/1	1		-3.35		3.35	
									Gray-brown moist very soft sandy SILT with trace clay, non-plastic, frequent fine sand partings -MARINE DEPOSIT-(ML)	
4							-3.96		3.96	
									Bottom of Exploration at 3.96 m below ground surface.	
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-37-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	6.4 cm / 11.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/15/02 / 10/15/02	**Drilling Method:**	Spin HSA	**Core Barrel:**	-
Boring Location:	Sta. 1 + 530, 4 R	**Casing ID/OD:**	- / -	**Water Level*:**	3.4 m

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.27		0.27	
									-CONCRETE ROADWAY-(Old Road)	
							-0.55		0.55	
	D1	61.0/48.3	0.61 - 1.22	4/3/3/3	6				Light brown dry loose well-graded SAND with some gravel -FILL-(SW)	
1							-0.91		0.91	
	D2	61.0/10.2	1.22 - 1.83	3/2/2/1	4				Gray moist medium stiff SILT, little fine sand with little organics, very slightly plastic, frequent sand partings -MARINE DEPOSIT-(ML)	
2										
									Gray-brown moist soft SILT, little fine sand with trace clay and some organics, very slightly plastic, frequent sand partings -MARINE DEPOSIT-(ML)	
3	D3	61.0/33.0	3.05 - 3.66	2/2/1/1	3					
									Gray moist soft SILT, little fine sand with some clay, slightly to moderately plastic, frequent fine sand partings -MARINE DEPOSIT-(ML)	
4										
	D4	61.0/61.0	4.57 - 5.18	2/3/4/2	7		-4.57		4.57	
5									Light gray saturated loose poorly-graded SAND with trace silt and gravel, stratified occasionally -MARINE DEPOSIT-(SP)	
6	D5	61.0/35.6	6.10 - 6.71	1/6/7/10	13		-6.10		6.10	
									Tan and light brown saturated medium dense poorly-graded SAND, stratified -MARINE DEPOSIT-(SP)	
7										
	D6	61.0/55.9	7.62 - 8.23	1/2/4/4	6				Tan and light brown saturated medium dense loose poorly-graded	

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-37-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	6.4 cm / 11.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/15/02 / 10/15/02	**Drilling Method:**	Spin HSA	**Core Barrel:**	-
Boring Location:	Sta. 1 + 530, 4 R	**Casing ID/OD:**	- / -	**Water Level*:**	3.4 m

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

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: Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
8							-8.23		SAND, stratified -MARINE DEPOSIT- 8.23 **Bottom of Exploration at 8.23 m below ground surface.**	
9										
10										
11										
12										
13										
14										
15										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-38-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	6.4 cm / 11.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/15/02 / 10/15/02	**Drilling Method:**	Spin HSA	**Core Barrel:**	-
Boring Location:	Sta. 1 + 560, 3 L	**Casing ID/OD:**	- / -	**Water Level*:**	2.3 m

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.30		0.30	
	D1	61.0/43.2	0.61 - 1.22	6/12/13/13	23				Gray and brown dry to damp medium dense sandy SILT with little gravel, non-plastic -FILL-(ML)	
1										
	D2	61.0/43.2	1.22 - 1.83	5/10/13/13	23		-1.34		1.34	
									Light brown wet medium dense poorly-graded fine SAND, little silt, occasional silt laminae -MARINE DEPOSIT-(SP)	
2										
	D3	61.0/33.0	2.44 - 3.05	1/1/1/1	2		-2.74		2.74	
3							-3.05		Gray wet very loose poorly-graded SAND with little silt and wood, wood is natural -MARINE DEPOSIT-(SP)	
									3.05	
									Bottom of Exploration at 3.05 m below ground surface.	
4										
5										
6										
7										

Remarks:

Water level taken without augers

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-39-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/15/02 / 10/15/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 1 + 590, 2 R	**Casing ID/OD:**	- / -	**Water Level*:**	Dry

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.30		0.30	
									-CONCRETE ROADWAY-(Old Road)	
							-0.55		0.55	
	D1	61.0/45.7	0.61 - 1.22	11/13/7/7	20				Light brown dry medium dense well-graded SAND with some gravel	WC=8.0 A-1-b SM
1									-FILL-(SW)	
							-1.07		1.07	
	D2	61.0/20.3	1.22 - 1.83	5/6/6/6	12				Gray damp very stiff sandy SILT with little clay, non-plastic, trace root matter	WC=23.6 LL=33.3 PL=18.9 A-6 CL
							-1.43		-MARINE DEPOSIT-(ML)	
2									1.43	
							-1.83		Olive-gray damp stiff lean CLAY with some silt, slightly plastic, laminated	WC=24.2 LL=36.5 PL=15.8 A-6 CL
									-MARINE DEPOSIT-(CL)	
									1.83	
									Bottom of Exploration at 1.83 m below ground surface.	
3										
4										
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-40-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/15/02 / 10/15/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 1 + 690, 3.5 L	**Casing ID/OD:**	- / -	**Water Level*:**	Dry

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.34		0.34	
	D1	61.0/48.3	0.46 - 1.07	10/12/7/7	19				Brown dry medium dense poorly-graded SAND with some gravel and trace silt, (Changes to gray-brown at 0.79 m) -FILL-(SP)	
1							-0.91		0.91	
	D2	61.0/61.0	1.22 - 1.83	6/7/7/8	14		-1.22		Gray damp very stiff fine sandy SILT with trace clay, non-plastic, laminated -MARINE DEPOSIT-(ML)	
									1.22	
2							-1.83		Light brown damp medium dense poorly-graded fine SAND with some silt, stratified -MARINE DEPOSIT-(SP)	
									1.83	
									Bottom of Exploration at 1.83 m below ground surface.	
3										
4										
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-41-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/15/02 / 10/15/02	**Drilling Method:**	Spin SSA	**Core Barrel:**	-
Boring Location:	Sta. 1 + 745, 3 L	**Casing ID/OD:**	- / -	**Water Level*:**	Dry

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.30		0.30	
									Note: numerous cobbles from 0.30-0.55 m probable -FILL-	
	D1	61.0/35.6	0.61 - 1.22	6/5/2/2	7					
1							-0.94		0.94	
									Gray-brown damp medium stiff SILT with some fine sand and trace clay, non-plastic, laminated	
	D2	61.0/43.2	1.22 - 1.83	4/4/4/12	8		-1.22		-MARINE DEPOSIT-(ML)	
									1.22	
2									Brown damp loose silty fine SAND, poorly-graded, stratified with occasional silt laminae	
							-1.83		-MARINE DEPOSIT-(SP)	
									1.83	
									Bottom of Exploration at 1.83 m below ground surface.	
3										
4										
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-42-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	6.4 cm / 11.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/15/02 / 10/15/02	**Drilling Method:**	Spin HSA	**Core Barrel:**	-
Boring Location:	Sta. 1 + 795, 4 R	**Casing ID/OD:**	- / -	**Water Level*:**	5.1 m

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	D1	61.0/33.0	0.00 - 0.61	1/2/2/3	4	HSA			Brown and black damp very loose poorly- graded SAND with some gravel, trace asphalt and silt -FILL-(SP)	
	D2	61.0/43.2	0.61 - 1.22	2/2/3/4	5		-0.76		0.76 Brown damp loose silty fine SAND, trace organics, frequent silt laminae, poorly-graded -MARINE DEPOSIT-(SM)	
1	D3	61.0/55.9	1.22 - 1.83	3/3/4/5	7		-1.52		1.52 Dark brown damp medium stiff fine sandy SILT with trace organics, non-plastic, laminated -MARINE DEPOSIT-(ML)	
2										
3	D4	61.0/38.1	3.05 - 3.66	3/2/5/9	7		-3.05		3.05 Light brown wet loose silty fine SAND with little wood, poorly-graded, stratified with occasional silt laminae -MARINE DEPOSIT-(SM)	
4										
5	D5	61.0/55.9	4.57 - 5.18	1/2/2/6	4				Gray wet very loose silty SAND with little organic matter, poorly-graded, occasional coarse sand layers, occasional wood and silt layers -MARINE DEPOSIT-(SM)	
6							-5.94		5.94	
	D6	61.0/58.4	6.10 - 6.71	WOR/WOR/WOR/WOH	WOR				Gray moist soft to medium stiff lean CLAY, trace silt, highly plastic, laminated with occasional silt laminae -MARINE DEPOSIT-(CL)	
7										
	D7	61.0/61.0	7.62 - 8.23	WOR/WOR/WOH/WOH	WOR					

Remarks:

Water level taken without augers

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-42-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	6.4 cm / 11.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/15/02 / 10/15/02	**Drilling Method:**	Spin HSA	**Core Barrel:**	-
Boring Location:	Sta. 1 + 795, 4 R	**Casing ID/OD:**	- / -	**Water Level*:**	5.1 m

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

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: Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
8							-8.23		Gray moist soft to medium stiff lean CLAY, trace silt, highly plastic, laminated with occasional silt laminae -MARINE DEPOSIT-(CL)	
									8.23 **Bottom of Exploration at 8.23 m below ground surface.**	
9										
10										
11										
12										
13										
14										
15										

Remarks:

Water level taken without augers

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-42A-02
PIN: 9188.00

Driller:	M. Coffin	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	None
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	135.7 kg / 76.2 cm
Date Start/Finish:	10/30/02 / 10/30/02	**Drilling Method:**	Spin SSA / Rod Probe	**Core Barrel:**	-
Boring Location:	Sta. 1 + 795, 4 R	**Casing ID/OD:**	- / -	**Water Level*:**	-

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

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: Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									Note: see log B42-02 for subsurface descriptions from 0.00-8.23 m Note: no split spoon samples taken from 8.23 m to bottom of exploration, rod probe only	
1										
2										
3										
4										
5										
6										
7										

Remarks:

Note: rod probe used in boring

HALEY & ALDRICH

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.

Haley & Aldrich, Inc. Soil/Rock Exploration Log METRIC UNITS	Project: Route 100/26 Reconstruction Location: Falmouth, Maine File No. 28404-001	Boring No.: B-42A-02 PIN: 9188.00

Driller:	M. Coffin	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	None
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	135.7 kg / 76.2 cm
Date Start/Finish:	10/30/02 / 10/30/02	**Drilling Method:**	Spin SSA / Rod Probe	**Core Barrel:**	-
Boring Location:	Sta. 1 + 795, 4 R	**Casing ID/OD:**	- / -	**Water Level*:**	-

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

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: Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
8							-8.23		8.23	
						1				
						1				
9						1				
						1				
						1				
10						WOH				
						1				
						1			-MARINE DEPOSIT-(CL)	
11						1				
						1				
						2	-11.28		11.28 Note: probable sand layers starting at 11.43 m	
						4				
12						5				
						5				
						2			Note: hole location moved 1.37 m N after r AW rods were lost down original boring , rod probe blows after 13.72 m are from the 2nd location	
						3				
13						1			-MARINE DEPOSIT-(CL)	
						2				
						4				
14						6				
						7				
						12				
15						19	-14.94		14.94 Note: probable strata change to possible GLACIAL TILL DEPOSIT at 14.94 m	
						12			-Probable GLACIAL TILL DEPOSIT-(SP)	
						19				

Remarks:

Note: rod probe used in boring

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-42A-02
PIN: 9188.00

Driller:	M. Coffin	**Elevation (m):**		**Auger ID/OD:**	- / 6.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	None
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	135.7 kg / 76.2 cm
Date Start/Finish:	10/30/02 / 10/30/02	**Drilling Method:**	Spin SSA / Rod Probe	**Core Barrel:**	-
Boring Location:	Sta. 1 + 795, 4 R	**Casing ID/OD:**	- / -	**Water Level*:**	-

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

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: Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
16						15				
						14				
						14				
17						24				
						23				
						21				
						17				
18						100(3 cm)	-18.01		Note: probe refusal at 18.01 m on either glacial till or bedrock 18.01 **Bottom of Exploration at 18.01 m below ground surface.**	
19										
20										
21										
22										
23										

Remarks:

Note: rod probe used in boring

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-43-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	6.4 cm / 11.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/15/02 / 10/15/02	**Drilling Method:**	Spin HSA	**Core Barrel:**	-
Boring Location:	Sta. 1 + 815, 4 L	**Casing ID/OD:**	- / -	**Water Level*:**	4.6 m

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

Definitions:
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

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	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									-ASPHALT ROADWAY-	
							-0.30		0.30	
									Note: numerous cobbles from 0.30-0.55 m	
	D1	61.0/27.9	0.61 - 1.22	6/4/3/4	7	HSA			Light brown damp loose well-graded SAND with some gravel -FILL-(SW)	
1							-1.10		1.10	
	D2	61.0/15.2	1.22 - 1.83	5/7/7/4	14				Gray-brown damp medium stiff lean CLAY with some silt, non-plastic, laminated -FILL-(Reworked Natural) (CL)	
2									Brown moist stiff sandy lean CLAY with some gravel, non-plastic -FILL-(Reworked Natural) (CL)	
3	D3	61.0/40.6	3.05 - 3.66	WOR/WOR/2/3	2		-3.26		3.26	
									Gray damp to moist very soft fine sandy SILT with some lean CLAY, non-plastic, occasional sand layers and clay layers, laminated, trace organics -MARINE DEPOSIT-(ML)	
4							-4.57		4.57	
	D4	61.0/61.0	4.57 - 5.18	1/WOH/WOH/WOH	WOH				Gray moist soft to medium stiff lean CLAY, highly plastic, laminated -MARINE DEPOSIT-(CL)	
5										
6	D5	61.0/35.6	6.10 - 6.71	WOR/WOR/WOH/WOH	WOR				Gray moist soft to medium stiff lean CLAY, highly plastic, trace silt, laminated -MARINE DEPOSIT-(CL)	
7										
	D6	61.0/43.2	7.62 - 8.23	WOR/1/WOR/WOR	1					

Remarks:

Water level taken without augers

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-43-02
PIN: 9188.00

Driller:	J. Rudnicki	**Elevation (m):**		**Auger ID/OD:**	6.4 cm / 11.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	63.3 kg / 76.2 cm
Date Start/Finish:	10/15/02 / 10/15/02	**Drilling Method:**	Spin HSA	**Core Barrel:**	-
Boring Location:	Sta. 1 + 815, 4 L	**Casing ID/OD:**	- / -	**Water Level*:**	4.6 m

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

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: Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
8							-8.23		Gray moist soft to medium stiff lean CLAY, highly plastic, trace silt, laminated -MARINE DEPOSIT-(CL) 8.23 **Bottom of Exploration at 8.23 m below ground surface.**	
9										
10										
11										
12										
13										
14										
15										

Remarks:

Water level taken without augers

HALEY & ALDRICH

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.

Haley & Aldrich, Inc.

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 100/26 Reconstruction
Location: Falmouth, Maine
File No. 28404-001

Boring No.: B-43A-02
PIN: 9188.00

Driller:	M. Coffin	**Elevation (m):**		**Auger ID/OD:**	6.4 cm / 11.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	63.3 kg / 135.7 kg
Date Start/Finish:	10/30/02 / 10/30/02	**Drilling Method:**	Spin HSA / Rod Probe	**Core Barrel:**	-
Boring Location:	Sta. 1 + 815, 4 L	**Casing ID/OD:**	- / -	**Water Level*:**	7.83 m

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

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: Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0									Note: refer to log B42-02 for overburden soil descriptions from 0.00 8.23 m	
1										
2										
3										
4										
5										
6										
7										

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc. Soil/Rock Exploration Log METRIC UNITS	Project: Route 100/26 Reconstruction Location: Falmouth, Maine File No. 28404-001	Boring No.: B-43A-02 PIN: 9188.00

Driller:	M. Coffin	**Elevation (m):**		**Auger ID/OD:**	6.4 cm / 11.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	63.3 kg / 135.7 kg
Date Start/Finish:	10/30/02 / 10/30/02	**Drilling Method:**	Spin HSA / Rod Probe	**Core Barrel:**	-
Boring Location:	Sta. 1 + 815, 4 L	**Casing ID/OD:**	- / -	**Water Level*:**	7.83 m

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

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: Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
8										
9										
10										
11	D1	61.0/61.0	10.67 - 11.28	1/1/1/2	2		-10.67		10.67 Gray wet soft to medium stiff lean CLAY, highly plastic, laminated -MARINE DEPOSIT-(CL)	
12	D2	61.0/61.0	12.19 - 12.80	2/2/2/1	4				Gray saturated soft to medium stiff lean CLAY with some fine sand, highly plastic, laminated, with frequent sand seams and layers -MARINE DEPOSIT-(CL)	
13										
14	D3	61.0/61.0	13.72 - 14.33	8/6/30/25	36		-14.05		Gray saturated hard sandy lean CLAY with trace organics, moderately plastic, laminated -MARINE DEPOSIT-(CL) 14.05 Note: a strata change is indicated by the higher split spoon counts and auger action, but was not seen in the sample	
15	D4	61.0/30.5	15.24 - 15.85	47/43/17/14	60				Gray saturated very dense gravelly SAND with some clay, moderately bonded, poorly-graded -GLACIAL TILL DEPOSIT-(SC)	

Remarks:

HALEY & ALDRICH

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.

Haley & Aldrich, Inc. Soil/Rock Exploration Log METRIC UNITS	Project: Route 100/26 Reconstruction Location: Falmouth, Maine File No. 28404-001	Boring No.: B-43A-02 PIN: 9188.00

Driller:	M. Coffin	**Elevation (m):**		**Auger ID/OD:**	6.4 cm / 11.4 cm
Operator:	Maine Test Borings, Inc.	**Datum:**	NGVD	**Sampler:**	Split Spoon
Logged By:	T. Erickson	**Rig Type:**	MD B53 Truck Rig	**Hammer Wt./Fall:**	63.3 kg./ 135.7 kg
Date Start/Finish:	10/30/02 / 10/30/02	**Drilling Method:**	Spin HSA / Rod Probe	**Core Barrel:**	-
Boring Location:	Sta. 1 + 815, 4 L	**Casing ID/OD:**	- / -	**Water Level*:**	7.83 m

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

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: Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
16						~~16~~			Note: HSA used from 0.00-15.24 m, rod probe used from 15.84 m to BOE	
						43				
						37				
17						54				
						41				
						~~100(18 cm)~~	-17.56		~~17.56~~	
18									**Bottom of Exploration at 17.56 m below ground surface.** Rod probe refusal-possible bedrock	
19										
20										
21										
22										
23										

Remarks:

HALEY & ALDRICH

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.

APPENDIX B

2016 - Test boring logs

Stantec

BOREHOLE LOG

B-101

CLIENT **Town of Falmouth**

LOCATION **Route 100, Falmouth, Maine**

EXPLORATION DATE **11/16/2016 to 11/16/2016**

WATER LEVEL **19'**

PROJECT No. **195350019**

EXPLORATION No. **B-101**

DATUM

DEPTH (ft)	ELEVATION (ft)	MATERIAL DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY	SPT blows / 6"	SPT N-Value	PID Reading (PPM)
	81.9						in.			
0	81.6	Medium dense, brown fine/medium SAND, and Silt, and organics, moist -TOPSOIL-			SS	1	16	5 7 9 7	16	
	80.7	Very stiff, olive CLAY, and silt, moist								
	79.9	Very stiff, olive/grey SILT, and Clay, dry Torvane vane= 0.7 tsf			SS	2	20	10 13 17 18	30	
	77.9	Hard, olive/grey SILT, and Clay, dry Torvane vane=1.13 tsf			SS	3	24	7 11 15 19	26	
5	75.9	Hard, olive/grey SILT, and Clay, dry Torvane vane=1.38 tsf			SS	4	20	18 26 22 27	48	
	73.9	-MARINE SILT/CLAY-			SS	5	24	4 9 10 14	19	
	72.9	Very stiff, olive/grey SILT, and Clay, dry Torvane vane=1.19 tsf								
10	71.9	Stiff, olive CLAY, and Silt, moist Torvane vane=1.25 tsf			SS	6	24	2 5 8 10	13	
	69.9	Very stiff, olive CLAY, and Silt, with fine sand seams, moist Torvane vane= 0.75 tsf			SS	7	24	10 11 7 7	18	
	67.9	Medium stiff, olive CLAY, and Silt, with fine sand seams, moist Torvane vane= 0.45 tsf			SS	8	24	3 2 4 4	6	
15	65.9									
	62.9	Loose, fine SAND, and Silt, seams with clay and silt, wet Torvane vane= 0.25 tsf			SS	9	9	2 4 4 5	8	
20	60.9	-GLACIAL FLUVIAL-								
		End of boring at 21'. No refusal.								

Undrained Shear Strength - tsf

1 2 3 4

Water Content & Atterberg Limits W_P W W_L

Dynamic Penetration Test, blows/foot ★

Standard Penetration Test, blows/foot ●

10 20 30 40 50 60 70 80 90

Driller: Ken Smith; Supervisor: Jason Ward

Rig Type: Mobil Drill B-59 2 1/4 HSA; Hammer: 140lb Safety Hammer with cat head, 2" Split Spoon Sampler

△ Unconfined Compression Test

□ Field Vane Test ■ Remolded

✖ Pocket Penetrometer / Torvane

STN13-GEO-I-VOC RT.100_FALMOUTH, ME.GPJ JW NHP.GDT 1/12/17

Stantec

BOREHOLE LOG

B-102

CLIENT **Town of Falmouth**

LOCATION **Route 100, Falmouth, Maine**

EXPLORATION DATE **11/15/2016 to 11/15/2016**

WATER LEVEL **19.5'-20'**

PROJECT No. **195350019**

EXPLORATION No. **B-102**

DATUM

DEPTH (ft)	ELEVATION (ft)	MATERIAL DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY	SPT blows / 6"	SPT N-Value	PID Reading (PPM)
	82.8						in.			
0	82.5	Loose, brown ORGANIC, and firm to medium silty sand, moist -TOPSOIL-			SS	1	11	1 3 4 2	7	
	81.9	Loose, brown medium/coarse SAND, trace silt, trace gravel, moist								
	80.8	-FILL-			SS	2	17	3 4 5 12	9	
	80.6	Loose, brown medium/coarse SAND, trace silt, trace gravel, moist								
	79.4	Loose, grey/brown CLAY, and Silt, dry Torvane vane= 0.7 tsf			SS	3	19	5 8 10 16	18	
5	78.8	Very stiff, olive/grey/brown CLAY, and Silt, dry Torvane vane= 0.55 tsf			SS	4	18	17 19 17 19	36	
	76.8	Very stiff, olive/grey/brown CLAY, and Silt, dry Torvane vane= 0.55 tsf			SS	5	23	4 8 10 11	18	
	74.8	Very stiff, olive/grey/brown CLAY, and Silt, moist Torvane vane= 0.90 tsf -MARINE SILT/CLAY-			SS	6	20	2 6 6 8	12	
10	72.8	Stiff, olive/grey/brown CLAY, and Silt, moist Torvane vane= 1.5 tsf			SS	7	24	13 11 11 12	22	
	70.8	Very stiff, olive/grey/brown CLAY, and Silt, moist Torvane vane= 1.375 tsf			SS	8	24	3 4 4 5	8	
	68.8	Medium stiff, olive/grey CLAY, and Silt, moist Torvane vane= 0.6 tsf								
15	66.8									
	63.8	Medium stiff, olive/grey CLAY, and Silt, with fine sand seams, wet Torvane vane= 0.45 tsf			SS	9	24	2 3 3 5	6	
20	61.8	End of boring at 21'. No refusal.								

Undrained Shear Strength - tsf: 1 2 3 4

Water Content & Atterberg Limits: W_P W W_L

Dynamic Penetration Test, blows/foot ★

Standard Penetration Test, blows/foot ●

10 20 30 40 50 60 70 80 90

Driller: Ken Smith; Supervisor: Jason Ward

Rig Type: Mobil Drill B-59 2 1/4 HSA; Hammer: 140lb Safety Hammer with cat head, 2" Split Spoon Sampler

△ Unconfined Compression Test

□ Field Vane Test ■ Remolded

✖ Pocket Penetrometer / Torvane

STN13-GEO-I-VOC RT.100_FALMOUTH, ME.GPJ JW NHP.GDT 1/12/17

BOREHOLE LOG

B-103

CLIENT **Town of Falmouth**

LOCATION **Route 100, Falmouth, Maine**

EXPLORATION DATE **11/15/2016 to 11/15/2016**

WATER LEVEL **9.5'-10'**

PROJECT No. **195350019**

EXPLORATION No. **B-103**

DATUM

DEPTH (ft)	ELEVATION (ft)	MATERIAL DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY	SPT blows / 6"	SPT N-Value	PID Reading (PPM)
	83.5						in.			
0		Medium dense, brown medium/coarse SAND, and gravel, trace silt, dry -FILL-			SS	1	10	11 12 9 8	21	
	81.5									
	81.1	Loose, brown medium/coarse SAND, trace silt ,moist								
	80.3	Stiff, blue/grey SILT, and Clay Torvane vane= 0.5 tsf			SS	2	15	5 3 6 10	9	
	79.5									
5		Very stiff, olive/grey CLAY, and Silt, dry Torvane vane= 1.56 tsf			SS	3	24	7 6 9 13	15	
	77.5									
		Hard, olive/grey CLAY, and Silt, dry Torvane vane= 1.25 tsf -MARINE SILT/CLAY-			SS	4	20	14 18 15 14	33	
	75.5									
		Stiff, olive/grey CLAY, and Silt, moist Torvane vane= 1.25 tsf sand seam at 9.5ft			SS	5	24	6 6 7 8	13	
10	73.5									
		Stiff, olive/grey CLAY, and Silt, moist Torvane vane= 0.63 tsf			SS	6	21	3 3 5 5	8	
	71.5									
		Stiff, olive/grey CLAY, and Silt, with fine sand seams, moist Torvane vane= 0.63 tsf			SS	7	18	6 6 5 6	11	
	69.5									
15		Medium stiff, olive/grey CLAY, and Silt, with fine sand seams, moist Torvane vane= .5 tsf			SS	8	24	2 2 2 4	4	
	67.5									
	64.5									
		Medium dense, light tan fine SAND, trace silt, with clay and silt seams, dry -GLACIAL FLUVIAL-			SS	9	14	5 7 10 13	17	
20	62.5									
		End of boring at 21'. No refusal.								

Undrained Shear Strength - tsf: 1 2 3 4

Water Content & Atterberg Limits: W_P W W_L

Dynamic Penetration Test, blows/foot ★

Standard Penetration Test, blows/foot ●

10 20 30 40 50 60 70 80 90

Driller: Ken Smith; Supervisor: Jason Ward

Rig Type: Mobil Drill B-59 2 1/4 HSA; Hammer: 140lb Safety Hammer with cat head, 2" Split Spoon Sampler

△ Unconfined Compression Test

□ Field Vane Test ■ Remolded

✖ Pocket Penetrometer / Torvane

STN13-GEO-I-VOC RT.100_FALMOUTH, ME.GPJ JW NHP.GDT 1/12/17

Stantec

BOREHOLE LOG

B-104

CLIENT **Town of Falmouth**

LOCATION **Route 100, Falmouth, Maine**

EXPLORATION DATE **11/15/2016 to 11/15/2016**

WATER LEVEL **14'-15'**

PROJECT No. **195350019**

EXPLORATION No. **B-104**

DATUM

DEPTH (ft)	ELEVATION (ft)	MATERIAL DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES SPT blows / 6"	SAMPLES SPT N-Value	PID Reading (PPM)
	83.2						in.			
0	82.5	8" Pavement								
	82.2									
	81.7	Loose, black medium/coarse SAND, and gravel, trace silt -FILL-			SS	1	15	9 4 3 6	7	
	81.0	Medium stiff, olive/grey/brown SILT, and clay								
	80.2	Torvane vane=1.13 tsf								
		Very stiff, olive/grey SILT, and clay			SS	2	14	8 13 14 14	27	
		Torvane vane=1.38 tsf								
5	78.2									
		Stiff, olive/grey SILT, and clay			SS	3	24	4 5 9 11	14	
		Torvane vane= 0.65 tsf								
	76.2									
		Very stiff, olive/grey SILT, and clay, with fine sand seams, moist			SS	4	20	16 12 11 11	23	
		Torvane vane= 0.65 tsf								
	74.2	-MARINE SILT/CLAY-								
		Stiff, olive/grey SILT, and clay, moist			SS	5	24	5 6 6 6	12	
10		Torvane vane= 0.60 tsf								
	72.2									
		Very stiff, olive/grey SILT, and clay, with fine sand seams, moist			SS	6	24	8 9 8 7	17	
		Torvane vane= 0.45 tsf								
	70.2									
		Medium stiff, olive/grey CLAY, and silt, and sand, with sand seams, moist			SS	7	20	3 3 4 9	7	
		Torvane vane= .2 tsf								
15	68.2									
	64.2									
		Medium dense, light tan fine SAND, trace silt, with silty sand seams, dry			SS	8	15	10 14 12 13	26	
20		-GLACIAL FLUVIAL-								
	62.2									
		End of boring at 21'. No refusal.								

Undrained Shear Strength - tsf: 1 2 3 4

Water Content & Atterberg Limits: W_P W W_L

Dynamic Penetration Test, blows/foot ★

Standard Penetration Test, blows/foot ●

10 20 30 40 50 60 70 80 90

Driller: Ken Smith; Supervisor: Jason Ward

Rig Type: Mobil Drill B-59 2 1/4 HSA; Hammer: 140lb Safety Hammer with cat head, 2" Split Spoon Sampler

△ Unconfined Compression Test

□ Field Vane Test ■ Remolded

✖ Pocket Penetrometer / Torvane

STN13-GEO-I-VOC RT.100_FALMOUTH, ME.GPJ JW NHP.GDT 1/12/17

BOREHOLE LOG

B-105

CLIENT **Town of Falmouth**

LOCATION **Route 100, Falmouth, Maine**

EXPLORATION DATE **11/16/2016 to 11/16/2016**

WATER LEVEL **20.5'**

PROJECT No. **195350019**

EXPLORATION No. **B-105**

DATUM

DEPTH (ft)	ELEVATION (ft)	MATERIAL DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY	SPT blows / 6"	SPT N-Value	PID Reading (PPM)
	72.2						in.			
0	71.7	6" Pavement								
	70.5	Medium dense, coarse SAND, and gravel, trace silt -FILL-			SS	1	14	30 14 9 5	23	
	70.0	Very stiff, CLAY, and Silt								
5	67.2	Very stiff, olive/grey/brown SILT, and Clay, moist Torvane vane= 1.5 tsf			SS	2	24	5 8 12 13	20	
	65.2									
10	62.2	Stiff, olive/grey/brown CLAY, and Silt, moist Torvane vane= 0.81 tsf			SS	3	24	4 4 6 6	10	
	60.2	-MARINE SILT/CLAY-								
15	57.2	Medium stiff, olive/grey CLAY, and Silt, with fine sand seams, moist Torvane vane= 0.45 tsf			SS	4	24	2 3 2 3	5	
	55.2									
20	52.2	Soft, blue/grey CLAY, and Silt, sand seam at 20.5', wet Torvane vane= 0.01 tsf			SS	5	24	1 2 1 2	3	
	50.2	End of boring at 22'. No refusal.								

Undrained Shear Strength - tsf

1 2 3 4

Water Content & Atterberg Limits W_P W W_L

Dynamic Penetration Test, blows/foot ★

Standard Penetration Test, blows/foot ●

10 20 30 40 50 60 70 80 90

Driller: Ken Smith; Supervisor: Jason Ward

Rig Type: Mobil Drill B-59 2 1/4 HSA; Hammer: 140lb Safety Hammer with cat head, 2" Split Spoon Sampler

△ Unconfined Compression Test

□ Field Vane Test ■ Remolded

✖ Pocket Penetrometer / Torvane

STN13-GEO-I-VOC RT.100_FALMOUTH, ME.GPJ JW NHP.GDT 1/12/17

BOREHOLE LOG

B-106

CLIENT **Town of Falmouth**

LOCATION **Route 100, Falmouth, Maine**

EXPLORATION DATE **11/17/2016 to 11/17/2016**

WATER LEVEL **20'**

PROJECT No. **195350019**

EXPLORATION No. **B-106**

DATUM

DEPTH (ft)	ELEVATION (ft)	MATERIAL DESCRIPTION	SAMPLES TYPE	NUMBER	RECOVERY	SPT blows / 6"	SPT N-Value	PID Reading (PPM)
	51.5				in.			
0		1' Asphalt						
	50.5							
	49.9	Medium dense, coarse SAND, and gravel, trace silt						
	49.6	-FILL-	SS	1	11	34 11 4 11	15	
		Stiff, olive/grey SILT and Clay Torvane vane= 1.13 tsf						
5	46.5							
		No Sample. CLAY and gravel at the tip	SS	2	0	5 4 3 4	7	
	44.5							
		CLAY in cuttings -MARINE SILT/CLAY-						
10	41.5							
		Very soft, olive/grey CLAY and SIlt Torvane vane= 0.25 tsf	SS	3	18	2 1 1 2	2	
	39.5							
15	36.5							
	36.3	Very soft, olive/grey CLAY and SIlt						
	35.6	Loose, grey fine SAND, trace silt	SS	4	11	1 2 5 5	7	
20	31.5							
		Medium dense, light brown fine SAND, and Silt, with fine/medium sand seams, wet	SS	5	17	3 4 9 12	13	
	29.5							
		-GLACIAL FLUVIAL						

Undrained Shear Strength - tsf: 1 2 3 4

Water Content & Atterberg Limits: W_P W W_L

Dynamic Penetration Test, blows/foot ★

Standard Penetration Test, blows/foot ●

10 20 30 40 50 60 70 80 90

Driller: Ken Smith; Supervisor: Jason Ward

Rig Type: Mobil Drill B-59 2 1/4 HSA; Hammer: 140lb Safety Hammer with cat head, 2" Split Spoon Sampler

△ Unconfined Compression Test

□ Field Vane Test ■ Remolded

✖ Pocket Penetrometer / Torvane

Continued Next Page

BOREHOLE LOG

B-106

CLIENT **Town of Falmouth**

LOCATION **Route 100, Falmouth, Maine**

EXPLORATION DATE **11/17/2016 to 11/17/2016**

WATER LEVEL **20'**

PROJECT No. **195350019**

EXPLORATION No. **B-106**

DATUM

DEPTH (ft)	ELEVATION (ft)	MATERIAL DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (in.)	SPT blows / 6"	SPT N-Value	PID Reading (PPM)
25	26.5	Medium dense, brown fine/medium SAND, and gravel, trace silt, wet			SS	6	12	5 5 7 16	12	
	24.5									
30	21.5	Very dense, brown fine/medium SAND and gravel, trace silt, wet			SS	7	8	14 17 40 42	57	
	19.5									
	18.5	End of boring. Roller refusal at 33ft								
35										
40										
45										

Undrained Shear Strength - tsf

1 2 3 4

Water Content & Atterberg Limits W_P W W_L

Dynamic Penetration Test, blows/foot ★

Standard Penetration Test, blows/foot ●

10 20 30 40 50 60 70 80 90

Driller: Ken Smith; Supervisor: Jason Ward

Rig Type: Mobil Drill B-59 2 1/4 HSA; Hammer: 140lb Safety Hammer with cat head, 2" Split Spoon Sampler

△ Unconfined Compression Test

□ Field Vane Test ■ Remolded

✖ Pocket Penetrometer / Torvane

STN13-GEO-I-VOC RT.100_FALMOUTH, ME.GPJ JW NHP.GDT 1/12/17

BOREHOLE LOG

B-107

CLIENT **Town of Falmouth**

LOCATION **Route 100, Falmouth, Maine**

EXPLORATION DATE **11/16/2016 to 11/16/2016**

WATER LEVEL **16'**

PROJECT No. **195350019**

EXPLORATION No. **B-107**

DATUM

DEPTH (ft)	ELEVATION (ft)	MATERIAL DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY	SPT blows / 6"	SPT N-Value	PID Reading (PPM)
	48.7						in.			
0	48.2	6" Asphalt								
	47.7									
	47.5	Loose, medium/coarse SAND, and gravel, trace silt								
	47.0	-FILL-			SS	1	9	6 4 5 6	9	
		Stiff, olive/grey SILT, and Clay Torvane vane= 0.63 tsf -MARINE SILT/CLAY-								
5	43.7	Soft, olive/grey SILT, and Clay, and organics (peat) Torvane vane= 0.35 tsf			SS	2	10	1 2 2 3	4	
	41.7	Organics. Sand and gravel at 9.5'								
10	38.7	Medium dense, medium/coarse SAND, and gravel, and organics, trace silt			SS	3	5	5 7 8 3	15	
	36.7	Clay and wood in cuttings at 14ft								
15	33.7									
	33.1	Loose, light tan SAND, and Silt, with silty clay seams			SS	4	17	3 3 5 6	8	
	32.3	Loose, light tan fine SAND, and Silt								
20	28.7	Medium dense, light tan fine/medium SAND, trace silt, wet			SS	5	15	7 7 6 7	13	
	26.7	-GLACIAL FLUVIAL-								

Undrained Shear Strength - tsf: 1 2 3 4

Water Content & Atterberg Limits: W_P W W_L

Dynamic Penetration Test, blows/foot ★

Standard Penetration Test, blows/foot ●

10 20 30 40 50 60 70 80 90

Driller: Ken Smith; Supervisor: Jason Ward

Rig Type: Mobil Drill B-59 2 1/4 HSA; Hammer: 140lb Safety Hammer with cat head, 2" Split Spoon Sampler

△ Unconfined Compression Test

□ Field Vane Test ■ Remolded

✖ Pocket Penetrometer / Torvane

Continued Next Page

Stantec

BOREHOLE LOG

B-107

CLIENT **Town of Falmouth**

LOCATION **Route 100, Falmouth, Maine**

EXPLORATION DATE **11/16/2016 to 11/16/2016**

WATER LEVEL **16'**

PROJECT No. **195350019**

EXPLORATION No. **B-107**

DATUM

DEPTH (ft)	ELEVATION (ft)	MATERIAL DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (in.)	SAMPLES SPT blows / 6"	SAMPLES SPT N-Value	PID Reading (PPM)
25	23.7									
		Loose, light tan fine/medium SAND, trace coarse sand, trace silt, wet			SS	6	17	2 3 3 4	6	
	21.7									
30	18.7									
		Medium dense, light tan medium/coarse SAND, trace silt, wet			SS	7	24	3 6 5 12	11	
	17.7	Medium dense, light brown fine SAND, and Silt, wet								
	16.7	Casing driving hard. Sand and gravel cuttings at 33ft								
35	13.7									
		Very dense, brown fine SAND, and gravel, trace silt, wet			SS	8		50/1"		
	12.2									
		End of boring. Refusal at 36.5ft Roller cone bouncing.								
40										
45										

Undrained Shear Strength - tsf: 1 2 3 4

Water Content & Atterberg Limits: W_P W W_L

Dynamic Penetration Test, blows/foot ★

Standard Penetration Test, blows/foot ●

10 20 30 40 50 60 70 80 90

Driller: Ken Smith; Supervisor: Jason Ward

Rig Type: Mobil Drill B-59 2 1/4 HSA; Hammer: 140lb Safety Hammer with cat head, 2" Split Spoon Sampler

△ Unconfined Compression Test

□ Field Vane Test ■ Remolded

✖ Pocket Penetrometer / Torvane

STN13-GEO-I-VOC RT.100_FALMOUTH, ME.GPJ JW NHP.GDT 1/12/17

Stantec

BOREHOLE LOG

B-108

CLIENT **Town of Falmouth**

LOCATION **Route 100, Falmouth, Maine**

EXPLORATION DATE **11/17/2016 to 11/17/2016**

WATER LEVEL **14'**

PROJECT No. **195350019**

EXPLORATION No. **B-108**

DATUM

DEPTH (ft)	ELEVATION (ft)	MATERIAL DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY	SPT blows / 6"	SPT N-Value	PID Reading (PPM)
	92.5						in.			
0	91.5	1' Gravel parking								
		Medium dense, brown medium/coarse SAND and gravel, some silt, moist -FILL-			SS	1	3	6 5 7 10	12	
	89.5	Very stiff, olive/brown SILT, and clay Torvane vane= 1.13 tsf			SS	2	20	9 12 14 24	26	
5	87.5	Very stiff, olive/brown SILT, and clay, dry Torvane vane= 1.63 tsf			SS	3	21	7 9 10 19	19	
	85.5	Very stiff, olive/brown SILT, and clay, dry Torvane vane= 1.38 tsf -MARINE SILT/CLAY-			SS	4	20	17 16 12 16	28	
	83.5	Stiff, olive/brown CLAY, and Silt, 8"- wet silty fine/med sand Torvane vane= 1.25 tsf			SS	5	24	4 5 6 10	11	
10	81.5	Very stiff, olive/brown CLAY, and Silt, with fine sand seams, moist Torvane vane= 0.75 tsf			SS	6	24	8 9 10 9	19	
	79.5	Medium stiff, olive/brown CLAY, anD Silt, with sand seams, wet Torvane vane= 0.25 tsf			SS	7	24	3 3 3 4	6	
15	77.5									
	73.5	Medium stiff, olive/brown CLAY, and Silt, with fine sand seams, wet Torvane vane= 0.25 tsf			SS	8	22	4 3 4 9	7	
20	71.5	End of boring at 21'. No refusal.								

Undrained Shear Strength - tsf

1 2 3 4

Water Content & Atterberg Limits W_P W W_L

Dynamic Penetration Test, blows/foot ★

Standard Penetration Test, blows/foot ●

10 20 30 40 50 60 70 80 90

Driller: Ken Smith; Supervisor: Jason Ward

Rig Type: Mobil Drill B-59 2 1/4 HSA; Hammer: 140lb Safety Hammer with cat head, 2" Split Spoon Sampler

△ Unconfined Compression Test

□ Field Vane Test ■ Remolded

✖ Pocket Penetrometer / Torvane

STN13-GEO-I-VOC RT.100_FALMOUTH, ME.GPJ JW NHP.GDT 1/12/17

BOREHOLE LOG

B-109

CLIENT **Town of Falmouth**

LOCATION **Route 100, Falmouth, Maine**

EXPLORATION DATE **11/17/2016 to 11/17/2016**

WATER LEVEL **9'**

PROJECT No. **195350019**

EXPLORATION No. **B-109**

DATUM

DEPTH (ft)	ELEVATION (ft)	MATERIAL DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY	SPT blows / 6"	SPT N-Value	PID Reading (PPM)
	91.0						in.			
0	90.4	7" Asphalt								
	90.0									
	89.3	Medium dense, medium/coarse SAND, and gravel, trace silt -FILL-			SS	1	11	12 10 4 4	14	
	89.1	Stiff, olive/grey SILT, and Clay								
	88.0	Torvane vane= 0.2 tsf								
		Stiff, olive/grey CLAY, and Silt Torvane vane= 1.13 tsf -MARINE SILT/CLAY-			SS	2	15	4 6 6 9	12	
5	86.0	Stiff, olive/grey CLAY, and Silt, sand seams at 6.5ft Torvane vane= 1.0 tsf			SS	3	18	3 6 9 9	15	
	84.0	Very stiff, olive/grey/brown SILT, and Clay, with sand seams, moist Torvane vane= 1.13 tsf			SS	4	20	10 10 10 10	20	
	82.0	Medium desne, fine SAND, trace silt, with olive/brown silty clay seams, moist			SS	5	15	5 7 10 10	17	
10	80.0	Medium desne, fine SAND, trace silt, with olive/brown silty clay seams, moist			SS	6	20	13 11 11 13	22	
	78.0	Desne, fine/coarse SAND, and gravel, trace silt, dry			SS	7	16	15 27 22 24	49	
15	76.0	-GLACIAL FLUVIAL-								
	72.0	Dense, fine/coarse SAND, and gravel, trace silt, moist			SS	8	14	18 18 31 38	49	
20	70.0	End of boring at 21'. No refusal.								

Undrained Shear Strength - tsf

1 2 3 4

Water Content & Atterberg Limits W_P W W_L

Dynamic Penetration Test, blows/foot ★

Standard Penetration Test, blows/foot ●

10 20 30 40 50 60 70 80 90

Driller: Ken Smith; Supervisor: Jason Ward

Rig Type: Mobil Drill B-59 2 1/4 HSA; Hammer: 140lb Safety Hammer with cat head, 2" Split Spoon Sampler

△ Unconfined Compression Test

□ Field Vane Test ■ Remolded

✖ Pocket Penetrometer / Torvane

STN13-GEO-I-VOC RT.100_FALMOUTH, ME.GPJ JW NHP.GDT 1/12/17

BOREHOLE LOG

B-110

CLIENT **Town of Falmouth**

LOCATION **Route 100, Falmouth, Maine**

EXPLORATION DATE **11/18/2016 to 11/18/2016**

WATER LEVEL **13.5'**

PROJECT No. **195350019**

EXPLORATION No. **B-110**

DATUM

DEPTH (ft)	ELEVATION (ft)	MATERIAL DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY	SPT blows / 6"	SPT N-Value	PID Reading (PPM)
	77.5						in.			
0	77.3	Loose, brown fine SAND, and Silt, and organics								
	76.7	-TOPSOIL-								
		Loose, light tan fine/medium SAND, trace silt			SS	1	10	3 3 3 9	6	
	75.5	-FILL-								
	75.4									
	74.7	Loose, light tan fine/medium SAND, trace silt, trace gravel			SS	2	10	7 5 4 8	9	
	73.5	Stiff, olive/brown SILT, and Clay, moist Torvane vane= 0.38 tsf								
5		Very stiff, olive/grey SILT, and Clay, dry Torvane vane= 1.13 tsf			SS	3	16	7 10 16 17	26	
	71.5	-MARINE SILT/CLAY-								
	70.8	Very stiff, olive/grey SILT, and Clay, dry Torvane vane= 0.75 tsf			SS	4	17	11 12 15 12	27	
	70.1	Medium dense, brown fine SAND, and silt								
	69.5									
	68.9	Medium dense, brown fine/medium SAND, and silt								
	68.3	Medium dense, brown medium/coarse SAND, and Silt, moist			SS	5	14	4 6 13 9	19	
10	67.5									
		Medium dense, brown fine SAND, and Silt			SS	6	17	4 7 6 8	13	
	65.5									
		Medium dense, brown fine SAND, and Silt								
	64.7									
	64.2	Dense, orange medium/coarse SAND, and gravel, trace silt			SS	7	16	6 11 27 17	38	
	63.5	-GLACIAL FLUVIAL-								
15		Medium dense, brown fine/coarse SAND, and gravel, trace silt, wet			SS	8	12	9 16 9 9	25	
	61.5									
		Medium dense, brown fine/coarse SAND, and gravel, trace silt, with silty seams, moist			SS	9	17	8 8 13 13	21	
	59.5									
		Medium dense, brown fine/coarse SAND, and gravel, trace silt, moist			SS	10	14	13 17 13 10	30	
20	57.5									
		Medium dense, brown fine/coarse SAND, and gravel, trace silt, wet			SS	11	10	8 11 16 34	27	
	55.5									
	54.5									

Undrained Shear Strength - tsf

1 2 3 4

Water Content & Atterberg Limits W_P W W_L

Dynamic Penetration Test, blows/foot ★

Standard Penetration Test, blows/foot ●

10 20 30 40 50 60 70 80 90

Driller: Ken Smith; Supervisor: Jason Ward

Rig Type: Mobil Drill B-59 2 1/4 HSA; Hammer: 140lb Safety Hammer with cat head, 2" Split Spoon Sampler

△ Unconfined Compression Test

□ Field Vane Test ■ Remolded

✖ Pocket Penetrometer / Torvane

Continued Next Page

BOREHOLE LOG

B-110

CLIENT **Town of Falmouth**

PROJECT No. **195350019**

LOCATION **Route 100, Falmouth, Maine**

EXPLORATION No. **B-110**

EXPLORATION DATE **11/18/2016 to 11/18/2016**

WATER LEVEL **13.5'**

DATUM

DEPTH (ft)	ELEVATION (ft)	MATERIAL DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY	SPT blows / 6"	SPT N-Value	PID Reading (PPM)
							in.			
		Medium dense, brown fine/coarse SAND, and gravel, trace silt, wet			SS	12	4	16 10 10 14	20	
25	52.5	End of boring at 25'. No refusal.								

Undrained Shear Strength - tsf

1 2 3 4

Water Content & Atterberg Limits W_P W W_L

Dynamic Penetration Test, blows/foot ★

Standard Penetration Test, blows/foot ●

10 20 30 40 50 60 70 80 90

Driller: Ken Smith; Supervisor: Jason Ward

Rig Type: Mobil Drill B-59 2 1/4 HSA; Hammer: 140lb Safety Hammer with cat head, 2" Split Spoon Sampler

△ Unconfined Compression Test

□ Field Vane Test ■ Remolded

✖ Pocket Penetrometer / Torvane

STN13-GEO-I-VOC RT.100_FALMOUTH, ME.GPJ JW NHP.GDT 1/12/17

BOREHOLE LOG

B-111

CLIENT **Town of Falmouth**

LOCATION **Route 100, Falmouth, Maine**

EXPLORATION DATE **11/18/2016 to 11/18/2016**

WATER LEVEL **13.5'**

PROJECT No. **195350019**

EXPLORATION No. **B-111**

DATUM

DEPTH (ft)	ELEVATION (ft)	MATERIAL DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (in.)	SPT blows / 6"	SPT N-Value	PID Reading (PPM)
0		6" Asphalt								
		Medium dense, brown medium/coarse SAND, and gravel, trace silt, dry -FILL-			SS	1	15	8 8 4 6	12	
		Stiff, dark grey SILT, and Clay, moist Torvane vane= 0.38 tsf								
5		Very stiff, olive/grey/brown CLAY, and Silt Torvane vane= 1.38 tsf			SS	2	24	6 9 13 16	22	
		-MARINE SILT/CLAY-								
10		Medium stiff, olive/grey CLAY, and Silt Torvane vane= 0.5 tsf			SS	3	24	3 3 4 4	7	
		Medium stiff, olive/grey CLAY, and Silt, with fine sand seams, wet Torvane vane= 0.15 tsf			SS	4	24	WH 3 2 4	5	
15		End of boring at 15'. No refusal.								
20										

Undrained Shear Strength - tsf: 1 2 3 4

Water Content & Atterberg Limits: W_P W W_L

Dynamic Penetration Test, blows/foot ★

Standard Penetration Test, blows/foot ●

10 20 30 40 50 60 70 80 90

Driller: Ken Smith; Supervisor: Jason Ward

Rig Type: Mobil Drill B-59 2 1/4 HSA; Hammer: 140lb Safety Hammer with cat head, 2" Split Spoon Sampler

△ Unconfined Compression Test

□ Field Vane Test ■ Remolded

✖ Pocket Penetrometer / Torvane

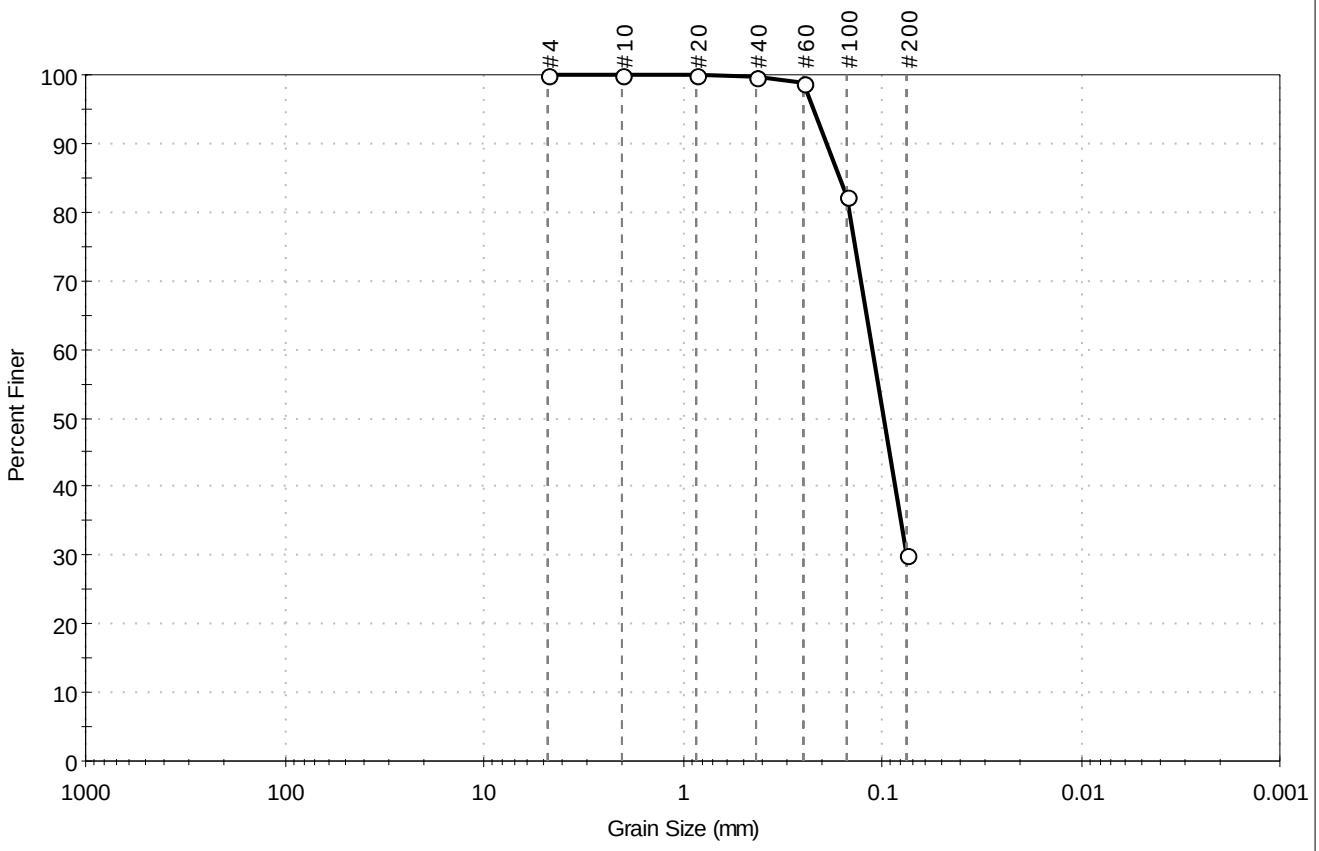
STN13-GEO-I-VOC RT.100_FALMOUTH, ME.GPJ JW NHP.GDT 1/12/17

APPENDIX C

Laboratory Test Results

Client:	Stantec Consulting Services				
Project:	Route 100				
Location:	Falmouth, ME			Project No:	GTX-305689
Boring ID:	B-107	Sample Type:	jar	Tested By:	jbr
Sample ID:	S-4	Test Date:	12/02/16	Checked By:	emm
Depth :	15-17 ft	Test Id:	399329		
Test Comment:	---				
Visual Description:	Moist, brown silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



%Cobble	%Gravel	%Sand	%Silt & Clay Size
---	0.0	69.8	30.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	99		
#100	0.15	82		
#200	0.075	30		

Coefficients

D_{85} = 0.1627 mm D_{30} = N/A

D_{60} = 0.1114 mm D_{15} = N/A

D_{50} = 0.0976 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample / Test Description

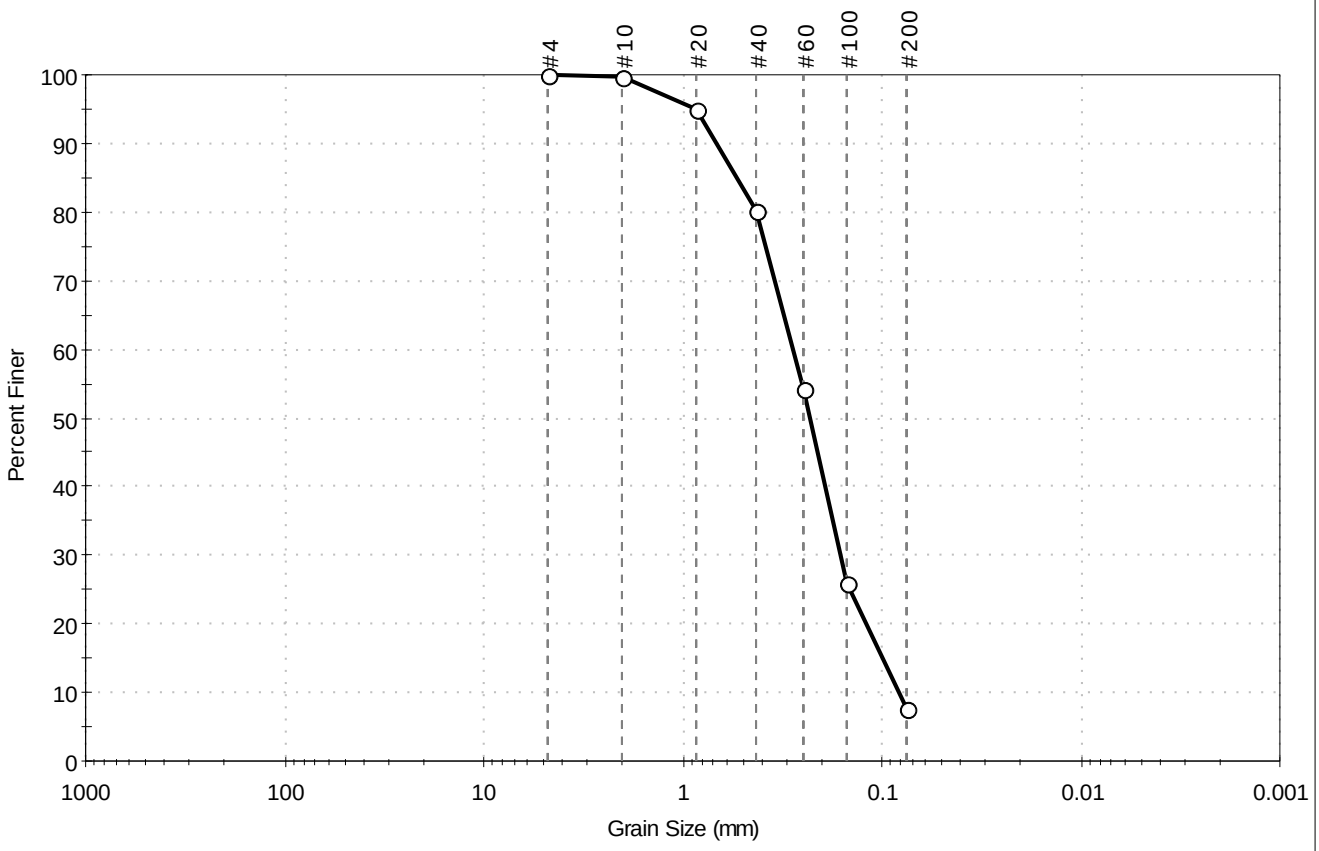
Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

printed 12/2/2016 10:33:14 AM

Client:	Stantec Consulting Services				
Project:	Route 100				
Location:	Falmouth, ME			Project No:	GTX-305689
Boring ID:	B-107	Sample Type:	jar	Tested By:	jbr
Sample ID:	S-6	Test Date:	12/02/16	Checked By:	emm
Depth :	25-27 ft	Test Id:	399330		
Test Comment:	---				
Visual Description:	Moist, light brown sand with silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



%Cobble	%Gravel	%Sand	%Silt & Clay Size
---	0.0	92.4	7.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	95		
#40	0.42	80		
#60	0.25	54		
#100	0.15	26		
#200	0.075	7.6		

Coefficients

D_{85} = 0.5331 mm	D_{30} = 0.1615 mm
D_{60} = 0.2808 mm	D_{15} = 0.0992 mm
D_{50} = 0.2313 mm	D_{10} = 0.0820 mm
C_u = 3.424	C_c = 1.133

Classification

ASTM N/A

AASHTO Fine Sand (A-3 (1))

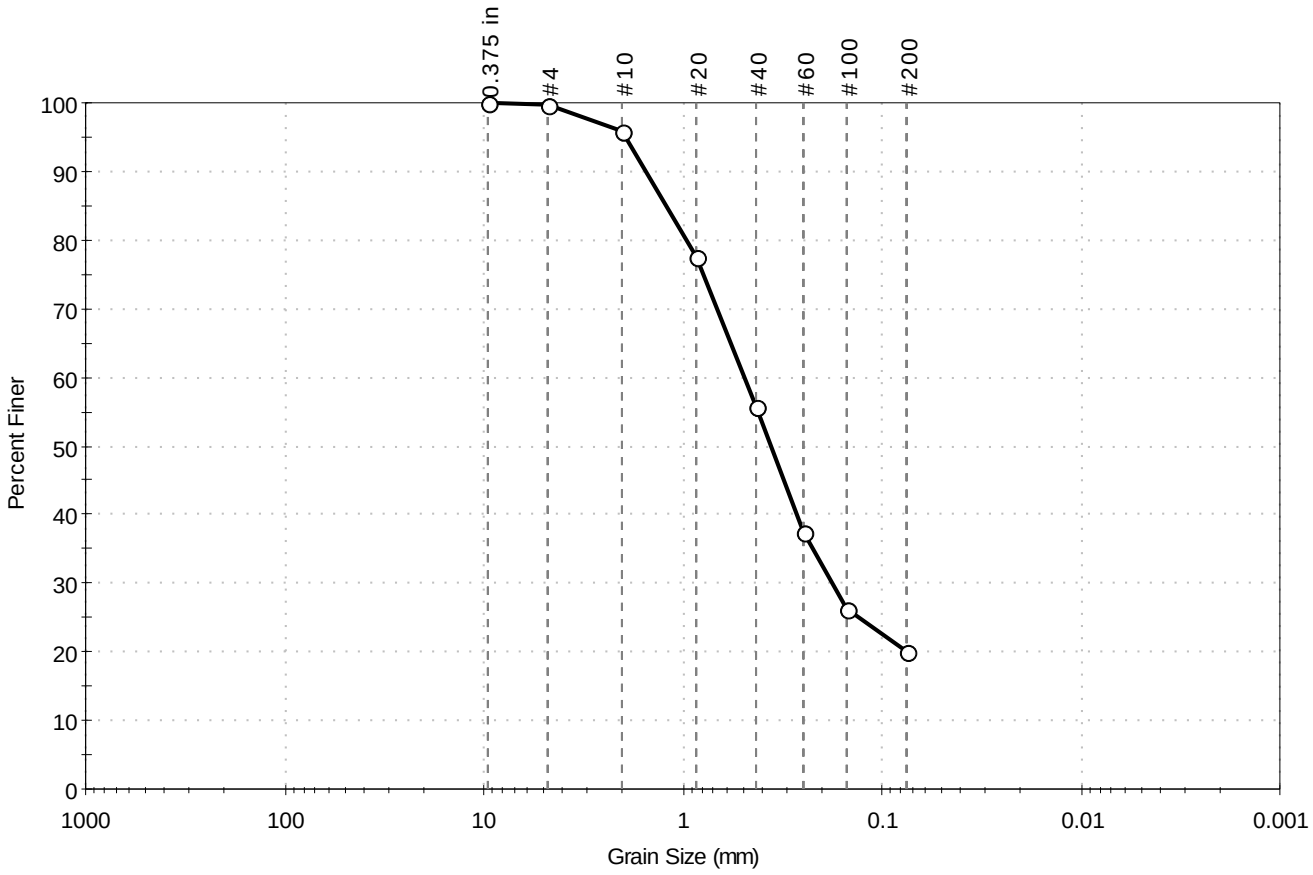
Sample / Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Client:	Stantec Consulting Services				
Project:	Route 100				
Location:	Falmouth, ME			Project No:	GTX-305689
Boring ID:	B-110	Sample Type:	jar	Tested By:	jbr
Sample ID:	S-5	Test Date:	12/02/16	Checked By:	emm
Depth :	8-10 ft	Test Id:	399331		
Test Comment:	---				
Visual Description:	Moist, olive silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



%Cobble	%Gravel	%Sand	%Silt & Clay Size
---	0.3	79.7	20.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	100		
#10	2.00	96		
#20	0.85	78		
#40	0.42	56		
#60	0.25	38		
#100	0.15	26		
#200	0.075	20		

Coefficients

D_{85} = 1.2010 mm D_{30} = 0.1774 mm

D_{60} = 0.4870 mm D_{15} = N/A

D_{50} = 0.3597 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

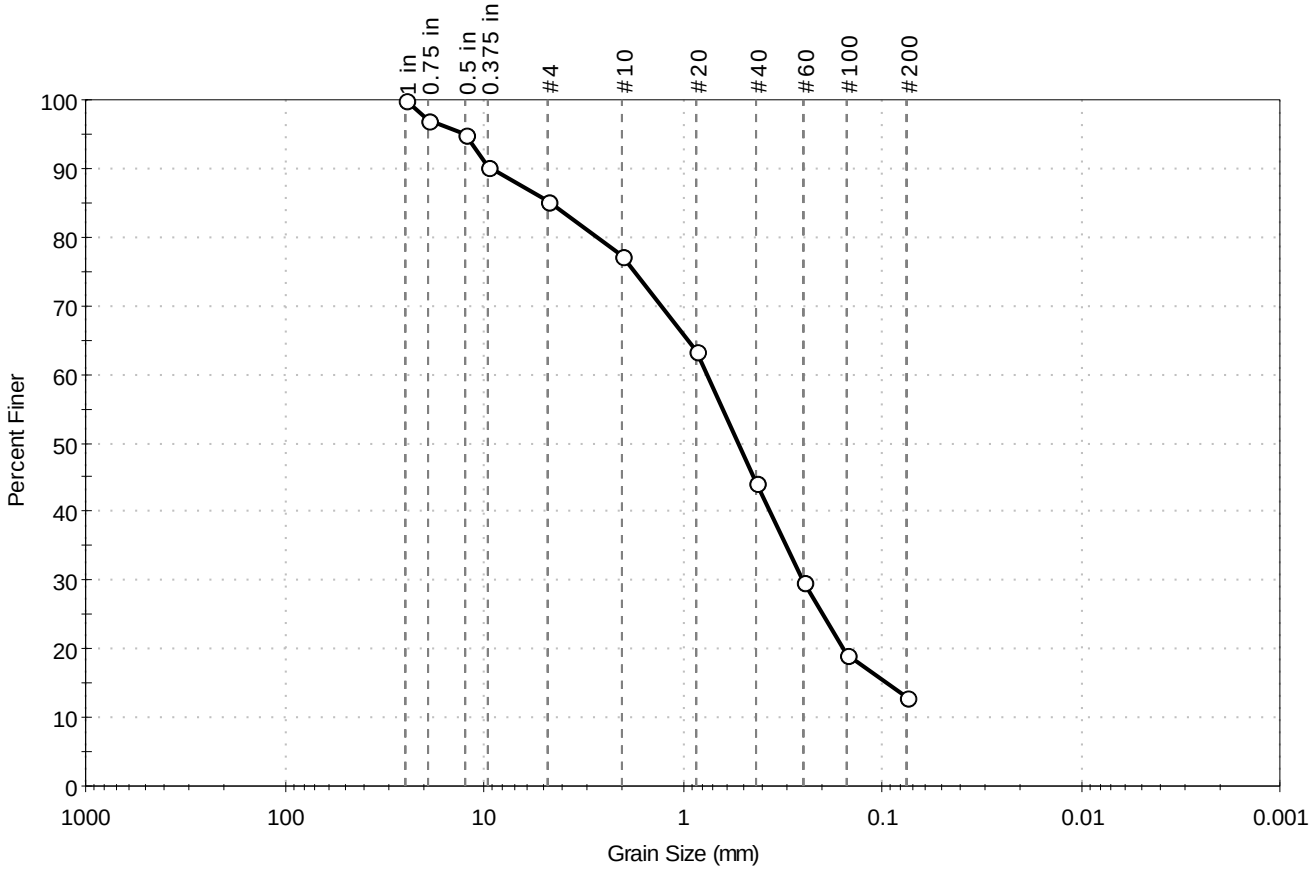
Sample / Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Client:	Stantec Consulting Services				
Project:	Route 100				
Location:	Falmouth, ME			Project No:	GTX-305689
Boring ID:	B-110	Sample Type:	jar	Tested By:	jbr
Sample ID:	S-8	Test Date:	12/02/16	Checked By:	emm
Depth :	14-16 ft	Test Id:	399332		
Test Comment:	---				
Visual Description:	Moist, brown silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
---	14.7	72.3	13.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	97		
0.5 in	12.50	95		
0.375 in	9.50	90		
#4	4.75	85		
#10	2.00	77		
#20	0.85	63		
#40	0.42	44		
#60	0.25	30		
#100	0.15	19		
#200	0.075	13		

Coefficients

D_{85} = 4.5686 mm
D_{30} = 0.2532 mm
D_{60} = 0.7509 mm
D_{15} = 0.0938 mm
D_{50} = 0.5216 mm
D_{10} = N/A
C_u = N/A
C_c = N/A

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

Sample / Test Description

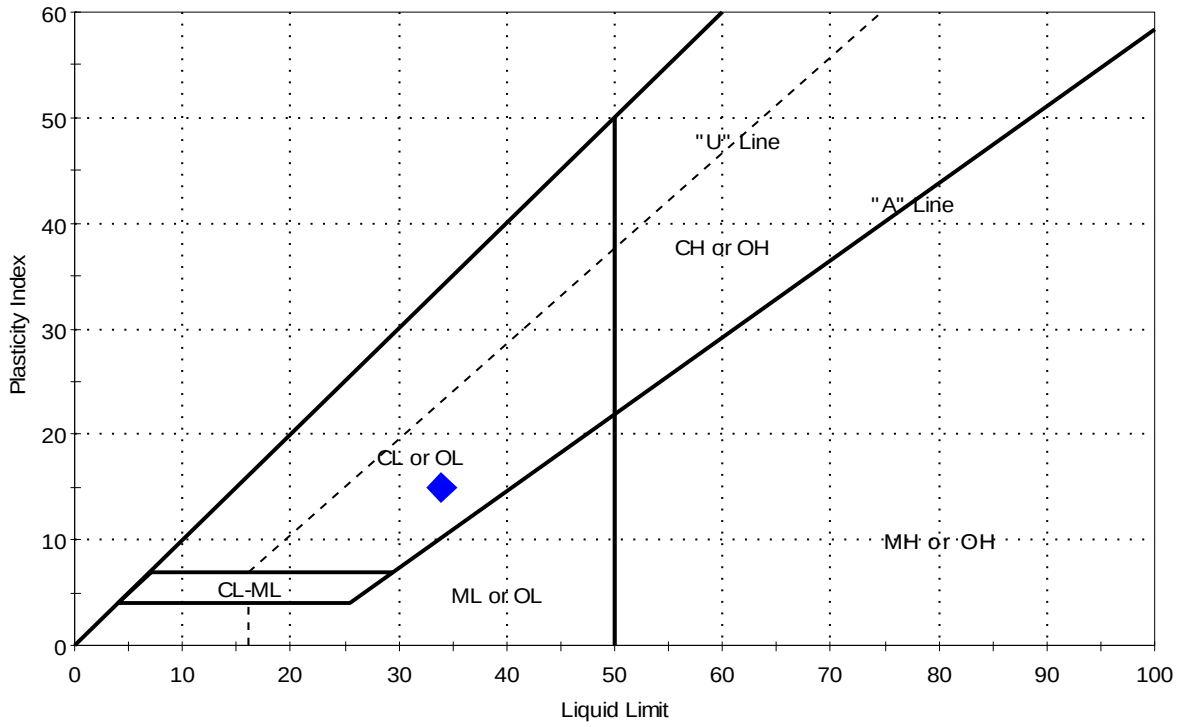
Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

printed 12/2/2016 10:33:17 AM

Client:	Stantec Consulting Services				
Project:	Route 100				
Location:	Falmouth, ME			Project No:	GTX-305689
Boring ID:	B-101	Sample Type:	jar	Tested By:	cam
Sample ID:	S-5	Test Date:	12/02/16	Checked By:	emm
Depth :	8-10 ft	Test Id:	399322		
Test Comment:	---				
Visual Description:	Moist, olive clay				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	S-5	B-101	8-10 ft	23	34	19	15	0.3	

Sample Prepared using the WET method

Dry Strength: VERY HIGH

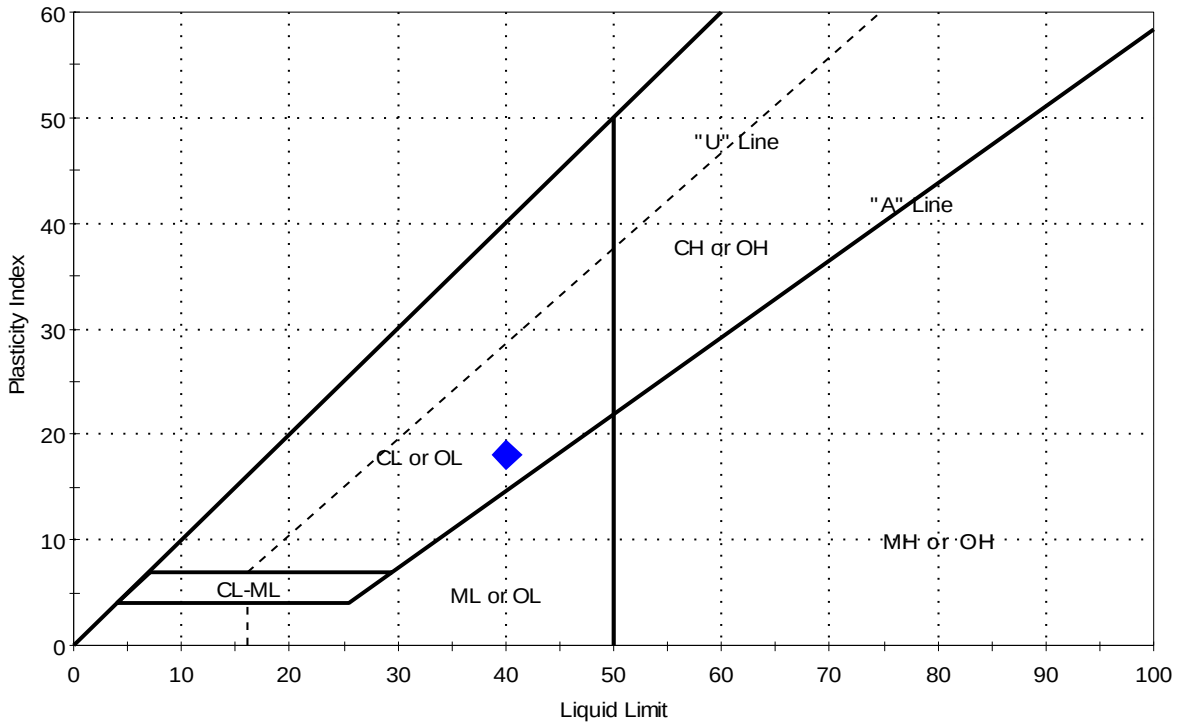
Dilatancy: SLOW

Toughness: LOW

Client:	Stantec Consulting Services				
Project:	Route 100				
Location:	Falmouth, ME			Project No:	GTX-305689
Boring ID:	B-103	Sample Type:	jar	Tested By:	cam
Sample ID:	S-4	Test Date:	12/01/16	Checked By:	emm
Depth :	6-8 ft	Test Id:	399323		
Test Comment:	---				
Visual Description:	Moist, olive gray clay				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Plasticity Chart



Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	S-4	B-103	6-8 ft	30	40	22	18	0.4	

Sample Prepared using the WET method

Dry Strength: VERY HIGH

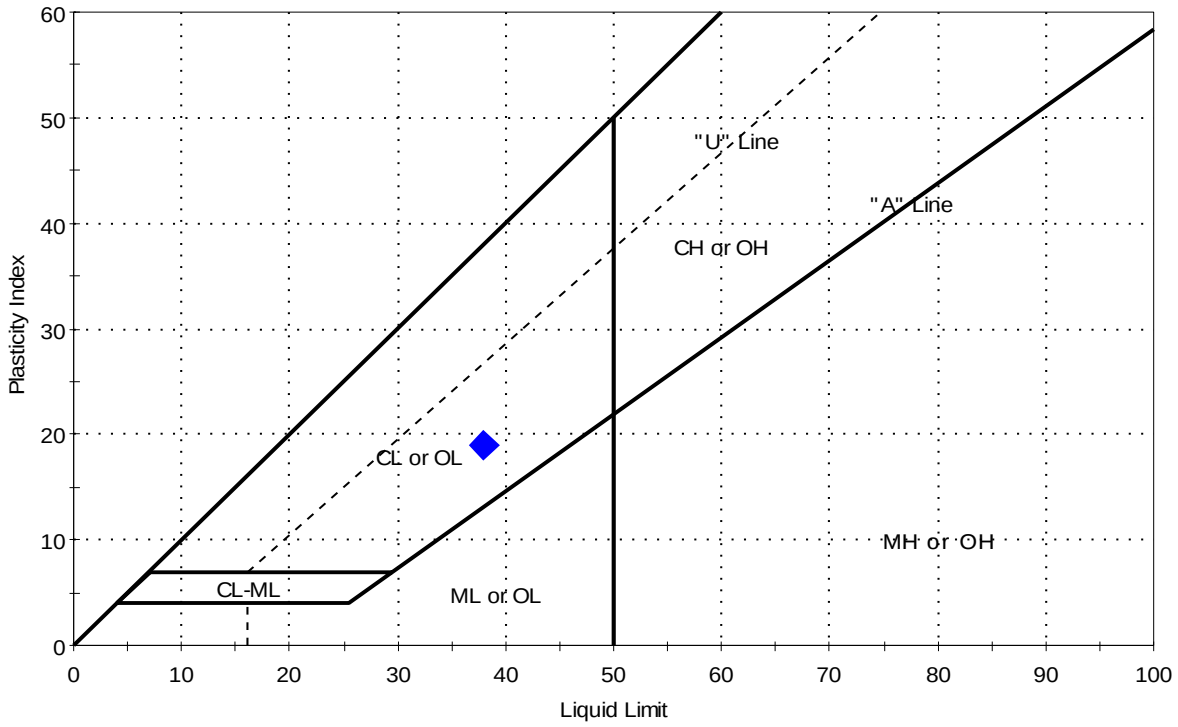
Dilatancy: SLOW

Toughness: LOW

Client:	Stantec Consulting Services				
Project:	Route 100				
Location:	Falmouth, ME			Project No:	GTX-305689
Boring ID:	B-105	Sample Type:	jar	Tested By:	cam
Sample ID:	S-4	Test Date:	12/02/16	Checked By:	emm
Depth :	15-17 ft	Test Id:	399324		
Test Comment:	---				
Visual Description:	Moist, olive gray clay				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Plasticity Chart



Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	S-4	B-105	15-17 ft	30	38	19	19	0.6	

Sample Prepared using the WET method

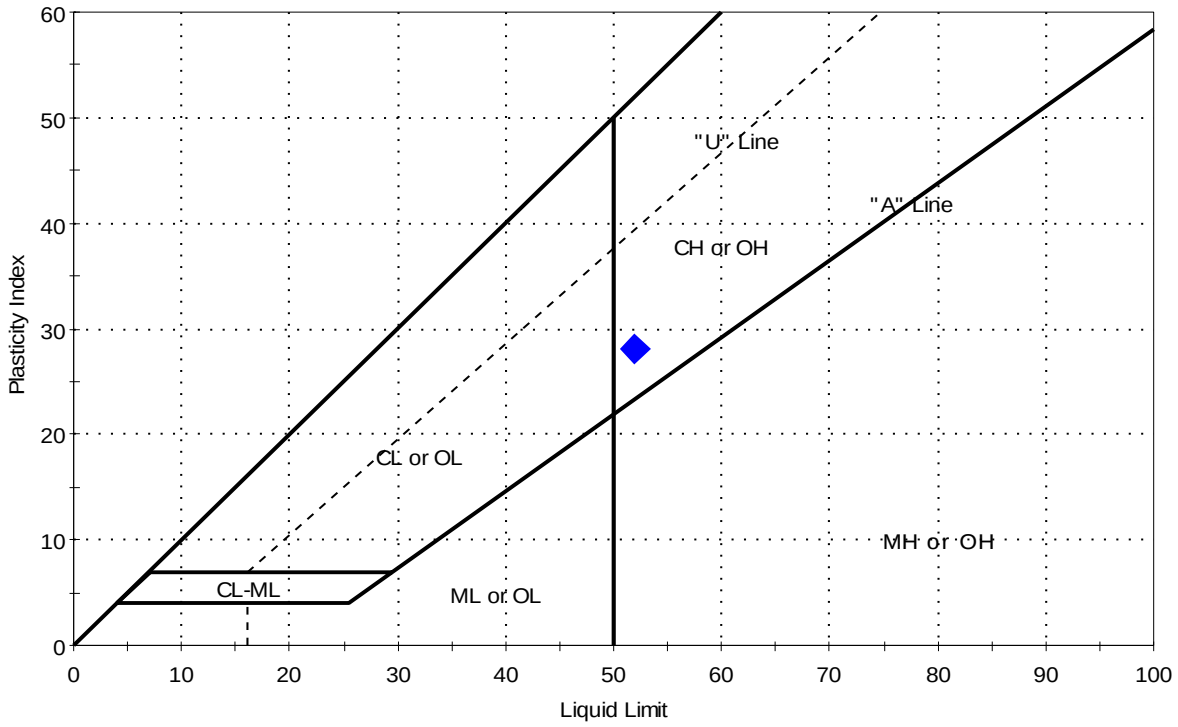
Dry Strength: VERY HIGH

Dilatancy: SLOW

Toughness: LOW

Client:	Stantec Consulting Services				
Project:	Route 100				
Location:	Falmouth, ME			Project No:	GTX-305689
Boring ID:	B-107	Sample Type:	jar	Tested By:	cam
Sample ID:	S-2	Test Date:	12/01/16	Checked By:	emm
Depth :	5-7 ft	Test Id:	399325		
Test Comment:	---				
Visual Description:	Moist, dark olive gray clay				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	S-2	B-107	5-7 ft	47	52	24	28	0.8	

Sample Prepared using the WET method

Dry Strength: VERY HIGH

Dilatancy: SLOW

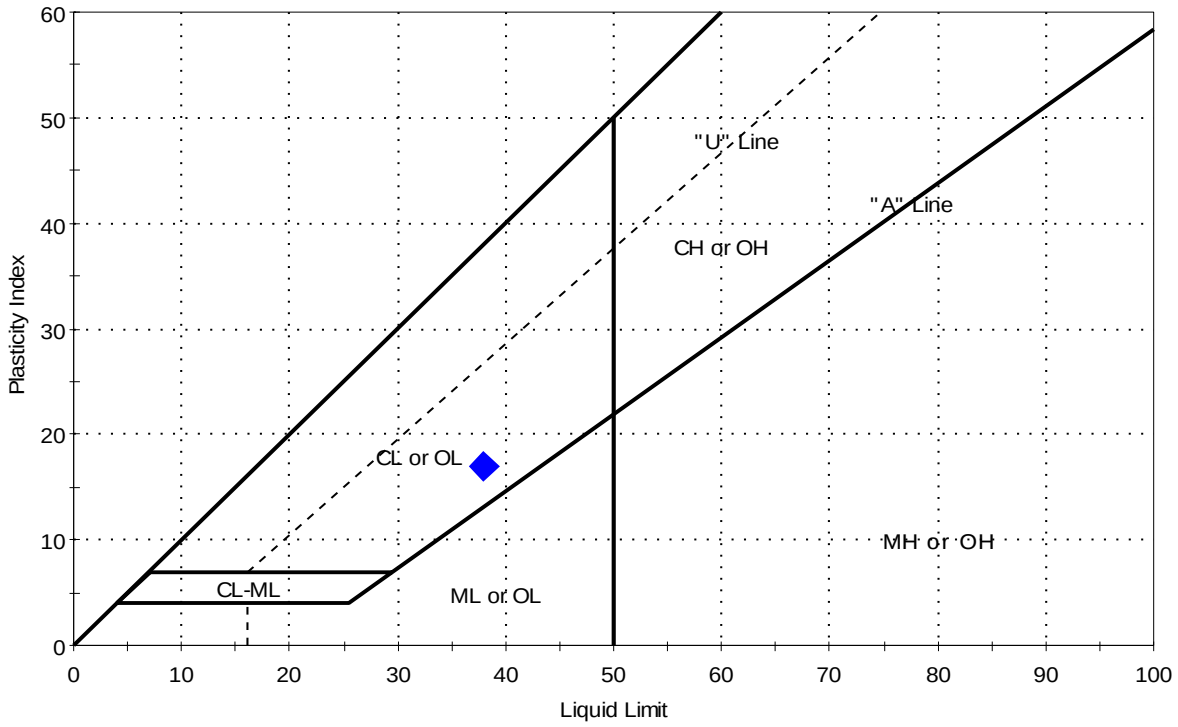
Toughness: LOW

printed 12/2/2016 10:30:51 AM

Client:	Stantec Consulting Services				
Project:	Route 100				
Location:	Falmouth, ME			Project No:	GTX-305689
Boring ID:	B-108	Sample Type:	jar	Tested By:	cam
Sample ID:	S-3	Test Date:	12/01/16	Checked By:	emm
Depth :	5-7 ft	Test Id:	399326		
Test Comment:	---				
Visual Description:	Moist, olive gray clay				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Plasticity Chart



Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	S-3	B-108	5-7 ft	24	38	21	17	0.2	

Sample Prepared using the WET method

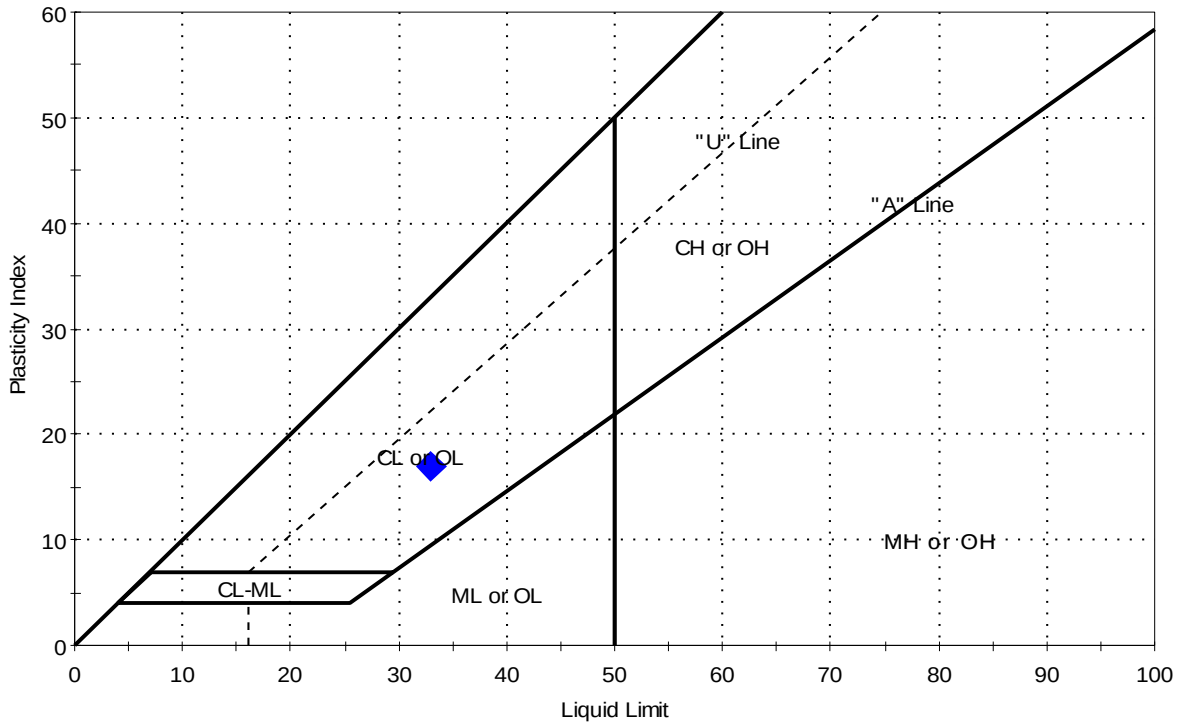
Dry Strength: VERY HIGH

Dilatancy: SLOW

Toughness: LOW

Client:	Stantec Consulting Services				
Project:	Route 100				
Location:	Falmouth, ME			Project No:	GTX-305689
Boring ID:	B-110	Sample Type:	jar	Tested By:	cam
Sample ID:	S-3	Test Date:	12/01/16	Checked By:	emm
Depth :	4-6 ft	Test Id:	399327		
Test Comment:	---				
Visual Description:	Moist, olive clay				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	S-3	B-110	4-6 ft	19	33	16	17	0.2	

Sample Prepared using the WET method

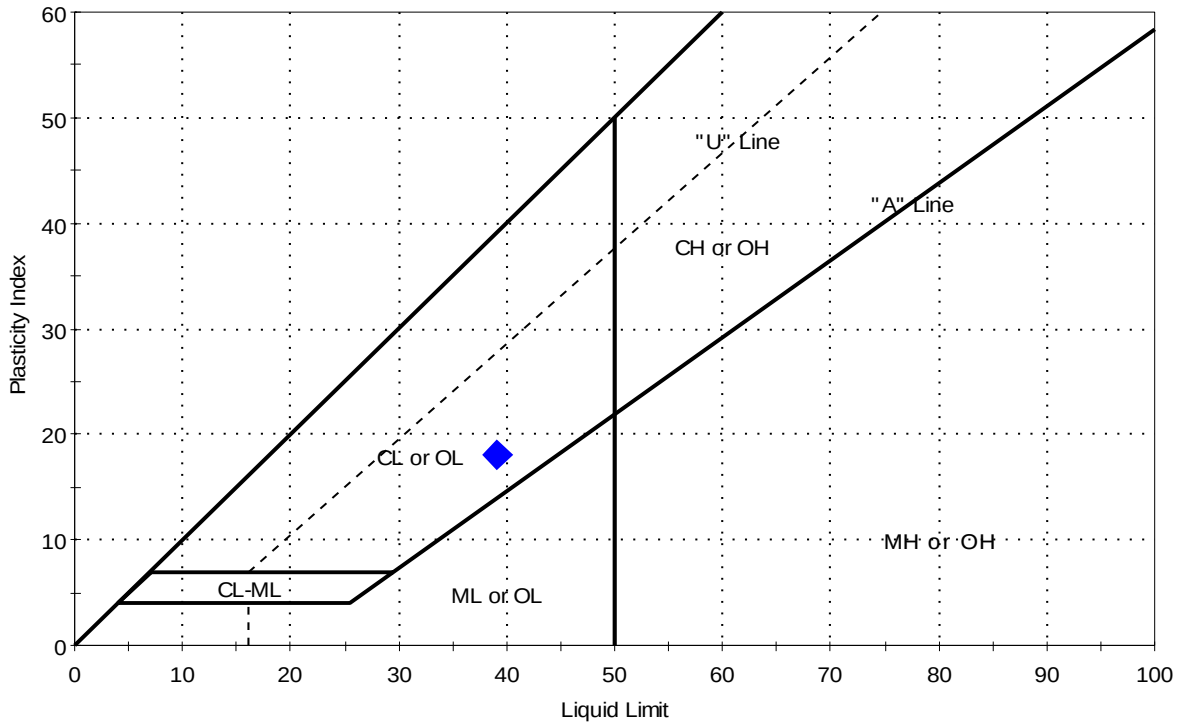
Dry Strength: VERY HIGH

Dilatancy: SLOW

Toughness: LOW

Client:	Stantec Consulting Services				
Project:	Route 100				
Location:	Falmouth, ME			Project No:	GTX-305689
Boring ID:	B-111	Sample Type:	jar	Tested By:	cam
Sample ID:	S-2	Test Date:	12/01/16	Checked By:	emm
Depth :	5-7 ft	Test Id:	399328		
Test Comment:	---				
Visual Description:	Moist, olive clay				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	S-2	B-111	5-7 ft	27	39	21	18	0.3	

Sample Prepared using the WET method

Dry Strength: VERY HIGH

Dilatancy: SLOW

Toughness: LOW