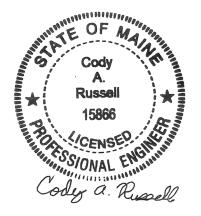
MAINE DEPARTMENT OF TRANSPORTATION HIGHWAY PROGRAM GEOTECHNICAL SECTION AUGUSTA, MAINE

GEOTECHNICAL DESIGN REPORT

For the Rehabilitation of

ROUTE 1 MILBRIDGE-CHERRYFIELD, MAINE

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Washington County WIN 20405.00 Soils Report 2024-30 Federal Project No. STP-2040(500)

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1.0 INTRODUCTION

The purpose of this Geotechnical Design Report is to present subsurface information and make geotechnical design and construction recommendations for the rehabilitation of an approximately 5.05-mile portion of US Route 1 in Milbridge and Cherryfield, as shown on Sheet 1 – Location Map. The project is needed to improve drainage and the roadway structure. The scope includes full depth reclamation of existing pavement with full depth construction of roadway shoulders for roadway geometric improvements. Geometric improvements include vertical alignment modifications, where sight distances are inadequate for posted roadway speeds. Improvements at the intersection of Route 1 and Route 182 are proposed to simplify lane arrangements by creating a simple T-Intersection. Roadside ditching, cross culverts, driveway culverts and sections of closed drainage are proposed to improve both surface and roadway subbase material drainage. Route 1 is a Highway Corridor Priority 1 road.

2.0 GEOLOGIC SETTING

According to the Reconnaissance Surficial Geology Map of the Cherryfield Quadrangle, Maine, Open File No. 80-2 (1982) published by the Maine Geological Survey (MGS), the surficial soils along the project length consist of Presumpscot Formation. Presumpscot Formation consists of silt, clay, and sand.

According to the MGS map titled Bedrock Geologic Map of Maine (1985) the bedrock along the project consists of undetermined volcanic rocks of the Columbia Falls Formation and Intrusive Devonian granite, gabbro, diorite, and ultramafic rocks.

3.0 SUBSURFACE INVESTIGATION

Subsurface conditions at the site were explored by drilling a total of thirty-five (35) borings and three (3) probes.

Borings HB-MICH-101 through HB-MICH-123 were drilled between January 11, 2016 and January 12, 2016. Borings HB-MICH-201, HB-MICH-203 through HB-MICH-205, HB-MICH 207 through HB-MICH-213, and HB-MICH-215 and probes HB-MICH-202, HB-MICH-206, and HB-MICH-214 were drilled between May 1, 2018 and May 5, 2018. The 100-series explorations were drilled by Northern Test Boring. The 200-series explorations were drilled by the MaineDOT drill crew. The borings were drilled to depths ranging from approximately 3.9 to 26.2 feet below ground surface (bgs) using solid stem auger, cased wash boring, and rock core drilling techniques. The probes were drilled to a depth of approximately 20.0 to 20.5 feet bgs using solid stem auger drilling techniques. Boring and probe locations are shown on Sheets 2 through 43 Boring Location Plans. The boring logs are presented in Appendix A.

Soil samples were obtained off the auger flights in twenty-three (23) 100-series borings. Soil samples were obtained in twelve (12) 200-series borings at standard 5-foot intervals using Standard Penetration Testing (SPT). No soil sampling was done in three (3) 200-series probes and no soil descriptions were recorded.

The MaineDOT calibrated automatic hammer delivers approximately 42 percent more energy during driving than the standard rope and cathead system. All N-values discussed in this report are corrected values (N₆₀) computed by applying an average energy transfer factor of 0.854 to the raw field N-values.

Details and sampling methods used, field data obtained, and soil and groundwater conditions encountered are shown in the Boring Logs in Appendix A. The MaineDOT Geotechnical Team member selected the boring locations, drilling methods, designated type and depth of sampling, reviewed field logs for accuracy and identified field and laboratory testing requirements. A North East Transportation Training and Certification Program (NETTCP) certified subsurface inspector logged the subsurface conditions encountered. The boring and probes were located in the field by taping to site features after completion of the drilling program.

4.0 LABORATORY TESTING

A laboratory testing program was conducted on select soil samples obtained in the test borings to assist in soil classification, evaluation of engineering properties of the soils and geologic assessment of the project site. Laboratory testing consisted of sixty-eight (68) standard grain size analyses and natural water content, twenty-two (22) grain size analyses with hydrometer and natural water content, fourteen (14) Atterberg Limits tests, and one loss on ignition test. The results of the laboratory tests are in Appendix B – Laboratory Test Results. Laboratory test results are also summarized on the boring logs in Appendix A.

5.0 SUBSURFACE CONDITIONS

Subsurface conditions encountered at the test borings and probes generally consisted of pavement and fill soils consisting of gravel, sandy gravel, sand, gravelly sand, silt, sandy silt, clayey silt, and silty clay underlain by layers of native gravel, sandy gravel, silty gravel, sand, silty sand, gravelly sand, silt, sandy silt, clayey silt, and silty clay underlain by bedrock. The boring locations are shown on Sheets 2 through 43 - Boring Location Plans. The boring logs are presented in Appendix A – Boring Logs.

5.1 **Pavement and Fill Soils**

The subsurface investigations found areas of pavement and roadway fill soils along the project. Where present, the pavement thickness ranged from approximately 4.0 to 7.0 inches. The fill soils consisted of:

- Grey, brown-grey, and brown, damp to wet, gravel, some fine to coarse sand, trace to some silt, occasional cobble.
- Grey and brown, damp to wet, fine to coarse sandy gravel, trace to little silt, occasional cobble.

- Black-brown and brown, damp to wet, fine to coarse sand, little to some gravel, trace to some silt, occasional cobble.
- Grey-brown and brown, damp to wet, gravelly fine to coarse sand, trace to little silt, occasional cobble.
- Grey-brown, brown, and olive, moist to wet, silt, some clay, some fine to coarse sand, trace to some gravel, trace organics, wood.
- Grey-brown, moist, fine to coarse sandy silt, little gravel.
- Olive-brown, moist, stiff, clayey silt, trace fine sand.
- Olive-brown, stiff, silty clay, trace fine sand.

The thickness of the fill ranged from approximately 0.7 to 21.5 feet. SPT N₆₀-values obtained in the granular fill ranged from 9 to 80 blows per foot (bpf) indicating that the granular fill is loose to very dense in consistency. SPT N₆₀-values obtained the in the silt and clay fill ranged from 10 to 17 bpf indicating that the silt and clay fill is stiff to very stiff in consistency.

Water contents from fifty-three (53) samples obtained within the fill range from approximately 0.6% to 50.0%. Grain size analyses conducted on fifty-three (53) samples of the fill resulted in the soil being classified as an A-1-a, A-1-b, A-2-4, A-4, or A-6 under the AASHTO Soil Classification System and a SM, SW-SM, GM, GW-GM or CL under the Unified Classification System.

The following table summarizes the results of Atterberg Limits tests done on two (2) samples of the fill:

Boring No. and Sample No.	Water Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index
HB-MICH-215 2D	23.8	30	18	12	0.48
HB-MICH-215 3D	24.2	30	18	12	0.52

Interpretation of these results indicate that the fill has medium plasticity. The clayey silt in sample 2D from boring HB-MICH-215, and the silty clay in sample 3D from boring HB-MICH-215 are overconsolidated.

5.2 Native Soils

The fill soils are underlain by layers of native soils consisting of gravel, sand, silt and clay.

5.2.1 Native Gravel

The native gravel encountered in the borings consisted of:

- Grey, wet, gravel, some fine to coarse sand, little silt.
- Brown, wet, fine to coarse sandy gravel, little silt.
- Grey-brown, moist, silty gravel, some fine to coarse sand.

The thickness of the native gravel ranged from approximately 2.2 to 6.0 feet. The full depth of the native gravel was not encountered or fully penetrated in all of the explorations. SPT N-values obtained in the native gravel ranged from 7 to 46 bpf indicating that the native gravel is loose to dense in consistency.

Water contents from three (3) samples obtained within the native gravel range from approximately 7.0% to 10.8%. Grain size analyses conducted on three (3) samples of the native gravel resulted in the soil being classified as an A-1-a, or A-4 under the AASHTO Soil Classification System and a GW-GM, or GM under the Unified Classification System.

5.2.2 Native Sand

The native sand encountered in the borings consisted of:

- Grey-brown, grey, and brown, damp to wet, fine to coarse sand, trace to some silt, trace to some gravel, trace to some clay, trace organics.
- Grey-brown, grey, and brown, moist to wet, silty fine to coarse sand, trace to some gravel, trace clay.
- Grey, wet, gravelly fine to coarse sand, little silt.

The thickness of the native sand ranged from approximately 2.0 to 8.5 feet. The full depth of the native sand was not encountered or fully penetrated in all of the explorations. SPT N-values obtained in the native sand ranged from 7 to 108 bpf indicating that the native sand is loose to very dense in consistency.

Water contents from eleven (11) samples obtained within the native sand range from approximately 8.1% to 29.4%. Grain size analyses conducted on eleven (11) samples of the native sand resulted in the soil being classified as an A-1-b, A-2-4, A-3, A-4, or A-6 under the AASHTO Soil Classification System and a SM, SP-SM, SC-SM, or CL under the Unified Classification System.

The following table summarizes the results of Atterberg Limits tests done on two (2) samples of the sand:

Boring No. and	Water	Liquid	Plastic	Plasticity	Liquidity
Sample No.	Content (%)	Limit	Limit	Index	Index
HB-MICH-201 6D	28.6	33	19	14	0.69
HB-MICH-205 5D	27.4	38	22	16	0.34

Interpretation of these results indicates that the sand has medium plasticity. The silty sand in sample 6D from boring HB-MICH-201, and the sand in sample 5D from boring HB-MICH-205 are overconsolidated.

5.2.3 Native Silt

The native silt encountered in the borings consisted of:

- Grey-brown, olive-brown, light brown, brown, grey, and olive, moist to wet, silt, trace to some fine to coarse sand, trace to some clay, trace to little gravel, some organics-peat layer, trace organics.
- Grey-brown and grey, wet, clayey silt, trace fine sand, trace gravel, trace organics, wood.
- Brown, wet, fine to medium sandy silt, little clay.

The thickness of the native silt layers ranged from approximately 1.4 to 10.5 feet. The full depth of the native silt was not penetrated in all of the explorations. SPT N-values obtained in the native silt ranged from 1 to 19 bpf indicating that the native silt is very soft to very stiff in consistency.

Water contents from fifteen (15) samples obtained within the native silt range from approximately 16.5% to 32.1%. Grain size analyses conducted on fifteen (15) samples of the native silt resulted in the soil being classified as an A-4 or A-6 under the AASHTO Soil Classification System and a ML, or CL under the Unified Classification System.

The ignition loss of the native silt from sample 2D, boring HB-MICH-209 is 10.8% for the organics-peat layer.

The following table summarizes the results of Atterberg Limits tests done on three (3) samples of the silt:

Boring No. and	Water	Liquid	Plastic	Plasticity	Liquidity
Sample No.	Content (%)	Limit	Limit	Index	Index
HB-MICH-201 3D	30.4	37	21	16	0.59
HB-MICH-204 4D	25.6	31	21	10	0.46
HB-MICH-205 4D	29.7	31	23	8	0.84

Interpretation of these results indicate that the silt has low to medium plasticity. The silt in sample 4D from boring HB-MICH-205 is normally consolidated, meaning it is currently experiencing its highest stress. The silt in sample 3D from boring HB-MICH-201, and the clayey silt in sample 4D from boring HB-MICH-204 are overconsolidated.

5.2.4 Native Clay

The native clay encountered in the borings consisted of:

• Grey-brown, light brown, dark grey, brown, and grey, moist to wet, silty clay, trace fine to coarse sand, trace gravel, wood.

The thickness of the native clay layers ranged from approximately 1.5 to 8.5 feet. The full depth of the native clay was not penetrated in all of the explorations. SPT N-values obtained in the native clay ranged from 7 to 21 bpf indicating that the native clay is medium stiff to very stiff in consistency.

Water contents from eight (8) samples obtained within the native clay range from approximately 22.8% to 31.3%. Grain size analyses conducted on eight (8) samples of the native clay resulted in the soil being classified as an A-4, or A-6 under the AASHTO Soil Classification System and a CL-ML, or CL under the Unified Classification System.

The following table summarizes the results of Atterberg Limits tests done on seven (7) samples of the clay:

Boring No. and	Water	Liquid	Plastic	Plasticity	Liquidity
Sample No.	Content (%)	Limit	Limit	Index	Index
HB-MICH-201 2D	30.3	26	21	5	1.86
HB-MICH-201 4D	30.8	34	21	13	0.75
HB-MICH-201 5D	30.2	35	23	12	0.60
HB-MICH-203 3D	22.8	30	20	10	0.28
HB-MICH-203 4D	27.8	36	21	15	0.45
HB-MICH-204 5D	26.6	32	18	14	0.61
HB-MICH-210 5D	32.7	39	21	18	0.65

Interpretation of these results indicate that the clay has slight to medium plasticity. The silty clay in sample 2D from boring HB-MICH-201 is on the verge of being a viscous liquid if disturbed. Overburden pressure and interparticle cementation is providing stability to keep the soil in its current state, but the slightest disturbance causing remolding could convert the soil into a viscous fluid. The silty clay in sample 3D from boring HB-MICH-203 is some to heavily overconsolidated. The silty clay in samples 4D and 5D from boring HB-MICH-201, sample 4D from HB-MICH-203, sample 5D from HB-MICH-204, and sample 5D from HB-MICH-210 are overconsolidated.

5.3 Bedrock and Refusal Surfaces

Refusal surfaces were encountered at varying depths along the project. Refusal of the drilling tools varied from a depth of approximately 3.9 feet to 21.2 feet bgs. The table below summarizes the refusal surfaces encountered.

Boring No.	Station	Offset (feet)	Approximate Depth to Top of Refusal Surface (feet)	Approximate Elevation of Top of Refusal Surface (feet)	RQD (%) ¹
HB-MICH-110	192+67	7.0 Left	3.9	32.4	NA
HB-MICH-212	246+70	9.5 Right	21.2	18.5	37
HB-MICH-213	247 + 00	9.0 Left	17.7	21.9	60
HB-MICH-215	352+15	8.0 Left	19.9	44.6	78

¹ RQD = Rock Quality Designation

A 5-foot bedrock core was drilled in three (3) of the borings where refusal was encountered. The exact nature of the refusal surface was not determined in the remaining explorations.

The bedrock consists of undetermined volcanic rocks of the Columbia Falls Formation and Intrusive Devonian granite, gabbro, diorite, and ultramafic rocks. The Rock Quality Designation (RQD) of the bedrock was determined to range from 37% to 78%, correlating to a Rock Quality of Poor to Good. The approximate elevations of the top of bedrock or the refusal surface encountered at the boring and probe locations are presented in Appendix A – Boring Logs.

5.4 Groundwater

Groundwater was recorded at depths ranging from approximately 1.1 feet to 14.5 feet bgs in six (6) 100-series borings and eight (8) 200-series borings. The water levels observed are indicated on the boring logs in Appendix A. Groundwater levels can be expected to fluctuate subject to seasonal variations, local soil conditions, topography, precipitation, and construction activity.

6.0 GEOTECHNICAL RECOMMENDATIONS

The following sections discuss the geotechnical-related design features of this project. Areas of geotechnical concern include the large culverts at approximate Stations 118+44, 144+01, and 200+61, the Milbridge Road Bridge box culvert at approximate Station 352+00, and the proposed oversteepened slopes from approximate Stations 209+50 to 210+50, 225+00 to 225+50, and 246+50 to 247+00.

6.1 Large Culvert at approximate Station 118+44

6.1.1 General Information

The existing structure at approximate Station 118+18 is a 24-inch diameter, approximately 67-foot long corrugated metal pipe (CMP) culvert. The proposed replacement structure is a 72-inch diameter, 88-foot long reinforced concrete pipe (RCP) culvert on an approximately 18-degree skew to the roadway centerline with an inlet elevation of approximately 35.78 feet and an outlet elevation of approximately 33.46 feet.

One (1) boring (HB-MICH-201) and (1) probe (HB-MICH-202) were drilled near the proposed structure. The boring and probe locations and the interpretive subsurface profile are shown on Sheets 44 – Boring Location Plan & Interpretive Subsurface Profile. The boring logs are also provided in Appendix A – Boring Logs.

Boring HB-MICH-201 was drilled to a depth of approximately 24.0 feet bgs without encountering a refusal surface. The subsurface conditions encountered in the boring consisted of fill consisting of sand underlain by silty clay and silt underlain by silty sand. One (1) SPT N₆₀-value obtained in the fill was 28 bpf indicating that the fill is medium dense in consistency. Four (4) SPT N₆₀-values obtained in the silty clay and silt ranged from 7 to 14 bpf indicating that the silty clay and silt is medium stiff to stiff in consistency. One (1) SPT N₆₀-value obtained in the silty sand was 13 bpf indicating that the silty sand is medium dense in consistency. Probe HB-MICH-202 was drilled to a depth of approximately 20.5 feet bgs without encountering a refusal surface.

6.1.2 Design and Construction

The proposed RCP culvert shall be constructed in accordance with MaineDOT Standard Specification Section 603 and the Contract Plans. To facilitate fish passage, Habitat Connectivity Design elements will be used inside the proposed RCP culvert as shown on the Special Details sheet in the Contract Plans.

The proposed RCP culvert can be bedded on a 1-foot thick layer of Granular Borrow, Material for Underwater Backfill (MaineDOT Item 203.25, Granular Borrow). The bedding material should be placed in lifts of 6 to 8 inches loose measure and compacted to at least 95 percent of the AASHTO T-180 maximum dry density. The exposed subgrade shall be free of ponded water so that bedding material placement and compaction can be completed in the dry. The soils at the bedding elevation shall be excavated using a smooth-edged backhoe bucket to limit disturbance. Any disturbed soils at the bedding elevation resulting from excavation activities shall be removed by hand prior to placement of the bedding material. All subgrade surfaces should be protected from construction traffic in order to limit disturbance. Groundwater and surface water levels shall be depressed sufficiently to allow work in the dry.

The full nature of the culvert bearing surface will not become evident until the culvert excavation is made. The bottom elevation of the excavation shall take into account the wall thickness of the RCP culvert and the required 1-foot layer of bedding material. Any loose or soft soils in the excavations shall be removed and replaced with Granular Borrow Material for Underwater Backfill (MaineDOT 703.19) or Crushed Stone ³/₄-Inch (MaineDOT 703.13). Any cobbles or boulders encountered in excess of 6 inches shall be removed and replaced with compacted Granular Borrow Material for Underwater Backfill or Crushed Stone ³/₄-Inch.

The soil envelope and backfill shall consist of Granular Borrow (703.19) with a maximum particle size of 4 inches. The granular borrow backfill material shall be placed in lifts of 6 to 8 inches loose measure and compacted to the manufacturer's specifications or, in the absence of manufacturer's specifications, the bedding and backfill soil shall be compacted to at least 92 percent of the AASHTO T-180 maximum dry density.

6.2 Large Culvert at approximate Station 144+01

6.2.1 General Information

The existing structure at approximate Station 144+00 is a 24-inch diameter, approximately 73-foot long CMP culvert. The proposed replacement structure is a 60-inch diameter, 128-foot long RCP culvert on an approximately 16-degree skew to the roadway centerline with an inlet elevation of approximately 30.45 feet and an outlet elevation of approximately 27.20 feet.

Two (2) borings (HB-MICH-203 and HB-MICH-204) were drilled near the proposed structure. The boring locations and the interpretive subsurface profile are shown on Sheets 45 – Boring Location Plan & Interpretive Subsurface Profile. The boring logs are also provided in Appendix A – Boring Logs.

Boring HB-MICH-203 was drilled to a depth of approximately 22.0 feet bgs without encountering a refusal surface, and Boring HB-MICH-204 was drilled to a refusal surface of approximately 26.1 feet bgs. The subsurface conditions encountered in the borings consisted of fill consisting of gravelly sand and sand underlain by silt, clayey silt, and silty clay underlain by sand. Four (4) SPT N₆₀-values obtained in the fill ranged from 14 bpf to 48 bpf indicating that the fill is medium dense to dense in consistency. Five (5) SPT N₆₀-values obtained in the silt, clayey silt, and silty clay is stiff to very stiff in consistency. One (1) SPT N₆₀-value obtained in the sand was 33 bpf indicating that the sand is dense in consistency.

6.2.2 Design and Construction

The proposed RCP culvert shall be constructed in accordance with MaineDOT Standard Specification Section 603 and the Contract Plans. To facilitate fish passage, Habitat Connectivity Design elements will be used inside the proposed RCP culvert as shown on the Special Details sheet in the Contract Plans.

The proposed RCP culvert can be bedded on a 1-foot thick layer of Granular Borrow, Material for Underwater Backfill (MaineDOT Item 203.25, Granular Borrow). The bedding material should be placed in lifts of 6 to 8 inches loose measure and compacted to at least 95 percent of the AASHTO T-180 maximum dry density. The exposed subgrade shall be free of ponded water so that bedding material placement and compaction can be completed in the dry. The soils at the bedding elevation shall be excavated using a smooth-edged backhoe bucket to limit disturbance. Any disturbed soils at the bedding elevation resulting from excavation activities shall be removed by hand prior to placement of the bedding material. All subgrade surfaces should be protected from construction traffic in order to limit disturbance. Groundwater and surface water levels shall be depressed sufficiently to allow work in the dry.

The full nature of the culvert bearing surface will not become evident until the culvert excavation is made. The bottom elevation of the excavation shall take into account the wall thickness of the RCP culvert and the required 1-foot layer of bedding material. Any loose or soft soils in the excavations shall be removed and replaced with Granular Borrow Material for Underwater Backfill (MaineDOT

703.19) or Crushed Stone ³/₄-Inch (MaineDOT 703.13). Any cobbles or boulders encountered in excess of 6 inches shall be removed and replaced with compacted Granular Borrow Material for Underwater Backfill or Crushed Stone ³/₄-Inch.

The soil envelope and backfill shall consist of Granular Borrow (703.19) with a maximum particle size of 4 inches. The granular borrow backfill material shall be placed in lifts of 6 to 8 inches loose measure and compacted to the manufacturer's specifications or, in the absence of manufacturer's specifications, the bedding and backfill soil shall be compacted to at least 92 percent of the AASHTO T-180 maximum dry density.

6.3 Large Culvert at approximate Station 200+61

6.3.1 General Information

The existing structure at approximate Station 200+61 is a 24-inch diameter, approximately 90-foot long CMP culvert. The proposed replacement structure is a 96-inch diameter, 120-foot long RCP culvert on an approximately 4-degree skew to the roadway centerline with an inlet elevation of approximately 14.19 feet and an outlet elevation of approximately 12.62 feet.

One (1) boring (HB-MICH-205) and (1) probe (HB-MICH-206) were drilled on opposite, diagonal corners of the proposed structure. The boring locations and the interpretive subsurface profile are shown on Sheet 46 – Boring Location Plan & Interpretive Subsurface Profile. The boring logs are also provided in Appendix A – Boring Logs.

Boring HB-MICH-205 was drilled to a depth of approximately 24.0 feet bgs without encountering a refusal surface. The subsurface conditions encountered in the boring consisted of fill consisting of sand and silt underlain by clayey silt underlain by sand underlain by silty clay. Two (2) SPT N₆₀-values obtained in the sand fill were 21 bpf and 41 bpf indicating that the sand fill is medium dense to dense in consistency. One (1) SPT N₆₀-value obtained in the silt fill was 17 bpf indicating that the silt fill is very stiff in consistency. One (1) SPT N₆₀-value obtained in the clayey silt was 11 bpf indicating that the clayey silt is stiff in consistency. One (1) SPT N₆₀-value obtained in the sand was 11 bpf indicating that the sand is medium dense in consistency. One (1) SPT N₆₀-value obtained in the sand was 21 bpf indicating that the clay is very stiff in consistency. Probe HB-MICH-206 was drilled to a depth of approximately 20.0 feet bgs without encountering a refusal surface.

6.3.2 Design and Construction

The proposed RCP culvert shall be constructed in accordance with MaineDOT Standard Specification Section 603 and the Contract Plans. To facilitate fish passage, Habitat Connectivity Design elements will be used inside the proposed RCP culvert as shown on the Special Details sheet in the Contract Plans.

The proposed RCP culvert can be bedded on a 1-foot thick layer of Granular Borrow, Material for Underwater Backfill (MaineDOT Item 203.25, Granular Borrow). The bedding material should be placed in lifts of 6 to 8 inches loose measure and compacted to at least 95 percent of the AASHTO T-180 maximum dry density. The exposed subgrade shall be free of ponded water so that bedding

material placement and compaction can be completed in the dry. The soils at the bedding elevation shall be excavated using a smooth-edged backhoe bucket to limit disturbance. Any disturbed soils at the bedding elevation resulting from excavation activities shall be removed by hand prior to placement of the bedding material. All subgrade surfaces should be protected from construction traffic in order to limit disturbance. Groundwater and surface water levels shall be depressed sufficiently to allow work in the dry.

The full nature of the culvert bearing surface will not become evident until the culvert excavation is made. The bottom elevation of the excavation shall take into account the wall thickness of the RCP culvert and the required 1-foot layer of bedding material. Any loose or soft soils in the excavations shall be removed and replaced with Granular Borrow Material for Underwater Backfill (MaineDOT 703.19) or Crushed Stone ³/₄-Inch (MaineDOT 703.13). Any cobbles or boulders encountered in excess of 6 inches shall be removed and replaced with compacted Granular Borrow Material for Underwater Backfill or Crushed Stone ³/₄-Inch.

The soil envelope and backfill shall consist of Granular Borrow (703.19) with a maximum particle size of 4 inches. The granular borrow backfill material shall be placed in lifts of 6 to 8 inches loose measure and compacted to the manufacturer's specifications or, in the absence of manufacturer's specifications, the bedding and backfill soil shall be compacted to at least 92 percent of the AASHTO T-180 maximum dry density.

6.4 Milbridge Road Bridge (Bridge #6697) at approximate Station 352+00

6.4.1 General Information

The existing structure at approximate Station 352+04 is a 4.5-foot span, 5-foot rise, approximately 91-foot long elliptical CMP culvert. The proposed replacement structure is a 13-foot span, 8-foot rise, 136-foot long precast concrete box culvert on an approximately 10-degree skew to the roadway centerline with an inlet elevation of approximately 45.59 feet and an outlet elevation of approximately 43.83 feet.

One (1) probe (HB-MICH-214) and (1) boring (HB-MICH-215) were drilled in the roadway on opposite, diagonal corners of the proposed structure. The boring locations and the interpretive subsurface profile are shown on Sheet 47 – Boring Location Plan & Interpretive Subsurface Profile. The boring logs are also provided in Appendix A – Boring Logs.

Probe HB-MICH-214 was drilled to a depth of approximately 20.0 feet bgs without encountering a refusal surface. Boring HB-MICH-215 was drilled to a depth of approximately 19.9 feet bgs where a refusal surface was encountered and then advanced to a depth of 24.9 feet bgs using rock core drilling techniques. The subsurface conditions encountered in the boring consisted of fill consisting of sand, clayey silt, and silty clay underlain by silt underlain by bedrock. One (1) SPT N₆₀-value obtained in the sand fill was 40 bpf indicating that the sand fill is dense in consistency. Two (2) SPT N₆₀-values obtained in the clayey silt and silty clay fill ranged from 10 bpf to 14 bpf indicating that the clayey silt and silty clay fill are stiff in consistency. One (1) SPT N₆₀-value obtained in the silt was 13 bpf indicating that the silt is stiff in consistency. RQD of the bedrock was determined to 78%, correlating to a Rock Quality of Good.

6.4.2 Design and Construction

The proposed precast concrete box culvert shall be constructed in accordance with MaineDOT Standard Specification Section 534 and the Contract Plans. To facilitate fish passage, Habitat Connectivity Design elements will be used inside the proposed precast concrete box culvert as shown on the Special Details sheet in the Contract Plans.

The proposed precast concrete box culvert can be bedded on a 1-foot thick layer of Granular Borrow, Material for Underwater Backfill (MaineDOT Item 203.25, Granular Borrow). The bedding material should be placed in lifts of 6 to 8 inches loose measure and compacted to at least 95 percent of the AASHTO T-180 maximum dry density. The exposed subgrade shall be free of ponded water so that bedding material placement and compaction can be completed in the dry. The soils at the bedding elevation shall be excavated using a smooth-edged backhoe bucket to limit disturbance. Any disturbed soils at the bedding elevation resulting from excavation activities shall be removed by hand prior to placement of the bedding material. All subgrade surfaces should be protected from construction traffic in order to limit disturbance. Groundwater and surface water levels shall be depressed sufficiently to allow work in the dry.

The full nature of the culvert bearing surface will not become evident until the culvert excavation is made. The bottom elevation of the excavation shall take into account the wall thickness of the precast concrete box culvert and the required 1-foot layer of bedding material. Any loose or soft soils (peat or organic materials) in the excavations shall be removed and replaced with Granular Borrow Material for Underwater Backfill (MaineDOT 703.19) or Crushed Stone ³/₄-Inch (MaineDOT 703.13). Any cobbles or boulders encountered in excess of 6 inches shall be removed and replaced with compacted Granular Borrow Material for Underwater Backfill or Crushed Stone ³/₄-Inch.

The soil envelope and backfill shall consist of Granular Borrow (703.19) with a maximum particle size of 4 inches. The granular borrow backfill material shall be placed in lifts of 6 to 8 inches loose measure and compacted to the manufacturer's specifications or, in the absence of manufacturer's specifications, the bedding and backfill soil shall be compacted to at least 92 percent of the AASHTO T-180 maximum dry density.

6.4.3 Bearing Resistance

The factored bearing resistances for the precast concrete box culvert bearing on compacted granular bedding material placed on native soils at the service and strength limit states are presented in the table below. Supporting calculations in accordance with AASHTO LRFD Bridge Design Specifications 9th Edition 2020 (LRFD) are provided in Appendix C – Calculations.

Limit State	Resistance Factor	AASHTO LRFD	Factored Bearing
	Фb	Reference	Resistance (ksf)
Service	1.0	Article 10.5.5.1	3.0
Strength	0.45	Table 10.5.5.2.2-1	9.0

6.4.4 Modulus of Subgrade Reaction

A modulus of subgrade reaction (k_s) equal to 20 pounds per cubic inch shall be used for the structural design of the box culvert's base slab. Calculations are included in Appendix C – Calculations.

6.5 Scour and Riprap

Both the inlet and outlet of the proposed RCP culverts and precast concrete box culvert shall be armored with riprap conforming to MaineDOT Standard Specification Section 703.26 Plain and Hand Laid Riprap. Riprap slopes shall not be steeper than 2H:1V. The riprap on the slopes shall be underlain by a 1-foot layer of protective aggregate cushion conforming to MaineDOT Standard Specification 703.19 Granular Borrow Material for Underwater Backfill that is underlain by a non-woven Class 1 erosion control geotextile that meets the requirements for MaineDOT Standard Specification 722.03.

6.6 Seismic Design Considerations

In conformance with LRFD Article 3.10.1, seismic analysis is not required for buried structures, except where they cross active faults. There are no known active faults in Maine; therefore, seismic analysis is not required.

6.7 Oversteepened Slopes from Stations 209+50 to 210+50, 225+00 to 225+00, and 246+50 to 247+00

Oversteepened slopes are proposed from approximate Stations 209+50 to 210+50 left and right, 225+00 to 225+50 right, and 246+50 to 247+00 left and right. Cross sections along the oversteepened slopes were analyzed to evaluate the proposed slope stability. The cross sections were chosen to represent critical slope locations along the oversteepened slopes. Geostudio Slope/W software was used to evaluate the slopes. The stability analyses were based on subsurface conditions encountered in the borings drilled in the roadway shoulder at the crest of the existing slopes. In accordance with AASHTO LRFD Bridge Design Specifications 9th Edition 2020 (LRFD) Article 11.6.3.7 evaluation of earth slopes where geotechnical parameters are well defined shall achieve a factor of safety of 1.3 (equivalent to a resistance factor of 0.75).

All of the proposed slopes will be constructed using 1.5H:1V riprap slopes, with the exception of Station 246+50 to 270+00 right, which will be constructed using 1.6H:1V riprap slopes.

Station	Proposed Slope Angle	Proposed Slope Factor of Safety with 3 feet of Plain Riprap
209+50 Right	1.5H:1V	1.316
210+00 Right	1.5H:1V	1.333

The results of these analyses are presented in the following table:

210+19.82 Right	1.5H:1V	1.367
210+19.82 Left	1.5H:1V	1.355
210+50 Left	1.5H:1V	1.295
225+00 Left	1.5H:1V	1.375
225+03 Left	1.5H:1V	1.334
225+50 Left	1.5H:1V	1.366
246+82.34 Left	1.5H:1V	1.302
246+82.34 Right	1.6H:1V	1.401

Based on these analyses, all of the proposed slopes shall be armored with 3 feet of riprap conforming to MaineDOT Standard Specification Section 703.26 Plain Riprap and Hand Laid Riprap underlain by a 1-foot layer of protective aggregate cushion conforming to MaineDOT Standard Specification 703.19 Granular Borrow Material for Underwater Backfill that is underlain by a non-woven Class 1 erosion control geotextile that meets the requirements for MaineDOT Standard Specification 722.03. Appendix D – Slope Stability Analyses presents the final slope configuration results from these slope stability analyses.

6.8 Settlement

No settlement issues are anticipated for either the roadway or the proposed RCP culverts and precast concrete box culvert. The installation of the proposed RCP culverts and precast concrete box culvert will result in a net unloading of the site soils at the proposed structure location. Placement of fill soils at the location of the existing structure to be removed and in areas where the proposed roadway grade is higher than existing grades are not anticipated to exceed the past loading condition of the site soils.

6.9 Bedrock Removal

Refusal of the drilling tools was encountered in multiple borings along the project (see Section 5.3). Bedrock removal is anticipated for drainage and subgrade installation near these locations. Additional shallow bedrock should be expected during construction at other locations.

The approximate invert of the proposed precast concrete box culvert ranges from an elevation of 45.59 feet at the inlet to 43.83 feet at the outlet. Constructing the culvert at this elevation may require removal of bedrock. The need for and depth of weathered bedrock removal will vary over the length of the precast concrete box culvert. The bottom elevation of the excavation shall take into account the wall thickness of the culvert bottom and the required 1-foot layer of bedding material. The borings indicate that the Rock Quality of the bedrock is poor to good with an RQD of approximately 37 to 78 percent.

The bedrock surface shall be prepared in accordance with MaineDOT standard practices. The nature, slope, and degree of fracturing in the bedrock bearing surfaces will not be evident until the excavation from the precast concrete box culvert is made. Construction activities should not be permitted to create any open fissures in the bedrock to remain. Any irregularities in the existing

bedrock surface or irregularities created during the excavation process should be backfilled with crushed stone to the bottom of the required bedding material.

The Contractor shall remove any overburden soil and bedrock that can be removed using ordinary excavation equipment to expose the proposed bearing surface at the required elevation. The cleanliness and condition of the bedrock surface should be confirmed and accepted by the Resident prior to placing the structural bedding material. If soil is encountered at bedding material subgrade it shall be proof-rolled using multiple passes of a static roller to achieve a firm and stable surface for construction. Any cobbles, boulders, or loose bedrock encountered in excess of 6 inches shall be removed and replaced with compacted Granular Borrow Material for Underwater Backfill or Crushed Stone ³/₄-Inch.

Blasting shall be conducted in accordance with MaineDOT Standard Specifications Sections 105.2.7 and 203. The Contractor is required to conduct pre- and post-blast surveys, as well as blast vibrations monitoring at nearby structures in accordance with industry standards at the time of the blast.

It is anticipated that there will be seepage of water from fractures and joints exposed in the bedrock surface. Water should be controlled by pumping from sumps. The Contractor should maintain the excavation so that all work is completed in the dry.

6.10 Additional Construction Considerations

Construction of the RCP culverts and precast concrete box culvert will require soil excavation. Earth support systems will be required if laying back slopes is not feasible. Regardless of the method of excavation, all excavations and earth support systems shall meet all applicable OSHA regulations.

If organic silt or peat is encountered in the project excavations, the materials should be over excavated to be completely removed and replaced with Granular Borrow, Material for Underwater Backfill or Crushed Stone, ³/₄-Inch.

The Contractor shall control groundwater and surface water infiltration using temporary ditches, sumps, granular drainage blankets, stone ditch protection or hand-laid riprap with geotextile underlayment to divert groundwater and surface water to allow construction in the dry.

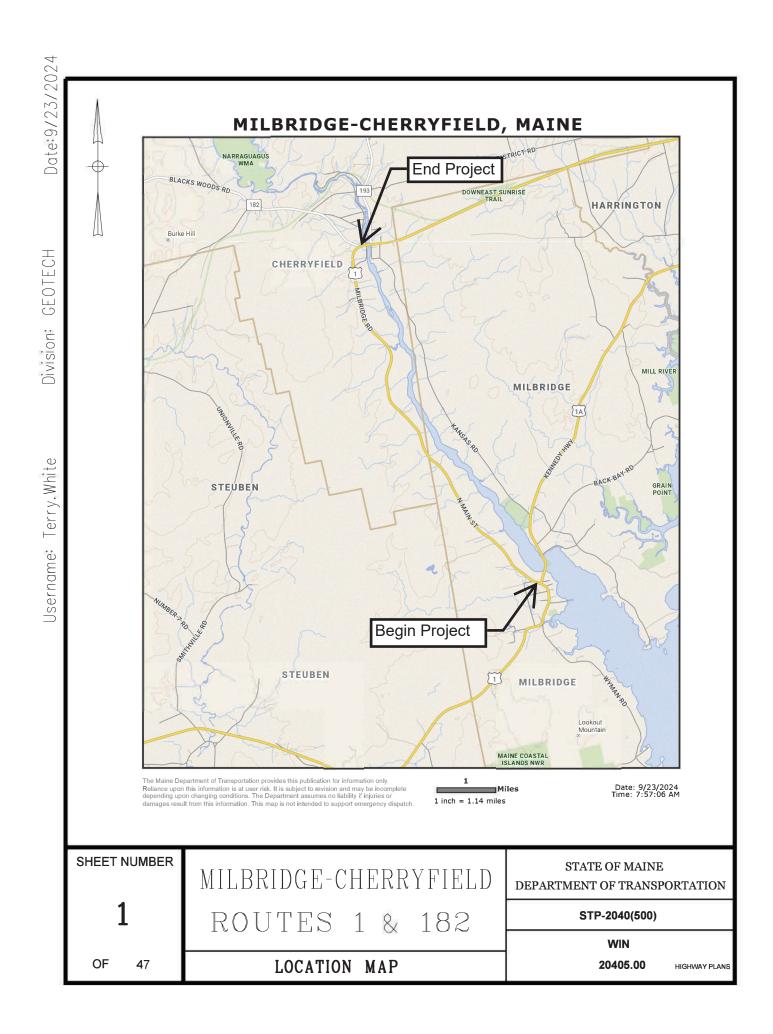
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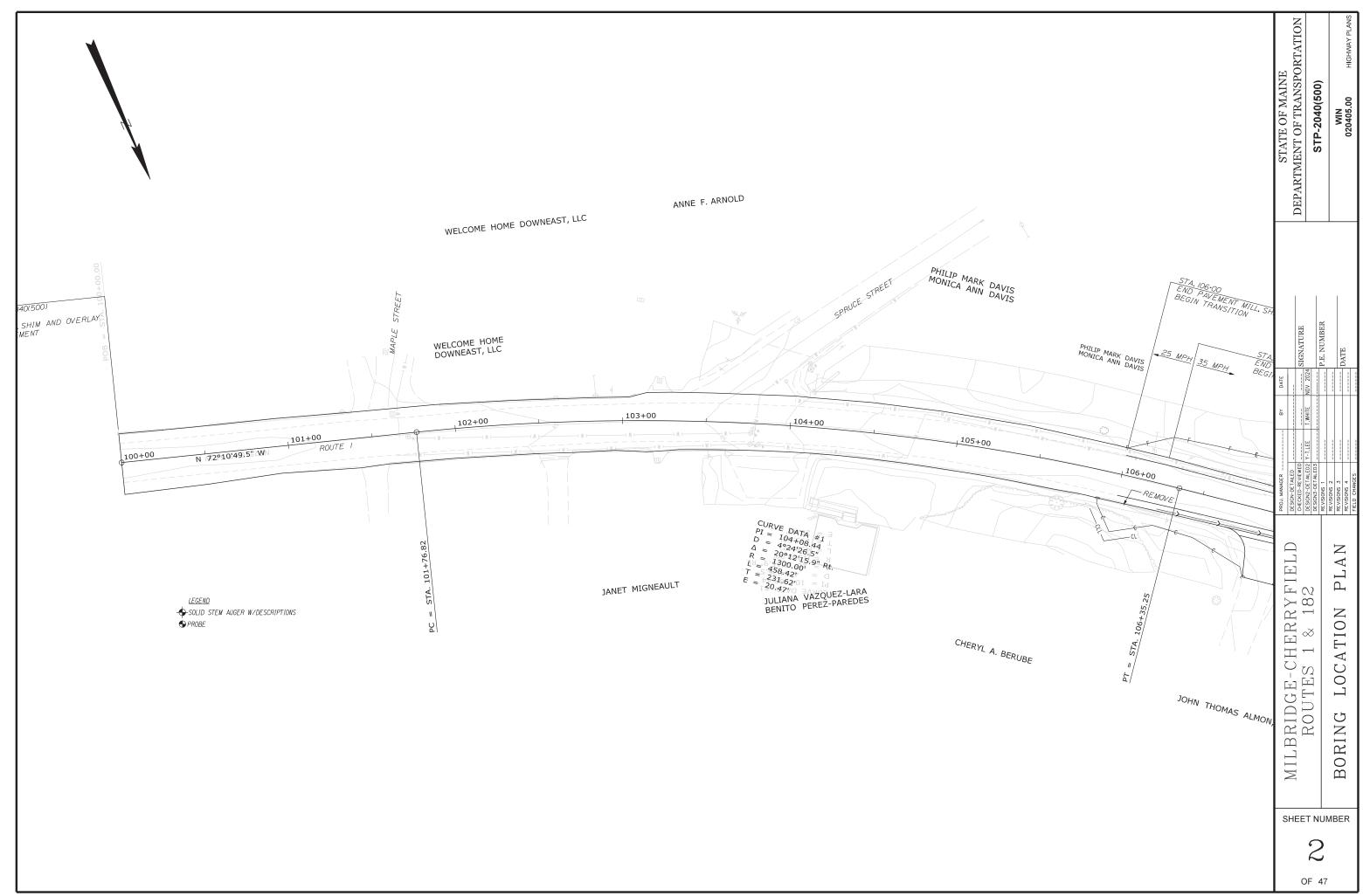
This report has been prepared for the use of the MaineDOT Highway Program for specific application to the proposed rehabilitation of U.S. Route 1 in Milbridge-Cherryfield, Maine in accordance with generally accepted geotechnical and foundation engineering practices. No other intended use or warranty is expressed or implied.

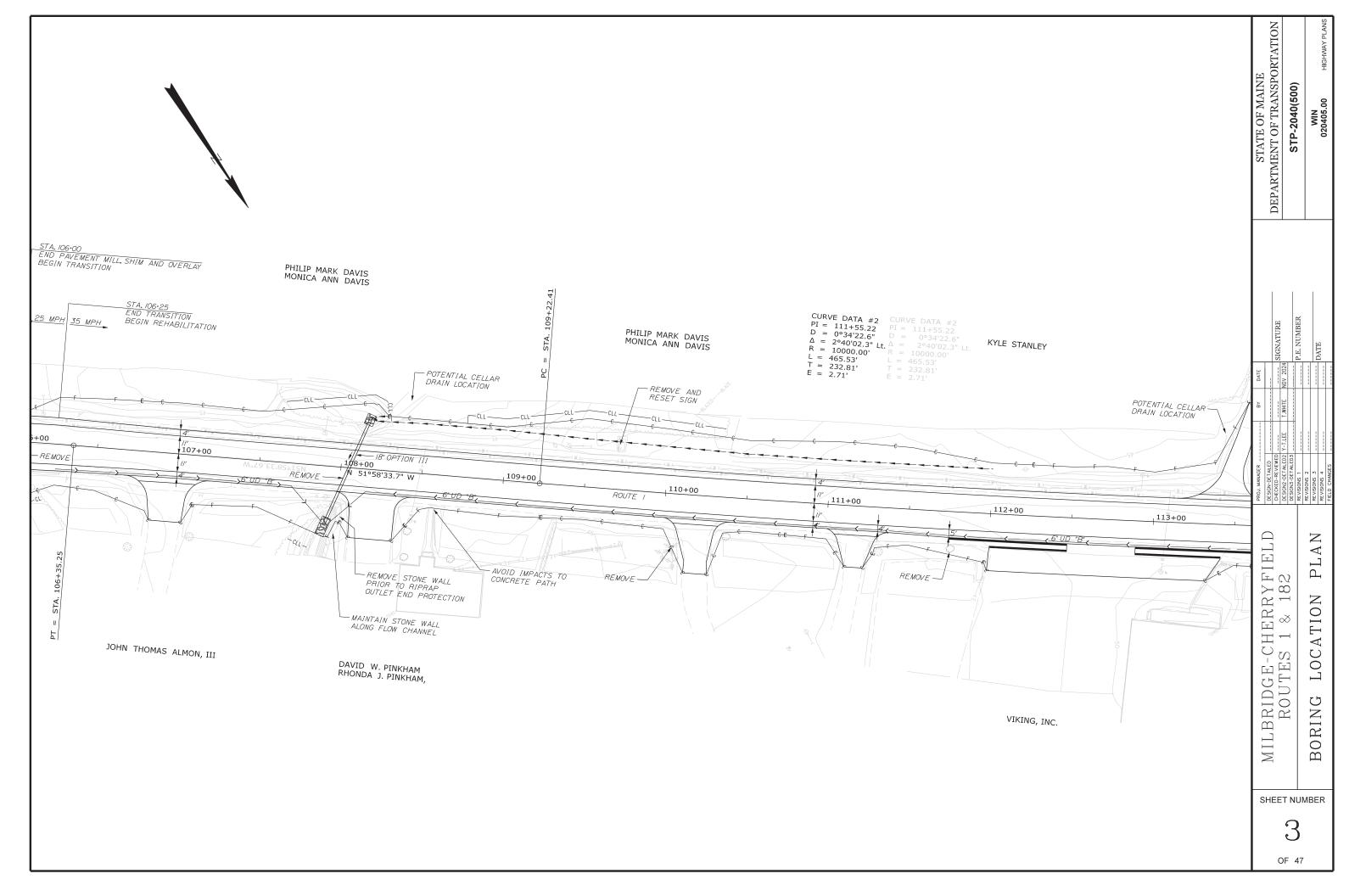
In the event that any changes in the nature, design, or location of the proposed project are planned, this report should be reviewed by a geotechnical engineer to assess the appropriateness of the conclusions and recommendations and to modify the recommendations as appropriate to reflect the changes in design. These analyses and recommendations are based in part upon a limited subsurface investigation at discrete exploratory locations completed at the site. If variations from the conditions encountered during the investigation appear evident during construction, it may also become necessary to re-evaluate the recommendations made in this report.

It is recommended that a geotechnical engineer be provided the opportunity for a review of the design and specifications in order that the earthwork and foundation recommendations and construction considerations presented in this report are properly interpreted and implemented in the design and specifications.

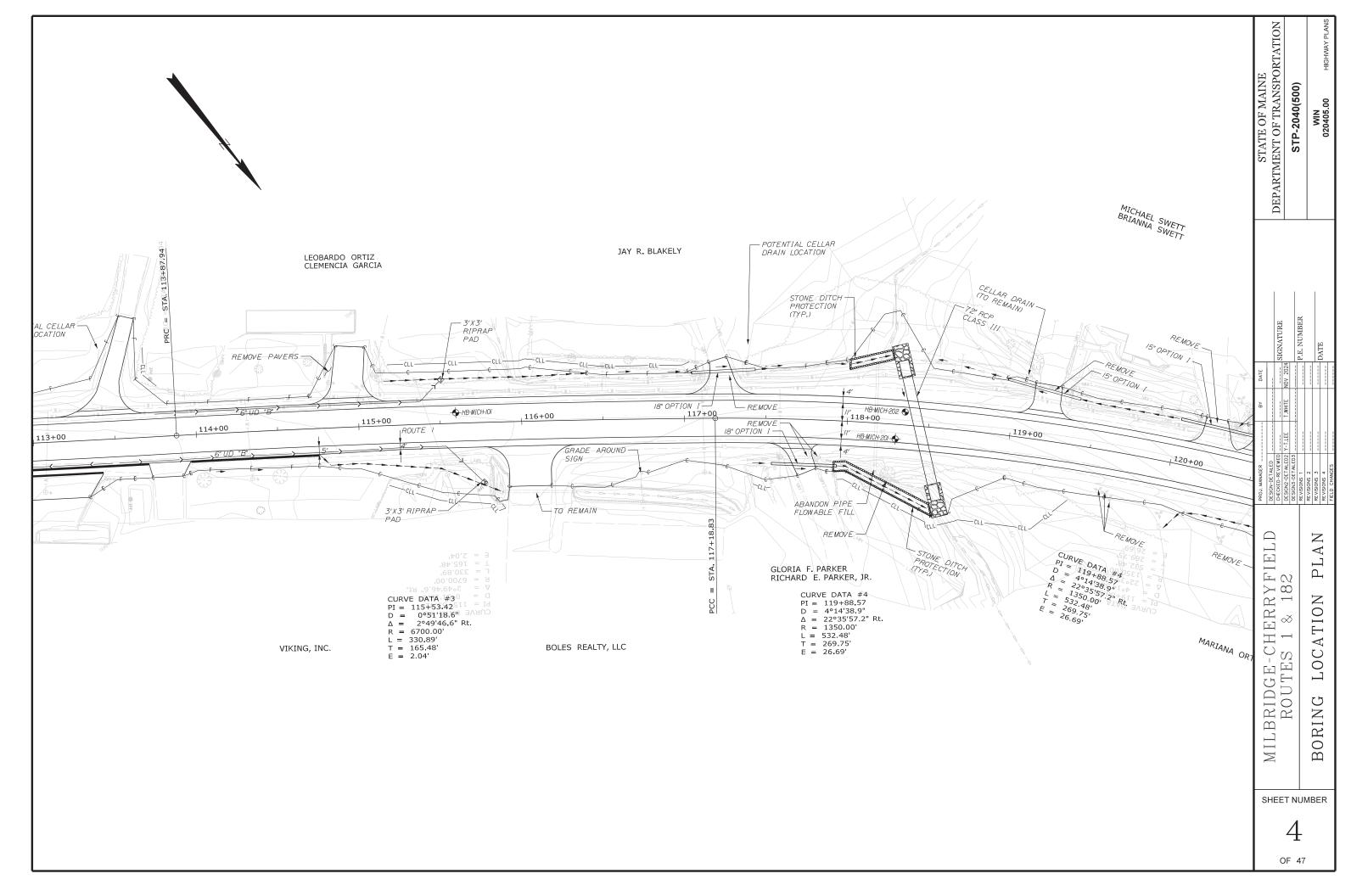
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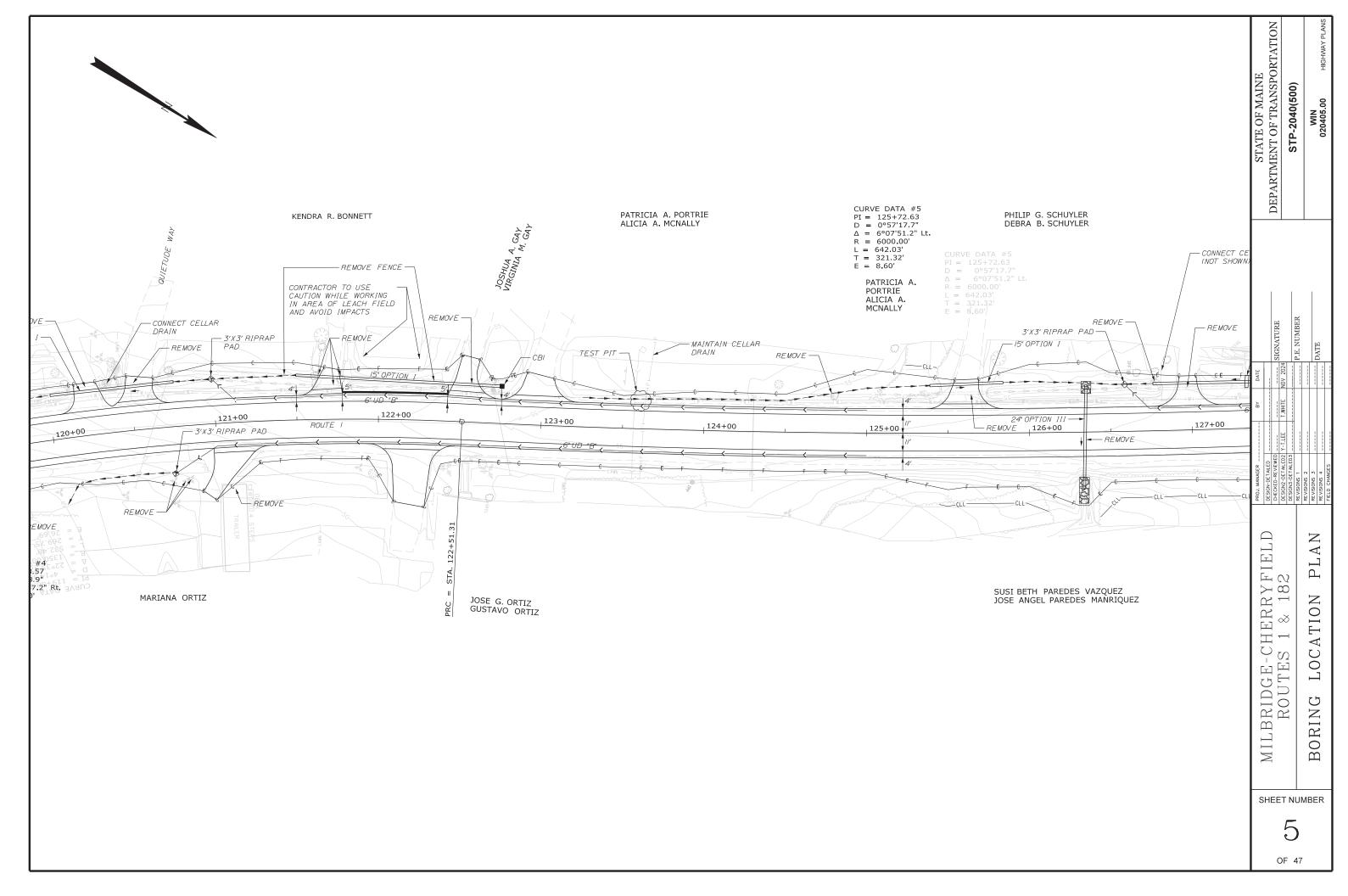


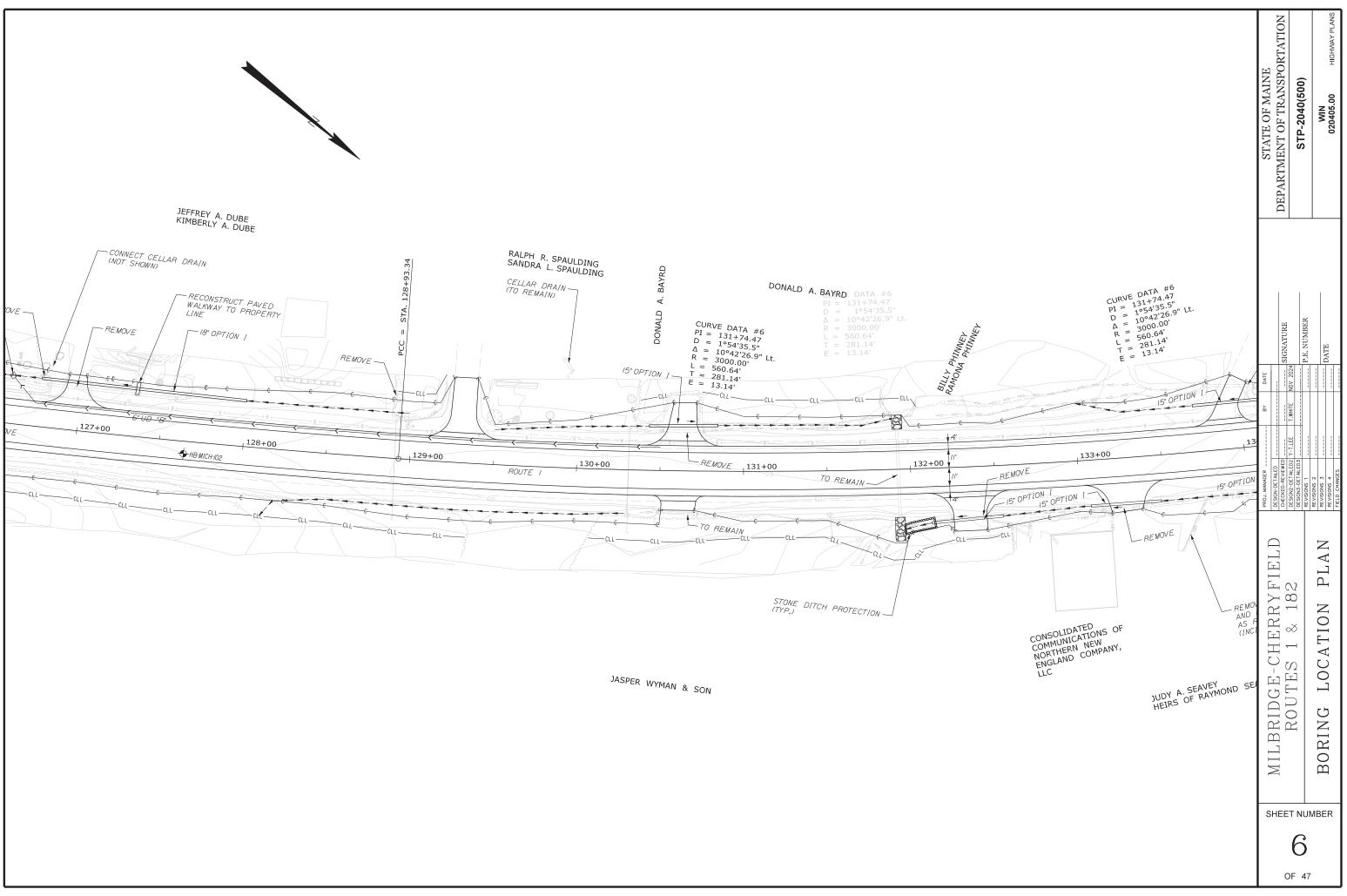


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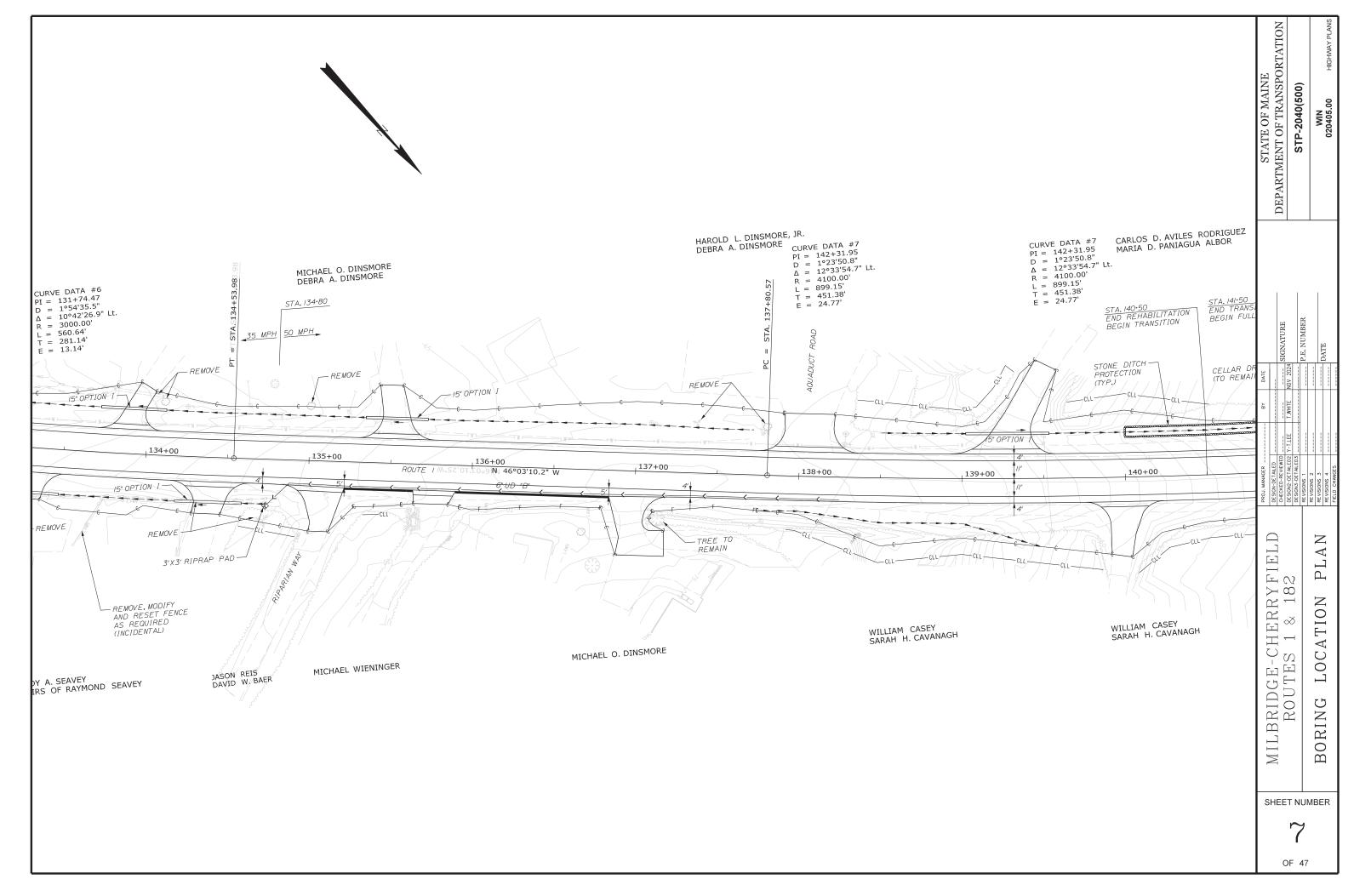


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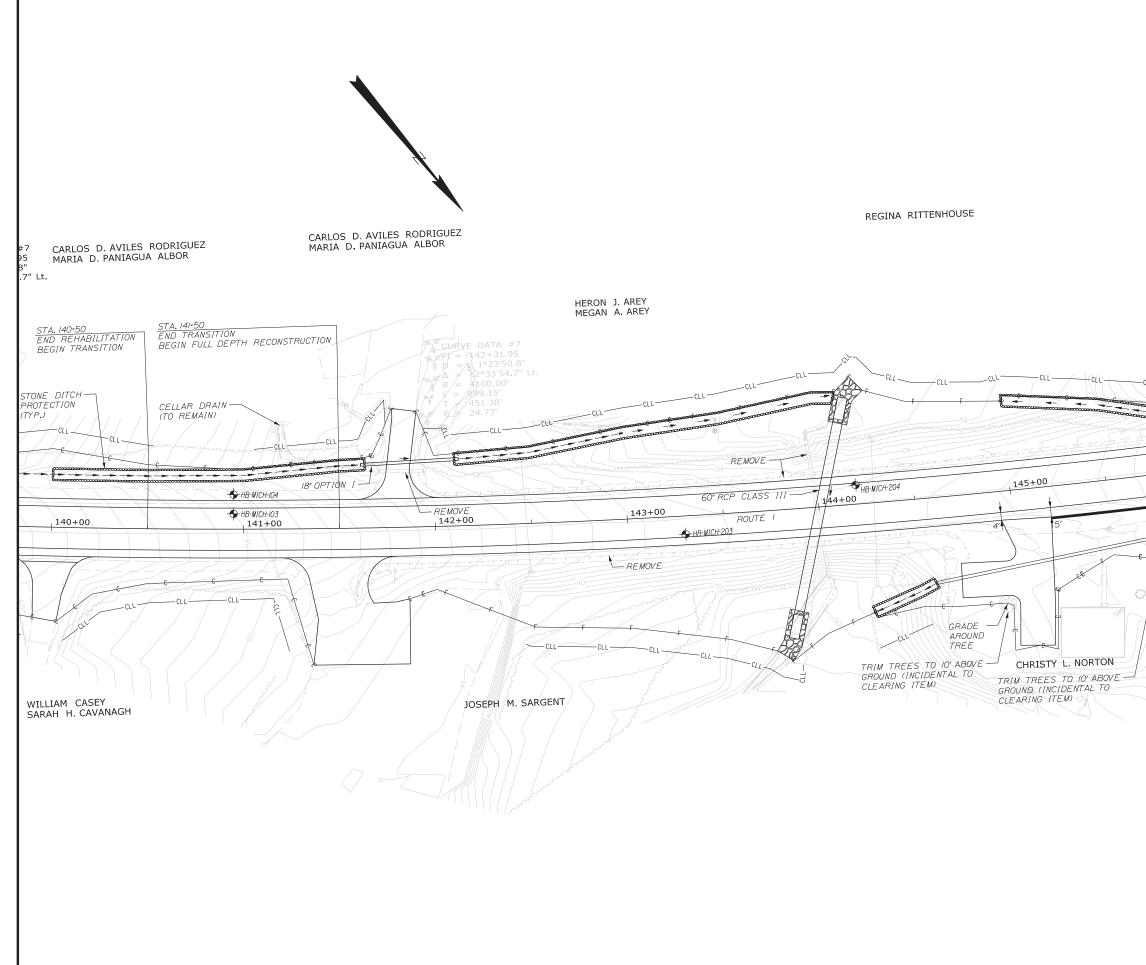


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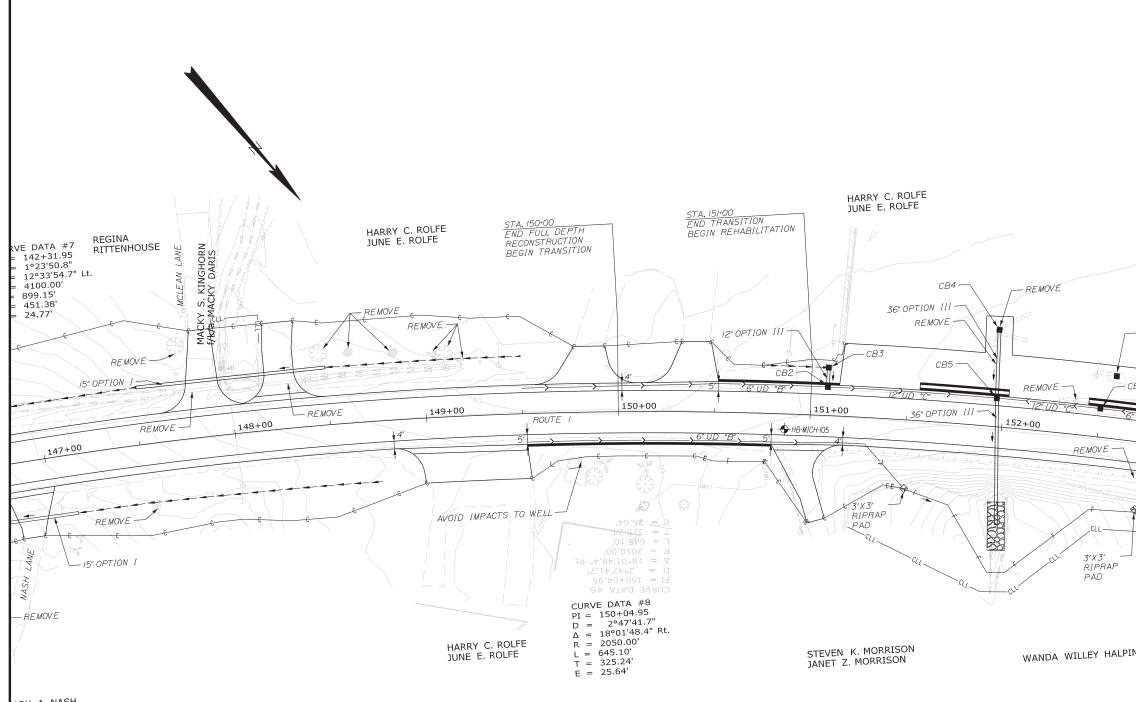
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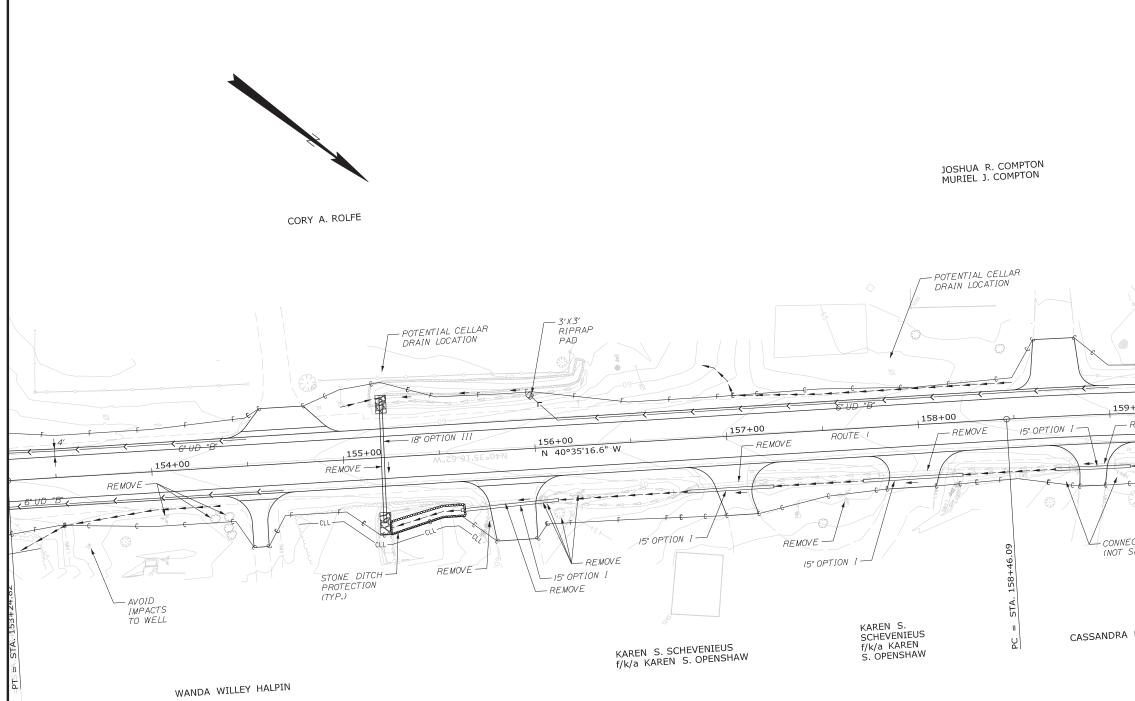
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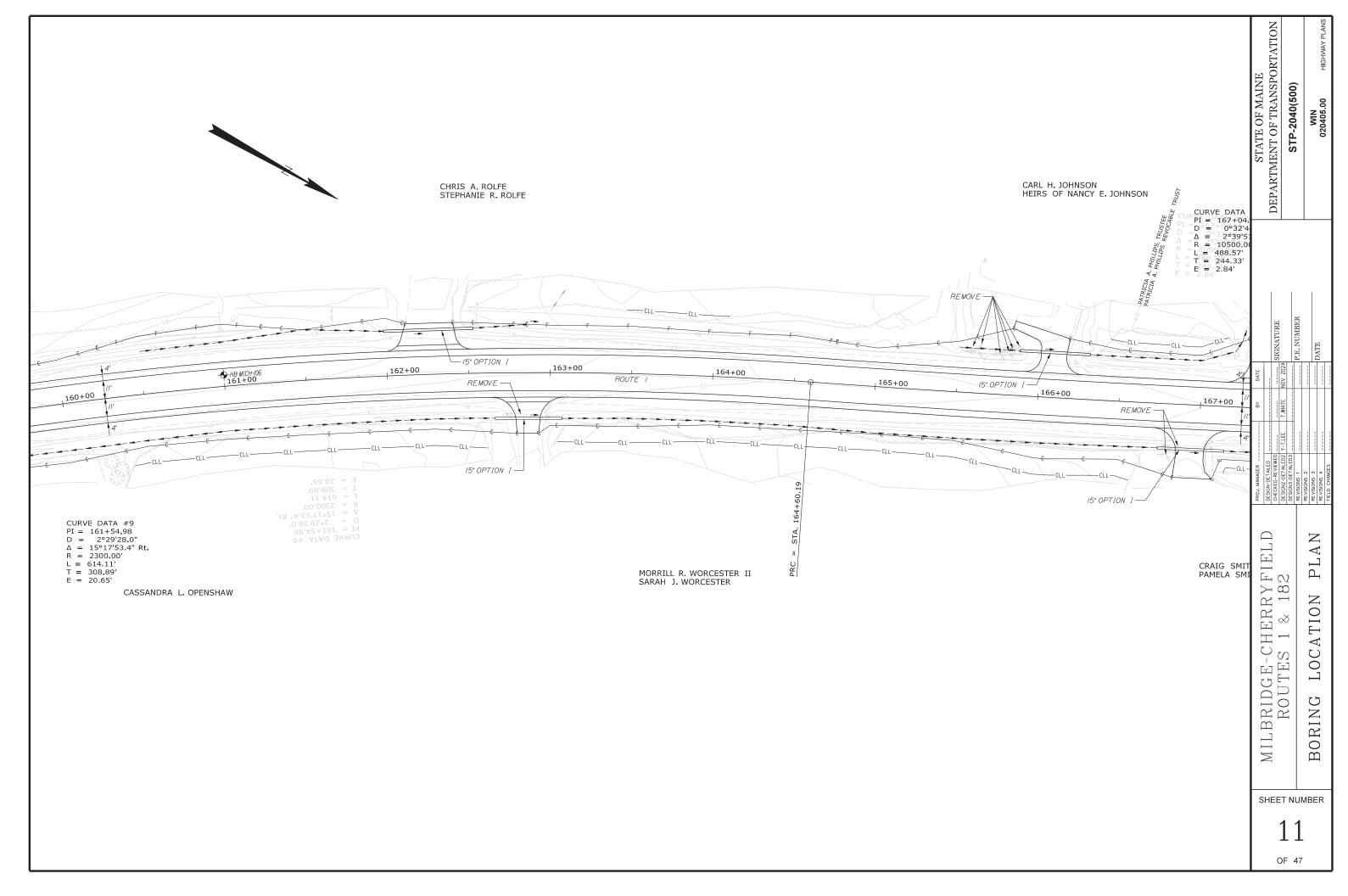
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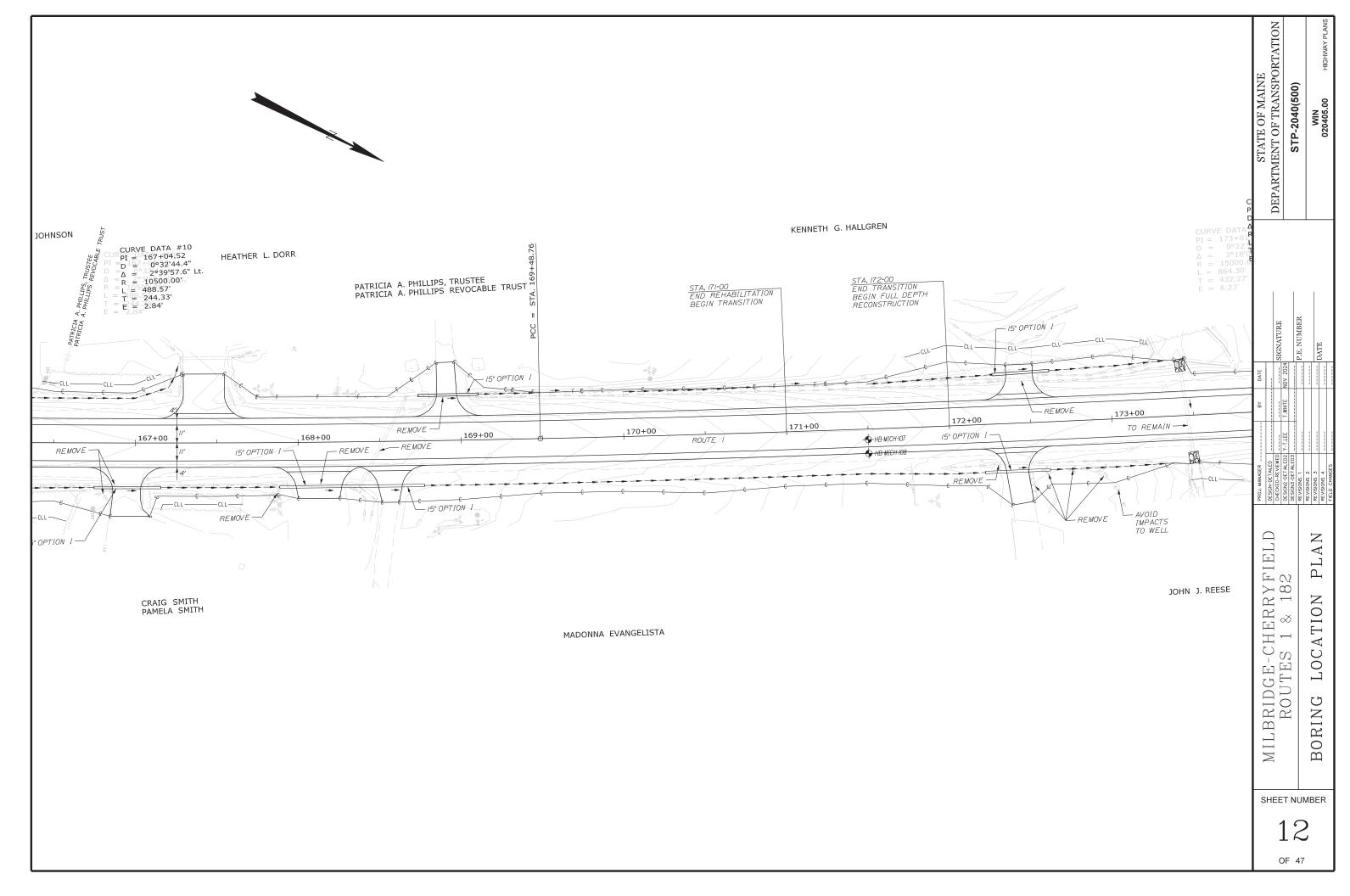
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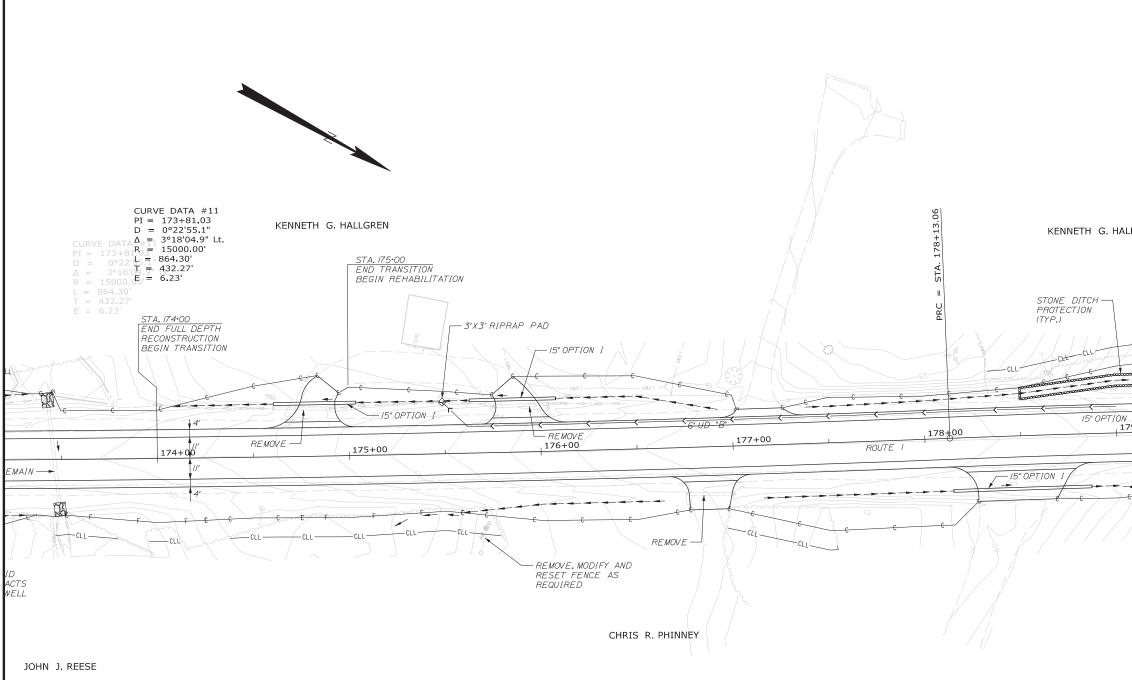


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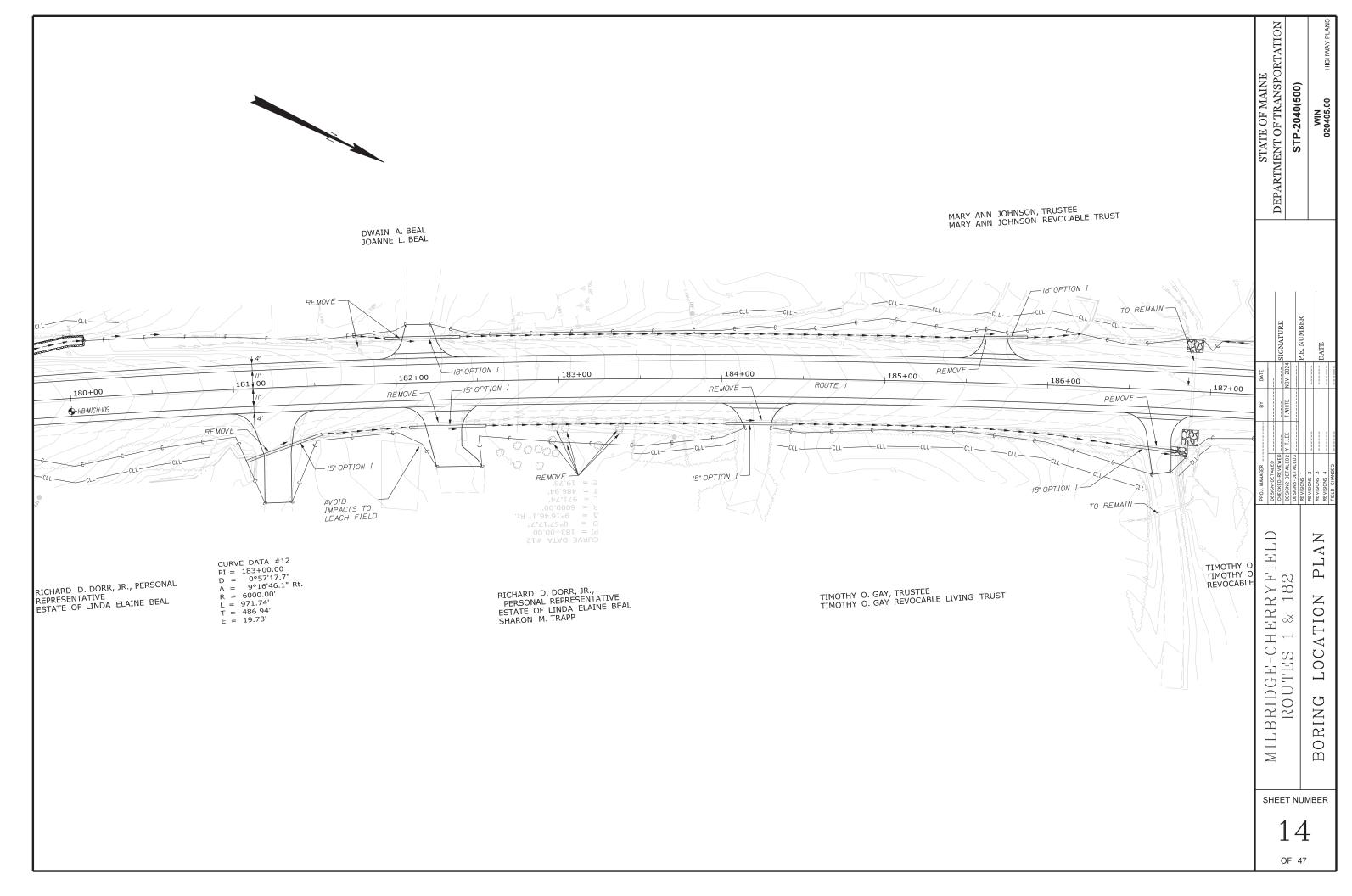


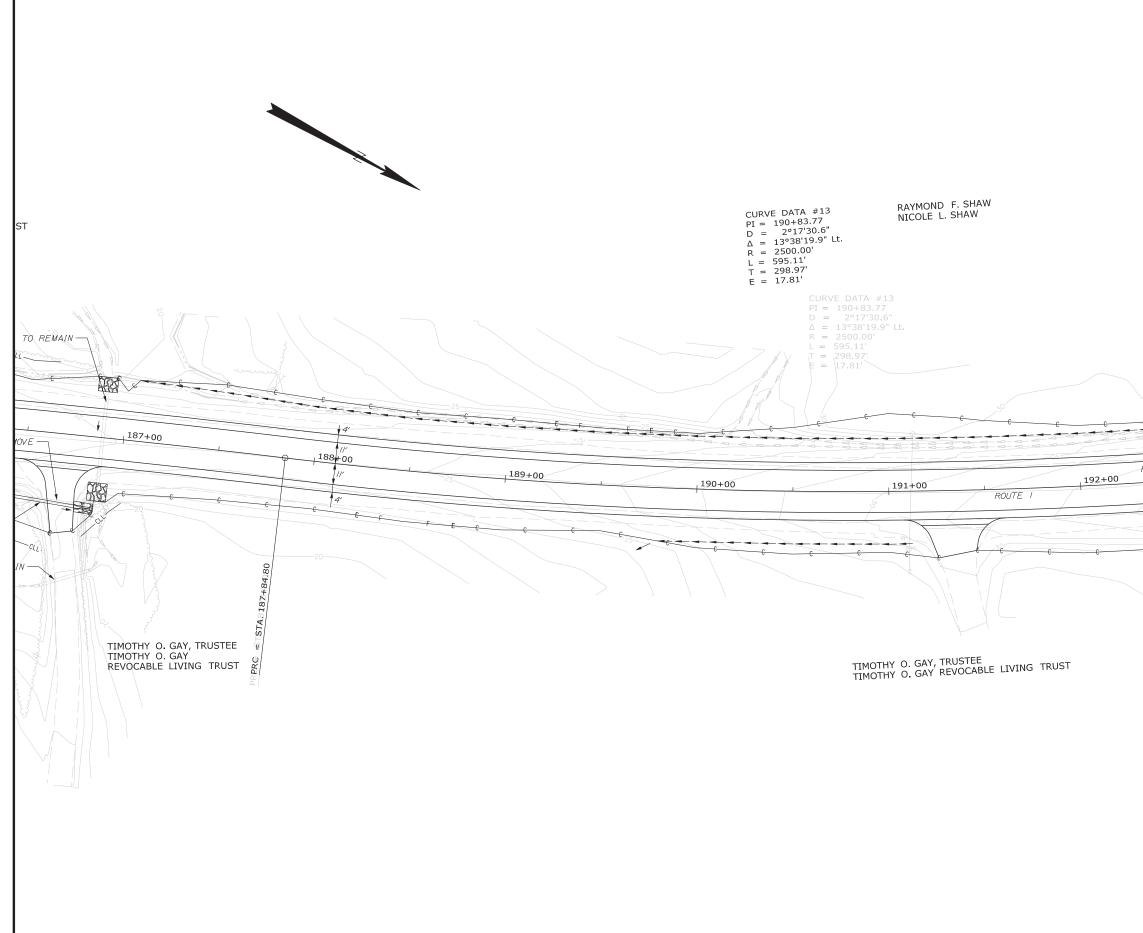


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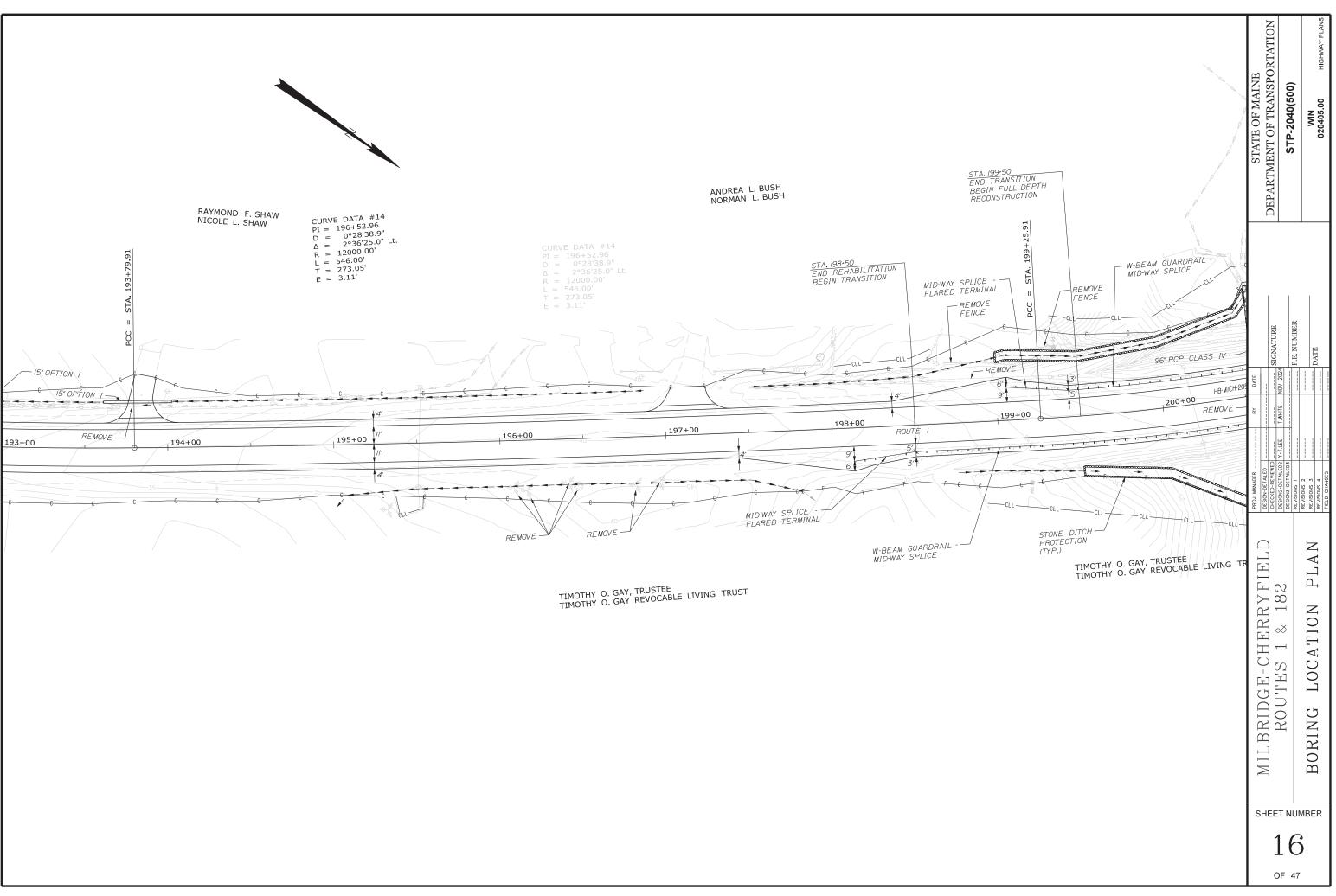


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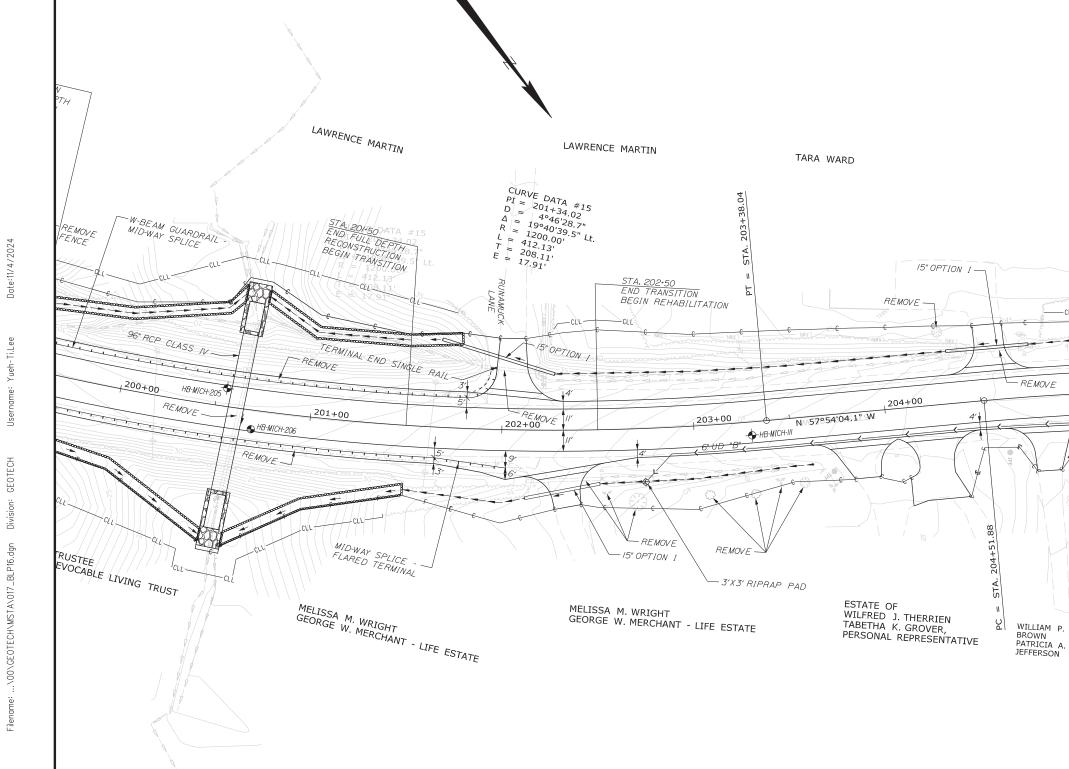
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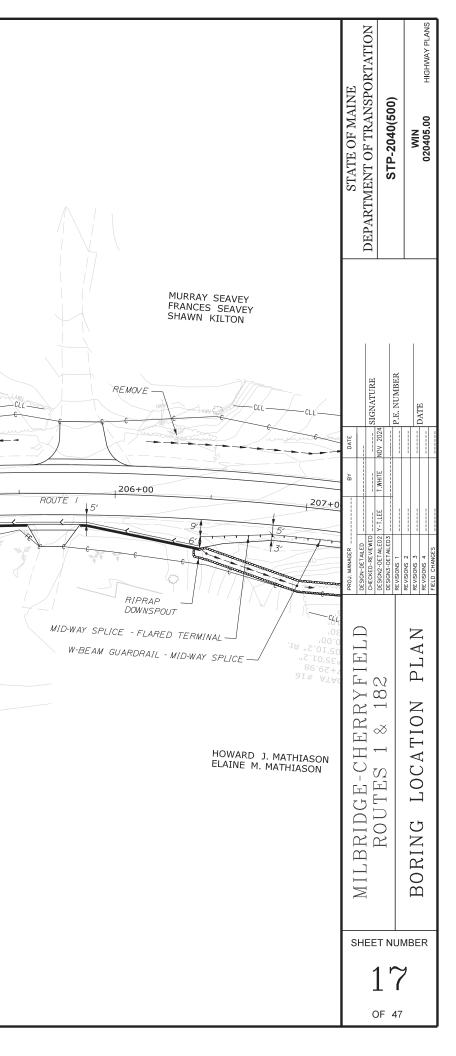
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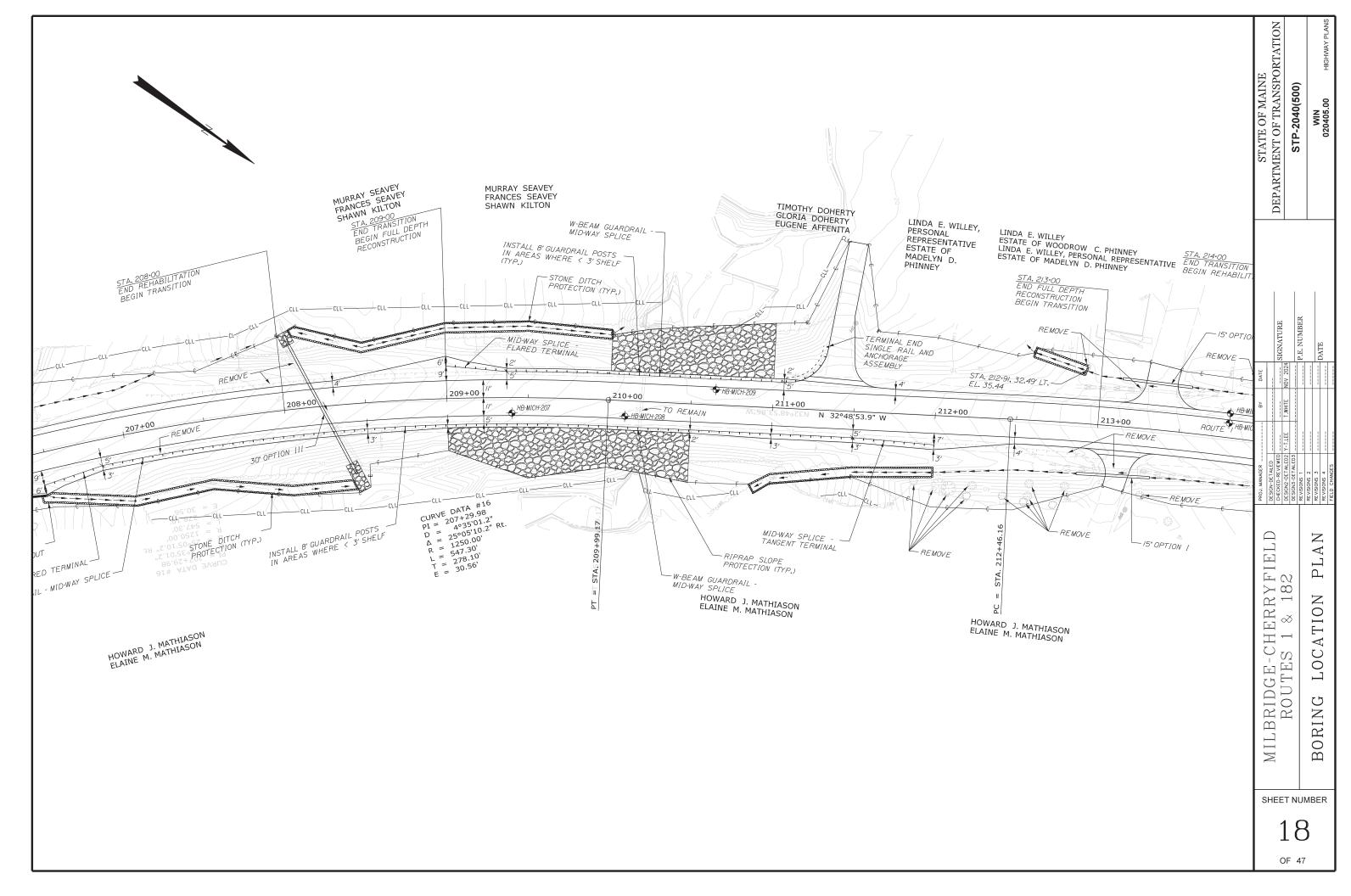


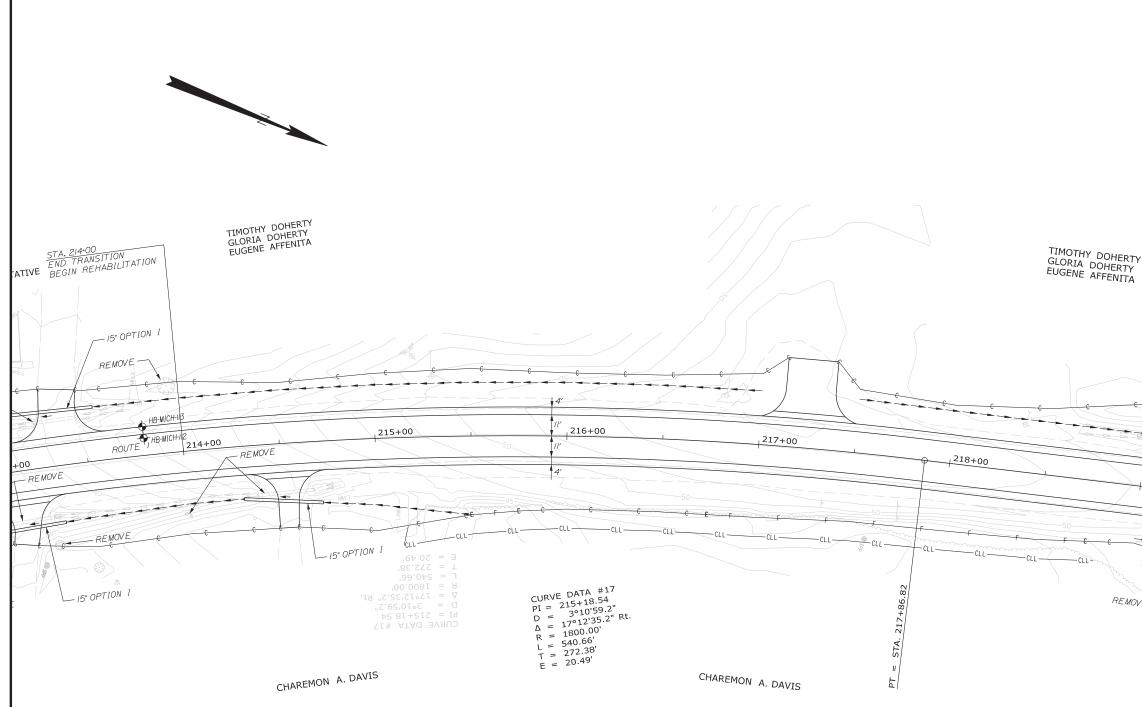
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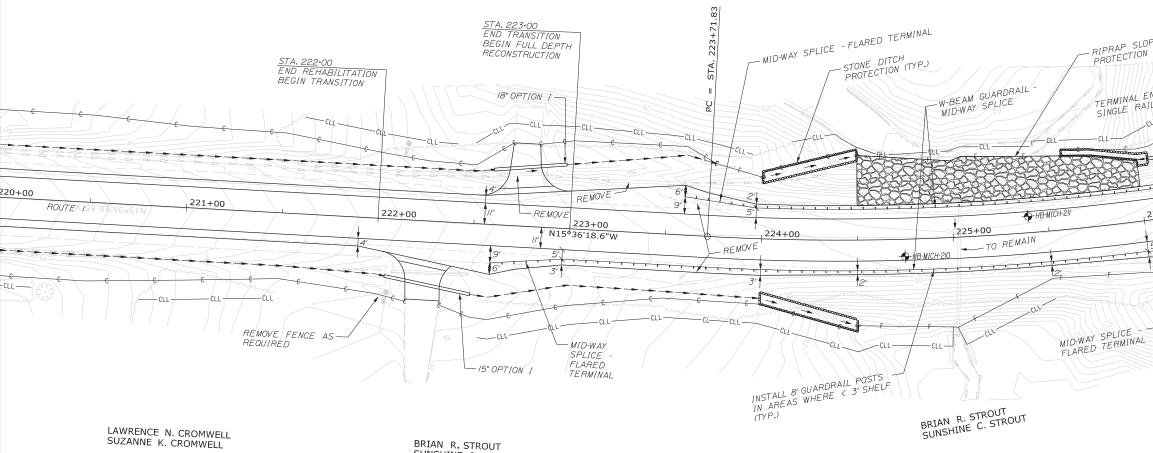
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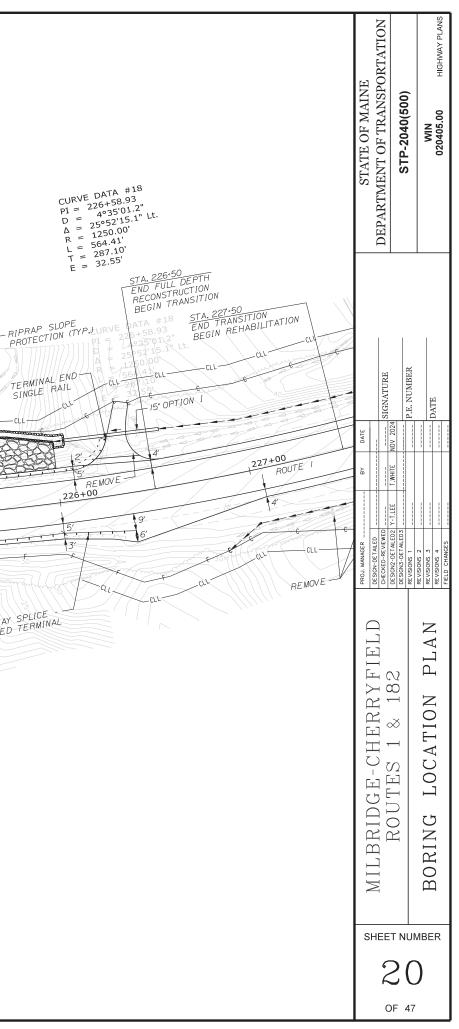


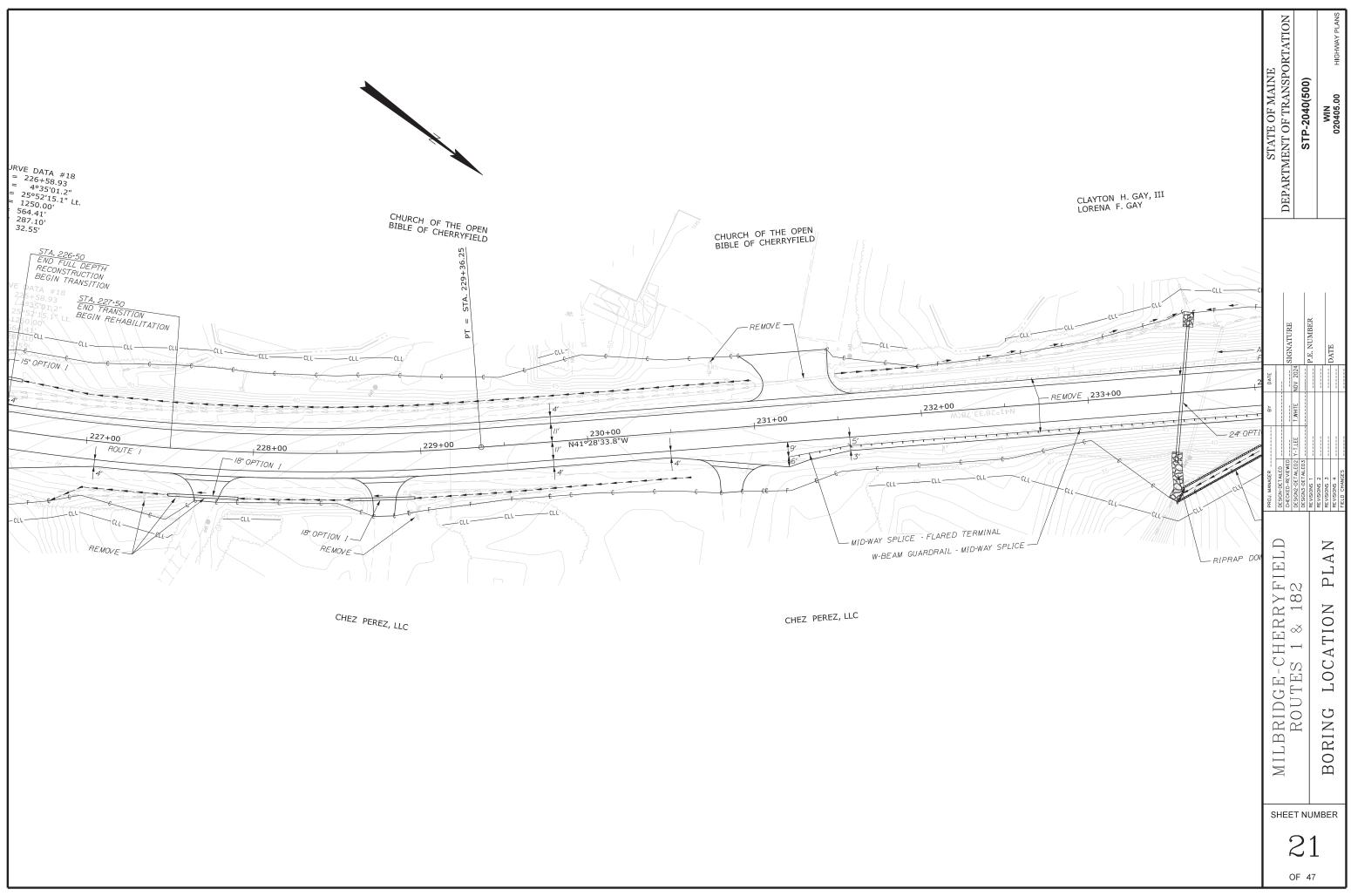


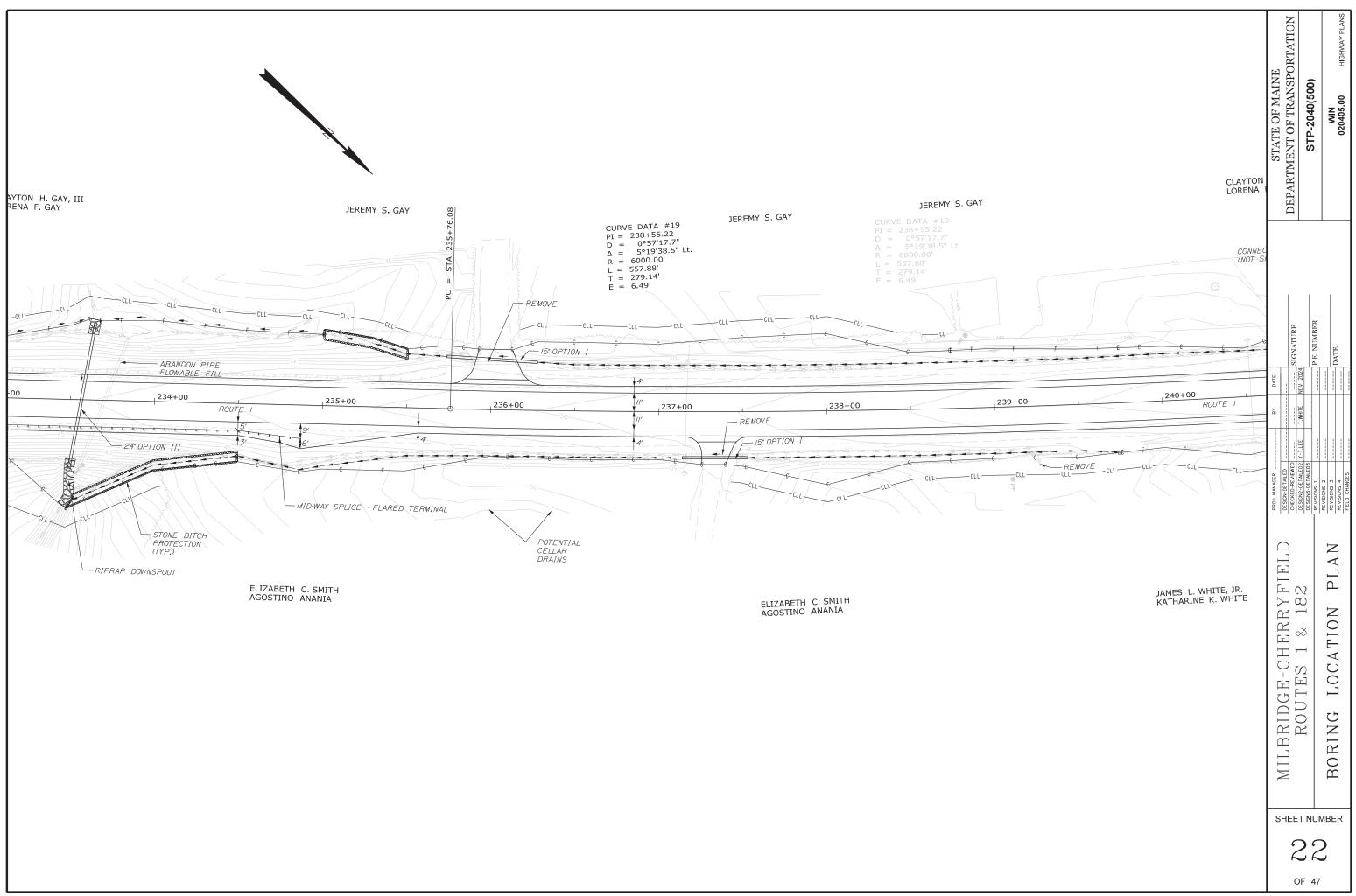
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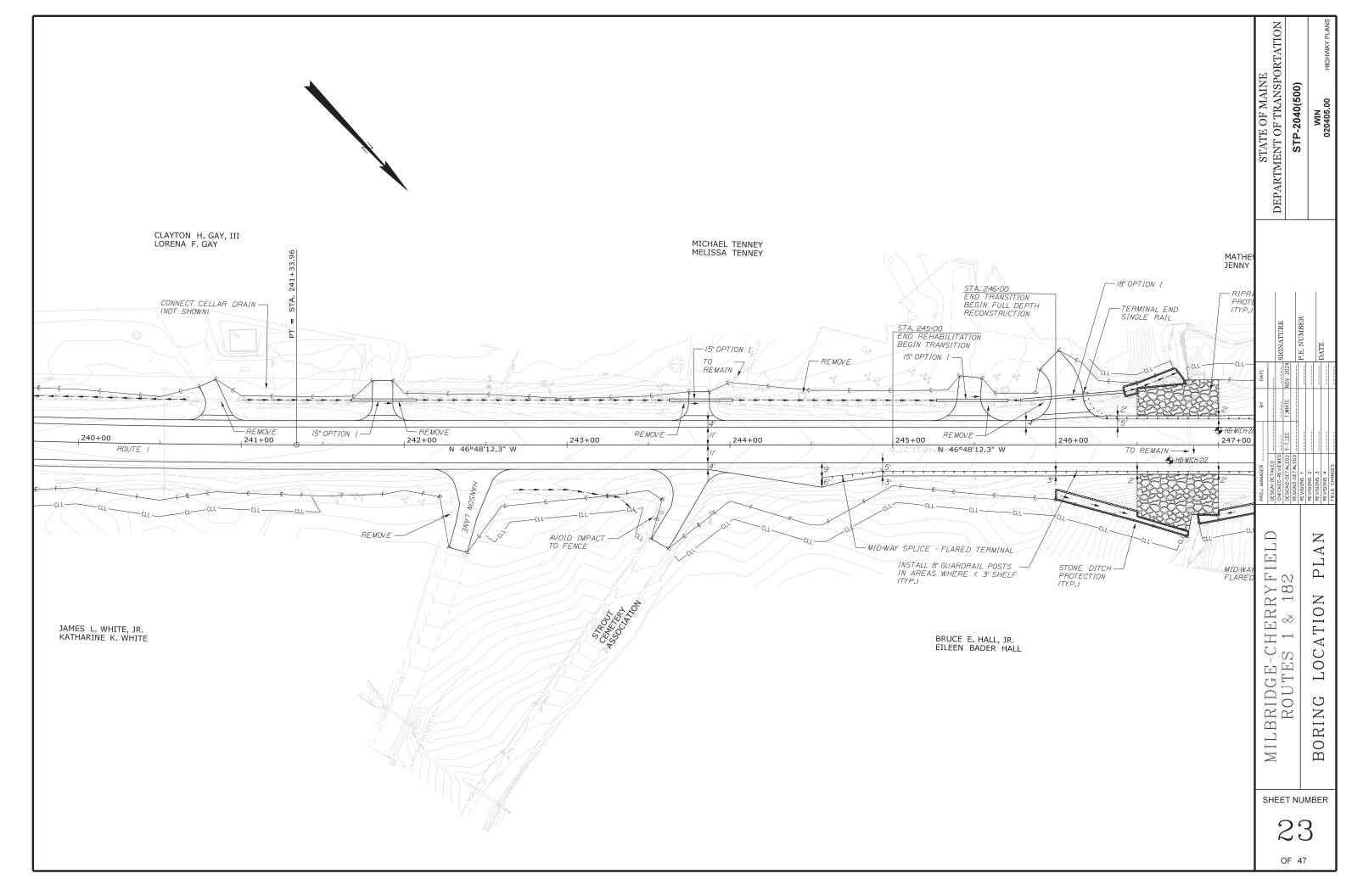
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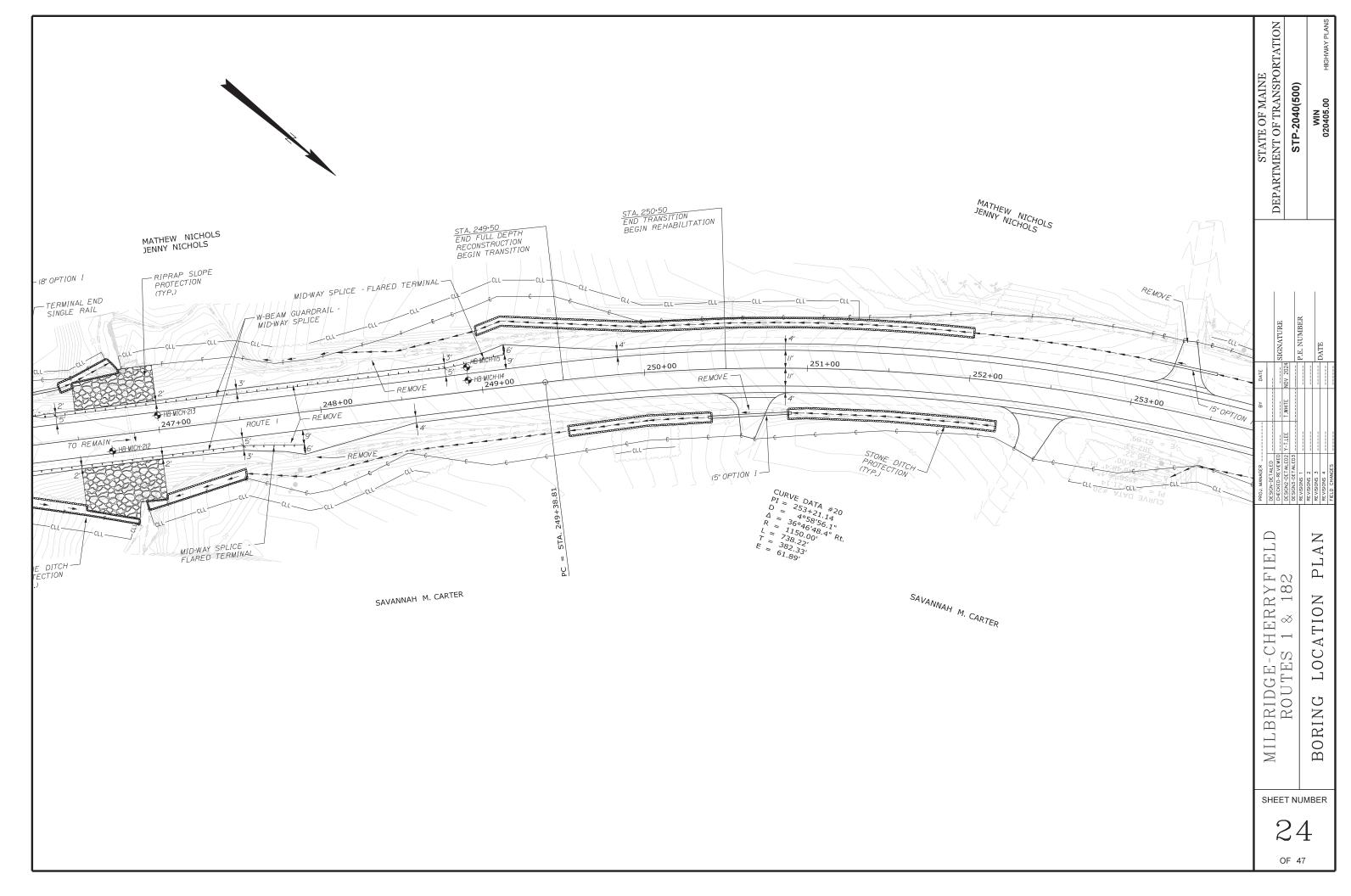


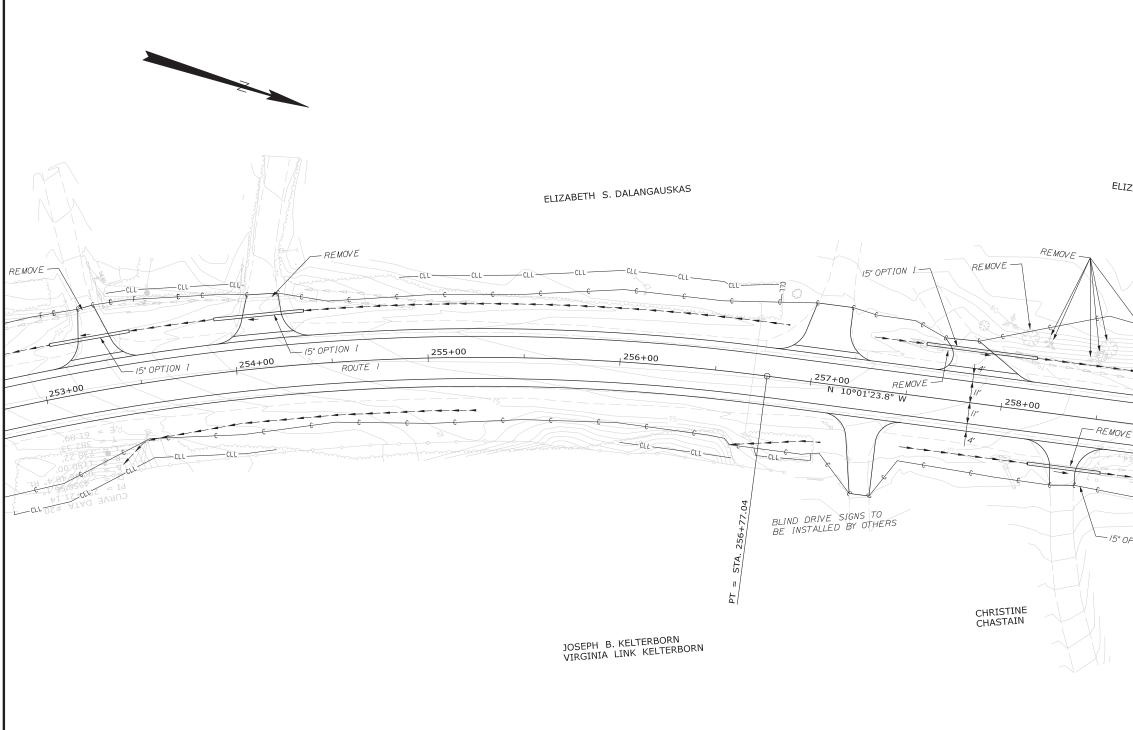




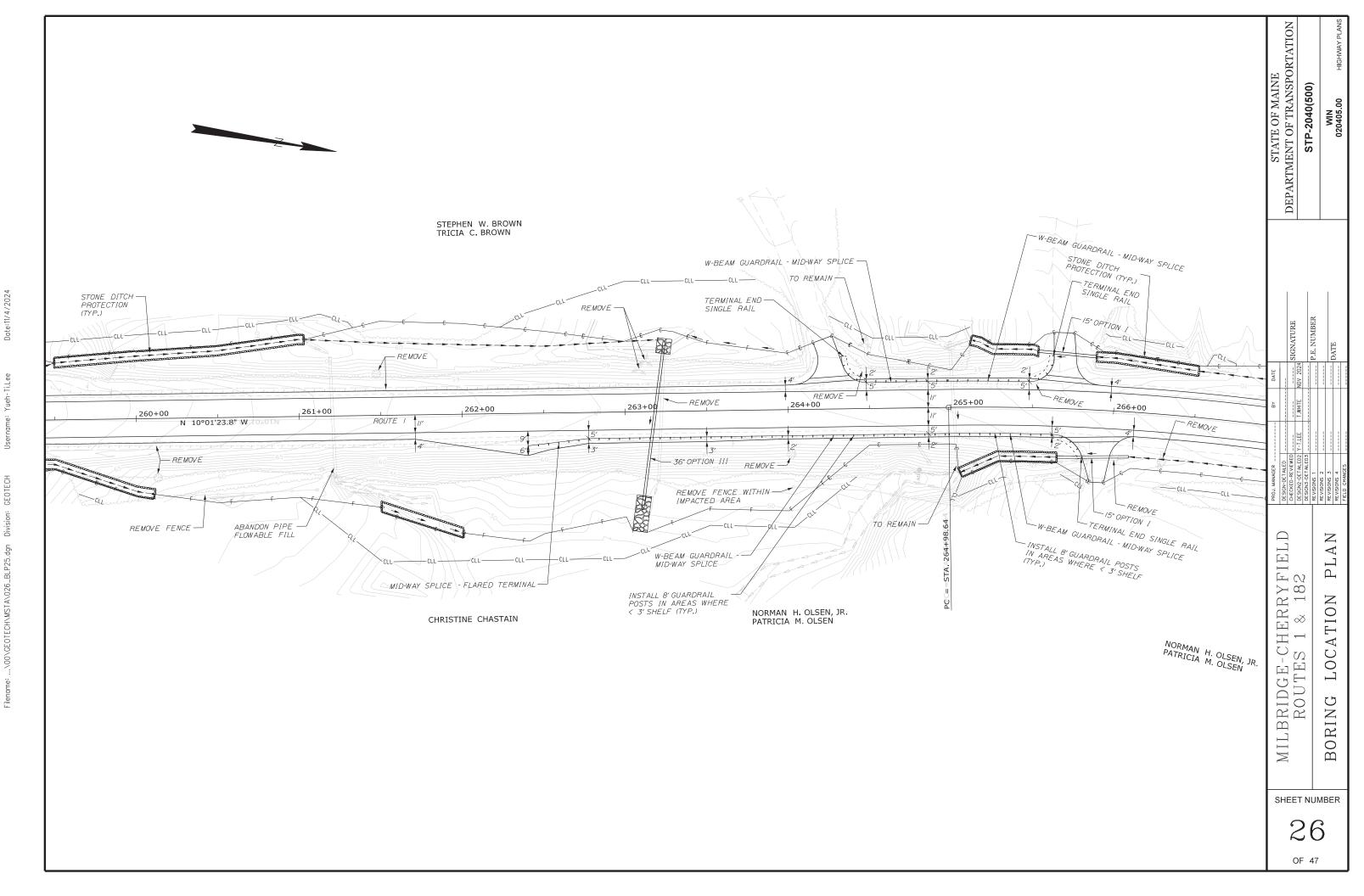
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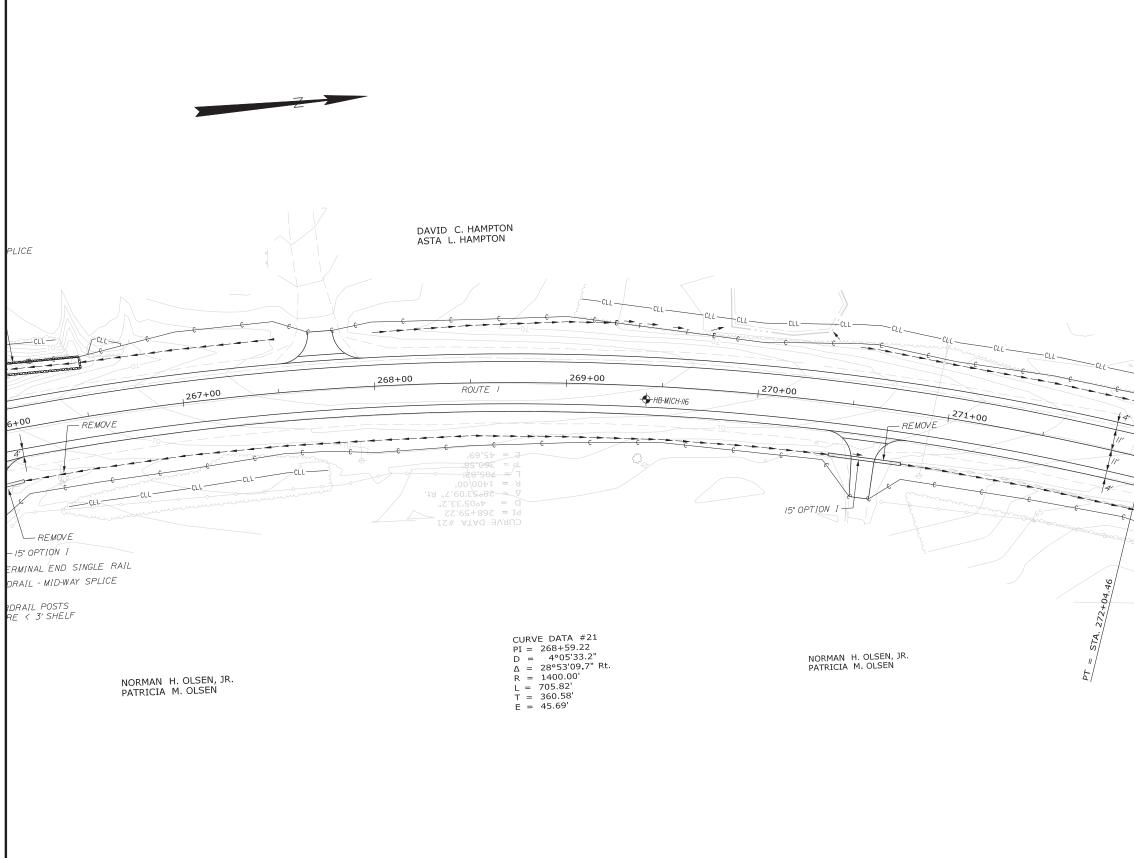


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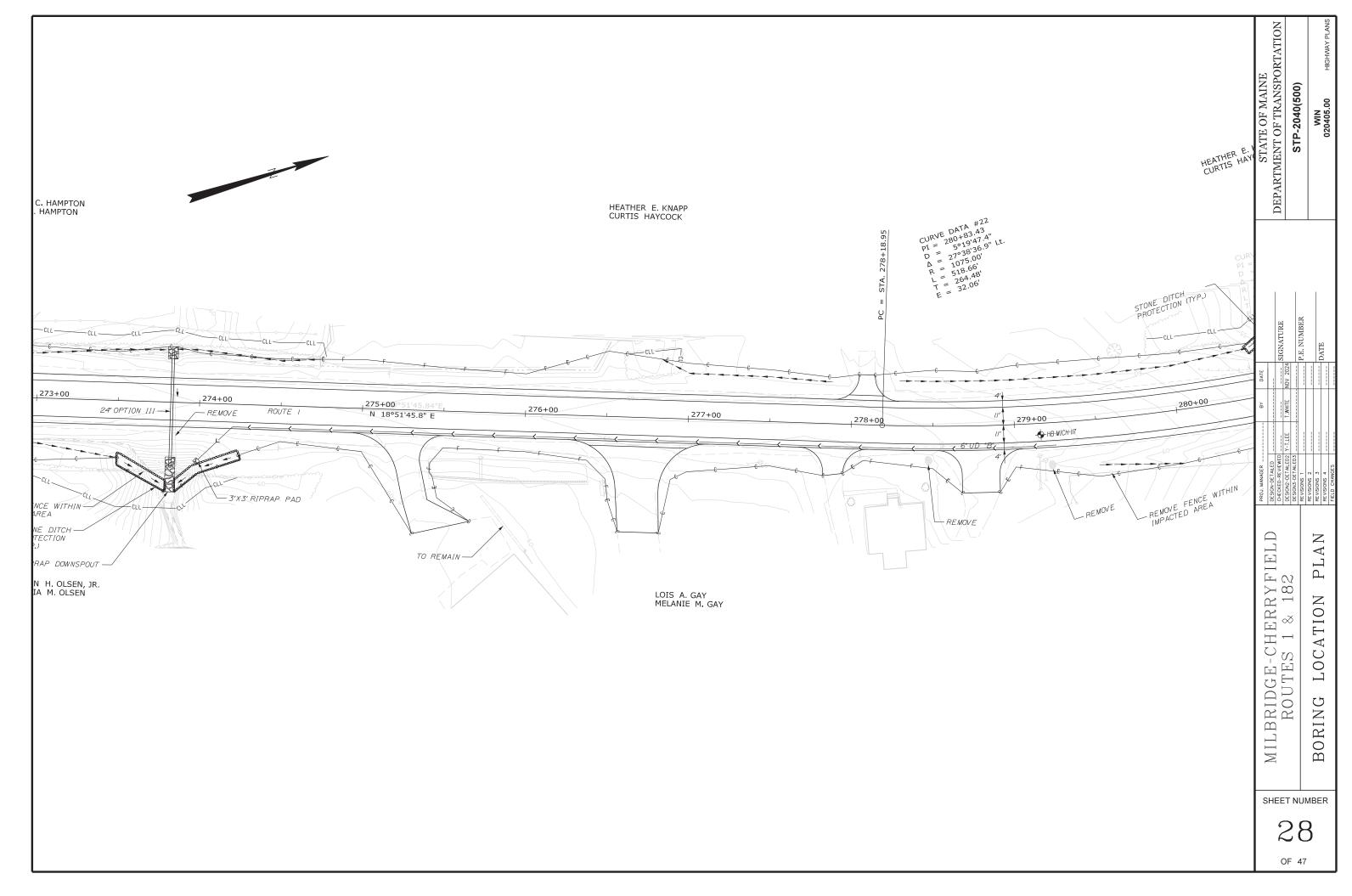


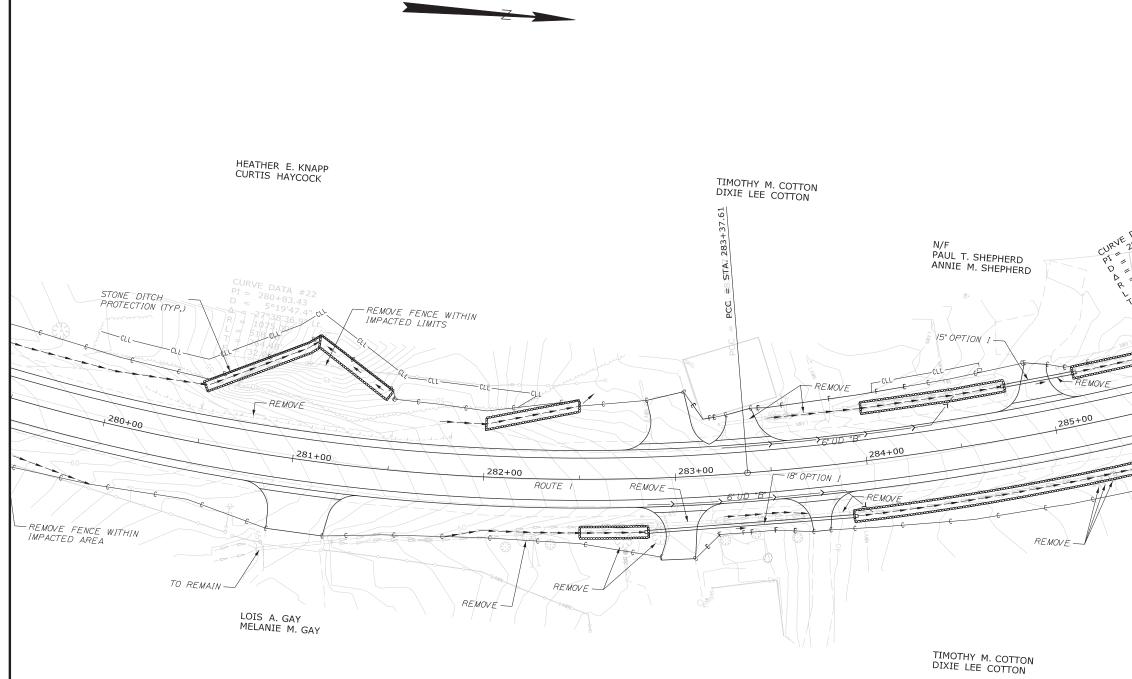
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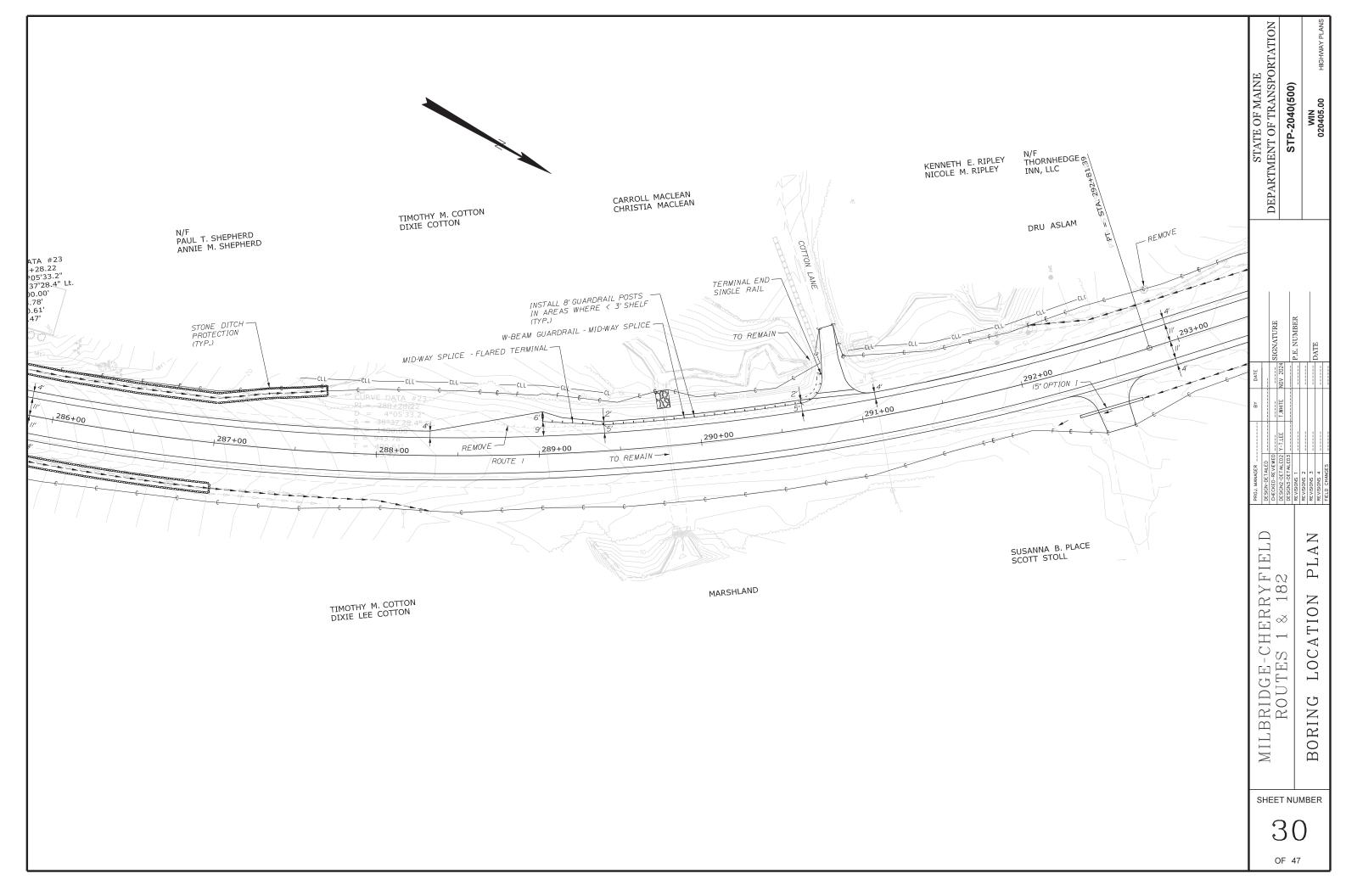


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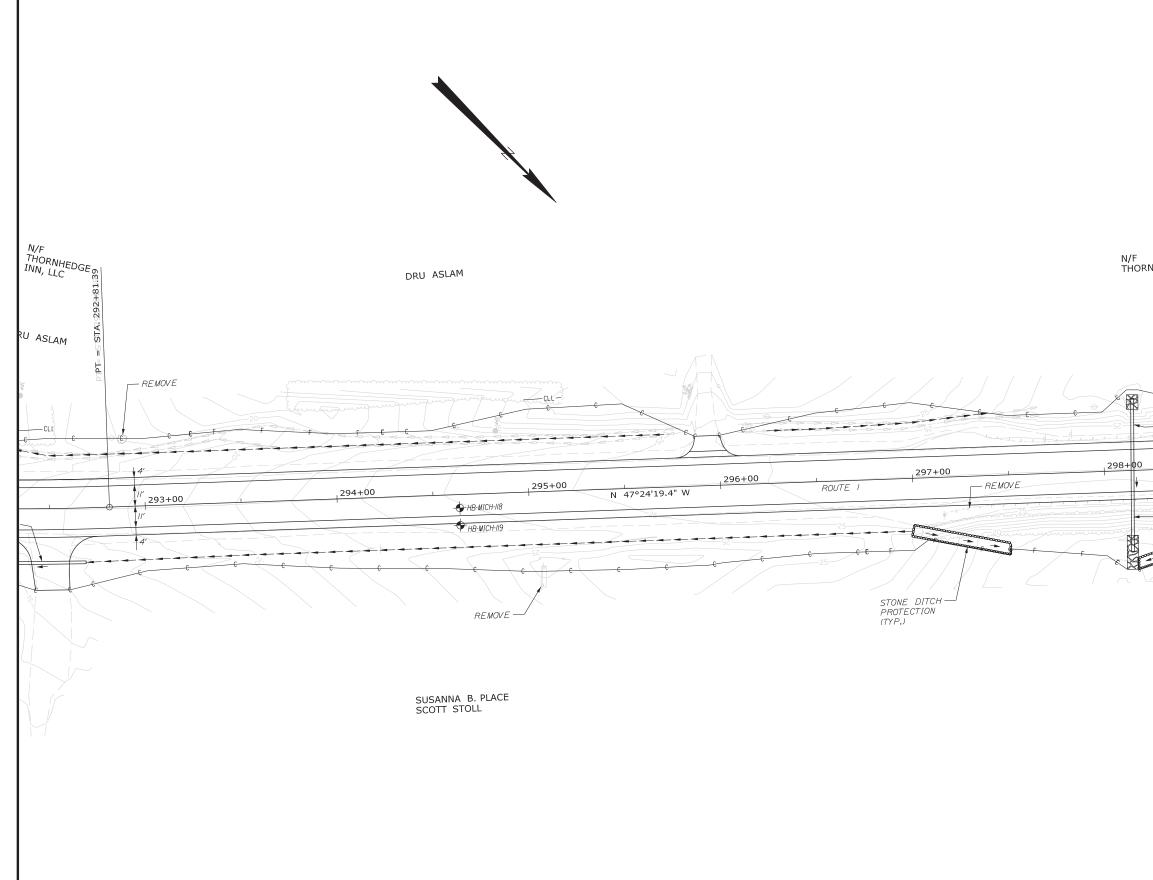


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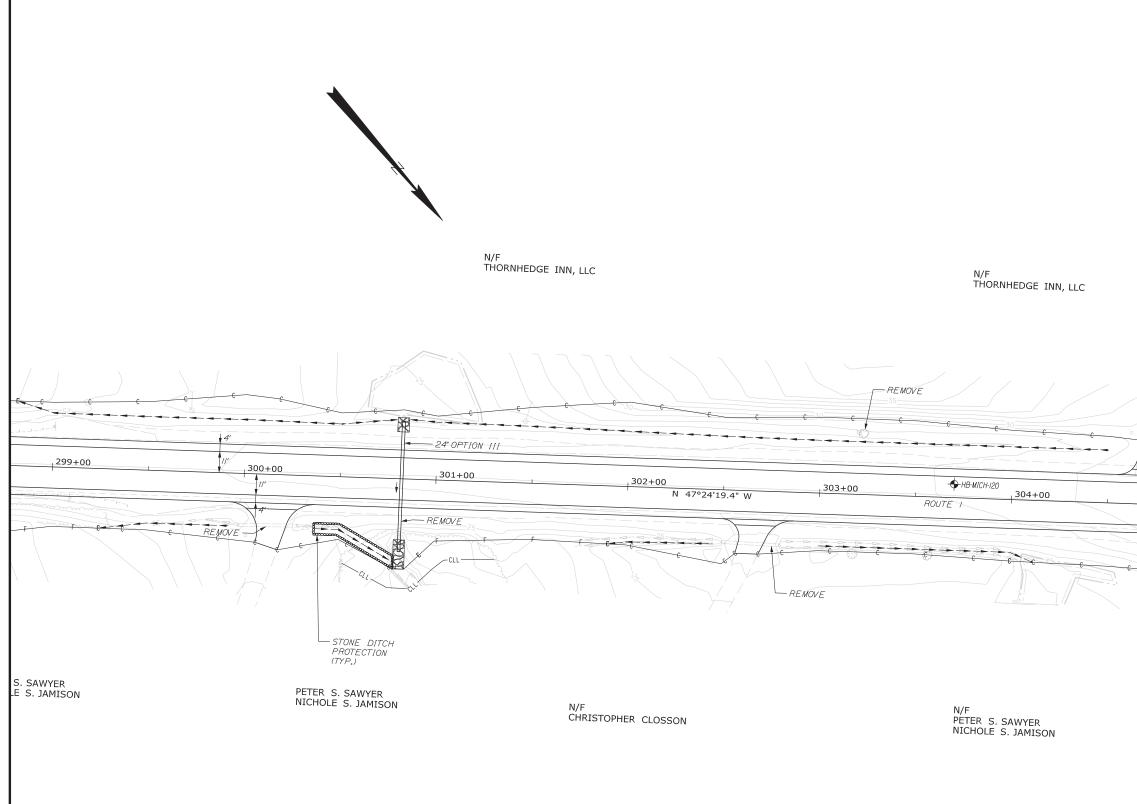


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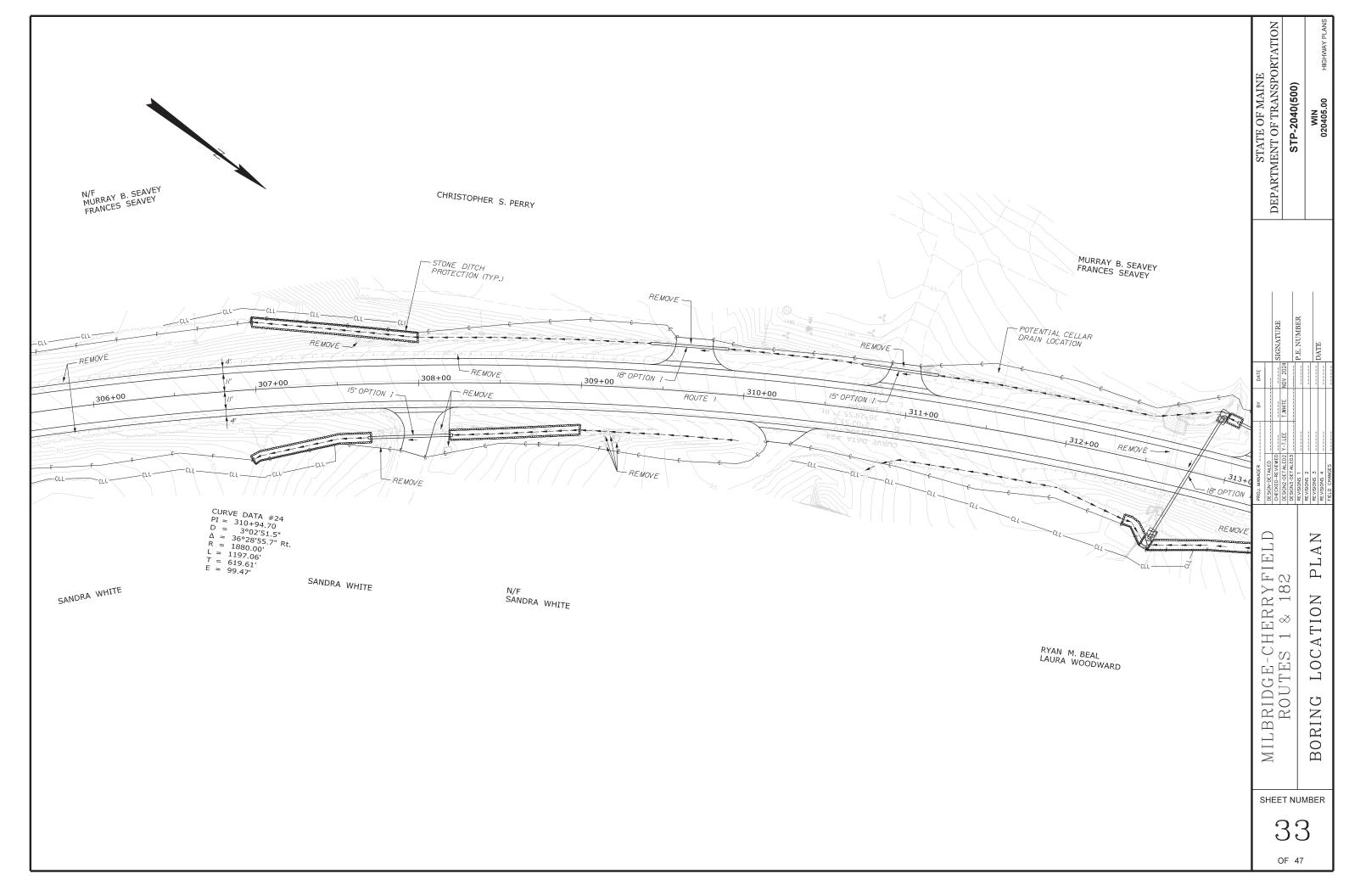


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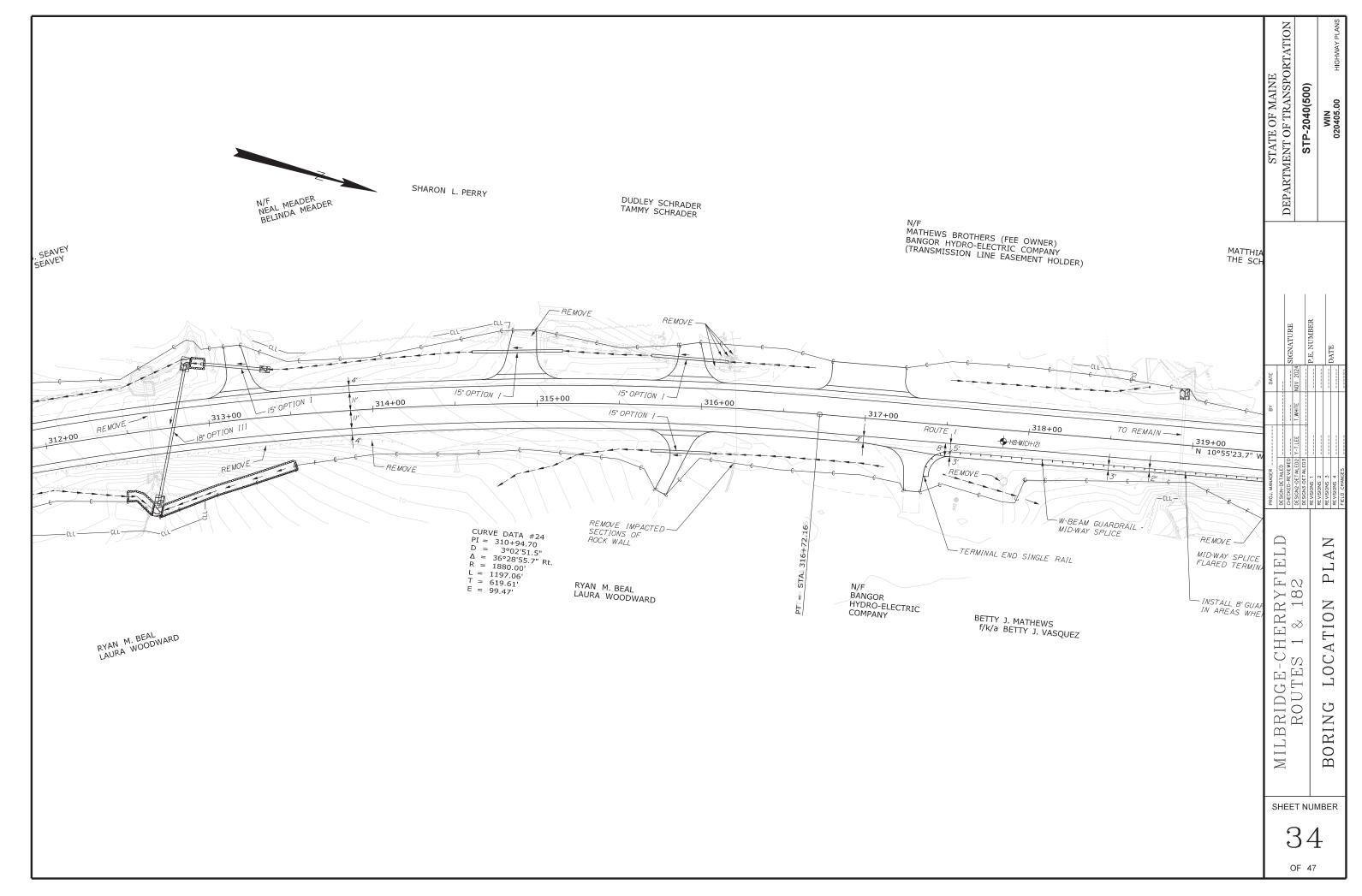
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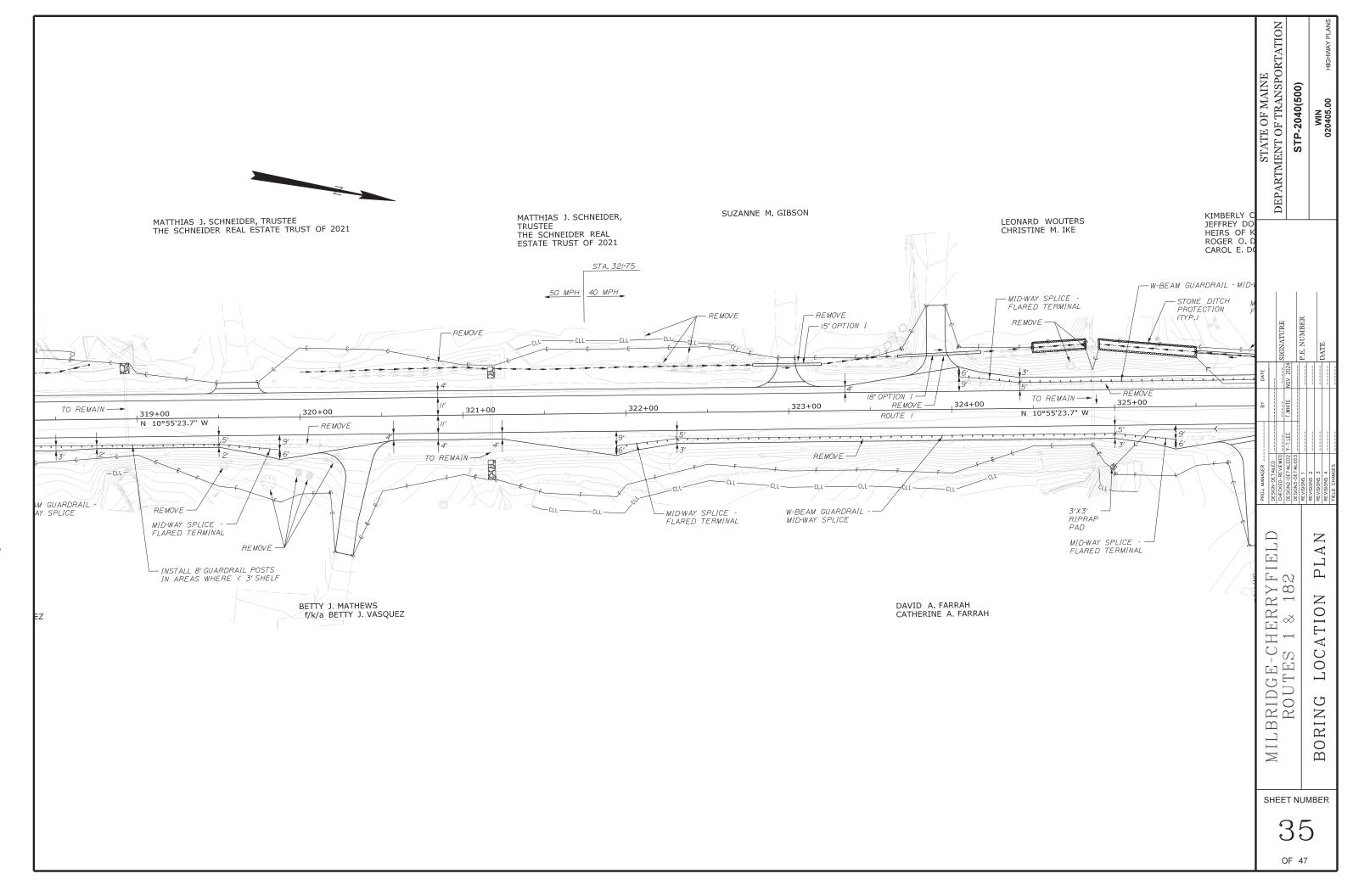
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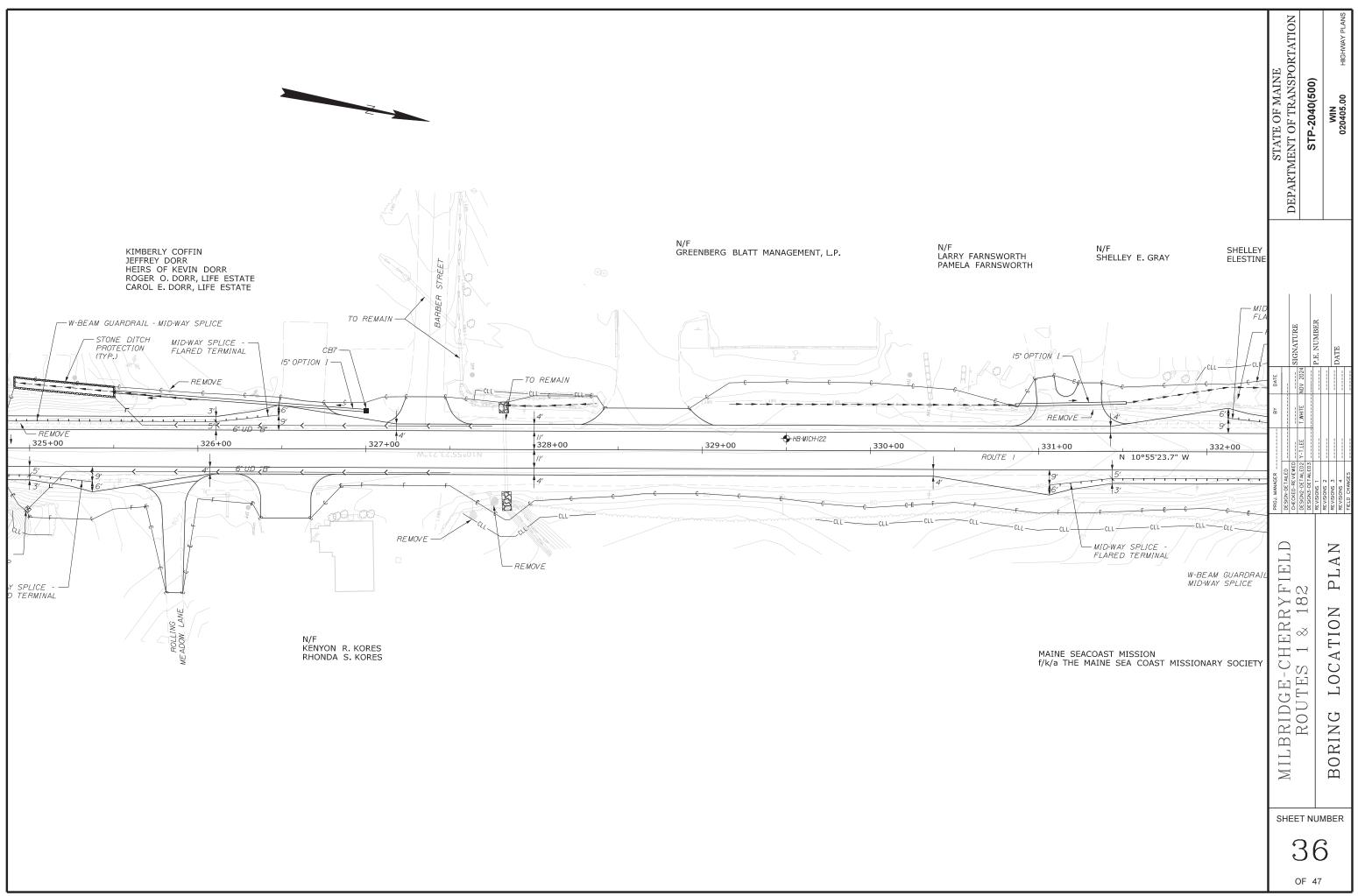
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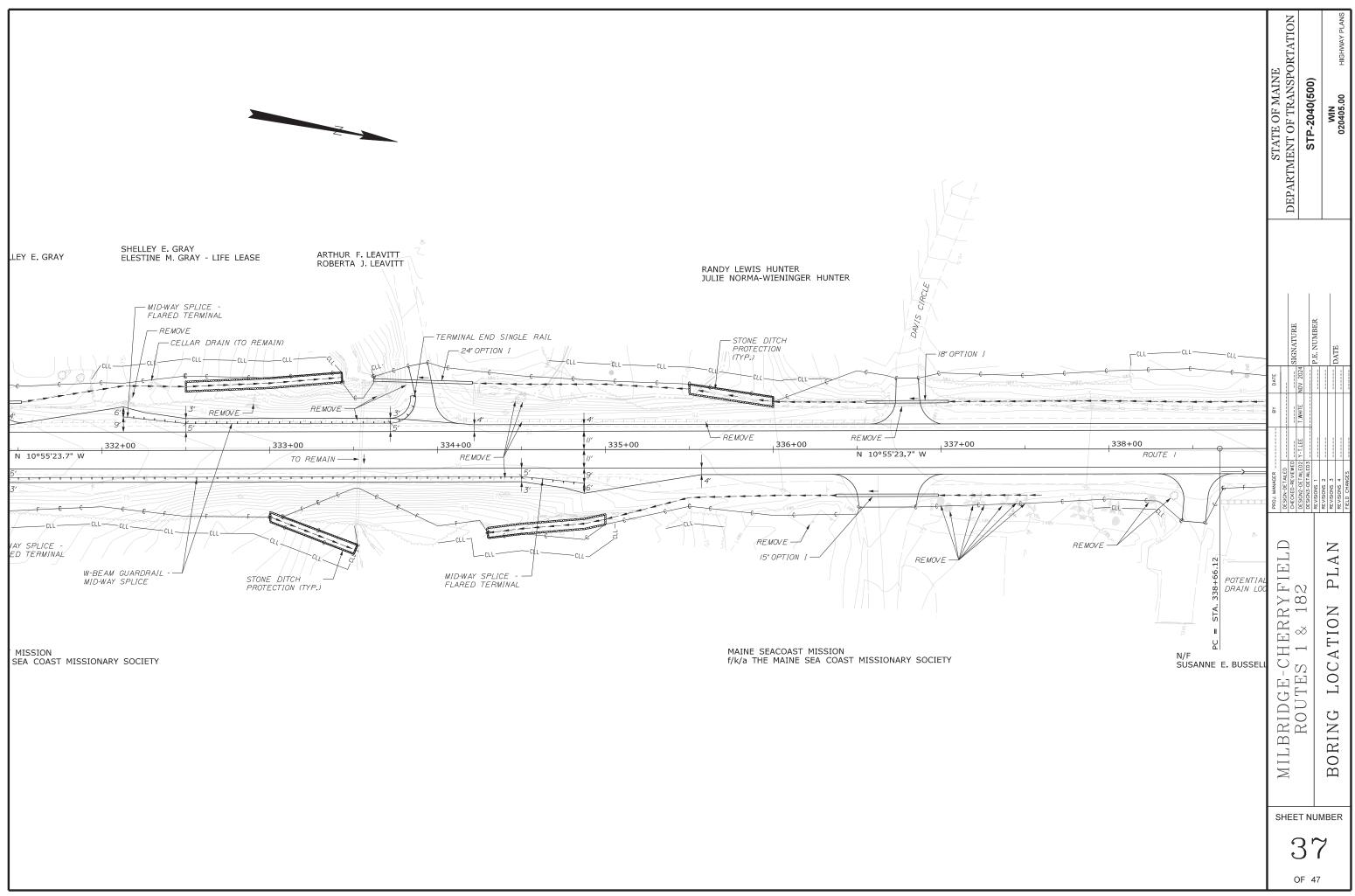
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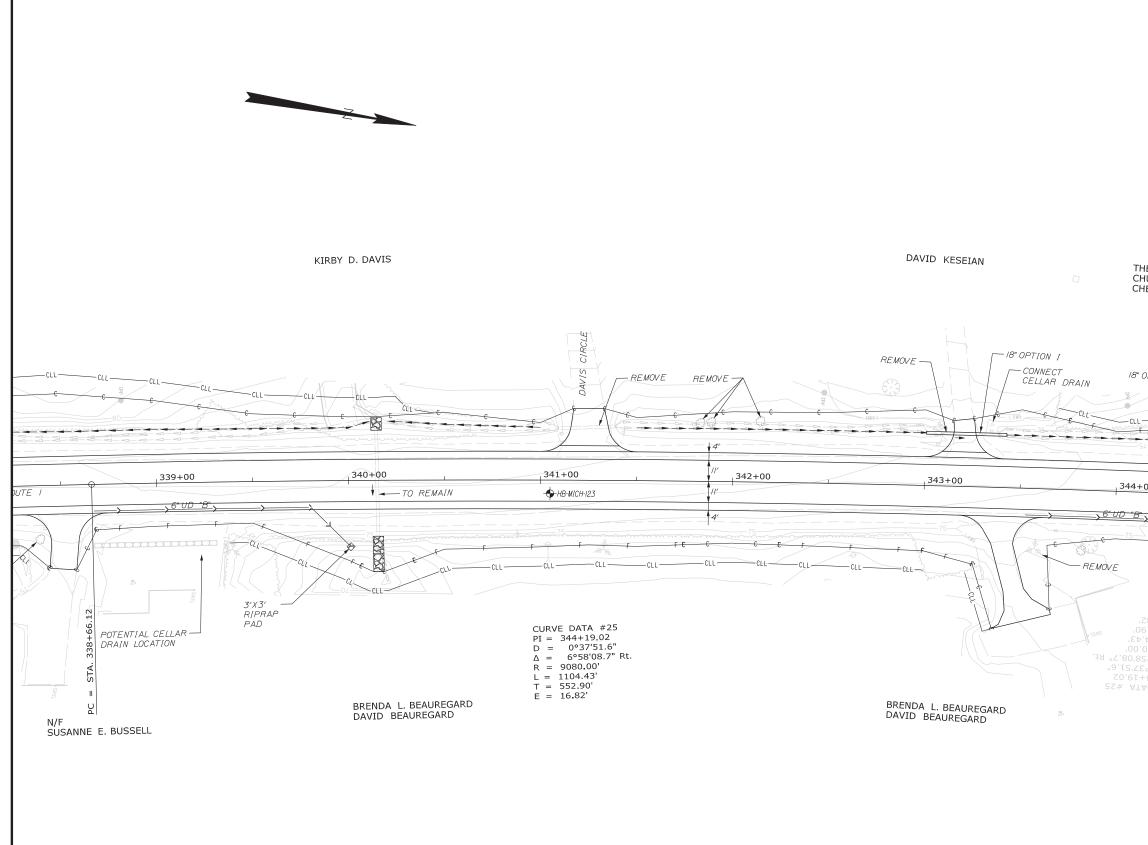




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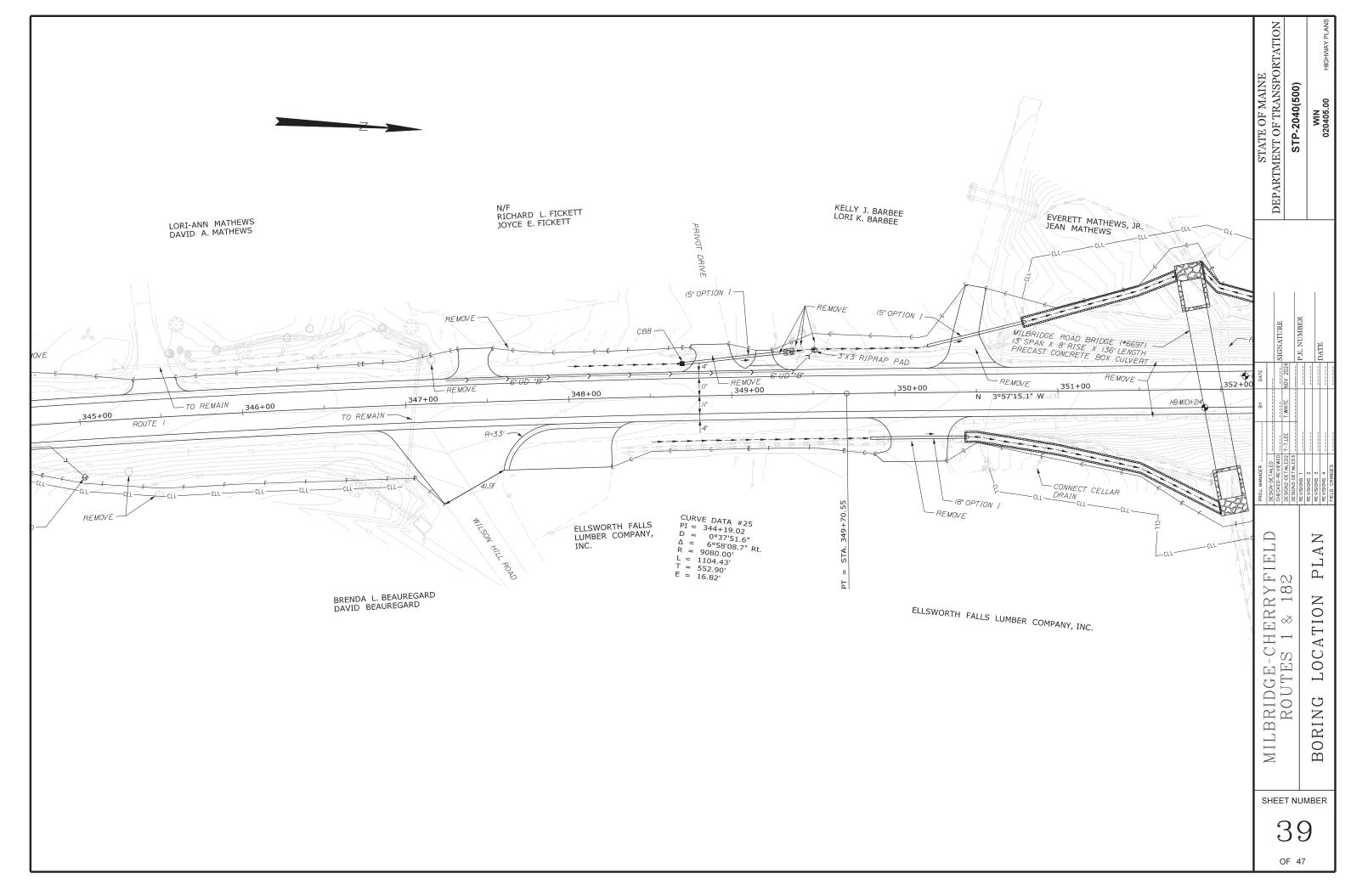
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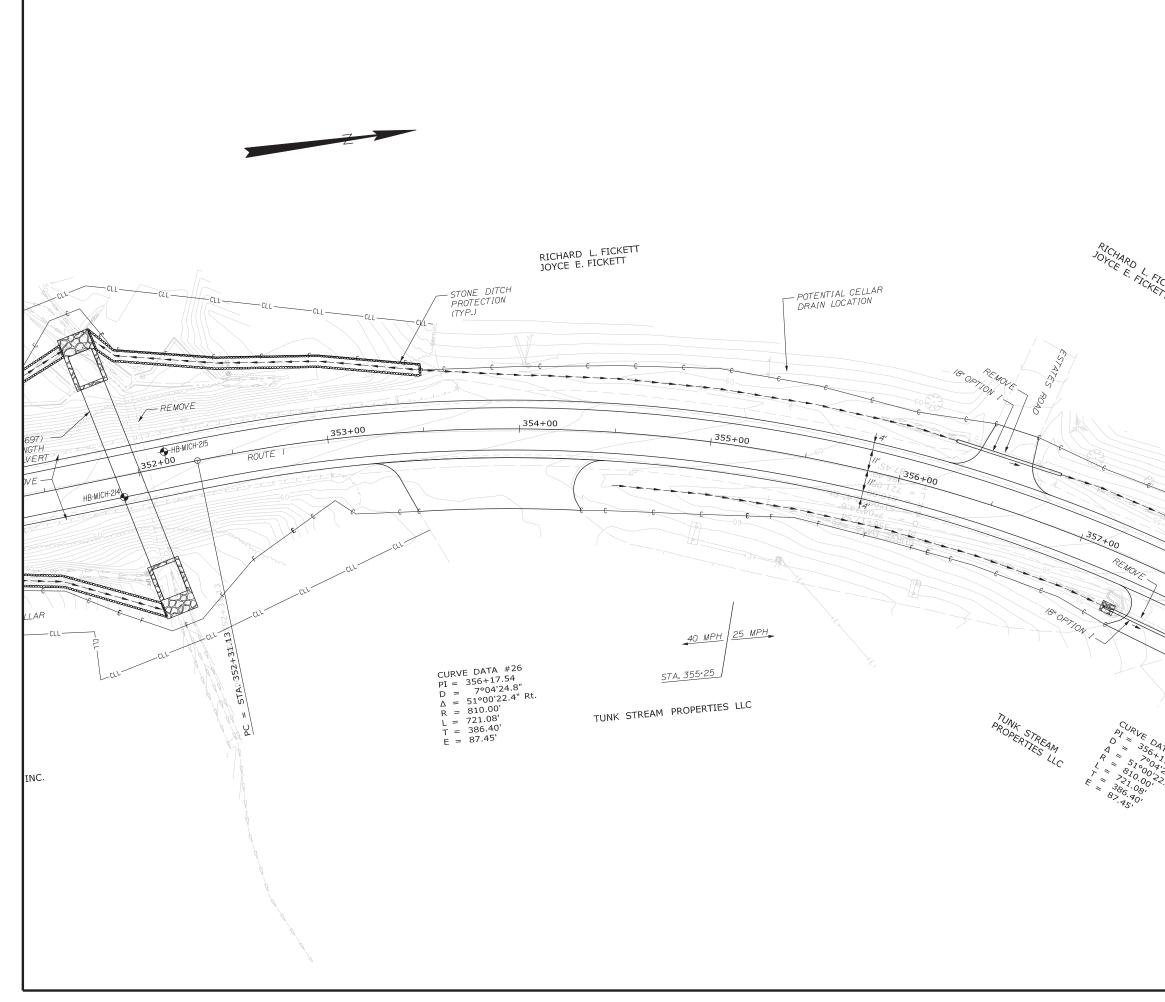
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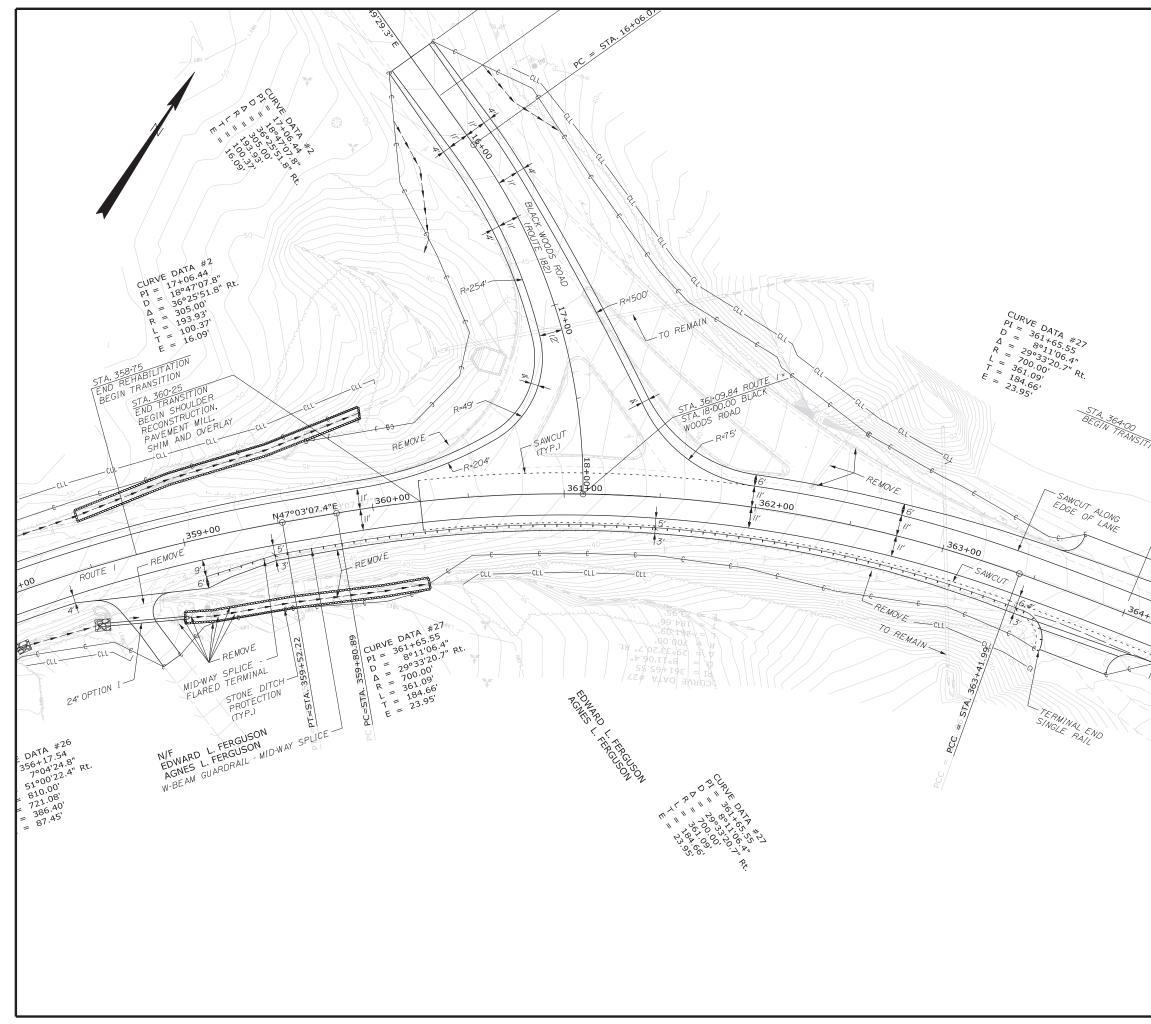


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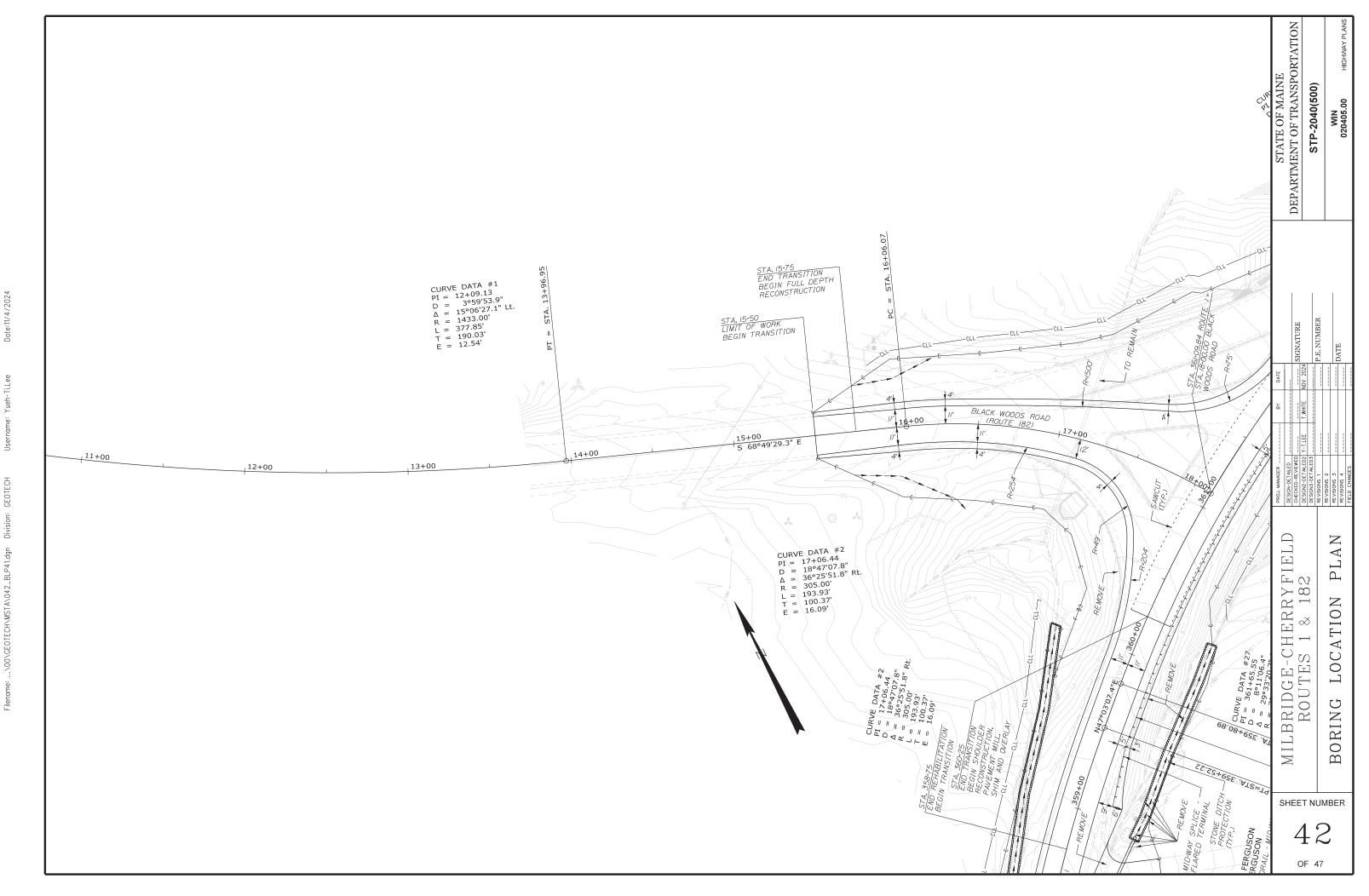
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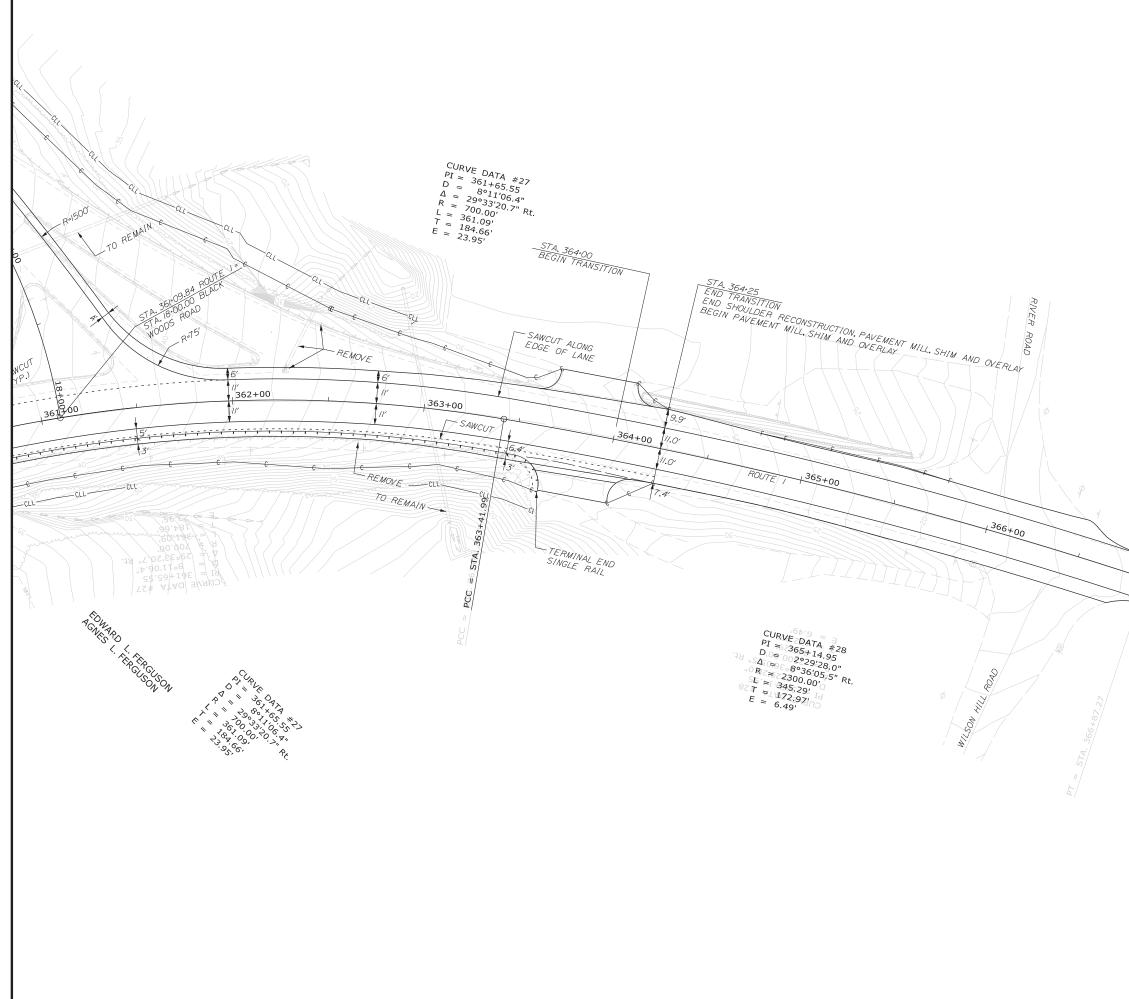
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	STATE OF MAINE DEPARTMENT OF TRANSPORTATION	STP-2040(500)	WIN 020405.00 HIGHWAY PLANS
$STTOM \qquad \qquad STG 354.55 \\ FOO STG 100 STG 100 \\ STG 0.100 STG 100 STG 0.00 STRUCT ON FAX CMCAT MILL STG 0.00 CMC MARK MCLASSTRUCT ON FAX CMCAT MILL 90 STG 0.00 CMC MCLASSTRUCT ON FAX CMCAT MCLASSTRUCT ON FAX CMCAT MCLASSTRUCT$	MILBRIDGE-CHERRYFIELD <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHORTARED</u> <u>DESCHO</u>	KOUTES I & 182 desensatives training to 2024	BORING LOCATION PLAN REVISIONS 2 CONTINUE REVISIONS

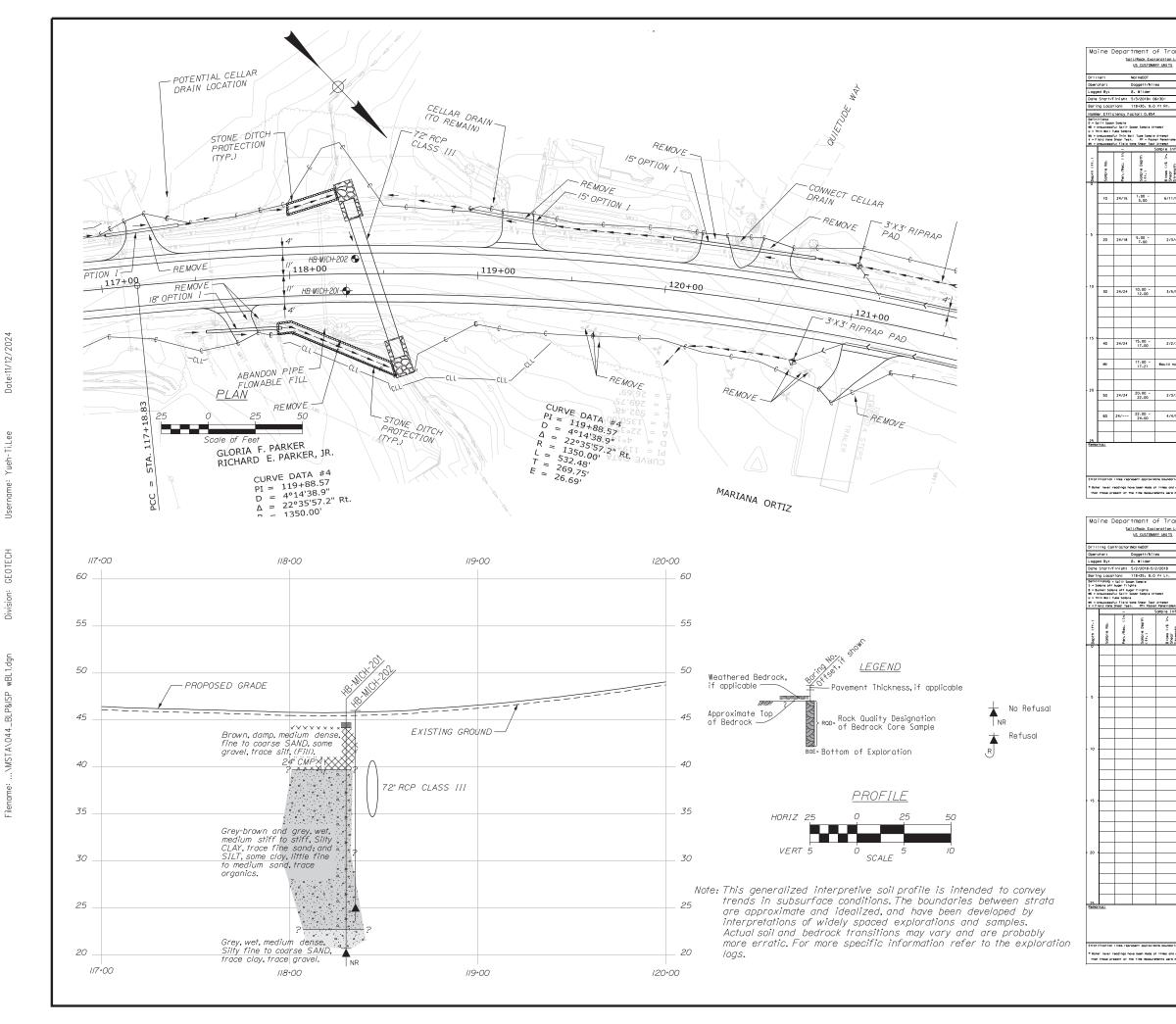


Date:11/4/2024 Ti.Lee Use GEOTECH



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	SIGNATURE P.E. NUMBER DATE
STA. 356-87 END PROJECT STP-204015001 LIMIT OF WORK MATCH EXISTING PAVEMENT MATCH EXISTING PAVEMENT 366+87	PROJ. MANAGER
	MILBRIDGE-CHERRYFIELD ROUTES 1 & 182 BORING LOCATION PLAN
	SHEET NUMBER
	43 OF 47



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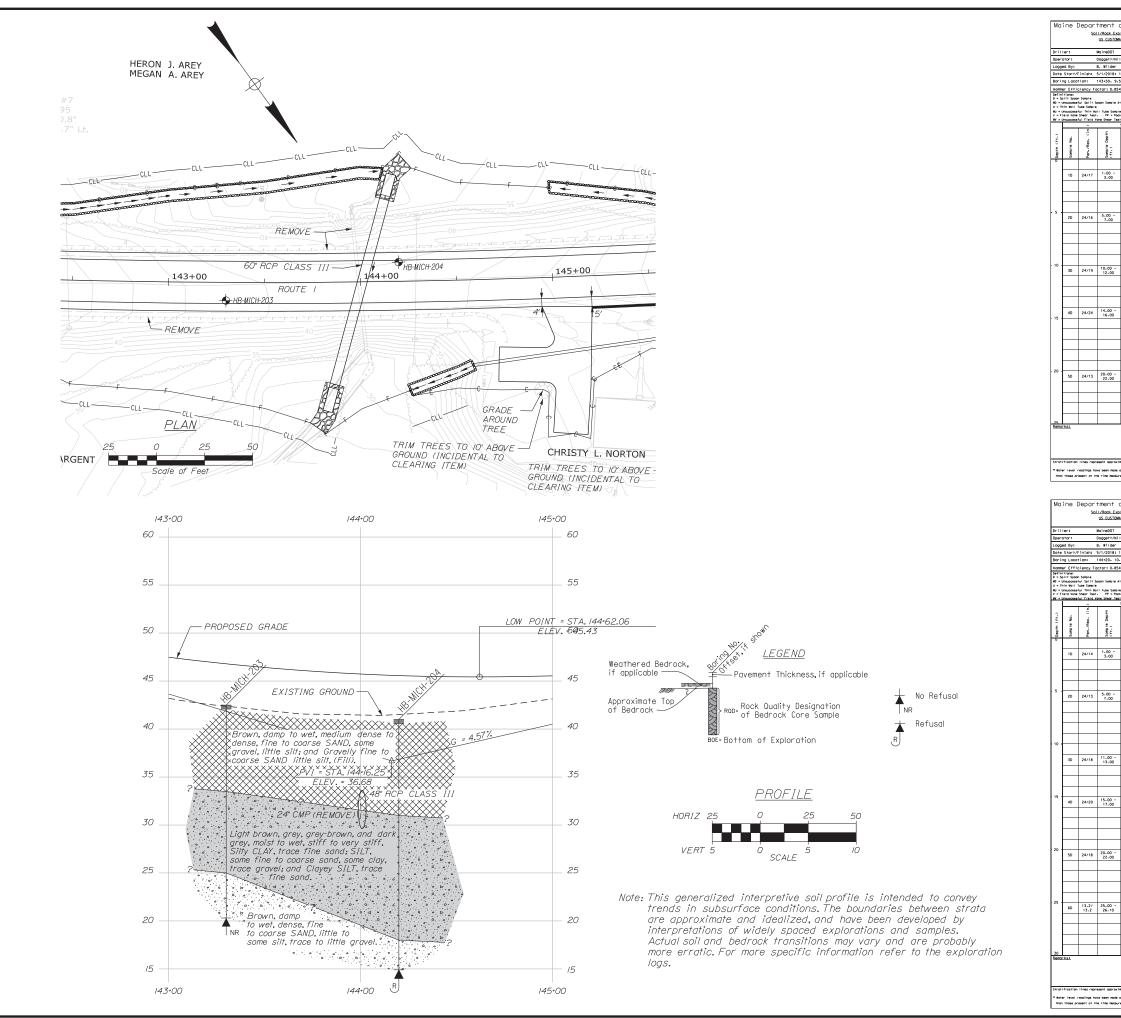
	f Transar	+ + + *						Desting No. 4	CH-201
	f Transpor aration Log	таті		roject	Recon porti	struct on of	ion of a 4.81 mlle Route 1 -Cherryfleid, Maine	Boring No.: <u>HB-MI</u>	LH-201
OMAS	Y UNITS		ľ			, 10ge	cherrynnerut wonne	win:2040	5.00
Nile		Ele	vation	(ft.)	44.7 NAVE			Auger ID/0D: 5" Soild Ste Sompler: Standard Sp	
r	15		Type:		CME			Sompler: Standard Sp Hammer Wt./Fall: 140#/30"	11 50000
	:30- ft Rt.	Dri	II ing I				Boring	Core Borrel: N/A	
9.0 854		Нат	ing ID. mer Typ		NW-3 Automo		Hydroulic 🛛		
	R = Rock SSL = Sol eno1 HSL = Hol	Core Son Id Stem	pte Auger		S _U = S _{ut t} o	Peck/Re 3b) = Ld	Hydroulic molded Fleid Vone Undroined S b Vone Undroined Sheor Streng hed Compressive Strength (ksf	Rope & Cotheod Hences Frequencies Pocket Forview Single the cost st = tore content, pair Lt Licuid Limit the cost st = tore content, pair Lt Licuid Limit memory Example memory Example Picestic Limit memory Cost Picestic Limit contents picestic Limit memory C = Consolition Limit C = Consolition Limit feast	r Strength (psf: rcent
. Att	empt HS& = Hol RC = Roll Attempt VOH = Vet t Penetroneter 100R/C	iow Sten er Cone oht of 1	4015. Ho	mer	Ap = N-unc Homme	Unconfi correcte er Effic	ned Compressive Strength (ks) d = Row Field SPT N-volue lency Foctor = Rig Specific #	IL = Liquid Limit PL = Picatic Limit Innuci Collocation Volue Pl = Picaticity In	dex
051	Attempt #01P = Me	telant ant of	of Rods One Pers	or Cosing	NEO NEO	SPT N-	uncorrected Corrected for Hon r Efficiency Foctor/60%144-un	mer Efficiency C = Oroin Size Anolysi noorrected C = Consolication Test	5
s	ample Information	8				1			Loboratory
		rrect			6	c Log	Visual De	scription and Remarks	Testing Results/ AASHTO
	Blows (/6 Sheor Strength (psf) or R00 (3	-nucorr	N60	Cos ing Blows	E levot 1 [f t .)	aphic		u	and hified Class
+	a 0, 0, 2, 9	ż	ž	U m SSA	ш÷ 44.2	3	6.5" HMA.	-0.5	
-	6/11/9/11	20	28	-			Brown, domp, medium d	lense, fine to coorse SAND, some Fill).	6#336734
-				-					А-1-Б. SW-SM WC=4.3%
-				-					
-				+					
+	2/3/4/5	7	10	-	39.7		Grey-brown, wet, stif	f. Silty CLAY. trace fine sond.	G#336735
+	213/4/5	'	10	_		龖			A-4, CL-ML MC=30.3% LL=26 PL=21 PI=5
+				_		龖			PL =21 P1 +5
+				_		翻翻			
+				$\frac{1}{2}$	35.7	8888	1	9.0	
_				V			Grey-brown, wet, stif to medium sond, troce	f, SILT, some clay, little fine	G#336736
	3/5/5/5	10	14	11			to medium sond, trace	organics.	A-6. CL MC=30.4% LL=37 PL=21 PI=16
_				14					LL=37 PL=21 P1=16
				16					
				20	30.7				
				23					G#336737
-	2/2/3/3	5	7	OPEN			Roller Coned cheod to	ff. Silty CLAY. trace fine sand. 17.0 ft bgs.	A-6. CL WC=30.8% LL=34 PL=21 P1=13
									LL=34 PL=21
-	Would not Push						Folled 55x110 mm vane	attempt.	P1=13
				$\mathbf{\nabla}$					
-	2/3/3/3	6	9	v			Grey, wet, stiff, Sil	ty CLAY. trace fine sond.	G#336738 A-6. CL
									G#336738 A-6. CL WC=30.2% LL=35 PL=23
-	4/4/5/7	9	13		22.7	CANKN.	Grey, wet, medium den	se. Silty fine to coorse SAND, wel.	P1=12
									A-6 CL MC=28.6% LL=33 PL=19 P =14
					20.7		Bottom of Exploration (24.0 at 24.0 feet below ground surface.	PL=19 P[=14
									•
ox i me	te boundories between	soil typ	est from	sitions m	oy be gr	odual.		Page 1 of 1	
50 OT	times and under condi						noy occur due to conditions o	other	
sur e	nents were mode.							Boring No.: HB-MICH-	201
0	f Transpor	tati	on	roiec+	Recon	struct	ion of a 4,81 mile	Boring No.: HB-MICH	1-202
XD I	oration Log		ĺ	ocatio	porti Milt	on of oridge	ion of a 4.81 mile Route 1 -Cherryfield, Maine		
UMAR	IY UNITS								5.00
		Ele	vation	(ft.)	46.0			Auger ID/0D: 5" Dio.	
Nî le	19	-	um: Type:		NAVE			Sompler: N/A Hommer Wt./Foll: N/A	
	/2018	Dri	II ing I		Sol i		n Auger	Core Borrel: N/A	
8.0	ft Lt. MU = Unsuc	Cas essful	ing ID. Inin Keil	/OD: Tube So	N/A mpie A11	empt M	IP = Weight of 1 Person	Water Level*: None Observe	bi
	MU = Unsuo R = Rock D SSA = Solit empt HSA = Holler RC = Roller Attempt WDR/C Penetrometer WDR/C moula _ Deformetion	ore Sono d Sten A	le Joer			5,	- Peck/Remoted Field Vone t 100) = Lob Vone Undroined St	undroined Sheor Strength (psf) heor Strength (psf) LL = Liquid L rength (ksf) PL = Plostic Pl = Plostic	ted +
e Att	RC = Roller Attempt WDH = Value	Cone tof 14	Jib. Hom	*		Q N T	= Pocket Torvone Shear Street	hadro Strength (psf) LL = Liquid L namo Strength (hsf) PL = Plostic n Pl = Plostic npth (psf) G = Groin Siz	ty Index e Anolysis
ocket S	Attempt NDH = Nelg Penetrometer NDR/C ample Information	• Weight	of Rods	or Cosin	9 		= Noter Content, percent	C = Consol Ido	Tion Test
1	è			Ι	8				Laboratory Testing Results/ AASHTD
	Blows (/6 ir Shear Strength (psf) or R00 (%)	3	2.	at ion	Graphic Log		Visual Descr	iption and Remarks	Results/ AASHTD
	Shear Shear Stren (psf) or R0	N-volue	Costing Bioes	Elevatio (ft.)	Sraph			L	and hified Class
		L.	SSA	1	_	Prob	e, no soil samples take	n,	
		1	\square	1					
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STATE OF MAINE		DEPARIMENT OF IKANSPORIATION		STD JUANEDAN	0115-2040(000)		MN	020405 00 HIGHWAY PLANS	
		SIGNATURE,			P.E. NUMBER			DAIE	
C DATE			-						
BY			T.LEE T.WHITE						
PROJ. MANAGER	DESIGN-DETAILED	CHECKED-REVIEWED	DESIGN2-DETAILED2 Y-T.LEE	DESIGN3-DETAILED3	REVISIONS 1	REVISIONS 2	REVISIONS 3	REVISIONS 4	FIELD CHANGES
						SURING LUCATION PLAN	VF SURSURF		KING LUGS
s	н	EE	T	N	IU	M	ЗE	R	
		Z	1	-	Z	1			

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les between soll typest transitions may be gradual.	Poge 1 of 1
under conditions stated. Groundwater fluctuations may occur due to conditions other made-	Boring No.: HB-MICH-2

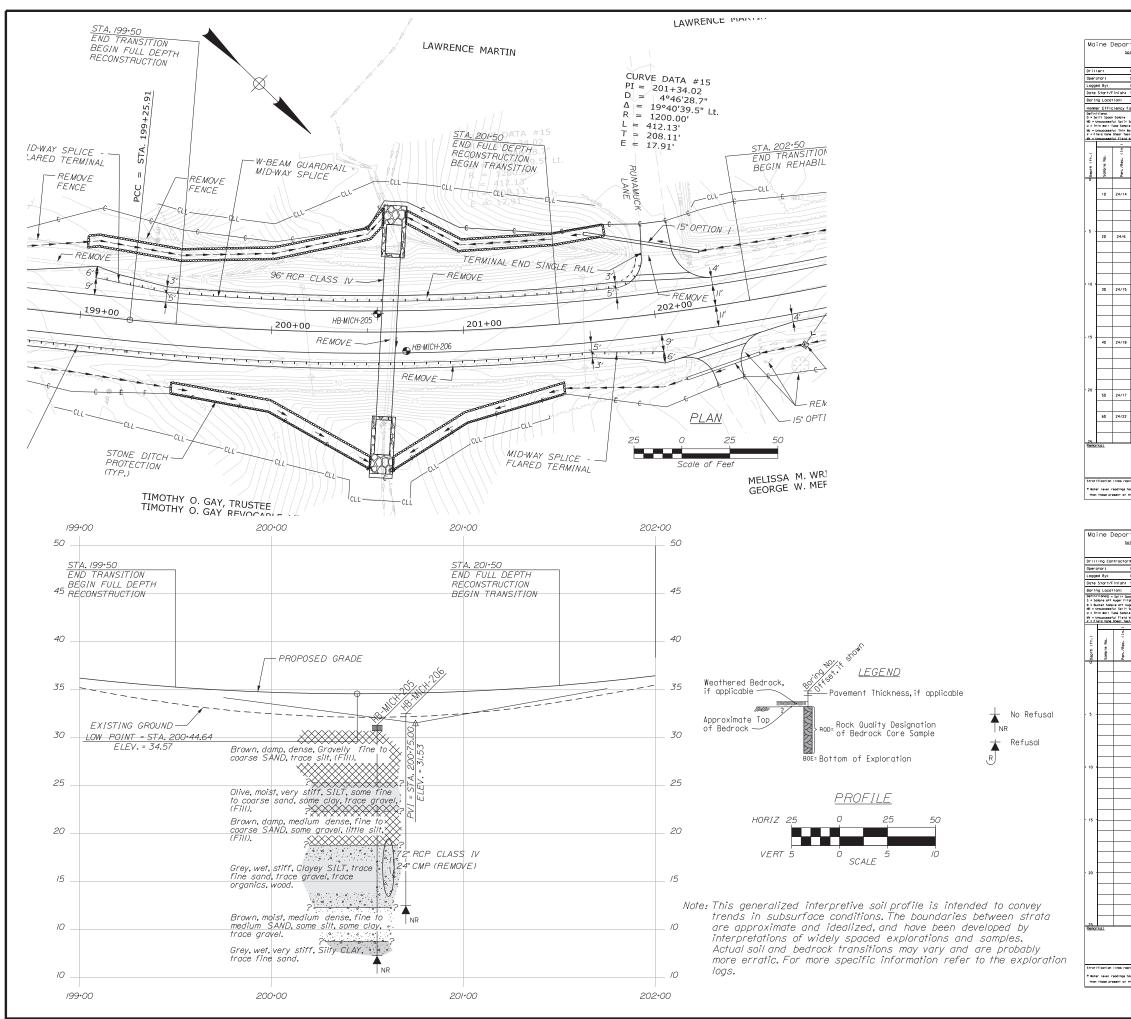
20. Bottom of Exploration at 20.5 feet below ground surface. NO REFUSAL



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65	Dat		(ft.)	42.5 NAVE	880		Sampler: S	" Solid Ste tandard Spi 40#/30"	
0:00- ft Rt.	Dr i Cos	lling ing ID	Method: /00:	Cose		h Boring	Core Borrel: N	.0 ft bgs.	
R = Rock SSA = Sol empt HSA = Hol	Core Son	wher Ty tole Auger	pe:	Automo S _a =	Peck/Re	emolded Field Vone Undroined	ngth (psf) BC = Bote	Torvone Shear or Content, per	Strength (p
enot HSL = Hol RC = Roll Attempt WOH = Bel Penetrometer WOR/C - Attempt WOIP = Me	iow Sten er Cone ght of 1	4015. Ho	nmer or Contin	q _p = N-uni Homm	Unconfi correcte er Effic	ab Yone Undrained Shear Stre ined Compressive Strength (k ed = Row Field SPI N=volue clency Factor = Rig Specific understeed Compressies (or N	sf) LL = Lia, PL = Pica Annual Calibration Value Pi annuar Efficiency C = Grain uncorrected C = Consc		34 x
ompile internetion		One Pers	ion I	Nan	(Honne	er Efficiency Foctor/60%>+N-	uncorrected C = Consc	oildation Test	
	orrected			t ion	ic Log	Visual D	escription and Remarks		Laborator Testing Results AASHTD
Blows (/6 Shear Strength (psf) or R00 (%)	N-uncor	N60	Cosing Biows	Elevoti (ft.)	Graphic	5" HMA.		U	and and alfied Cic
6/13/21/20	34	48	SSA	42.1			fine to coorse SAND+ son	0.4- me gravel.	G#336740 A-1-b, S WC=5.8%
0.13721720	34								WC-5.8%
11/5/7/30	12	17				Brown, damp, medium SAND, little silt, l	dense, Gravelly fine to a Filli .	coorse	G#33674 A-1-b. S WC=5.4%
				35.9 35.5	****	Layer of Did Pavemen	ıt.		WC=5.4%
			V	33.5			very stiff. Silty CLAY. 1	9.0	_
3/5/6/13	11	16	24 33			sand.	very stitt. Silty CLAT. 1	froce tine	G#336740 A-4. CL WC=22.81 LL=30 PL=20 Pl=10
			35						PL=20 P1=10
			55			Grav. wat. stidd. Si	Ity CLAY, trace fine son	-	G#33674)
4/4/5/5	9	13	OPEN HOLE			,	, in our time sone	-	A-6, CL WC=27.8 LL=36 PL=21 P1=15
			\vdash						PL=21 P1=15
				25.0	8888	8			
	-	-	V						
7/12/11/10	23	33				Brown, damp, dense, little gravel,	fine to course SAND, Iii	ttle silt.	G#336744 A-1-b, S WC=14.8
				20.5		Bottom of Exploration	at 22.0 feet below groun	22.0	
	-	-				NO REFUSAL			
nents were nose. of Transport	tions st	ated. 6	roundwate		uotions	may accur due to conditions	Boring No.: H	HB-M10	CH-204
f Transpor ration Loa Y UNITS	tions st toti	ored, 6	roundwate	Recon porti n: Nill 41.0	istruct on of bridge		Boring No.: H Boring No.: WIN: Auger 10/001 5		CH-204 5.00
f Transpor <u>ration Loa</u> Y <u>UNITS</u> s	tions st toti Eie Dat Rig	On	Project Locatio (ft.)	Recon porti n: Nill 41.0 NAVE CNE	istruct on of br1dge 0 088 45C	may accur due to conditions	Boring No.: H Boring No.: WIN: WIN: Auger 10/00: 5 Sompler: S Kommer W1./Fall: 1	HB-MIC 2040 * Soild Ste tandard Spi 40#/30*	CH-204 5.00
f Transpor xation Log Y UNITS 8 130- ft Lt.	tions st toti Ele Dat Rig Dr: Cas	On I vation unt Type: lling iing ID	Project Locatio (ft.) Method: /001	Recon porti n: Nill 41.0 NAVE COSE NM-3	ustions istruction on of bridge 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	may accur due to conditions tion of a 4.81 mile Route 1 Cherryfield, Maine Derryfield, Maine	Boring No.: Boring No.: WIN: Auger 10/00: 5 Sompler: 5 Kommer Wir/Fall: 1 Core Barrel: N Water Level: 2	HB-M10 2040 * Soild Ste tandard Spi 40#/30* /A .0 ft bgs.	2H-204 5.00 m 1t Spoon
f Transpor ration Log y UNITS 8 :30- ft Lt. 8 	tions st toti Ele Dat Rig Dri Cas Han Core San id Sten id Sten	On I wation unit Type: Ting ing ID mer Ty ple	Project Locatio (ft.) Method: /001	Recon porti n: Nill 41.0 NAVE COSE NM-3	ustions istruction on of bridge 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	may accur due to conditions tion of a 4.81 mile Route 1 Cherryfield, Maine Derryfield, Maine	Boring No.: Boring No.: WIN: Auger 10/00: 5 Sompler: 5 Kommer Wir/Fall: 1 Core Barrel: N Water Level: 2	HB-M10 2040 * Soild Ste tandard Spi 40#/30* /A .0 ft bgs.	2H-204 5.00 m 1t Spoon
f Transpor <u>xation Loa</u> <u>y UNITS</u> 8 :30-	tions st toti Ele Dat Rig Dri Cas Han Core San id Sten id Sten	On I wation unit Type: Ting ing ID mer Ty ple	Project Locatio (ft.) Method: /001	Recon porti n: Nill 41.0 NAVE COSE NM-3	ustions istruction on of bridge 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	may accur due to conditions tion of a 4.81 mile Route 1 Cherryfield, Maine Derryfield, Maine	Boring No.: H Boring No.: H WIN: Auger 10/001 5 Sompler: 5 Nomer WI./Folii 1 Core Barreit N	HB-M10 2040 * Soild Ste tandard Spi 40#/30* /A .0 ft bgs.	2H-204 5.00 m 1t Spoon
f Transpor xation Los y LINITS s s so- ft Lt. # = Rook ft Lt.	tions st tots st Eile Dot Rig Dr: Cos Cos So Hom Core Son Id Stem For Son Tor So So So So So So So So So So So So So S	On I wation unit Type: Ting ing ID mer Ty ple	Project Locatio (ft.) Method: /001	Recon porti n: Nill 41.0 NAVE COSE NM-3	Instructions Instruction of Pridge D0088 45C ad Wosti Affic 20 Affic 20 Aff	mg ocur du to contrition filon of 0 4.81 mile Rouro 1 Charryffeld, Molne 	one Boring No.: I Boring No.: Image: Image	HB-M10 2040 * Soild Ste tandard Spi 40#/30* /A .0 ft bgs.	Strength (p
f Transport xation Log y LINIIS 8 8 8 8 8 8 8 8 8 8 8 8 8	tions st tots st totst	OF vation unit Type: ling ID vation log vati	Project Projection (ft.) Wethod: v00: pe: mmer or Cosirion	r fluch r fluch porti porti Autoro Surr Su	structions structor on of or idge d Wosl d G d Wosl d G d Wosl d G d G d Wosl d G d Wosl d Wo	mg ocur du to contrition filon of 0 4.81 mile Rouro 1 Charryffeld, Molne 	Boring No.: Boring No.: WIN: Auger 10/00: 5 Sompler: 5 Kommer Wir/Fall: 1 Core Barrel: N Water Level: 2	HB-M10 2040 * Soild Ste tandard Spi 40#/30* /A .0 ft bgs.	CH-204 5.00 m 1t Spoon Strength 12 Gent
f Transpor xotion Los x LINITS s s s s s s s s s s s s s	tions st tots st Eile Dot Rig Dr: Cos Cos So Hom Core Son Id Stem For Son Tor So So So So So So So So So So So So So S	On I wation unit Type: Ting ing ID mer Ty ple	Project Location (ft.) Wethod: //DD pe: 	r fluch portil tr Recon portil tr Nitz CME Case Nar- Sute Sol to Sol to	structions on of on of dge 45C dd Wosli at ic 20 by = 10 by =	mg ocur da to contition tion of 0 4.81 mile Route 1 -Cherryfield. None m Boring 1 Hydraulic 1 Hydraulic	Boring No.: H Boring No.: WIN: Auger 10/08: 5 Septers	HB-MIC 2040 * Solid Ste tandrd Spi 40#/30* /A .0 ff bgs. forme Search for the Sea	CH-204 5.00 m It Spoon Strength 12 cent dex b Loborator Testing Results AASHTO ont Field Clo
f Transport xation Log y LINIIS 8 8 8 8 8 8 8 8 8 8 8 8 8	tions st tots st totst	OF vation unit Type: ling ID vation log vati	Project Locatio (fft.) Wethod: or Cealro	r fluch r f	structions struct on of on of or idge d to on of struct on of struct on of or idge d to on of on	mg ocur da to contition tion of 0 4.81 mile Route 1 -Cherryfield. None m Boring 1 Hydraulic 1 Hydraulic	one Boring No.: I Boring No.: Image: Image	HB-MIC 2040 * Solid Ste tandrd Spi 40#/30* /A .0 ff bgs. forme Search for the Sea	Strength 12 Strength 12 Strength 12 Cent Cent Con
f Transport xatio Los 1 milis * * * * * * * * * * * * * * * * * * *	Elec Dot Rig Dri Cos Hor Cos So Si Si Si Si Si Si Si Si Si Si Si	OF	Project Locatio (fft.) Wethod: or Cealro	r fluch r f	structions struct on of on of or idge d to on of struct on of struct on of or idge d to on of on	mg ocur da to contition tion of 0 4.81 mile Route 1 -Cherryfield. None m Boring 1 Hydraulic 1 Hydraulic	Boring No.: H Boring No.: WIN: Auger 10/08: 5 Septers	HB-MIC 2040 * Solid Ste tandrd Spi 40#/30* /A .0 ff bgs. forme Search for the Sea	CH-204 5.00 m 1† Spoon 1† Spoon Strength 1 cent dex texting Resultss AdSHT0 ond nified Clo
f Transport xatio Los 1 milis * * * * * * * * * * * * * * * * * * *	Elec Dot Rig Dri Cos Hor Cos So Si Si Si Si Si Si Si Si Si Si Si	OF	Project Locatio (fft.) Wethod: or Cealro	r fluch r f	structions struct on of on of or idge d to on of struct on of struct on of or idge d to on of on	my porur due to consistence Teor of a 4.81 mile Roya I Cherryfield. Maine Cherryfield. Maine Cherry	ener Boring No.: I Boring No.: WIN: UN: UN: UN: Under 15/00: 5 Journe Tr. 7 Songier 1 Songier 1	<u>HB-M10</u> 2040 * Solid Ste tenderd Spi 400/30* /A .0 ff bgs telati tricular state tents tents	H-204 5.00 m If Spoon Strength (s) Strength (s) Cond Abs(10) Get (mt) Get (mt) (mt) (mt)
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MILBRIDGE-CHERRYFIELD ROUTES 1 & 182 BORING LOCATION PLAN & reviews and the	STATE OF MAINE		DEPARTMENT OF IKANSPORTATION		STB 3040/600)				MM	020405 00 HIGHWAY PLANS	
IILBRIDGE-CHERRYFIELD PROL MANAGE BY ROUTES 182 PESSANDETALED BY ROUTES 182 PESSANDETALED PESSANDETALED ROUTES 182 PESSANDETALED PESSANDETALED BORING LOCATION PLAN REVISIONS 2 PENSIONS 2 ERPRETIVE SUBSURFACE PROFILE REVISIONS 2 PENSIONS 2 MITH BORING LOGS PROFILE REVISIONS 2 PENSIONS 2			SIGNATURE	_			<u> </u>				
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ILLBRIDGE-CHERRYFIELD ROUTES 1 & 182 BORING LOCATION PLAN & ERPRETIVE SUBSURFACE PROFILE WITH BORING LOGS	PROJ. MANAGER _	DESIGN-DETAILED	CHECKED-REVIEWE	DESIGN2-DETAILED	DESIGN3-DETAILED		REVISIONS 1	REVISIONS 2	REVISIONS 3	REVISIONS 4	FIELD CHANGES
	עםמחוזי קימום	KIUGE-CHERKY			5			BURING LUCATION FLAN	TRPRETIVE SURSUREACE I		URING
45			(DF		2	47				

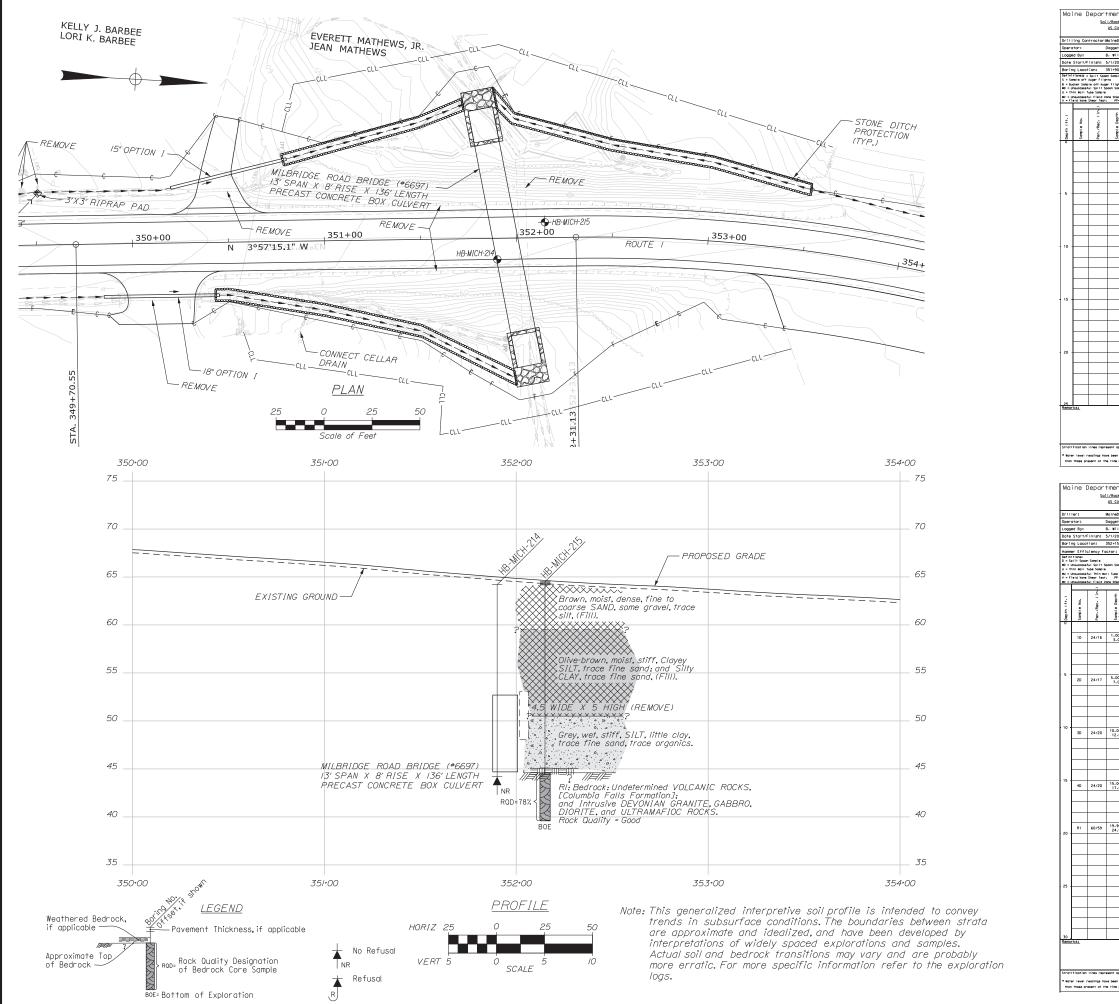


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rtment (oil/Rock Exp	of Transport	ation		porti	on of	tion of a 4.81 mile Route 1	Boring No.:	HB-M10	CH-205		
US CUSTOM	RY UNITS		Locatio	n: Mil	bridge	-Cherryfield, Moine	WIN:	2040	5.00		
NoineDDT			ion (ft.)	31.			Auger 10/00:	5" Dio.			
Doggett/Ni 8. Wilder	05	Dotum: Rig Ty		NAV			Sompler: Hommer Wt./Foll:	Standard Spl 140#/30"	it Spoon		
5/2/2018: 0	6130-		ng Nethod:			m Auger	Core Borrel:	N/A			
200+55+ 9+5			10/00:	N/A			Nater Level®:	14.5 ft bgs.			
Foctor: 0.854		Hommer	Type:	Autom	otic 🛛	Hydroulic 🛛	Rope & Cotheod 🗆				
	R = Rock C SSA = Soli HSA = Holi	ore Sample d Sten Auge		Sur I	(Deck/Re (D) = LC	molded Field Vane Undrained S to Vane Undrained Shear Streng ined Compressive Strength liksf			Strength (pef) roent		
Spoon Somple A		ow Stem Aug r Cone	3 47	sp N-un	correcte	ined Compressive Strength liksf ad = Row Field SPT N-volue	1 II R	- Liquid Limit Plastic Limit Pl - Plasticity Inc			
st. PP = Poc	et Penetrometer WCR/C =	Meight of	Rods or Cosli	Nome NGO	er Effic = SPT N-	ad = Ray Field SPT N-volue clency Foctor = Rig Specific A -uncorrected Corrected for Hom ar Efficiency Factor/60%14N-un	mar Efficiency G =	Grain Size Analysis	Sex S		
Yone Shear Tea	Attempt #GIP = #ei Somple Information	oht of One	Person	N60	- Chome	P LITICIANCY FOCTO / SULTING	corrected C #	Consolidation Test			
Depth	<u>é</u>	ted			8				Laboratory Testing		
Dec	9 t (2	t-uncorrect		5		Visual Des	scription and Remark	.6	Results/ AASHTO		
emple f1.1	Blows 1/6 Shear Strength (psf) or R0D (%	0 L	N60 Cosing Biows	Elevati Cft. 1	Graphic			u	and hifled Class		
85	96558B	ź :		Ű,	ઠે	7" HMA.					
			SSA	30.7				0.6			
1.00 - 3.00	7/11/18/12	29	0	1		Brawn, damp, dense, Gr siit, (Fiii).	ravelly fine to coa	se SAND, troce	G#336676 A-1-o, SM-SN WC=4.4%		
5.00									WC =4.4%		
				1							
				1							
5.00 -	6/3/9/10	12 1	17	1							
				25.3		Diive, moist, very st sond, some cloy, trock	iff. SiLT. some fine	6.0- to coarse	G#336677		
				ł		sand, some clay, frac	e gravel, (Fill).		A-4. CL WC=15.9%		
				22.3				9.0-			
10.00 -		15 2	21			Brown, domp, medium de grovel, little silt,	ense. fine to coorse	s SAND. some	G#336678 A-1-5 SM		
12.00	10/9/6/3	15 2	21			gravel, little silt, i	(F111).		A-1-5. SM WC=6.7%		
				18.8				12.5			
					88						
					889	Canal 1994 - 44144 - 6144			G#336679		
15.00 - 17.00	3/3/5/5	8 1				Grey, wet, stiff, Clay gravel, trace organics	s, wood.	3 30101 11 000	A-4, CL WC=29.7%		
				1					LL=31 PL=23		
									PL=23 P1=8		
			-111/								
				12.3							
			V	1							
20.00 -	3/4/4/5	8 1		1		Brown, moist, medium a silt, some clay, trace	dense, fine to coor: e gravel.	se SAND, some	G#336680 A-6+ CL		
22.00				1					A-6. CL WC=27.4% LL=38		
22.00 -			-	1					LL=38 PL=22 P1=16		
22.00 - 24.00	5/6/9/9	15 2	21	8.8	REARCH	Grey, wet, very stiff.	Silty CLAY, troce	fine sond. 22.5			
				1					A-4. CL WC=31.3%		
1				7.3	инии	Bottom of Exploration of NO REFUSAL	at 24.0 feet below o	24.0- round surface.			
1				I	1	NU HEFUSAL					
							Dese L e/ :				
	note boundorles between a						Page 1 of 1				
nove been mode in the time measur	of times ond under condit ements were mode.	ions stated	. Groundwat	er fluct	uations	may occur due to conditions o	Boring No	: нв-місн-	205		
rtment o		ation	1 Project	Recor	struct	tion of a 4.81 mile	Boring No.:	HB-MICH	-206		
oli/Rock Exp	Ioration Log		Locatio	porti n: Mil	ion of bridge	Route 1 -Cherryfleid, Wolne					
US CUSTOM	AT UNITS						WIN: 20405.00		5.00		
r:NoineD0T		Elevat	ion (ft.)	32.	5		Auger 10/00: 5° Dia.				
Daggett/N1	es	Dotume NAVD88 Sompler: N.							N/A		
				61.0E							

MUTHEOUT		510	varrairi		32		Auger 10/001	5 010.	
Doggett/NI	les	Dot	ume		NAVE	88	Sompler:	N/A	
8. Wilder		Rig	Type:		CME	45C	Honner Wt./Foll:	N/A	
5/1/2018-5	/1/2018			thod:	Sol	d Stem Auger	Core Borrel:	N/A	
200+70+ 10			ing ID/0		N/A		Water Level®:	None Observe	
con Sample						empt 1001P = Melight of 1 Person	NOTO COTOT-1	Hore observe	50
ghts .	R = Rock Cor SSA = Solid	e Sompi				S _U = Peck/Renolded Field Vone U	ndrained Shear Strength (p	asf) LL = Liquid L	
ger Flighta Spoon Somple A	ttempt HSA = Hollow	Ster #	uger uger			S _{ulidb)} = Lob Yone Undroined Sh o _p = Unconfined Compressive Str	ength (ksf)	PL = Plostic	L fail t
•						N-volue = Row Fleid SPT N-volue Ty = Packet Tarvane Shear Stren		PI = Plostici G = Groin Siz	ty Index
t. PP= Pock	t Attempt WOH = Weight at Penetrometer WOR/C =	Weight	of Rods o	r Casing		WC = Noter Content, percent	g	C = Consol i da	tion Test
	Sample Information								
Somple Depth (ft.)	ć								Loboratory Testing
8	95 £ 8			8	8	Visual Descri	ption and Remarks		Results/
•		3	2	÷.	aphic				AASHT0 and
₿÷	Blows (/6 Sheor Strength (psf) or R0D (%	IDV-N	Cosing Blows	Elevat: (ft.)	ð			u	hifled Closs
3 C	8 2 2 2 B	ż	ŭē	ω÷	ŝ	Probe, no soil samples take			
			SSA			Probe, no soli samples take	n .		
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	1		W						
				12.5		Bottom of Exploration at 2 NO REFUSAL	0.0 feet below groun	d surface.	1
						NU REFUSAL	• · ·		
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resent approxi	note boundories between so	oli type	ast transi	tions mo	1y be g	-00U01+	Page 1 of 1		
						untions may occur due to conditions o			
	rements were mode.	-une ett	ore		riosT(and an an an and the second tions o	Boring No.	HB-MICH-	206

		s		PROJ. MANAGER	BY	DATE		STATE OF MAINE
		н		DESIGN-DETAILED				
(Z	EE		CHECKED-REVIEWED		S	SIGNATURE	DEPARTMENT OF TRANSPORTATION
DF	1	T		DESIGN2-DETAILED2 Y-T.LEE	T.WHITE NO	NOV 2024		
-	-	Ν	5 -	DESIGN3-DETAILED.3				
4		1						
47	e	U	DINC I OCATION DI	REVISIONS 1	 -	P	P.E. NUMBER	
	3	ME	DUNING FUCATION FLAIN &	REVISIONS 2			•	
		ЗE	INTERPRETIVE SUBSURFACE PROFILE	REVISIONS 3			ATTE	MIN
		R		REVISIONS 4			DALE	020405 00 HIGHWAY PLANS
			про	FIELD CHANGES				-



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flootion lines represent o Water level readings have been than those present at the time

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so:	TMENT C	of Transpor location Log RY UNITS	tati	on	Project Locatio	:Recon porti n:Milt	struct on of ridge-	ion of a 4.81 mile Route 1 Cherryfield, Maine	Boring No.: <u>HB-MIC</u> WIN: 2040	H-214	
ctors	MaineDOT		Ele	wation	(ft.)	64.2			Auger 10/00: 5" Dio.	/3100	
	Daggett/Nii	95		un:		NAVE	88		Sompler: N/A		
	B. Wilder 5/1/2018-5/	1/2018		Type:	Method:	CME Sol 1	45C d Ster	Auger	Hommer Wt./Foll: N/A Core Borrel: N/A		
: 11 Spo	351+90+ 11+ an Somple	0 ft Rt. MU = Unsuc	Cos cessful 1	ing ID Inin Mai	/00: 1 Tube So	N/A mpie Att	enpt NC	1P = Waight of 1 Person	Water Level®: None Observ	ed	E
r Filig Af Aug plit S	on Somple nts er Filghts poon Somple At	R = Rock C SSA = Soli 168001 HSA = Holi	d Sten A ow Sten A	le Joar Nuger			5. 5. 9	1P = Weight of 1 Person = Peck/Remoided Field Vone (100) = Lob Vone Undrolmed S = Unconfined Compressive St	Undrolled Sheer Strength (paf) inser Strength (paf) LL = Liquid 1 rength (kaf) Pi = Picetic a Pi = Picetic ingth (paf) G = Groin Si: C = Groin Si:	leit Lielt	
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	US CUSTOMA			1	Locatio	n: Milt	r idge-	ion of a 4.81 mile Route 1 Cherryfield, Maine	WIN:2040	05.00	
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ILBRIDGE-CHERRYFIELD ROUTES 1 & 182 BORING LOCATION PLAN & ERPRETIVE SUBSURFACE PROFILE WITH BORING LOGS	MILBRIDGE-CHERRYFIELD ROUTES 1 & 182 BORING LOCATION PLAN & INTERPRETIVE SUBSURFACE PROFILE WITH BORING LOGS
	SHEET NUMBER

Appendix A

Boring Logs

	UNIFIE	ED SOIL CI	LASSIFIC	ATION SYSTEM	MODIFIED BURMISTER SYSTEM					
		PNC	GROUP SYMBOLS	TYPICAL NAMES						
COARSE- GRAINED	GRAVELS	CLEAN GRAVELS	GW	Well-graded gravels, gravel- sand mixtures, little or no fines.	Descriptive Term Portion of Total (%) trace 0 - 10 little 11 - 20 correct 24 - 25					
SOILS	(more than half of coarse fraction is larger than No. 4 sieve size)	(little or no fines)	GP	Poorly-graded gravels, gravel sand mixtures, little or no fines.	some 21 - 35 adjective (e.g. Sandy, Clayey) 36 - 50 TERMS DESCRIBING					
	n half arger eve siz				DENSITY/CONSISTENCY					
(more than half of material is larger than No. 200 sieve size)	(more tha fraction is l sie	GRAVEL WITH FINES (Appreciable amount of fines)	GM GC	Silty gravels, gravel-sand-silt mixtures. Clayey gravels, gravel-sand-clay mixtures.	Coarse-grained soils (more than half of material is larger than No. 200 sieve): Includes (1) clean gravels; (2) Silty or Clayey gravels; and (3) Silty, Clayey or Gravelly sands. Density is rated according to standard penetration resistance (N-value). Density of Standard Penetration Resistance					
nater sieve					Cohesionless Soils N-Value (blows per foot) Very loose 0 - 4					
an half of r No. 200	SANDS	CLEAN SANDS	SW	Well-graded sands, Gravelly sands, little or no fines	Loose 5 - 10 Medium Dense 11 - 30 Dense 31 - 50					
(more tha than	f coarse han No. 4)	(little or no fines)	SP	Poorly-graded sands, Gravelly sand, little or no fines.	Very Dense > 50 Fine-grained soils (more than half of material is smaller than No. 200					
	(more than half of coarse fraction is smaller than No. sieve size)	SANDS WITH	SM	Silty sands, sand-silt mixtures	sieve): Includes (1) inorganic and organic silts and clays; (2) Gravelly, Sandy or Silty clays; and (3) Clayey silts. Consistency is rated according to undrained shear strength as indicated.					
	(more 1 fraction i	FINES (Appreciable amount of fines)	SC	Clayey sands, sand-clay mixtures.	Approximate Undrained Consistency of SPT N-Value Shear Field Cohesive soils (blows per foot) Strength (psf) Guidelines					
			ML	Inorganic silts and very fine sands, rock flour, Silty or Clayey	WOH, WOR, WOP, <2 0 - 250 Fist easily penetrates Soft 2 - 4 250 - 500 Thumb easily penetrates Medium Stiff 5 - 8 500 - 1000 Thumb penetrates with					
	SILTS AN	ID CLAYS		fine sands, or Clayey silts with slight plasticity.	moderate effort					
FINE- GRAINED SOILS			CL	Inorganic clays of low to medium plasticity, Gravelly clays, Sandy clays, Silty clays, lean clays.	great effort Very Stiff 16 - 30 2000 - 4000 Indented by thumbnail Hard >30 over 4000 Indented by thumbnail					
	(liquid limit l	ess than 50)	OL	Organic silts and organic Silty clays of low plasticity.	with difficulty Rock Quality Designation (RQD): RQD (%) = sum of the lengths of intact pieces of core* > 4 inches					
e size)					length of core advance *Minimum NQ rock core (1.88 in. OD of core)					
half of material is No. 200 sieve size)	SILTS AN	ID CLAYS	MH	Inorganic silts, micaceous or diatomaceous fine Sandy or Silty soils, elastic silts.	Rock Quality Based on RQD Rock Quality RQD (%)					
(more than ha smaller than No			СН	Inorganic clays of high plasticity, fat clays.	Very Poor ≤25 Poor 26 - 50 Fair 51 - 75 Good 76 - 90					
(mo small	(liquid limit gro	eater than 50)	ОН	Organic clays of medium to high plasticity, organic silts.	Excellent 91 - 100 Desired Rock Observations (in this order, if applicable): Color (Munsell color chart)					
		ORGANIC ILS	Pt	Peat and other highly organic soils.	Texture (aphanitic, fine-grained, etc.) Rock Type (granite, schist, sandstone, etc.) Hardness (very hard, hard, mod. hard, etc.)					
Desired So	il Observat	ions (in thi	s order. if	applicable):	Weathering (fresh, very slight, slight, moderate, mod. severe, severe, etc.) Geologic discontinuities/jointing:					
Color (Muns Moisture (di Density/Cor Texture (find Name (Sand Gradation (N	sell color cha ry, damp, m nsistency (fri e, medium, , d, Silty Sando well-graded, on-plastic, s ayering, frac all, moderati n (weak, mo rigin (till, ma	art) oist, wet) om above ri coarse, etc. d, Clay, etc., poorly-grac slightly plasti tures, crack ely, loosely, oderate, or s	ght hand s) , including led, uniforn c, modera s, etc.) etc.,) trong)	ide) portions - trace, little, etc.) n, etc.) tely plastic, highly plastic)	 -dip (horiz - 0-5 deg., low angle - 5-35 deg., mod. dipping - 35-55 deg., steep - 55-85 deg., vertical - 85-90 deg.) -spacing (very close - 21 nch, close - 2-12 inch, mod. close - 1-3 feet, wide - 3-10 feet, very wide >10 feet) -tightness (tight, open, or healed) -infilling (grain size, color, etc.) Formation (Waterville, Ellsworth, Cape Elizabeth, etc.) RQD and correlation to rock quality (very poor, poor, etc.) ref: ASTM D6032 and FHWA NHI-16-072 GEC 5 - Geotechnical Site Characterization, Table 4-12 Recovery (inch/inch and percentage) Rock Core Rate (X.X ft - Y.Y ft (min:sec)) 					
Key	/ to Soil a	Geotechr	<i>ical</i> Sec Descrip	tions and Terms	Sample Container Labeling Requirements: WIN Blow Counts Bridge Name / Town Sample Recovery Boring Number Date Sample Number Personnel Initials Sample Depth Sample Depth					

	N	laine			of Transporta	ntion	Р	roject:		struction of a 4.81 mile portion of	Boring No.:	HB-MIC	H-101
Operator: Max-Main Datam: NAV188 Sampler: OFT light Dispect for initial 11/2016 (11/2016) Defining Method: Solid Stein Augar Core Barrel: NA Defining Method: Solid Stein Augar Core Barrel: NA Water Dupact Method: NA Defining Method: Solid Stein Augar Core Barrel: NA Water Dupact Method: NA Definition: Call Stein Augar Out State Stein Augar Water Dupact Method: Na Na Definition: Call Stein Augar Max Hammed Max Hammed Na Na Definition: Call Stein Augar Max Hammed Max Hammed Na Na Definition: Call Stein Augar Max Hammed Max Hammed Na Na Na Na Definition: Call Stein Augar Max Hammed Max Hammed Na				-	-		L	ocatio			WIN:	204	05.00
Operator: Max-Adm Datam: NAV188 Sampler: OTH liple Dock Spart (Finish: 1/1/2016 / 10/2016 Datiling Method: Solid State Augar Core Sarret: NA Dock Spart (Finish: 1/1/2016 / 10/2016 Datiling Method: Solid State Augar Core Sarret: NA Dock Spart (Finish: 1/1/2016 / 10/2016 Dati State Augar Core Sarret: NA Dock Spart (Finish: 1/1/2016 / 10/2016 Dati State Augar Core Sarret: NA Dock Spart (Finish: 1/1/2016 / 10/2016 Dati State Augar Core Sarret: No	Drillir	a Cont	ractor:	Northern Test	Boring	Elovati		F#)	46.0			10" Dia	
Longe By: Wildle Description By Type: Description Harmer WU/Fill: NA Beel Bardfinition 1: Description U15/06.6112.00 Other Market II 10/06.0112.00 NA Beel Bardfinition 1: Description U15/06.6112.00 NA Water Lawer1: NA Beel Bardfinition 1: Description Description NA Water Lawer1: NA Description Description Description NA Water Lawer1: NA Description Description Description NA Water Lawer1: NA Description Description Description Na Hashed Market II Na Description Na		-			boring	+							
Date Starffinisht: (1/12016/11/12016) Diffing Methods: Sold Starm Auge: Care Barrel: N/A Definition: 1/12016/11/12016 Carebox Market Method: No.4 Water Lewit: No.6 Definition: 1/12016/11/12016 Carebox Market Method: No.4 Water Lewit: No.6 No.6 Definition: 1/12016/11/12016 Market Method: No.4 Water Lewit: No.6 No.6 Definition: 1/12016/11/12016 Market Method: No.6	- ·				H								
Description 111 fills of a LL Camp DioD: NA Water Lever1: Name Concrect 0 fills of a sign fill								thod					
Montesse >													4
 be determined of deer flage: be determined of	Definitio	ons: D =	Spilt Spoon	,	MU = Unsucc	essful Thin W				pt WO1P = Weight of 1 Person			
With - Unconceptibility Biosen Stands Barriery Barriery Biosen Stands Barriery Barrier, Barriery B				Flights						S _u = Peak/Remolded Field Vane U S _{u(lab)} = Lab Vane Undrained She	ndrained Shear Strength (psf) ar Strength (psf)	LL = Liguid Lim	it
W. Lincardial Flack Uses Base To Marcine To Marcine To Marcine To Marcine Base Theorem State Uses To Theorem				on Sample Attem						qp = Unconfined Compressive Stre	ngth (ksf)		
Image: standard in the	MV = U	Insuccessf	ul Field Van	e Shear Test Atte	empt WOH = Weigł	nt of 140lb. H	amme	er		T _v = Pocket Torvane Shear Strengt	th (psf) Similar or Equal too	G = Grain Size	Analysis
etc e	<u>v - 1 ie</u>		icai rest,			ight of redus (sing				C - Consolidat	
C model S model			n.)	oth	$\widehat{}$				_				
0 B1 0.75 - 1.50 881 67 PAVEMINT 0.5 <td></td> <td>No.</td> <td>с. (j</td> <td>Dep</td> <td>6 in (%)</td> <td></td> <td></td> <td></td> <td>Log</td> <td>Visual Descr</td> <td>iption and Remarks</td> <td></td> <td>Results/</td>		No.	с. (j	Dep	6 in (%)				Log	Visual Descr	iption and Remarks		Results/
0 B1 0.75 - 1.50 St St 1.50 - 5.00 St Cu26dd1 St St Cu26dd1 St Cu26dd1 St Cu26dd1 St Cu26dd1 St St Cu26dd1 St St Cu26dd1 St St Cu26dd1 St St </td <td>th (f</td> <td>ple</td> <td>/Re</td> <td>ble</td> <td>ar (/ QD</td> <td>alue</td> <td>)s</td> <td>atio</td> <td>ohic</td> <td></td> <td></td> <td></td> <td></td>	th (f	ple	/Re	ble	ar (/ QD	alue)s	atio	ohic				
0 B1 0.75 - 1.50 St St 1.50 - 5.00 St Cu26dd1 St St Cu26dd1 St Cu26dd1 St Cu26dd1 St Cu26dd1 St St Cu26dd1 St St Cu26dd1 St St Cu26dd1 St St </td <td>Cep</td> <td>Sam</td> <td>Den.</td> <td>Sam (ft.)</td> <td>Blow Shee Dr R</td> <td>N-Va Cas</td> <td>Mo</td> <td>.) Et.</td> <td>Grap</td> <td></td> <td></td> <td></td> <td></td>	Cep	Sam	Den.	Sam (ft.)	Blow Shee Dr R	N-Va Cas	Mo	.) Et.	Grap				
si 1:50-50			<u> </u>							6" PAVEMENT		0.5	
Image: Sector in the sector			<u> </u>					46.2		L'			A-1-b, SW-SM
5 Image: Crey-brown, wet, Sily file to come SAND, trace growel. WC-29,4% 5 Image: Crey-brown, wet, Sily file to come SAND, trace growel. WC-29,4% 10 Image: Crey-brown, wet, Sily file to come SAND, trace growel. WC-29,4% 10 Image: Crey-brown, wet, Sily file to come SAND, trace growel. WC-29,4% 10 Image: Crey-brown, wet, Sily file to come SAND, trace growel. WC-29,4% 10 Image: Crey-brown, wet, Sily file to come SAND, trace growel. WC-29,4% 10 Image: Crey-brown, wet, Sily file to come SAND, trace growel. WC-29,4% 10 Image: Crey-brown, wet, Sily file to come SAND, trace growel. WC-29,4% 10 Image: Crey-brown, wet, Sily file to come SAND, trace growel. WC-29,4% 10 Image: Crey-brown, wet, Sily file to come SAND, trace growel. WC-29,4% 10 Image: Crey-brown, wet, Sily file to come SAND, trace growel. WC-29,4% 10 Image: Crey-brown, wet, Sily file to come SAND, trace growel. WC-29,4% 10 Image: Crey-brown, wet, Sily file to come SAND, trace growel. WC-29,4% 10 Image: Crey-brown, wet, Sily file to come SAND, trace growel. WC-29,4% 10 Image: Crey-brown, wet, Sily file to come SAND, trace growel.			<u></u>								SAND, some gravel, trace		G#264766
Betom of Exploration at 5.0 feet below ground surface.										Grey-brown, wet, Silty fine to coa	rse SAND, trace gravel.		
Betom of Exploration at 5.0 feet below ground surface.							/						
Image: Statute for the set mage at the set of counter by target or the tot count	- 5 -						V	41.9		Bottom of Exploration a	t 5.0 feet below ground s		
Stationary Interpretent aground to between soil types, transition may be gradual.										NO REFUSAL			
Stationary Interpretent aground to between soil types, transition may be gradual.													
Stationary Interpretent aground to between soil types, transition may be gradual.													
Stationary Interpretent aground to between soil types, transition may be gradual.	10												
20 20 20 20 20 20 20 20 20 20 20 20 20 2	- 10 -												
20 20 20 20 20 20 20 20 20 20 20 20 20 2													
20 20 20 20 20 20 20 20 20 20 20 20 20 2													
20 20 20 20 20 20 20 20 20 20 20 20 20 2													
Stratification lines represent approximate boundaries between soil types; transitions may be gradual. Ywater level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other	- 15 -												
Stratification lines represent approximate boundaries between soil types; transitions may be gradual. Ywater level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other								-					
Stratification lines represent approximate boundaries between soil types; transitions may be gradual. Ywater level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other								-					
Stratification lines represent approximate boundaries between soil types; transitions may be gradual. Ywater level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other								-					
Stratification lines represent approximate boundaries between soil types; transitions may be gradual. YWater level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other								-					
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	- 20 -												
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								-					
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								-					
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													
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													
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	25 Rema	arks:						I		l			
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other													
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other													
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other													
* 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.	Stratific	ation lines	represent a	approximate bour	ndaries between soil types; t	ansitions ma	y be g	gradual.			Page 1 of 1		
						ed. Groundw	ater f	luctuatio	ns may c	ccur due to conditions other	Boring No.	: HB-MICH	I-101

N	laine			of Transp	ortat	tion	F	Project:		nstruction of a 4.81 mile portion of	Boring No.:	HB-MIC	H-102
			oil/Rock Expl	-			l	_ocatio	Route n: Mil	l bridge-Cherryfield, Maine	WIN:	204	05.00
Drilli	a Cont	ractor:	Northern Test	Boring		Flov	ation	(ft)	58.0)	Auger ID/OD:	5" Dia.	
Oper	-		Mike/Adam	Doring		Datu		(10.)		, VD88	Sampler:	Off Flights	
	ed By:		Wilder/Dagge	tt		Rig 1				drich D-50	Hammer Wt./Fall:	N/A	
	Start/Fin		1/11/2016-1/1			-		thod:		d Stem Auger	Core Barrel:	N/A	
	g Locat		127+65, 7.5 ft				ng ID/		N/A		Water Level*:	None Observe	d
S = Sa B = Bu MD = U U = Th MV = U	mple off Au cket Samp Jnsuccessf in Wall Tub Jnsuccessf	be Sample ful Field Van	Flights on Sample Atten e Shear Test Att <u>PP= Pocket Per</u>	R = F SSA npt HSA RC = tempt WOF netrometer WOF	Unsuccess Rock Core S = Solid Ste = Hollow S Roller Con I = Weight of K/C = Weight	Sample om Auge otem Aug ne of 140lb	er ger . Hamm	ner	ple Atten	$\begin{array}{llllllllllllllllllllllllllllllllllll$	ar Strength (psf) ngth (ksf) h (psf)	LL = Liquid Lim PL = Plastic Lir PI = Plasticity I G = Grain Size C = Consolidat	nit ndex Analysis
				Sample Inform				-		-			Laboratory
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf)	or RQD (%)	N-value	Casing Blows	Elevation (ft.)	Graphic Log	Visual Descr	iption and Remarks		Testing Results/ AASHTO and Unified Class.
0	S2		0.50 - 2.40				SSA	57.5	~~~~	6" PAVEMENT			G#264754
										Brown, moist, Gravelly fine to coa	rse SAND, trace silt, (Fill)).	A-1-a, SW-SM WC=5.1%
	S3		2.40 - 5.00					55.6		Brown, wet, SILT, some fine to m	edium sand.	2.4	
- 5 -							\bigvee	53.0				5.0	
- 10 -								-		Bottom of Exploration a NO REFUSAL	t 5.0 feet below ground st	ırface.	
- 15 -													
- 20 -								_					
Rema Stratific * Wate	cation lines	lings have b							ns may c	occur due to conditions other	Page 1 of 1 Boring No.	: HB-MICF	H-102

N	Aaine		rtment		sporta	tion	1	Proj	ject:		struction of a 4.81 mile portion of	Boring No.:	HB-MIC	H-103
			oil/Rock Expl	-				Loc	atior	Route 1: Mill	l oridge-Cherryfield, Maine	WIN:	2040)5.00
Drilli	na Conti	ractor:	Northern Test	Boring		Elev	/ation	(ft.)		55.0		Auger ID/OD:	10" Dia.	
Oper	-		Mike/Adam	8		Date		(1.1.)			VD88	Sampler:	Off Flights	
<u> </u>	ed By:		Wilder/Dagget	tt			Туре	:			Irich D-50	Hammer Wt./Fall:	N/A	
	Start/Fir		1/11/2016-1/1				ling N		od:		d Stem Auger	Core Barrel:	N/A	
	ng Locat		140+95, 8.0 ft			-	ing ID			N/A		Water Level*:	None Observed	1
Definiti	ons: D =	Spilt Spoon		N	/U = Unsucce	ssful Th	nin Wall			le Atterr				
B = Bu MD = l U = Th	cket Sampl Jnsuccessf in Wall Tub	e Sample	Flights on Sample Atterr e Shear Test Att	npt F F	R = Rock Core SSA = Solid St ISA = Hollow S RC = Roller Co VOH = Weight	em Aug Stem Ai one	ler uger				$\begin{array}{l} S_{U} = \text{Peak/Remolded Field Vane U}\\ S_{U(lab)} = Lab Vane Undrained She \\ q_{p} = Unconfined Compressive Strei \\ N-value = Raw Field SPT N-value \\ T_{V} = \text{Pocket Torvane Shear Strengt} \end{array}$	ar Strength (psf) ngth (ksf)	LL = Liquid Lim PL = Plastic Lin PI = Plasticity Ir G = Grain Size	nit ndex
V = Fie	eld Vane Sh	near Test,	PP= Pocket Pen	netrometer V	VOR/C = Weig	ght of R	ods or (Casing	1		WC = Water Content, percent ≅ = S	Similar or Equal too	C = Consolidati	
				Sample Info				_						Laboratory
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength	(psf) or RQD (%)	N-value	Casing Blows		(ft.)	Graphic Log	Visual Descr	iption and Remarks		Testing Results/ AASHTO and Unified Class.
0	B2		0.33 - 5.00			_	SSA		54.7	~~~~~	4" PAVEMENT			G#264744
											Brown, wet, Gravelly fine to coars (Fill).	se SAND, trace silt, occasi	0.3- onal cobble,	A-1-a, SW-SM WC=2.9%
- 5 -									50.0		Bottom of Exploration a NO REFUSAL	t 5.0 feet below ground s	5.0- urface.	
- 10 -														
- 15 -														
- 20 -														
Rema Stratific * Wate	cation lines	lings have b	pproximate bour een made at tim ne measurement	es and under co						ns may c	ccur due to conditions other	Page 1 of 1 Boring No.	: HB-MICH	I-103

Maine Department of Transportation				struction of a 4.81 mile portion of	Boring No.: HB-MICH-104		
Soil/Rock Exploration Log US CUSTOMARY UNITS			Route on: Mill	l oridge-Cherryfield, Maine	WIN:	2040	05.00
Drilling Contractor: Northern Test Boring	Elevatio	n (ft)	54.1		Auger ID/OD:	10" Dia.	
Operator: Mike/Adam	Datum:			VD88	Sampler:	Off Flights	
Logged By: Wilder/Daggett	Rig Type):		Irich D-50	Hammer Wt./Fall:	N/A	
Date Start/Finish: 1/11/2016-1/11/2016	Drilling I		Soli	d Stem Auger	Core Barrel:	N/A	
Boring Location: 140+95, 18.0 ft Lt. Shoulder	Casing I	D/OD:	N/A		Water Level*:	None Observe	d
Definitions: D = Spilt Spoon Sample MU = Unsuccessful Thin Wall Tube Sample Attempt WO1P = Weight of 1 Person S = Sample off Auger Flights R = Rock Core Sample Su = Peak/Remolded Field Vane Undrained Shear Strength (psf) B = Bucket Sample off Auger Flights SS a Solid Stem Auger Su(lab) = Lab Vane Undrained Shear Strength (psf) LL = Liquid Limit MD = Unsuccessful Split Spoon Sample Attempt HSA = Hollow Stem Auger Su(lab) = Lab Vane Undrained Shear Strength (ksf) PL = Plastic Limit W = Unsuccessful Split Spoon Sample Attempt HSA = Hollow Stem Auger N-value = Raw Field SPT N-value PL = Plastic Limit W = Unsuccessful Field Vane Shear Test Attempt WOH = Weight of 140lb. Hammer T_v = Pocket Ponetrometer PL = Plastic Auglysis V = Field Vane Shear Test, PP= Pocket Penetrometer WOR/C = Weight of Rods or Casing WC = Water Content, percent a Similar or Equal too C = Consolidation Test							nit ndex Analysis
Sample Information							Laboratory
Depth (ft.) Sample No. Pen./Rec. (in.) Sample Depth (ft.) Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value Casing	Blows Elevation	Graphic Log	Visual Descr	iption and Remarks		Testing Results/ AASHTO and Unified Class.
0 B3 0.00 - 1.60	SS	4		Brown, moist, fine to coarse SAN	D, some gravel, trace silt, (Fill).	G#264745 A-1-b, SW-SM WC=0.8%
S4 1.60 - 5.00		52.	5	Brown, wet, SILT, little fine to medium sand.			.6-
- 5		49.	1			5.0	
		_		Bottom of Exploration a NO REFUSAL	t 5.0 feet below ground su	ırface.	
25							
Remarks: Stratification lines represent approximate boundaries between soil types; transitions may be gradual. * Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made. Boring No.: HB-MICH-104							

N	Iaine			of Tran	sporta	tion		Proj	ject:		struction of a 4.81 mile portion of	Boring No.: _	HB-MIC	H-105
			oil/Rock Expl	-				Loc	ation	Route Milt	l ridge-Cherryfield, Maine	WIN:	2040	05.00
Drilli	na Conti	ractor:	Northern Test	Boring		Flev	ation	(ft)		58.6		Auger ID/OD:	5" Dia.	
Oper	-		Mike/Adam	Doring		Datu		. ()	,		/D88	Sampler:	Off Flights	
	ed By:		Wilder/Dagge	tt		<u> </u>	Туре	:			lrich D-50	Hammer Wt./Fall:	N/A	
	Start/Fir		1/11/2016-1/1				ing N		od:		d Stem Auger	Core Barrel:	N/A	
Borir	ig Locat	ion:	150+87, 8.0 ft	Rt.		-	ing IE			N/A	-	Water Level*:	None Observed	
S = Sa B = Bu MD = U U = Th MV = U	mple off Au cket Sampl Jnsuccessf in Wall Tub Jnsuccessf	e Sample ul Field Van	Flights on Sample Atten e Shear Test Att <u>PP= Pocket Per</u>	R St npt Hi R lempt W <u>hetrometer W</u>	U = Unsucces = Rock Core SA = Solid Ste SA = Hollow S C = Roller Co /OH = Weight /OR/C = Weight	Sample em Auge Stem Au ne : of 140ll	er iger b. Ham	ımer	·	le Attem	pt WO1P = Weight of 1 Person $S_u = Peak/Remolded Field Vane Un S_u(ab) = Lab Vane Undrained She q_p = Unconfined Compressive Street N-value = Raw Field SPT N-value T_v = Pocket Torvane Shear Strengt WC = Water Content, percent \equiv s$	ar Strength (psf) ngth (ksf) h (psf)	LL = Liquid Limi PL = Plastic Lim PI = Plasticity Ir G = Grain Size C = Consolidati	iit idex Analysis
				Sample Infoi				1						Laboratory
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength	(psf) or RQD (%)	N-value	Casing		Elevation (ft.)	Graphic Log	Visual Descr	iption and Remarks		Testing Results/ AASHTO and Unified Class.
0	S5		0.50 - 3.50				SSA		58.1	*****	6" PAVEMENT			G#264755
			3.50 - 5.00						55.1		Brown, wet, fine to coarse SAND,	little gravel, little silt, (Fill		A-1-b, SM WC=7.5%
- 5 -							\checkmark	/			Olive-brown, wet, SILT, some fine	e to coarse sand, trace grave		G#264768 A-4, ML WC=20.7%
- 10 -									33.0		Bottom of Exploration a NO REFUSAL	t 5.0 feet below ground su		
25 <u>Rem</u> a	arks:													
* Wate	r level read	lings have b								is may o	ccur due to conditions other	Page 1 of 1 Boring No.:	HB-MICH	I-105

N	laine			of Transport	ation	I	Proj	ject:		struction of a 4.81 mile portion of	Boring No.:	HB-MIC	H-106
			oil/Rock Expl	-			Loc	ation	Route 1: Milt	l oridge-Cherryfield, Maine	WIN:	2040	05.00
Drillir	na Conti	ractor:	Northern Test	Boring	Elev	/atior	L 1 (ft.)		67.4		Auger ID/OD:	5" Dia.	
Opera	-		Mike/Adam	Doring	Dat		. (,			/D88	Sampler:	Off Flights	
	ed By:		Wilder/Dagget	it	_	Туре	:			Irich D-50	Hammer Wt./Fall:	N/A	
	Start/Fir		1/11/2016-1/1			ling N		od:		d Stem Auger	Core Barrel:	N/A	
	g Locat		161+00, 7.0 ft		_	ing ID			N/A		Water Level*:	None Observe	đ
Definitio	ons: D =	Spilt Spoon		MU = Unsuc	cessful Th	nin Wall			le Attem				
B = Buo MD = U U = Thi	cket Sampl Insuccessf n Wall Tub	e Sample	Flights on Sample Atterr e Shear Test Att	RC = Roller	Stem Aug w Stem A Cone	ler uger	nmer			$\begin{array}{l} S_{U} = \text{Peak/Remolded Field Vane Un}\\ S_{U(lab)} = Lab Vane Undrained Sheiq_p = Unconfined Compressive StreiN-value = Raw Field SPT N-valueT_y = Pocket Torvane Shear Strengt$	ar Strength (psf) ngth (ksf)	LL = Liquid Lim PL = Plastic Lin PI = Plasticity II G = Grain Size	nit ndex
V = Fie	ld Vane Sh	near Test,	PP= Pocket Pen	etrometer WOR/C = W Sample Information	eight of R	ods or (Casing	1		WC = Water Content, percent ≅ = 5	Similar or Equal too	C = Consolidati	on Test
		-											Laboratory
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing		(ft.)	Graphic Log	Visual Descr	iption and Remarks		Testing Results/ AASHTO and Unified Class.
0	S7		0.58 - 2.70			SSA		66.8		7" PAVEMENT		0.6	
							_	00.8		Black-brown, fine to coarse SANE	D, little gravel, little silt, (Fi	0.6-	G#264756 A-1-b, SM WC=6.5%
	S8		2.70 - 5.00					64.7		Brown, moist, SILT, trace sand.		2.7-	
- 5 -						\square	/	62.4		Bottom of Exploration a	t 5.0 feet below ground su		
										NO REFUSAL	J		
- 10 -													
- 15 -													
- 20 -													
							_						
							7						
<u>Rema</u>					1]		1				
				ndaries between soil types;							Page 1 of 1		
		-	een made at tim ne measurement		ated. Grou	undwate	er fluc	tuation	is may o	ccur due to conditions other	Boring No.:	HB-MICH	H-106

N	laine			of Transpo	rtati	on	Р	roject:		astruction of a 4.81 mile portion of	Boring No.:	HB-MIC	H-107
			oil/Rock Expl	-			L	ocatio	Route n: Mill	l bridge-Cherryfield, Maine	WIN:	2040)5.00
Drillin	a Cont	rootori	Northern Test	Doning		Elovo	tion (f #)	53.9		Auger ID/OD:	10" Dia.	
Opera	-		Mike/Adam	Bornig		Datun		11.)		VD88	Sampler:	Off Flights	
	ed By:		Wilder/Dagget			Rig Ty				drich D-50	Hammer Wt./Fall:	N/A	
	Start/Fir		1/11/2016-1/1					thod:		d Stem Auger	Core Barrel:	N/A	
	g Locat		171+50, 6.5 ft				g ID/		N/A		Water Level*:	2.2 ft bgs.	
Definiti	ons: D =	Spilt Spoon	Sample		nsuccessf	ul Thin	-		ole Attem	npt WO1P = Weight of 1 Person S ₁₁ = Peak/Remolded Field Vane U	nderinged Oberen Otherneth (r.ef)		
B = Bu MD = U U = Thi MV = U	cket Sampl Insuccessf in Wall Tub Insuccessf	le off Auger ul Split Spo be Sample ul Field Van	on Sample Atterr e Shear Test Att	SSA = 5 hpt HSA = 1 RC = R mempt WOH =	k Core Sa Solid Stem Iollow Ste oller Cone Weight of	Auger m Auge 140lb.	er Hamm			$S_{u(lab)}^{u}$ = Lab Vane Undrained She q_p = Unconfined Compressive Stre N-value = Raw Field SPT N-value T_v = Pocket Torvane Shear Strengt	ar Strength (psf) ngth (ksf) th (psf)	LL = Liquid Lim PL = Plastic Lin PI = Plasticity II G = Grain Size	nit ndex Analysis
V = Fie	ld Vane Sh	near Test,	PP= Pocket Pen	etrometer WOR/C Sample Informat	= Weight	of Rod	s or Ca	sing		WC = Water Content, percent ≅ = 5	Similar or Equal too	C = Consolidati	on Test
		(in.)											Laboratory Testing
Depth (ft.)	Sample No.	Pen./Rec. (ii	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	enlev-N		Cas ing Blows	Elevation (ft.)	Graphic Log	Visual Descr	iption and Remarks		Results/ AASHTO and Unified Class.
0	B4		0.42 - 2.30				SSA	53.5		5" PAVEMENT		-0.4	G#264746
										Brown, wet, fine to coarse Sandy ((Fill).	GRAVEL, trace silt, occas	ional cobble,	A-1-a, GW- GM WC=2.5%
	S9		2.30 - 5.00			+	+	51.6		Brown, moist, SILT, trace fine to o	coarse sand, trace gravel.	2.3-	G#264767 A-4, ML WC=18.6%
E							\checkmark	48.9				5.0	
- 5 -								48.9		Bottom of Exploration a NO REFUSAL	t 5.0 feet below ground s	urface.	
- 10 -													
						_							
- 15 -													
						+		-					
- 20 -													
						+							
25													
	ation lines			ndaries between soil ty						occur due to conditions other	Page 1 of 1		
		-	een made at time ne measurement		ວ ວເສເຍີດ.	Giouno	awater	nucluatio	ns may c		Boring No.	: HB-MICH	I-107

N	laine			of Transporta	ation	Pr	oject:		struction of a 4.81 mile portion of	Boring No.:	HB-MIC	H-108
			oil/Rock Expl	-		Lo	ocation	Route n: Mill	l oridge-Cherryfield, Maine	WIN:	2040	05.00
Drillir	na Contr	actor:	Northern Test	Boring	Elevatio	n (fi	t.)	53.5		Auger ID/OD:	10" Dia.	
Opera			Mike/Adam	0	Datum:	(1)	,		VD88	Sampler:	Off Flights	
_ ·	ed By:		Wilder/Dagget	tt	Rig Typ	e:			Irich D-50	Hammer Wt./Fall:	N/A	
	Start/Fir		1/11/2016-1/1		Drilling		hod:		d Stem Auger	Core Barrel:	N/A	
	g Locat			ft Rt. Shoulder	Casing			N/A		Water Level*:	1.1 ft bgs.	
S = Sar B = Buo MD = U U = Thi MV = U	mple off Au cket Sampl Insuccessf in Wall Tub Insuccessfi	e Sample ul Field Van	Flights on Sample Atterr e Shear Test Att <u>PP= Pocket Pen</u>	RC = Roller C empt WOH = Weigh	e Sample Stem Auger Stem Auger Sone Int of 140lb. Ha	imme	r	ble Atterr	pt WO1P = Weight of 1 Person $S_u = Peak/Remolded Field Vane UI S_{U(lab)} = Lab Vane Undrained She q_p = Unconfined Compressive Stren N-value = Raw Field SPT N-value T_v = Pocket Torvane Shear Strengt WC = Water Content, percent \ge = S$	ar Strength (psf) ngth (ksf) h (psf)	LL = Liquid Lim PL = Plastic Lir PI = Plasticity I G = Grain Size C = Consolidat	nit ndex Analysis
		÷										Laboratory
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value Casing	Blows	Elevation (ft.)	Graphic Log		iption and Remarks		Testing Results/ AASHTO and Unified Class.
0	В5		0.00 - 2.00		SS	A	51.5		Brown, wet, fine to coarse SAND, (Fill).	some gravel, trace silt, oc		G#264747 A-1-b, SW-SM WC=3.0%
	S10		2.00 - 5.00				51.5		Brown, wet, fine to medium Sandy	y SILT, little clay.	2.0	
- 5 -							48.5				5.0	
									Bottom of Exploration a NO REFUSAL	t 5.0 feet below ground s	urface.	
- 10 -												
- 15 -												
- 20 -												
25												
	ation lines			ndaries between soil types; t					cour due to conditione other	Page 1 of 1		
			een made at time ne measurement		eu. GroundWa	ater il	uctuation	is may c	ccur due to conditions other	Boring No.	: HB-MICH	H-108

	N	laine			of Transporta	ation	Pr	roject:		astruction of a 4.81 mile portion of	Boring No.: _	HB-MIC	H-109
Operator: Mit A Mark Barupter: OF Type: Orgen BP: D10000.00 fb: Data Data Data Second D2: NA NA Data Standformath: U10010.01 00 fb: Data Data Data Data Second D2: NA NA Data							Lo	ocation			WIN:	2040)5.00
Operator: Mit A Mark Barupter: OF Type: Orgen BP: D10000.00 fb: Data Data Data Second D2: NA NA Data Standformath: U10010.01 00 fb: Data Data Data Data Second D2: NA NA Data	Drillir	na Conti	actor:	Northern Test	Boring	Elevatio	n (f	t.)	53.7	,	Auger ID/OD:	5" Dia	
Oppose Processor By Type: Description: Name Wur/Fill: Name Best Bertificitii: 181-00.80181: Carsing DOOD: NA Name					Doring			,					
Date Start/file Diffing Method: Solution Core Barrie: Via Definition: 0.100100000000000000000000000000000000	<u> </u>		,	Wilder/Dagge	tt	Rig Typ	e:		Died	drich D-50	- ·		
State Display Display Based States Displa								hod:	Soli	d Stem Auger	Core Barrel:	N/A	
Bender Machen Fager Bender Machen Bender Bender Machen Bender Machen Bender Machen Bender	Borin	g Locat	ion:	180+00, 8.0 ft	Rt.	Casing	ID/C	DD:	N/A		Water Level*:	None Observed	1
Image: Second	S = Sar B = Buo MD = U U = Thi MV = U	mple off Au cket Sampl Insuccessf n Wall Tub Insuccessf	iger Flights e off Auger ul Split Spoo e Sample ul Field Van	Flights on Sample Atter e Shear Test Att <u>PP= Pocket Per</u>	R = Rock Cor SSA = Solid S upt HSA = Hollow RC = Roller C empt WOH = Weigl tetrometer WOR/C = We	e Sample Stem Auger Stem Auger Sone Int of 140lb. Ha	amme	r	ole Atterr	$\begin{array}{l} S_{u} = \text{Peak/Remolded Field Vane Un}\\ S_{u(lab)} = Lab Vane Undrained She;\\ q_{p} = Unconfined Compressive Stree;\\ N-value = Raw Field SPT N-value\\ T_{V} = \text{Pocket Torvane Shear Strengt} \end{array}$	ar Strength (psf) ngth (ksf) h (psf)	PL = Plastic Lin PI = Plasticity Ir G = Grain Size	nit ndex Analysis
0 \$11 0.58-3.40 \$85 \$51 TPANIMINT Brown, moist, fine to coarse SAND, some silt, little gaved, (Fill), \$67 \$7			<u>.</u>										
Stil 0.88 - 3.00 Stil Stil Brown, moint, fire to coarse SAND, some silt, little garvet, (Fill), 0,6 Stil 3.60 - 5.00 1		Sample No.	Pen./Rec. (in	Sample Dept (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value Casing	Blows	Elevation (ft.)	Graphic Log		iption and Remarks		Results/ AASHTO and
by the set restricts the target process of the set of t	0	S11		0.58 - 3.60		SS	A	53.1		7" PAVEMENT			C#264757
s										Brown, moist, fine to coarse SANI	D, some silt, little gravel, (F	ïill).	A-1-b, SM WC=5.2%
Bottom of Exploration at 5.0 feet below ground surface.	Ē	512		5.00 5.00			/			Grey-brown, SILT, some fine to co	parse sand, trace gravel.		A-4, ML
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	- 10 -							48.7		Bottom of Exploration a NO REFUSAL	t 5.0 feet below ground su		
Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other	25 8ema	ırks:											
Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other	Stratif -	ation line-	reprocent -	pprovimate harm	dariae batwoon coil turs - +	ransitions	1 ha -	raduct			Page 1 of 1		
	* Water	level read	ings have b	een made at tim	es and under conditions stat				ns may c	occur due to conditions other		HB-MICH	I-109

N	laine			of Transpo	rtati	ion	Pro	ject:		struction of a 4.81 mile portion of	Boring No.:	HB-MIC	H-110
			oil/Rock Expl	-			Loc	ation	Route I: Milb	l ridge-Cherryfield, Maine	WIN:	2040)5.00
Drittio	na Cont	ractor	Northern Test	Boring		Elevatio	n /f+ \		32.7		Auger ID/OD:	5" Dia.	
Opera	-		Mike/Adam	Doring		Datum:	ii (ii.)	,		7D88	Sampler:	Off Flights	
	ed By:		Wilder/Dagget	tt		Rig Type	e:			rich D-50	Hammer Wt./Fall:	N/A	
	Start/Fir		1/11/2016-1/1			Drilling		od:		l Stem Auger	Core Barrel:	N/A	
	g Locat		192+67, 7.0 ft		_	Casing I			N/A		Water Level*:	2.7 ft bgs.	
S = Sau B = Buu MD = U U = Thi MV = U	mple off Au cket Sampl Insuccessf in Wall Tub Insuccessf	e Sample ul Field Van	Flights on Sample Atterr e Shear Test Att <u>PP= Pocket Pen</u>	R = Ro SSA = 5 npt HSA = 1 RC = R empt WOH = netrometer WOR/C	k Core Sa olid Stem Iollow Ste Iller Cone Weight of = Weight	n Auger em Auger	mmer		le Attem	pt WO1P = Weight of 1 Person S_{U} = Peak/Remolded Field Vane Un $S_{U(lab)}$ = Lab Vane Undrained Shei q_p = Unconfined Compressive Strei N-value = Raw Field SPT N-value T_V = Pocket Torvane Shear Strengt WC = Water Content, percent ≅ = S	ar Strength (psf) ngth (ksf) h (psf)	LL = Liquid Lim PL = Plastic Lin PI = Plasticity Ir G = Grain Size C = Consolidati	nit ndex Analysis
				Sample Informat									Laboratory
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)		N-value Casing	Blows	Elevation (ft.)	Graphic Log	Visual Descr	iption and Remarks		Testing Results/ AASHTO and Unified Class.
0	S13		0.42 - 3.90			SS.		32.3	*****	5" PAVEMENT		0.4	G#264758
			0.42 - 5.90				/	28.8		Brown, wet, fine to coarse SAND, Bottom of Exploration a REFUSAL	some gravel, little silt, (Fi t 3.9 feet below ground so	3.9-	A-1-b, SM WC=6.6%
- 5 -													
- 15 -													
- 20 -													
Rema	arks:												
* Water	· level read	lings have b	een made at tim						is may o	ccur due to conditions other	Page 1 of 1		
than t	hose prese	ent at the tin	ne measurement	ts were made.							Boring No.	: HB-MICH	1-110

N	laine			of Transpo	ortati	ion		Projec		nstruction of a 4.81 mile portion of	Boring No.:	HB-MIC	H-111
			oil/Rock Expl	-				Locatio	Rout on: Mi	e I Ibridge-Cherryfield, Maine	WIN:	2040	05.00
Drilli	na Cont	ractor:	Northern Test	Boring		Eleva	ation	(ft.)	40	6	Auger ID/OD:	5" Dia.	
Oper	-		Mike/Adam	Doring		Datu		(10)		.VD88	Sampler:	Off Flights	
	ed By:		Wilder/Dagget	tt		Rig T				drich D-50	Hammer Wt./Fall:	N/A	
	Start/Fin		1/11/2016-1/1			-		ethod:	So	id Stem Auger	Core Barrel:	N/A	
Borir	ig Locat	ion:	203+30, 7.0 ft	Rt.		Casir	ng ID	/OD:	N/.	Α	Water Level*:	None Observed	I
S = Sa B = Bu MD = U U = Th MV = U	mple off Au cket Samp Jnsuccessf in Wall Tub Jnsuccessf	be Sample ful Field Van	Flights on Sample Atterr e Shear Test Att <u>PP= Pocket Pen</u>	R = Roi SSA = 3 npt HSA = RC = R empt WOH = netrometer WOR/C	nsuccessf ck Core Sa Solid Stem Hollow Ste oller Cone Weight of = Weight	ample n Auge em Aug e f 140lb	r ger . Hamr	ner	nple Atte	mpt WO1P = Weight of 1 Person $S_u = Peak/Remolded Field Vane Un S_u(lab) = Lab Vane Undrained Shei q_p = Unconfined Compressive Streight N-value = Raw Field SPT N-value T_v = Pocket Tovane Shear Strengt WC = Water Content, percent \equiv = S$	ar Strength (psf) ngth (ksf) h (psf)	LL = Liquid Lim PL = Plastic Lin PI = Plasticity Ir G = Grain Size C = Consolidati	nit ndex Analysis
		-		Sample Informat				_		-			Laboratory
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)		N-value	Casing Blows	Elevation	Graphic Log	Visual Descr	iption and Remarks		Testing Results/ AASHTO and Unified Class.
0	S14		0.42 - 3.30				SSA	40	2	5" PAVEMENT			G#264759
									3	Brown, moist, fine to coarse SANI	D, some gravel, little silt, (A-1-b, SM WC=4.9%
_	S15		3.30 - 5.00			-	$\overline{\checkmark}$	-		Light brown, wet, SILT, trace sand	1.		
- 10 - - 15 -										Bottom of Exploration a NO REFUSAL	t 5.0 feet below ground si	urface.	
25 <u>Rem</u> a	arks:							_					
* Wate	r level read	lings have b								occur due to conditions other	Page 1 of 1 Boring No.	: HB-MICF	I-111

N	Iaine			of Transporta	tion	Pr	oject:		struction of a 4.81 mile portion of	Boring No.: _	HB-MIC	H-112
			oil/Rock Expl	-		Lo	ocation	Route 1: Mill	l bridge-Cherryfield, Maine	WIN:	2040	05.00
Drilli	na Conti	ractor:	Northern Test	Boring	Elevatio		F.)	42.7	,	Auger ID/OD:	5" Dia.	
Oper			Mike/Adam	Doring	Datum:		,		VD88	Sampler:	Off Flights	
<u> </u>	ed By:		Wilder/Dagge	#	Rig Typ				drich D-50	Hammer Wt./Fall:	N/A	
	Start/Fir		1/11/2016-1/1		Drilling		hod		d Stem Auger	Core Barrel:	N/A	
	g Locat		213+80, 9.0 ft		Casing			N/A		Water Level*:	None Observed	4
		Spilt Spoon		MU = Unsucc						Water Lever .	None Observer	
B = Bu MD = U U = Th MV = U	cket Sampl Jnsuccessf in Wall Tub Jnsuccessf	e Sample ul Field Van	on Sample Atten e Shear Test Att <u>PP= Pocket Pen</u>	RC = Roller C wempt WOH = Weigh work C = We	tem Auger Stem Auger one at of 140lb. Ha				$\begin{array}{l} S_u = \text{Peak/Remolded Field Vane Ur}\\ S_{U(lab)} = Lab Vane Undrained Sher \\ q_p = Unconfined Compressive Stret \\ N-value = Raw Field SPT N-value \\ T_v = \text{Pocket Torvane Shear Strengt} \\ WC = Water Content, percent \cong = S$	ar Strength (psf) ngth (ksf) h (psf)	LL = Liquid Lim PL = Plastic Lin PI = Plasticity II G = Grain Size C = Consolidati	nit ndex Analysis
				Sample Information				1				Laboratory
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value Casing	Blows	Elevation (ft.)	Graphic Log	Visual Descr	ption and Remarks		Testing Results/ AASHTO and Unified Class.
0	B6		0.42 - 2.90		SS		42.3		5" PAVEMENT		0.4	G#264748
	S16		2.90 - 5.00						Brown, moist, Gravelly fine to coa	rse SAND, trace silt, (Fill).		A-1-a, SW-SM WC=1.7%
							39.8	*****	Olive, wet, SILT, trace fine to coar	rse sand, trace gravel.	2.9	G#264770 A-4, ML WC=25.6%
- 5 -					-+	Д	37.7				5.0	
- 10 - - 15 -									Bottom of Exploration a NO REFUSAL	t 5.0 feet below ground su	rface.	
25												
* Wate	cation lines	lings have b						ns may c	occur due to conditions other	Page 1 of 1 Boring No.:	HB-MICH	H-112

N	laine			of Transporta	ation	Р	roject:		struction of a 4.81 mile portion of	Boring No.:	HB-MIC	H-113
			oil/Rock Expl	-		L	ocatio	Route n: Mill	l pridge-Cherryfield, Maine	WIN:	2040	05.00
Drillir	ng Conti	ractor:	Northern Test	Boring	Elevati	on (i	ft.)	42.5		Auger ID/OD:	10" Dia.	
Opera			Mike/Adam	6	Datum		- /		/D88	Sampler:	Off Flights	
<u> </u>	ed By:		Wilder/Dagget	tt	Rig Ty	be:		Died	Irich D-50	Hammer Wt./Fall:	N/A	
	Start/Fir		1/11/2016-1/1		Drilling		thod:		d Stem Auger	Core Barrel:	N/A	
	g Locat			ft Lt. Shoulder	Casing			N/A		Water Level*:	None Observe	đ
Definition S = Sart B = Buon MD = U U = Thi MV = U	ons: D = mple off Au cket Sampl Insuccessf in Wall Tub Insuccessf	Spilt Spoon uger Flights le off Auger iul Split Spoo pe Sample iul Field Van	Flights on Sample Attern e Shear Test Att <u>PP= Pocket Pen</u>	RC = Roller C empt WOH = Weigl	essful Thin W e Sample Stem Auger Stem Auger Sone ht of 140lb. H	/all Tu	ube Samp er	ble Atterr	pt WO1P = Weight of 1 Person $S_u = Peak/Remolded Field Vane Ut Su(lab) = Lab Vane Undrained Shea q_p = Unconfined Compressive Stren N-value = Raw Field SPT N-value T_v = Pocket Torvane Shear StrengtWC = Water Content, percent = 5$	ar Strength (psf) ngth (ksf) h (psf)	LL = Liquid Lim PL = Plastic Lin PI = Plasticity In G = Grain Size C = Consolidati	nit ndex Analysis on Test
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value Casind	Blows	Elevation (ft.)	Graphic Log	Visual Descr	iption and Remarks		Laboratory Testing Results/ AASHTO and Unified Class.
0	B7		0.00 - 2.60			SA	39.9		Brown, moist, fine to coarse SANI cobble, (Fill).	D, some gravel, trace silt,	occasional2.6-	G#264749 A-1-b, SW-SM WC=2.6%
									Olive, wet, SILT, trace sand.		2.0	
- 5 -							37.5		Bottom of Exploration a NO REFUSAL	t 5.0 feet below ground s	urface.	
- 10 -												
- 15 -												
- 20 -												
							1					
25												
Rema												
Stratific	ation lines	represent a	pproximate bour	ndaries between soil types; t	ransitions ma	y be g	gradual.			Page 1 of 1		
			een made at tim ne measurement		ed. Groundv	/ater f	fluctuation	ns may c	ccur due to conditions other	Boring No.	: HB-MICH	H-113

N	laine			of Transpo	tatio	n	Proje			astruction of a 4.81 mile portion of	Boring No.:	HB-MIC	H-114
			oil/Rock Expl	-			Loca	tion	Route : Mill	l bridge-Cherryfield, Maine	WIN:	2040	05.00
Drillir	na Contr	ractor:	Northern Test	Boring	FIG	vation	(ft)		45.4		Auger ID/OD:	10" Dia.	
Opera	-		Mike/Adam	Doring		tum:	(10.)			VD88	Sampler:	Off Flights	
	ed By:		Wilder/Dagget	tt		Type:				drich D-50	Hammer Wt./Fall:	N/A	
	Start/Fir		1/11/2016-1/1			lling M		d:		d Stem Auger	Core Barrel:	N/A	
	g Locat		248+92, 7.0 ft			sing ID			N/A		Water Level*:	None Observed	ł
Definiti S = Sa	ons: D = mple off Au	Spilt Spoon uger Flights le off Auger	·	R = Rock	uccessful T Core Samp lid Stem Au	hin Wall le		ampl	e Atterr	npt WO1P = Weight of 1 Person S _u = Peak/Remolded Field Vane U S _u (lab) = Lab Vane Undrained She		LL = Liquid Lim	it
MD = L		ul Split Spo	on Sample Atterr		llow Stem A					q _p = Unconfined Compressive Stre N-value = Raw Field SPT N-value	ngth (ksf)	PL = Plastic Lin PI = Plasticity I	nit
MV = L	Insuccessf	ul Field Van	e Shear Test Att PP= Pocket Pen	empt WOH = V	eight of 140 Weight of F)lb. Ham	mer			T _V = Pocket Torvane Shear Strengt WC = Water Content, percent ≅ = 5		G = Grain Size C = Consolidati	Analysis
110				Sample Informatic			Juoing					<u> </u>	
		(in.)	oth	<u>.</u>					_				Laboratory Testing
Depth (ft.)	Sample No.	Pen./Rec. (i	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	evation	(ft.)	Graphic Log	Visual Descr	iption and Remarks		Results/ AASHTO and
D 0	Sa	Pe	Sa (ft.	ਤ ਨੂੰ ਨੇ ਕੋ	Ż	ပိဗိ			ų				Unified Class.
0	B8		0.33 - 2.20			SSA	. 4	5.1		4" PAVEMENT Brown, moist, GRAVEL, some fir	ne to coarse sand, trace sile	0.3- t, occasional	G#264750 A-1-a, GW- GM
	S17		2.20 - 5.00				- 4	3.2		cobble, (Fill). Grey, wet, SILT, trace sand.		2.2-	WC=0.6%
- 5 -							/ 4	0.4				5.0	
							_			Bottom of Exploration a NO REFUSAL	t 5.0 feet below ground s	urface.	
- 10 -							_						
							_						
- 15 -													
							-						
							-						
- 20 -													
							_						
							-						
							\neg						
25 Rema	arks:					I							
Kenne	<u></u>												
01											Deve 4 114		
* Water	level read	lings have b	een made at tim						s may c	occur due to conditions other	Page 1 of 1 Boring No.	• HB-MICE	I-114
man t	nose prese	ent at the tin	ne measurement	s were made.									1.114

N	Iaine			of Transport	ation	Pi	roject:		struction of a 4.81 mile portion of	Boring No.:	HB-MIC	H-115
			oil/Rock Expl			Lo	ocatio	Route n: Mill	l bridge-Cherryfield, Maine	WIN:	204	05.00
Drillin	na Conti	ractor:	Northern Test	Boring	Elevatio	on (f	it.)	45.4		Auger ID/OD:	10" Dia.	
Opera			Mike/Adam	6	Datum:		,		VD88	Sampler:	Off Flights	
<u> </u>	ed By:		Wilder/Dagget	tt	Rig Typ	e:			drich D-50	Hammer Wt./Fall:	N/A	
	Start/Fir		1/11/2016-1/1		Drilling		hod:		d Stem Auger	Core Barrel:	N/A	
	g Locat			ft Lt. Shoulder	Casing			N/A		Water Level*:	None Observe	d
Definition S = Sar B = Buon MD = U U = Thi MV = U	ons: D = mple off Au cket Sampl Insuccessf n Wall Tub Insuccessf	Spilt Spoon Iger Flights le off Auger ul Split Spoo le Sample ul Field Van	Flights on Sample Atterr e Shear Test Att <u>PP= Pocket Pen</u>	RC = Roller C empt WOH = Weig	essful Thin W e Sample Stem Auger Stem Auger Sone ht of 140lb. Ha	all Tu	ibe Samı er	ble Atten	ppt WO1P = Weight of 1 Person $S_u = Peak/Remolded Field Vane Un S_u(ab) = Lab Vane Undrained Shei q_p = Unconfined Compressive Strei N-value = Raw Field SPT N-value T_v = Pocket Torvane Shear Strengt WC = Water Content, percent g \equiv S$	ar Strength (psf) ngth (ksf) h (psf)	LL = Liquid Lim PL = Plastic Lir PI = Plasticity I G = Grain Size C = Consolidat	nit ndex Analysis
		(;										Laboratory
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value Casing	Blows	Elevation (ft.)	Graphic Log		iption and Remarks		Testing Results/ AASHTO and Unified Class.
0	В9		0.00 - 2.50		S	SA	12.0		Brown, moist, fine to coarse Sandy (Fill).	y GRAVEL, trace silt, occ		G#264751 A-1-a, GW- GM WC=2.7%
							42.9		Grey, wet, SILT, trace sand.		2.5	
- 5 -							40.4		Bottom of Exploration a	t 5.0 feet below ground s	5.0 urface.	
									NO REFUSAL	-		
- 10 -												
- 15 -												
- 20 -												
25									<u> </u>			
	ation lines			ndaries between soil types; t						Page 1 of 1		
			een made at time ne measurement		ea. Groundw	ater fl	uctuation	ns may c	occur due to conditions other	Boring No.	: HB-MICH	H-115

N	Aaine			of Transpor	tation	I	Project		astruction of a 4.81 mile portion of	Boring No.:	HB-MIC	H-116
			oil/Rock Expl	-		- I'	Locatio	Route n: Mil	l bridge-Cherryfield, Maine	WIN:	2040	05.00
Drilli	na Cont	ractor:	Northern Test	Boring	Eleva	ation	(ft)	71.7	1	Auger ID/OD:	5" Dia.	
Oper	-		Mike/Adam	Doring	Datu		(10.)		VD88	Sampler:	Off Flights	
	ed By:		Wilder/Dagget	tt	Rig T				drich D-50	Hammer Wt./Fall:	N/A	
	Start/Fin		1/11/2016-1/1				ethod:		d Stem Auger	Core Barrel:	N/A	
	ng Locat		269+42, 7.0 ft		Casii	-		N/A		Water Level*:	None Observed	1
S = Sa B = Bu MD = U U = Th MV = U	mple off Au cket Samp Jnsuccessf in Wall Tub Jnsuccessf	e Sample ul Field Van	Flights on Sample Atterr e Shear Test Att <u>PP= Pocket Pen</u>	R = Rock C SSA = Solic hpt HSA = Holk RC = Roller empt WOH = We vetrometer WOR/C = W	I Stem Auge ow Stem Aug Cone ight of 140lb /eight of Roo	r ger . Hamn	ner	ple Atten	$\begin{array}{llllllllllllllllllllllllllllllllllll$	ar Strength (psf) ngth (ksf) h (psf)	LL = Liquid Lim PL = Plastic Lin PI = Plasticity Ir G = Grain Size C = Consolidati	nit ndex Analysis
		<u> </u>		Sample Information	· ·							Laboratory
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Elevation (ft.)	Graphic Log		iption and Remarks		Testing Results/ AASHTO and Unified Class.
0	S18		0.33 - 3.00			SSA	71.4		4" PAVEMENT			G#264760
							68.7		Brown, damp, fine to coarse SANI			A-1-b, SM WC=3.4%
_	S19		3.00 - 5.00				-	,	Brown, moist, Shity line to coarse	SAND, some gravel.		
- 5 10 -									Bottom of Exploration a NO REFUSAL	t 5.0 feet below ground s	5.0-	
- 20 -							-					
* Wate	cation lines	lings have b						ns may c	occur due to conditions other	Page 1 of 1 Boring No.	: HB-MICH	I-116

N	laine			of Transport	ation	ı	Proj	ect:		struction of a 4.81 mile portion of	Boring No.:	HB-MIC	H-117
			oil/Rock Expl	-			Loc	ation	Route 1: Milt	l ridge-Cherryfield, Maine	WIN:	2040	05.00
Drilli	na Cont	ractor:	Northern Test	Boring	Flev	/ation	(ft)		63.6		Auger ID/OD:	5" Dia.	
Opera	-		Mike/Adam	Doring	Date		. ()			/D88		Off Flights	
	ed By:		Wilder/Dagget	tt	_	Туре	:			lrich D-50	· ·	N/A	
	Start/Fin		1/12/2016-1/12		-	ling N		od:	Soli	d Stem Auger	Core Barrel:	N/A	
Borin	g Locat	ion:	279+16, 7.0 ft	Rt.	Cas	ing IC	D/OD	:	N/A		Water Level*:	None Observed	1
S = Sa B = Bu MD = L U = Th MV = L	mple off Au cket Samp Jnsuccessf in Wall Tub Jnsuccessf	e Sample ul Field Van	Flights on Sample Atterr e Shear Test Att <u>PP= Pocket Pen</u>	RC = Roller (empt WOH = Weig work = WOR/C = W	re Sample Stem Aug v Stem Au Cone ht of 140	e ler uger b. Ham	nmer	·	le Attem	pt WO1P = Weight of 1 Person $S_{u} = Peak/Remolded Field Vane Un S_{u}(a_{b}) = Lab Vane Undrained She q_{p} = Unconfined Compressive Street N-value = Raw Field SPT N-value T_{v} = Pocket Torvane Shear Strengt WC = Water Content, percent \equiv s$	ar Strength (psf) ngth (ksf) h (psf)	LL = Liquid Limi PL = Plastic Lim PI = Plasticity Ir G = Grain Size C = Consolidati	iit idex Analysis
				Sample Information			_						Laboratory
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing		(ft.)	Graphic Log	Visual Descr	iption and Remarks		Testing Results/ AASHTO and Unified Class.
0	S20		0.42 - 3.10			SSA		63.2		5" PAVEMENT		0.4-	G#264761
								60.5		Brown, moist, fine to coarse SANI	D, some gravel, some silt, (Fil		A-1-b, SM WC=4.0%
- 5 -	S21		3.10 - 5.00				/	58.6		Light brown, moist, SILT, trace fir	ne to coarse sand, trace gravel		A-4, ML WC=26.5%
- 10 -								28.6		Bottom of Exploration a NO REFUSAL	t 5.0 feet below ground surf:	ace. 5.0-	
- 20 - 	arks												
Stratific	cation lines	lings have b							is may o	ccur due to conditions other	Page 1 of 1 Boring No.:	HB-MICH	I-117

N	laine			of Transport	tatior	1	Pr	oject:		struction of a 4.81 mile portion of	Boring No.:	HB-MIC	H-118
			oil/Rock Expl	-			Lo	catior	Route 1: Mill	l oridge-Cherryfield, Maine	WIN:	204	05.00
Drillir	na Conti	ractor:	Northern Test	Boring	Fle	vatio	n (ft	• •	23.9	I	Auger ID/OD:	10" Dia.	
Opera	-		Mike/Adam	Doring		um:		•)		VD88	Sampler:	Off Flights	
	ed By:		Wilder/Dagget	it	_	Туре):			drich D-50	Hammer Wt./Fall:	N/A	
	Start/Fir		1/12/2016-1/12			ling I		nod:		d Stem Auger	Core Barrel:	N/A	
	g Locat		294+64, 7.0 ft		_	sing I			N/A		Water Level*:	2.9 ft bgs.	
S = Sau B = Buu MD = U U = Thi	mple off Au cket Sampl Insuccessf in Wall Tub	e Sample	·	RC = Roller	ore Sampl I Stem Aug ow Stem A Cone	e ger .uger		·	le Atterr	$ \begin{array}{ll} \text{WO1P} = \text{Weight of 1 Person} \\ S_u = \text{Peak/Remolded Field Vane U} \\ S_{u}(a_b) = \text{Lab Vane Undrained She} \\ q_p = \text{Unconfined Compressive Stree} \\ N-value = \text{Raw Field SPT N-value} \\ T_v = \text{Pocket Torvane Shear Strengt} \end{array} $	ar Strength (psf) ngth (ksf)	LL = Liquid Lim PL = Plastic Lir PI = Plasticity I G = Grain Size	nit ndex
V = Fie	ld Vane Sh	near Test,	PP= Pocket Pen	etrometer WOR/C = V Sample Information	Veight of R	tods or	Casi	ng		WC = Water Content, percent ≅ = 5	Similar or Equal too	C = Consolidat	on Test
		()											Laboratory
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing	BIOWS	Elevation (ft.)	Graphic Log	Visual Descr	iption and Remarks		Testing Results/ AASHTO and Unified Class.
0	B10		0.42 - 3.00			SSA		23.5	××××	5" PAVEMENT			G#264752
								20.9		Brown, wet, fine to coarse Sandy ((Fill).	GRAVEL, trace silt, occas		A-1-a, GW- GM WC=1.8%
E	S22		3.00 - 5.00				/			Light brown, wet, SILT, trace fine	sand.		
- 5 -								18.9		Bottom of Exploration a NO REFUSAL	t 5.0 feet below ground s	urface. 5.0	
- 10 -													
- 15 -													
- 20 -													
25													
	ation lines			ndaries between soil types es and under conditions st					ns may c	ccur due to conditions other	Page 1 of 1		
than t	hose prese	ent at the tin	ne measurement	s were made.							Boring No.	: HB-MICH	1-118

N	laine			of Transport	ation	F	Project:		nstruction of a 4.81 mile portion of	Boring No.:	HB-MIC	CH-119
			oil/Rock Expl			l	_ocatio	Route n: Mill	1 bridge-Cherryfield, Maine	WIN:	204	05.00
Drillir	ng Conti	ractor:	Northern Test	Boring	Elevat	ion	(ft.)	23.4		Auger ID/OD:	10" Dia.	
Opera			Mike/Adam	5	Datum		. ,		VD88	Sampler:	Off Flights	
Logg	ed By:		Wilder/Dagget	tt	Rig Ty	pe:		Died	drich D-50	Hammer Wt./Fall:	N/A	
	Start/Fir		1/12/2016-1/12		Drillin	-	thod:	Soli	d Stem Auger	Core Barrel:	N/A	
	g Locat			ft Rt. Shoulder	Casin	-		N/A		Water Level*:	1.6 ft bgs.	
S = Sar B = Buo MD = U U = Thi MV = U	mple off Au cket Sampl Insuccessf in Wall Tub Insuccessf	e Sample ul Field Van	Flights on Sample Attern e Shear Test Atte <u>PP= Pocket Pen</u>	RC = Roller C empt WOH = Weig	e Sample Stem Auger / Stem Auge Cone ht of 140lb. I	r Hamm	ner	ple Atten	$\begin{array}{llllllllllllllllllllllllllllllllllll$	ar Strength (psf) ngth (ksf) h (psf)	LL = Liquid Lim PL = Plastic Lir PI = Plasticity I G = Grain Size C = Consolidat	nit ndex Analysis ion Test
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Blows	Elevation (ft.)	Graphic Log	Visual Descr	iption and Remarks		Laboratory Testing Results/ AASHTO and Unified Class.
0	B11		0.00 - 2.80			SSA	20.6		Brown, wet, Gravelly fine to coars (Fill).		onal cobble,	G#264753 A-1-a, SW-SM WC=2.3%
									Light brown, moist, SILT, trace sa	nd, trace gravel.		
- 10 -						· · · · · · · · · · · · · · · · · · ·			Bottom of Exploration a NO REFUSAL	t 5.0 feet below ground si	urface.	
- 20 -												
Rema Stratific * Water	cation lines	lings have b						ns may c	occur due to conditions other	Page 1 of 1 Boring No.	: HB-MICI	H-119

N	laine			of Transport	tatio	1	Pro	oject:		struction of a 4.81 mile portion of	Boring No.:	HB-MIC	H-120
			oil/Rock Expl	-			Lo	catio	Route n: Mill	l oridge-Cherryfield, Maine	WIN:	2040)5.00
Drillin	na Conti	ractor:	Northern Test	Boring	Ele	vatio	n (ft	.)	28.1		Auger ID/OD:	5" Dia.	
Opera	-		Mike/Adam	Boring		um:	(.,		/D88	Sampler:	Off Flights	
	ed By:		Wilder/Dagget	it	_	Туре):			Irich D-50	Hammer Wt./Fall:	N/A	
	Start/Fir		1/12/2016-1/12			lling I		nod:		d Stem Auger	Core Barrel:	N/A	
	g Locat		303+70, 7.0 ft		_	sing I			N/A		Water Level*:	None Observed	1
Definitio	ons: D =	Spilt Spoon		MU = Unsu	ccessful T	hin Wa			ole Atterr				
B = Buo MD = U U = Thi MV = U	cket Sampl Insuccessf in Wall Tub Insuccessf	e Sample ul Field Van	Flights on Sample Atterr e Shear Test Atter PP= Pocket Pen	empt RC = Roller	Stem Au ow Stem A Cone ight of 140	ger luger)lb. Har	nmer			$\begin{array}{l} S_u = \text{Peak/Remolded Field Vane U}\\ S_{U(lab)} = \text{Lab Vane Undrained She}\\ q_p = \text{Unconfined Compressive Stree}\\ \text{N-value} = \text{Raw Field SPT N-value}\\ T_v = \text{Pocket Torvane Shear Strengt}\\ WC = \text{Water Content, percent} \equiv \pm 5 \end{array}$	ar Strength (psf) ngth (ksf) th (psf)	LL = Liquid Lim PL = Plastic Lin PI = Plasticity Ir G = Grain Size C = Consolidati	nit ndex Analysis
v – rie		ical i csi,		Sample Information			Casil	iig				C - Consolidati	
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing	ows	Elevation (ft.)	Graphic Log	Visual Descr	iption and Remarks		Laboratory Testing Results/ AASHTO and Unified Class.
		ď.			Z					_ 5" PAVEMENT			
	S23		0.42 - 3.30			SSA	A	27.7		\	D	-0.4	G#264762
	624		2.20.5.00					24.8		Brown, moist, fine to coarse SAN	D, some silt, little gravel, (f	-111).	A-1-b, SM WC=7.7%
-	S24		3.30 - 5.00				/			Grey-brown, wet, SILT, trace fine	sand.		
- 5 -								23.1		Bottom of Exploration a NO REFUSAL	t 5.0 feet below ground su	5.0- 5.0-	
							_						
- 10 -							_						
- 15 -													
							_						
							_						
- 20 -													
25													
Rema		represent a	approximate bour	ndaries between soil types	; transitior	is may	be gr	adual.			Page 1 of 1		
		-	een made at tim ne measurement		ated. Gro	undwat	ter flu	ictuatioi	ns may c	ccur due to conditions other	Boring No.:	HB-MICH	I-120

N	laine			of Transpor	tatio	1	Proj	ect:		struction of a 4.81 mile portion of	Boring No.: _	HB-MIC	H-121
			oil/Rock Expl	-			Loca	ation	Route Mill	l oridge-Cherryfield, Maine	WIN:	2040)5.00
Drillir	na Contr	ractor:	Northern Test	Boring	Ele	vation	(ft.)		82.2		Auger ID/OD:	5" Dia.	
Opera	-		Mike/Adam	Boring		um:	. ()			VD88	Sampler:	Off Flights	
	ed By:		Wilder/Dagget	tt	_	Туре	:			Irich D-50	Hammer Wt./Fall:	N/A	
	Start/Fir		1/12/2016-1/12			ling N		d:		d Stem Auger	Core Barrel:	N/A	
	g Locat		317+85, 7.0 ft		_	sing IE			N/A		Water Level*:	3.0 ft bgs.	
Definitio	ons: D =	Spilt Spoon		MU = Unsi	iccessful T	hin Wall			le Atterr				
B = Buo MD = U U = Thi MV = U	cket Sampl Insuccessf n Wall Tub Insuccessf	e Sample ul Field Van	Flights on Sample Atterr e Shear Test Atte PP= Pocket Pen	empt RC = Rolle	d Stem Au low Stem A r Cone eight of 140	ger luger Ib. Ham	imer			$\begin{array}{l} S_u = \text{Peak/Remolded Field Vane U}\\ S_{u(lab)} = \text{Lab Vane Undrained She}\\ q_p = Unconfined Compressive StretN-value = Raw Field SPT N-valueT_v = Pocket Torvane Shear StrengtWC = Water Content, percent \equiv = 5$	ar Strength (psf) ngth (ksf) h (psf)	LL = Liquid Lim PL = Plastic Lin PI = Plasticity II G = Grain Size C = Consolidati	nit ndex Analysis
V-TIC	id valle of	iear rest,		Sample Information			Jasing					C - Consolidati	
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	vation	(ft.)	Graphic Log	Visual Descr	iption and Remarks		Laboratory Testing Results/ AASHTO and
	Sar	Per	Sar (ft.)	Blo Str (ps or F	2 Z	D a			G				Unified Class.
Ŭ	S25		0.42 - 2.60			SSA	·	81.8	****	5" PAVEMENT Brown, damp, fine to coarse SAN	Desame arrest livel. 11: 7	-0.4-	G#264763 A-1-b, SM
										Brown, damp, fine to coarse SAN	D, some gravel, little silt, (f	·111).	WC=4.0%
	S26		2.60 - 5.00				-	79.6		Brown, wet, SILT, trace fine sand.		2.6-	
							/						
- 5 -								77.2		Bottom of Exploration a NO REFUSAL	t 5.0 feet below ground su	5.0- 5.0-	
										NO REFUSAL			
- 10 -							_						
							-						
- 15 -													
15													
							_						
							-						
- 20 -													
25													
Rema Stratific		represent a	pproximate bour	ndaries between soil type	s; transitior	is may b	be grad	lual.			Page 1 of 1		
		-	een made at tim ne measurement		stated. Gro	undwate	er fluct	uation	s may c	occur due to conditions other	Boring No.:	HB-MICH	I-121

N	laine			of Trans	porta	tion	1	Proje			struction of a 4.81 mile portion of	Boring No.:	HB-MIC	H-122
			oil/Rock Expl	-				Loca		Route : Mill	1 ridge-Cherryfield, Maine	WIN:	2040	05.00
Drillin	a Cont	ractor:	Northern Test	Boring		Floy	/ation	(ft)		82.5		Auger ID/OD:	5" Dia.	
Opera	-		Mike/Adam	Doring		Dati		(10)			/D88	Sampler:	Off Flights	
	ed By:		Wilder/Dagget	tt			Type:				lrich D-50	Hammer Wt./Fall:	N/A	
	Start/Fir		1/12/2016-1/12				ing M		d:		d Stem Auger	Core Barrel:	N/A	
	g Locat		329+50, 7.0 ft				ing ID			N/A	-	Water Level*:	None Observed	1
S = Sau B = Buu MD = L U = Thi MV = L	mple off Au cket Sampl Insuccessf in Wall Tub Insuccessf	e Sample ul Field Van	Flights on Sample Atterr e Shear Test Att <u>PP= Pocket Pen</u>	R = SS npt HS RC tempt Wo tetrometer Wo	J = Unsucces = Rock Core A = Solid Ste A = Hollow S = Roller Cor DH = Weight DR/C = Weig	Sample em Aug Stem Au ne of 140l	er uger b. Hami	mer	Sampl	e Attem	pt WO1P = Weight of 1 Person $S_u = Peak/Remolded Field Vane Un Su(lab) = Lab Vane Undrained She q_p = Unconfined Compressive Stren N-value = Raw Field SPT N-value T_v = Pocket Torvane Shear Strengt WC = Water Content, percent \equiv s$	ar Strength (psf) ngth (ksf) h (psf)	LL = Liquid Lim PL = Plastic Lin PI = Plasticity Ir G = Grain Size C = Consolidati	nit ndex Analysis
				Sample Infor										Laboratory
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength	or RQD (%)	N-value	Casing Blows	Elevation	(ft.)	Graphic Log		iption and Remarks		Testing Results/ AASHTO and Unified Class.
0	S27		0.42 - 2.30				SSA	8	32.1	****	5" PAVEMENT			G#264764
											Black-brown, damp, fine to coarse	SAND, little silt, little gra	wel, (Fill).	A-1-b, SM WC=5.9%
	S28					8	30.2		Brown, moist, SILT, some fine to	coarse sand, trace gravel.	2.3-	G#264772 A-4, ML WC=16.8%		
								,						WC-10.876
- 5 -								_ 7	7.5		Bottom of Exploration a NO REFUSAL	t 5.0 feet below ground s	urface.	
								-						
- 10 -														
								-						
15														
- 15 -														
								-						
								-						
- 20 -														
								-						
25			7											
* Water	ation lines	lings have b	een made at tim							s may o	ccur due to conditions other	Page 1 of 1		1 122
than t	hose prese	ent at the tin	ne measurement	ts were made.								Boring No.	: HB-MICH	1-122

N	Iaine			of Transpo	ortat	tion		Pro	ject:		struction of a 4.81 mile portion of	Boring No.:	HB-MIC	H-123
			oil/Rock Expl	-				Loc	ation	Route 1: Mill	l ridge-Cherryfield, Maine	WIN:	2040)5.00
Drilli	na Cont	ractor.	Northern Test	Boring		Elev	ation) (ft)	77.5		Auger ID/OD:	5" Dia.	
Opera	-		Mike/Adam	Doring		Datu		. (/		7D88	Sampler:	Off Flights	
	ed By:		Wilder/Dagget	tt		Rig		:			rich D-50	Hammer Wt./Fall:	N/A	
	Start/Fi		1/12/2016-1/12			Drilli			od:		l Stem Auger	Core Barrel:	N/A	
Borin	g Locat	ion:	341+05, 7.0 ft	Rt.		Casi	ng ID)/OE	D:	N/A	-	Water Level*:	None Observed	l
S = Sa B = Bu MD = L U = Th MV = L	mple off Au cket Samp Jnsuccessf in Wall Tub Jnsuccessf	e Sample ul Field Van	Flights on Sample Atterr e Shear Test Att <u>PP= Pocket Pen</u>	R = Rod SSA = 5 npt HSA = 1 RC = R empt WOH = netrometer WOR/C	nsuccess sk Core S Solid Ster Hollow St oller Con Weight c = Weigh	Sample m Auge tem Au te of 140lb	er ger o. Ham	ımer		le Atterr	pt WO1P = Weight of 1 Person S_{ij} = Peak/Remolded Field Vane Un $S_{ij}(ab)$ = Lab Vane Undrained Shee q_p = Unconfined Compressive Stren N-value = Raw Field SPT N-value T_y = Pocket Torvane Shear Strengti WC = Water Content, percent \equiv S	ar Strength (psf) ngth (ksf) h (psf)	LL = Liquid Lim PL = Plastic Lin PI = Plasticity Ir G = Grain Size C = Consolidati	nit ndex Analysis
				Sample Informat				-						Laboratory
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)		N-value	Casing	emoin	Elevation (ft.)	Graphic Log	Visual Descri	iption and Remarks		Testing Results/ AASHTO and Unified Class.
0	S29		0.42 - 3.50				SSA		77.1	××××	5" PAVEMENT			G#264765
	S30		3.50 - 5.00					-	74.0		Brown, damp, fine to coarse SANI	D, some gravel, some silt, (A-1-b, SM WC=4.4%
- 5 -							\checkmark	/	72.5		Brown, wet, SILT, trace sand.		5.0-	
- 10 -									12.5		Bottom of Exploration at NO REFUSAL	t 5.0 feet below ground st		
25 Rema	arks:													
* Wate	r level read	lings have b								us may c	ccur due to conditions other	Page 1 of 1 Boring No.	HB-MICH	I-123

I	Main	e Depa	artment	of Transport	ation		Project			ion of a 4.81 mile portion of	Boring No.:	HB-MI	CH-201
			Soil/Rock Exp JS CUSTOM				Locatio	Route n: Mil		-Cherryfield, Maine	WIN:	204	05.00
		<u> </u>	<u>13 COSTON/</u>	AKT UNITS							VVIN.	2049	05.00
Drill	er:		MaineDOT		Eleva	ation	(ft.)	44.7			Auger ID/OD:	5" Soild Stem	
Ope	rator:		Daggett/Niles		Datur	m:		NA	/D88		Sampler:	Standard Split	Spoon
	ged By:		B. Wilder		Rig T				E 45C		Hammer Wt./Fall:	140#/30"	
<u> </u>	Start/Fi		5/3/2018; 06:3		_	-	ethod:			sh Boring	Core Barrel:	N/A	
<u> </u>	ng Loca		118+30, 9.0 ft	Rt.	Casir	-		NW			Water Level*:	7.0 ft bgs.	
Defini		ICIENCY F	actor: 0.854	R = Rock C	Hamr Core Sample		i ype:	Autom S ₁₁ =	Peak/	Remolded Field Vane Undrained Sh	Rope & Cathead \Box ear Strength (psf) $T_{y} =$	Pocket Torvane She	ar Strength (psf)
D = S MD = U = T MU = V = Fi	plit Spoon Unsuccess hin Wall Tu Unsuccess ield Vane S	sful Split Spo ibe Sample sful Thin Wa Shear Test,	oon Sample Atten II Tube Sample A PP = Pocket Pe ne Shear Test Att	SSA = Soli npt HSA = Holl RC = Rolle ttempt WOH = We netrometer WOR/C = N	d Stem Aug low Stem Au	jer uger lb. Har ods or	Casing	S _{u(la} q _p = N-ur Ham N ₆₀	b) ^{= La} Uncon correct mer Ef = SPT	ab Vane Undrained Shear Strength (fined Compressive Strength (ksf) ed = Raw Field SPT N-value ficiency Factor = Rig Specific Annua N-uncorrected Corrected for Hamm mer Efficiency Factor/60%)*N-unco	(psf) WC : LL = PL = Il Calibration Value PI = er Efficiency G = 0	= Water Content, per Liquid Limit Plastic Limit Plasticity Index Grain Size Analysis Consolidation Test	
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N ₆₀	Casing Blows	Elevation (ft.)	Graphic Log	Visual De	escription and Remarks		Laboratory Testing Results/ AASHTO and Unified Class.
0	•,						SSA	1		6½" HMA.			
	1D	24/16	1.00 - 3.00	6/11/9/11	20	28		44.2		Brown, damp, medium den silt, (Fill).	ise, fine to coarse SAND,	0.5 some gravel, trace	
- 5 -	2D	24/18	5.00 - 7.00	2/3/4/5	7	10		39.7		Grey-brown, wet, stiff, Silt	y CLAY, trace fine sand.	5.0	G#336735 A-4, CL-ML WC=30.3% LL=26 PL=21 PI=5
- 10 -	3D	24/24	10.00 - 12.00	3/5/5/5	10	14	11 14 16 20	35.7		Grey-brown, wet, stiff, SIL trace organics.	.T, some clay, little fine t	9.0 o medium sand,	G#336736 A-6, CL WC=30.4% LL=37 PL=21 PI=16
								30.7	ш	8		14.0	
- 15 -	4D	24/24	15.00 - 17.00	2/2/3/3	5	7	23 OPEN HOLE	-		Grey, wet, medium stiff, Si Roller Coned ahead to 17.0		I.	G#336737 A-6, CL WC=30.8% LL=34
	MV		17.00 - 17.21	Would not Push				-		Failed 55x110 mm vane at	tempt.		PL=21 PI=13
							$\left \right\rangle$	1		H			
- 20 -	5D	24/24	20.00 - 22.00	2/3/3/3	6	9				Grey, wet, stiff, Silty CLA	Y, trace fine sand.		G#336738 A-6, CL WC=30.2%
	6D	24/	22.00 - 24.00	4/4/5/7	9	13		22.7		Grey, wet, medium dense, gravel.	Silty fine to coarse SAND	22.0 , trace clay, trace	LL=35 PL=23 PI=12 G#336739
25								20.7			n at 24.0 feet below grou	24.0 nd surface.	A-6, CL
Stratif * Wat	er level rea	dings have		ndaries between soil types; es and under conditions sta ts were made.		-	-	ons may c	ccur d	ue to conditions other	Page 1 of 2 Boring No.	: HB-MICF	
uian	alose pres	sont at the li	me measuremen	a were indue.									1 201

	Main	e Dep	artment	of Transport	ation	Project			on of a 4.81 mile portion of	Boring No.:	HB-MI	CH-201
			Soil/Rock Exp US CUSTOM			Locatio	Route n: Milb		Cherryfield, Maine	WIN:	2040)5.00
Drill	or		MaineDOT		Elevatio	n (ft)	44.7			Auger ID/OD:	5" Soild Stem	
<u> </u>	rator:		Daggett/Niles	c	Datum:	ii (ii.)	NAV	7D88		Sampler:	Standard Split	Spoon
<u> </u>	ged By:		B. Wilder	5	Rig Type	e:		E 45C		Hammer Wt./Fall:	140#/30"	opoon
<u> </u>	Start/F		5/3/2018; 06:	30-	Drilling				h Boring	Core Barrel:	N/A	
L	ing Loca		118+30, 9.0 f		Casing I		NW-		ii Doring	Water Level*:	7.0 ft bgs.	
	-		actor: 0.854		Hammer		Automa		Hydraulic 🗆	Rope & Cathead	,10 10 0851	
Defin	itions:			R = Rock C	ore Sample		S., =	Peak/R	emolded Field Vane Undrained Sh	ear Strength (psf) Ty	= Pocket Torvane Shea	
MD =		sful Split Sp	oon Sample Atte	mpt HSA = Holl	d Stem Auger ow Stem Auger		$q_p = 1$	Jnconfi	o Vane Undrained Shear Strength (ned Compressive Strength (ksf)	LL	C = Water Content, pero = Liquid Limit	cent
MU =	Unsucces	ube Sample sful Thin W	all Tube Sample /	Attempt RC = Roller	ight of 140 lb. H		Hamr	ner Effic	d = Raw Field SPT N-value ciency Factor = Rig Specific Annua	I Calibration Value PI	= Plastic Limit = Plasticity Index	
			PP = Pocket Pe ane Shear Test A		Veight of Rods eight of One Pe		N ₆₀ = N ₆₀ =	= SPT N = (Hamr	I-uncorrected Corrected for Hamme ner Efficiency Factor/60%)*N-unco	er Efficiency G = rrected C =	Grain Size Analysis Consolidation Test	
				Sample Information	-							Laboratory
		Pen./Rec. (in.)	Sample Depth (ft.)	Î.	ited			D				Testing
(H.)	Sample No.	ec.	De	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected N60		5	Graphic Log	Visual De	scription and Remarks	6	Results/ AASHTO
Depth (ft.)	nple	./R	uple (ws ear engt f) RQE	o luco	Casing Blows	Elevation (ft.)	aphic				and
	Sar	Per	Sar (ft.)	Blo Str Str Os Os	N-ur N ₆₀	Blo	Ele (ft.)	Gra				Unified Class.
25												PI=14
						_	-					
	L					_						
							1					
						-	-					
- 30 -						_						
							1					
						_	-					
							1					
- 35 -						_	-					
						_						
						-	1					
							-					
- ₄₀ ·						_						
]					
	<u> </u>		1			-	1					
							-					
- 45 ·	1						1					
							-					
						_						
							1					
50 Rem	arks:											
Strati	fication line	es represent	approximate bou	undaries between soil types;	transitions may	be gradual.				Page 2 of 2		
				nes and under conditions sta	ted. Groundwa	ter fluctuatio	ns may o	ccur due	e to conditions other	Dest to		
thar	n those pre	esent at the	ime measuremer	nts were made.						Boring No	D.: HB-MICH	1-201

Ι	Main			of Transport	ation	Proje				n of a 4.81 mile portion of	Boring No.:	HB-MI	CH-202
			Soil/Rock Exp US CUSTOM			Loca		ute 1 1ilbri		Cherryfield, Maine	WIN:	2040)5.00
Drill			MaineDOT		Elevatio	on (ft.)		6.0			Auger ID/OD:	5" Dia.	
<u> </u>	rator:		Daggett/Niles	S	Datum:			AVI			Sampler:	N/A	
-	ged By:		B. Wilder	/2018	Rig Typ			ME		A	Hammer Wt./Fall:		
L	Start/F		5/2/2018-5/2/ 118+35, 8.0 f		Drilling Casing			011d : [/A	Stem .	Auger	Core Barrel: Water Level*:	N/A None Observed	4
		ficiency l		IT LT.	Hamme			omati		Hydraulic 🗆	Rope & Cathead	None Observed	1
Defini	tions:		actor.		ore Sample	i iype.	S	= Pe	eak/Re	molded Field Vane Undrained Sh	ear Strength (psf)	T _v = Pocket Torvane She	
MD =		sful Split Sp	ooon Sample Atte	mpt HSA = Holl	d Stem Auger ow Stem Auge	r	q	_o '= Ur	nconfin	Vane Undrained Shear Strength ed Compressive Strength (ksf)	l	WC = Water Content, per LL = Liquid Limit	cent
MU =	Unsucces	ube Sample sful Thin W	all Tube Sample	Attempt RC = Rolle	ight of 140lb. I		Н	amme	er Effic	I = Raw Field SPT N-value iency Factor = Rig Specific Annua	I Calibration Value	PL = Plastic Limit PI = Plasticity Index	
			PP = Pocket Pe ane Shear Test A		Veight of Rods leight of One P					uncorrected Corrected for Hamm er Efficiency Factor/60%)*N-unco		G = Grain Size Analysis C = Consolidation Test	
				Sample Information									Laboratory
		Pen./Rec. (in.)	Sample Depth (ft.)	<u>о</u> . –	N-uncorrected				g				Testing
Depth (ft.)	Sample No.	ec.	e Dé	Blows (/6 in.) Shear Strength (psf) or RQD (%)	orred		Io		Graphic Log	Visual De	escription and Rema	rks	Results/ AASHTO
pth	du	n./R	du (ows ear ear sf) RQI	nuce	Casing	Elevation		aphi				and Unified Class.
	Sa	Pe	Sa (ft.	ਤ ਨਿ ਨੇ ਕੇ ਤ	N-ur	ໍ ວິເ	ă ŭ	(jt	Ğ				Unified Class.
0						SS	4			Probe, no soil samples take	en.		
							_						
- 5 -						_	_						
							_						
- 10 -													
							_						
							-						
							_						
- 15 -													
		+				+	_						
						-							
							/						
		1											
- 20 -						$- \parallel \mathbb{V}$	-						
						'	2	5.5		Bottom of Exploratio	n at 20.5 feet below g	round surface.	
										NO REFUSAL			
							-						
25													
Rem	arks:	•			· · · ·			-					
Stratif	ication line	es represen	t approximate bou	undaries between soil types;	transitions may	/ be gradi	al.				Page 1 of 1		
				nes and under conditions sta		-		ay occ	ur due	to conditions other			
			time measuremen					,	2.5		Boring N	IO.: HB-MICH	I-202

Ι	Main	e Dep	artment	of Transporta	ation	F	Project:			ion of a 4.81 mile portion of	Boring No.:	HB-MI	CH-203
		-	Soil/Rock Expl US CUSTOMA			l	_ocatio	Route n: Milb		-Cherryfield, Maine	WIN:	204	05.00
Drille			MaineDOT		Elevat		(ft.)	42.5	1000		Auger ID/OD:	5" Soild Stem	~
<u> </u>	ator:		Daggett/Niles		Datum				/D88		Sampler:	Standard Split	Spoon
<u> </u>	jed By:		B. Wilder	0	Rig Ty		4 h a al .		E 45C	h Davies	Hammer Wt./Fall:	140#/30"	
<u> </u>	Start/Fi		5/1/2018; 10:0		Drilling	-				sh Boring	Core Barrel: Water Level*:	N/A	
<u> </u>	ng Loca		143+30, 9.5 ft	Kt.	Casing	-		NW-				3.0 ft bgs.	
Definit		ICIEIICY F	actor: 0.854	R = Rock Co	Hamm bre Sample	eri	ype.	Automa S _u =		Hydraulic Remolded Field Vane Undrained Sho	Rope & Cathead □ ear Strength (psf) T _v :	= Pocket Torvane She	ar Strength (psf)
	olit Spoon		oon Sample Atterr	SSA = Solid HSA = Hollo				S _{u(la}	b) = La	b Vane Undrained Shear Strength (ined Compressive Strength (ksf)	(psf) WC	C = Water Content, per = Liquid Limit	cent
U = Tł	nin Wall Tu	ibe Sample	ll Tube Sample A	RC = Roller	Cone		mor	N-un	correct	ed = Raw Field SPT N-value iciency Factor = Rig Specific Annua	PL	= Plastic Limit = Plasticity Index	
V = Fi	eld Vane S	Shear Test,	PP = Pocket Per ne Shear Test Att	netrometer WOR/C = W	eight of Roc	ls or (Casing	N60 =	= SPT	N-uncorrected Corrected for Hamme mer Efficiency Factor/60%)*N-unco	er Efficiency G =	Grain Size Analysis Consolidation Test	
1010 -	Unsuccess	siul Fleid Va		Sample Information	signt of One	Perso		1160 -	- (nan			Consolidation Test	
		(in.)			eq				_				Laboratory Testing
	No.	c. (j	Depth	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected			c	Log	Visual De	escription and Remarks	5	Results/
th (f	Sample No.	Pen./Rec.	ble	ar (/ OD	lcor		ing vs	atio	Graphic				AASHTO and
Depth (ft.)	Sam	Pen	Sample I (ft.)	She Stre or R		09N	Casing Blows	Elevation (ft.)	Gra				Unified Class.
0							SSA	42.1	* * * *	5" HMA.			
							5571			Brown, damp, dense, fine t	o coarse SAND, some g		G#336740
	1D	24/17	1.00 - 3.00	6/13/21/20	34 4	18				(Fill).		,	A-1-b, SM
										8			WC=5.8%
										8			
										8			
										8			
- 5 -	2D	24/16	5.00 - 7.00	11/5/7/30	12 1	7				Brown, damp, medium den	se, Gravelly fine to coars	se SAND, little silt	G#336741 A-1-b, SM
										(Fill).			WC=5.4%
								35.9 35.5	~~~~	X Layer of Old Pavement.		6.6	
								55.5				7.0	
										8			
							+//	33.5	ЩЙ	Я И		9.0	
- 10 -							V						0//22/742
	3D	24/19	10.00 - 12.00	3/5/6/13	11 1	6	24			Light brown, moist, very st	tiff, Silty CLAY, trace fi	ne sand.	G#336742 A-4, CL
							33						WC=22.8% LL=30
													PL=20
							47			ŧ.			PI=10
							55			1			
	4D	24/24	14.00 - 16.00	4/4/5/5	9 1	3	OPEN			Grey, wet, stiff, Silty CLA	Y, trace fine sand.		G#336743 A-6, CL
- 15 -						_	HOLE			1			WC=27.8%
										ŧ.			LL=36 PL=21
										1			PI=15
								25.0		<u> </u>		17.5	
							\vee						
- 20 -	5D	24/13	20.00 - 22.00	7/12/11/10	23 3	33				Brown, damp, dense, fine t	to coarse SAND, little si	lt, little gravel.	G#336744 A-1-b, SM
						-							WC=14.8%
								20.5				22.0	
										Bottom of Exploration	n at 22.0 feet below gro	und surface.	
						_							
25 Bom	orkei												
Rem	arks:												
Stratifi	cation line	s represent	approximate bour	ndaries between soil types; ti	ransitions m	ay be	gradual.				Page 1 of 1		
		-		es and under conditions state	ed. Ground	water	fluctuation	ns may o	ccur du	e to conditions other	Poring N-		1 202
than	those pres	sent at the ti	ime measurement	ts were made.								b.: HB-MICH	1-203

Ι	Main	e Depa	artment	of Transport	ation	Pi	oject:			on of a 4.81 mile portion of	Boring No.:	HB-MI	CH-204
		-	Soil/Rock Expl JS CUSTOM			Lo	ocatio	Route n: Milb		Cherryfield, Maine	WIN:	2040	05.00
Drill			MaineDOT		Elevatio	on (f	+)	41.0			Auger ID/OD:	5" Soild Stem	
	rator:		Daggett/Niles		Datum:	· ·)	NAV	7D88		Sampler:	Standard Split	Spoon
<u> </u>	ged By:		B. Wilder		Rig Typ				E 45C		Hammer Wt./Fall:	140#/30"	Броон
<u> </u>	Start/Fi	nish:	5/1/2018; 12:3		Drilling		hod:			sh Boring	Core Barrel:	N/A	
<u> </u>	ng Loca		144+20, 10.0 1		Casing			NW			Water Level*:	2.0 ft bgs.	
<u> </u>	-		actor: 0.854		Hamme			Automa		Hydraulic 🗆	Rope & Cathead □	. 0	
Defini	tions:			R = Rock C						emolded Field Vane Undrained She	ear Strength (psf) T _v =	Pocket Torvane She = Water Content, per	
MD =		ful Split Spo	oon Sample Atten	npt HSA = Holle	I Stem Auger ow Stem Auge	er		qp`=	Jnconf	b Vane Undrained Shear Strength (ined Compressive Strength (ksf)	LL =	Liquid Limit	cent
MU =	Unsuccess		II Tube Sample A		ight of 140lb. I			Hamr	ner Eff	ed = Raw Field SPT N-value ciency Factor = Rig Specific Annua	I Calibration Value PI =	Plastic Limit Plasticity Index	
			PP = Pocket Per ne Shear Test Att		leight of Rods eight of One P			N ₆₀ = N ₆₀ =	: SPT I : (Ham	N-uncorrected Corrected for Hamme mer Efficiency Factor/60%)*N-unco	er Efficiency G = rrected C =	Grain Size Analysis Consolidation Test	
				Sample Information									Laboratory
		(in.)	Depth	(.	ited				D				Testing
(ft.)	Sample No.	ec.	e De	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected		_	ы	Graphic Log	Visual De	escription and Remarks		Results/ AASHTO
Depth (ft.)	nple	Pen./Rec.	Sample I (ft.)	ws ear engt f) RQ[Casing Blows	Elevation (ft.)	aphi				and
	Sa	Pe	(ft.	Str Str (ps or	N-UL	2	Boa	Ele (ft.	Ö				Unified Class.
0							SSA	40.6	****	5" HMA.		0.4	
	1D	24/14	1.00 - 3.00	7/12/16/8	28 40					Brown, damp, dense, Grave	elly fine to coarse SAND	, little silt, (Fill).	G#336745
	10	24/14	1.00 - 5.00	//12/10/0	20 40		_			8			A-1-a, SM WC=5.7%
										8			
										8			
						-				8			
- 5 -							_			Brown, wet, medium dense	fina ta agorea SAND a	ama graval littla	G#336746
	2D	24/13	5.00 - 7.00	3/4/6/6	10 14	1				silt, (Fill).	e, fille to coarse SAND, so	fille gravel, little	A-1-b, SM
										8			WC=5.2%
						_				8			
										8			
						-	\ /-			8			
- 10 -						_	V	31.0				10.0	
										Casing sunk to 11.0 ft bgs.,	-		
	3D	24/18	11.00 - 13.00	1/3/4/7	7 10		11			Grey, wet, stiff, SILT, som gravel.	e fine to coarse sand, som	ne clay, trace	G#336747 A-4, CL
							18						WC=19.9%
						-							
						_	29	27.0				14.0	
- 15 -		2.1/20	15.00 15.00	4/5/0/10	10 10		42			Grey-brown, wet, very stiff	f, Clayey SILT, trace fine	sand.	G#336748
	4D	24/20	15.00 - 17.00	4/5/8/10	13 19		DPEN HOLE						A-4, CL WC=25.6%
													LL=31
													PL=21 PI=10
						+	+						
						_							
- 20 -													
20	5D	24/18	20.00 - 22.00	3/3/4/4	7 10					Dark grey, wet, stiff, Silty	CLAY, trace fine sand.		G#336749 A-6, CL
							-						WC=26.6% LL=32
						_	-						PL=18
								18.0				23.0	PI=14
								1010				2010	
							1/						
25 Rem	arks:						V						l
											Dame 4 - CO		
				ndaries between soil types; i							Page 1 of 2		
		-	been made at tim me measurement	es and under conditions sta ts were made.	ed. Groundw	ater fl	uctuatio	ns may o	ccur du	e to conditions other	Borina No	.: HB-MICH	I-204
uiali		at alle ti											

I	Main	e Depa	artment	of Transport	ation	Project:			on of a 4.81 mile portion of	Boring No.:	HB-MI	CH-204
			Soil/Rock Exp JS CUSTOM			Locatio	Route n: Milb		Cherryfield, Maine	WIN:	2040	05.00
Drill	er:		MaineDOT		Elevatio	l n (ft.)	41.0			Auger ID/OD:	5" Soild Stem	
L	rator:		Daggett/Niles		Datum:	()		/D88		Sampler:	Standard Split	Spoon
Log	ged By:		B. Wilder		Rig Type):	CMI	E 45C		Hammer Wt./Fall:	140#/30"	
Date	Start/F	inish:	5/1/2018; 12:3	30-	Drilling I	Method:	Case	d Wasl	h Boring	Core Barrel:	N/A	
Bori	ng Loca	ation:	144+20, 10.0	ft Lt.	Casing I	D/OD:	NW	-3"		Water Level*:	2.0 ft bgs.	
Ham	nmer Eff	iciency F	actor: 0.854		Hammer	Туре:	Automa	ıtic⊠	Hydraulic 🗆	Rope & Cathead □		
MD = U = T MU = V = Fi	plit Spoon Unsucces hin Wall Tu Unsucces ield Vane S	sful Split Spo ube Sample sful Thin Wa Shear Test,	oon Sample Atten II Tube Sample A PP = Pocket Pe ne Shear Test Att	SSA = Soli mpt HSA = Holl RC = Rolle Attempt WOH = We tempt WO1P = W	ore Sample d Stem Auger ow Stem Auger r Cone light of 140 lb. H Veight of Rods of eight of One Pe	or Casing	S _{u(la} q _p = N-uno Hamr N ₆₀ =	b) = Lab Unconfir correcte ner Effic = SPT N	emolded Field Vane Undrained Sh. v Vane Undrained Shear Strength (hed Compressive Strength (ksf) d = Raw Field SPT N-value siency Factor = Rig Specific Annua -uncorrected Corrected for Hammener Efficiency Factor/60%)*N-uncor	psf) WC = LL = PL = I Calibration Value PI = er Efficiency G = 0	Pocket Torvane She = Water Content, peri Liquid Limit Plastic Limit Plasticity Index Grain Size Analysis Consolidation Test	
	<u> </u>			Sample Information	σ							Laboratory
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected N ₆₀	Casing Blows	Elevation (ft.)	Graphic Log		escription and Remarks		Testing Results/ AASHTO and Unified Class.
25	6D	13.2/13.2	25.00 - 26.10	4/10/30(1.2")					Brown, wet, dense, fine to	coarse SAND, some silt, t	race gravel.	G#336750 A-2-4, SM
							14.9		Bottom of Exploration REFUSAL	n at 26.1 feet below grou	26.1- nd surface.	
							-					
- 30 -												
							-					
							-					
- 35 -							-					
							-					
							-					
							-					
- 40 -							-					
- 45 -							-					
							-					
							-					
50												
	narks:											
				ndaries between soil types;						Page 2 of 2		
			been made at tim me measuremen	nes and under conditions sta ts were made.	ted. Groundwa	ter fluctuatio	ns may o	ccur due	to conditions other	Boring No.	: HB-MICH	I-204

1	Maino	e Depa	artment	of Transport	ation		Project			ion of a 4.81 mile portion of	Boring No.:	HB-MI	CH-205
			Soil/Rock Expl				Locatio	Route n: Mil		-Cherryfield, Maine	WIN:	204	5.00
		<u> </u>	<u>13 COSTON/</u>	AKT UNITS							VVIN.	2040	05.00
Drill	er:		MaineDOT		Eleva	tion	ı (ft.)	31.	3		Auger ID/OD:	5" Dia.	
Ope	rator:		Daggett/Niles		Datur	n:		NA	VD88		Sampler:	Standard Split	Spoon
Log	ged By:		B. Wilder		Rig T	ype	:	CM	E 450		Hammer Wt./Fall:	140#/30"	
<u> </u>	Start/Fi		5/2/2018; 06:3			-	lethod:			n Auger	Core Barrel:	N/A	
	ng Loca		200+55, 9.5 ft	Lt.	Casin	-		N/A			Water Level*:	14.5 ft bgs.	
Defini		ciency F	actor: 0.854	R = Rock C	ore Sample		Type:	Auton S., =		Hydraulic □ Remolded Field Vane Undrained Sh	Rope & Cathead \Box ear Strength (psf) $T_{y} =$	Pocket Torvane She	ar Strength (psf)
D = S MD = U = T MU = V = Fi	plit Spoon S Unsuccess hin Wall Tu Unsuccess eld Vane S	sful Split Spo be Sample sful Thin Wa Shear Test,	oon Sample Atten II Tube Sample A PP = Pocket Per ne Shear Test Att	SSA = Solic npt HSA = Hollo RC = Roller ttempt WOH = We netrometer WOR/C = V	d Stem Aug ow Stem Au ⁻ Cone ight of 140ll Veight of Ro	er uger b. Ha ods o	r Casing	S _{u(I} q _p = N-u Han N ₆₀	ab) = L Uncor ncorrec imer Ef = SPT	ab Vane Undrained Shear Strength (fined Compressive Strength (ksf) ed = Raw Field SPT N-value ficiency Factor = Rig Specific Annua N-uncorrected Corrected for Hamm- mer Efficiency Factor/60%)*N-unco	(psf) WC LL = PL = Il Calibration Value PI = er Efficiency G =	= Water Content, per Liquid Limit Plastic Limit Plasticity Index Grain Size Analysis <u>Consolidation Test</u>	
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N60	Casing Blows	Elevation (ft.)	Graphic Log	Visual De	escription and Remarks		Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA	30.7		7" HMA.		0.6-	
	1D	24/14	1.00 - 3.00	7/11/18/12	29	41		-		Brown, damp, dense, Grav	elly fine to coarse SAND,		G#336676 A-1-a, SW-SM WC=4.4%
- 5 -	2D	24/6	5.00 - 7.00	6/3/9/10	12	17		25.3		Olive, moist, very stiff, SII		— — — —6.0 ⁻	G#330077
								22.3		trace gravel, (Fill).		— — — —9.0-	A-4, CL WC=15.9%
- 10 -	3D	24/15	10.00 - 12.00	10/9/6/3	15	21				Brown, damp, medium den silt, (Fill).	ise, fine to coarse SAND,	-	G#336678 A-1-b, SM WC=6.7%
- 15 -	4D	24/18	15.00 - 17.00	3/3/5/5	8	11		-		Grey, wet, stiff, Clayey SII organics, wood.	LT, trace fine sand, trace §	12.5-	G#336679 A-4, CL
								-		organics, wood.			WC=29.7% LL=31 PL=23 PI=8
							$\uparrow \Downarrow$	12.3	11.18.184 			19.0-	
- 20 -	5D	24/17	20.00 - 22.00	3/4/4/5	8	11	¥	-		Brown, moist, medium den clay, trace gravel.	ise, fine to coarse SAND,	some silt, some	G#336680 A-6, CL WC=27.4% LL=38
	6D	24/22	22.00 - 24.00	5/6/9/9	15	21		8.8		Grey, wet, very stiff, Silty	CLAY, trace fine sand.	22.5-	PL=22 PI=16 G#336681 A-4, CL
								7.3	, hang	Bottom of Exploratio	n at 24.0 feet below grou	nd surface.	WC=31.3%
25 Rem	arks:									NO REFUSAL	-		
Stratif	ication line	s represent	approximate bour	ndaries between soil types; t	transitions r	nay b	e gradual.				Page 1 of 1		
		-	been made at tim me measurement	es and under conditions stat ts were made.	ted. Groun	dwate	er fluctuatio	ons may	occur d	ue to conditions other	Boring No	.: HB-MICH	I-205

	Main	e Dep	artment	of Transport	ation	I	Project			on of a 4.81 mile portion of	Boring No.:	HB-MI	CH-206
			Soil/Rock Exp US CUSTOM				Locatio	Route on: Milb		Cherryfield, Maine	WIN:	2040	05.00
Drill	lor:		MaineDOT		Flow	/atior) (ft)	32.5			Auger ID/OD:	5" Dia.	
<u> </u>	rator:		Daggett/Niles	3	Datu		1 (10.)		/D88		Sampler:	N/A	
<u> </u>	ged By:		B. Wilder	-	_	Туре	:		E 45C		Hammer Wt./Fall:	N/A	
<u> </u>	e Start/Fi	inish:	5/1/2018-5/1/	2018	_		/lethod:			Auger	Core Barrel:	N/A	
<u> </u>	ing Loca		200+70, 10.0		_	-	D/OD:	N/A		0	Water Level*:	None Observed	1
Han	nmer Eff	iciency F	actor:		Ham	nmer	Type:	Automa	tic 🗆	Hydraulic 🗆	Rope & Cathead □		
D = S MD = U = T MU = V = F	hin Wall Tu Unsuccess ield Vane S	sful Split Sp ibe Sample sful Thin Wa Shear Test,	all Tube Sample A PP = Pocket Pe ine Shear Test A	Attempt WOR/C = Work C = Rolle	d Stem Au low Stem / er Cone eight of 14 Weight of I	uger Auger Olb. Ha Rods o	or Casing	S _{u(la} q _p = N-uno Hamr N ₆₀ =	b) = Lal Unconfi correcte ner Effi = SPT N	temolded Field Vane Undrained Sh b Vane Undrained Shear Strength ined Compressive Strength (ksf) de = Raw Field SPT N-value iciency Factor = Rig Specific Annua N-uncorrected Corrected for Hamm mer Efficiency Factor/60%)*N-unco	(psf) Wo LL PL I Calibration Value PI er Efficiency G	= Pocket Torvane She: C = Water Content, perc = Liquid Limit = Plastic Limit = Plasticity Index = Grain Size Analysis = Consolidation Test	cent
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N ₆₀	Casing Blows	Elevation (ft.)	Graphic Log		escription and Remark	s	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA	-		Probe, no soil samples take	n.		
- 5								-					
- 10								-					
								-					
- 15								-					
								-					
- 20								- 12.5		Bottom of Exploratio NO REFUSAL	n at 20.0 feet below gro	20.0- ound surface.	
								-					
25								1					
Ren	narks:	s represent	approximate bou	Indaries between soil types;	transitions	s may t	be gradual.				Page 1 of 1		
		-	been made at tin ime measuremer	nes and under conditions stants were made.	ated. Grou	undwat	er fluctuati	ons may o	ccur du	e to conditions other	Boring No	o.: HB-MICH	I-206

Ι	Main	e Dep	artment	of Transport	atio	n	Project:			on of a 4.81 mile portion of	Boring No.:	HB-MI	CH-207
			Soil/Rock Expl				Locatio	Route n: Milb		Cherryfield, Maine	WIN:	204	05.00
		-											
Drill			MaineDOT		_	vation	(ft.)	32.3			Auger ID/OD:	5" Soild Stem	~
- 1.	rator:		Daggett/Niles			tum:		NAV			Sampler:	Standard Split	Spoon
	ged By:	iniah.	B. Wilder 5/2/2018; 08:3	0	_	Type:			E 45C	Dorino	Hammer Wt./Fall:	140#/30" N/A	
	Start/Fi		209+40, 9.5 ft		_	sing ID	lethod:	NW-		1 Boring	Core Barrel: Water Level*:	None Observe	4
L	0		actor: 0.854	Kt.	_	mmer		Automa		Hydraulic 🗆	Rope & Cathead		1
Definit D = S MD = U = TI MU = V = Fi	tions: plit Spoon Unsuccess hin Wall Tu Unsuccess ield Vane S	Sample sful Split Spo ibe Sample sful Thin Wa Shear Test,	oon Sample Attern II Tube Sample At PP = Pocket Per ne Shear Test Atte	RC = Rolle ttempt WOH = We netrometer WOR/C = V	Core Sam d Stem A low Stem r Cone eight of 14 Weight of	nple Auger Auger 40lb. Ha f Rods ol	mmer r Casing	S _u = S _{u(lal} q _p = I N-uno Hamr N ₆₀ =	Peak/Re b) = Lab Jnconfir corrected ner Effic = SPT N	emolded Field Vane Undrained She Vane Undrained Shear Strength (leed Compressive Strength (ksf) = Raw Field SPT N-value iency Factor = Rig Specific Annual -uncorrected Corrected for Hamme rer Efficiency Factor/60%)*N-uncor	ear Strength (psf) T _V = (psf) WC = LL = PL = I Calibration Value PI = ar Efficiency G = 0	Pocket Torvane She = Water Content, per Liquid Limit Plastic Limit Plasticity Index Grain Size Analysis Consolidation Test	cent
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) . Shear Strength (psf) or RQD (%)	N-uncorrected	N ₆₀	Casing Blows	Elevation (ft.)	Graphic Log	Visual De	scription and Remarks		Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA	31.8	~~~~	6" HMA.		0.5-	
	1D	24/12	1.00 - 3.00	7/13/12/6	25	36				Brown, damp, dense, fine to (Fill).	o coarse SAND, some gra		G#336682 A-1-b, SW-SM WC=5.5%
- 5 -	2D	24/15	5.00 - 7.00	3/4/6/11	10	14		25.8		Brown, wet, medium dense some silt, (Fill).	, GRAVEL, some fine to	coarse sand,	G#336683 A-2-4, GM WC=11.3%
10								25.5		Layer of Old Pavement.		6.8	
- 10 -	3D	12/10	10.00 - 11.00	6/50			18	21.7		Brown, wet, SILT, some fin	ne to coarse sand, some gr	avel, (Fill).	G#336684 A-2-4, SM
										Layer of Old Pavement.			WC=14.8%
							20	20.9		Roller coned ahead to 14.0	ft bgs.	11.4	
- 15 -							22 66			Brown, wet, very dense, Gi	ravelly fine to coarse SAN	ID trace silt	G#336685
	4D	24/13	15.00 - 17.00	25/25/31/28	56	80	17			(Fill).	avery fine to coarse 5/11	iD, trace sint,	A-1-a, SW-SM
							32						WC=8.4%
							53	1					
							57	10.0				10.0	
- 20 -							61	13.3		Brown, wet, medium dense	fine to coarse SAND +	19.0	G#336686
	5D	24/14	20.00 - 22.00	7/8/10/15	18	26				silt.	, me to coarse SAIND, lla	graver, liate	A-1-b, SP-SM WC=15.7%
								10.3		Bottom of Exploration NO REFUSAL	n at 22.0 feet below grou	22.0	
25 Rem	arks:												
		s represent	approximate bour	ndaries between soil types;	transitior	ns may b	e gradual.				Page 1 of 1		
* Wate	er level rea	dings have	been made at time	es and under conditions sta	ated. Gro	oundwate	er fluctuatio	ns may o	ccur due	to conditions other			
than	those pres	sent at the ti	me measurement	s were made.							Boring No.	: HB-MICH	1-207

Ι	Main	e Dep	artment	of Transporta	ation		Project:			ion of a 4.81 mile portion of	Boring No.:	HB-MI	CH-208
			Soil/Rock Exp US CUSTOM/				Locatio	Route n: Mil		-Cherryfield, Maine	WIN:	2040	05.00
Drill	er:		MaineDOT		Elevat	ion	(ft.)	29.7	7		Auger ID/OD:	5" Soild Stem	
Ope	rator:		Daggett/Niles		Datum		. ,	NA	VD88		Sampler:	Standard Split	Spoon
Log	ged By:		B. Wilder		Rig Ty	/pe:		CM	E 45C		Hammer Wt./Fall:	140#/30"	
Date	Start/Fi	nish:	5/2/2018; 10:3	60-	Drillin	gМ	lethod:	Cas	ed Wa	sh Boring	Core Barrel:	N/A	
Bori	ng Loca	tion:	210+10, 9.5 ft	Rt.	Casing	g ID	O/OD:	NW	-3"		Water Level*:	14.5 ft bgs.	
Ham	mer Effi	ciency F	actor: 0.854		Hamm	ier '	Туре:	Autom			Rope & Cathead □		
MD = U = TI MU = V = Fi	olit Spoon S Unsuccess nin Wall Tu Unsuccess eld Vane S	ful Split Sp be Sample ful Thin Wa hear Test,	oon Sample Atten all Tube Sample A PP = Pocket Pe ine Shear Test Att	RC = Roller ttempt WOH = Wei netrometer WOR/C = W	Stem Auge ow Stem Aug Cone ght of 140lb /eight of Roo	ger . Hai ds or	Casing	S _{u(la} q _p = N-ur Ham N ₆₀	ab) = La Uncon ncorrect imer Ef = SPT	Remolded Field Vane Undrained She b Vane Undrained Shear Strength (fined Compressive Strength (ksf) ed = Raw Field SPT N-value ficiency Factor = Rig Specific Annua N-uncorrected Corrected for Hammer imer Efficiency Factor/60%)*N-unco	psf) WC LL = PL = I Calibration Value PI = er Efficiency G =	Pocket Torvane She = Water Content, per Liquid Limit • Plastic Limit Plasticity Index Grain Size Analysis Consolidation Test	
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N60	Casing Blows	Elevation (ft.)	Graphic Log		scription and Remarks		Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA	29.2		6" HMA.		0.5-	
										Brown, damp, fine to coars	e SAND, some gravel, tra		
- 5 -	1D	24/6	5.00 - 7.00	5/4/4/5	8 1	11				Brown-grey, wet, medium (little silt, (Fill).	dense, GRAVEL, some fi	ine to coarse sand,	G#336687 A-1-b, GM WC=8.7%
- 10 -										Layer of Old Pavement at 8 Brown, moist, very dense, 1	-	ne gravel, little	G#336688
	2D	24/13	10.00 - 12.00	28/20/18/13	38 5	54	46			silt, (Fill).			A-1-b, SM WC=6.0%
							34			8			WC-0.0%
							20			8			
							20			×			
							31			8			
							96			8			
- 15 -	3D	24/16	15.50 - 17.50	3/3/9/15	12 1	17	12 10			Wood from 15.0-15.3 ft bg Grey-brown, wet, very stiff gravel, trace organics, woo	f, SILT, some fine to coas		G#336689 A-4, CL
							10			8			WC=30.3%
							9			8			
							48			Roller Coned ahead to 20.0) ft bgs.		
- 20 -	415	0.1/12	00.00.00.00	12/01/12/12		47				Brown, wet, dense, fine to	coarse Sandy GRAVEL,	trace silt, (Fill).	G#336690
	4D	24/13	20.00 - 22.00	13/21/12/13	33 4	47						22.0	A-1-a, GW- GM WC=8.8%
						-		7.7			n at 22.0 feet below grou	22.0- Ind surface.	
										NO REFUSAL			
25													
	arks:	s represent	approximate bour	ndaries between soil types; t	ransitions m	av b	e gradual.				Page 1 of 1		
				es and under conditions stat			-	ns mav d	occur di	e to conditions other			
		-	ime measurement		Su. Ground	mate		.o may (Joour U		Boring No	.: HB-MICH	I-208

I	Main	e Dep	artment	of Transport	atio	n	Project			tion of a 4.81 mile portion of	Boring No.:	HB-MI	CH-209
			Soil/Rock Expl				Locatio	Route n: Mil		e-Cherryfield, Maine		20.4	
			US CUSTOMA	ARY UNITS						-	WIN:	204	05.00
Drille	ər:		MaineDOT		Ele	vation	ı (ft.)	29.	9		Auger ID/OD:	5" Soild Stem	
Oper	ator:		Daggett/Niles		Dat	tum:	. ,	NA	VD8		Sampler:	Standard Split	Spoon
Logo	jed By:		B. Wilder		Rig	ј Туре	:	CM	E 45	2	Hammer Wt./Fall:	140#/30"	
Date	Start/Fi	inish:	5/2/2018; 12:3	0-	Dri	lling N	lethod:	Cas	ed W	ash Boring	Core Barrel:	N/A	
Bori	ng Loca	tion:	210+65, 9.5 ft	Lt.	Ca	sing ID	D/OD:	NW	/-3"		Water Level*:	None Observe	d
Ham	mer Effi	iciency F	actor: 0.854			mmer	Туре:	Autom		~	Rope & Cathead □		
Definit D = St	ions: olit Spoon	Sample		R = Rock (SSA = Soli						Remolded Field Vane Undrained She ab Vane Undrained Shear Strength (Pocket Torvane She = Water Content, per	
		sful Split Sp ibe Sample	oon Sample Atten		low Stem			qp`=	Unco	nfined Compressive Strength (ksf) ted = Raw Field SPT N-value	LL =	Liquid Limit Plastic Limit	
MU =	Unsuccess	sful Thin Wa	all Tube Sample A PP = Pocket Per	ttempt WOH = We	eight of 1			Han	nmer E	fficiency Factor = Rig Specific Annua N-uncorrected Corrected for Hamme	Calibration Value PI =	Plasticity Index Grain Size Analysis	
			ine Shear Test Att	empt WO1P = W						nmer Efficiency Factor/60%)*N-unco		Consolidation Test	
				Sample Information	77			1	-				Laboratory
	o.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected				5				Testing Results/
Depth (ft.)	Sample No.	Sec.		Blows (/6 in.) Shear Strength (psf) or RQD (%)	orre		0	Elevation (ft.)		Visual De	scription and Remarks		AASHTO
epth	amp	l/.ue	d me 🤅	ows near reng sf) RQ	oun-	N60	Casing Blows	eva.	Cranhie I				and Unified Class.
	ů	ď	йĘ	ଟେଉଉଇ	Ż	Ž		□≣€	, (6" HMA.			
Ŭ							SSA	29.4	¹ 🛞			0.5	
	1D	24/6	1.00 - 3.00	6/5/6/5	11	16				Brown, damp, medium den silt, (Fill).	se, fine to coarse SAND,	some gravel, trace	G#336691 A-1-a, SW-SM
								1		8			WC=4.0%
								4		8			
										8			
								25.4	1	8		4.5	
- 5 -				a /a /a / /				-		Grey-brown, wet, medium	stiff, SILT, some clay, litt	le fine sand, trace	G#336692
	2D	24/18	5.00 - 7.00	2/2/3/4	5	7	8	4		gravel, some organics-PEA	T Layer.		A-4, CL WC=23.7%
							15						Ignition
							15	1					Loss 10.8%
							15	-					
							22						
							29						
- 10 -	3D	24/16	10.00 - 12.00	2/3/2/3	5	7	21	19.9) 11	Grey-brown, wet, loose, fir	e to coarse SAND, some	10.0 silt. little clay.	G#330093
	50	24/10	10.00 - 12.00	2131213	5		21	-		little gravel, trace organics.		, ,,	A-4, SC-SM WC=19.3%
							29						
							39						
							35	1					
								-					
- 15 -							50	1			1 6 4 642		0//22/204
	4D	24/10	15.00 - 17.00	15/10/10/13	20	28	48			Grey-brown, wet, medium little silt.	dense, fine to coarse SAN	D, some gravel,	G#336694 A-1-b, SM
							46	1					WC=12.4%
								1					
							66	-					
							64	11.4					
							82						
- 20 -	5D	24/15	20.00 - 22.00	11/18/14/47	32	46		1		Brown, wet, dense, fine to	coarse Sandy GRAVEL, l	ittle silt.	G#336695
	3D	24/13	20.00 - 22.00	11/10/14/4/	32	40	-	4					A-1-a, GW- GM
								7.9		<u> </u>		22.0	WC=7.0%
								/.9	ĺ		n at 22.0 feet below grou		
								1		NO REFUSAL			
								-					
25													
Rem	arks:												
Stratifi	cation line	s represent	approximate bour	ndaries between soil types;	transitior	ns may b	e gradual.				Page 1 of 1		
				es and under conditions sta		-	-		occur	ue to conditions other			
		-	ime measurement					,			Boring No.	: HB-MICI	H-209

Ι	Maine	e Dep	artment	of Transport	atior	n	Project:			on of a 4.81 mile portion of	Boring No.:	HB-MI	CH-210
			Soil/Rock Expl				Locatio	Route n: Mill		Cherryfield, Maine	WIN:	204	05.00
Drill	er:		MaineDOT		Ele	vation	(ft.)	30.8			Auger ID/OD:	5" Soild Stem	
⊢	rator:		Daggett/Niles		_	tum:	()		/D88		Sampler:	Standard Split	Spoon
Log	ged By:		B. Wilder		Rig	Type		CM	E 45C		Hammer Wt./Fall:	140#/30"	-
Date	Start/Fi	nish:	5/3/2018; 08:3	0-	Dril	lling N	lethod:	Case	d Was	n Boring	Core Barrel:	N/A	
Bori	ng Loca	tion:	224+75, 9.0 ft	Rt.	Cas	sing IC)/OD:	NW	-3"		Water Level*:	8.0 ft bgs.	
Ham	mer Effi	ciency F	actor: 0.854			mmer	Туре:	Autom			Rope & Cathead 🗆		
MD = U = TI MU = V = Fi	plit Spoon S Unsuccess hin Wall Tu Unsuccess eld Vane S	ful Split Spo be Sample ful Thin Wa hear Test,	con Sample Atterr Ill Tube Sample At PP = Pocket Per <u>ne Shear Test Att</u>	ttempt WOH = We work WOR/C = V	I Stem A ow Stem Cone ight of 14 Veight of	Auger Auger 40lb. Ha	Casing	S _{u(la} q _p = N-un Ham N ₆₀	b) = Lat Unconfil correcte ner Effic = SPT N	emolded Field Vane Undrained She Vane Undrained Shear Strength (ned Compressive Strength (ksf) d = Raw Field SPT N-value siency Factor = Rig Specific Annua -uncorrected Corrected for Hamme ner Efficiency Factor/60%)*N-unco	(psf) WC LL = PL = I Calibration Value PI = er Efficiency G =	Pocket Torvane She = Water Content, per Liquid Limit Plastic Limit Plasticity Index Grain Size Analysis Consolidation Test	
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N ₆₀	Casing Blows	Elevation (ft.)	Graphic Log	Visual De	scription and Remarks		Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA	30.3	*****	6" HMA.			
	1D	24/15	1.00 - 3.00	9/10/11/12	21	30				Brown, damp, medium den silt, (Fill).	ise, fine to coarse SAND,		
- 5 -	2D	24/16	5.00 - 7.00	5/5/6/7	11	16	15			Grey-brown, moist, very st		GILT, little gravel	G#336697
	20	24/10	5.00 - 7.00	5/ 5/ 0/ /	11	10	21			(Fill).			A-4, SM WC=12.8%
							68	24.0 23.7		Layer of Old Pavement.		6.8 7.1	
							73						
- 10 -							92						
10	3D	24/13	10.00 - 12.00	3/3/3/3	6	9	27			Grey, wet, loose, GRAVEI	2, some silt, some fine to	coarse sand, (Fill).	G#336698 A-2-4, SM WC=12.6%
							25						12.070
							28						
							23						
- 15 -	4D	24/12	15.00 - 17.00	15/14/7/6	21	30				Grey, wet, medium dense, 1 (Fill).		VEL, trace silt,	G#336699 A-1-a, GW-
								12.8		Wood from 15.3-16.1 ft bg	5.		GM WC=50.0%
- 20 -	5D	24/18	20.00 - 22.00	5/6/6/8	12	17				Brown, wet, very stiff, Silty gravel, wood.	y CLAY, trace fine to coa	rse sand, trace	G#336700 A-6, CL
										,		22.5	WC=32.7% LL=39
								8.8		Bottom of Exploration NO REFUSAL	n at 22.0 feet below grou	22.0- and surface.	PL=21 PI=18
25 Rem	arks:		1					I	L	1			1
Stratif	ication line	s represent	approximate bour	ndaries between soil types; t	ransition	ns may b	e gradual.				Page 1 of 1		
		-	been made at time me measurement	es and under conditions stat s were made.	ted. Gro	oundwate	er fluctuatio	ns may c	ccur due	to conditions other	Boring No	.: HB-MICH	H-210

I	Main	e Dep	artment	of Transporta	tion		Project:			uction	of a 4.81 mile portion of	Boring No.:	HB-MI	CH-211
		-	Soil/Rock Expl				Locatio	Route n: Milb		lge-Cl	nerryfield, Maine	WIN:	2040	05.00
Drille	er:		MaineDOT		Eleva	tior	n (ft.)	29.5				Auger ID/OD:	5" Soild Stem	
Oper	ator:		Daggett/Niles		Datur		. ()	NAV	/D8	88		Sampler:	Standard Split	Spoon
<u> </u>	jed By:		B. Wilder		Rig T	ype	:	CME	E 45	-5C		Hammer Wt./Fall:	140#/30"	1
<u> </u>	Start/Fi	nish:	5/3/2018; 10:1	5-	-		lethod:				Boring	Core Barrel:	N/A	
Bori	ng Loca	tion:	225+40, 8.5 ft	Lt.	Casin	-		NW-				Water Level*:	7.0 ft bgs.	
Ham	mer Effi	ciency F	actor: 0.854		Hamr	-		Automa	itic		Hydraulic 🗆	Rope & Cathead □		
Definit	ions: blit Spoon :	Samplo		R = Rock Co SSA = Solid							nolded Field Vane Undrained She /ane Undrained Shear Strength (p		= Pocket Torvane She C = Water Content, per	
MD =	Unsuccess	sful Split Spo	oon Sample Atterr	npt HSA = Hollow	w Stem Au			qp`= I	Unco	confine	d Compressive Strength (ksf)	LL	= Liquid Limit	Joint
MU =	Unsuccess		II Tube Sample At		ght of 140l			Hamr	ner	r Efficie	= Raw Field SPT N-value ncy Factor = Rig Specific Annual	Calibration Value PI	. = Plastic Limit = Plasticity Index	
			PP = Pocket Per ne Shear Test Att					N ₆₀ = N ₆₀ =	= SP = (Ha	PT N-u lamme	ncorrected Corrected for Hamme r Efficiency Factor/60%)*N-uncor	r Efficiency G rected C	= Grain Size Analysis = Consolidation Test	
		1	1	Sample Information										Laboratory
		(in.)	Depth		ted				,	5				Testing
(ft.)	Sample No.	ec.	De	.h .h 0 (%	N-uncorrected			Б	-	c Log	Visual Des	scription and Remark	S	Results/ AASHTO
Depth (ft.)	nple	Pen./Rec.	Sample [(ft.)	ws ear engt R)	luco	0	Casing Blows	Elevation (ft.)		Graphic				and
De	Sar	Per	Sar (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	Z	N60	Blo	Ele (ft.)		Gra				Unified Class.
0							SSA	28.9			7" HMA.			
								2019	\bigotimes		Brown, damp, medium dens	se, fine to coarse SANI		G#336662
	1D	24/13	1.00 - 3.00	6/7/5/4	12	17			₿		silt, (Fill).		-	A-1-b, SM WC=8.0%
									×					WC-8.0%
									×					
									\bigotimes					
- 5 -									\bigotimes					
	2D	24/15	5.00 - 7.00	9/9/8/9	17	24	23		\bigotimes		Brown, damp, medium dens silt, (Fill).	se, fine to coarse SANI), some gravel, trace	G#336663 A-1-b, SW-SM
									\bigotimes		sin, (1 iii <i>)</i> .			WC=7.4%
							24		\bigotimes					
							22		\bigotimes					
							13	21.5	ŤŤ					
							15							
- 10 -							25							
10	3D	24/18	10.00 - 12.00	6/3/2/2	5	7	8				Grey, wet, medium stiff, SI	LT, some fine to coarse	e sand.	G#336694 A-4, CL
							10							WC=25.0%
							10							
							10							
							10							
- 15 -							13							01/22/00/5
10	4D	24/20	15.00 - 17.00	1/1/2/2	3	4	OPEN				Grey, wet, soft, SILT, some gravel.	e clay, some fine to coa	rse sand, trace	G#336665 A-4, CL
							HOLE							WC=32.1%
								11.0	Щ					
- 20 -							$\downarrow V$				Brown, damp, dense, fine to	COarse SAND trace	ilt trace gravel	G#336666
	5D	24/14	20.00 - 22.00	4/9/16/18	25	36					brown, damp, dense, nne to	COALSE SAIND, TRACE S	nn, nace gravel.	A-3, SP-SM
														WC=9.9%
								7.5					22.0-	
											Bottom of Exploration NO REFUSAL	at 22.0 feet below gro	ound surface.	
							1							
25 Bom	arko													
r <u>kem</u>	arks:													
Stratifi	cation line	s represent	approximate bour	ndaries between soil types; tr	ansitions r	nay t	oe gradual.					Page 1 of 1		
* Wate	er level rea	dings have	been made at time	es and under conditions state	ed. Groun	dwat	er fluctuatio	ns may o	ccur	ir due to	o conditions other			
than	those pres	sent at the ti	me measurement	s were made.								Boring No	o.: HB-MICH	1-211

Ι	Main	e Dep	artment	of Transporta	tio	n	Project			on of a 4.81 mile portion of	Boring No.:	HB-MI	CH-212
			Soil/Rock Expl				Locatio	Route n: Mil	1 pridge-	Cherryfield, Maine			
		<u> </u>	JS CUSTOMA	ARY UNITS					0	5, 7	WIN:	2040	05.00
Drille	er:		MaineDOT		Ele	vatior	(ft.)	39.7			Auger ID/OD:	5" Soild Stem	
L	ator:		Daggett/Niles		-	tum:	()		/D88		Sampler:	Standard Split	Spoon
Logo	jed By:		B. Wilder		Rig	ј Туре	:	CM	E 45C		Hammer Wt./Fall:	140#/30"	
	Start/Fi	inish:	5/3/2018-5/4/2	2018	-		lethod:	Cas	ed Was	sh Boring	Core Barrel:	NQ-2"	
Bori	ng Loca	tion:	246+70, 9.5 ft	Rt.		sing II		NW	-3"	-	Water Level*:	None Observe	d
Ham	mer Effi	iciency F	actor: 0.854		Ha	mmer	Туре:	Autom	atic 🖂	Hydraulic 🗆	Rope & Cathead □		
Definit	ions: olit Spoon :	Sample		R = Rock Co SSA = Solid						emolded Field Vane Undrained She b Vane Undrained Shear Strength (Pocket Torvane She Water Content, per	
MD =	Unsuccess		oon Sample Atterr		w Stem			qp`=	Unconf	ined Compressive Strength (ksf) ed = Raw Field SPT N-value	LL =	Liquid Limit Plastic Limit	
MU =	Unsuccess	sful Thin Wa	II Tube Sample A	ttempt WOH = Wei	ght of 1	40lb. Ha	mmer	Ham	mer Effi	ciency Factor = Rig Specific Annual	Calibration Value PI = F	Plasticity Index	
			PP = Pocket Per ne Shear Test Att							N-uncorrected Corrected for Hamme mer Efficiency Factor/60%)*N-uncor		Grain Size Analysis	
				Sample Information									Laboratory
		(in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected				Log				Testing Results/
Depth (ft.)	Sample No.	Pen./Rec.	e	(/6 D (%	orre		5	.u	Ľ !	Visual De	scription and Remarks		AASHTO
epth	h	P. N	d mg (;	ows lear reng sf) RQ	nnc	N ₆₀	Casing Blows	Elevation (ft.)	Graphic I				and Unified Class.
	ů	Å.	U SS	ਤੇ ਲੋ ਕੇ ਬੋ	ż	z	Ű₫	(ft.)	Ū				
0							SSA	39.3	****	5" HMA.		0.4	
	1D	24/14	1.00 - 3.00	8/10/8/7	18	26		1		Brown, damp, medium den (Fill).	se, Gravelly fine to coarse	SAND, little silt,	G#336667 A-1-b, SM
								1		(* ***).			WC=5.0%
										8			
										8			
								1					
- 5 -								-		Brown, damp, GRAVEL, s	ome fine to coarse sand, to	ace silt. (Fill).	G#336668
	2D	9.6/9.6	5.00 - 5.80	15/50(3.6")				34.2 33.8	~~~~	Layer of Old Pavement.	onio nilo to course sund, u	5.5	A-1-a, GW-
										Layer of Old I avenient.		5.9-	GM WC=3.5%
								1		8			
								-		8			
										8			
								30.2				9.5	
- 10 -	20	24/6	10.00 12.00	2/2/2/4	-			1		Grey-brown, moist, loose, S	Silty GRAVEL, some fine	to coarse sand.	G#336669
	3D	24/6	10.00 - 12.00	2/2/3/4	5	7		-					A-4, GM WC=10.8%
								1		Cobble from 12.8-13.2 ft bg	gs.		
								-					
- 15 -													
15	4D	24/18	15.00 - 17.00	12/32/44/48	76	108		24.2				15.5	G#336670
								1	86 Z (Grey, wet, very dense, Grav	velly fine to coarse SAND	, little silt.	A-1-b, SM
								-		ē.			WC=10.1%
							$ \rangle /$		0.00	4 62			
								1	. 9.89 ¹	ι. 			
							$\pm \mathbb{W}$	20.7		2		19.0	
- 20 -							∛	-		Grey, wet, GRAVEL, some	e fine to coarse sand, little	silt.	G#336671
	5D	12/12	20.00 - 21.00	48/55			50	l	À.	20511 6 0.0.0	,		A-1-a, GM WC=9.1%
	R1	60/60	21.20 - 26.20	RQD = 37%			a25	18.5		^a 25 blows for 0.2 ft.		21.2-	WC-9.170
								1		Top of Bedrock at Elev. 18 R1: Bedrock: Undetermined		Columbia Falls	
								-		Formation]; and Intrusive D	DEVONIAN GRANITE, O	GABBRO,	
								1		DIORITE, and ULTRAMA R1: Core Times (min:sec)	IFIC ROCKS. Rock Quali	ty – Poor	
25								1		21.2-22.2 ft (3:40) 22.2-23.2 ft (3:31)			
Rem	arks:							-		(),01)			·
Stratif	cation line	s represent	approximate hour	ndaries between soil types; ti	ansition	ns mav F	e gradual				Page 1 of 2		
Ι.				es and under conditions state			-		ccur du	e to conditions other			
		-	me measurement		. GI	- an ru Wdl	. nuotuali	Lio may (Joar uu		Boring No.	: HB-MICH	I-212

	Main	e Dep	artment	of Transpor	rtation	Proj	ject:			on of a 4.81 mile portion of	Boring No.:	HB-MI	CH-212
			Soil/Rock Exp			Loca	atior	Route n: Milb		Cherryfield, Maine		20.40	
			US CUSTOM	ARY UNITS							WIN:	2040	05.00
Drill	er:		MaineDOT		Elevat	on (ft.)		39.7			Auger ID/OD:	5" Soild Stem	
Ope	rator:		Daggett/Niles	š	Datum	:		NAV	D88		Sampler:	Standard Split	Spoon
Log	ged By:		B. Wilder		Rig Ty	pe:		CME	E 45C		Hammer Wt./Fall:	140#/30"	
Date	e Start/Fi	inish:	5/3/2018-5/4/	2018	Drilling	g Metho	od:	Case	d Wasl	1 Boring	Core Barrel:	NQ-2"	
Bori	ng Loca	tion:	246+70, 9.5 f	ì Rt.	Casing	ID/OD	:	NW-	3"		Water Level*:	None Observed	
		iciency F	actor: 0.854			er Type):	Automa		Hydraulic 🗆	Rope & Cathead □		
MD = U = T MU = V = Fi	plit Spoon Unsuccess hin Wall Tu Unsuccess ield Vane S	sful Split Sp ibe Sample sful Thin Wa Shear Test,	oon Sample Atter II Tube Sample A PP = Pocket Pe <u>ne Shear Test At</u>	SSA = 5 mpt HSA = 1 RC = R Attempt WOH = enetrometer WOR/C	k Core Sample Solid Stem Auger Hollow Stem Auger	er . Hammer s or Casir		S _{u(lal} q _p = l N-uno Hamr N ₆₀ =	o) = Lab Jnconfir correcte ner Effic = SPT N	molded Field Vane Undrained Sh Vane Undrained Shear Strength ed Compressive Strength (ksf) d = Raw Field SPT N-value iency Factor = Rig Specific Annua -uncorrected Corrected for Hamm er Efficiency Factor/60%)*N-unco	psf) WC LL = PL = I Calibration Value PI = er Efficiency G =	Pocket Torvane Shea = Water Content, pero Liquid Limit Plastic Limit Plasticity Index Grain Size Analysis Consolidation Test	ent
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	corrected	rv60 Casing	Blows	Elevation (ft.)	Graphic Log	Visual De	scription and Remarks		Laboratory Testing Results/ AASHTO and Unified Class.
25	Š	<u> </u>	(ft Se	<u>م</u> م م م م				(; н) 13.5	Gr	23.2-24.2 ft (3:10) 24.2-25.2 ft (2:43) 25.2-26.2 ft (2:25) 100% Recovery	n at 26.2 feet below grou	26.2- nd surface	
- 30 -										Bottom of Exploratio	n at 26.2 feet below grou	nd surface.	
- 35 - - 40 -													
- 45 -													
Stratif * Wate	er level rea	dings have	been made at tin	indaries between soil typ				ns may or	ccur due	to conditions other	Page 2 of 2		
than	those pres	sent at the t	ime measuremer	nts were made.								: HB-MICH	1-212

I	Maine	e Dep	artment	of Transport	ation	1	Project:			n of a 4.81 mile portion of	Boring No.:	HB-MI	CH-213
			Soil/Rock Expl				Locatio	Route n: Mill		Cherryfield, Maine	WIN:	204	05.00
Drill	er:		MaineDOT		Elev	/ation	(ft)	39.6			Auger ID/OD:	5" Soild Stem	
	rator:		Daggett/Niles		Datu		()		/D88		Sampler:	Standard Split	Spoon
<u> </u>	ged By:		B. Wilder		Rig	Type:		CM	E 45C		Hammer Wt./Fall:	140#/30"	1
Date	Start/Fi	nish:	5/4/2018; 08:0	0-	Drill	ling M	lethod:	Case	d Wasł	n Boring	Core Barrel:	NQ-2"	
Bori	ng Loca	tion:	247+00, 9.0 ft	Lt.	Cas	ing ID	OD:	NW	-3"		Water Level*:	None Observe	d
Ham	mer Effi	ciency F	actor: 0.854		Ham	nmer [·]	Туре:	Automa			Rope & Cathead □		
MD = U = T MU = V = Fi	plit Spoon S Unsuccess hin Wall Tu Unsuccess eld Vane S	ful Split Spo be Sample ful Thin Wa hear Test,	con Sample Atterr Ill Tube Sample At PP = Pocket Per <u>ne Shear Test Att</u>	RC = Rolle ttempt WOH = We netrometer WOR/C = V	d Stem Au low Stem / r Cone eight of 14 Weight of I	uger Auger Olb. Hai Rods or	Casing	S _{u(la} q _p = N-un Ham N ₆₀ :	b) = Lab Unconfir corrected mer Effic = SPT N	molded Field Vane Undrained She Vane Undrained Shear Strength (ksf) d= Raw Field SPT N-value iency Factor = Rig Specific Annua uncorrected Corrected for Hamme er Efficiency Factor/60%)*N-unco	psf) WC = LL = PL = I Calibration Value PI = er Efficiency G = 0	Pocket Torvane She = Water Content, per Liquid Limit Plastic Limit Plasticity Index Grain Size Analysis Consolidation Test	cent
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) . Shear Strength (pst) or RQD (%)	N-uncorrected	N ₆₀	Casing Blows	Elevation (ft.)	Graphic Log	Visual De	scription and Remarks		Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA	39.1	*****	6" HMA.		0.5	
	1D	18/12	1.00 - 2.50	9/10/21	31	44				Brown, damp, dense, fine t	o coarse Sandy GRAVEL		G#336672 A-1-a, GW- GM
										Cobble from 2.5-2.8 ft bgs.			WC=3.8%
- 5 -	2D	24/14	5.00 - 7.00	6/12/11/7	23	33				Grey-brown, moist, dense, (Fill).	Gravelly fine to coarse SA	AND, little silt,	G#336673 A-1-b, SM WC=8.1%
- 10 -	3D	24/20	10.00 - 12.00	WOH/WOH/1/1	1	1	1	29.6		Grey, wet, very soft, SILT, gravel.	some clay, little fine to co	10.0 parse sand, trace	G#336674 A-4, CL WC=27.5%
							3 9						
							11	25.6				14.0	
- 15 -	4D	24/16	15.00 - 17.00	10/13/18/14	31	44	15 9			Grey, wet, dense, fine to co	barse SAND, some gravel	, some silt, (Till).	G#336675 A-1-b, SM
	R1	60/59	17.70 - 22.70	RQD = 60%			13 a75			^a 75 blows for 0.7 ft.			WC=8.1%
	KI	00/39	17.70 - 22.70	KQD - 0070			NQ-2	21.9		Roller Coned ahead to 17.7 Top of Bedrock at Elev. 21 R1: Bedrock: Undetermine	.9 ft.	17.7 Columbia Falls	
- 20 -										Formation]; and Intrusive I DIORITE, and ULTRAMA R1: Core Times (min:sec)	DEVONIAN GRANITE,	GABBRO,	
									X	17.7-18.7 ft (3:19) 18.7-19.7 ft (3:24)			
								16.9		19.7-20.7 ft (3:00) 20.7-21.7 ft (2:45) 21.7-22.7 ft (2:16)			
								10.9		98% Recovery	n at 22.7 feet below grou	22.7- nd surface.	
25													
Rem	arks:												
Stratif	ication line:	s represent	approximate bour	ndaries between soil types;	transitions	s may b	e gradual.				Page 1 of 1		
		-	been made at time me measurement	es and under conditions sta s were made.	ated. Grou	undwate	er fluctuation	ns may o	ccur due	to conditions other	Boring No.	: HB-MICH	H-213

	Main	e Dep	artment	of Transport	ation		Project			on of a 4.81 mile portion of	Boring No.:	HB-MI	CH-214
			Soil/Rock Exp US CUSTOM				Locatio	Route n: Milb		Cherryfield, Maine	WIN:	2040	05.00
Drill	lor:		MaineDOT		Eleva	tion	(ft)	64.2			Auger ID/OD:	5" Dia.	
<u> </u>	rator:		Daggett/Niles	3	Datur		(10)	NAV	/D88		Sampler:	N/A	
⊢÷-	ged By:		B. Wilder	-	Rig T				E 45C		Hammer Wt./Fall:	N/A	
<u> </u>	e Start/Fi	inish:	5/1/2018-5/1/	2018	_		lethod:			Auger	Core Barrel:	N/A	
<u> </u>	ing Loca		351+90, 11.0		Casin	-		N/A		0	Water Level*:	None Observed	l
	-	iciency F			Hamn	ner	Туре:	Automa	tic 🗆	Hydraulic 🗆	Rope & Cathead □		
D = S MD = U = T MU = V = F	hin Wall Tu Unsuccess ield Vane S	sful Split Sp ibe Sample sful Thin Wa Shear Test,	all Tube Sample A PP = Pocket Pe ine Shear Test A	SSA = Soli mpt HSA = Hol RC = Rolle Attempt WOH = Wo enetrometer WOR/C = 1	Core Sample d Stem Aug ow Stem Au r Cone sight of 140ll Weight of Ro leight of One	er iger o. Ha ods oi	Casing	S _{u(lal} q _p = l N-uno Hamr N ₆₀ =	b) = Lab Unconfi correcte ner Effi = SPT N	emolded Field Vane Undrained Sho > Vane Undrained Shear Strength (ned Compressive Strength (ksf) d = Raw Field SPT N-value ciency Factor = Rig Specific Annua I-uncorrected Corrected for Hamme mer Efficiency Factor/60%)*N-unco	psf) W LL PL I Calibration Value PI er Efficiency G	= Pocket Torvane She: C = Water Content, perc = Liquid Limit = Plastic Limit = Plasticity Index = Grain Size Analysis = Consolidation Test	sent
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) . Shear Strength (psf) or RQD (%)	N-uncorrected	N60	Casing Blows	Elevation (ft.)	Graphic Log		escription and Remark	s	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA	-		Probe, no soil samples take	n.		
- 5								-					
- 10								-					
								-					
- 15								-					
- 20 -							\mathbb{H}	44.2				20.0-	
								-		Bottom of Exploration NO REFUSAL	n at 20.0 feet below gro		
Strati				Indaries between soil types; nes and under conditions sta		-	-	ons may or	ccur du	to conditions other	Page 1 of 1		
		-	ime measuremer								Boring No	o.: HB-MICH	I-214

Ι	Maine	e Depa	of Transport	atio	n	Project:			on of a 4.81 mile portion of	Boring No.:	CH-215		
		-	Soil/Rock Expl	0			Locatio	Route n: Milb		Cherryfield, Maine			
		<u>l</u>	JS CUSTOMA	ARY UNITS					U		WIN:	2040	05.00
Drille	er:		MaineDOT		Ele	vation	(ft.)	64.5			Auger ID/OD:	5" Soild Stem	
Oper	rator:		Daggett/Niles		Da	tum:		NAV	D88		Sampler:	Standard Split	Spoon
Logg	ged By:		B. Wilder		Rig	ј Туре	:	CME	45C		Hammer Wt./Fall:	140#/30"	
Date	Start/Fi	nish:	5/1/2018; 07:0	0-	Dri	lling N	lethod:	Case	d Wasł	1 Boring	Core Barrel:	NQ-2"	
Bori	ng Loca	tion:	352+15, 8.0 ft	Lt.	Ca	sing ID)/OD:	NW-	3"		Water Level*:	12.5 ft bgs.	
Ham	mer Effi	ciency F	actor: 0.854		Ha	mmer	Туре:	Automa	tic 🛛	Hydraulic 🗆	Rope & Cathead □		
MD = U = Th MU = V = Fi	plit Spoon S Unsuccess hin Wall Tu Unsuccess eld Vane S	ful Split Spo be Sample ful Thin Wa hear Test,	oon Sample Attern II Tube Sample At PP = Pocket Per <u>ne Shear Test Atte</u> S	RC = Rolle tempt WOH = We netrometer WOR/C = \	d Stem A ow Stem r Cone eight of 1 Neight o	Auger n Auger 40lb. Ha f Rods ol	r Casing	S _{u(lal} q _p = l N-uno Hamn N ₆₀ =) = Lab Jnconfir orrected ner Effic SPT N	molded Field Vane Undrained She Vane Undrained Shear Strength (ksf) de Compressive Strength (ksf) d = Raw Field SPT N-value iency Factor = Rig Specific Annual -uncorrected Corrected for Hamme ere Efficiency Factor/60%)'N-uncor	psf) WC = LL = PL = Calibration Value PI = F er Efficiency G = C	Pocket Torvane She Water Content, per Liquid Limit Plastic Limit Plasticity Index Brain Size Analysis Consolidation Test	cent
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	NGO	Casing Blows	Elevation (ft.)	Graphic Log	Visual De	scription and Remarks		Laboratory Testing Results/ AASHTO and Unified Class.
0								64.2	~~~~~	_ 4" HMA.			
	1D	24/16	1.00 - 3.00	9/14/14/9	28	40	SSA	0.12		Brown, moist, dense, fine to (Fill).	o coarse SAND, some gra	0.3-	G#296334 A-1-b, SW-SM WC=5.1%
- 5 -	2D	24/17	5.00 - 7.00	3/3/4/6	7	10		59.5		 Olive-brown, moist, stiff, C		— — — —5.0 nd, (Fill).	G#296335 A-6, CL WC=23.8% LL=30 PL=18 PI=12
- 10 -	3D	24/20	10.00 - 12.00	3/4/6/7	10	14	10	55.5		— — — — — — — — — — — — — — — — — — —	AY, trace fine sand, (Fill)	— — — —9.0	G#296336 A-6, CL WC=24.2%
							28 33	50.5				14.0	LL=30 PL=18 PI=12
							52						
- 15 -	4D	24/20	15.00 - 17.00	2/4/5/6	9	13	23			Grey, wet, stiff, SILT, little	clay, trace fine sand, trac	e organics.	G#296337 A-4, CL WC=24.8%
							42						
							85 202						
	D1	60/50	10.00 24.00	BOD - 788/				45.1		^a 150 blows for 0.4 ft.			
- 20 -	R1	60/59	19.90 - 24.90	RQD = 78%			a150 NQ-2	43.1		Roller Coned ahead to 19.9	ft bgs.	19.4	
										Weathered Bedrock.			
										Top of Bedrock at Elev. 44			
										R1: Bedrock: Undetermined Formation]; and Intrusive D			
									¥X	DIORITE, and ULTRAMA	FIC ROCKS. Rock Quali	ty = Good	
									XX	R1: Core Times (min:sec) 19.9-20.9 ft (2:03)			
									Y)	20.9-21.9 ft (2:30) 21.9-22.9 ft (2:29)			
25 Rem	arks:						$ \vee$			21.7-22.7 It (2.27)			
				derice between cell types:	trancitio		e gradual				Page 1 of 2		
				idaries between soil types;		-	-			to conditions -th	raye i Ul 2		
		-	been made at time me measurement	es and under conditions sta s were made.	ned. Gro	oundwate	er Tluctuation	ns may oo	cur due	to conditions other	Boring No.	: HB-MICH	H-215

Maine Department of Transpor						tion	P	roject:			on of a 4.81 mile portion of	Boring No.:	HB-MI	CH-215
			Soil/Rock Exp			Route 1 Location: Milbridge-Cherryfield, Maine					Cherryfield, Maine		2040	5.00
			US CUSTOM	IART UNITS								WIN:	2040	05.00
Drille	ər:		MaineDOT			Elevat	ion (f	ft.)	64.5			Auger ID/OD:	5" Soild Stem	
<u> </u>	ator:		Daggett/Niles	8		Datum			NAV			Sampler:	Standard Split	Spoon
	ged By:		B. Wilder	0.0		Rig Ty	-			45C		Hammer Wt./Fall:	140#/30"	
	Start/Fi		5/1/2018; 07: 352+15, 8.0 f			Drilling	-		Case NW-		1 Boring	Core Barrel: Water Level*:	NQ-2" 12.5 ft bgs.	
	-		actor: 0.854			Hamm	-		Automa		Hydraulic 🗆	Rope & Cathead	12.5 ft bgs.	
Definit D = S	ions: blit Spoon :	Sample			R = Rock Co SSA = Solid	re Sample Stem Auge			S _u = I S _{u(lat}	Peak/Re	molded Field Vane Undrained She Vane Undrained Shear Strength (ear Strength (psf) T _v psf) WC	= Pocket Torvane Shea C = Water Content, perc	
U = Th MU = V = Fi	nin Wall Tu Unsuccess eld Vane S	ibe Sample sful Thin Wa Shear Test,	oon Sample Atter II Tube Sample A PP = Pocket Pe	Attempt enetrometer	HSA = Hollov RC = Roller (WOH = Weig WOR/C = W	Cone ht of 140 lb eight of Roo	. Hamr Is or Ca	asing	N-unc Hamn N ₆₀ =	orrected ner Effic SPT N	ed Compressive Strength (ksf) d = Raw Field SPT N-value iency Factor = Rig Specific Annua -uncorrected Corrected for Hamme	PL I Calibration Value PI = er Efficiency G =	= Liquid Limit = Plastic Limit = Plasticity Index = Grain Size Analysis	
=	Unsuccess	ful Field Va	ne Shear Test At	sample Info	WO1P = Wei	ight of One	Persor	n	N ₆₀ =	(Hamm	ner Efficiency Factor/60%)*N-unco	rrected C =	Consolidation Test	
		in.)				ed				-				Laboratory Testing
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength	psf) or RQD (%)	N-uncorrected	1A60	Casing Blows	Elevation (ft.)	Graphic Log	Visual De	scription and Remarks	5	Results/ AASHTO and Unified Class.
25							-		39.6	0	22.9-23.9 ft (3:06) 23.9-24.9 ft (3:01) 98% Recovery			
							+				· · · · · · · · · · · · · · · · · · ·	n at 24.9 feet below gro	24.9- und surface.	
							+							
- 30 -														
							_							
- 35 -														
- 40 -														
							+							
- 45 -														
							_							
							+							
50														
	arks:	1	<u>.</u>		I	I					L			
			approximate bou								4	Page 2 of 2		
			been made at tin me measuremer		conditions state	a. Ground	water fl	iuctuatior	ns may oo	cur due	to conditions other	Boring No	b.: HB-MICH	I-215

<u>Appendix B</u>

Laboratory Test Results

State of Maine - Department of Transportation Laboratory Testing Summary Sheet

Boring & Sample Identification Number Station (Feet) Offset (Feet) Depth Number Reference Subbase: 10 ⁻ Number G.S.D.C. W.C. Sheet L.L. % P.L. Unified Classification AASHTO HB-MICH-101, B1 115+60 6.5 LL 0.75-1.5 264743 1 1.6 SW-SM A-1-b 0 HB-MICH-103, B2 140+95 18.0 LL 0.33-5.0 264746 1 2.9 SW-SM A-1-b 0 HB-MICH-108, B5 171+50 15.0 LL 0.22 264746 1 2.5 GW-GM A-1a 0 HB-MICH-108, B5 171+50 15.0 LL 0.0-2.6 264749 2 2.6 SW-SM A-1a 0 HB-MICH-118, B0 248+92 15.0 LL 0.0-2.5 264750 2 0.6 GW-GM A-1a 0 HB-MICH-118, B1 294+64 7.0 LL 0.32-2 24475 3 5.1 SW-SM A-1a 0 HB-MICH-118, B1 294+64 7.0 RL 0.42-3.0 264753 2 3	Town(s):	Milbri	dge-	Cherry	field	Worl	ς Νι	ımk	oer	: 2040)5.00	
Subbase: 10" Auger: Bucket Sample HB-MICH-101, B1 115+60 6.5 Lt. 0.75-1.5 264743 1 1.6 SW-SM A-1-b 0 HB-MICH-103, B2 140+95 8.0 Lt. 0.0.3-6.0 264744 1 0.8 SW-SM A-1-a 0 HB-MICH-104, B3 171+50 6.5 Rt. 0.42-2.3 264746 1 2.5 GW-GM A-1-a 0 HB-MICH-108, B5 171+50 15.0 Rt. 0.0-2.0 264747 1 3.0 SW-SM A-1-a 0 HB-MICH-113, B7 213+80 9.0 Lt. 0.42-2.9 264747 1 3.0 SW-SM A-1-a 0 HB-MICH-118, B10 294464 1.0 Rt. 0.0-2.6 264751 2 2.7 GW-GM A-1-a 0 HB-MICH-118, B10 294464 10.0 Rt. 0.42-3.0 245753 2 2.3 SW-SM A-1-a 0 HB-MICH-106, S7 161100 7.0 Lt. 0.42-3.1 264756 3	Boring & Sample	Station	Offset	Depth	Reference	G.S.D.C.	W.C.	L.L.	P.I.	Cla	ssification	1
HB-MICH-101, B1 115+60 6.5 Lt. 0.75-1.5 264743 1 1.6 SW-SM A-1-b 0 HB-MICH-103, B2 140+95 8.0 Lt. 0.33-5.0 264744 1 0.8 SW-SM A-1-b 0 HB-MICH-107, B4 171+50 6.5 Rt. 0.42-2.3 264746 1 2.5 GW-GM A-1-a 0 HB-MICH-107, B4 171+50 15.0 Rt. 0.42-2.9 2647478 1 1.7 SW-SM A-1-b 0 HB-MICH-113, B7 213+80 15.0 Lt. 0.0-2.6 264749 2 2.6 GW-SM A-1-a 0 HB-MICH-114, B8 248+92 7.0 Lt. 0.32.2 264750 2 0.6 GW-GM A-1-a 0 HB-MICH-114, B8 248+92 7.0 Rt. 0.0-2.5 264751 2 2.7 GW-GM A-1-a 0 HB-MICH-115, B1 294+64 16.0 Rt. 0.0-2.5 264753 2.5 SW-SM A-1-a 0	Identification Number	(Feet)	(Feet)	(Feet)	Number	Sheet	%			Unified	AASHTO	Frost
HB-MICH-103, B2 140+95 8.0 Lt. 0.33-5.0 264744 1 2.9 SW-SM A-1-a 0 HB-MICH-104, B3 140+95 18.0 Lt. 0.0-1.6 264745 1 0.8 SW-SM A-1-b 0 HB-MICH-107, B4 171+50 6.5 Rt. 0.42-2.3 264746 1 2.5 GW-GM A-1-a 0 HB-MICH-108, B5 171+50 15.0 Rt. 0.0-2.0 264747 1 3.0 SW-SM A-1-b 0 HB-MICH-118, B7 213+80 15.0 Lt. 0.0-2.6 264749 2 2.6 SW-SM A-1-a 0 HB-MICH-118, B10 294+64 7.0 Rt. 0.42.3.0 264751 2 2.7 GW-GM A-1-a 0 HB-MICH-108, S7 150 Rt. 0.62.4 264751 3 5.1 SW-SM A-1-a 0 HB-MICH-102, S2 127+65 7.5 Rt. 0.52.4 264756 3 6.5 SM A-1-b 11 HB-M			Sub	base: 10" A	uger: Bucke	et Sampl	е					
HB-MICH-104, B3 140+95 18.0 Lt. 0.0-1.6 264745 1 0.8 SW-SM A-1-b 0 HB-MICH-107, B4 171+50 16.5 Rt. 0.42-2.3 264746 1 2.6 SW-SM A-1-a 0 HB-MICH-108, B5 171+50 15.0 Rt. 0.0-2.6 264747 1 3.0 SW-SM A-1-b 0 HB-MICH-112, B6 213+80 9.0 Lt. 0.42-2.9 264748 1 1.7 SW-SM A-1-a 0 HB-MICH-114, B8 248+92 7.0 Lt. 0.32.2 264750 2 0.6 GW-GM A-1-a 0 HB-MICH-115, B9 248+92 15.0 Lt. 0.0-2.8 264753 2 2.3 SW-SM A-1-a 0 HB-MICH-119, B11 294+64 7.0 Rt. 0.42-30 264753 3 5.1 SW-SM A-1-a 0 WB-MICH-105, S5 150+87 8.0 Rt. 0.5-3.5 264753 3 5.1 SW-SM A-1-b II <td>HB-MICH-101, B1</td> <td>115+60</td> <td>6.5 Lt.</td> <td>0.75-1.5</td> <td>264743</td> <td>1</td> <td>1.6</td> <td></td> <td></td> <td>SW-SM</td> <td>A-1-b</td> <td>0</td>	HB-MICH-101, B1	115+60	6.5 Lt.	0.75-1.5	264743	1	1.6			SW-SM	A-1-b	0
HB-MICH-107, B4 171+50 6.5 Rt. 0.42-2.3 264746 1 2.5 GW-GM A-1-a 0 HB-MICH-108, B5 171+50 15.0 Rt. 0.0-2.0 264747 1 3.0 SW-SM A-1-a 0 HB-MICH-112, B6 213+80 9.0 Lt. 0.42-2.9 264748 1 1.7 SW-SM A-1-a 0 HB-MICH-113, B7 213+80 15.0 Lt. 0.0-2.6 264750 2 0.6 GW-GM A-1-a 0 HB-MICH-115, B9 248+92 15.0 Lt. 0.0-2.5 264752 2 1.8 GW-GM A-1-a 0 HB-MICH-118, B10 294+64 16.0 R1. 0.0-2.8 264753 2 2.3 SW-SM A-1-a 0 HB-MICH-102, S2 127+65 7.5 Rt. 0.52-24 264756 3 7.5 SM A-1-b 11 HB-MICH-109, S11 180+00 8.0 Rt. 0.53-3 264759 3 5.2 SM A-1-b 11	HB-MICH-103, B2	140+95	8.0 Lt.	0.33-5.0	264744	1	2.9			SW-SM	A-1-a	0
HB-MICH-108, B5 171+50 15.0 Rt 0.0-2.0 264747 1 3.0 SW-SM A-1-b 0 HB-MICH-112, B6 213+80 9.0 Lt 0.42-2.9 264748 1 1.7 SW-SM A-1-a 0 HB-MICH-113, B7 213+80 15.0 Lt 0.0-2.6 264749 2 2.6 SW-SM A-1-a 0 HB-MICH-114, B8 248+92 7.0 Lt 0.03-2.2 264751 2 0.6 GW-GM A-1-a 0 HB-MICH-118, B10 294+64 16.0 Rt 0.0-2.8 264753 2 1.8 GW-GM A-1-a 0 HB-MICH-109, S1 1294+64 16.0 Rt 0.0-2.8 264753 3 5.1 SW-SM A-1-a 0 HB-MICH-106, S7 161+00 7.0 Lt 0.42-3.9 264754 3 5.1 SW-SM A-1-a 0 HB-MICH-106, S7 161+00 7.0 Lt 0.42-3.9 264758 3 6.6 SM A-1-b 11	HB-MICH-104, B3	140+95	18.0 Lt.	0.0-1.6	264745	1	0.8			SW-SM	A-1-b	0
HB-MICH-112, B6 213+80 9.0 Lt. 0.42-2.9 264748 1 1.7 SW-SM A.1-a 0 HB-MICH-113, B7 213+80 15.0 Lt. 0.0-2.6 264749 2 2.6 SW-SM A.1-a 0 HB-MICH-114, B8 248+92 7.0 Lt. 0.32.2 264750 2 0.6 GW-GM A.1-a 0 HB-MICH-118, B10 294+64 7.0 Rt. 0.42.30 264752 2 1.8 GW-GM A.1-a 0 HB-MICH-108, B11 294+64 7.0 Rt. 0.52.4 264753 3 5.1 SW-SM A.1-a 0 HB-MICH-105, S5 150+87 8.0 Rt. 0.53.5 264755 3 7.5 SM A.1-b 11 HB-MICH-106, S7 161+00 7.0 Lt. 0.42-3.3 264758 3 6.6 SM A.1-b 11 HB-MICH-110, S13 192+67 7.0 Lt. 0.42-3.3 264759 3 4.9 SM A.1-b 11 <t< td=""><td>HB-MICH-107, B4</td><td>171+50</td><td>6.5 Rt.</td><td>0.42-2.3</td><td>264746</td><td>1</td><td>2.5</td><td></td><td></td><td>GW-GM</td><td>A-1-a</td><td>0</td></t<>	HB-MICH-107, B4	171+50	6.5 Rt.	0.42-2.3	264746	1	2.5			GW-GM	A-1-a	0
HB-MICH-113, B7 213+80 15.0 Lt. 0.0-2.6 264749 2 2.6 SW-SM A-1-b 0 HB-MICH-114, B8 248+92 7.0 Lt. 0.02-5 264750 2 0.6 GW-GM A-1-a 0 HB-MICH-115, B9 248+92 15.0 Lt. 0.0-2.5 264751 2 2.7 GW-GM A-1-a 0 HB-MICH-118, B10 294+64 16.0 Rt. 0.0-2.8 264753 2 2.3 SW-SM A-1-a 0 HB-MICH-109, S51 150+87 8.0 Rt. 0.5-2.4 264754 3 5.1 SW-SM A-1-a 0 HB-MICH-105, S5 150+87 8.0 Rt. 0.58-3.5 264757 3 5.2 SM A-1-b 11 HB-MICH-110, S13 192+67 7.0 Lt. 0.42-3.3 264759 3 4.9 SM A-1-b 11 HB-MICH-116, S18 203+30 7.0 Rt. 0.42-3.3 264760 4 3.4 SM A-1-b 11	HB-MICH-108, B5	171+50	15.0 Rt.	0.0-2.0	264747	1	3.0			SW-SM	A-1-b	0
HB-MICH-114, 88 248+92 7.0 Lt. 0.33-2.2 264750 2 0.6 GW-GM A-1-a 0 HB-MICH-115, B9 248+92 15.0 Lt. 0.0-2.5 264751 2 2.7 GW-GM A-1-a 0 HB-MICH-118, B10 294+64 16.0 Rt. 0.0-2.8 264753 2 2.3 SW-SM A-1-a 0 HB-MICH-119, B11 294+64 16.0 Rt. 0.0-2.8 264753 2 2.3 SW-SM A-1-a 0 HB-MICH-105, S5 150+87 8.0 Rt. 0.5-3.5 264755 3 7.5 SM A-1-b 11 HB-MICH-106, S7 161+00 7.0 Lt. 0.58-3.6 264757 3 5.2 SM A-1-b 11 HB-MICH-110, S13 130+67 7.0 Lt. 0.42-3.3 264759 3 4.9 SM A-1-b 11 HB-MICH-110, S13 130+67 7.0 Rt. 0.42-3.3 264760 4 3.4 SM A-1-b 11	HB-MICH-112, B6	213+80	9.0 Lt.	0.42-2.9	264748	1	1.7			SW-SM	A-1-a	0
HB-MICH-115, B9 248+92 15.0 Lt. 0.0-2.5 264751 2 2.7 GW-GM A.1-a 0 HB-MICH-118, B10 294+64 16.0 Rt. 0.42-3.0 264752 2 1.8 GW-GM A.1-a 0 HB-MICH-119, B11 294+64 16.0 Rt. 0.0-2.8 264753 2 2.3 SW-SM A.1-a 0 HB-MICH-102, S2 127+65 7.5 Rt. 0.5-2.4 264754 3 5.1 SW-SM A.1-a 0 HB-MICH-102, S5 150+87 8.0 Rt. 0.58-2.7 264755 3 7.5 SM A.1-b 11 HB-MICH-109, S11 180+00 8.0 Rt. 0.58-3.6 264757 3 5.2 SM A.1-b 11 HB-MICH-110, S13 192+67 7.0 Rt. 0.42-3.3 264759 3 4.9 SM A.1-b 11 HB-MICH-111, S14 203+30 7.0 Rt. 0.42-3.3 264761 4 4.0 SM A.1-b 11	HB-MICH-113, B7	213+80	15.0 Lt.	0.0-2.6	264749	2	2.6			SW-SM	A-1-b	0
HB-MICH-118, B10 294+64 7.0 Rt. 0.42-3.0 264752 2 1.8 GW-GM A-1-a 0 HB-MICH-119, B11 294+64 16.0 Rt. 0.0-2.8 264753 2 2.3 SW-SM A-1-a 0 HB-MICH-102, S2 127+65 7.5 Rt. 0.5-2.4 264754 3 5.1 SW-SM A-1-a 0 HB-MICH-106, S5 150+87 8.0 Rt. 0.5-3.5 264755 3 7.5 SM A-1-b II HB-MICH-109, S1 180+00 8.0 Rt. 0.58-3.6 264757 3 5.2 SM A-1-b II HB-MICH-110, S13 192+67 7.0 Lt. 0.42-3.3 264757 3 4.9 SM A-1-b II HB-MICH-111, S14 203+30 7.0 Rt. 0.42-3.3 264761 4 4.0 SM A-1-b II HB-MICH-117, S20 279+16 7.0 Rt. 0.42-3.3 264762 4 7.7 SM A-1-b II	HB-MICH-114, B8	248+92	7.0 Lt.	0.33-2.2	264750	2	0.6			GW-GM	A-1-a	0
HB-MICH-119, B11 294+64 16.0 Rt. 0.0-2.8 264753 2 2.3 SW-SM A-1-a 0 Subbase: 5" Auger: Cup Sample HB-MICH-102, S2 127+65 7.5 Rt. 0.5-2.4 264754 3 5.1 SW-SM A-1-a 0 HB-MICH-105, S5 150+87 8.0 Rt. 0.5-3.5 264755 3 6.5 SM A-1-b II HB-MICH-109, S11 180+00 8.0 Rt. 0.58-3.6 264757 3 5.2 SM A-1-b II HB-MICH-110, S13 192+67 7.0 Lt. 0.42-3.3 264759 3 6.6 SM A-1-b II HB-MICH-111, S14 203+30 7.0 Rt. 0.42-3.3 264760 4 3.4 SM A-1-b II HB-MICH-117, S20 279+16 7.0 Rt. 0.42-3.3 264763 4 4.0 SM A-1-b II HB-MICH-121, S25 317+85 7.0 Rt. 0.42-3.3 264763 4 4.0 SM A-1-b II HB-MICH-120, S23 303+70 7.0	HB-MICH-115, B9	248+92	15.0 Lt.	0.0-2.5	264751	2	2.7			GW-GM	A-1-a	0
Subbase: 5" Auger: Cup Sample HB-MICH-102, S2 127+65 7.5 Rt 0.5-2.4 264754 3 5.1 SW-SM A-1-a 0 HB-MICH-105, S5 150+87 8.0 Rt 0.5-3.5 264755 3 7.5 SM A-1-b II HB-MICH-106, S7 161+00 7.0 Lt 0.58-2.7 264758 3 6.6 SM A-1-b II HB-MICH-110, S13 192+67 7.0 Lt 0.42-3.3 264758 3 6.6 SM A-1-b II HB-MICH-111, S14 209+30 7.0 Rt 0.42-3.3 264761 4 4.0 SM A-1-b II HB-MICH-120, S23 303+70 7.0 Lt 0.42-3.1 264761 4 4.0 SM A-1-b II HB-MICH-121, S25 317+85 7.0 Rt 0.42-2.3 264762 4 7.7 SM A-1-b II HB-MICH-121, S25 317+85 7.0 Rt 0.42-2.3 264765 4 4.4 <t< td=""><td>HB-MICH-118, B10</td><td>294+64</td><td>7.0 Rt.</td><td>0.42-3.0</td><td>264752</td><td>2</td><td>1.8</td><td></td><td></td><td>GW-GM</td><td>A-1-a</td><td>0</td></t<>	HB-MICH-118, B10	294+64	7.0 Rt.	0.42-3.0	264752	2	1.8			GW-GM	A-1-a	0
HB-MICH-102, S2 127+65 7.5 Rt. 0.5-2.4 264754 3 5.1 SW-SM A-1-a 0 HB-MICH-105, S5 150+87 8.0 Rt. 0.5-3.5 264755 3 7.5 SM A-1-b II HB-MICH-106, S7 161+00 7.0 Lt. 0.58-3.6 264757 3 5.2 SM A-1-b II HB-MICH-110, S13 192+67 7.0 Lt. 0.42-3.9 264758 3 6.6 SM A-1-b II HB-MICH-111, S14 203+30 7.0 Rt. 0.42-3.3 264760 4 3.4 SM A-1-b II HB-MICH-117, S20 279+16 7.0 Rt. 0.42-3.3 264761 4 4.0 SM A-1-b II HB-MICH-120, S23 303+70 7.0 Lt. 0.42-3.3 264762 4 7.7 SM A-1-b II HB-MICH-121, S25 317+85 7.0 Rt. 0.42-2.6 264763 4 4.0 SM A-1-b II HB-MICH-122, S27 329+50 7.0 Rt. 0.42-2.5 264764 4 <t< td=""><td>HB-MICH-119, B11</td><td>294+64</td><td>16.0 Rt.</td><td>0.0-2.8</td><td>264753</td><td>2</td><td>2.3</td><td></td><td></td><td>SW-SM</td><td>A-1-a</td><td>0</td></t<>	HB-MICH-119, B11	294+64	16.0 Rt.	0.0-2.8	264753	2	2.3			SW-SM	A-1-a	0
HB-MICH-105, S5 150+87 8.0 Rt. 0.5-3.5 264755 3 7.5 SM A-1-b II HB-MICH-106, S7 161+00 7.0 Lt. 0.58-2.7 264756 3 6.5 SM A-1-b II HB-MICH-109, S11 180+00 8.0 Rt. 0.58-3.6 264757 3 5.2 SM A-1-b II HB-MICH-111, S14 203+30 7.0 Rt. 0.42-3.3 264769 3 4.9 SM A-1-b II HB-MICH-111, S14 203+30 7.0 Rt. 0.42-3.1 264761 4 4.0 SM A-1-b II HB-MICH-120, S23 303+70 7.0 Lt. 0.42-3.3 264762 4 7.7 SM A-1-b II HB-MICH-121, S25 317+85 7.0 Rt. 0.42-3.5 264763 4 4.0 SM A-1-b II HB-MICH-122, S27 329+50 7.0 Lt. 0.42-3.5 264765 4 4.4 SM A-1-b II HB-MICH-103, S2 3017+85 7.0 Rt. 0.42-3.5 264765 29.4		-	Si	ubbase: 5" A	uger: Cup	Sample	-	-		·	-	
HB-MICH-106, S7 161+00 7.0 Lt. 0.58-2.7 264756 3 6.5 SM A-1-b II HB-MICH-109, S11 180+00 8.0 Rt. 0.58-3.6 264757 3 5.2 SM A-1-b II HB-MICH-110, S13 192+67 7.0 Lt. 0.42-3.3 264758 3 6.6 SM A-1-b II HB-MICH-111, S14 203+30 7.0 Rt. 0.42-3.3 264760 4 3.4 SM A-1-b II HB-MICH-117, S20 279+16 7.0 Rt. 0.42-3.3 264762 4 7.7 SM A-1-b II HB-MICH-120, S23 303+70 7.0 Lt. 0.42-3.3 264762 4 7.7 SM A-1-b II HB-MICH-121, S25 317+85 7.0 Rt. 0.42-2.6 264763 4 4.0 SM A-1-b II HB-MICH-122, S27 329+50 7.0 Lt. 0.42-3.5 264765 4 4.4 SM A-1-b II HB-MICH-101, S1 115+60 6.5 Lt. 1.5-5.0 264766 29.4	HB-MICH-102, S2	127+65	7.5 Rt.	0.5-2.4	264754	3	5.1			SW-SM	A-1-a	0
HB-MICH-109, S11 180+00 8.0 Rt. 0.58-3.6 264757 3 5.2 SM A-1-b II HB-MICH-110, S13 192+67 7.0 Lt. 0.42-3.9 264758 3 6.6 SM A-1-b II HB-MICH-111, S14 203+30 7.0 Rt. 0.42-3.3 264759 3 4.9 SM A-1-b II HB-MICH-111, S14 203+30 7.0 Rt. 0.42-3.3 264760 4 3.4 SM A-1-b II HB-MICH-117, S20 279+16 7.0 Rt. 0.42-3.3 264761 4 4.0 SM A-1-b II HB-MICH-120, S23 303+70 7.0 Lt. 0.42-2.3 264763 4 4.0 SM A-1-b II HB-MICH-122, S27 329+50 7.0 Lt. 0.42-2.3 264764 4 5.9 SM A-1-b II HB-MICH-101, S1 115+60 6.5 Lt. 1.5-5.0 264766 5 29.4 SM A-4 IV HB-MICH-105, S6 150+87 8.0 Rt. 3.5-5.0 264767 5	HB-MICH-105, S5	150+87	8.0 Rt.	0.5-3.5	264755	3	7.5			SM	A-1-b	
HB-MICH-110, S13 192+67 7.0 Lt. 0.42-3.9 264758 3 6.6 SM A-1-b II HB-MICH-111, S14 203+30 7.0 Rt. 0.42-3.3 264759 3 4.9 SM A-1-b II HB-MICH-116, S18 269+42 7.0 Rt. 0.33-3.0 264760 4 3.4 SM A-1-b II HB-MICH-120, S23 303+70 7.0 Lt. 0.42-3.3 264762 4 7.7 SM A-1-b II HB-MICH-121, S25 317+85 7.0 Rt. 0.42-2.6 264763 4 4.0 SM A-1-b II HB-MICH-122, S27 329+50 7.0 Lt. 0.42-2.3 264764 4 5.9 SM A-1-b II HB-MICH-101, S1 115+60 6.5 Lt. 1.5-5.0 264765 2 29.4 SM A-4 IV HB-MICH-105, S6 150+87 8.0 Rt. 3.5-5.0 264768 5 20.7 ML A-4 IV HB-MICH-107, S9 171+50 6.5 Rt. 2.3-5.0 264767 5 18.	HB-MICH-106, S7	161+00	7.0 Lt.	0.58-2.7	264756	3	6.5			SM	A-1-b	
HB-MICH-111, S14 203+30 7.0 Rt. 0.42-3.3 264759 3 4.9 SM A-1-b II HB-MICH-116, S18 269+42 7.0 Rt. 0.33-3.0 264760 4 3.4 SM A-1-b II HB-MICH-117, S20 279+16 7.0 Rt. 0.42-3.1 264761 4 4.0 SM A-1-b II HB-MICH-120, S23 303+70 7.0 Rt. 0.42-3.3 264762 4 7.7 SM A-1-b II HB-MICH-121, S25 317+85 7.0 Rt. 0.42-2.3 264764 4 5.9 SM A-1-b II HB-MICH-122, S27 329+50 7.0 Rt. 0.42-3.5 264765 4 4.4 SM A-1-b II HB-MICH-103, S1 115+60 6.5 Lt. 1.5-5.0 264766 5 29.4 SM A-4 IV HB-MICH-109, S12 180+00 8.0 Rt. 3.5-5.0 264767 5 18.6 ML A-4 IV HB-MICH-109, S12 180+00 8.0 Rt. 3.6-5.0 264769 5 1	HB-MICH-109, S11	180+00	8.0 Rt.	0.58-3.6	264757	3	5.2			SM	A-1-b	
HB-MICH-116, S18 269+42 7.0 Rt. 0.33-3.0 264760 4 3.4 SM A-1-b II HB-MICH-117, S20 279+16 7.0 Rt. 0.42-3.1 264761 4 4.0 SM A-1-b II HB-MICH-120, S23 303+70 7.0 Lt. 0.42-3.3 264762 4 7.7 SM A-1-b II HB-MICH-121, S25 317+85 7.0 Rt. 0.42-2.6 264763 4 4.0 SM A-1-b II HB-MICH-122, S27 329+50 7.0 Lt. 0.42-2.3 264765 4 4.0 SM A-1-b II HB-MICH-123, S29 341+05 7.0 Rt. 0.42-3.5 264765 4 4.4 SM A-1-b II HB-MICH-101, S1 115+60 6.5 Lt. 1.5-5.0 264766 5 29.4 SM A-4 IV HB-MICH-105, S6 150+87 8.0 Rt. 3.5-5.0 264767 5 18.6 ML A-4 IV HB-MICH-109, S12 180+00 8.0 Rt. 3.6-5.0 264770 6 16	HB-MICH-110, S13	192+67	7.0 Lt.	0.42-3.9	264758	3	6.6			SM	A-1-b	
HB-MICH-117, S20 279+16 7.0 Rt. 0.42-3.1 264761 4 4.0 SM A-1-b II HB-MICH-120, S23 303+70 7.0 Lt. 0.42-3.3 264762 4 7.7 SM A-1-b II HB-MICH-121, S25 317+85 7.0 Rt. 0.42-2.6 264763 4 4.0 SM A-1-b II HB-MICH-122, S27 329+50 7.0 Lt. 0.42-3.5 264765 4 4.4 SM A-1-b II HB-MICH-123, S29 341+05 7.0 Rt. 0.42-3.5 264766 5 29.4 SM A-1-b II HB-MICH-101, S1 115+60 6.5 Lt. 1.5-5.0 264766 5 29.4 SM A-4 III HB-MICH-105, S6 150+87 8.0 Rt. 3.5-5.0 264767 5 18.6 ML A-4 IV HB-MICH-109, S12 180+00 8.0 Rt. 3.6-5.0 264769 5 16.5 ML A-4 IV HB-MICH-112, S16 213+80 9.0 Lt. 2.9-5.0 264771 6 26	HB-MICH-111, S14	203+30	7.0 Rt.	0.42-3.3	264759	3	4.9			SM	A-1-b	
HB-MICH-120, S23 303+70 7.0 Lt. 0.42-3.3 264762 4 7.7 SM A-1-b II HB-MICH-121, S25 317+85 7.0 Rt. 0.42-2.6 264763 4 4.0 SM A-1-b II HB-MICH-122, S27 329+50 7.0 Lt. 0.42-2.3 264764 4 5.9 SM A-1-b II HB-MICH-123, S29 341+05 7.0 Rt. 0.42-3.5 264765 4 4.4 SM A-1-b II HB-MICH-101, S1 115+60 6.5 Lt. 1.5-5.0 264768 5 29.4 SM A-4 IV HB-MICH-105, S6 150+87 8.0 Rt. 3.5-5.0 264767 5 18.6 ML A-4 IV HB-MICH-107, S9 171+50 6.5 Rt. 2.3-5.0 264769 5 16.5 ML A-4 IV HB-MICH-112, S16 213+80 9.0 Lt. 2.9-5.0 264770 6 25.6 ML A-4 IV HB-MICH-117, S21 279+16 7.0 Rt. 3.1-5.0 264772 6 16.8 <td>HB-MICH-116, S18</td> <td>269+42</td> <td>7.0 Rt.</td> <td>0.33-3.0</td> <td>264760</td> <td>4</td> <td>3.4</td> <td></td> <td></td> <td>SM</td> <td>A-1-b</td> <td></td>	HB-MICH-116, S18	269+42	7.0 Rt.	0.33-3.0	264760	4	3.4			SM	A-1-b	
HB-MICH-121, S25 317+85 7.0 Rt. 0.42-2.6 264763 4 4.0 SM A-1-b II HB-MICH-122, S27 329+50 7.0 Lt. 0.42-2.3 264764 4 5.9 SM A-1-b II HB-MICH-123, S29 341+05 7.0 Rt. 0.42-3.5 264765 4 4.4 SM A-1-b II HB-MICH-123, S29 341+05 7.0 Rt. 0.42-3.5 264765 4 4.4 SM A-1-b II HB-MICH-101, S1 115+60 6.5 Lt. 1.5-5.0 264766 5 29.4 SM A-4 III HB-MICH-105, S6 150+87 8.0 Rt. 3.5-5.0 264767 5 18.6 ML A-4 IV HB-MICH-109, S12 180+00 8.0 Rt. 3.6-5.0 264770 6 25.6 ML A-4 IV HB-MICH-117, S21 279+16 7.0 Rt. 3.1-5.0 264771 6 25.6 ML A-4 IV HB-MICH-112, S28 329+50 7.0 Lt. 2.3-5.0 264772 6 16.8<	HB-MICH-117, S20	279+16	7.0 Rt.	0.42-3.1	264761	4	4.0			SM	A-1-b	
HB-MICH-122, S27 329+50 7.0 Lt. 0.42-2.3 264764 4 5.9 SM A-1-b II HB-MICH-123, S29 341+05 7.0 Rt. 0.42-3.5 264765 4 4.4 SM A-1-b II Subgrade: 5" Auger: Cup Sample HB-MICH-101, S1 115+60 6.5 Lt. 1.5-5.0 264766 5 29.4 SM A-4 III HB-MICH-105, S6 150+87 8.0 Rt. 3.5-5.0 264767 5 18.6 ML A-4 IV HB-MICH-107, S9 171+50 6.5 Rt. 2.3-5.0 264767 5 18.6 ML A-4 IV HB-MICH-109, S12 180+00 8.0 Rt. 3.6-5.0 264769 5 16.5 ML A-4 IV HB-MICH-112, S16 213+80 9.0 Lt. 2.9-5.0 264770 6 25.6 ML A-4 IV HB-MICH-117, S21 279+16 7.0 Rt. 3.1-5.0 264772 6 16.8 ML A-4 IV HB-MICH-122, S28 329+50 7.0 Lt.	HB-MICH-120, S23	303+70	7.0 Lt.	0.42-3.3	264762	4	7.7			SM	A-1-b	
HB-MICH-123, S29 341+05 7.0 Rt. 0.42-3.5 264765 4 4.4 SM A-1-b II Subgrade: 5" Auger: Cup Sample HB-MICH-101, S1 115+60 6.5 Lt. 1.5-5.0 264766 5 29.4 SM A-4 III HB-MICH-105, S6 150+87 8.0 Rt. 3.5-5.0 264768 5 20.7 ML A-4 IV HB-MICH-107, S9 171+50 6.5 Rt. 2.3-5.0 264767 5 18.6 ML A-4 IV HB-MICH-107, S9 171+50 6.5 Rt. 2.3-5.0 264769 5 16.5 ML A-4 IV HB-MICH-112, S16 213+80 9.0 Lt. 2.9-5.0 264770 6 25.6 ML A-4 IV HB-MICH-117, S21 279+16 7.0 Rt. 3.1-5.0 264771 6 26.5 ML A-4 IV HB-MICH-122, S28 329+50 7.0 Lt. 2.3-5.0 264772 6 16.8 ML A-4 IV HB-MICH-122, S28 329+50 7.0 Lt. <t< td=""><td>HB-MICH-121, S25</td><td>317+85</td><td>7.0 Rt.</td><td>0.42-2.6</td><td>264763</td><td>4</td><td>4.0</td><td></td><td></td><td>SM</td><td>A-1-b</td><td></td></t<>	HB-MICH-121, S25	317+85	7.0 Rt.	0.42-2.6	264763	4	4.0			SM	A-1-b	
Subgrade: 5" Auger: Cup Sample HB-MICH-101, S1 115+60 6.5 Lt. 1.5-5.0 264766 5 29.4 SM A-4 III HB-MICH-105, S6 150+87 8.0 Rt. 3.5-5.0 264768 5 20.7 ML A-4 IV HB-MICH-107, S9 171+50 6.5 Rt. 2.3-5.0 264767 5 18.6 ML A-4 IV HB-MICH-109, S12 180+00 8.0 Rt. 3.6-5.0 264769 5 16.5 ML A-4 IV HB-MICH-112, S16 213+80 9.0 Lt. 2.9-5.0 264770 6 25.6 ML A-4 IV HB-MICH-117, S21 279+16 7.0 Rt. 3.1-5.0 264771 6 26.5 ML A-4 IV HB-MICH-122, S28 329+50 7.0 Lt. 2.3-5.0 264772 6 16.8 ML A-4 IV HB-MICH-122, S28 329+50 7.0 Lt. 2.3-5.0 264772 6 16.8 ML	HB-MICH-122, S27	329+50	7.0 Lt.	0.42-2.3	264764	4	5.9			SM	A-1-b	
HB-MICH-101, S1 115+60 6.5 Lt. 1.5-5.0 264766 5 29.4 SM A-4 III HB-MICH-105, S6 150+87 8.0 Rt. 3.5-5.0 264768 5 20.7 ML A-4 IV HB-MICH-107, S9 171+50 6.5 Rt. 2.3-5.0 264767 5 18.6 ML A-4 IV HB-MICH-109, S12 180+00 8.0 Rt. 3.6-5.0 264769 5 16.5 ML A-4 IV HB-MICH-112, S16 213+80 9.0 Lt. 2.9-5.0 264770 6 25.6 ML A-4 IV HB-MICH-117, S21 279+16 7.0 Rt. 3.1-5.0 264771 6 26.5 ML A-4 IV HB-MICH-122, S28 329+50 7.0 Lt. 2.3-5.0 264772 6 16.8 ML A-4 IV HB-MICH-122, S28 329+50 7.0 Lt. 2.3-5.0 264772 6 16.8 ML A-4 IV HB-MICH-122, S28 329+50 7.0 Lt. 2.3-5.0 264772 6 16.8	HB-MICH-123, S29	341+05	7.0 Rt.	0.42-3.5	264765	4	4.4			SM	A-1-b	
HB-MICH-105, S6 150+87 8.0 Rt. 3.5-5.0 264768 5 20.7 ML A-4 IV HB-MICH-107, S9 171+50 6.5 Rt. 2.3-5.0 264767 5 18.6 ML A-4 IV HB-MICH-109, S12 180+00 8.0 Rt. 3.6-5.0 264769 5 16.5 ML A-4 IV HB-MICH-112, S16 213+80 9.0 Lt. 2.9-5.0 264770 6 25.6 ML A-4 IV HB-MICH-117, S21 279+16 7.0 Rt. 3.1-5.0 264771 6 26.5 ML A-4 IV HB-MICH-122, S28 329+50 7.0 Lt. 2.3-5.0 264772 6 16.8 ML A-4 IV HB-MICH-122, S28 329+50 7.0 Lt. 2.3-5.0 264772 6 16.8 ML A-4 IV HB-MICH-122, S28 329+50 7.0 Lt. 2.3-5.0 264772 6 16.8 ML A-4 IV HB-MICH-122, S28 329+50 7.0 Lt. 2.3-5.0 16.7 16 16 <			Su	bgrade: 5" /	Auger: Cup	Sample						
HB-MICH-107, S9 171+50 6.5 Rt. 2.3-5.0 264767 5 18.6 ML A-4 IV HB-MICH-109, S12 180+00 8.0 Rt. 3.6-5.0 264769 5 16.5 ML A-4 IV HB-MICH-112, S16 213+80 9.0 Lt. 2.9-5.0 264770 6 25.6 ML A-4 IV HB-MICH-117, S21 279+16 7.0 Rt. 3.1-5.0 264771 6 26.5 ML A-4 IV HB-MICH-122, S28 329+50 7.0 Lt. 2.3-5.0 264772 6 16.8 ML A-4 IV HB-MICH-122, S28 329+50 7.0 Lt. 2.3-5.0 264772 6 16.8 ML A-4 IV HB-MICH-122, S28 329+50 7.0 Lt. 2.3-5.0 264772 6 16.8 ML A-4 IV HB-MICH-122, S28 329+50 7.0 Lt. 2.3-5.0 264772 6 16.8 ML A-4 IV HB-MICH-122, S28 329+50 7.0 Lt. 2.3-5.0 264772 6 16.8	HB-MICH-101, S1	115+60	6.5 Lt.	1.5-5.0	264766	5	29.4			SM	A-4	
HB-MICH-109, S12 180+00 8.0 Rt. 3.6-5.0 264769 5 16.5 ML A-4 IV HB-MICH-112, S16 213+80 9.0 Lt. 2.9-5.0 264770 6 25.6 ML A-4 IV HB-MICH-117, S21 279+16 7.0 Rt. 3.1-5.0 264771 6 26.5 ML A-4 IV HB-MICH-122, S28 329+50 7.0 Lt. 2.3-5.0 264772 6 16.8 ML A-4 IV HB-MICH-122, S28 329+50 7.0 Lt. 2.3-5.0 264772 6 16.8 ML A-4 IV HB-MICH-122, S28 329+50 7.0 Lt. 2.3-5.0 264772 6 16.8 ML A-4 IV HB-MICH-122, S28 329+50 7.0 Lt. 2.3-5.0 264772 6 16.8 ML A-4 IV HB-MICH-122, S28 329+50 7.0 Lt. 2.3-5.0 264772 6 16.8 ML A-4 IV HB-MICH-122, S28 ML A IV IV IV IV IV	HB-MICH-105, S6	150+87	8.0 Rt.	3.5-5.0	264768	5	20.7			ML	A-4	IV
HB-MICH-112, S16 213+80 9.0 Lt. 2.9-5.0 264770 6 25.6 ML A-4 IV HB-MICH-117, S21 279+16 7.0 Rt. 3.1-5.0 264771 6 26.5 ML A-4 IV HB-MICH-122, S28 329+50 7.0 Lt. 2.3-5.0 264772 6 16.8 ML A-4 IV HB-MICH-122, S28 329+50 7.0 Lt. 2.3-5.0 264772 6 16.8 ML A-4 IV Image: Second Secon	HB-MICH-107, S9	171+50	6.5 Rt.	2.3-5.0	264767	5	18.6			ML	A-4	IV
HB-MICH-117, S21 279+16 7.0 Rt. 3.1-5.0 264771 6 26.5 ML A-4 IV HB-MICH-122, S28 329+50 7.0 Lt. 2.3-5.0 264772 6 16.8 ML A-4 IV Image: Second and the second and t	HB-MICH-109, S12	180+00	8.0 Rt.	3.6-5.0	264769	5	16.5			ML	A-4	IV
HB-MICH-122, S28 329+50 7.0 Lt. 2.3-5.0 264772 6 16.8 ML A-4 IV Image: Second structure Image: Second structure <td>HB-MICH-112, S16</td> <td>213+80</td> <td>9.0 Lt.</td> <td>2.9-5.0</td> <td>264770</td> <td>6</td> <td>25.6</td> <td></td> <td></td> <td>ML</td> <td>A-4</td> <td>IV</td>	HB-MICH-112, S16	213+80	9.0 Lt.	2.9-5.0	264770	6	25.6			ML	A-4	IV
Image: Second state of the set soil samples is in accordance with AASHTO Classification System M-145-40. This classification is followed by the "Frost Susceptible] to Class IV (highly frost susceptible).	HB-MICH-117, S21	279+16	7.0 Rt.	3.1-5.0	264771	6	26.5			ML	A-4	IV
is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible).	HB-MICH-122, S28	329+50	7.0 Lt.	2.3-5.0	264772	6	16.8			ML	A-4	IV
is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible).												
is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible).												
is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible).												
is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible).												
is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible).												
is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible).												
is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible).												
is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible).												
	Classification of th	ese soil sam	ples is in a	ccordance wit	h AASHTO C	lassificatio	on Syst	em M-	145-4	0. This clas	sification	
The "Exact Sussentibility Define" is based upon the Mains DOT and Come of Engineers Obsertions Contains	is followed by the	Frost Susce	otibility Rat	ing" from zero	o (non-frost s	usceptible	e) to Cl	ass IV	(high	ly frost sus	sceptible).	
The "Frost Susceptibility Rating" is based upon the MaineDOT and Corps of Engineers Classification Systems.	The "Frost Sus	ceptibility Ra	ting" is bas	ed upon the l	MaineDOT an	d Corps o	f Engin	eers C	lassi	fication Sys	stems.	

GSDC = Grain Size Distribution Curve as determined by AASHTO T 88-93 (1996) and/or ASTM D 422-63 (Reapproved 1998) WC = water content as determined by AASHTO T 265-93 and/or ASTM D 2216-98

LL = Liquid limit as determined by AASHTO T 89-96 and/or ASTM D 4318-98 NP = Non Plastic

PI = Plasticity Index as determined by AASHTO 90-96 and/or ASTM D4318-98

State of Maine - Department of Transportation Laboratory Testing Summary Sheet

Town(s):	Milbri	dge-	Cherry	field	Work	k Nu	ımk	ber	: 2040	05.00	
Boring & Sample	Station	Offset	Depth	Reference	G.S.D.C.	W.C.	L.L.	P.I.	Cla	ssificatior	1
Identification Number	(Feet)	(Feet)	(Feet)	Number	Sheet	%			Unified	AASHTO	Frost
HB-MICH-201, 1D	118+30	9.0 Rt.	1.0-3.0	336734	7	4.3			SW-SM	A-1-b	0
HB-MICH-201, 2D	118+30	9.0 Rt.	5.0-7.0	336735	7	30.3	26	5	CL-ML	A-4	IV
HB-MICH-201, 3D	118+30	9.0 Rt.	10.0-12.0	336736	7	30.4	37	16	CL	A-6	
HB-MICH-201, 4D	118+30	9.0 Rt.	15.0-17.0	336737	7	30.8	34	13	CL	A-6	
HB-MICH-201, 5D	118+30	9.0 Rt.	20.0-22.0	336738	7	30.2	35	12	CL	A-6	
HB-MICH-201, 6D	118+30	9.0 Rt.	22.0-24.0	336739	7	28.6	33	14	CL	A-6	
HB-MICH-203, 1D	143+30	9.5 Rt.	1.0-3.0	336740	8	5.8			SM	A-1-b	11
HB-MICH-203, 2D	143+30	9.5 Rt.	5.0-7.0	336741	8	5.4			SM	A-1-b	II
HB-MICH-203, 3D	143+30	9.5 Rt.	10.0-12.0	336742	8	22.8	30	10	CL	A-4	IV
HB-MICH-203, 4D	143+30	9.5 Rt.	14.0-16.0	336743	8	27.8	36	15	CL	A-6	
HB-MICH-203, 5D	143+30	9.5 Rt.	20.0-22.0	336744	8	14.8			SM	A-1-b	II
HB-MICH-204, 1D	144+20	10.0 Lt.	1.0-3.0	336745	9	5.7			SM	A-1-a	11
HB-MICH-204, 2D	144+20	10.0 Lt.	5.0-7.0	336746	9	5.2			SM	A-1-b	11
HB-MICH-204, 3D	144+20	10.0 Lt.	11.0-13.0	336747	9	19.9			CL	A-4	IV
HB-MICH-204, 4D	144+20	10.0 Lt.	15.0-17.0	336748	9	25.6	31	10	CL	A-4	IV
HB-MICH-204, 5D	144+20	10.0 Lt.	20.0-22.0	336749	9	26.6	32	14	CL	A-6	
HB-MICH-204, 6D	144+20	10.0 Lt.	25.0-26.1	336750	9	20.8			SM	A-2-4	
HB-MICH-205, 1D	200+55	9.5 Lt.	1.0-3.0	336676	10	4.4			SW-SM	A-1-a	0
HB-MICH-205, 2D	200+55	9.5 Lt.	6.0-7.0	336677	10	15.9			CL	A-4	IV
HB-MICH-205, 3D	200+55	9.5 Lt.	10.0-12.0	336678	10	6.7			SM	A-1-b	11
HB-MICH-205, 4D	200+55	9.5 Lt.	15.0-17.0	336679	10	29.7	31	8	CL	A-4	IV
HB-MICH-205, 5D	200+55	9.5 Lt.	20.0-22.0	336680	10	27.4	38	16	CL	A-6	
HB-MICH-205, 6D	200+55	9.5 Lt.	22.5-24.0	336681	10	31.3			CL	A-4	IV
HB-MICH-207, 1D	209+40	9.5 Rt.	1.0-3.0	336682	11	5.5			SW-SM	A-1-b	0
HB-MICH-207, 2D	209+40	9.5 Rt.	5.0-7.0	336683	11	11.3			GM	A-2-4	
HB-MICH-207, 3D	209+40	9.5 Rt.	10.0-11.0	336684	11	14.8			SM	A-2-4	
HB-MICH-207, 4D	209+40	9.5 Rt.	15.0-17.0	336685	11	8.4			SW-SM	A-1-a	0
HB-MICH-207, 5D	209+40	9.5 Rt.	20.0-22.0	336686	11	15.7			SP-SM	A-1-b	0
HB-MICH-208, 1D	210+10	9.5 Rt.	5.0-7.0	336687	12	8.7			GM	A-1-b	Ι
HB-MICH-208, 2D	210+10	9.5 Rt.	10.0-12.0	336688	12	6.0			SM	A-1-b	
HB-MICH-208, 3D	210+10	9.5 Rt.	15.5-17.5	336689	12	30.3			CL	A-4	IV
HB-MICH-208, 4D	210+10	9.5 Rt.	20.0-22.0	336690	12	8.8			GW-GM	A-1-a	0
HB-MICH-209, 1D	210+65	9.5 Lt.	1.0-3.0	336691	13	4.0			SW-SM	A-1-a	0
HB-MICH-209, 2D	210+65	9.5 Lt.	5.0-7.0	336692	13	23.7			CL	A-4	IV
HB-MICH-209, 3D	210+65	9.5 Lt.	10.0-12.0	336693	13	19.3			SC-SM	A-4	IV
HB-MICH-209, 4D	210+65	9.5 Lt.	15.0-17.0	336694	13	12.4			SM	A-1-b	
HB-MICH-209, 5D	210+65	9.5 Lt.	20.0-22.0	336695	13	7.0			GW-GM	A-1-a	0
HB-MICH-210, 1D	224+75	9.0 Rt.	1.0-3.0	336696	14	6.5			SM	A-1-b	
HB-MICH-210, 2D	224+75	9.0 Rt.	5.0-7.0	336697	14	12.8			SM	A-4	IV
HB-MICH-210, 3D	224+75	9.0 Rt.	10.0-12.0	336698	14	12.6			SM	A-2-4	
HB-MICH-210, 4D	224+75	9.0 Rt.	15.0-17.0	336699	14	50.0			GW-GM	A-1-a	0
HB-MICH-210, 5D	224+75	9.0 Rt.	20.0-22.0	336700	14	32.7	39	18	CL	A-6	
Classification of th	ese soil sam	oles is in a	ccordance wit	h AASHTO C	lassificatio	on Syst	em M-	145-4	0. This cla	ssification	1
is followed by the	"Frost Suscep	otibility Rat	ting" from zero	o (non-frost s	usceptible	e) to Cla	ass IV	(high	ly frost su	sceptible).	
							-				

The "Frost Susceptibility Rating" is based upon the MaineDOT and Corps of Engineers Classification Systems.

GSDC = Grain Size Distribution Curve as determined by AASHTO T 88-93 (1996) and/or ASTM D 422-63 (Reapproved 1998) WC = water content as determined by AASHTO T 265-93 and/or ASTM D 2216-98

LL = Liquid limit as determined by AASHTO T 89-96 and/or ASTM D 4318-98

NP = Non Plastic PI = Plasticity Index as determined by AASHTO 90-96 and/or ASTM D4318-98

State of Maine - Department of Transportation Laboratory Testing Summary Sheet

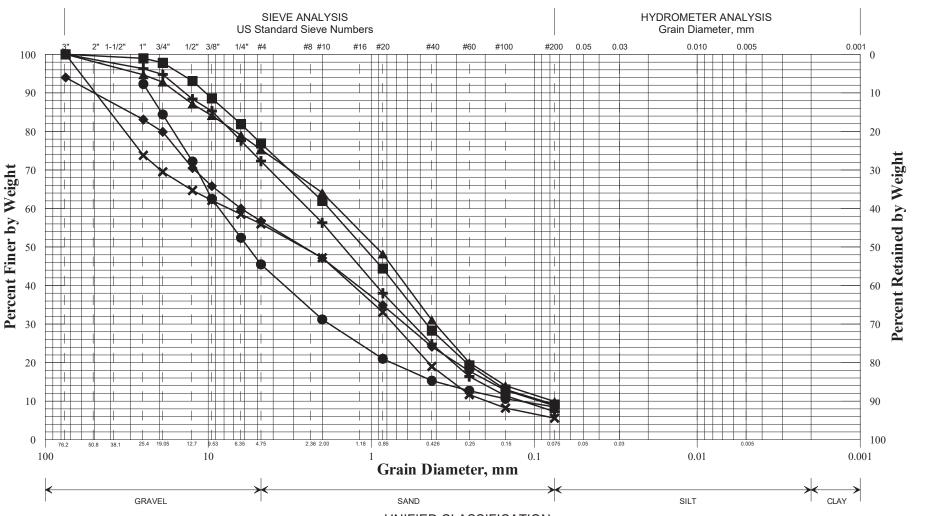
Town(s):	Milbri	dge-	Cherry	field	Worl	κNι	ımk	oer	: 2040	05.00	
Boring & Sample	Station	Offset	Depth	Reference	G.S.D.C.	W.C.	L.L.	P.I.	Cla	ssificatior	1
Identification Number	(Feet)	(Feet)	(Feet)	Number	Sheet	%			Unified	AASHTO	Frost
HB-MICH-211, 1D	225+40	8.5 Lt.	1.0-3.0	336662	15	8.0			SM	A-1-b	
HB-MICH-211, 2D	225+40	8.5 Lt.	5.0-7.0	336663	15	7.4			SW-SM	A-1-b	0
HB-MICH-211, 3D	225+40	8.5 Lt.	10.0-12.0	336664	15	25.0			CL	A-4	IV
HB-MICH-211, 4D	225+40	8.5 Lt.	15.0-17.0	336665	15	32.1			CL	A-4	IV
HB-MICH-211, 5D	225+40	8.5 Lt.	20.0-22.0	336666	15	9.9			SP-SM	A-3	0
HB-MICH-212, 1D	246+70	9.5 Rt.	1.0-3.0	336667	16	5.0			SM	A-1-b	
HB-MICH-212, 2D	246+70	9.5 Rt.	5.0-5.8	336668	16	3.5			GW-GM	A-1-a	0
HB-MICH-212, 3D	246+70	9.5 Rt.	10.0-12.0	336669	16	10.8			GM	A-4	Ш
HB-MICH-212, 4D	246+70	9.5 Rt.	15.5-17.0	336670	16	10.1			SM	A-1-b	Ш
HB-MICH-212, 5D	246+70	9.5 Rt.	20.0-21.0	336671	16	9.1			GM	A-1-a	0
HB-MICH-213, 1D	247+00	9.0 Lt.	1.0-2.5	336672	17	3.8			GW-GM	A-1-a	0
HB-MICH-213, 2D	247+00	9.0 Lt.	5.0-7.0	336673	17	8.1			SM	A-1-b	Ш
HB-MICH-213, 3D	247+00	9.0 Lt.	10.0-12.0	336674	17	27.5			CL	A-4	IV
HB-MICH-213, 4D	247+00	9.0 Lt.	15.0-17.0	336675	17	8.1			SM	A-1-b	
HB-MICH-215, 1D	352+15	8.0 Lt.	1.0-3.0	296334	18	5.1			SW-SM	A-1-b	0
HB-MICH-215, 2D	352+15	8.0 Lt.	5.0-7.0	296335	18	23.8	30	12	CL	A-6	
HB-MICH-215, 3D	352+15	8.0 Lt.	10.0-12.0	296336	18	24.2	30	12	CL	A-6	
HB-MICH-215, 4D	352+15	8.0 Lt.	15.0-17.0	296337	18	24.8			CL	A-4	IV
							Lo	SS 0	n Ignitio	n, % (T 2	267)
HB-MICH-209, 2D	210+65	9.5 Lt.	5.0-7.0	336692	13	23.7			10.8	3	
										<u> </u>	
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Classification of th						-					
is followed by the											
The "Frost Sus	ceptibility Ra	ung" is bas	sea upon the l	waineDOT an	a Corps o	r Engin	eers C	assi	ication Sy	stems.	

GSDC = Grain Size Distribution Curve as determined by AASHTO T 88-93 (1996) and/or ASTM D 422-63 (Reapproved 1998)

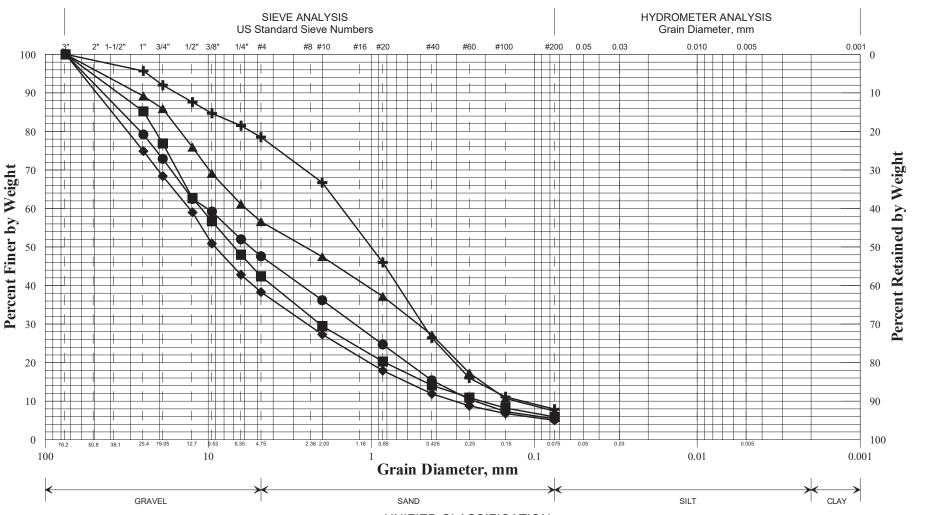
WC = water content as determined by AASHTO T 265-93 and/or ASTM D 2216-98

LL = Liquid limit as determined by AASHTO T 89-96 and/or ASTM D 4318-98 NP = Non Plastic

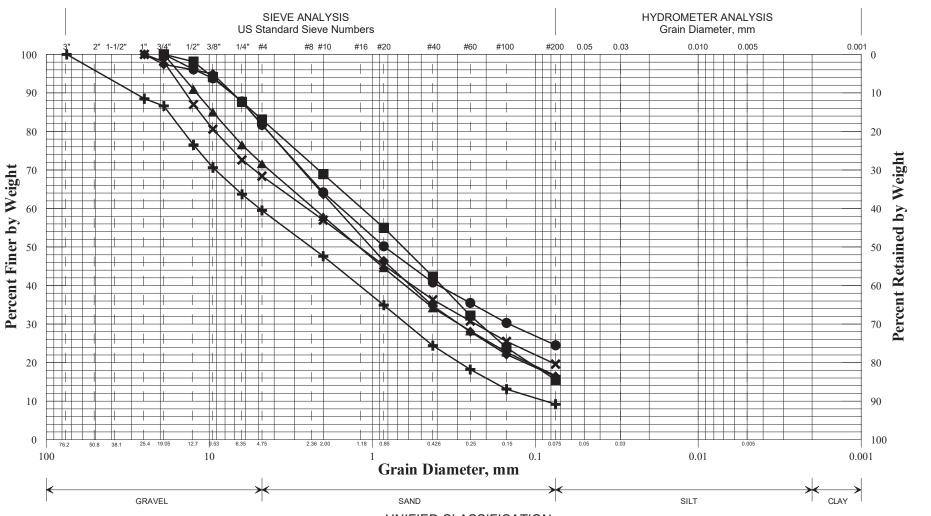
PI = Plasticity Index as determined by AASHTO 90-96 and/or ASTM D4318-98



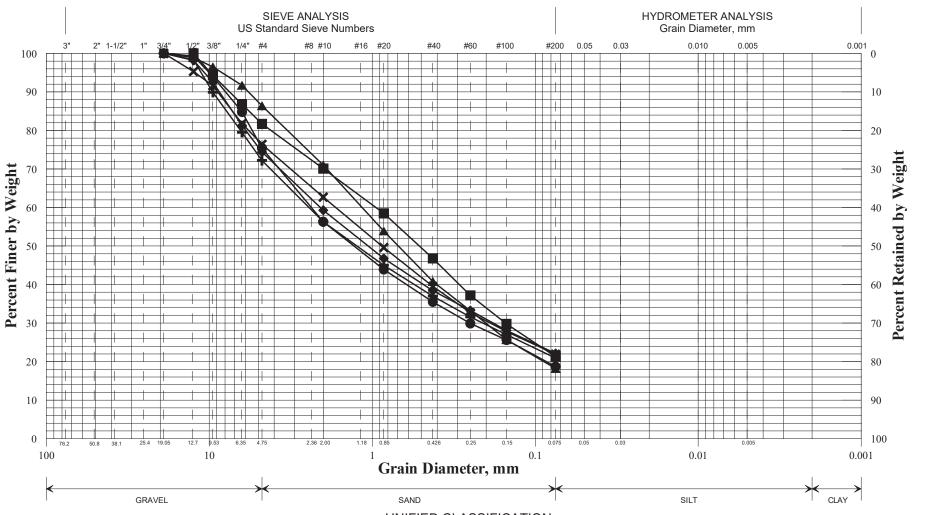
	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, % I	LL	PL	ΡI	WIN
+	HB-MICH-101/B1	115+60	6.5 LT	0.75-1.5	SAND, some gravel, trace silt.	1.6				020405.00
	HB-MICH-103/B2	140+95	8.0 LT	0.33-5.0	Gravelly SAND, trace silt.	2.9				Town
	HB-MICH-104/B3	140+95	18.0 LT	0.0-1.6	SAND, some gravel, trace silt.	0.8				Milbridge, Cherryfield
	HB-MICH-107/B4	171+50	6.5 RT	0.42-2.3	Sandy GRAVEL, trace silt.	2.5				
	HB-MICH-108/B5	171+50	15.0 RT	0.0-2.0	SAND, some gravel, trace silt.	3.0				Reported by/Date
×	HB-MICH-112/B6	213+80	9.0 LT	0.42-2.9	Gravelly SAND, trace silt.	1.7				WHITE, TERRY A 2/16/2016



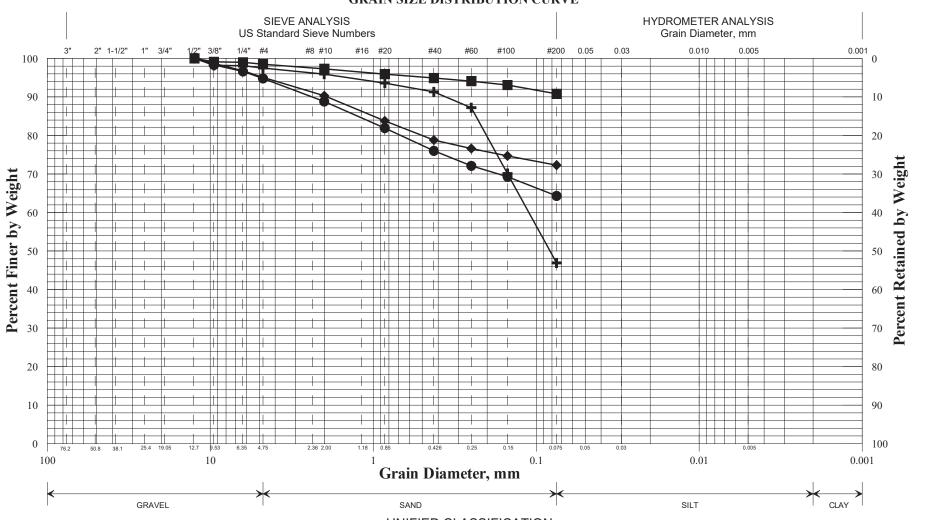
	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI	WIN
+	HB-MICH-113/B7	213+80	15.0 LT	0.0-2.6	SAND, some gravel, trace silt.	2.6				020405.00
	HB-MICH-114/B8	248+92	7.0 LT	0.33-2.2	GRAVEL, some sand, trace silt.	0.6				Town
	HB-MICH-115/B9	248+92	15.0 LT	0.0-2.5	Sandy GRAVEL, trace silt.	2.7				Milbridge, Cherryfield
	HB-MICH-118/B10	294+64	7.0 RT	0.42-3.0	Sandy GRAVEL, trace silt.	1.8				
	HB-MICH-119/B11	294+64	16.0 RT	0.0-2.8	Gravelly SAND, trace silt.	2.3				Reported by/Date
×										WHITE, TERRY A 2/16/2016



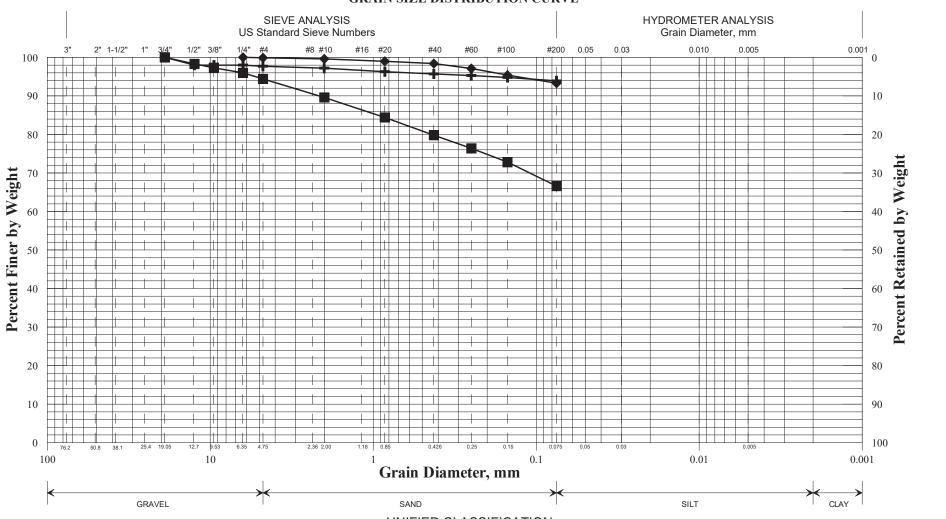
	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	ΡI	WIN
+	HB-MICH-102/S2	127+65	7.5 RT	0.5-2.4	Gravelly SAND, trace silt.	5.1				020405.00
•	HB-MICH-105/S5	150+87	8.0 RT	0.5-3.5	SAND, little gravel, little silt.	7.5				Town
	HB-MICH-106/S7	161+00	7.0 LT	0.58-2.70	SAND, little gravel, little silt.	6.5				Milbridge, Cherryfield
	HB-MICH-109/S11	180+00	8.0 RT	0.58-3.6	SAND, some silt, little gravel.	5.2				
	HB-MICH-110/S13	192+67	7.0 LT	0.42-3.9	SAND, some gravel, little silt.	6.6				Reported by/Date
×	HB-MICH-111/S14	203+30	7.0 RT	0.42-3.3	SAND, some gravel, little silt.	4.9				WHITE, TERRY A 2/16/2016



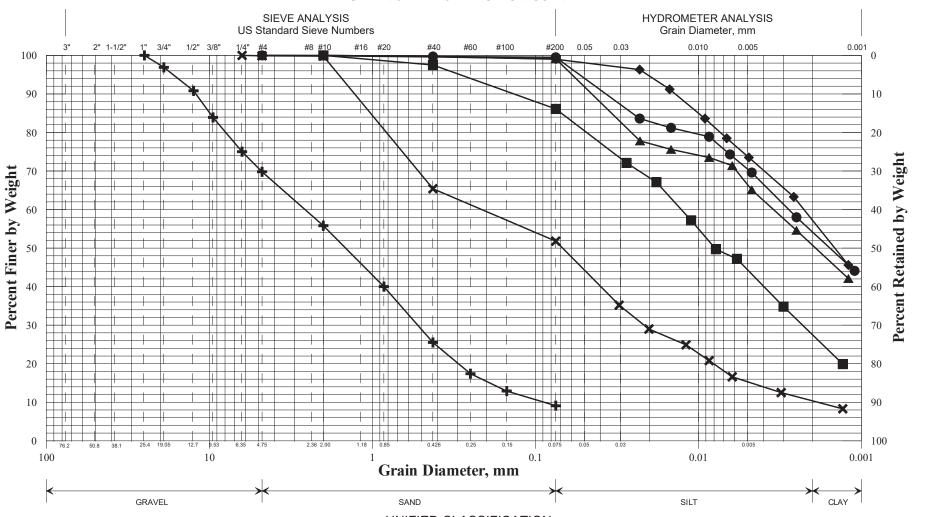
	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI	WIN
+	HB-MICH-116/S18	269+42	7.0 RT	0.33-3.0	SAND, some gravel, little silt.	3.4				020405.00
	HB-MICH-117/S20	276+16	7.0 RT	0.42-3.1	SAND, some gravel, some silt.	4.0				Town
	HB-MICH-120/S23	303+70	7.0 LT	0.42-3.3	SAND, some silt, little gravel.	7.7				Milbridge, Cherryfield
	HB-MICH-121/S25	317+85	7.0 RT	0.42-2.6	SAND, some gravel, little silt.	4.0				
	HB-MICH-122/S27	329+50	7.0 LT	0.42-2.3	SAND, little silt, little gravel.	5.9				Reported by/Date
×	HB-MICH-123/S29	341+05	7.0 RT	0.42-3.5	SAND, some gravel, some silt.	4.4				WHITE, TERRY A 2/16/2016



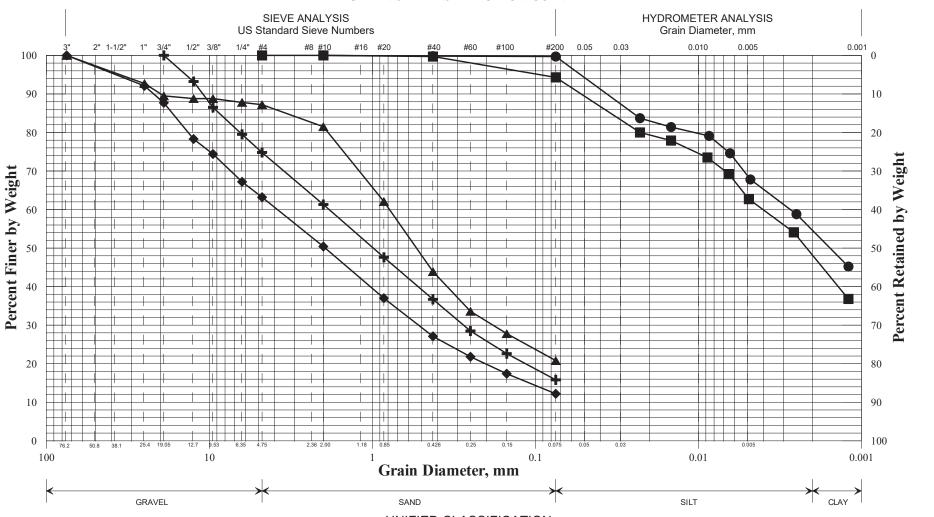
	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI	WIN
+	HB-MICH-101/S1	115+60	6.5 LT	1.5-5.0	Silty SAND, trace gravel.	29.4				020405.00
	HB-MICH-105/S6	150+87	8.0 RT	3.5-5.0	SILT, some sand, trace gravel.	20.7				Town
	HB-MICH-107/S9	171+50	6.5 RT	2.3-5.0	SILT, trace sand, trace gravel.	18.6				Milbridge, Cherryfield
	HB-MICH-109/S12	180+00	8.0 RT	3.6-5.0	SILT, some sand, trace gravel.	16.5				
										Reported by/Date
×										WHITE, TERRY A 2/16/2016



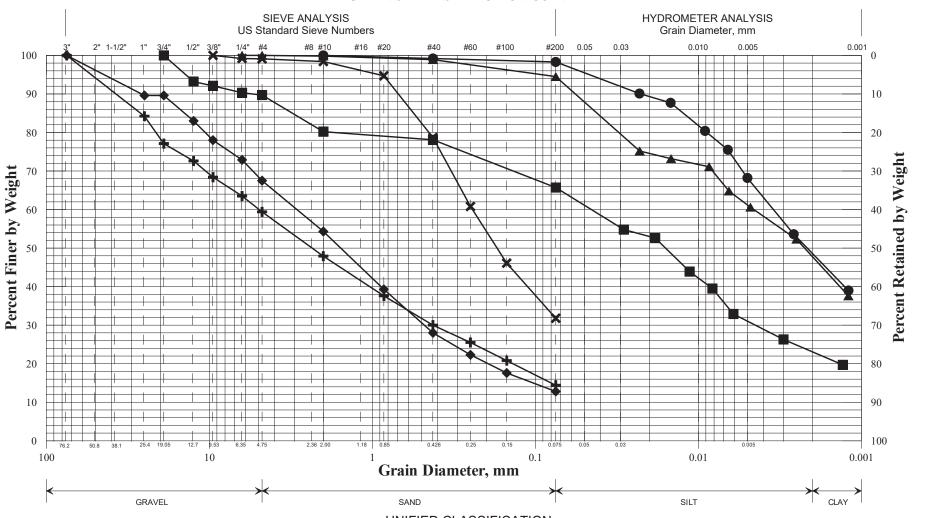
	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, % LL	. PL	PI	WIN
+	HB-MICH-112/S16	213+80	9.0 LT	2.9-5.0	SILT, trace sand, trace gravel.	25.6			020405.00
	HB-MICH-117/S21	279+16	7.0 RT	3.1-5.0	SILT, trace sand, trace gravel.	25.6			Town
	HB-MICH-122/S28	329+50	7.0 LT	2.3-5.0	SILT, some sand, trace gravel.	16.8			Milbridge, Cherryfield
									Reported by/Date
×									WHITE, TERRY A 2/16/2016



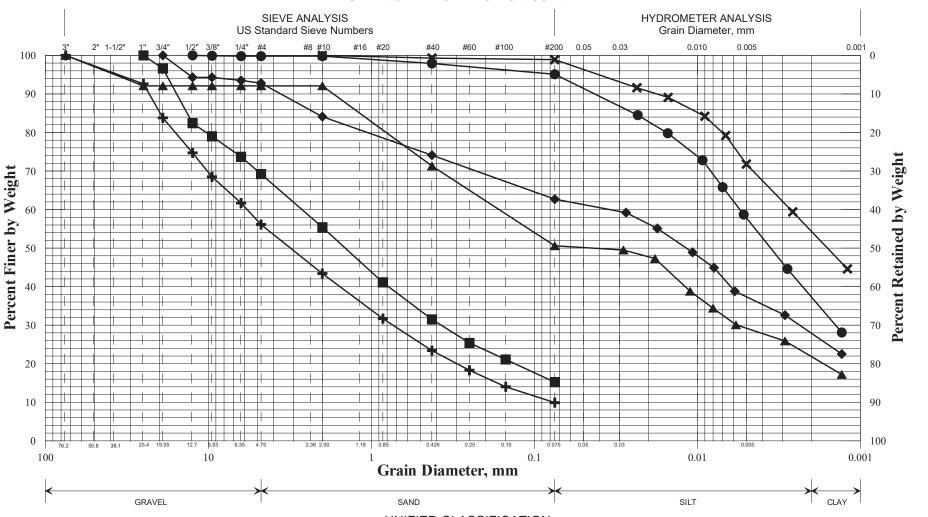
	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	ΡI	WIN
+	HB-MICH-201/1D	118+30	9.0 RT	1.0-3.0	SAND, some gravel, trace silt.	4.3				020405.00
•	HB-MICH-201/2D	118+30	9.0 RT	5.0-7.0	Silty CLAY, trace sand.	30.3	26	21	5	Town
	HB-MICH-201/3D	118+30	9.0 RT	10.0-12.0	SILT, some clay, little sand.	30.4	37	21	16	Cherryfield, Milbridge
	HB-MICH-201/4D	118+30	9.0 RT	15.0-17.0	Silty CLAY, trace sand.	30.8	34	21	13	, , , , , , , , , , , , , , , , , , ,
	HB-MICH-201/5D	118+30	9.0 RT	20.0-22.0	Silty CLAT, trace sand.	30.2	35	23	12	Reported by/Date
×	HB-MICH-201/6D	118+30	9.0 RT	22.0-24.0	Silty SAND, trace clay, trace gravel.	28.6	33	19	14	WHITE, TERRY A 7/17/2018



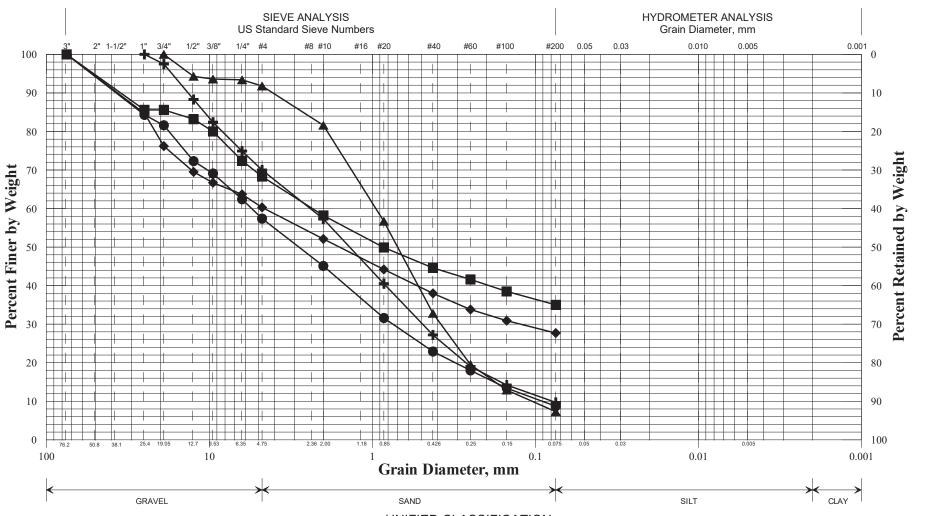
	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI	WIN
+	HB-MICH-203/1D	143+30	9.5 RT	1.0-3.0	SAND, some gravel, little silt.	5.8				020405.00
•	HB-MICH-203/2D	143+30	9.5 RT	5.0-7.0	Gravelly SAND, little silt.	5.4				Town
	HB-MICH-203/3D	143+30	9.5 RT	10.0-12.0	Silty CLAY, trace sand.	22.8	30	20	10	Cherryfield, Milbridge
	HB-MICH-203/4D	143+30	9.5 RT	14.0-16.0	Silty CLAY, trace sand.	27.8	36	21	15	
	HB-MICH-203/5D	143+30	9.5 RT	20.0-22.0	SAND, little silt, little gravel.	14.8				Reported by/Date
×										WHITE, TERRY A 7/17/2018



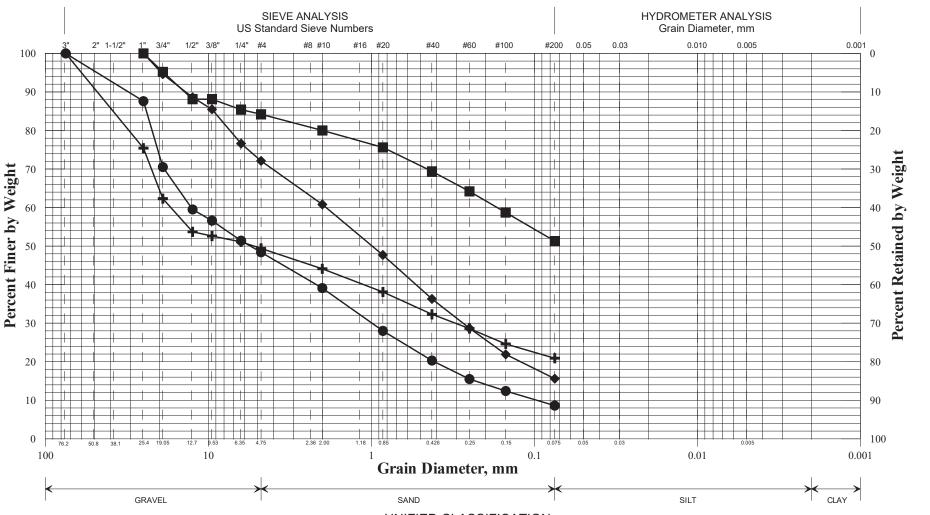
	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	ΡI	WIN
+	HB-MICH-204/1D	144+20	10.0 LT	1.0-3.0	Gravelly SAND, little silt.	5.7				020405.00
	HB-MICH-204/2D	144+20	10.0 LT	5.0-7.0	SAND, some gravel, little silt.	5.2				Town
	HB-MICH-204/3D	144+20	10.0 LT	11.0-13.0	SILT, some sand, some clay, trace gravel.	19.9				Cherryfield, Milbridge
	HB-MICH-204/4D	144+20	10.0 LT	15.0-17.0	Clayey SILT, trace sand.	25.6	31	21	10	
	HB-MICH-204/5D	144+20	10.0 LT	20.0-22.0	Silty CLAY, trace sand.	26.6	32	18	14	Reported by/Date
×	HB-MICH-204/6D	144+20	10.0 LT	25.0-26.1	SAND, some silt, trace gravel.	20.8				WHITE, TERRY A 7/17/2018



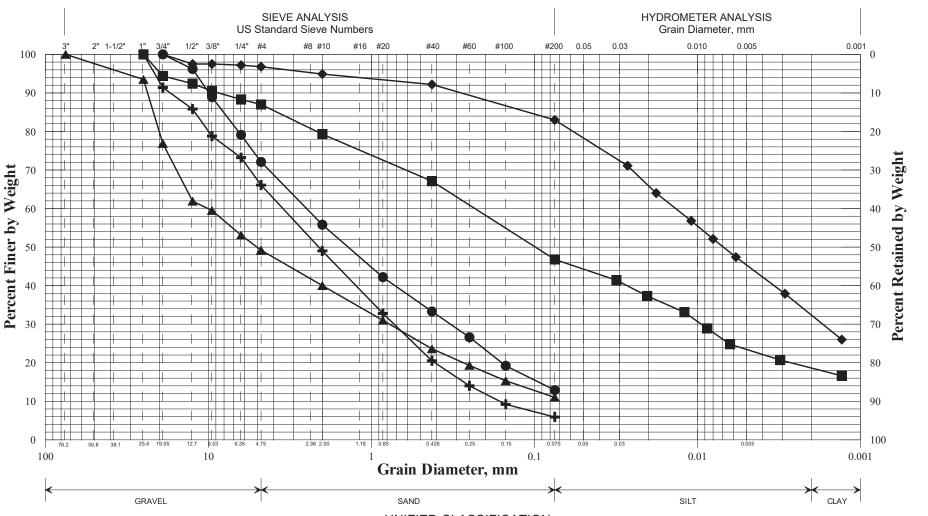
	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	ΡI	WIN
-	HB-MICH-205/1D	200+55	9.5 LT	1.0-3.0	Gravelly SAND, trace silt.	4.4				020405.00
	HB-MICH-205/2D	200+55	9.5 LT	6.0-7.0	SILT, some sand, some clay, trace gravel.	15.9				Town
	HB-MICH-205/3D	200+55	9.5 LT	10.0-12.0	SAND, some gravel, little silt.	6.7				Cherryfield, Milbridge
	HB-MICH-205/4D	200+55	9.5 LT	15.0-17.0	Clayey SILT, trace sand, trace gravel.	29.7	31	23	8	
	HB-MICH-205/5D	200+55	9.5 LT	20.0-22.0	SAND, some silt, some clay, trace gravel.	27.4	38	22	16	Reported by/Date
×	HB-MICH-205/6D	200+55	9.5 LT	22.0-24.0	Silty CLAY, trace sand.	31.3				WHITE, TERRY A 7/17/2018



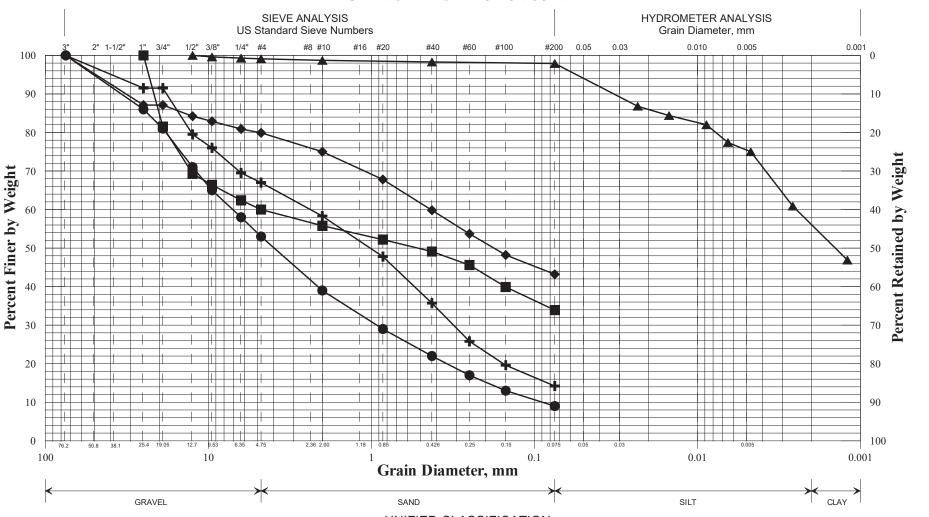
	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	ΡI	WIN
+	HB-MICH-207/1D	209+40	9.5 RT	1.0-3.0	SAND, some gravel, trace silt.	5.5				020405.00
	HB-MICH-207/2D	209+40	9.5 RT	5.0-7.0	GRAVEL, some sand, some silt.	11.3				Town
	HB-MICH-207/3D	209+40	9.5 RT	10.0-11.0	SILT, some sand, some gravel.	14.8				Cherryfield, Milbridge
	HB-MICH-207/4D	209+40	9.5 RT	15.0-17.0	Gravelly SAND, trace silt.	8.4				
	HB-MICH-207/5D	209+40	9.5 RT	20.0-22.0	SAND, trace gravel, trace silt.	15.7				Reported by/Date
×										WHITE, TERRY A 7/17/2018



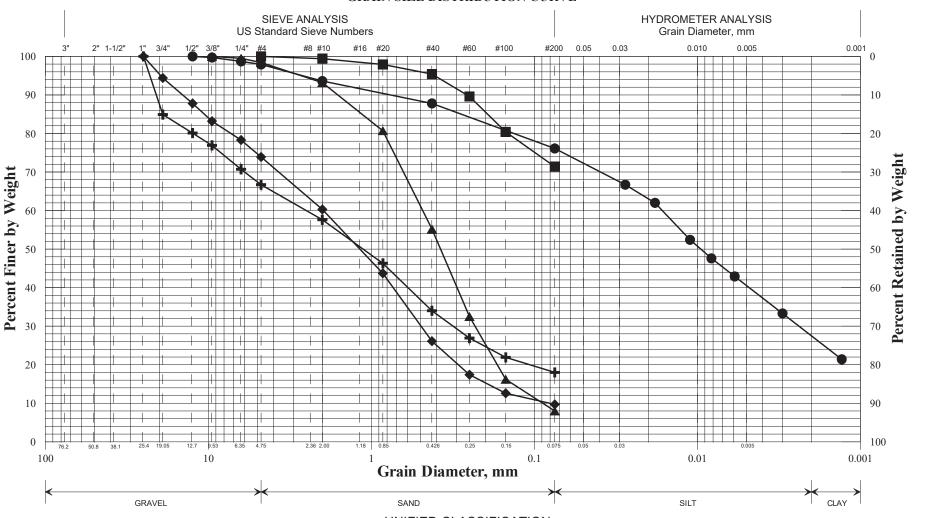
	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	ΡI	WIN
+	HB-MICH-208/1D	210+10	9.5 RT	5.0-7.0	GRAVEL, some sand, little silt.	8.7				020405.00
•	HB-MICH-208/2D	210+10	9.5 RT	10.0-12.0	SAND, some gravel, little silt.	6.0				Town
	HB-MICH-208/3D	210+10	9.5 RT	15.5-17.5	SILT, some sand, little gravel.	30.3				Cherryfield, Milbridge
	HB-MICH-208/4D	210+10	9.5 RT	20.0-22.0	Sandy GRAVEL, trace silt.	8.8				
										Reported by/Date
×										WHITE, TERRY A 7/17/2018



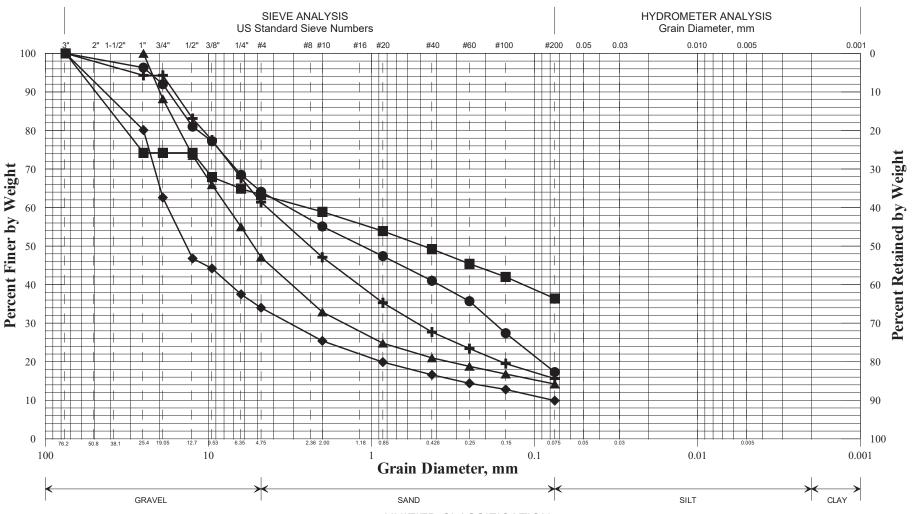
	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI	WIN
+	HB-MICH-209/1D	210+65	9.5 LT	1.0-3.0	SAND, some gravel, trace silt.	4.0				020405.00
•	HB-MICH-209/2D	210+65	9.5 LT	5.0-7.0	SILT, some clay, little sand, trace gravel.	23.7				Town
	HB-MICH-209/3D	210+65	9.5 LT	10.0-12.0	SAND, some silt, little clay, little gravel.	19.3				- Cherryfield, Milbridge
	HB-MICH-209/4D	210+65	9.5 LT	15.0-17.0	SAND, some gravel, little silt.	12.4				
	HB-MICH-209/5D	210+65	9.5 LT	20.0-22.0	Sandy GRAVEL, little silt.	7.0				Reported by/Date
×										WHITE, TERRY A 7/17/2018



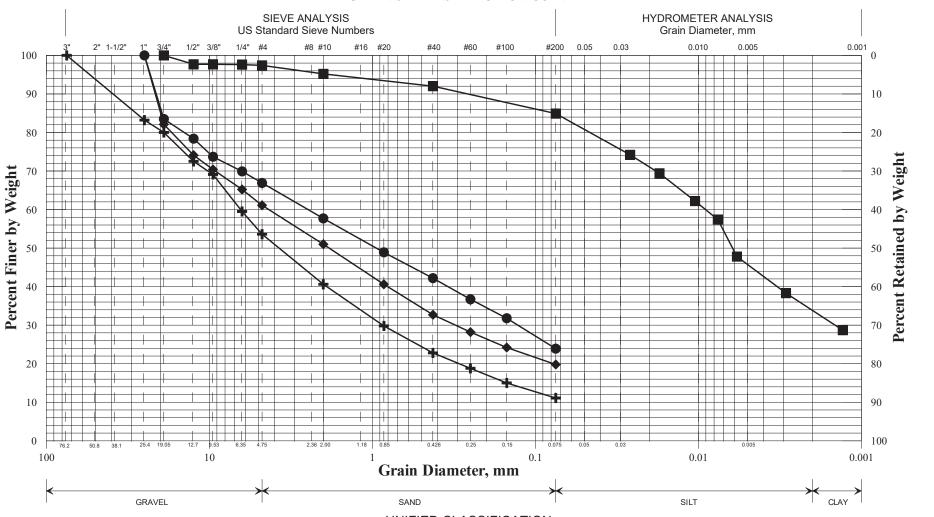
	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	ΡI	WIN
+	HB-MICH-210/1D	224+75	9.0 RT	1.0-3.0	SAND, some gravel, little silt.	6.5				020405.00
	HB-MICH-210/2D	224+75	9.0 RT	5.0-7.0	Sandy SILT, little gravel.	12.8				Town
	HB-MICH-210/3D	224+75	9.0 RT	10.0-12.0	GRAVEL, some silt, some sand.	12.6				Cherryfield, Milbridge
	HB-MICH-210/4D	224+75	9.0 RT	15.0-17.0	Sandy GRAVEL, trace silt.	50.0				
	HB-MICH-210/5D	224+75	9.0 RT	20.0-22.0	Silty CLAY, trace sand, trace gravel.	32.7	39	21	18	Reported by/Date
×										WHITE, TERRY A 7/17/2018



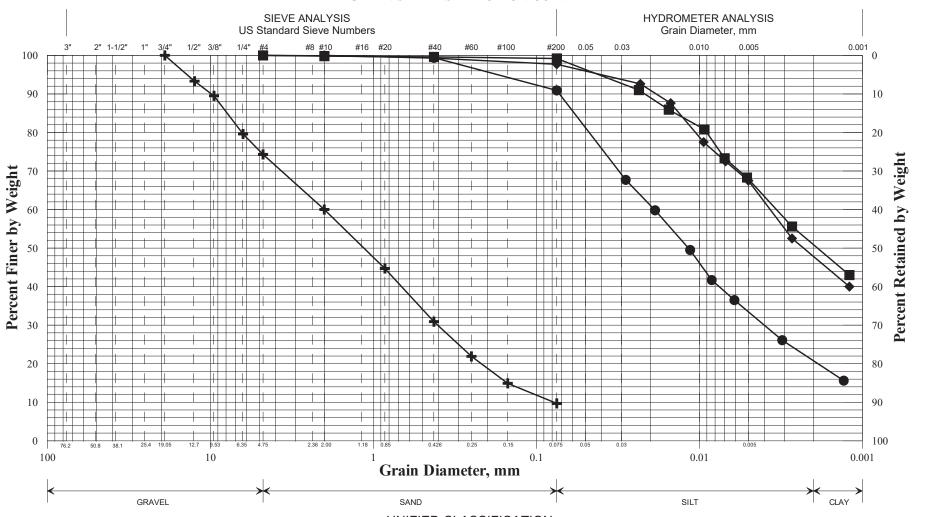
	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI	WIN
+	HB-MICH-211/1D	225+40	8.5 LT	1.0-3.0	SAND, some gravel, little silt.	8.0				020405.00
•	HB-MICH-211/2D	225+40	8.5 LT	5.0-7.0	SANDm some gravel, trace silt.	7.4				Town
	HB-MICH-211/3D	225+40	8.5 LT	10.0-12.0	SILT, some sand.	25.0				Cherryfield, Milbridge
	HB-MICH-211/4D	225+40	8.5 LT	15.0-17.0	SILT, some clay, some sand, trace gravel.	32.1				
	HB-MICH-211/5D	225+40	8.5 LT	20.0-22.0	SAND, trace silt, trace gravel.	9.9				Reported by/Date
×										WHITE, TERRY A 7/17/2018



	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI	WIN
+	HB-MICH-212/1D	246+70	9.5 RT	1.0-3.0	Gravelly SAND, little silt.	5.0				020405.00
•	HB-MICH-212/2D	246+70	9.5 RT	5.0-5.8	GRAVEL, some sand, trace silt.	3.5				Town
	HB-MICH-212/3D	246+70	9.5 RT	10.0-12.0	Silty GRAVEL, some sand.	10.8				Cherryfield, Milbridge
	HB-MICH-212/4D	246+70	9.5 RT	15.0-17.0	Gravelly SAND, little silt.	10.1				, , , , , , , , , , , , , , , , , , ,
	HB-MICH-212/5D	246+70	9.5 RT	20.0-21.0	GRAVEL, some sand, little silt.	9.1				Reported by/Date
×										WHITE, TERRY A 7/18/2018

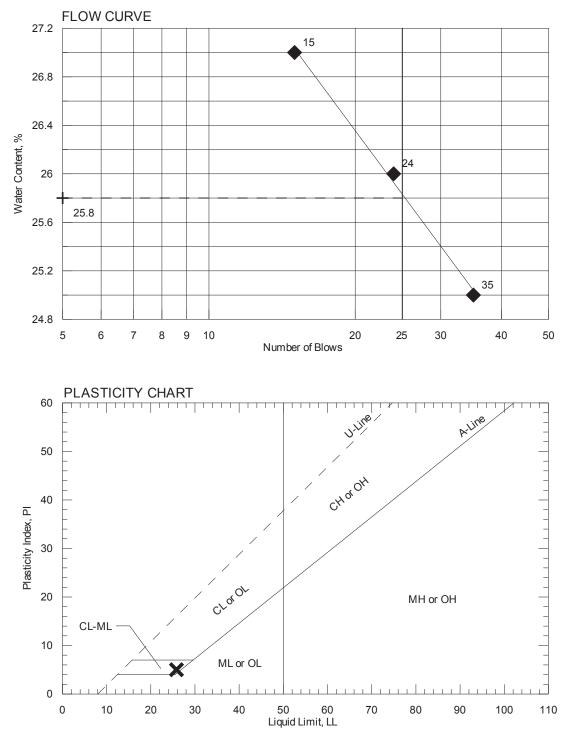


	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	ΡI	WIN
+	HB-MICH-213/1D	247+00	9.0 LT	1.0-2.5	Sandy GRAVEL, little silt.	3.8				020405.00
•	HB-MICH-213/2D	247+00	9.0 LT	5.0-7.0	Gravelly SAND, little silt.	8.1				Town
	HB-MICH-213/3D	247+00	9.0 LT	10.0-12.0	SILT, some clay, little sand, trace gravel.	27.5				Cherryfield, Milbridge
	HB-MICH-213/4D	247+00	9.0 LT	15.0-17.0	SAND, some gravel, some silt.	8.1				
										Reported by/Date
×										WHITE, TERRY A 7/18/2018

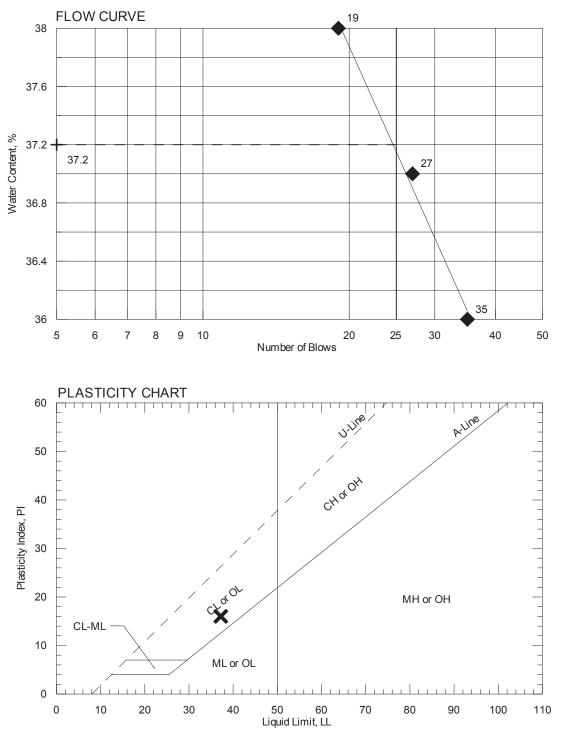


	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	ΡI	WIN
+	HB-MICH-215/1D	352+15	8.0 LT	1.0-3.0	SAND, some gravel, trace silt.	5.1				020405.00
•	HB-MICH-215/2D	352+15	8.0 LT	5.0-7.0	Clayey SILT, trace sand.	23.8	30	18	12	Town
	HB-MICH-215/3D	352+15	8.0 LT	10.0-12.0	Silty CLAY, trace sand.	24.2	30	18	12	Cherryfield, Milbridge
	HB-MICH-215/4D	352+15	8.0 LT	15.0-17.0	SILT, little clay, trace sand.	24.8				
										Reported by/Date
×										WHITE, TERRY A 7/18/2018

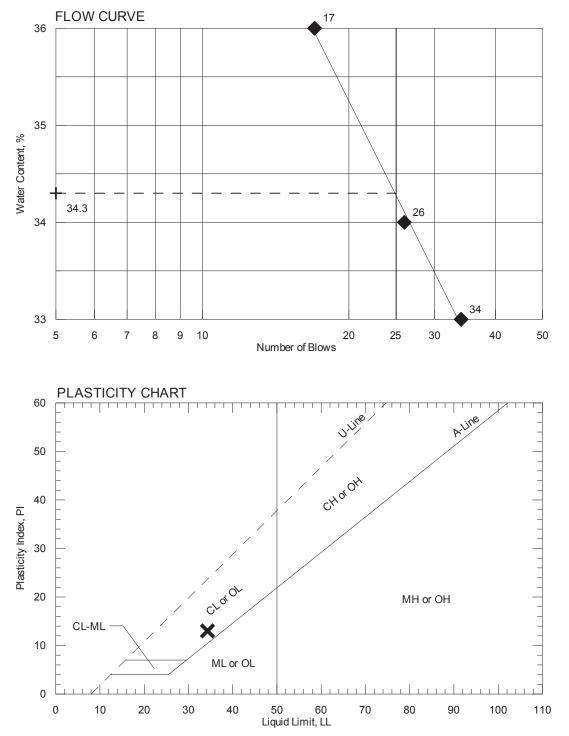
TOWN	Cherryfield, Milbridge	Reference No.	336735
WIN	020405.00	Water Content, %	30.3
Sampled	5/3/2018	Liquid Limit @ 25 blows (T 89), %	26
Boring No./Sample No.	HB-MICH-201/2D	Plastic Limit (T 90), %	21
Station	118+30	Plasticity Index (T 90), %	5
Depth	5.0-7.0	Tested By	BBURR



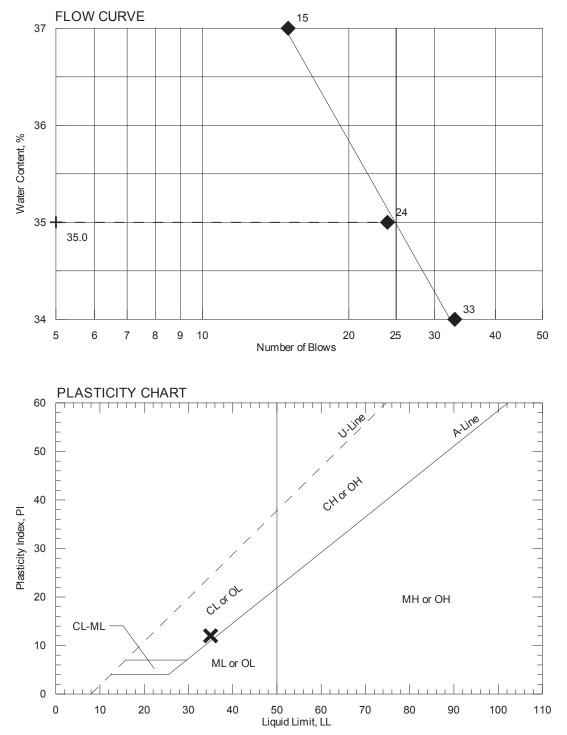
TOWN	Cherryfield, Milbridge	Reference No.	336736
WIN	020405.00	Water Content, %	30.4
Sampled	5/3/2018	Liquid Limit @ 25 blows (T 89), %	37
Boring No./Sample No.	HB-MICH-201/3D	Plastic Limit (T 90), %	21
Station	118+30	Plasticity Index (T 90), %	16
Depth	10.0-12.0	Tested By	BBURR



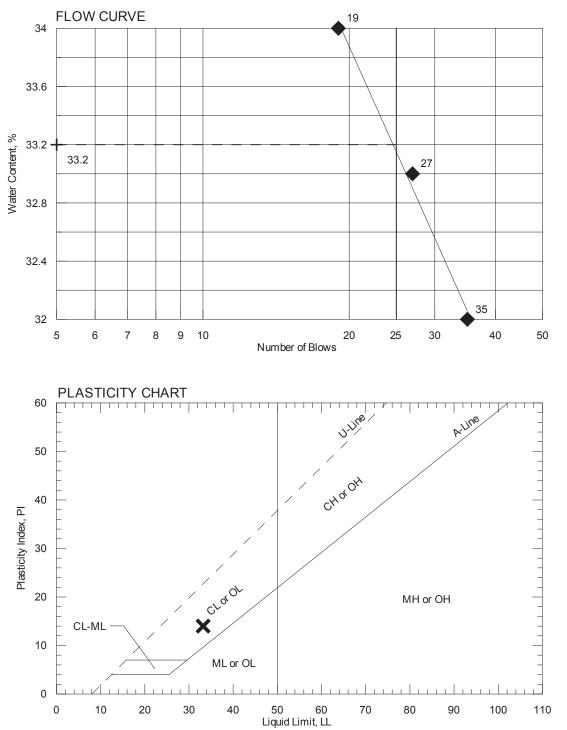
TOWN	Cherryfield, Milbridge	Reference No.	336737
WIN	020405.00	Water Content, %	30.8
Sampled	5/3/2018	Liquid Limit @ 25 blows (T 89), %	34
Boring No./Sample No.	HB-MICH-201/4D	Plastic Limit (T 90), %	21
Station	118+30	Plasticity Index (T 90), %	13
Depth	15.0-17.0	Tested By	BBURR



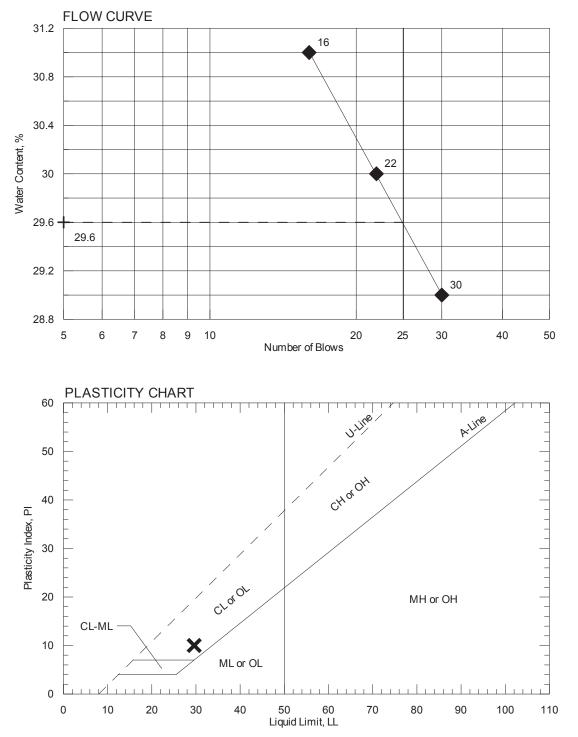
TOWN	Cherryfield, Milbridge	Reference No.	336738
WIN	020405.00	Water Content, %	30.2
Sampled	5/3/2018	Liquid Limit @ 25 blows (T 89), %	35
Boring No./Sample No.	HB-MICH-201/5D	Plastic Limit (T 90), %	23
Station	118+30	Plasticity Index (T 90), %	12
Depth	20.0-22.0	Tested By	BBURR



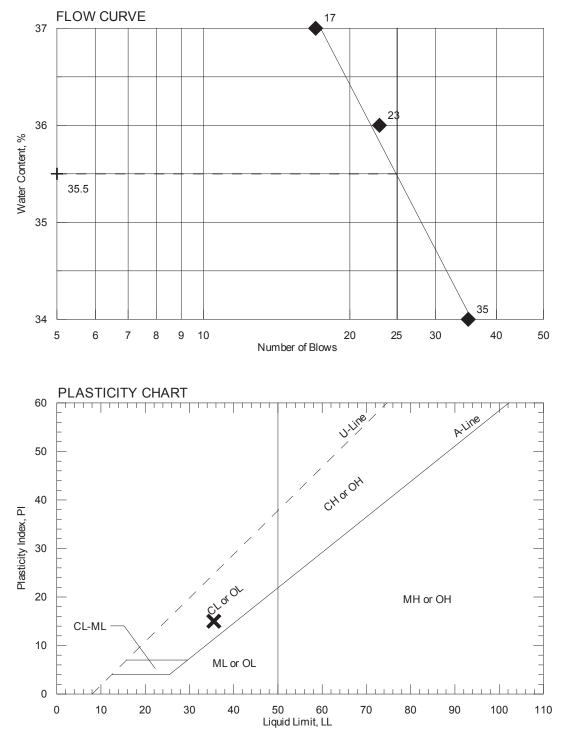
TOWN	Cherryfield, Milbridge	Reference No.	336739
WIN	020405.00	Water Content, %	28.6
Sampled	5/3/2018	Liquid Limit @ 25 blows (T 89), %	33
Boring No./Sample No.	HB-MICH-201/6D	Plastic Limit (T 90), %	19
Station	118+30	Plasticity Index (T 90), %	14
Depth	22.0-24.0	Tested By	BBURR



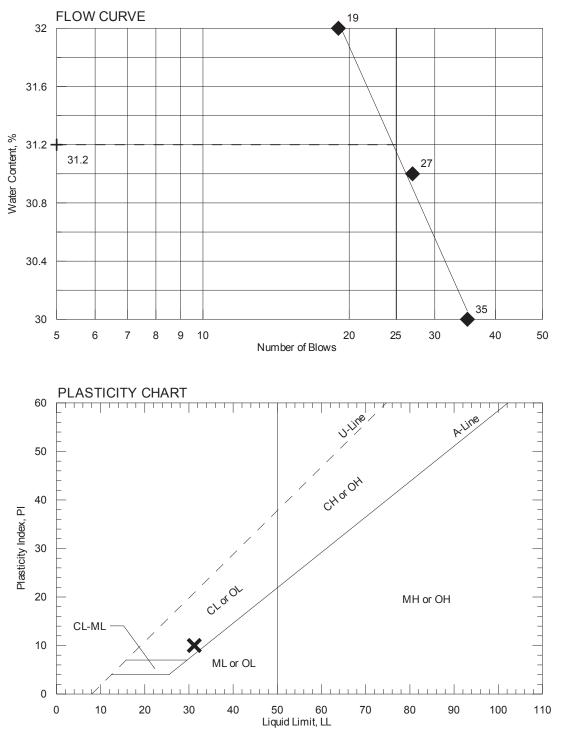
TOWN	Cherryfield, Milbridge	Reference No.	336742
WIN	020405.00	Water Content, %	22.8
Sampled	5/1/2018	Liquid Limit @ 25 blows (T 89), %	30
Boring No./Sample No.	HB-MICH-203/3D	Plastic Limit (T 90), %	20
Station	143+30	Plasticity Index (T 90), %	10
Depth	10.0-12.0	Tested By	BBURR



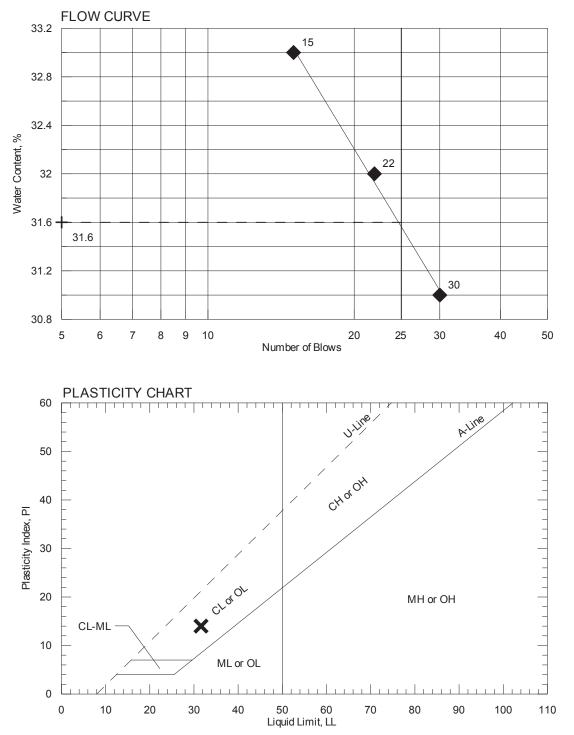
TOWN	Cherryfield, Milbridge	Reference No.	336743
WIN	020405.00	Water Content, %	27.8
Sampled	5/1/2018	Liquid Limit @ 25 blows (T 89), %	36
Boring No./Sample No.	HB-MICH-203/4D	Plastic Limit (T 90), %	21
Station	143+30	Plasticity Index (T 90), %	15
Depth	14.0-16.0	Tested By	BBURR



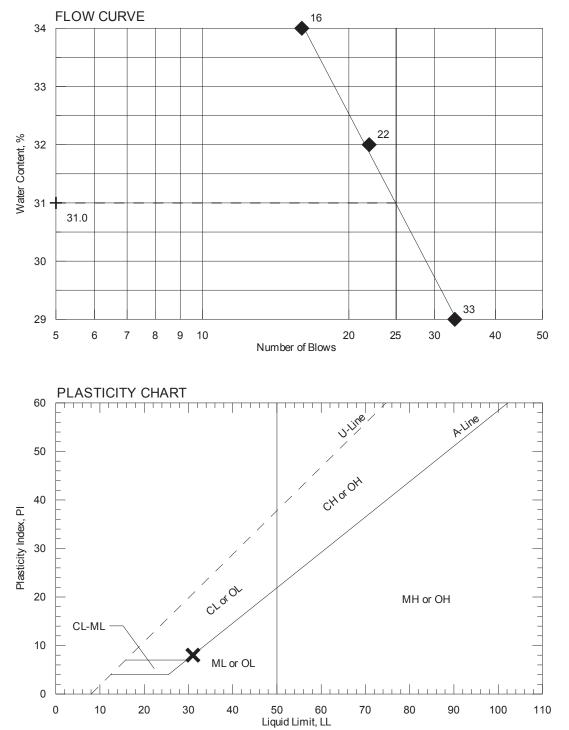
TOWN	Cherryfield, Milbridge	Reference No.	336748
WIN	020405.00	Water Content, %	25.6
Sampled	5/1/2018	Liquid Limit @ 25 blows (T 89), %	31
Boring No./Sample No.	HB-MICH-204/4D	Plastic Limit (T 90), %	21
Station	144+20	Plasticity Index (T 90), %	10
Depth	15.0-17.0	Tested By	BBURR



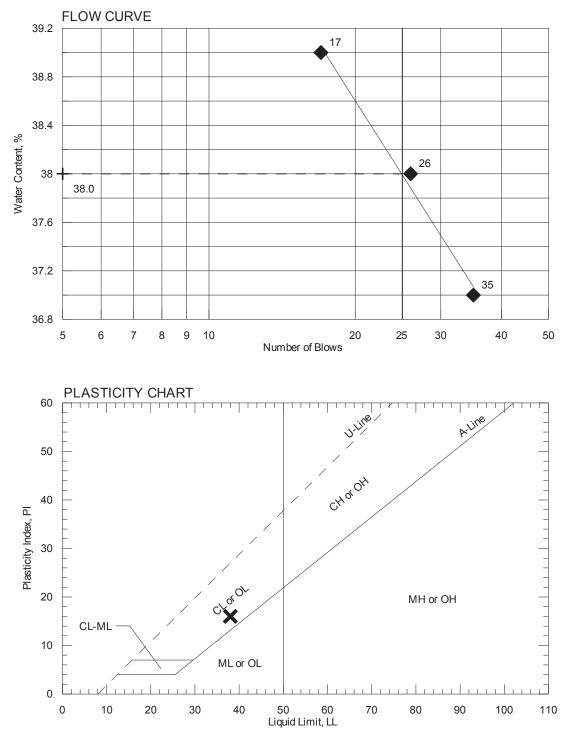
TOWN	Cherryfield, Milbridge	Reference No.	336749
WIN	020405.00	Water Content, %	26.6
Sampled	5/1/2018	Liquid Limit @ 25 blows (T 89), %	32
Boring No./Sample No.	HB-MICH-204/5D	Plastic Limit (T 90), %	18
Station	144+20	Plasticity Index (T 90), %	14
Depth	20.0-22.0	Tested By	BBURR



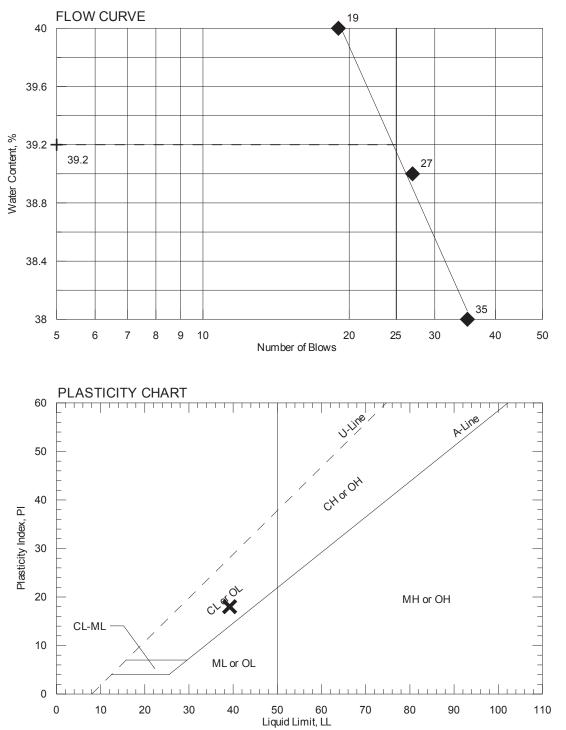
TOWN	Cherryfield, Milbridge	Reference No.	336679
WIN	020405.00	Water Content, %	29.7
Sampled	5/2/2018	Liquid Limit @ 25 blows (T 89), %	31
Boring No./Sample No.	HB-MICH-205/4D	Plastic Limit (T 90), %	23
Station	200+55	Plasticity Index (T 90), %	8
Depth	15.0-17.0	Tested By	BBURR



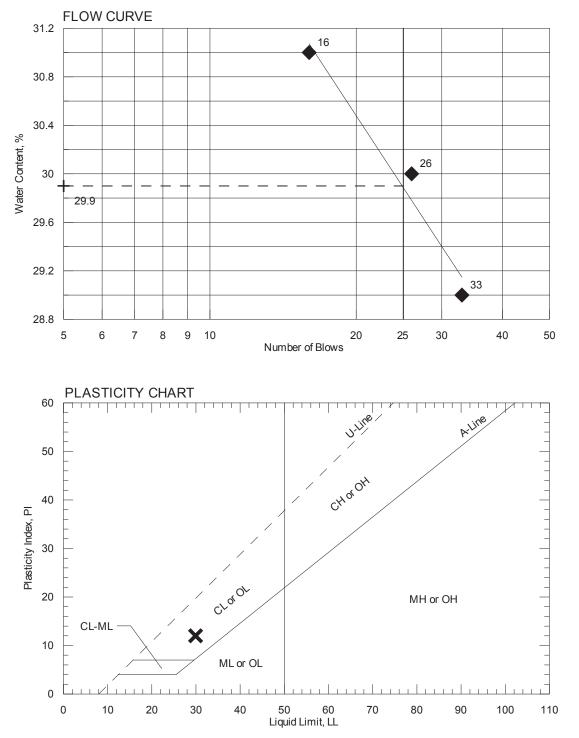
TOWN	Cherryfield, Milbridge	Reference No.	336680
WIN	020405.00	Water Content, %	27.4
Sampled	5/2/2018	Liquid Limit @ 25 blows (T 89), %	38
Boring No./Sample No.	HB-MICH-205/5D	Plastic Limit (T 90), %	22
Station	200+55	Plasticity Index (T 90), %	16
Depth	20.0-22.0	Tested By	BBURR



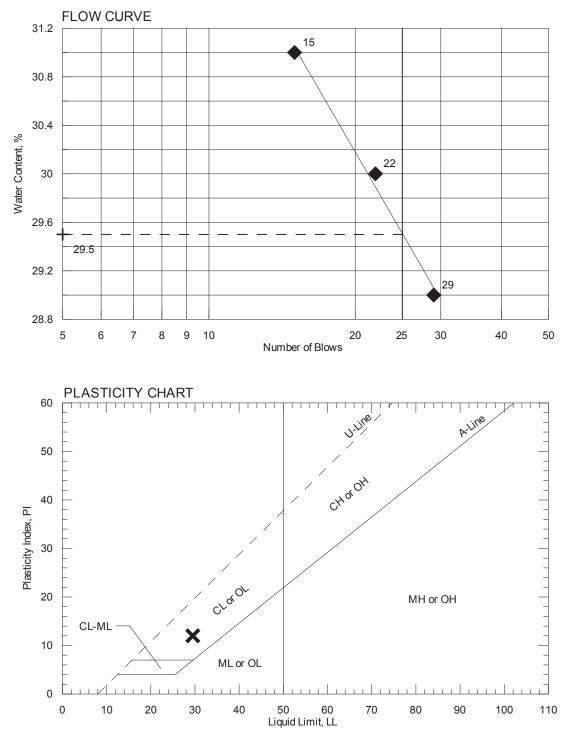
TOWN	Cherryfield, Milbridge	Reference No.	336700
WIN	020405.00	Water Content, %	32.7
Sampled	5/2/2018	Liquid Limit @ 25 blows (T 89), %	39
Boring No./Sample No.	HB-MICH-210/5D	Plastic Limit (T 90), %	21
Station	224+75	Plasticity Index (T 90), %	18
Depth	20.0-22.0	Tested By	BBURR



TOWN	Cherryfield, Milbridge	Reference No.	296335
WIN	020405.00	Water Content, %	23.8
Sampled	5/1/2018	Liquid Limit @ 25 blows (T 89), %	30
Boring No./Sample No.	HB-MICH-215/2D	Plastic Limit (T 90), %	18
Station	352+15	Plasticity Index (T 90), %	12
Depth	5.0-7.0	Tested By	BBURR



TOWN	Cherryfield, Milbridge	Reference No.	296336
WIN	020405.00	Water Content, %	24.2
Sampled	5/1/2018	Liquid Limit @ 25 blows (T 89), %	30
Boring No./Sample No.	HB-MICH-215/3D	Plastic Limit (T 90), %	18
Station	352+15	Plasticity Index (T 90), %	12
Depth	10.0-12.0	Tested By	BBURR



Appendix C

Calculations

Bearing Resistance - Existing Soils:

Part 1 - Service Limit State

Nominal and factored Bearing Resistance - Box Culvert on Silt

Presumptive Bearing Resistance for Service Limit State ONLY

Reference: AASHTO LRFD Bridge Design Specifications 9th Edition 2020 Table C10.6.2.6.1-1 Presumptive Bearing Resistances for Spread Footings at the Service Limit State Modified after US Department of Navy (1982)

Type of Bearing Material: Silt (CL)

Based on N-values, soils are stiff near the bearing elevation

Density In Place: medium stiff to stiff

Bearing Resistance: Ordinary Range (ksf) 2 to 6

Recommended Value of Use: $q_{nom} := 3 \cdot ksf$

Resistance factor at the service limit state = 1.0 (LRFD Article 10.5.5.1)	$\phi_{\text{service bc}} := 1.0$
---	-----------------------------------

 $q_{factored_service_bc} := q_{nom} \cdot \phi_{service_bc}$

 $q_{factored_service_bc} = 3 \cdot ksf$

Note: This bearing resistance is settlement limited (1 inch) and applies only at the service limit state.

Part 2 - Strength Limit State

Nominal and factored Bearing Resistance - Box Culvert on Silt

Reference: AASHTO LRFD Bridge Design Specifications 9th Edition 2020 - Article 10.6.3.1

Assumptions:

1. The box will be founded at ~ Elev 44.7 feet

Bottom of Construction will be 2 feet below box invert $D_{footing} \coloneqq 2.0 \cdot ft$

2. Assumed parameters for fill soils:

Saturated unit weight:	$\gamma_s := 125 \cdot pcf$
Internal friction angle:	$\varphi_{ns} \coloneqq 32 \cdot deg$
Undrained shear strength:	$c_{ns} := 0 \cdot psf$

3. Box Culvert parameters

Width of box culvert, B	$B_{box} := 13 \cdot ft$
Length of box culvert, L	$L_{box} := 136 \cdot ft$

Nominal Bearing Resistance per LRFD Equation 10.6.3.1.2a-1

 $q_n = cN_{cm} + \gamma D_fN_{am}C_{wa} + 0.5\gamma BN_{vm}C_{wv}$

Bearing Capacity Factors - LRFD Table 10.6.3.1.2a-1

For
$$\phi$$
=32 deg N_c := 35.5 N_a := 23.2 N_y := 30.2

Shape Correction Factors LRFD Table 10.6.3.1.2a.-3

for $\phi = 32$ degrees

$$s_{c} := 1 + \left(\frac{B_{box}}{L_{box}}\right) \left(\frac{N_{q}}{N_{c}}\right) \qquad s_{c} = 1.06$$
$$s_{\gamma} := 1 - 0.4 \left(\frac{B_{box}}{L_{box}}\right) \qquad s_{\gamma} = 0.9618$$

$$s_q \coloneqq 1 + \left(\frac{B_{box}}{L_{box}} \cdot tan(\phi_{ns})\right) \qquad s_q = 1.06$$

Load Inclination Factors: Assume all are 1.0 (LRFD Article C10.6.3.1.2a)

 $i_q := 1.0$ $i_\gamma := 1.0$ $i_c := 1.0$

 $d_q := 1 + 2 \cdot \tan(\phi_{ns}) \cdot \left(1 - \sin(\phi_{ns})\right)^2 \cdot \tan\left(\frac{D_{\text{footing}}}{B_{\text{box}}}\right)^{-1} \qquad \qquad d_q = 2.7809$ Depth Correction LRFD Eq. Factor 10.6.3.1.2a-10

$N_{cm} := N_c \cdot s_c \cdot i_c$	$N_{cm} = 37.7176$	LRFD Eq. 10.6.3.1.2a-2
$N_{qm} \coloneqq N_q \cdot s_q \cdot d_q \cdot i_q$	$N_{qm} = 68.37$	LRFD Eq. 10.6.3.1.2a-3
$N_{\gamma m} \coloneqq N_{\gamma} \cdot s_{\gamma} \cdot i_{\gamma}$	$N_{\gamma m} = 29.05$	LRFD Eq. 10.6.3.1.2a-4

Coefficients for Groundwater Depths LRFD Table 10.6.3.1.2a-2

 $\label{eq:constraint} \mbox{Depth the water table:} \quad D_w \coloneqq 0 \cdot ft \qquad \qquad C_{wq} \coloneqq 0.5 \qquad \qquad C_{w\gamma} \coloneqq 0.5$ $q_{nominal} \coloneqq c_{ns} \cdot N_{cm} + \gamma_s \cdot D_{footing} \cdot N_{qm} \cdot C_{wq} + 0.5 (\gamma_s) B_{box} \cdot N_{\gamma m} \cdot C_{w\gamma}$

 $q_{nominal} = 20.3 \cdot ksf$

Factored Bearing Resistance for Strength Limit State

Resistance Factor: LRFD Table 10.5.5.2.2-1 $\phi_{\rm b} := 0.45$

 $q_{factored} \coloneqq q_{nominal} \cdot \varphi_b$

 $q_{factored} = 9.2 \cdot ksf$

Recommend a limiting factored bearing resistance of 9.0 ksf for the Strength Limit State.

Modulus of Subgrade Reaction:

Reference: Foundation Analysis and Design 5th Edition JE Bowles Section 9-6

Width of box culvert, B		$B_{box} = 13 \text{ ft}$		
Length of box culvert, L	-	$L_{box} = 136 \text{ ft}$		
Thickness of box culve	rt, t	$t_{box} \coloneqq 12 \cdot in$	assumed	
Depth of box, D		$D_{box} := 19.3 \cdot ft$		
Bearing Resistance:		q _{factored_service_bc} :	$= 3 \cdot ksf$	Calculated above
Modulus of Elasticity:		•		e values for Silt (stiff) ilt, ranges from 40 - 420 ksf

Use Modulus of Elasticity, Es $E_s := 200 \cdot ksf$

Poisson's Ratio: Site conditions at bearing elevation are Silt. Use values for Silt. From Bowles Table 2-7 Poisson's Ration µ for Silt ranges from 0.3 - 0.35

Analyze corner:

Take H as 5*B as recommended in Bowles Chapter 5

$$\begin{split} H_{inf} &\coloneqq \frac{5 \cdot B_{box}}{B_{box}} & H_{inf} = 5 \quad \text{N in Table 5-2} \\ \hline \\ \frac{L_{box}}{B_{box}} &= 10.4615 & \text{M in Table 5-2} \\ \hline \\ \hline \\ H_{inf} &= 5 \quad \text{N in Table 5-2} \\ \hline \\ I_1 &\coloneqq 0.534 \\ I_2 &\coloneqq 0.140 \\ \hline \\ \end{bmatrix} \\ \begin{array}{c} \text{From Table 5-2 for N=5 and M=10.5} \\ \text{I}_1 &\coloneqq 0.534 \\ I_2 &\coloneqq 0.140 \\ \hline \\ \end{array} \end{split}$$

Determine Steinbrenner influence factor - Bowles Section 5-6:

$$I_s \coloneqq I_1 + \left[\frac{1 - (2 \cdot \mu)}{1 - \mu}\right] \cdot I_2 \qquad I_s = 0.605$$

Determine Influence factor for footing depth - Bowles Figure 5-7

Depth ratio:
$$\frac{D_{box}}{B_{box}} = 1.4846$$
 $\frac{L_{box}}{B_{box}} = 10.4615$ $\mu = 0.33$ $I_F := 0.74$

Calculate modulus of subgrade reaction - Bowles Eq. 9-7

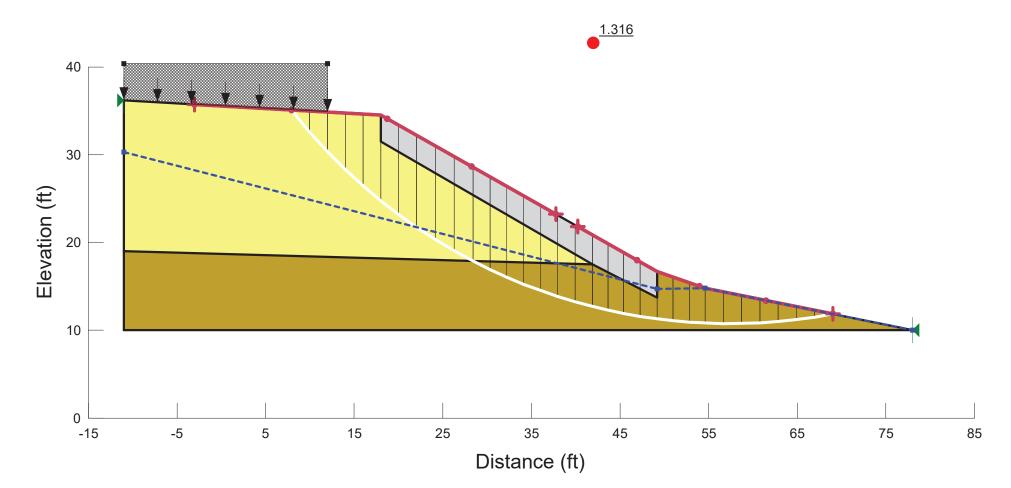
$$k_{s} := \frac{1}{B_{box} \cdot E_{prime_{s}} \cdot I_{s} \cdot I_{F}}$$
Bowles Eq.
9-7

 $k_s = 22 \cdot pci$

Recommend Modulus of Subgrade Reaction of 20 pci

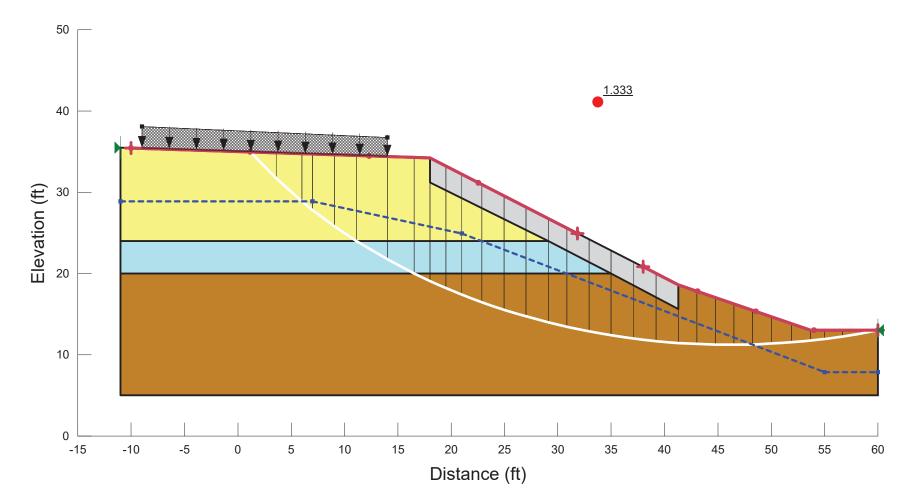
Appendix D

Slope Stability Analyses



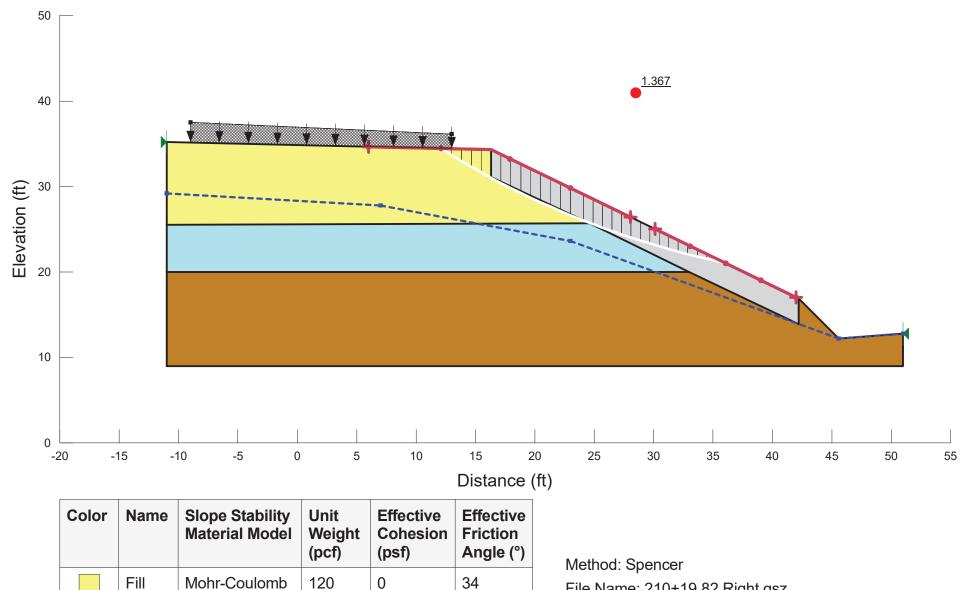
Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)
	Fill	Mohr-Coulomb	120	0	34
	Riprap	Mohr-Coulomb	145	0	42
	Till	Mohr-Coulomb	125	0	36

File Name: 209+50 Right.gsz



Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Undrained Shear Strength (psf)	Effective Cohesion (psf)	Effective Friction Angle (°)	
	Fill	Mohr-Coulomb	120		0	35	
	Riprap	Mohr-Coulomb	140		0	42	
	Silt	Undrained (Phi=0)	115	750			
	Till	Mohr-Coulomb	125		0	36	

Method: Spencer File Name: 210+00 Right.gsz



42

0

36

Riprap

Silt

Till

Mohr-Coulomb

Mohr-Coulomb

Mohr-Coulomb

145

115

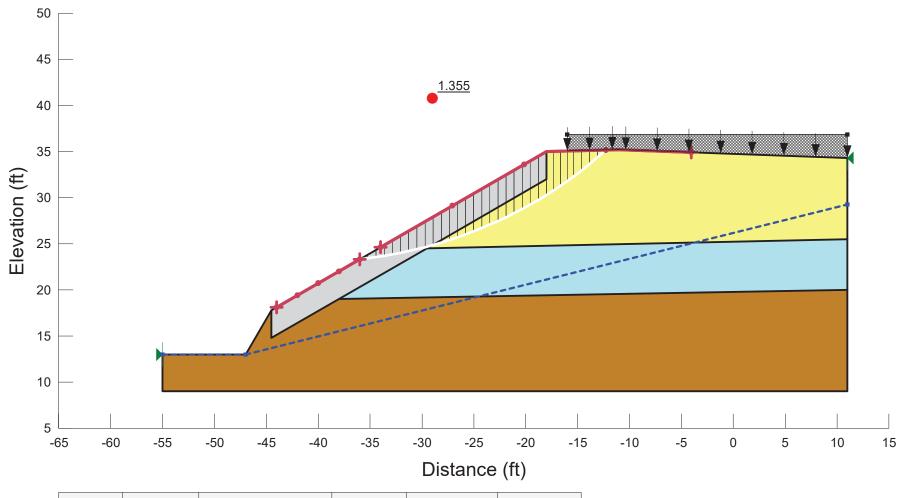
125

10

750

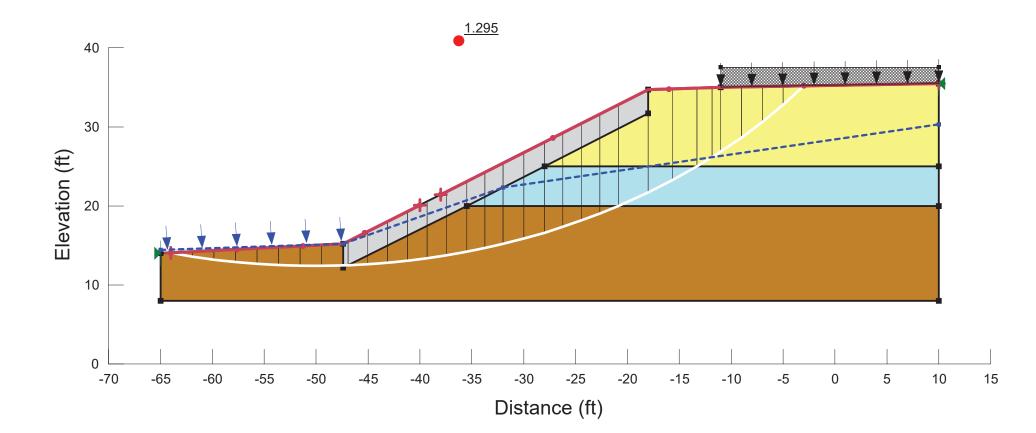
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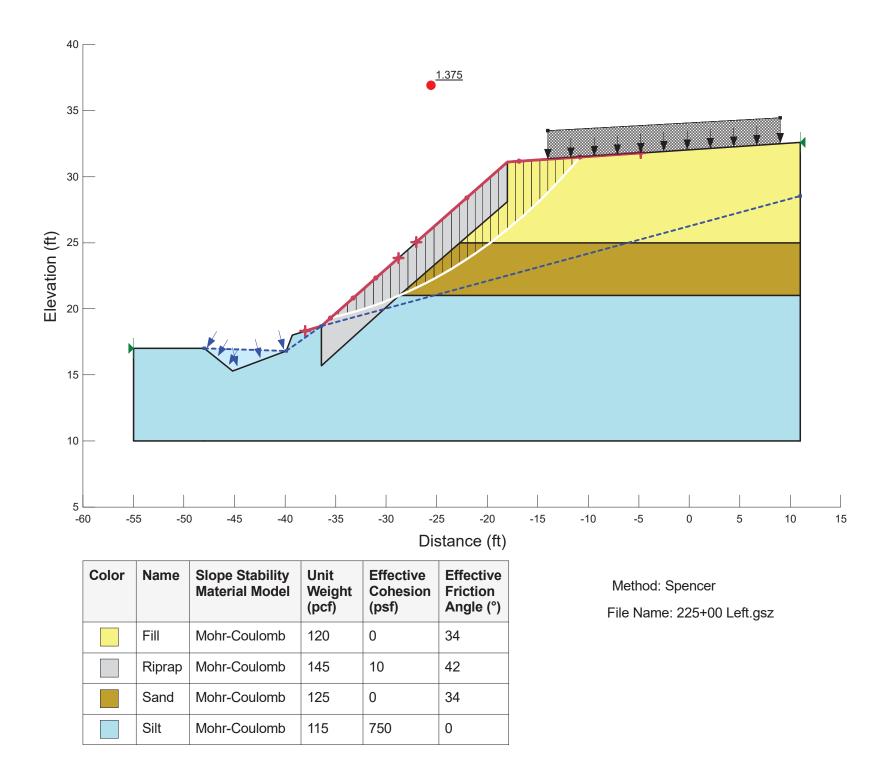
Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)
	Fill	Mohr-Coulomb	125	0	34
	Riprap	Mohr-Coulomb	145	0	42
	Silt/Peat	Mohr-Coulomb	115	750	0
	Till	Mohr-Coulomb	125	0	36

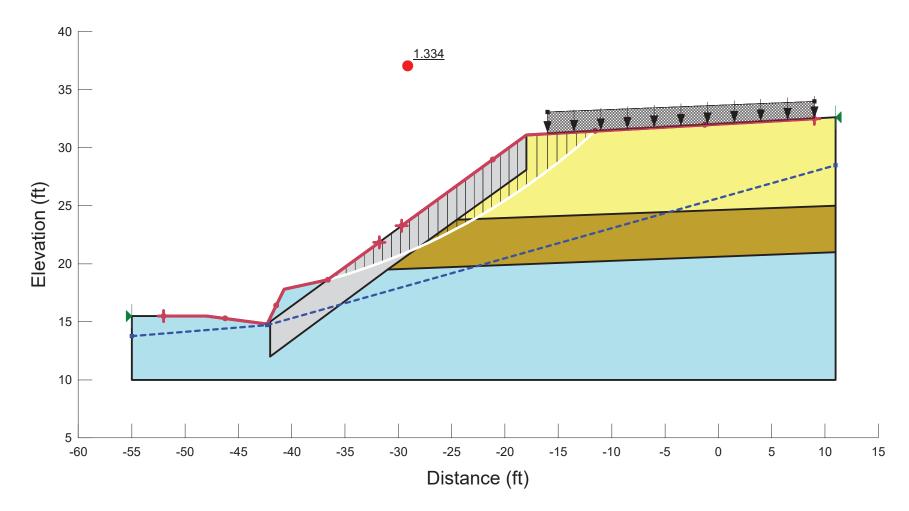
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Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)
	Fill	Mohr-Coulomb	120	0	34
	Riprap	Mohr-Coulomb	145	10	42
	Silt	Mohr-Coulomb	115	750	0
	Till	Mohr-Coulomb	130	0	36

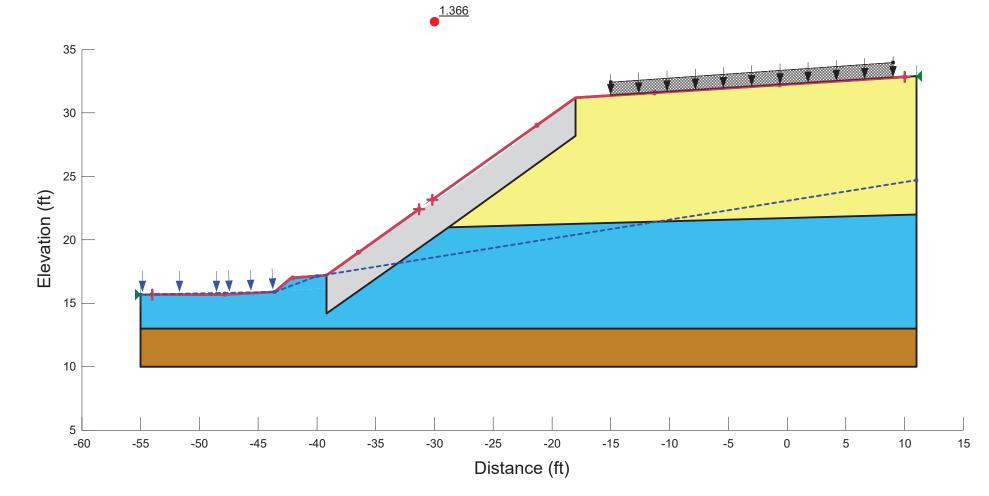
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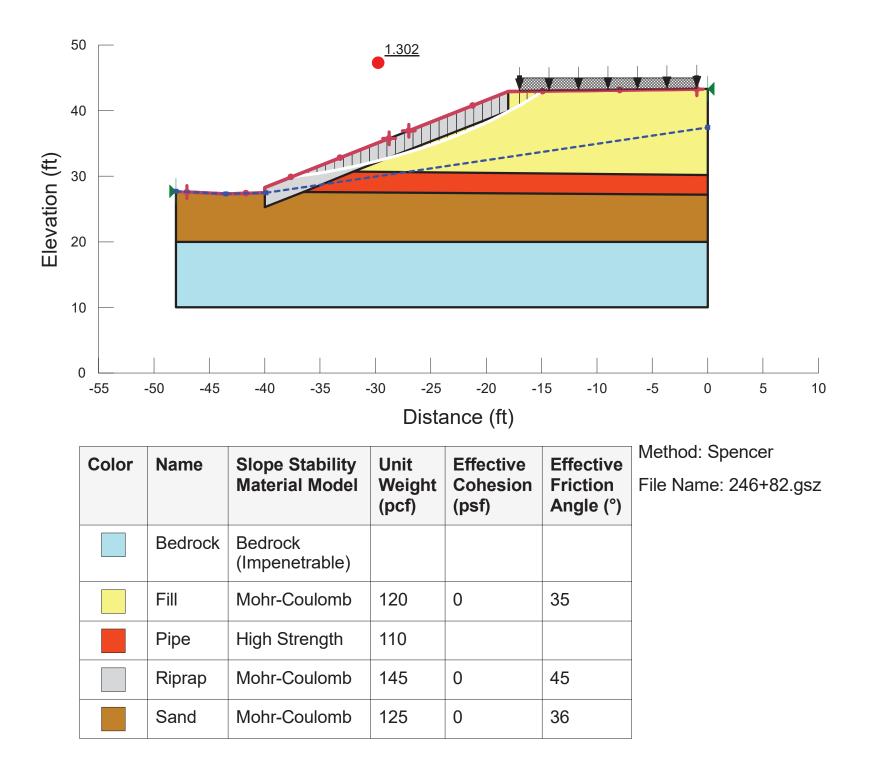
Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)
	Fill	Mohr-Coulomb	120	0	34
	Riprap	Mohr-Coulomb	145	0	42
	Sand	Mohr-Coulomb	125	0	36
	Silt	Mohr-Coulomb	115	750	0

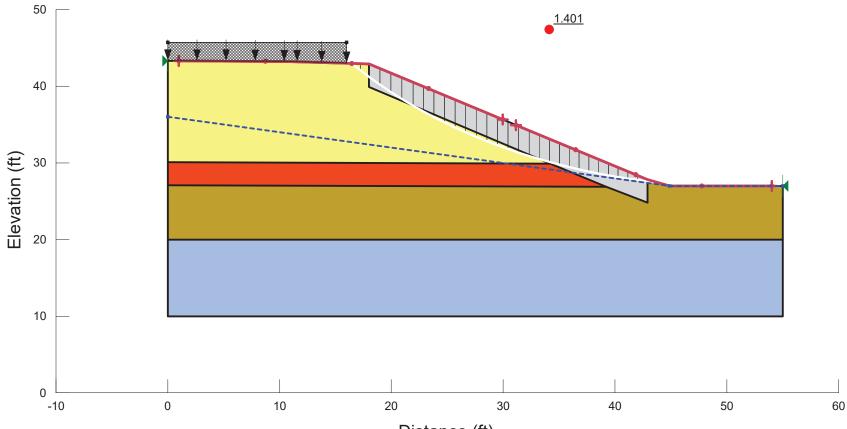
Method: Spencer File Name: 225+03 Left.gsz



Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)
	Fill	Mohr-Coulomb	120	0	34
	Riprap	Mohr-Coulomb	145	0	42
	Silt	Mohr-Coulomb	115	750	0
	Till	Mohr-Coulomb	125	0	36

File Name: 225+50 Left.gsz





Distance (ft)

Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)
	Bedrock	Bedrock (Impenetrable)			
	Fill	Mohr-Coulomb	120	0	34
	Pipe	High Strength	110		
	Riprap	Mohr-Coulomb	145	0	42
	Sand	Mohr-Coulomb	125	0	34

File Name: 246+82 Right.gsz