

GEOTECHNICAL DATA REPORT – FINAL DESIGN (PHASE II)  
ROUTE 141 ROADWAY/SLOPE STABILIZATION  
MAINEDOT WIN 023012.00  
SWANVILLE, MAINE

by  
Haley & Aldrich, Inc.  
Portland, Maine

for  
Maine Department of Transportation  
Augusta, Maine

File No. 0205290-002  
September 2023





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8 September 2023  
File No. 0205290-002

Maine Department of Transportation  
State House Station 16  
Augusta, Maine 04333-0016

Attention: Kate Maguire, P.E., Senior Geotechnical Engineer  
Cody Russell, P.E., Geotechnical Engineer

Subject: Geotechnical Data Report – Final Design (Phase II)  
Route 141 Roadway/Slope Stabilization  
MaineDOT WIN 023012.00  
Swanville, Maine

Ladies and Gentlemen:

Haley & Aldrich, Inc. (Haley & Aldrich) is pleased to submit this Geotechnical Data Report (GDR) to the Maine Department of Transportation (MaineDOT), which presents the results of recent geotechnical field and laboratory testing programs that were completed in support of the subject project. This GDR has been prepared to provide planning and design level geotechnical data to the project team for use during the design development (DD) and contract document (CD) development phases of the project.

This work was undertaken at your request in accordance with our proposal dated 17 April 2023 and the Project Contract under a Geotechnical Consultant Agreement (MaineDOT WIN 023012.00, GCA No. 20200623000000000766, CSN No. 45034) executed by Mr. Jeff Folsom, P.E. on 25 April 2023.

The intent of this GDR is to compile all known subsurface data that has been collected within and near the project site into a single document that can be referenced by the project team. A report that provides geotechnical design recommendations for stabilizing the roadway and slopes needed to complete the final design and develop CDs for the project will be provided separately, at a later date.

## **Elevation Datum**

Elevations (El.) referenced herein are in feet (ft) and reference the North American Vertical Datum of 1988 (NAVD 88).

## **Project Background**

The project consists of stabilizing portions of existing roadways/slopes located along the eastern edge of Route 141 (roadway), which is generally oriented in the north-south direction and runs along the western side of Swan Lake in Swanville, Maine (refer to Figure 1). Existing site conditions are shown on

Figures 2A through 2E. The location and limits of stabilization areas were previously determined based on the results of work scope completed during the preliminary design phase of the project.

## Geotechnical Field Investigation

A geotechnical field investigation (investigation) was conducted from 15 to 17 May 2023. The scope of the investigation consisted of 11 test borings (borings), designated HB-SWAN-101 through HB-SWAN-111. Boring location data is included in Table I. Additional details of the investigation are as follows:

- Two Haley & Aldrich geologists were present on site to monitor the borings (one geologist for each drill rig), document the soil, rock, and groundwater conditions encountered, and prepare boring logs.
- Soil and rock samples from the borings have been preserved in glass jars and wooden boxes, which are currently located in our storage facility in Portland, Maine and are available for review upon request.
- Borings were drilled through overburden soils and either terminated in soil or in bedrock at depths ranging from approximately 20 to 36 ft below existing ground surface (bgs).
- Drilling was completed using a CME 45C trailer rig and a Diedrich D-50 ATV rig operated by MaineDOT and S.W. Cole Engineering, Inc., respectively.
- The borings were advanced using either solid stem augers or cased-wash drilling methods using a 4-inch (in.) (HW-size) outside diameter (OD) steel casing. Soil samples were collected continuously through in-situ fill soils and at standard, 5-ft intervals thereafter (i.e., in naturally-deposited soils present below the fill) by driving a 1-3/8-in. inside diameter (ID) split-spoon sampler with a 140-lb hammer dropped from a height of 30 in., as indicated on the boring logs.
- Soil samples collected in the in-situ fill were screened using a photoionization detector (PID) to determine the presence of volatile organic compounds (VOCs). The PID readings of VOCs were measured during drilling operations and are noted on the boring logs. Olfactory evidence of the presence of petroleum like odors was observed in borings HB-SWAN-101, HB-SWAN-102, and HB-SWAN-109, as noted on the boring logs. Visual evidence of contamination was not noted in any of the borings.
- The number of hammer blows required to advance the sampler through each 6-in. interval was recorded and is provided on the logs. The uncorrected Standard Penetration Test (SPT) N-value (N-uncorrected) is defined as the total number of blows required to advance the sampler through the middle 12 in. of the 24-in. sampling interval (24-in. long split-spoon sampler). The drill rigs were equipped with calibrated automatic hammers with efficiency factors of 0.906 (CME 45C trailer rig) and 0.91 (Diedrich D-50 ATV rig). The energy-corrected SPT N-value ( $N_{60}$ ) is equal to the uncorrected N-value multiplied by the hammer efficiency factor (0.906 or 0.91) and divided by 0.6 (i.e., 60 percent theoretical hammer efficiency). The raw blow count data and the energy corrected SPT-N values are shown on the boring logs in Appendix A.
- Borings HB-SWAN-108 and HB-SWAN-109 were advanced approximately 2.6 to 5 ft into bedrock using a roller cone and/or a 2-in. (NQ-size) or 1.875-in. (NX-size) ID diamond-tipped core barrel.

## Subsurface Conditions

The subsurface conditions encountered at the site generally consist of in-situ fill soils overlying organic deposits, glaciomarine deposits, glacial till, and bedrock. A general description of soil, bedrock, and groundwater conditions encountered in the borings is provided below. Additional details are provided on the individual boring logs and in rock core photographs in Appendix A. In addition, a summary of the soil units and strata thicknesses encountered in each boring is provided in Table I.

Please note that soil descriptions provided on the boring logs do not represent actual field conditions other than at specific boring locations. Actual conditions encountered between boring locations will vary from those described herein.

### SOIL CONDITIONS

A summary of the soil strata thicknesses and conditions encountered in the borings drilled are summarized below and in Table II.

| Geologic Unit        | Approximate Encountered Thickness (ft) | Generalized Description                                                                                                                                                                                                                             |
|----------------------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fill                 | 0.9 to 15.0                            | Loose to very dense, fine to coarse SAND with varying amounts of silt and gravel.<br><i>(encountered in each boring)</i>                                                                                                                            |
| Organic Deposit      | 1.6                                    | Stiff, ORGANIC SOIL, trace fine sand.<br><i>(encountered in boring HB-SWAN-109 only)</i>                                                                                                                                                            |
| Glaciomarine Deposit | 6.0 to >28.0                           | Very soft to stiff, Clayey SILT to Silty CLAY with varying amounts of sand and gravel; loose to very dense SAND with varying amounts of silt and gravel; loose to medium dense Sandy GRAVEL with trace silt.<br><i>(encountered in each boring)</i> |
| Glacial Till         | 3.0 to >11.0                           | Medium dense to very dense, fine to coarse SAND with various amounts of silt and gravel; dense to very dense, fine to coarse GRAVEL with various amounts of silt and sand.<br><i>(encountered in borings HB-SWAN-103 through HB-SWAN-109)</i>       |
| Bedrock              |                                        | Top of bedrock surface encountered between approximately (El.) 182 and 199.<br><i>(bedrock was cored in borings HB-SWAN-108 and HB-SWAN-109; boring HB-SWAN-103 encountered refusal on probable bedrock)</i>                                        |

### BEDROCK CONDITIONS

Approximately 2.6 to 5 ft of bedrock was obtained in borings HB-SWAN-108 and HB-SWAN-109, respectively. Boring HB-SWAN-103 encountered split-spoon refusal on probable bedrock at approximately 19.8 ft bgs (approximately El. 199.1). Where encountered, the top of bedrock surface varied between approximately 17 and 31 ft bgs (approximately El. 199 and El. 182). The sampled and recovered bedrock generally consists of hard to very hard, fresh to slightly weathered GRANITE.

Rock quality designation (RQD) is a common parameter that is used to help assess the competency of sampled bedrock. RQD is defined as the sum of pieces of recovered bedrock greater than 4 in. in length divided by the total length of the core run. RQD values for bedrock encountered and sampled at the site ranged from 35 to 85 percent (average of 60 percent).

More detailed information on the sampled and recovered bedrock is provided on the boring logs, rock core photographs in Appendix A, and in the Table III.

## GROUNDWATER CONDITIONS

Groundwater levels were recorded between approximately 8 to 15 ft bgs (El. 205 to El. 198) based on measurements made during drilling, as shown in the boring logs in Appendix A. Please note that these readings were taken immediately after drilling was completed in each borehole and are likely not indicative of static water levels. Please also note that observation wells were not installed in any of the borings so variation in static water levels have not been determined.

Based on email correspondence with MaineDOT and at meeting at MaineDOT on 26 July 2023, it is our understanding that the high and low water elevations for Swan Lake are approximately El. 200 and El. 196, respectively.

## Geotechnical Laboratory Testing

A geotechnical laboratory testing program was undertaken on representative soil and bedrock samples collected during the investigation to aid in soil classification/identification and help determine soil/rock physical and strength properties needed to complete geotechnical engineering evaluations. In general, laboratory testing was performed on disturbed soil samples collected during SPT sampling and on cored bedrock samples. Laboratory testing was performed by GeoTesting Express, LLC of Acton, Massachusetts and was performed in accordance with applicable ASTM International (ASTM) testing procedures.

The laboratory testing program included performing nine grain size analyses, five Atterberg Limit tests, and two compressive strength rock tests with elastic moduli measurements. The laboratory test results are provided in Appendix B. A summary of the laboratory test results is provided below.

| Grain Size Analysis (ASTM D6913/D7928) |                 |                   |                                      |                      |
|----------------------------------------|-----------------|-------------------|--------------------------------------|----------------------|
| Boring No.                             | Soil Sample No. | Sample Depth (ft) | Percent Finer than No. 200 Sieve (%) | Geologic Deposit     |
| HB-SWAN-101                            | 4D              | 8 to 10           | 87.3                                 | Glaciomarine Deposit |
| HB-SWAN-102                            | 6D              | 12 to 14          | 69.2                                 | Glaciomarine Deposit |
| HB-SWAN-103                            | 3D              | 5 to 7            | 76.0                                 | Glaciomarine Deposit |
| HB-SWAN-104                            | 5D              | 9 to 11           | 99.5                                 | Glaciomarine Deposit |
| HB-SWAN-105                            | 4D              | 7 to 9            | 37.0                                 | Glaciomarine Deposit |
| HB-SWAN-106                            | 4D              | 7 to 9            | 63.0                                 | Glaciomarine Deposit |
| HB-SWAN-108                            | 3D              | 5 to 7            | 88.1                                 | Glaciomarine Deposit |
| HB-SWAN-109                            | 7D              | 20 to 22          | 98.9                                 | Glaciomarine Deposit |
| HB-SWAN-111                            | 8D              | 15 to 17          | 10.8                                 | Glaciomarine Deposit |

| <b>Atterberg Limits (ASTM D4318)</b> |                        |                          |                             |                     |                      |                         |                                                  |                         |
|--------------------------------------|------------------------|--------------------------|-----------------------------|---------------------|----------------------|-------------------------|--------------------------------------------------|-------------------------|
| <b>Boring No.</b>                    | <b>Soil Sample No.</b> | <b>Sample Depth (ft)</b> | <b>Moisture Content (%)</b> | <b>Liquid Limit</b> | <b>Plastic Limit</b> | <b>Plasticity Index</b> | <b>Unified Soil Classification System Symbol</b> | <b>Geologic Deposit</b> |
| HB-SWAN-101                          | 5D                     | 10.0 to 12.0             | 31                          | 29                  | 20                   | 9                       | CL                                               | Glaciomarine Deposit    |
| HB-SWAN-102                          | 7D                     | 14.0 to 16.0             | 26                          | 33                  | 19                   | 14                      | CL                                               | Glaciomarine Deposit    |
| HB-SWAN-104                          | 6D                     | 11.0 to 13.0             | 28                          | 30                  | 21                   | 9                       | CL                                               | Glaciomarine Deposit    |
| HB-SWAN-105                          | 3D                     | 5.0 to 7.0               | 29                          | 32                  | 24                   | 8                       | ML                                               | Glaciomarine Deposit    |
| HB-SWAN-109                          | 2D                     | 10.0 to 12.0             | 38                          | 44                  | 35                   | 9                       | OL                                               | Organic Deposit         |

| <b>Bedrock Core Testing (ASTM D7012 – Method D)</b> |                         |                          |                     |                                                          |                              |
|-----------------------------------------------------|-------------------------|--------------------------|---------------------|----------------------------------------------------------|------------------------------|
| <b>Boring No.</b>                                   | <b>Bedrock Core No.</b> | <b>Sample Depth (ft)</b> | <b>Bedrock Type</b> | <b>Peak Compressive Stress (kips per square ft; ksf)</b> | <b>Young's Modulus (ksf)</b> |
| HB-SWAN-108                                         | R1                      | 18.61 to 18.98           | GRANITE             | 2,115                                                    | 322,560 to 351,360           |
| HB-SWAN-109                                         | R1                      | 31.47 to 31.84           | GRANITE             | 3,239                                                    | 381,600 to 584,640           |

## Limitations

This report has been prepared for the exclusive use of MaineDOT relative to the Route 141 Slope Stabilization project in Swanville, Maine. There are no intended beneficiaries other than the MaineDOT. Haley & Aldrich shall owe no duty whatsoever to any other person or entity on account of the Agreement or the report. Use of this report by any person or entity other than MaineDOT for any purpose whatsoever is expressly forbidden unless such other person or entity obtains written authorization from MaineDOT and from Haley & Aldrich. Use of this report by such other person or entity without the written authorization MaineDOT and Haley & Aldrich shall be at such other person's or entities sole risk and shall be without legal exposure or liability to Haley & Aldrich.

Use of this report by any person or entity, including by MaineDOT, for a purpose other than relative to the Route 141 Slope Stabilization project in Swanville, Maine is expressly prohibited unless such person or entity obtains written authorization from Haley & Aldrich indicating that the report is adequate for such other use.

The information provided herein is based, in part, upon the data obtained from the referenced subsurface explorations. The nature and extent of variations between explorations may not become evident until construction. If variations then appear, it may be necessary to re-evaluate the information presented in this report.

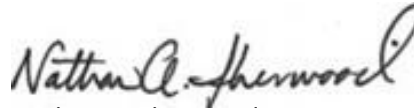
## Closure

We appreciate the opportunity to provide geotechnical consulting services on this project. Please do not hesitate to call if you have any questions or comments.

Sincerely yours,  
**HALEY & ALDRICH, INC.**



Eric M. Hunstein, E.I.  
Staff Geotechnical Engineer



Nathan A. Sherwood, P.E.  
Senior Project Manager



Wayne A. Chadbourne, P.E.  
Principal

### Enclosures:

- Table I – Subsurface Exploration Location Data
- Table II – Subsurface Exploration Subsurface Data
- Table III – Subsurface Exploration Bedrock Core Data
- Figure 1 – Project Locus
- Figures 2A through 2E – Site and Subsurface Exploration Location Plan
- Appendix A – Test Boring Logs and Rock Core Photographs
- Appendix B – Geotechnical Laboratory Test Results

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## TABLES

TABLE I

## SUBSURFACE EXPLORATION LOCATION DATA

ROUTE 141 SLOPE STABILIZATION

MAINEDOT WIN NO. 023012.00

SWANVILLE, MAINE

FILE NO. 0205290-002

| Boring No. <sup>1</sup> | Ground Surface Elevation (ft) <sup>2</sup> | Station <sup>3</sup> | Offset Distance (ft) and Direction <sup>4</sup> |
|-------------------------|--------------------------------------------|----------------------|-------------------------------------------------|
| HB-SWAN-101             | 211.2                                      | 102+70               | 6.5 E                                           |
| HB-SWAN-102             | 219.4                                      | 104+20               | 6.5 E                                           |
| HB-SWAN-103             | 218.9                                      | 105+85               | 6.0 E                                           |
| HB-SWAN-104             | 213.0                                      | 107+10               | 6.0 E                                           |
| HB-SWAN-105             | 210.8                                      | 107+75               | 5.5 E                                           |
| HB-SWAN-106             | 211.2                                      | 108+90               | 6.0 E                                           |
| HB-SWAN-107             | 208.1                                      | 120+80               | 6.0 E                                           |
| HB-SWAN-108             | 209.9                                      | 122+50               | 6.0 E                                           |
| HB-SWAN-109             | 213.0                                      | 137+65               | 7.5 E                                           |
| HB-SWAN-110             | 214.3                                      | 139+00               | 6.0 E                                           |
| HB-SWAN-111             | 216.0                                      | 139+60               | 6.0 E                                           |

## NOTES:

<sup>1</sup> Boring locations are shown on Figures 2A through 2E, Site and Subsurface Exploration Location Plan.<sup>2</sup> Ground surface elevations at test boring locations were determined in the field by MaineDOT using GPS survey equipment, are measured in feet, and reference the North American Vertical Datum of 1988 (NAVD 88).<sup>3</sup> Station and offset information shown is approximate and is based on information provided by MaineDOT.<sup>4</sup> E = east of roadway centerline; ft = feet.

|              | Individual | Date      |
|--------------|------------|-----------|
| Prepared By: | EMH        | 8/3/2023  |
| Checked By:  | NAS        | 8/8/2023  |
| Reviewed By: | WAC        | 8/22/2023 |

| Boring<br>No. <sup>1</sup> | Ground<br>Surface<br>Elevation <sup>2</sup><br>(ft) | Stratigraphy Data <sup>3</sup> |                         |                   |                         |                         |                   |                         |                         |                   |                         |                         |                   |                         |                         | Bottom of<br>Exploration Depth<br>(ft) | Elevation of Bottom<br>of Exploration <sup>2</sup> (ft) |
|----------------------------|-----------------------------------------------------|--------------------------------|-------------------------|-------------------|-------------------------|-------------------------|-------------------|-------------------------|-------------------------|-------------------|-------------------------|-------------------------|-------------------|-------------------------|-------------------------|----------------------------------------|---------------------------------------------------------|
|                            |                                                     | Fill <sup>4,5</sup>            |                         |                   | Organic Deposit         |                         |                   | Glaciomarine Deposit    |                         |                   | Glacial Till            |                         |                   | Bedrock                 |                         |                                        |                                                         |
|                            |                                                     | Depth to<br>Top<br>(ft)        | Elev. of<br>Top<br>(ft) | Thickness<br>(ft) | Depth to<br>Top<br>(ft) | Elev. of<br>Top<br>(ft) | Thickness<br>(ft) | Depth to<br>Top<br>(ft) | Elev. of<br>Top<br>(ft) | Thickness<br>(ft) | Depth to<br>Top<br>(ft) | Elev. of<br>Top<br>(ft) | Thickness<br>(ft) | Depth to<br>Top<br>(ft) | Elev. of<br>Top<br>(ft) |                                        |                                                         |
| HB-SWAN-101                | 211.2                                               | 0.0                            | 211.2                   | 1.6               | NE                      | NE                      | NE                | 1.6                     | 209.6                   | > 18.4            | --                      | --                      | --                | --                      | --                      | 20.0                                   | 191.2                                                   |
| HB-SWAN-102                | 219.4                                               | 0.0                            | 219.4                   | 7.6               | NE                      | NE                      | NE                | 7.6                     | 211.8                   | > 13.4            | --                      | --                      | --                | --                      | --                      | 21.0                                   | 198.4                                                   |
| HB-SWAN-103                | 218.9                                               | 0.0                            | 218.9                   | 0.9               | NE                      | NE                      | NE                | 0.9                     | 218.0                   | 15.6              | 16.5                    | 202.4                   | 3.3               | 19.8                    | 199.1                   | 20.5                                   | 198.4                                                   |
| HB-SWAN-104                | 213.0                                               | 0.0                            | 213.0                   | 3.5               | NE                      | NE                      | NE                | 3.5                     | 209.5                   | 11.8              | 15.3                    | 197.7                   | > 5.7             | --                      | --                      | 21.0                                   | 192.0                                                   |
| HB-SWAN-105                | 210.8                                               | 0.0                            | 210.8                   | 3.0               | NE                      | NE                      | NE                | 3.0                     | 207.8                   | 6.0               | 9.0                     | 201.8                   | > 11.0            | --                      | --                      | 20.0                                   | 190.8                                                   |
| HB-SWAN-106                | 211.2                                               | 0.0                            | 211.2                   | 3.0               | NE                      | NE                      | NE                | 3.0                     | 208.2                   | 10.0              | 13.0                    | 198.2                   | > 9.0             | --                      | --                      | 20.0                                   | 191.2                                                   |
| HB-SWAN-107                | 208.1                                               | 0.0                            | 208.1                   | 3.0               | NE                      | NE                      | NE                | 3.0                     | 205.1                   | 11.5              | 14.5                    | 193.6                   | > 6.5             | --                      | --                      | 21.0                                   | 187.1                                                   |
| HB-SWAN-108                | 209.9                                               | 0.0                            | 209.9                   | 3.0               | NE                      | NE                      | NE                | 3.0                     | 206.9                   | 10.0              | 13.0                    | 196.9                   | 3.7               | 16.7                    | 193.2                   | 19.6                                   | 190.3                                                   |
| HB-SWAN-109                | 213.0                                               | 0.0                            | 213.0                   | 9.6               | 9.6                     | 203.4                   | 1.6               | 11.2                    | 201.8                   | 17.0              | 28.2                    | 184.8                   | 3.0               | 31.2                    | 181.8                   | 36.2                                   | 176.8                                                   |
| HB-SWAN-110                | 214.3                                               | 0.0                            | 214.3                   | 7.0               | NE                      | NE                      | NE                | 7.0                     | 207.3                   | > 28.0            | --                      | --                      | --                | --                      | --                      | 35.0                                   | 179.3                                                   |
| HB-SWAN-111                | 216.0                                               | 0.0                            | 216.0                   | 15.0              | NE                      | NE                      | NE                | 15.0                    | 201.0                   | > 20.0            | --                      | --                      | --                | --                      | --                      | 35.0                                   | 181.0                                                   |

NOTES:

<sup>1</sup> Boring locations are shown on Figures 2A through 2E, Site and Subsurface Exploration Location Plan.

<sup>2</sup> Ground surface elevations at boring locations were surveyed by MaineDOT, are measured in feet (ft), and reference the North American Vertical Datum of 1988 (NAVD 88).

<sup>3</sup> "NE" indicates stratum was not encountered in the boring; "> 18.4" indicates total thickness of stratum is greater than value shown; "--" indicates presence of stratum unknown.

<sup>4</sup> Bituminous concrete was encountered in the upper 0.9 ft to 1.3 ft of each boring.

<sup>5</sup> Boulders were encountered in the existing fill in boring HB-SWAN-109 from 1.8 to 6.4 ft and 6.8 to 9.6 ft.

|              |            |           |
|--------------|------------|-----------|
|              | Individual | Date      |
| Prepared By: | EMH        | 8/3/2023  |
| Checked By:  | NAS        | 8/8/2023  |
| Reviewed By: | WAC        | 8/22/2023 |

| Boring No. <sup>1</sup> | Estimated Ground Surface Elevation <sup>2</sup> (ft) | Bedrock Core Diameter (in.) | Run |                                 |        |          |                   | Total Core Recovery <sup>3</sup> |     | Rock Quality Designation <sup>4,5</sup> |             | Physical Rock Parameters |                          | Lithologic, Rock Mass, and Discontinuity Description                                                                                                                                                                 |
|-------------------------|------------------------------------------------------|-----------------------------|-----|---------------------------------|--------|----------|-------------------|----------------------------------|-----|-----------------------------------------|-------------|--------------------------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         |                                                      |                             | No. | Depth Below Ground Surface (ft) |        |          | Total Length (ft) | Recovered Length (ft)            | %   | %                                       | Designation | Weathering               | Estimated Field Strength |                                                                                                                                                                                                                      |
|                         |                                                      |                             |     | Top                             | Bottom | Midpoint |                   |                                  |     |                                         |             |                          |                          |                                                                                                                                                                                                                      |
| HB-SWAN-108             | 209.9                                                | NQ (2-in.)                  | R1  | 17.0                            | 19.6   | 18.3     | 2.6               | 1.6                              | 61% | 35%                                     | Poor        | Slightly                 | Very hard                | Grey, medium to coarse grained GRANITE. Horizontal to low angle joints, close to moderately close, tight, quartz veins.                                                                                              |
| HB-SWAN-109             | 213.0                                                | NQ (2-in.)                  | R1  | 31.2                            | 36.2   | 33.7     | 5.0               | 4.3                              | 87% | 85%                                     | Good        | Fresh                    | Hard                     | Grey to white, medium to coarse-grained, porphyritic Biotite GRANITE. Low angle joints, wide, open, infilled joint indicated by drilling wash, light brown, severely weathered, moderately discolored joint surface. |

NOTES:  
<sup>1</sup> Boring locations are shown on Figures 2A through 2E, Site and Subsurface Exploration Location Plan.  
<sup>2</sup> Ground surface elevations at boring locations were surveyed by MaineDOT, are measured in feet (ft), and reference the North American Vertical Datum of 1988 (NAVD 88).  
<sup>3</sup> Total core recovery is the length of core recovered divided by the length of the run.  
<sup>4</sup> RQD = rock quality designation. RQD is the total length of intact, full-diameter core pieces recovered with a length greater than or equal to twice the core diameter (i.e., length of at least 4 in.) measured along the core axis.  
The percent RQD is the total length of RQD measured versus the run length. Note that vertical discontinuities are not included in determination of RQD.  
<sup>5</sup> Designation based on RQD in accordance with MaineDOT Geotechnical Section "Key to Soil and Rock Descriptions and Terms" Field Identification Information.

|              |            |           |
|--------------|------------|-----------|
|              | Individual | Date      |
| Prepared By: | EMH        | 8/3/2023  |
| Checked By:  | NAS        | 8/8/2023  |
| Reviewed By: | WAC        | 8/22/2023 |

## FIGURES

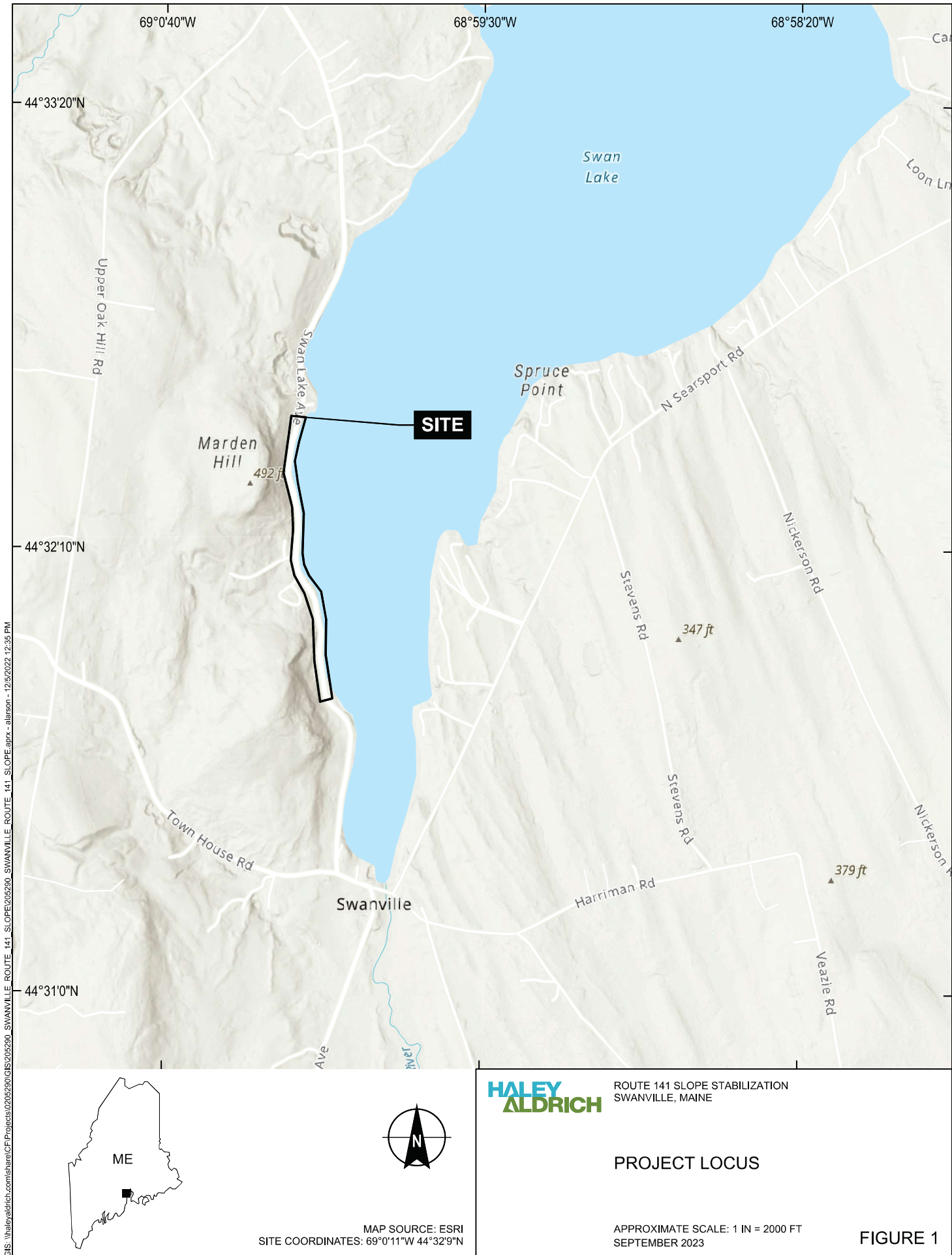
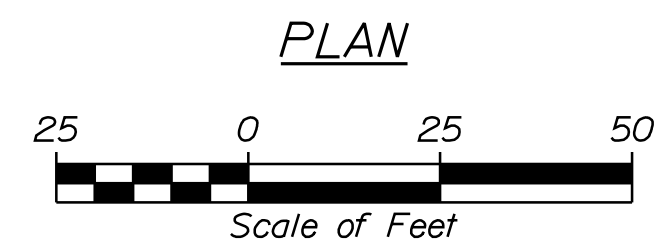
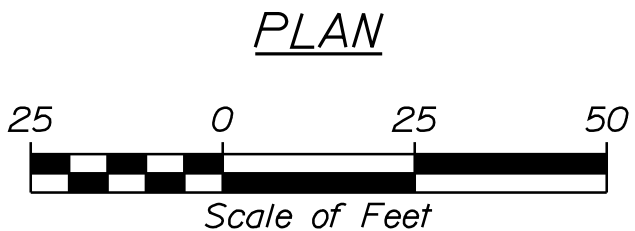
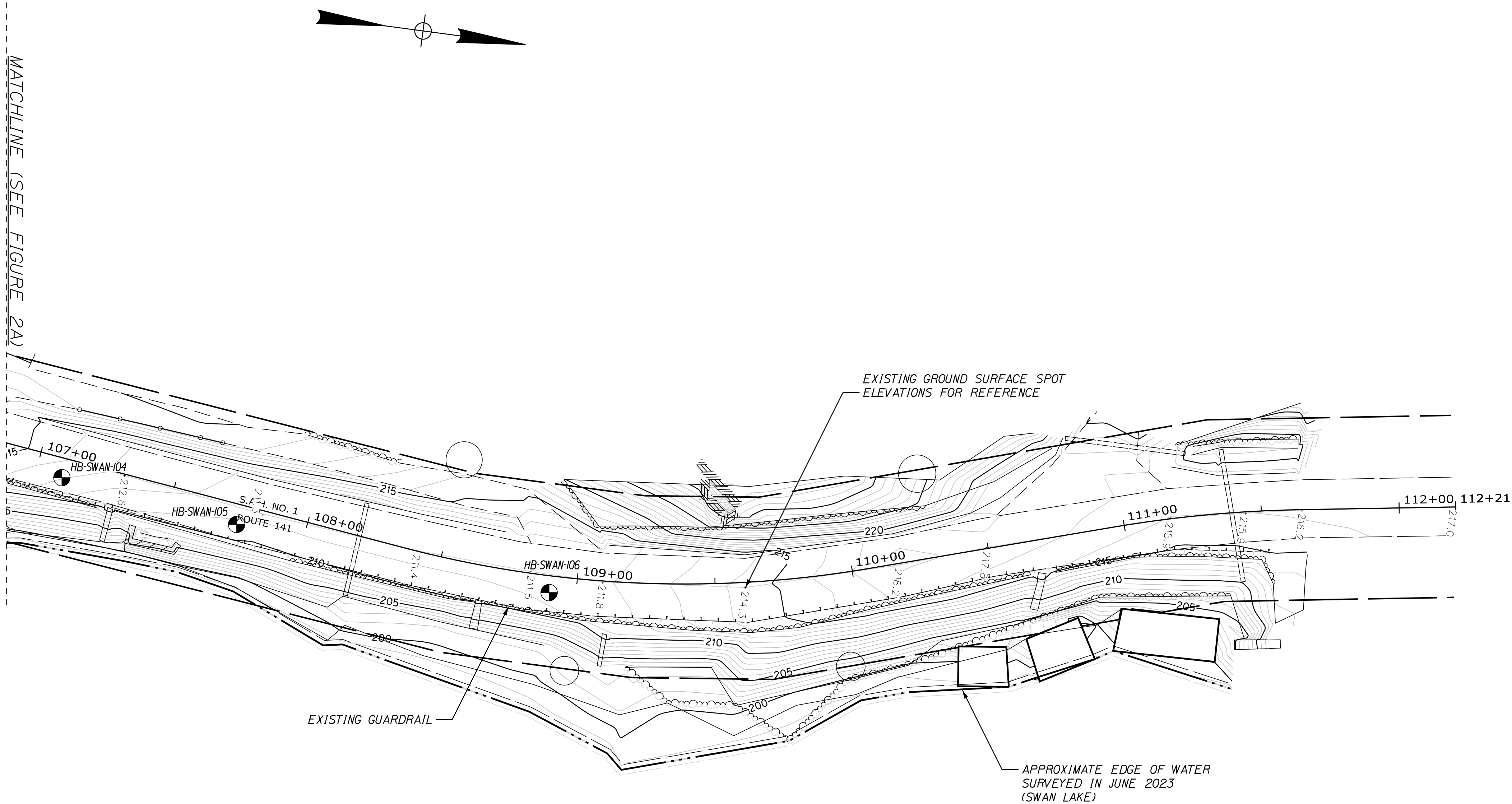


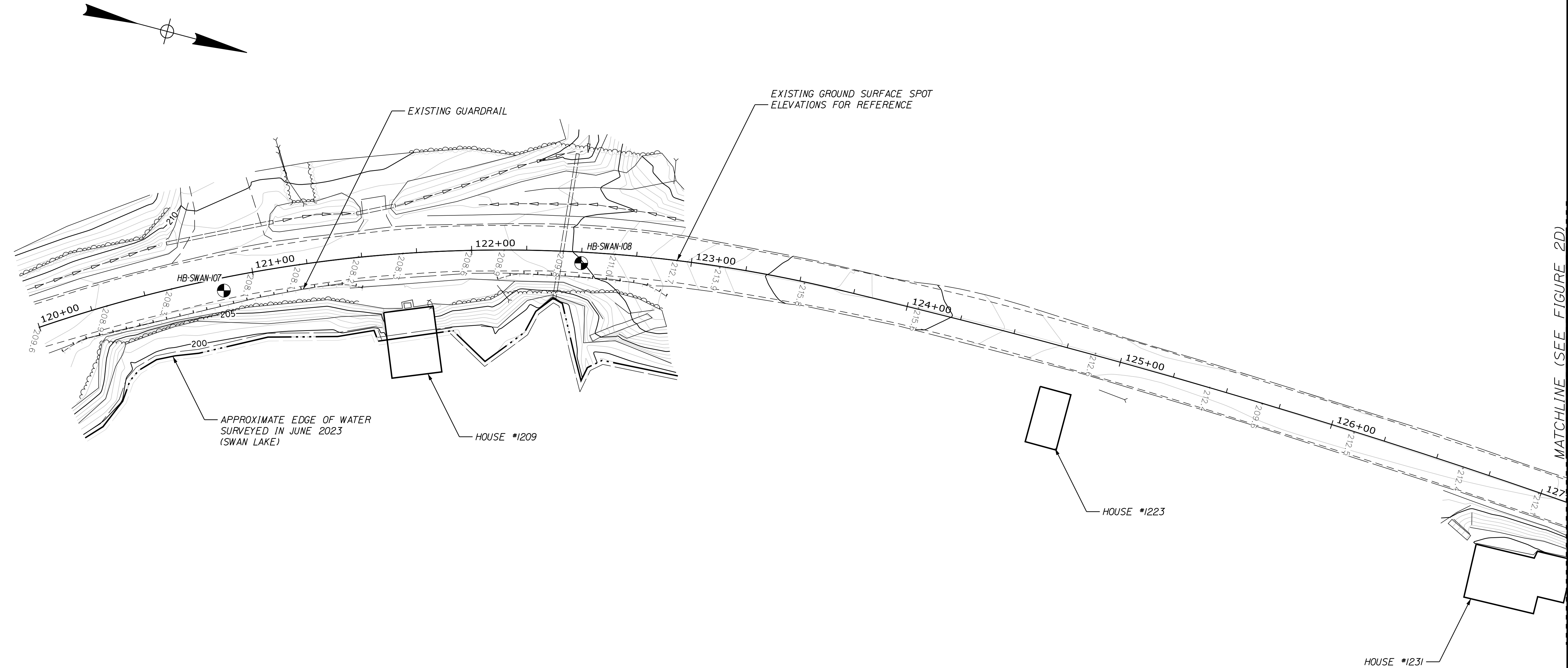
FIGURE 1



|                                                           |                                                                                                                               |                              |             |              |               |
|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------|--------------|---------------|
| <div> <div>Figure 2A</div> <div>SHEET NUMBER</div> </div> | <div> <div>SWANVILLE</div> <div>ROUTE 141 STABILIZATION</div> <div>SITE AND SUBSURFACE EXPLORATION LOCATION PLAN</div> </div> | PROJ. MANAGER                |             | BY           | DATE          |
|                                                           |                                                                                                                               | DESIGN-DETAILED              | N. Sparwood | K. Post      | 6-30-23       |
|                                                           |                                                                                                                               | CHECKED-REVIEWED             | N. Sparwood | M. Chubbourn | 8-10-23       |
|                                                           |                                                                                                                               | DESIGN2-DETAILED2            |             |              | SIGNATURE     |
|                                                           |                                                                                                                               | DESIGN3-DETAILED3            |             |              | P.E. NUMBER   |
|                                                           |                                                                                                                               | REVISIONS 1                  |             |              |               |
|                                                           |                                                                                                                               | REVISIONS 2                  |             |              |               |
|                                                           |                                                                                                                               | REVISIONS 3                  |             |              |               |
|                                                           |                                                                                                                               | REVISIONS 4                  |             |              | DATE          |
|                                                           |                                                                                                                               | FIELD CHANGES                |             |              |               |
|                                                           |                                                                                                                               | STATE OF MAINE               |             |              |               |
|                                                           |                                                                                                                               | DEPARTMENT OF TRANSPORTATION |             |              |               |
|                                                           |                                                                                                                               | 2301200                      |             |              |               |
|                                                           |                                                                                                                               | WIN                          |             |              |               |
|                                                           |                                                                                                                               | 23012.00                     |             |              | HIGHWAY PLANS |



|                                                  |  |                                                    |  |             |      |
|--------------------------------------------------|--|----------------------------------------------------|--|-------------|------|
| SWANVILLE<br>ROUTE 141 STABILIZATION             |  | PROJ. MANAGER<br>N. Sherwood<br>K. Post<br>6-30-23 |  | BY          | DATE |
| SITE AND SUBSURFACE<br>EXPLORATION LOCATION PLAN |  | CHECKED-REVIEWED<br>N. Sherwood<br>W. Coadbourne   |  | 8-10-23     |      |
|                                                  |  | DESIGN2-DETAILED2                                  |  |             |      |
|                                                  |  | DESIGN3-DETAILED3                                  |  |             |      |
|                                                  |  | REVISIONS 1                                        |  |             |      |
|                                                  |  | REVISIONS 2                                        |  |             |      |
|                                                  |  | REVISIONS 3                                        |  |             |      |
|                                                  |  | REVISIONS 4                                        |  |             |      |
|                                                  |  | FIELD CHANGES                                      |  |             |      |
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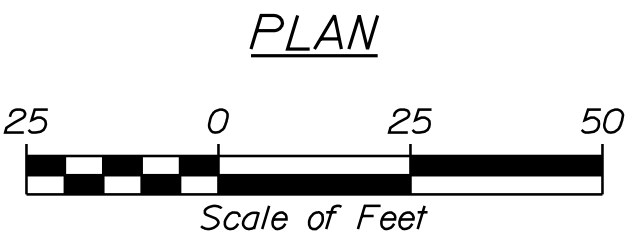


LEGEND

HB-SWAN-107  DESIGNATION AND LOCATION OF TEST BORING DRILLED BY MAINEDOT AND MONITORED BY HALEY & ALDRICH, INC. BETWEEN 15 AND 17 MAY 2023.

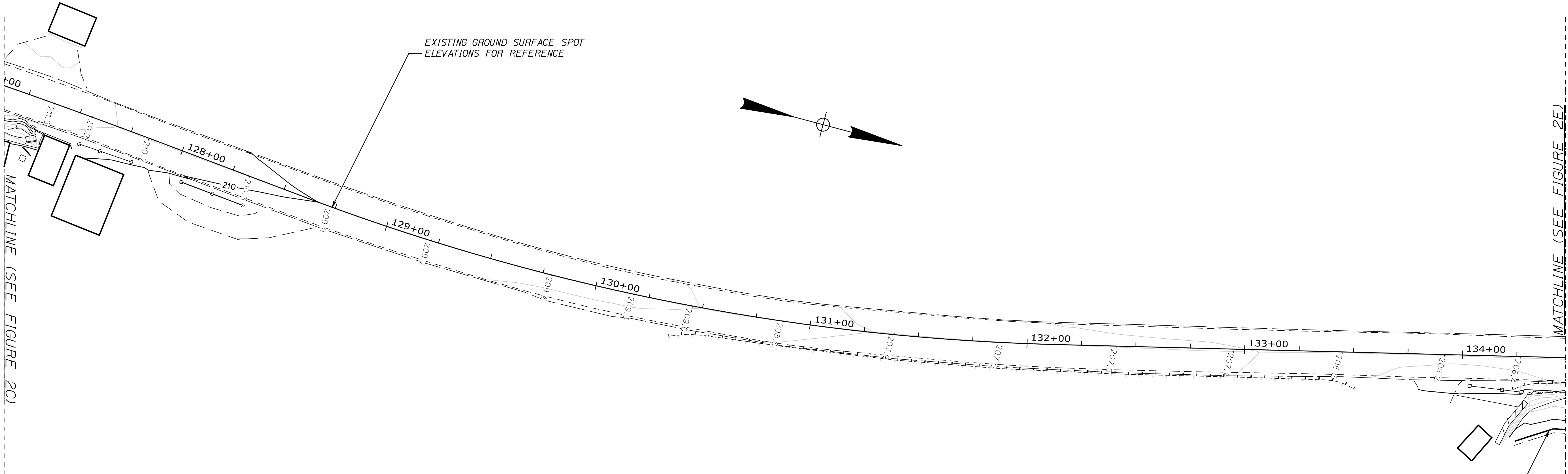
NOTES

- EXISTING GROUND SURFACE ELEVATIONS ARE IN FEET AND REFERENCE THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
- THE TEST BORING LOCATIONS, CAD PLANS, AND EXISTING TOPOGRAPHY USED TO GENERATE FIGURES 2A THROUGH 2E WERE PREPARED BY THE MAINEDOT AND WERE RECEIVED VIA EMAIL ON 28 JUNE 2023.
- ADDITIONAL SWAN LAKE BATHYMETRY AND SURVEY TO BE COMPLETED BY MAINEDOT IN THE FUTURE.
- AREAS WITH MISSING EXISTING TOPOGRAPHY WERE NOT SURVEYED BY MAINEDOT.



MATCHLINE (SEE FIGURE 2D)

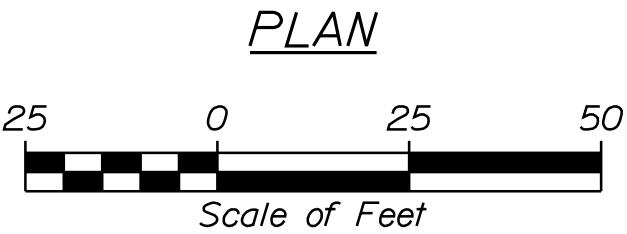
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| STATE OF MAINE               |             | DEPARTMENT OF TRANSPORTATION |             |
| 2301200                      |             | WIN                          |             |
| 23012.00                     |             | HIGHWAY PLANS                |             |
| SWANVILLE                    |             | SHEET NUMBER                 |             |
| ROUTE 141 STABILIZATION      |             | Figure 2C                    |             |
| SITE AND SUBSURFACE          |             | EXPLORATION LOCATION PLAN    |             |
| PROJ. MANAGER                | BY          | DATE                         | SIGNATURE   |
| DESIGN-DETAILED N. Sherwood  | K. Post     | 6-30-23                      |             |
| CHECKED-REVIEWED N. Sherwood | W. Chubbins | 8-10-23                      |             |
| DESIGN-DETAILED              |             |                              | P.E. NUMBER |
| REVISIONS 1                  |             |                              | DATE        |
| REVISIONS 2                  |             |                              |             |
| REVISIONS 3                  |             |                              |             |
| REVISIONS 4                  |             |                              |             |
| FIELD CHANGES                |             |                              |             |



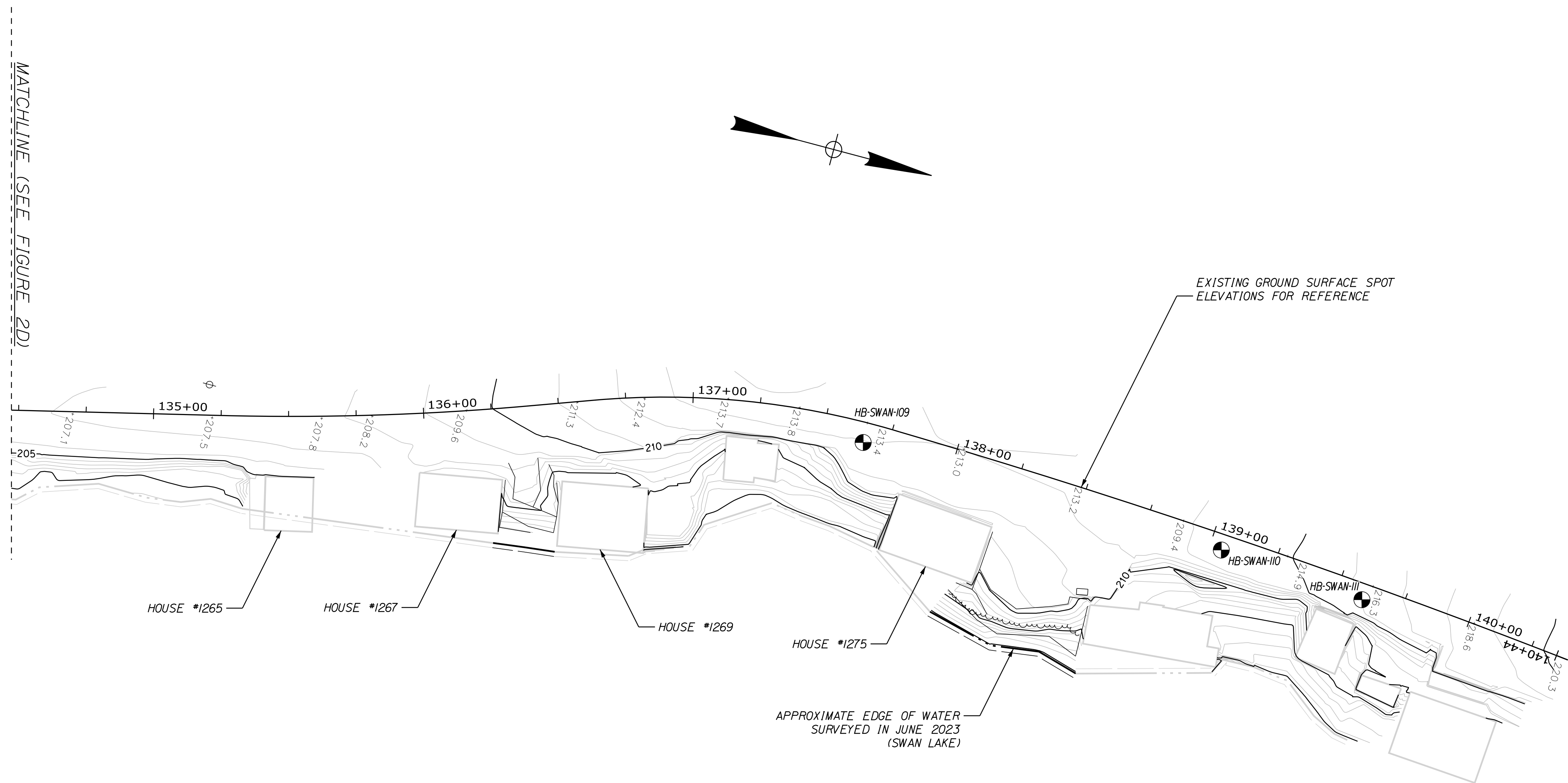
HB-SWAN-107

DESIGNATION AND LOCATION OF TEST BORING DRILLED BY MAINEDOT AND MONITORED BY HALEY & ALDRICH, INC. BETWEEN 15 AND 17 MAY 2023.

- NOTES
- EXISTING GROUND SURFACE ELEVATIONS ARE IN FEET AND REFERENCE THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
  - THE TEST BORING LOCATIONS, CAD PLANS, AND EXISTING TOPOGRAPHY USED TO GENERATE FIGURES 2A THROUGH 2E WERE PREPARED BY THE MAINEDOT AND WERE RECEIVED VIA EMAIL ON 28 JUNE 2023.
  - ADDITIONAL SWAN LAKE BATHYMETRY AND SURVEY TO BE COMPLETED BY MAINEDOT IN THE FUTURE.
  - AREAS WITH MISSING EXISTING TOPOGRAPHY WERE NOT SURVEYED BY MAINEDOT.



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| <div> <div>STATE OF MAINE</div> <div>DEPARTMENT OF TRANSPORTATION</div> </div>                                                           | <div> <div>2301200</div> <div>WIN</div> <div>23012.00</div> <div>HIGHWAY PLANS</div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                           |  |
|                                                                                                                                          | <div> <div> <div>PROJ. MANAGER</div> <div>DESIGN-DETAILED N. Sherwood</div> <div>CHECKED-REVIEWED N. Sherwood</div> <div>DESIGN-DETAILED</div> <div>REVISIONS 1</div> <div>REVISIONS 2</div> <div>REVISIONS 3</div> <div>REVISIONS 4</div> <div>FIELD CHANGES</div> </div> <div> <div>BY</div> <div>K Post</div> <div>W. Chodura</div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> <div> <div>DATE</div> <div>6-30-23</div> <div>8-10-23</div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> </div> |                                                           |  |
|                                                                                                                                          | <div> <div>SIGNATURE</div> <div>P.E. NUMBER</div> <div>DATE</div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                           |  |
| <div> <div>SWANVILLE</div> <div>ROUTE 141 STABILIZATION</div> <div>SITE AND SUBSURFACE</div> <div>EXPLORATION LOCATION PLAN</div> </div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <div> <div>SHEET NUMBER</div> <div>Figure 2D</div> </div> |  |



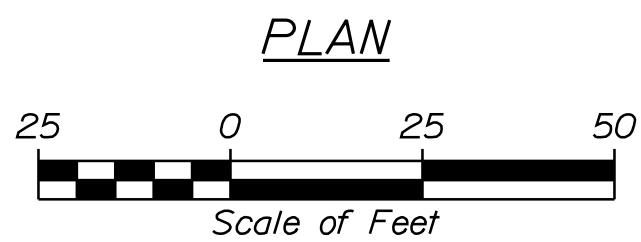
LEGEND

HB-SWAN-109 

DESIGNATION AND LOCATION OF TEST BORING DRILLED BY MAINEDOT AND MONITORED BY HALEY & ALDRICH, INC. BETWEEN 15 AND 17 MAY 2023.

NOTES

1. EXISTING GROUND SURFACE ELEVATIONS ARE IN FEET AND REFERENCE THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
2. THE TEST BORING LOCATIONS, CAD PLANS, AND EXISTING TOPOGRAPHY USED TO GENERATE FIGURES 2A THROUGH 2E WERE PREPARED BY THE MAINEDOT AND WERE RECEIVED VIA EMAIL ON 28 JUNE 2023.
3. ADDITIONAL SWAN LAKE BATHYMETRY AND SURVEY TO BE COMPLETED BY MAINEDOT IN THE FUTURE.
4. AREAS WITH MISSING EXISTING TOPOGRAPHY WERE NOT SURVEYED BY MAINEDOT.

[illegible]

## **APPENDIX A**

### **Test Boring Logs and Rock Core Photographs**

|                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |                                                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------------------------------------|---------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| <b>Maine Department of Transportation</b><br>Soil/Rock Exploration Log<br>US CUSTOMARY UNITS                                                                                                                                                                                     |                    |                                                                                                                                              |                    | <b>Project:</b> Route 141 Slope Stabilization |               | <b>Boring No.:</b> HB-SWAN-101 |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |                                                           |
|                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                              |                    | <b>Location:</b> Swanville, Maine             |               | <b>WIN:</b> 023012.00          |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |                                                           |
| <b>Driller:</b> MaineDOT                                                                                                                                                                                                                                                         |                    | <b>Elevation (ft.):</b> 211.2                                                                                                                |                    | <b>Auger ID/OD:</b> 5.0-in. OD                |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |                                                           |
| <b>Operator:</b> T. Daggett                                                                                                                                                                                                                                                      |                    | <b>Datum:</b> NAVD 88                                                                                                                        |                    | <b>Sampler:</b> Standard Split Spoon          |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |                                                           |
| <b>Logged By:</b> R. Estes                                                                                                                                                                                                                                                       |                    | <b>Rig Type:</b> CME 45C Trailer                                                                                                             |                    | <b>Hammer Wt./Fall:</b> 140#30"               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |                                                           |
| <b>Date Start/Finish:</b> 5-17-2023/5-17-2023                                                                                                                                                                                                                                    |                    | <b>Drilling Method:</b> SSA to 18.0'                                                                                                         |                    | <b>Core Barrel:</b> --                        |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |                                                           |
| <b>Boring Location:</b> Sta. 102+70, 6.5' E of Centerline                                                                                                                                                                                                                        |                    | <b>Casing ID/OD:</b> --                                                                                                                      |                    | <b>Water Level*:</b> 9.7 ft                   |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |                                                           |
| <b>Hammer Efficiency Factor:</b> 0.906                                                                                                                                                                                                                                           |                    | <b>Hammer Type:</b> Automatic <input checked="" type="checkbox"/> Hydraulic <input type="checkbox"/> Rope & Cathead <input type="checkbox"/> |                    |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |                                                           |
| Definitions:<br>D = Split Spoon Sample<br>MD = Unsuccessful Split Spoon Sample Attempt<br>U = Thin Wall Tube Sample<br>MU = Unsuccessful Thin Wall Tube Sample Attempt<br>V = Field Vane Shear Test, PP = Pocket Penetrometer<br>MV = Unsuccessful Field Vane Shear Test Attempt |                    |                                                                                                                                              |                    |                                               |               |                                | R = Rock Core Sample<br>SSA = Solid Stem Auger<br>HSA = Hollow Stem Auger<br>RC = Roller Cone<br>WOH = Weight of 140lb. Hammer<br>WOR/C = Weight of Rods or Casing<br>WO1P = Weight of One Person | S <sub>u</sub> = Peak/Remolded Field Vane Undrained Shear Strength (psf)<br>S <sub>u</sub> (lab) = Lab Vane Undrained Shear Strength (psf)<br>q <sub>p</sub> = Unconfined Compressive Strength (ksf)<br>N-uncorrected = Raw Field SPT N-value<br>Hammer Efficiency Factor = Rig Specific Annual Calibration Value<br>N <sub>60</sub> = SPT N-uncorrected Corrected for Hammer Efficiency<br>N <sub>60</sub> = (Hammer Efficiency Factor/60%)*N-uncorrected | T <sub>v</sub> = Pocket Torvane Shear Strength (psf)<br>WC = Water Content, percent<br>LL = Liquid Limit<br>PL = Plastic Limit<br>PI = Plasticity Index<br>G = Grain Size Analysis<br>C = Consolidation Test |                                                           |
| Depth (ft.)                                                                                                                                                                                                                                                                      | Sample Information |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   | Graphic Log                                                                                                                                                                                                                                                                                                                                                                                                                                                | Visual Description and Remarks                                                                                                                                                                               | Laboratory Testing Results/ AASHTO and Unified Class.     |
|                                                                                                                                                                                                                                                                                  | Sample No.         | Pen./Rec. (in.)                                                                                                                              | Sample Depth (ft.) | Blows (6 in.) Shear Strength (psf) or RQD (%) | N-uncorrected | N <sub>60</sub>                | Casing Blows                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |                                                           |
| 0                                                                                                                                                                                                                                                                                |                    |                                                                                                                                              |                    |                                               |               |                                | SSA                                                                                                                                                                                               | 210.3                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Bituminous Concrete                                                                                                                                                                                          |                                                           |
|                                                                                                                                                                                                                                                                                  | 1D                 | 24/14                                                                                                                                        | 1.5 - 3.5          | 3/3/4/4                                       | 7             | 11                             |                                                                                                                                                                                                   | 209.6                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Brown, dry, loose, fine to coarse SAND, little gravel, well graded (Fill). PID Reading = 1.0 ppm.                                                                                                            |                                                           |
|                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |                                                           |
|                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |                                                           |
| 5                                                                                                                                                                                                                                                                                | 2D                 | 24/21                                                                                                                                        | 4.0 - 6.0          | 4/7/7/4                                       | 14            | 21                             |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Yellow-brown to brown, moist, stiff, interbedded Clayey SILT, and medium dense, fine SAND, trace gravel, slight petroleum-like odor (Glaciomarine Deposit).                                                  |                                                           |
|                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |                                                           |
|                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |                                                           |
|                                                                                                                                                                                                                                                                                  | 3D                 | 24/24                                                                                                                                        | 6.0 - 8.0          | 4/10/14/15                                    | 24            | 36                             |                                                                                                                                                                                                   | 205.2                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Light brown to yellow-brown, moist, very stiff, interbedded Clayey SILT, and medium dense, fine SAND, trace organics, root hairs (Glaciomarine Deposit).                                                     |                                                           |
|                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |                                                           |
|                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |                                                           |
|                                                                                                                                                                                                                                                                                  | 4D                 | 24/24                                                                                                                                        | 8.0 - 10.0         | 7/7/9/8                                       | 16            | 24                             |                                                                                                                                                                                                   | 203.2                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Yellow-brown to light brown mottled, moist, hard, Clayey SILT, trace fine sand with frequent partings, 0.5-in. thick dark brown organic seam (Glaciomarine Deposit).                                         | G#724325<br>A-4(0), CL                                    |
|                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |                                                           |
| 10                                                                                                                                                                                                                                                                               | 5D                 | 24/24                                                                                                                                        | 10.0 - 12.0        | 2/2/2/3                                       | 4             | 6                              |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Yellow-brown to light brown mottled, moist, very stiff, Silty CLAY, trace fine sand, laminated (Glaciomarine Deposit).                                                                                       |                                                           |
|                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |                                                           |
|                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |                                                           |
|                                                                                                                                                                                                                                                                                  | 6D                 | 24/24                                                                                                                                        | 12.0 - 14.0        |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Yellow-brown to light brown Silty CLAY, wet, medium stiff (Glaciomarine Deposit).                                                                                                                            |                                                           |
|                                                                                                                                                                                                                                                                                  | V1                 |                                                                                                                                              | 12.6 - 13.0        | Su=465/135 psf                                |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Note: Pocket penetrometer +/- 500 psf.                                                                                                                                                                       | G#724334<br>A-4(0), CL<br>WC=31<br>LL=29<br>PL=20<br>PI=9 |
|                                                                                                                                                                                                                                                                                  | V2                 |                                                                                                                                              | 13.6 - 14.0        | Su=885/185 psf                                |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Light brown, wet, very soft to medium stiff, Silty CLAY, trace fine sand, occasionally laminated (Glaciomarine Deposit).                                                                                     |                                                           |
|                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 55x110 mm vane raw torque readings:                                                                                                                                                                          |                                                           |
|                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | V1: 10/3 ft-lbs                                                                                                                                                                                              |                                                           |
|                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | V2: 19/4 ft-lbs                                                                                                                                                                                              |                                                           |
| 15                                                                                                                                                                                                                                                                               | 7D                 | 24/24                                                                                                                                        | 14.0 - 16.0        |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Similar to 6D above, except medium stiff to stiff, occasional fine sand seams (Glaciomarine Deposit).                                                                                                        |                                                           |
|                                                                                                                                                                                                                                                                                  | V3                 |                                                                                                                                              | 14.6 - 15.0        | Su=930/235 psf                                |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 55x110 mm vane raw torque readings:                                                                                                                                                                          |                                                           |
|                                                                                                                                                                                                                                                                                  | V4                 |                                                                                                                                              | 15.6 - 16.0        | Su=1230/300 psf                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | V3: 20/5 ft-lbs                                                                                                                                                                                              |                                                           |
|                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | V4: 26.5/6.5 ft-lbs                                                                                                                                                                                          |                                                           |
|                                                                                                                                                                                                                                                                                  | 8D                 | 24/24                                                                                                                                        | 16.0 - 18.0        |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Similar to 7D above, except medium stiff (Glaciomarine Deposit).                                                                                                                                             |                                                           |
|                                                                                                                                                                                                                                                                                  | V5                 |                                                                                                                                              | 16.6 - 17.0        | Su=565/185 psf                                |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 55x110 mm vane raw torque readings:                                                                                                                                                                          |                                                           |
|                                                                                                                                                                                                                                                                                  | V6                 |                                                                                                                                              | 17.6 - 18.0        | Su=580/185 psf                                |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | V5: 12/4 ft-lbs                                                                                                                                                                                              |                                                           |
|                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | V6: 12.5/4 ft-lbs                                                                                                                                                                                            |                                                           |
|                                                                                                                                                                                                                                                                                  | 9D                 | 24/24                                                                                                                                        | 18.0 - 20.0        |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Yellow-brown to light brown, wet, stiff, Clayey SILT, little fine sand, trace coarse sand, trace fine gravel (Glaciomarine Deposit).                                                                         |                                                           |
|                                                                                                                                                                                                                                                                                  | V7                 |                                                                                                                                              | 18.6 - 19.0        | Su=1115/235 psf                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 55x110 mm vane raw torque readings:                                                                                                                                                                          |                                                           |
|                                                                                                                                                                                                                                                                                  | MV                 |                                                                                                                                              | 19.6 - 20.0        |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | V7: 24/5 ft-lbs                                                                                                                                                                                              |                                                           |
| 20                                                                                                                                                                                                                                                                               |                    |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   | 191.2                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Note: Attempted vane shear test, vane refusal at 19.2 ft.                                                                                                                                                    |                                                           |
|                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |                                                           |
|                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |                                                           |
|                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |                                                           |
|                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |                                                           |
|                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |                                                           |
| 25                                                                                                                                                                                                                                                                               |                    |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Bottom of Exploration at 20.0 feet below ground surface.                                                                                                                                                     |                                                           |
| <b>Remarks:</b><br>1. PID Make/Model: MiniRAE 3000.                                                                                                                                                                                                                              |                    |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                              |                                                           |
| Stratification lines represent approximate boundaries between soil types; transitions may be gradual.                                                                                                                                                                            |                    |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Page 1 of 1                                                                                                                                                                                                  |                                                           |
| * 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.                                                                                    |                    |                                                                                                                                              |                    |                                               |               |                                |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Boring No.:</b> HB-SWAN-101                                                                                                                                                                               |                                                           |

| Maine Department of Transportation<br>Soil/Rock Exploration Log<br>US CUSTOMARY UNITS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                                                                                                                                       |                    | Project: Route 141 Slope Stabilization<br>Location: Swanville, Maine |               | Boring No.: HB-SWAN-102<br>WIN: 023012.00 |              |                                                          |                                                                                                                                                                                                                                                                                           |                                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------------------------------|---------------|-------------------------------------------|--------------|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| Driller: MaineDOT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                    | Elevation (ft.): 219.4                                                                                                                |                    | Auger ID/OD: 5.0-in. OD                                              |               |                                           |              |                                                          |                                                                                                                                                                                                                                                                                           |                                                            |
| Operator: T. Daggett                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    | Datum: NAVD 88                                                                                                                        |                    | Sampler: Standard Split Spoon                                        |               |                                           |              |                                                          |                                                                                                                                                                                                                                                                                           |                                                            |
| Logged By: R. Estes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                    | Rig Type: CME 45C Trailer                                                                                                             |                    | Hammer Wt./Fall: 140#30"                                             |               |                                           |              |                                                          |                                                                                                                                                                                                                                                                                           |                                                            |
| Date Start/Finish: 5-17-2023/5-17-2023                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    | Drilling Method: SSA to 18.0'                                                                                                         |                    | Core Barrel: --                                                      |               |                                           |              |                                                          |                                                                                                                                                                                                                                                                                           |                                                            |
| Boring Location: Sta. 104+20, 6.5' E of Centerline                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    | Casing ID/OD: --                                                                                                                      |                    | Water Level*: 15.3 ft                                                |               |                                           |              |                                                          |                                                                                                                                                                                                                                                                                           |                                                            |
| Hammer Efficiency Factor: 0.906                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    | Hammer Type: Automatic <input checked="" type="checkbox"/> Hydraulic <input type="checkbox"/> Rope & Cathead <input type="checkbox"/> |                    |                                                                      |               |                                           |              |                                                          |                                                                                                                                                                                                                                                                                           |                                                            |
| <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> <div>           Definitions:<br/>           D = Split Spoon Sample<br/>           MD = Unsuccessful Split Spoon Sample Attempt<br/>           U = Thin Wall Tube Sample<br/>           MU = Unsuccessful Thin Wall Tube Sample Attempt<br/>           V = Field Vane Shear Test, PP = Pocket Penetrometer<br/>           MV = Unsuccessful Field Vane Shear Test Attempt         </div> <div>           R = Rock Core Sample<br/>           SSA = Solid Stem Auger<br/>           HSA = Hollow Stem Auger<br/>           RC = Roller Cone<br/>           WOH = Weight of 140lb. Hammer<br/>           WOR/C = Weight of Rods or Casing<br/>           WO1P = Weight of One Person         </div> <div>           S<sub>u</sub> = Peak/Remolded Field Vane Undrained Shear Strength (psf)<br/>           S<sub>u(lab)</sub> = Lab Vane Undrained Shear Strength (psf)<br/>           q<sub>p</sub> = Unconfined Compressive Strength (ksf)<br/>           N-uncorrected = Raw Field SPT N-value<br/>           Hammer Efficiency Factor = Rig Specific Annual Calibration Value<br/>           N<sub>60</sub> = SPT N-uncorrected Corrected for Hammer Efficiency<br/>           N<sub>60</sub> = (Hammer Efficiency Factor/60%)*N-uncorrected         </div> <div>           T<sub>v</sub> = Pocket Torvane Shear Strength (psf)<br/>           WC = Water Content, percent<br/>           LL = Liquid Limit<br/>           PL = Plastic Limit<br/>           PI = Plasticity Index<br/>           G = Grain Size Analysis<br/>           C = Consolidation Test         </div> </div> |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |                                                          |                                                                                                                                                                                                                                                                                           |                                                            |
| Depth (ft.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Sample Information |                                                                                                                                       |                    |                                                                      |               |                                           |              | Graphic Log                                              | Visual Description and Remarks                                                                                                                                                                                                                                                            | Laboratory Testing Results/AASHTO and Unified Class.       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Sample No.         | Pen./Rec. (in.)                                                                                                                       | Sample Depth (ft.) | Blows (6 in.) Shear Strength (psf) or RQD (%)                        | N-uncorrected | N <sub>60</sub>                           | Casing Blows |                                                          |                                                                                                                                                                                                                                                                                           |                                                            |
| 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                    |                                                                                                                                       |                    |                                                                      |               |                                           | SSA          | 218.4                                                    | Bituminous Concrete                                                                                                                                                                                                                                                                       |                                                            |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1D                 | 24/16                                                                                                                                 | 1.0 - 3.0          | 6/11/8/5                                                             | 19            | 29                                        |              | 218.4                                                    | Yellow-brown to light brown, dry, medium dense, fine to coarse SAND, some gravel, well graded, moderate petroleum-like odor (Fill). PID Reading = 1.0 ppm.                                                                                                                                |                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |                                                          |                                                                                                                                                                                                                                                                                           |                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2D                 | 24/7                                                                                                                                  | 4.0 - 6.0          | 5/8/7/8                                                              | 15            | 23                                        |              |                                                          | Yellow-brown to brown, dry, medium dense, fine to coarse SAND, little fine gravel, well graded, moderate petroleum-like odor (Fill). PID Reading = 1.0 ppm.                                                                                                                               |                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |                                                          |                                                                                                                                                                                                                                                                                           |                                                            |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 3D                 | 24/18                                                                                                                                 | 6.0 - 8.0          | 16/15/16/14                                                          | 31            | 47                                        |              | 211.8                                                    | Similar to 2D above, except dense (Fill). PID Reading = 1.0 ppm.                                                                                                                                                                                                                          |                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |                                                          |                                                                                                                                                                                                                                                                                           |                                                            |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |                                                          |                                                                                                                                                                                                                                                                                           |                                                            |
| 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 5D                 | 24/17                                                                                                                                 | 10.0 - 12.0        | 8/9/10/10                                                            | 19            | 29                                        |              | 209.1                                                    | Brown, moist, medium dense, fine to coarse SAND, little gravel, well graded, slight petroleum-like odor (Glaciomarine Deposit).                                                                                                                                                           |                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |                                                          |                                                                                                                                                                                                                                                                                           |                                                            |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |                                                          |                                                                                                                                                                                                                                                                                           |                                                            |
| 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 7D                 | 24/24                                                                                                                                 | 14.0 - 16.0        | 2/2/3/4                                                              | 5             | 8                                         |              | 205.4                                                    | Yellow-brown to light brown, wet, medium stiff, Silty CLAY, trace fine sand with frequent partings (Glaciomarine Deposit). Note: Softer at bottom of sample turning grey-brown. Pocket penetrometer +/- 1000 psf. Similar to 7D, except light brown to grey-brown (Glaciomarine Deposit). | G#724335<br>A-4(0), CL<br>WC=26<br>LL=33<br>PL=19<br>PI=14 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |                                                          |                                                                                                                                                                                                                                                                                           |                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 8D                 | 24/24                                                                                                                                 | 16.0 - 18.0        | Su=795/235 psf                                                       |               |                                           |              |                                                          | 55x110 mm vane raw torque readings:<br>V1: 17/5 ft-lbs<br>V2: 18/4 ft-lbs                                                                                                                                                                                                                 |                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | V1                 |                                                                                                                                       | 16.6 - 17.0        |                                                                      |               |                                           |              |                                                          |                                                                                                                                                                                                                                                                                           |                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | V2                 |                                                                                                                                       | 17.6 - 18.0        | Su=835/185 psf                                                       |               |                                           |              |                                                          |                                                                                                                                                                                                                                                                                           |                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 9D                 | 24/24                                                                                                                                 | 18.0 - 20.0        | Su=630/185 psf                                                       |               |                                           |              |                                                          | Grey-brown, wet, medium stiff, Silty CLAY, trace fine sand with frequent partings (Glaciomarine Deposit). 55x110 mm vane raw torque readings:<br>V3: 13.5/4 ft-lbs<br>V4: 14/4 ft-lbs<br>V5: 17/5/5 ft-lbs                                                                                |                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | V3                 |                                                                                                                                       | 18.6 - 19.0        |                                                                      |               |                                           |              |                                                          |                                                                                                                                                                                                                                                                                           |                                                            |
| 25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | V4                 |                                                                                                                                       | 19.6 - 20.0        | Su=650/185 psf                                                       |               |                                           |              |                                                          |                                                                                                                                                                                                                                                                                           |                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | V5                 |                                                                                                                                       | 20.6 - 21.0        | Su=795/250 psf                                                       |               |                                           |              |                                                          |                                                                                                                                                                                                                                                                                           |                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |                                                          |                                                                                                                                                                                                                                                                                           |                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |                                                          |                                                                                                                                                                                                                                                                                           |                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                                                                                                                                       |                    |                                                                      |               |                                           | 198.4        | Bottom of Exploration at 21.0 feet below ground surface. |                                                                                                                                                                                                                                                                                           |                                                            |
| <b>Remarks:</b><br>1. PID Make/Model: MiniRAE 3000.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |                                                          |                                                                                                                                                                                                                                                                                           |                                                            |
| Stratification lines represent approximate boundaries between soil types; transitions may be gradual.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |                                                          | Page 1 of 1                                                                                                                                                                                                                                                                               |                                                            |
| * 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-SWAN-102                                                                                                                                                                                                                                                                   |                                                            |

| Maine Department of Transportation<br>Soil/Rock Exploration Log<br>US CUSTOMARY UNITS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |                                                                                                                                       |                    | Project: Route 141 Slope Stabilization<br>Location: Swanville, Maine |               | Boring No.: HB-SWAN-103<br>WIN: 023012.00 |              |             |                                                                                                                                                              |                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------------------------------|---------------|-------------------------------------------|--------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| Driller: MaineDOT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    | Elevation (ft.): 218.9                                                                                                                |                    | Auger ID/OD: 5.0-in. OD                                              |               |                                           |              |             |                                                                                                                                                              |                                                       |
| Operator: T. Daggett                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    | Datum: NAVD 88                                                                                                                        |                    | Sampler: Standard Split Spoon                                        |               |                                           |              |             |                                                                                                                                                              |                                                       |
| Logged By: R. Estes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    | Rig Type: CME 45C Trailer                                                                                                             |                    | Hammer Wt./Fall: 140#30"                                             |               |                                           |              |             |                                                                                                                                                              |                                                       |
| Date Start/Finish: 5-17-2023/5-17-2023                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    | Drilling Method: SSA to 20.5'                                                                                                         |                    | Core Barrel: --                                                      |               |                                           |              |             |                                                                                                                                                              |                                                       |
| Boring Location: Sta. 105+85, 6' E of Centerline                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                    | Casing ID/OD: --                                                                                                                      |                    | Water Level*: Not Encountered                                        |               |                                           |              |             |                                                                                                                                                              |                                                       |
| Hammer Efficiency Factor: 0.906                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    | Hammer Type: Automatic <input checked="" type="checkbox"/> Hydraulic <input type="checkbox"/> Rope & Cathead <input type="checkbox"/> |                    |                                                                      |               |                                           |              |             |                                                                                                                                                              |                                                       |
| <div> <div> Definitions:<br/> D = Split Spoon Sample<br/> MD = Unsuccessful Split Spoon Sample Attempt<br/> U = Thin Wall Tube Sample<br/> MU = Unsuccessful Thin Wall Tube Sample Attempt<br/> V = Field Vane Shear Test, PP = Pocket Penetrometer<br/> MV = Unsuccessful Field Vane Shear Test Attempt </div> <div> R = Rock Core Sample<br/> SSA = Solid Stem Auger<br/> HSA = Hollow Stem Auger<br/> RC = Roller Cone<br/> WOH = Weight of 140lb. Hammer<br/> WOR/C = Weight of Rods or Casing<br/> WO1P = Weight of One Person </div> <div> S<sub>u</sub> = Peak/Remolded Field Vane Undrained Shear Strength (psf)<br/> S<sub>u</sub>(lab) = Lab Vane Undrained Shear Strength (psf)<br/> q<sub>p</sub> = Unconfined Compressive Strength (ksf)<br/> N-uncorrected = Raw Field SPT N-value<br/> Hammer Efficiency Factor = Rig Specific Annual Calibration Value<br/> N<sub>60</sub> = SPT N-uncorrected Corrected for Hammer Efficiency<br/> N<sub>60</sub> = (Hammer Efficiency Factor/60%)*N-uncorrected </div> <div> T<sub>v</sub> = Pocket Torvane Shear Strength (psf)<br/> WC = Water Content, percent<br/> LL = Liquid Limit<br/> PL = Plastic Limit<br/> PI = Plasticity Index<br/> G = Grain Size Analysis<br/> C = Consolidation Test </div> </div> |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |             |                                                                                                                                                              |                                                       |
| Depth (ft.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Sample Information |                                                                                                                                       |                    |                                                                      |               |                                           |              | Graphic Log | Visual Description and Remarks                                                                                                                               | Laboratory Testing Results/ AASHTO and Unified Class. |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Sample No.         | Pen./Rec. (in.)                                                                                                                       | Sample Depth (ft.) | Blows (6 in.) Shear Strength (psf) or RQD (%)                        | N-uncorrected | N <sub>60</sub>                           | Casing Blows |             |                                                                                                                                                              |                                                       |
| 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |                                                                                                                                       |                    |                                                                      |               |                                           | SSA          | 218.0       | Bituminous Concrete                                                                                                                                          | G#724327<br>A-4(0), ML                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1D                 | 24/16                                                                                                                                 | 1.0 - 3.0          | 2/3/3/3                                                              | 6             | 9                                         |              |             | Yellow-brown to light brown mottled, dry to moist, stiff, Clayey SILT (Glaciomarine Deposit). PID Reading = 1.0 ppm.                                         |                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2D                 | 24/19                                                                                                                                 | 3.0 - 5.0          | 3/5/5/8                                                              | 10            | 15                                        |              |             | Yellow-brown to light brown, moist, stiff, Clayey SILT, trace fine sand (Glaciomarine Deposit).                                                              |                                                       |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 3D                 | 24/13                                                                                                                                 | 5.0 - 7.0          | 3/5/7/9                                                              | 12            | 18                                        |              |             | Similar to 2D, except very stiff, little fine sand (Glaciomarine Deposit).                                                                                   |                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 4D                 | 24/20                                                                                                                                 | 7.0 - 9.0          | 5/10/11/14                                                           | 21            | 32                                        |              |             | Yellow-brown to light brown, moist, hard, interbedded Clayey SILT, and dense, fine SAND, laminated (Glaciomarine Deposit).                                   |                                                       |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 5D                 | 24/21                                                                                                                                 | 10.0 - 12.0        | 5/4/5/6                                                              | 9             | 14                                        |              |             | Yellow-brown to light brown, moist, stiff, interbedded Clayey SILT, and medium dense, fine SAND, laminated (Glaciomarine Deposit).                           |                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 6D                 | 24/21                                                                                                                                 | 12.0 - 14.0        | 6/6/13/15                                                            | 19            | 29                                        |              |             | Similar to 5D, except very stiff (Glaciomarine Deposit).                                                                                                     |                                                       |
| 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 7D                 | 24/21                                                                                                                                 | 14.0 - 16.0        | 4/7/8/8                                                              | 15            | 23                                        |              |             | Yellow-brown to light brown, moist, very stiff, interbedded Clayey SILT, and medium dense, fine to medium SAND (Glaciomarine Deposit)                        |                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 8D                 | 24/21                                                                                                                                 | 16.0 - 18.0        | 11/52/39/39                                                          | 91            | 137                                       |              |             | Light brown to brown, moist, very dense, fine to medium SAND, some gravel, trace coarse sand, poorly-graded (Glacial Till).<br>Similar to 8D (Glacial Till). |                                                       |
| 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 9D                 | 22/18                                                                                                                                 | 18.0 - 19.8        | 42/55/44/75(4")                                                      | 99            | 149                                       |              |             | Note: Split spoon refusal at 19.8 ft, auger to 20.5 ft, probable bedrock.                                                                                    |                                                       |
| 25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |             | Bottom of Exploration at 20.5 feet below ground surface.                                                                                                     |                                                       |
| <b>Remarks:</b><br>1. PID Make/Model: MiniRAE 3000.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |             |                                                                                                                                                              |                                                       |

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.

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Boring No.: HB-SWAN-103

| <b>Maine Department of Transportation</b><br>Soil/Rock Exploration Log<br>US CUSTOMARY UNITS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |                 |                                                                                                                                       | Project: Route 141 Slope Stabilization        |               | Boring No.: HB-SWAN-104       |              |             |                                |                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|---------------|-------------------------------|--------------|-------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                 |                                                                                                                                       | Location: Swanville, Maine                    |               | WIN: 023012.00                |              |             |                                |                                                                                                                                                       |
| Driller: S.W. Cole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |                 | Elevation (ft.): 213.0                                                                                                                |                                               |               | Auger ID/OD: --               |              |             |                                |                                                                                                                                                       |
| Operator: K. Hanscom                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                 | Datum: NAVD 88                                                                                                                        |                                               |               | Sampler: Standard Split Spoon |              |             |                                |                                                                                                                                                       |
| Logged By: J. Ilunga                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                 | Rig Type: Diedrich D-50 ATV                                                                                                           |                                               |               | Hammer Wt./Fall: 140#30"      |              |             |                                |                                                                                                                                                       |
| Date Start/Finish: 5-17-2023/5-17-2023                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |                 | Drilling Method: HW                                                                                                                   |                                               |               | Core Barrel: --               |              |             |                                |                                                                                                                                                       |
| Boring Location: Sta. 107+10, 6' E of Centerline                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                 | Casing ID/OD: HW-4.0 in. ID                                                                                                           |                                               |               | Water Level*: 15 ft           |              |             |                                |                                                                                                                                                       |
| Hammer Efficiency Factor: 0.91                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                    |                 | Hammer Type: Automatic <input checked="" type="checkbox"/> Hydraulic <input type="checkbox"/> Rope & Cathead <input type="checkbox"/> |                                               |               |                               |              |             |                                |                                                                                                                                                       |
| <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> <div>           Definitions:<br/>           D = Split Spoon Sample<br/>           MD = Unsuccessful Split Spoon Sample Attempt<br/>           U = Thin Wall Tube Sample<br/>           MU = Unsuccessful Thin Wall Tube Sample Attempt<br/>           V = Field Vane Shear Test, PP = Pocket Penetrometer<br/>           MV = Unsuccessful Field Vane Shear Test Attempt         </div> <div>           R = Rock Core Sample<br/>           SSA = Solid Stem Auger<br/>           HSA = Hollow Stem Auger<br/>           RC = Roller Cone<br/>           WOH = Weight of 140lb. Hammer<br/>           WOR/C = Weight of Rods or Casing<br/>           WO1P = Weight of One Person         </div> <div>           S<sub>u</sub> = Peak/Remolded Field Vane Undrained Shear Strength (psf)<br/>           S<sub>u</sub>(lab) = Lab Vane Undrained Shear Strength (psf)<br/>           q<sub>p</sub> = Unconfined Compressive Strength (ksf)<br/>           N-uncorrected = Raw Field SPT N-value<br/>           Hammer Efficiency Factor = Rig Specific Annual Calibration Value<br/>           N<sub>60</sub> = SPT N-uncorrected Corrected for Hammer Efficiency<br/>           N<sub>60</sub> = (Hammer Efficiency Factor/60%)*N-uncorrected         </div> <div>           T<sub>v</sub> = Pocket Torvane Shear Strength (psf)<br/>           WC = Water Content, percent<br/>           LL = Liquid Limit<br/>           PL = Plastic Limit<br/>           PI = Plasticity Index<br/>           G = Grain Size Analysis<br/>           C = Consolidation Test         </div> </div> |                    |                 |                                                                                                                                       |                                               |               |                               |              |             |                                |                                                                                                                                                       |
| Depth (ft.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Sample Information |                 |                                                                                                                                       |                                               |               |                               |              | Graphic Log | Visual Description and Remarks | Laboratory Testing Results/ AASHTO and Unified Class.                                                                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Sample No.         | Pen./Rec. (in.) | Sample Depth (ft.)                                                                                                                    | Blows (6 in. Shear Strength (psf) or RQD (%)) | N-uncorrected | N <sub>60</sub>               | Casing Blows |             |                                |                                                                                                                                                       |
| 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                    |                 |                                                                                                                                       |                                               |               |                               | HW           |             | Bituminous Concrete            |                                                                                                                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1D                 | 24/11           | 1.0 - 3.0                                                                                                                             | 10/10/8/7                                     | 18            | 27                            |              | 211.9       |                                | 1.1-<br>Brown and black, dry, medium dense, fine to coarse SAND, some gravel, trace silt (Fill). PID Reading = 0.4 ppm.                               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2D                 | 24/11           | 3.0 - 5.0                                                                                                                             | 2/3/2/4                                       | 5             | 8                             |              | 209.5       |                                | 3.5-<br>Brown, moist, medium stiff, SILT, little clay, trace rootlets (Glaciomarine Deposit). PID Reading = 0 ppm.                                    |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 3D                 | 24/17           | 5.0 - 7.0                                                                                                                             | 3/4/5/7                                       | 9             | 14                            |              |             |                                | 5-<br>Brown, moist, stiff, Clayey SILT, trace rootlets (Glaciomarine Deposit). PID Reading = 0 ppm.                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 4D                 | 24/20           | 7.0 - 9.0                                                                                                                             | 5/5/6/6                                       | 11            | 17                            |              | 206.0       |                                | 7.0-<br>Brown, mottled, moist, very stiff, Silty CLAY (Glaciomarine Deposit). PID Reading = 0.1 ppm.                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 5D                 | 24/20           | 9.0 - 11.0                                                                                                                            | 3/4/5/5                                       | 9             | 14                            |              |             |                                | 10-<br>Brown, moist, stiff, Silty CLAY (Glaciomarine Deposit). PID Reading = 0.1 ppm.                                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 6D                 | 24/24           | 11.0 - 13.0                                                                                                                           | 3/3/4/4                                       | 7             | 11                            |              |             |                                | 12-<br>Similar to 5D (Glaciomarine Deposit). PID Reading = 0.1 ppm.                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 7D                 | 24/24           | 13.0 - 15.0                                                                                                                           | 4/4/5/5                                       | 9             | 14                            |              |             |                                | 14-<br>Similar to 5D (Glaciomarine Deposit). PID Reading = 0.1 ppm.                                                                                   |
| 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 8D                 | 4/4             | 15.0 - 15.3                                                                                                                           | 50(3")                                        |               |                               |              | 197.7       |                                | 15.3-<br>Similar to 5D, except hard, trace fine sand (Glaciomarine Deposit). PID Reading = 0 ppm.<br><br>Note: Encountered cobble from 15.3 to 17 ft. |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 9D                 | 24/13           | 17.0 - 19.0                                                                                                                           | 8/18/12/7                                     | 30            | 46                            |              |             |                                | 19.0-<br>Brown, wet, dense, fine to coarse SAND, little gravel, trace silt, well graded (Glacial Till). PID Reading = 0.1 ppm.                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 10D                | 24/23           | 19.0 - 21.0                                                                                                                           | 12/12/14/18                                   | 26            | 39                            |              | 194.0       |                                | 21.0-<br>Brown, wet, dense, fine to coarse GRAVEL, some fine to coarse sand, trace silt, well graded (Glacial Till). PID Reading = 0.1 ppm.           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                 |                                                                                                                                       |                                               |               |                               |              | 192.0       |                                | 21.0-<br>Bottom of Exploration at 21.0 feet below ground surface.                                                                                     |
| 25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |                 |                                                                                                                                       |                                               |               |                               |              |             |                                |                                                                                                                                                       |
| <b>Remarks:</b><br>1. PID Make/Model: MiniRAE 3000 1592-919973.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                 |                                                                                                                                       |                                               |               |                               |              |             |                                |                                                                                                                                                       |
| Stratification lines represent approximate boundaries between soil types; transitions may be gradual.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                 |                                                                                                                                       |                                               |               |                               |              |             | Page 1 of 1                    |                                                                                                                                                       |
| * 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-SWAN-104        |                                                                                                                                                       |

| Maine Department of Transportation<br>Soil/Rock Exploration Log<br>US CUSTOMARY UNITS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                                                                                                                                       |                    | Project: Route 141 Slope Stabilization<br>Location: Swanville, Maine |               | Boring No.: HB-SWAN-105<br>WIN: 023012.00 |              |                                                      |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------------------------------|---------------|-------------------------------------------|--------------|------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Driller: S.W. Cole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    | Elevation (ft.): 210.8                                                                                                                |                    | Auger ID/OD: --                                                      |               |                                           |              |                                                      |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Operator: K. Hanscom                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    | Datum: NAVD 88                                                                                                                        |                    | Sampler: Standard Split Spoon                                        |               |                                           |              |                                                      |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Logged By: J. Ilunga                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    | Rig Type: Diedrich D-50 ATV                                                                                                           |                    | Hammer Wt./Fall: 140#30"                                             |               |                                           |              |                                                      |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Date Start/Finish: 5-17-2023/5-17-2023                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                    | Drilling Method: HW                                                                                                                   |                    | Core Barrel: --                                                      |               |                                           |              |                                                      |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Boring Location: Sta. 107+75, 5.5' E of Centerline                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    | Casing ID/OD: HW-4.0 in. ID                                                                                                           |                    | Water Level*: 8.5 ft                                                 |               |                                           |              |                                                      |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Hammer Efficiency Factor: 0.91                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    | Hammer Type: Automatic <input checked="" type="checkbox"/> Hydraulic <input type="checkbox"/> Rope & Cathead <input type="checkbox"/> |                    |                                                                      |               |                                           |              |                                                      |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Definitions:<br>D = Split Spoon Sample<br>MD = Unsuccessful Split Spoon Sample Attempt<br>U = Thin Wall Tube Sample<br>MU = Unsuccessful Thin Wall Tube Sample Attempt<br>V = Field Vane Shear Test, PP = Pocket Penetrometer<br>MV = Unsuccessful Field Vane Shear Test Attempt<br>R = Rock Core Sample<br>SSA = Solid Stem Auger<br>HSA = Hollow Stem Auger<br>RC = Roller Cone<br>WOH = Weight of 140lb. Hammer<br>WOR/C = Weight of Rods or Casing<br>WO1P = Weight of One Person<br>S <sub>u</sub> = Peak/Remolded Field Vane Undrained Shear Strength (psf)<br>S <sub>u</sub> (lab) = Lab Vane Undrained Shear Strength (psf)<br>q <sub>p</sub> = Unconfined Compressive Strength (ksf)<br>N-uncorrected = Raw Field SPT N-value<br>Hammer Efficiency Factor = Rig Specific Annual Calibration Value<br>N <sub>60</sub> = SPT N-uncorrected Corrected for Hammer Efficiency<br>N <sub>60</sub> = (Hammer Efficiency Factor/60%)*N-uncorrected<br>T <sub>v</sub> = Pocket Torvane Shear Strength (psf)<br>WC = Water Content, percent<br>LL = Liquid Limit<br>PL = Plastic Limit<br>PI = Plasticity Index<br>G = Grain Size Analysis<br>C = Consolidation Test |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |                                                      |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Depth (ft.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Sample Information |                                                                                                                                       |                    |                                                                      |               |                                           |              | Laboratory Testing Results/AASHTO and Unified Class. |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Sample No.         | Pen./Rec. (in.)                                                                                                                       | Sample Depth (ft.) | Blows (6 in.) Shear Strength (psf) or RQD (%)                        | N-uncorrected | N <sub>60</sub>                           | Casing Blows |                                                      |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                    |                                                                                                                                       |                    |                                                                      |               |                                           | HW           | 210.5                                                |                                                          | Bituminous Concrete<br>Brown, dry, medium dense, fine SAND, little medium to coarse sand, little silt, trace gravel, well graded (Fill). PID Reading = 3.5 ppm.<br>Rust-brown, dry, medium stiff, fine Sandy SILT, trace roots (Glaciomarine Deposit). PID Reading = 0.2 ppm.<br>Similar to 2D, except soft (Glaciomarine Deposit). PID Reading = 0 ppm.<br>Brown, moist, loose, Silty fine SAND, little medium sand, trace coarse sand, poorly-graded (Glaciomarine Deposit). PID Reading = 0.1 ppm.<br>Brown-grey, wet, very dense, Gravelly fine to coarse SAND, little silt, well graded (Glacial Till). PID Reading = 0.1 ppm.<br>Note: Encountered cobble from 11.7 to 12 ft. Brown-white, wet, very dense, coarse GRAVEL, little fine gravel, little fine to coarse sand, trace silt, poorly-graded, pieces of quartz (Glacial Till). PID Reading = 0.2 ppm.<br>Brown, wet, very dense, fine to coarse SAND, some gravel, trace silt, well graded (Glacial Till). PID Reading = 0.1 ppm.<br>Gray-black, wet, very dense, fine to coarse GRAVEL, some fine to coarse sand, little silt (Glacial Till). PID Reading = 0.1 ppm. |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1D                 | 24/12                                                                                                                                 | 1.0 - 3.0          | 12/7/4/6                                                             | 11            | 17                                        |              | 207.8                                                |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2D                 | 24/13                                                                                                                                 | 3.0 - 5.0          | 3/2/2/2                                                              | 4             | 6                                         |              | 203.8                                                |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 3D                 | 24/19                                                                                                                                 | 5.0 - 7.0          | 1/1/1/1                                                              | 2             | 3                                         |              | 201.8                                                |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 4D                 | 24/18                                                                                                                                 | 7.0 - 9.0          | 2/2/4/5                                                              | 6             | 9                                         |              | 199.1                                                |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 5D                 | 24/7                                                                                                                                  | 9.0 - 11.0         | 16/22/25(0")                                                         |               |                                           |              | 195.8                                                |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                       |                    |                                                                      |               |                                           | 40           | 192.8                                                |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 6D                 | 24/7                                                                                                                                  | 12.0 - 14.0        | 19/50(4")                                                            |               |                                           | 38           | 190.8                                                |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 7D                 | 24/16                                                                                                                                 | 15.0 - 17.0        | 16/25/24/22                                                          | 49            | 74                                        | RC           |                                                      |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 8D                 | 24/4                                                                                                                                  | 18.0 - 20.0        | 16/18/25(0")                                                         |               |                                           |              |                                                      |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |                                                      | Bottom of Exploration at 20.0 feet below ground surface. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |                                                      |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |                                                      |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |                                                      |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |                                                      |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

Remarks:

1. PID Make/Model: MiniRAE 3000 1592-919973.

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.

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Boring No.: HB-SWAN-105

| <b>Maine Department of Transportation</b><br>Soil/Rock Exploration Log<br>US CUSTOMARY UNITS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |                                                                                                                                       |                    | Project: Route 141 Slope Stabilization        |               | Boring No.: HB-SWAN-106 |                                                                                     |                 |                                                                                     |                                                                                                                                                                |                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------------------------------------|---------------|-------------------------|-------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                                                                                                                                       |                    | Location: Swanville, Maine                    |               | WIN: 023012.00          |                                                                                     |                 |                                                                                     |                                                                                                                                                                |                                                       |
| Driller: S.W. Cole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    | Elevation (ft.): 211.2                                                                                                                |                    | Auger ID/OD: --                               |               |                         |                                                                                     |                 |                                                                                     |                                                                                                                                                                |                                                       |
| Operator: K. Hanscom                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    | Datum: NAVD 88                                                                                                                        |                    | Sampler: Standard Split Spoon                 |               |                         |                                                                                     |                 |                                                                                     |                                                                                                                                                                |                                                       |
| Logged By: J. Ilunga                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    | Rig Type: Diedrich D-50 ATV                                                                                                           |                    | Hammer Wt./Fall: 140#30"                      |               |                         |                                                                                     |                 |                                                                                     |                                                                                                                                                                |                                                       |
| Date Start/Finish: 5-17-2023/5-17-2023                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    | Drilling Method: HW                                                                                                                   |                    | Core Barrel: --                               |               |                         |                                                                                     |                 |                                                                                     |                                                                                                                                                                |                                                       |
| Boring Location: Sta. 108+90, 6' E of Centerline                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    | Casing ID/OD: HW-4.0 in. ID                                                                                                           |                    | Water Level*: 11 ft                           |               |                         |                                                                                     |                 |                                                                                     |                                                                                                                                                                |                                                       |
| Hammer Efficiency Factor: 0.91                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                    | Hammer Type: Automatic <input checked="" type="checkbox"/> Hydraulic <input type="checkbox"/> Rope & Cathead <input type="checkbox"/> |                    |                                               |               |                         |                                                                                     |                 |                                                                                     |                                                                                                                                                                |                                                       |
| <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> <div>           Definitions:<br/>           D = Split Spoon Sample<br/>           MD = Unsuccessful Split Spoon Sample Attempt<br/>           U = Thin Wall Tube Sample<br/>           MU = Unsuccessful Thin Wall Tube Sample Attempt<br/>           V = Field Vane Shear Test, PP = Pocket Penetrometer<br/>           MV = Unsuccessful Field Vane Shear Test Attempt         </div> <div>           R = Rock Core Sample<br/>           SSA = Solid Stem Auger<br/>           HSA = Hollow Stem Auger<br/>           RC = Roller Cone<br/>           WOH = Weight of 140lb. Hammer<br/>           WOR/C = Weight of Rods or Casing<br/>           WO1P = Weight of One Person         </div> <div>           S<sub>u</sub> = Peak/Remolded Field Vane Undrained Shear Strength (psf)<br/>           S<sub>u</sub>(lab) = Lab Vane Undrained Shear Strength (psf)<br/>           q<sub>p</sub> = Unconfined Compressive Strength (ksf)<br/>           N-uncorrected = Raw Field SPT N-value<br/>           Hammer Efficiency Factor = Rig Specific Annual Calibration Value<br/>           N<sub>60</sub> = SPT N-uncorrected Corrected for Hammer Efficiency<br/>           N<sub>60</sub> = (Hammer Efficiency Factor/60%)*N-uncorrected         </div> <div>           T<sub>v</sub> = Pocket Torvane Shear Strength (psf)<br/>           WC = Water Content, percent<br/>           LL = Liquid Limit<br/>           PL = Plastic Limit<br/>           PI = Plasticity Index<br/>           G = Grain Size Analysis<br/>           C = Consolidation Test         </div> </div> |                    |                                                                                                                                       |                    |                                               |               |                         |                                                                                     |                 |                                                                                     |                                                                                                                                                                |                                                       |
| Depth (ft.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Sample Information |                                                                                                                                       |                    |                                               |               |                         |                                                                                     | Elevation (ft.) | Graphic Log                                                                         | Visual Description and Remarks                                                                                                                                 | Laboratory Testing Results/ AASHTO and Unified Class. |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Sample No.         | Pen./Rec. (in.)                                                                                                                       | Sample Depth (ft.) | Blows (6 in.) Shear Strength (psf) or RQD (%) | N-uncorrected | N <sub>60</sub>         | Casing Blows                                                                        |                 |                                                                                     |                                                                                                                                                                |                                                       |
| 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                    |                                                                                                                                       |                    |                                               |               |                         | HW                                                                                  | 210.3           |    | Bituminous Concrete                                                                                                                                            |                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1D                 | 24/15                                                                                                                                 | 1.0 - 3.0          | 10/9/6/5                                      | 15            | 23                      |                                                                                     | 208.2           |    | Brown, dry, medium dense, Silty fine SAND, trace medium to coarse sand, trace gravel, poorly-graded (Fill). PID Reading = 0.1 ppm.                             |                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2D                 | 24/16                                                                                                                                 | 3.0 - 5.0          | 5/3/3/3                                       | 6             | 9                       |                                                                                     | 206.2           |    | Yellow-brown, dry, stiff, fine Sandy SILT, trace medium to coarse sand, poorly-graded, trace rootlets (Glaciomarine Deposit). PID Reading = 0.1 ppm.           |                                                       |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 3D                 | 24/14                                                                                                                                 | 5.0 - 7.0          | 7/5/5/5                                       | 10            | 15                      |                                                                                     | 204.2           |   | Brown, moist, medium dense, Silty fine SAND, trace medium to coarse sand, trace clay, trace gravel, trace roots (Glaciomarine Deposit). PID Reading = 0.1 ppm. |                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 4D                 | 24/20                                                                                                                                 | 7.0 - 9.0          | 3/4/4/3                                       | 8             | 12                      |                                                                                     |                 |  | Brown, moist, stiff, SILT, some fine sand, trace medium sand (Glaciomarine Deposit). PID Reading = 0 ppm.                                                      |                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 5D                 | 24/16                                                                                                                                 | 9.0 - 11.0         | 4/7/8/12                                      | 15            | 23                      |  |                 |  | Similar to 4D, except very stiff (Glaciomarine Deposit). PID Reading = 0.1 ppm.                                                                                |                                                       |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |                                                                                                                                       |                    |                                               |               |                         |                                                                                     | 200.2           |  | Brown-grey, wet, very dense, coarse GRAVEL, little fine gravel, little fine to coarse sand, trace silt, poorly-graded (Glacial Till). PID Reading = 0.1 ppm.   |                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                                                                                                                                       |                    |                                               |               |                         |                                                                                     |                 |  | Note: Encountered boulders from 13 to 15 ft.                                                                                                                   |                                                       |
| 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |                                                                                                                                       |                    |                                               |               |                         |                                                                                     |                 |  | Note: Cored through boulders from 15 to 20 ft.                                                                                                                 |                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                                                                                                                                       |                    |                                               |               |                         |                                                                                     |                 |  |                                                                                                                                                                |                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                                                                                                                                       |                    |                                               |               |                         |                                                                                     |                 |  |                                                                                                                                                                |                                                       |
| 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |                                                                                                                                       |                    |                                               |               |                         |                                                                                     | 191.2           |  | Bottom of Exploration at 20.0 feet below ground surface.                                                                                                       |                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                                                                                                                                       |                    |                                               |               |                         |                                                                                     |                 |  |                                                                                                                                                                |                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                                                                                                                                       |                    |                                               |               |                         |                                                                                     |                 |  |                                                                                                                                                                |                                                       |
| 25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |                                                                                                                                       |                    |                                               |               |                         |                                                                                     |                 |  |                                                                                                                                                                |                                                       |

**Remarks:**  
 1. PID Make/Model: MiniRAE 3000 1592-919973.

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

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\* 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-SWAN-106**

| Maine Department of Transportation<br>Soil/Rock Exploration Log<br>US CUSTOMARY UNITS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |                                                                                                                                       |                    | Project: Route 141 Slope Stabilization<br>Location: Swanville, Maine |               | Boring No.: HB-SWAN-107<br>WIN: 023012.00 |              |             |                                                                                                                                                              |                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------------------------------|---------------|-------------------------------------------|--------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| Driller: S.W. Cole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                    | Elevation (ft.): 208.1                                                                                                                |                    | Auger ID/OD: --                                                      |               |                                           |              |             |                                                                                                                                                              |                                                      |
| Operator: K. Hanscom                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    | Datum: NAVD 88                                                                                                                        |                    | Sampler: Standard Split Spoon                                        |               |                                           |              |             |                                                                                                                                                              |                                                      |
| Logged By: J. Ilunga                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    | Rig Type: Diedrich D-50 ATV                                                                                                           |                    | Hammer Wt./Fall: 140#30"                                             |               |                                           |              |             |                                                                                                                                                              |                                                      |
| Date Start/Finish: 5-16-2023/5-16-2023                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    | Drilling Method: HW                                                                                                                   |                    | Core Barrel: --                                                      |               |                                           |              |             |                                                                                                                                                              |                                                      |
| Boring Location: Sta. 120+80, 6' E of Centerline                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                    | Casing ID/OD: HW-4.0 in. ID                                                                                                           |                    | Water Level*: 10 ft                                                  |               |                                           |              |             |                                                                                                                                                              |                                                      |
| Hammer Efficiency Factor: 0.91                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    | Hammer Type: Automatic <input checked="" type="checkbox"/> Hydraulic <input type="checkbox"/> Rope & Cathead <input type="checkbox"/> |                    |                                                                      |               |                                           |              |             |                                                                                                                                                              |                                                      |
| <div> <div> Definitions:<br/> D = Split Spoon Sample<br/> MD = Unsuccessful Split Spoon Sample Attempt<br/> U = Thin Wall Tube Sample<br/> MU = Unsuccessful Thin Wall Tube Sample Attempt<br/> V = Field Vane Shear Test, PP = Pocket Penetrometer<br/> MV = Unsuccessful Field Vane Shear Test Attempt </div> <div> R = Rock Core Sample<br/> SSA = Solid Stem Auger<br/> HSA = Hollow Stem Auger<br/> RC = Roller Cone<br/> WOH = Weight of 140lb. Hammer<br/> WOR/C = Weight of Rods or Casing<br/> WO1P = Weight of One Person </div> <div> S<sub>u</sub> = Peak/Remolded Field Vane Undrained Shear Strength (psf)<br/> S<sub>u(lab)</sub> = Lab Vane Undrained Shear Strength (psf)<br/> q<sub>p</sub> = Unconfined Compressive Strength (ksf)<br/> N-uncorrected = Raw Field SPT N-value<br/> Hammer Efficiency Factor = Rig Specific Annual Calibration Value<br/> N<sub>60</sub> = SPT N-uncorrected Corrected for Hammer Efficiency<br/> N<sub>60</sub> = (Hammer Efficiency Factor/60%)*N-uncorrected </div> <div> T<sub>v</sub> = Pocket Torvane Shear Strength (psf)<br/> WC = Water Content, percent<br/> LL = Liquid Limit<br/> PL = Plastic Limit<br/> PI = Plasticity Index<br/> G = Grain Size Analysis<br/> C = Consolidation Test </div> </div> |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |             |                                                                                                                                                              |                                                      |
| Depth (ft.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Sample Information |                                                                                                                                       |                    |                                                                      |               |                                           |              | Graphic Log | Visual Description and Remarks                                                                                                                               | Laboratory Testing Results/AASHTO and Unified Class. |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Sample No.         | Pen./Rec. (in.)                                                                                                                       | Sample Depth (ft.) | Blows (6 in.) Shear Strength (psf) or RQD (%)                        | N-uncorrected | N <sub>60</sub>                           | Casing Blows |             |                                                                                                                                                              |                                                      |
| 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              | 207.1       | Bituminous Concrete                                                                                                                                          |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1D                 | 24/16                                                                                                                                 | 1.0 - 3.0          | 7/7/7/5                                                              | 14            | 21                                        |              | 205.1       | Brown, dry, medium dense, fine SAND, little silt, trace medium to coarse sand, trace gravel, poorly-graded (Fill). PID Reading = 0.1 ppm.                    |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2D                 | 24/19                                                                                                                                 | 3.0 - 5.0          | 5/3/2/2                                                              | 5             | 8                                         |              |             | Yellow-brown, moist, medium stiff, SILT, little fine sand, trace medium to coarse sand, organic pocket, roots (Glaciomarine Deposit). PID Reading = 0.1 ppm. |                                                      |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 3D                 | 9/7                                                                                                                                   | 5.0 - 5.8          | 3/50(3")                                                             |               |                                           |              |             | Yellow-brown, moist, hard, SILT, trace fine sand, trace rootlets (Glaciomarine Deposit). PID Reading = 0.2 ppm.                                              |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |             | Note: Encountered boulder from 5.8 to 8 ft.                                                                                                                  |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 4D                 | 24/18                                                                                                                                 | 8.0 - 10.0         | 5/5/6/6                                                              | 11            | 17                                        |              | 200.1       | Brown, moist, medium dense, fine SAND, little silt, little gravel, trace medium to coarse sand, poorly-graded (Glaciomarine Deposit). PID Reading = 0.1 ppm. |                                                      |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 5D                 | 24/15                                                                                                                                 | 10.0 - 12.0        | 5/7/9/8                                                              | 16            | 24                                        |              |             | Brown, wet, medium dense, fine SAND, some silt (Glaciomarine Deposit). PID Reading = 0.2 ppm.                                                                |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 6D                 | 24/18                                                                                                                                 | 12.0 - 14.0        | 5/8/10/12                                                            | 18            | 27                                        |              |             | Brown, wet, medium dense, Silty fine SAND (Glaciomarine Deposit). PID Reading = 0.2 ppm.                                                                     |                                                      |
| 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 7D                 | 24/0                                                                                                                                  | 14.0 - 16.0        | 10/65/17/12                                                          | 82            | 124                                       |              | 193.6       | Note: Strata change at 14.5 ft based on high sample blow counts.                                                                                             |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |             | Note: Broken spoon at 16 ft due to high sample blow counts.                                                                                                  |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 8D                 | 24/9                                                                                                                                  | 17.0 - 19.0        | 5/7/12/8                                                             | 19            | 29                                        |              |             | Grey, wet, medium dense, Gravelly fine to coarse SAND, some silt (Glacial Till). PID Reading = 0 ppm.                                                        |                                                      |
| 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 9D                 | 24/12                                                                                                                                 | 19.0 - 21.0        | 2/2/9/12                                                             | 11            | 17                                        |              | 187.1       | Grey, wet, medium dense, fine to coarse SAND, some silt, little gravel (Glacial Till). PID Reading = 0 ppm.                                                  |                                                      |
| 25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |             | Bottom of Exploration at 21.0 feet below ground surface.                                                                                                     |                                                      |

Remarks:

1. PID Make/Model: MiniRAE 3000 1592-919973.

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.

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Boring No.: HB-SWAN-107

| Maine Department of Transportation<br>Soil/Rock Exploration Log<br>US CUSTOMARY UNITS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                                                                                                                                       |                    | Project: Route 141 Slope Stabilization<br>Location: Swanville, Maine |               | Boring No.: HB-SWAN-108<br>WIN: 023012.00 |              |                 |             |                                                                                                                                                                                                                                                                                 |                                                       |                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------------------------------|---------------|-------------------------------------------|--------------|-----------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|---------------------------------|
| Driller: S.W. Cole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    | Elevation (ft.): 209.9                                                                                                                |                    | Auger ID/OD: --                                                      |               |                                           |              |                 |             |                                                                                                                                                                                                                                                                                 |                                                       |                                 |
| Operator: K. Hanscom                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    | Datum: NAVD 88                                                                                                                        |                    | Sampler: Standard Split Spoon                                        |               |                                           |              |                 |             |                                                                                                                                                                                                                                                                                 |                                                       |                                 |
| Logged By: J. Ilunga                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    | Rig Type: Diedrich D-50 ATV                                                                                                           |                    | Hammer Wt./Fall: 140#30"                                             |               |                                           |              |                 |             |                                                                                                                                                                                                                                                                                 |                                                       |                                 |
| Date Start/Finish: 5-16-2023/5-16-2023                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                    | Drilling Method: HW                                                                                                                   |                    | Core Barrel: NQ-2.0 in. ID                                           |               |                                           |              |                 |             |                                                                                                                                                                                                                                                                                 |                                                       |                                 |
| Boring Location: Sta. 122+50, 6' E of Centerline                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    | Casing ID/OD: HW-4.0 in. ID                                                                                                           |                    | Water Level*: 9 ft                                                   |               |                                           |              |                 |             |                                                                                                                                                                                                                                                                                 |                                                       |                                 |
| Hammer Efficiency Factor: 0.91                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    | Hammer Type: Automatic <input checked="" type="checkbox"/> Hydraulic <input type="checkbox"/> Rope & Cathead <input type="checkbox"/> |                    |                                                                      |               |                                           |              |                 |             |                                                                                                                                                                                                                                                                                 |                                                       |                                 |
| Definitions:<br>D = Split Spoon Sample<br>MD = Unsuccessful Split Spoon Sample Attempt<br>U = Thin Wall Tube Sample<br>MU = Unsuccessful Thin Wall Tube Sample Attempt<br>V = Field Vane Shear Test, PP = Pocket Penetrometer<br>MV = Unsuccessful Field Vane Shear Test Attempt<br>R = Rock Core Sample<br>SSA = Solid Stem Auger<br>HSA = Hollow Stem Auger<br>RC = Roller Cone<br>WOH = Weight of 140lb. Hammer<br>WOR/C = Weight of Rods or Casing<br>WO1P = Weight of One Person<br>S <sub>u</sub> = Peak/Remolded Field Vane Undrained Shear Strength (psf)<br>S <sub>u</sub> (lab) = Lab Vane Undrained Shear Strength (psf)<br>q <sub>p</sub> = Unconfined Compressive Strength (ksf)<br>N-uncorrected = Raw Field SPT N-value<br>Hammer Efficiency Factor = Rig Specific Annual Calibration Value<br>N <sub>60</sub> = SPT N-uncorrected Corrected for Hammer Efficiency<br>N <sub>60</sub> = (Hammer Efficiency Factor/60%)*N-uncorrected<br>T <sub>v</sub> = Pocket Torvane Shear Strength (psf)<br>WC = Water Content, percent<br>LL = Liquid Limit<br>PL = Plastic Limit<br>PI = Plasticity Index<br>G = Grain Size Analysis<br>C = Consolidation Test |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |                 |             |                                                                                                                                                                                                                                                                                 |                                                       |                                 |
| Depth (ft.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Sample Information |                                                                                                                                       |                    |                                                                      |               |                                           |              | Elevation (ft.) | Graphic Log | Visual Description and Remarks                                                                                                                                                                                                                                                  | Laboratory Testing Results/ AASHTO and Unified Class. |                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Sample No.         | Pen./Rec. (in.)                                                                                                                       | Sample Depth (ft.) | Blows (6 in.) Shear Strength (psf) or RQD (%)                        | N-uncorrected | N <sub>60</sub>                           | Casing Blows |                 |             |                                                                                                                                                                                                                                                                                 |                                                       |                                 |
| 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                    |                                                                                                                                       |                    |                                                                      |               |                                           | HW           | 208.8           |             | Bituminous Concrete                                                                                                                                                                                                                                                             | G#724331<br>A-4(0), ML                                |                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1D                 | 24/16                                                                                                                                 | 1.0 - 3.0          | 17/18/13/12                                                          | 31            | 47                                        |              | 206.9           |             | Black and grey, dry, dense, fine to coarse SAND, some gravel, trace silt, well graded, 2-in. thick bituminous concrete piece (Fill). PID Reading = 2.9 ppm.                                                                                                                     |                                                       |                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2D                 | 24/17                                                                                                                                 | 3.0 - 5.0          | 6/4/4/4                                                              | 8             | 12                                        |              |                 |             | Brown, moist, stiff, fine Sandy SILT (Glaciomarine Deposit). PID Reading = 0.4 ppm.                                                                                                                                                                                             |                                                       |                                 |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 3D                 | 24/16                                                                                                                                 | 5.0 - 7.0          | 1/3/3/3                                                              | 6             | 9                                         |              |                 |             | Yellow-brown, moist, stiff, SILT, trace fine sand (Glaciomarine Deposit). PID Reading = 0.2 ppm.                                                                                                                                                                                |                                                       |                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 4D                 | 24/8                                                                                                                                  | 7.0 - 9.0          | 5/6/14/5                                                             | 20            | 30                                        |              |                 |             | Yellow-brown, moist, hard, fine Sandy SILT, little gravel, trace medium to coarse sand (Glaciomarine Deposit). PID Reading = 0.5 ppm.                                                                                                                                           |                                                       |                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 5D                 | 24/0                                                                                                                                  | 9.0 - 11.0         | 21/17/12/9                                                           | 29            | 44                                        |              | 200.9           |             | No Recovery                                                                                                                                                                                                                                                                     |                                                       |                                 |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                       |                    |                                                                      |               |                                           | 30           |                 |             | Grey-brown, wet, dense, Silty fine SAND, some gravel, trace medium to coarse sand, (Glaciomarine Deposit). PID Reading = 0.2 ppm.                                                                                                                                               |                                                       |                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 6D                 | 24/13                                                                                                                                 | 11.0 - 13.0        | 8/13/9/4                                                             | 22            | 33                                        | 36           |                 |             | Grey-brown to rust-brown, wet, very dense, fine to coarse SAND, some gravel, little silt, well graded (Glacial Till). PID Reading = 0.3 ppm.                                                                                                                                    |                                                       |                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 7D                 | 21/11                                                                                                                                 | 13.0 - 14.8        | 5/16/21/50(3")                                                       | 37            | 56                                        | 29           | 196.9           |             | Grey-brown, wet, dense, fine to coarse SAND, some gravel, little silt, well graded (Glacial Till). PID Reading = 0.3 ppm.                                                                                                                                                       |                                                       |                                 |
| 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                       |                    |                                                                      |               |                                           | 31           |                 |             | Grey-brown, wet, dense, fine to coarse SAND, some gravel, little silt, well graded (Glacial Till). PID Reading = 0.3 ppm.                                                                                                                                                       |                                                       |                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 8D                 | 20/13                                                                                                                                 | 15.0 - 16.7        | 5/7/21/50(2")                                                        | 28            | 42                                        | 90           |                 |             | Top of Bedrock El. 193.2                                                                                                                                                                                                                                                        |                                                       |                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | R1                 | 31.2/19                                                                                                                               | 17.0 - 19.6        | RQD = 35%                                                            |               |                                           | NQ Core      | 193.2           |             | R1: Very hard, very slightly weathered, grey, medium to coarse grained GRANITE. Horizontal to low angle joints, close to moderately close, tight, quartz veins. Rock Quality=Poor Recovery=61% R1 Core Times (min:sec): 17.0-18.0' (3:05); 18.0-19.0' (3:35); 19.0-19.6' (2:07) |                                                       |                                 |
| 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              | 190.3           |             | Bottom of Exploration at 19.6 feet below ground surface.                                                                                                                                                                                                                        |                                                       | qp=2,115ksf<br>(18.61'- 18.98') |
| 25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |                 |             |                                                                                                                                                                                                                                                                                 |                                                       |                                 |
| <b>Remarks:</b><br>1. PID Make/Model: MiniRAE 3000 1592-919973.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |                 |             |                                                                                                                                                                                                                                                                                 |                                                       |                                 |
| Stratification lines represent approximate boundaries between soil types; transitions may be gradual.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |                 |             | Page 1 of 1                                                                                                                                                                                                                                                                     |                                                       |                                 |
| * 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-SWAN-108                                                                                                                                                                                                                                                         |                                                       |                                 |

| Maine Department of Transportation<br>Soil/Rock Exploration Log<br>US CUSTOMARY UNITS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                    |                                                                                                                                       |                    | Project: Route 141 Slope Stabilization<br>Location: Swanville, Maine |               | Boring No.: HB-SWAN-109<br>WIN: 023012.00 |              |             |                                                                                                                                                                                                                                                                                                                                                                       |                                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------------------------------|---------------|-------------------------------------------|--------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| Driller: MaineDOT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    | Elevation (ft.): 213.0                                                                                                                |                    | Auger ID/OD: --                                                      |               |                                           |              |             |                                                                                                                                                                                                                                                                                                                                                                       |                                                           |
| Operator: T. Daggett                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    | Datum: NAVD 88                                                                                                                        |                    | Sampler: Standard Split Spoon                                        |               |                                           |              |             |                                                                                                                                                                                                                                                                                                                                                                       |                                                           |
| Logged By: R. Estes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    | Rig Type: CME 45C Trailer                                                                                                             |                    | Hammer Wt./Fall: 140#30"                                             |               |                                           |              |             |                                                                                                                                                                                                                                                                                                                                                                       |                                                           |
| Date Start/Finish: 5-15-2023/5-16-2023                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                    | Drilling Method: HW Spun 25'/HW Drive 31.2'                                                                                           |                    | Core Barrel: NX-1.875 in. ID                                         |               |                                           |              |             |                                                                                                                                                                                                                                                                                                                                                                       |                                                           |
| Boring Location: Sta. 137+65, 7.5' E of Centerline                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    | Casing ID/OD: HW-4.0/NW-3.0 in. ID                                                                                                    |                    | Water Level*: 8.1 ft                                                 |               |                                           |              |             |                                                                                                                                                                                                                                                                                                                                                                       |                                                           |
| Hammer Efficiency Factor: 0.906                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    | Hammer Type: Automatic <input checked="" type="checkbox"/> Hydraulic <input type="checkbox"/> Rope & Cathead <input type="checkbox"/> |                    |                                                                      |               |                                           |              |             |                                                                                                                                                                                                                                                                                                                                                                       |                                                           |
| Definitions:<br>D = Split Spoon Sample<br>MD = Unsuccessful Split Spoon Sample Attempt<br>U = Thin Wall Tube Sample<br>MU = Unsuccessful Thin Wall Tube Sample Attempt<br>V = Field Vane Shear Test, PP = Pocket Penetrometer<br>MV = Unsuccessful Field Vane Shear Test Attempt<br>R = Rock Core Sample<br>SSA = Solid Stem Auger<br>HSA = Hollow Stem Auger<br>RC = Roller Cone<br>WOH = Weight of 140lb. Hammer<br>WOR/C = Weight of Rods or Casing<br>WO1P = Weight of One Person<br>S <sub>u</sub> = Peak/Remolded Field Vane Undrained Shear Strength (psf)<br>S <sub>u(lab)</sub> = Lab Vane Undrained Shear Strength (psf)<br>q <sub>p</sub> = Unconfined Compressive Strength (ksf)<br>N-uncorrected = Raw Field SPT N-value<br>Hammer Efficiency Factor = Rig Specific Annual Calibration Value<br>N <sub>60</sub> = SPT N-uncorrected Corrected for Hammer Efficiency<br>N <sub>60</sub> = (Hammer Efficiency Factor/60%)*N-uncorrected<br>T <sub>v</sub> = Pocket Torvane Shear Strength (psf)<br>WC = Water Content, percent<br>LL = Liquid Limit<br>PL = Plastic Limit<br>PI = Plasticity Index<br>G = Grain Size Analysis<br>C = Consolidation Test |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |             |                                                                                                                                                                                                                                                                                                                                                                       |                                                           |
| Depth (ft.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Sample Information |                                                                                                                                       |                    |                                                                      |               |                                           |              | Graphic Log | Visual Description and Remarks                                                                                                                                                                                                                                                                                                                                        | Laboratory Testing Results/AASHTO and Unified Class.      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Sample No.         | Pen./Rec. (in.)                                                                                                                       | Sample Depth (ft.) | Blows (6 in.) Shear Strength (psf) or RQD (%)                        | N-uncorrected | N <sub>60</sub>                           | Casing Blows |             |                                                                                                                                                                                                                                                                                                                                                                       |                                                           |
| 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                       |                    |                                                                      |               |                                           | HW Spun      | 212.0       | Bituminous Concrete                                                                                                                                                                                                                                                                                                                                                   |                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1D                 | 10/3                                                                                                                                  | 1.0 - 1.8          | 4/50(4")                                                             |               |                                           |              |             | Dark brown, dry, very dense, SAND, little gravel, trace silt, moderate petroleum-like odor, well graded (Fill). PID Reading = 1.0 ppm.<br>Note: SPT refusal at 1.8 ft on boulder.<br>Boulders from 1.8 to 6.4 ft and 6.8 to 9.6 ft.                                                                                                                                   |                                                           |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |             | Note: Sample 4D broke spoon sampler. Sample tip left down hole. Failed attempt to retrieve. Moved rig approximately 3 ft NE, unable to advance past boulders (three attempts). Moved to Sta. 137+65, approximately 7.5' E of centerline. Continue boring HB-SWAN-109. Boulders to 8.1 ft. Wash water indicates brown gravel and sand with cobbles from 8.1 to 9.5 ft. |                                                           |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2D                 | 24/20                                                                                                                                 | 10.0 - 12.0        | 3/4/6/16                                                             | 10            | 15                                        |              | 203.4       | Dark brown, wet, stiff, ORGANIC SOIL, trace fine sand (Organic Deposit).                                                                                                                                                                                                                                                                                              | G#724338<br>A-4(0), OL<br>WC=38<br>LL=44<br>PL=35<br>PI=9 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              | 201.8       |                                                                                                                                                                                                                                                                                                                                                                       |                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 3D                 | 9/9                                                                                                                                   | 12.0 - 12.8        | 16/50(3")                                                            |               |                                           |              | 201.0       | Light brown to yellow-brown, wet, medium dense, Silty fine SAND, trace gravel (Glaciomarine Deposit).                                                                                                                                                                                                                                                                 |                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 4D                 | 22/11                                                                                                                                 | 13.0 - 14.8        | 6/38/52/50(4")                                                       | 90            | 136                                       |              |             | Dark brown to light brown, wet, very dense, Gravelly SAND with occasional silt layers, trace organic silt, well graded (Glaciomarine Deposit).<br>Similar to Sample 3D, SPT refusal at 14.8 ft (Glaciomarine Deposit).                                                                                                                                                |                                                           |
| 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              | 198.5       |                                                                                                                                                                                                                                                                                                                                                                       |                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 5D                 | 24/19                                                                                                                                 | 15.5 - 17.5        | 10/18/21/31                                                          | 39            | 59                                        |              | 197.2       | Yellow-brown, wet, very dense, medium to coarse SAND, little silt, little gravel, slightly bonded (Glaciomarine Deposit).                                                                                                                                                                                                                                             |                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |             | Light brown, slightly mottled, wet, hard, Clayey SILT, uniform, slightly blocky, fissured, slightly plastic (Glaciomarine Deposit).                                                                                                                                                                                                                                   |                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 6D                 | 24/20                                                                                                                                 | 17.5 - 19.5        | 33/46/44/49                                                          | 90            | 136                                       |              | 195.6       | Light brown, wet, very dense, fine to coarse SAND, little gravel, trace silt, occasionally slightly bonded, well graded (Glaciomarine Deposit).                                                                                                                                                                                                                       |                                                           |
| 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |             |                                                                                                                                                                                                                                                                                                                                                                       |                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 7D                 | 24/23                                                                                                                                 | 20.0 - 22.0        | 6/10/13/15                                                           | 23            | 35                                        |              | 193.0       | Light brown, wet, hard, Silty CLAY, laminated (Glaciomarine Deposit).                                                                                                                                                                                                                                                                                                 | G3724332<br>A-4(0), CL                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |             | Light brown to gray, wet, hard, Clayey SILT, laminated, occasional sandy gravel pockets (Glaciomarine Deposit).                                                                                                                                                                                                                                                       |                                                           |
| 25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 9D                 | 24/15                                                                                                                                 | 24.0 - 26.0        | 6/8/14/20                                                            | 22            | 33                                        |              |             | Grey, wet, hard, Clayey SILT, laminated (Glaciomarine Deposit).<br>Note: Pocket penetrometer reading +/- 2000 psf in sample 9D at                                                                                                                                                                                                                                     |                                                           |
| <b>Remarks:</b><br>1. PID Make/Model: MiniRAE 3000.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |             |                                                                                                                                                                                                                                                                                                                                                                       |                                                           |
| Stratification lines represent approximate boundaries between soil types; transitions may be gradual.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |             | Page 1 of 2                                                                                                                                                                                                                                                                                                                                                           |                                                           |
| * 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-SWAN-109                                                                                                                                                                                                                                                                                                                                               |                                                           |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |                 |                            |                                                                                                                                              |               |                 |              |                                                         |                                |                                                       |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------|--------------|---------------------------------------------------------|--------------------------------|-------------------------------------------------------|--|
| <b>Maine Department of Transportation</b><br>Soil/Rock Exploration Log<br>US CUSTOMARY UNITS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                    |                 |                            | <b>Project:</b> Route 141 Slope Stabilization<br><b>Location:</b> Swanville, Maine                                                           |               |                 |              | <b>Boring No.:</b> HB-SWAN-109<br><b>WIN:</b> 023012.00 |                                |                                                       |  |
| <b>Driller:</b> MaineDOT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                 |                            | <b>Elevation (ft.):</b> 213.0                                                                                                                |               |                 |              | <b>Auger ID/OD:</b> --                                  |                                |                                                       |  |
| <b>Operator:</b> T. Daggett                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                    |                 |                            | <b>Datum:</b> NAVD 88                                                                                                                        |               |                 |              | <b>Sampler:</b> Standard Split Spoon                    |                                |                                                       |  |
| <b>Logged By:</b> R. Estes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                            | <b>Rig Type:</b> CME 45C Trailer                                                                                                             |               |                 |              | <b>Hammer Wt./Fall:</b> 140#30"                         |                                |                                                       |  |
| <b>Date Start/Finish:</b> 5-15-2023/5-16-2023                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                 |                            | <b>Drilling Method:</b> HW Spun 25'/HW Drive 31.2'                                                                                           |               |                 |              | <b>Core Barrel:</b> NX-1.875 in. ID                     |                                |                                                       |  |
| <b>Boring Location:</b> Sta. 137+65, 7.5' E of Centerline                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |                 |                            | <b>Casing ID/OD:</b> HW-4.0/NW-3.0 in. ID                                                                                                    |               |                 |              | <b>Water Level*:</b> 8.1 ft                             |                                |                                                       |  |
| <b>Hammer Efficiency Factor:</b> 0.906                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                    |                 |                            | <b>Hammer Type:</b> Automatic <input checked="" type="checkbox"/> Hydraulic <input type="checkbox"/> Rope & Cathead <input type="checkbox"/> |               |                 |              |                                                         |                                |                                                       |  |
| <div>Definitions:<br/>D = Split Spoon Sample<br/>MD = Unsuccessful Split Spoon Sample Attempt<br/>U = Thin Wall Tube Sample<br/>MU = Unsuccessful Thin Wall Tube Sample Attempt<br/>V = Field Vane Shear Test, PP = Pocket Penetrometer<br/>MV = Unsuccessful Field Vane Shear Test Attempt</div> <div>R = Rock Core Sample<br/>SSA = Solid Stem Auger<br/>HSA = Hollow Stem Auger<br/>RC = Roller Cone<br/>WOH = Weight of 140 lb. Hammer<br/>WOR/C = Weight of Rods or Casing<br/>WO1P = Weight of One Person</div> <div>S<sub>u</sub> = Peak/Remolded Field Vane Undrained Shear Strength (psf)<br/>S<sub>u</sub>(lab) = Lab Vane Undrained Shear Strength (psf)<br/>q<sub>p</sub> = Unconfined Compressive Strength (ksf)<br/>N-uncorrected = Raw Field SPT N-value<br/>Hammer Efficiency Factor = Rig Specific Annual Calibration Value<br/>N<sub>60</sub> = SPT N-uncorrected Corrected for Hammer Efficiency<br/>N<sub>60</sub> = (Hammer Efficiency Factor/60%)*N-uncorrected</div> <div>T<sub>y</sub> = Pocket Torvane Shear Strength (psf)<br/>WC = Water Content, percent<br/>LL = Liquid Limit<br/>PL = Plastic Limit<br/>PI = Plasticity Index<br/>G = Grain Size Analysis<br/>C = Consolidation Test</div> |                    |                 |                            |                                                                                                                                              |               |                 |              |                                                         |                                |                                                       |  |
| Depth (ft.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Sample Information |                 |                            |                                                                                                                                              |               |                 |              | Graphic Log                                             | Visual Description and Remarks | Laboratory Testing Results/ AASHTO and Unified Class. |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Sample No.         | Pen./Rec. (in.) | Sample Depth (ft.)         | Blows (16 in.) Shear Strength (psf) or RQD (%)                                                                                               | N-uncorrected | N <sub>60</sub> | Casing Blows |                                                         |                                |                                                       |  |
| 25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                 |                            |                                                                                                                                              |               |                 |              |                                                         |                                |                                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 10D V1             | 24/20           | 26.0 - 28.0<br>26.6 - 27.0 | 2/3/5/5<br>Su > 1860 psf                                                                                                                     | 8             | 12              |              |                                                         |                                |                                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 11D                | 24/12           | 28.0 - 30.0                | 8/26/18/50                                                                                                                                   | 44            | 66              |              |                                                         |                                |                                                       |  |
| 30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 12D                | 14/9            | 30.0 - 31.2                | 9/10/50(2")                                                                                                                                  |               |                 |              |                                                         |                                |                                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | R1                 | 60/52           | 31.2 - 36.2                | RQD = 85%                                                                                                                                    |               |                 |              |                                                         |                                |                                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |                 |                            |                                                                                                                                              |               |                 |              |                                                         |                                |                                                       |  |
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| 35                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                 |                            |                                                                                                                                              |               |                 |              |                                                         |                                |                                                       |  |
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| 40                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                 |                            |                                                                                                                                              |               |                 |              |                                                         |                                |                                                       |  |
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| 45                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                 |                            |                                                                                                                                              |               |                 |              |                                                         |                                |                                                       |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |                 |                            |                                                                                                                                              |               |                 |              |                                                         |                                |                                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |                 |                            |                                                                                                                                              |               |                 |              |                                                         |                                |                                                       |  |
| 50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                 |                            |                                                                                                                                              |               |                 |              |                                                         |                                |                                                       |  |
| <b>Remarks:</b><br>1. PID Make/Model: MiniRAE 3000.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                 |                            |                                                                                                                                              |               |                 |              |                                                         |                                |                                                       |  |
| 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                 |                            |                                                                                                                                              |               |                 |              |                                                         |                                |                                                       |  |
| Page 2 of 2<br>Boring No.: HB-SWAN-109                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                    |                 |                            |                                                                                                                                              |               |                 |              |                                                         |                                |                                                       |  |

| Maine Department of Transportation<br>Soil/Rock Exploration Log<br>US CUSTOMARY UNITS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |                                                                                                                                       |                    | Project: Route 141 Slope Stabilization<br>Location: Swanville, Maine |               | Boring No.: HB-SWAN-110<br>WIN: 023012.00 |              |             |                                                                                                                                                         |                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------------------------------|---------------|-------------------------------------------|--------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| Driller: S.W. Cole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                    | Elevation (ft.): 214.3                                                                                                                |                    | Auger ID/OD: --                                                      |               |                                           |              |             |                                                                                                                                                         |                                                      |
| Operator: K. Hanscom                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    | Datum: NAVD 88                                                                                                                        |                    | Sampler: Standard Split Spoon                                        |               |                                           |              |             |                                                                                                                                                         |                                                      |
| Logged By: J. Ilunga                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    | Rig Type: Diedrich D-50 ATV                                                                                                           |                    | Hammer Wt./Fall: 140#30"                                             |               |                                           |              |             |                                                                                                                                                         |                                                      |
| Date Start/Finish: 5-15-2023/5-15-2023                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    | Drilling Method: HW                                                                                                                   |                    | Core Barrel: --                                                      |               |                                           |              |             |                                                                                                                                                         |                                                      |
| Boring Location: Sta. 139+00, 6' E of Centerline                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                    | Casing ID/OD: HW-4.0 in. ID                                                                                                           |                    | Water Level*: 15 ft                                                  |               |                                           |              |             |                                                                                                                                                         |                                                      |
| Hammer Efficiency Factor: 0.91                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    | Hammer Type: Automatic <input checked="" type="checkbox"/> Hydraulic <input type="checkbox"/> Rope & Cathead <input type="checkbox"/> |                    |                                                                      |               |                                           |              |             |                                                                                                                                                         |                                                      |
| <div> <div> Definitions:<br/> D = Split Spoon Sample<br/> MD = Unsuccessful Split Spoon Sample Attempt<br/> U = Thin Wall Tube Sample<br/> MU = Unsuccessful Thin Wall Tube Sample Attempt<br/> V = Field Vane Shear Test, PP = Pocket Penetrometer<br/> MV = Unsuccessful Field Vane Shear Test Attempt </div> <div> R = Rock Core Sample<br/> SSA = Solid Stem Auger<br/> HSA = Hollow Stem Auger<br/> RC = Roller Cone<br/> WOH = Weight of 140lb. Hammer<br/> WOR/C = Weight of Rods or Casing<br/> WO1P = Weight of One Person </div> <div> S<sub>u</sub> = Peak/Remolded Field Vane Undrained Shear Strength (psf)<br/> S<sub>u(lab)</sub> = Lab Vane Undrained Shear Strength (psf)<br/> q<sub>p</sub> = Unconfined Compressive Strength (ksf)<br/> N-uncorrected = Raw Field SPT N-value<br/> Hammer Efficiency Factor = Rig Specific Annual Calibration Value<br/> N<sub>60</sub> = SPT N-uncorrected Corrected for Hammer Efficiency<br/> N<sub>60</sub> = (Hammer Efficiency Factor/60%)*N-uncorrected </div> <div> T<sub>v</sub> = Pocket Torvane Shear Strength (psf)<br/> WC = Water Content, percent<br/> LL = Liquid Limit<br/> PL = Plastic Limit<br/> PI = Plasticity Index<br/> G = Grain Size Analysis<br/> C = Consolidation Test </div> </div> |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |             |                                                                                                                                                         |                                                      |
| Depth (ft.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Sample Information |                                                                                                                                       |                    |                                                                      |               |                                           |              | Graphic Log | Visual Description and Remarks                                                                                                                          | Laboratory Testing Results/AASHTO and Unified Class. |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Sample No.         | Pen./Rec. (in.)                                                                                                                       | Sample Depth (ft.) | Blows (6 in.) Shear Strength (psf) or RQD (%)                        | N-uncorrected | N <sub>60</sub>                           | Casing Blows |             |                                                                                                                                                         |                                                      |
| 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |                                                                                                                                       |                    |                                                                      |               |                                           | HW           |             | Bituminous Concrete                                                                                                                                     |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1D                 | 24/17                                                                                                                                 | 1.0 - 3.0          | 11/11/12/10                                                          | 23            | 35                                        |              | 213.3       | Brown, dry, dense, fine to coarse SAND, little fine gravel, trace silt, well graded (Fill). PID Reading = 0.7 ppm.                                      | 1.0                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2D                 | 24/7                                                                                                                                  | 3.0 - 5.0          | 6/12/21/19                                                           | 33            | 50                                        |              |             | Dark brown, dry, very dense, fine to coarse SAND, some gravel, trace silt, well graded (Fill). PID Reading = 0.4 ppm.                                   |                                                      |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 3D                 | 24/15                                                                                                                                 | 5.0 - 7.0          | 2/12/20/12                                                           | 32            | 49                                        |              | 207.3       | Brown to dark brown, dry, dense, fine to coarse SAND, trace gravel, trace silt, well graded, contains plant roots (Fill). PID Reading = 0.2 ppm.        | 7.0                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 4D                 | 24/19                                                                                                                                 | 7.0 - 9.0          | 14/12/14/14                                                          | 26            | 39                                        |              | 205.3       | Brown, dry, hard, fine Sandy SILT, trace gravel (Glaciomarine Deposit). PID Reading = 0.1 ppm.                                                          | 9.0                                                  |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 5D                 | 24/24                                                                                                                                 | 9.0 - 11.0         | 3/6/14/18                                                            | 20            | 30                                        |              | 203.3       | Brown, moist, medium dense, Silty fine SAND, trace medium to coarse sand, trace fine gravel, trace roots (Glaciomarine Deposit). PID Reading = 0.2 ppm. | 11.0                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 6D                 | 24/14                                                                                                                                 | 11.0 - 13.0        | 22/20/21/27                                                          | 41            | 62                                        |              |             | Grey-brown, moist, very dense, fine to coarse SAND, little gravel, trace silt, well graded (Glaciomarine Deposit). PID Reading = 0.2 ppm.               |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 7D                 | 24/15                                                                                                                                 | 13.0 - 15.0        | 17/22/27/23                                                          | 49            | 74                                        |              |             | Grey-brown, moist, very dense, Gravelly fine to coarse SAND, trace silt, well graded, (Glaciomarine Deposit). PID Reading = 0.2 ppm.                    |                                                      |
| 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 8D                 | 24/14                                                                                                                                 | 15.0 - 17.0        | 10/12/14/12                                                          | 26            | 39                                        | 28           |             | Grey-brown, wet, dense, fine to coarse SAND, some gravel, little silt, well graded (Glaciomarine Deposit). PID Reading = 0.3 ppm.                       |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                                                                                                                                       |                    |                                                                      |               |                                           | 32           |             |                                                                                                                                                         |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 9D                 | 24/18                                                                                                                                 | 17.0 - 19.0        | 12/12/11/14                                                          | 23            | 35                                        | 37           |             | Similar to 8D (Glaciomarine Deposit). PID Reading = 0.3 ppm.                                                                                            |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                                                                                                                                       |                    |                                                                      |               |                                           | 26           |             |                                                                                                                                                         |                                                      |
| 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 10D                | 24/11                                                                                                                                 | 19.0 - 21.0        | 9/10/11/10                                                           | 21            | 32                                        | 26           |             | Similar to 8D, except trace silt (Glaciomarine Deposit). PID Reading = 0.2 ppm.                                                                         |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                                                                                                                                       |                    |                                                                      |               |                                           | 42           |             |                                                                                                                                                         |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 11D                | 24/12                                                                                                                                 | 21.0 - 23.0        | 11/8/14/16                                                           | 22            | 33                                        | 45           |             | Similar to 8D, except trace silt (Glaciomarine Deposit). PID Reading = 0.4 ppm.                                                                         |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                                                                                                                                       |                    |                                                                      |               |                                           | 43           |             |                                                                                                                                                         |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                                                                                                                                       |                    |                                                                      |               |                                           | 72           |             | Note: Washed ahead of casing from 23 to 24 ft.                                                                                                          |                                                      |
| 25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 12D                | 24/13                                                                                                                                 | 24.0 - 26.0        | 10/7/8/9                                                             | 15            | 23                                        | 30           |             | Similar to 8D, except medium dense (Glaciomarine Deposit). PID Reading = 0.2 ppm.                                                                       |                                                      |

Remarks:

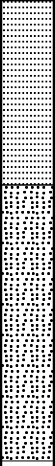
1. PID Make/Model: MiniRAE 3000 1592-919973.

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

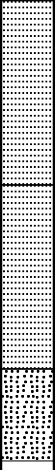
Page 1 of 2

\* 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-SWAN-110

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|--------------------|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------------|-------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------------------------------------------|-------------------------------------------|--|
| Maine Department of Transportation<br>Soil/Rock Exploration Log<br>US CUSTOMARY UNITS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                    |                                                |                                                                                                                                       |                 |              |       |                                                                                    | Project: Route 141 Slope Stabilization<br>Location: Swanville, Maine                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                |                                                       | Boring No.: HB-SWAN-110<br>WIN: 023012.00 |  |
| Driller: S.W. Cole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                 |                    |                                                | Elevation (ft.): 214.3                                                                                                                |                 |              |       |                                                                                    | Auger ID/OD: --                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                |                                                       |                                           |  |
| Operator: K. Hanscom                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |                 |                    |                                                | Datum: NAVD 88                                                                                                                        |                 |              |       |                                                                                    | Sampler: Standard Split Spoon                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                |                                                       |                                           |  |
| Logged By: J. Ilunga                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |                 |                    |                                                | Rig Type: Diedrich D-50 ATV                                                                                                           |                 |              |       |                                                                                    | Hammer Wt./Fall: 140#30"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                |                                                       |                                           |  |
| Date Start/Finish: 5-15-2023/5-15-2023                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                    |                 |                    |                                                | Drilling Method: HW                                                                                                                   |                 |              |       |                                                                                    | Core Barrel: --                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                |                                                       |                                           |  |
| Boring Location: Sta. 139+00, 6' E of Centerline                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |                 |                    |                                                | Casing ID/OD: HW-4.0 in. ID                                                                                                           |                 |              |       |                                                                                    | Water Level*: 15 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                |                                                       |                                           |  |
| Hammer Efficiency Factor: 0.91                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                 |                    |                                                | Hammer Type: Automatic <input checked="" type="checkbox"/> Hydraulic <input type="checkbox"/> Rope & Cathead <input type="checkbox"/> |                 |              |       |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                |                                                       |                                           |  |
| Definitions:<br>D = Split Spoon Sample<br>MD = Unsuccessful Split Spoon Sample Attempt<br>U = Thin Wall Tube Sample<br>MU = Unsuccessful Thin Wall Tube Sample Attempt<br>V = Field Vane Shear Test, PP = Pocket Penetrometer<br>MV = Unsuccessful Field Vane Shear Test Attempt<br>R = Rock Core Sample<br>SSA = Solid Stem Auger<br>HSA = Hollow Stem Auger<br>RC = Roller Cone<br>WOH = Weight of 140 lb. Hammer<br>WOR/C = Weight of Rods or Casing<br>WO1P = Weight of One Person<br>S <sub>u</sub> = Peak/Remolded Field Vane Undrained Shear Strength (psf)<br>S <sub>u(lab)</sub> = Lab Vane Undrained Shear Strength (psf)<br>q <sub>p</sub> = Unconfined Compressive Strength (ksf)<br>N-uncorrected = Raw Field SPT N-value<br>Hammer Efficiency Factor = Rig Specific Annual Calibration Value<br>N <sub>60</sub> = SPT N-uncorrected Corrected for Hammer Efficiency<br>N <sub>60</sub> = (Hammer Efficiency Factor/60%)*N-uncorrected<br>T <sub>y</sub> = Pocket Torvane Shear Strength (psf)<br>WC = Water Content, percent<br>LL = Liquid Limit<br>PL = Plastic Limit<br>PI = Plasticity Index<br>G = Grain Size Analysis<br>C = Consolidation Test |                    |                 |                    |                                                |                                                                                                                                       |                 |              |       |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                |                                                       |                                           |  |
| Depth (ft.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Sample Information |                 |                    |                                                |                                                                                                                                       |                 |              |       | Elevation (ft.)                                                                    | Graphic Log                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Visual Description and Remarks | Laboratory Testing Results/ AASHTO and Unified Class. |                                           |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Sample No.         | Pen./Rec. (in.) | Sample Depth (ft.) | Blows (16 in.) Shear Strength (psf) or RQD (%) | N-uncorrected                                                                                                                         | N <sub>60</sub> | Casing Blows |       |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                |                                                       |                                           |  |
| 25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                 |                    |                                                |                                                                                                                                       |                 | 39           | 185.3 |  | Grey-brown, wet, medium dense, fine to coarse SAND, some gravel, little silt, well graded (Glaciomarine Deposit).<br><br>-----29.0'<br>Grey, wet, medium dense, medium to coarse SAND, some fine gravel, trace fine sand, poorly-graded (Glaciomarine Deposit). PID Reading = 0.3 ppm.<br><br>Similar to 14D, except medium dense, little fine gravel (Glaciomarine Deposit). PID Reading = 0.3 ppm.<br><br>Grey, wet, medium dense, fine to medium SAND, little fine gravel, trace coarse sand, trace silt, occasionally slightly bonded (Glaciomarine Deposit). PID Reading = 0.4 ppm.<br><br>-----35.0'<br><b>Bottom of Exploration at 35.0 feet below ground surface.</b> |                                |                                                       |                                           |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 13D                | 24/16           | 26.0 - 28.0        | 9/9/7/7                                        | 16                                                                                                                                    | 24              | 59           |       |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                |                                                       |                                           |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 14D                | 24/6            | 29.0 - 31.0        | 9/11/9/9                                       | 20                                                                                                                                    | 30              | 57           |       |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                |                                                       |                                           |  |
| 30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                 |                    |                                                |                                                                                                                                       |                 | 55           |       |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                |                                                       |                                           |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 15D                | 24/8            | 31.0 - 33.0        | 4/4/5/5                                        | 9                                                                                                                                     | 14              |              |       |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                |                                                       |                                           |  |
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| 35                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                 |                    |                                                |                                                                                                                                       |                 |              | 179.3 |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                |                                                       |                                           |  |
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| Remarks:<br>1. PID Make/Model: MiniRAE 3000 1592-919973.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                 |                    |                                                |                                                                                                                                       |                 |              |       |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                |                                                       |                                           |  |
| Stratification lines represent approximate boundaries between soil types; transitions may be gradual.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                 |                    |                                                |                                                                                                                                       |                 |              |       |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                | Page 2 of 2                                           |                                           |  |
| * 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-SWAN-110                               |                                           |  |

| Maine Department of Transportation<br>Soil/Rock Exploration Log<br>US CUSTOMARY UNITS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                    |                                                                                                                                       |                    | Project: Route 141 Slope Stabilization<br>Location: Swanville, Maine |               | Boring No.: HB-SWAN-111<br>WIN: 023012.00 |              |             |                                                                                                                                     |                                                      |
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| Driller: S.W. Cole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    | Elevation (ft.): 216.0                                                                                                                |                    | Auger ID/OD: --                                                      |               |                                           |              |             |                                                                                                                                     |                                                      |
| Operator: K. Hanscom                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    | Datum: NAVD 88                                                                                                                        |                    | Sampler: Standard Split Spoon                                        |               |                                           |              |             |                                                                                                                                     |                                                      |
| Logged By: J. Ilunga                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    | Rig Type: Diedrich D-50 ATV                                                                                                           |                    | Hammer Wt./Fall: 140#30"                                             |               |                                           |              |             |                                                                                                                                     |                                                      |
| Date Start/Finish: 5-15-2023/5-15-2023                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                    | Drilling Method: HW                                                                                                                   |                    | Core Barrel: --                                                      |               |                                           |              |             |                                                                                                                                     |                                                      |
| Boring Location: Sta. 139+60, 6' E of Centerline                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                    | Casing ID/OD: HW-4.0 in. ID                                                                                                           |                    | Water Level*: 15 ft                                                  |               |                                           |              |             |                                                                                                                                     |                                                      |
| Hammer Efficiency Factor: 0.91                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                    | Hammer Type: Automatic <input checked="" type="checkbox"/> Hydraulic <input type="checkbox"/> Rope & Cathead <input type="checkbox"/> |                    |                                                                      |               |                                           |              |             |                                                                                                                                     |                                                      |
| Definitions:<br>D = Split Spoon Sample<br>MD = Unsuccessful Split Spoon Sample Attempt<br>U = Thin Wall Tube Sample<br>MU = Unsuccessful Thin Wall Tube Sample Attempt<br>V = Field Vane Shear Test, PP = Pocket Penetrometer<br>MV = Unsuccessful Field Vane Shear Test Attempt<br>R = Rock Core Sample<br>SSA = Solid Stem Auger<br>HSA = Hollow Stem Auger<br>RC = Roller Cone<br>WOH = Weight of 140lb. Hammer<br>WOR/C = Weight of Rods or Casing<br>WO1P = Weight of One Person<br>S <sub>u</sub> = Peak/Remolded Field Vane Undrained Shear Strength (psf)<br>S <sub>u(lab)</sub> = Lab Vane Undrained Shear Strength (psf)<br>q <sub>p</sub> = Unconfined Compressive Strength (ksf)<br>N-uncorrected = Raw Field SPT N-value<br>Hammer Efficiency Factor = Rig Specific Annual Calibration Value<br>N <sub>60</sub> = SPT N-uncorrected Corrected for Hammer Efficiency<br>N <sub>60</sub> = (Hammer Efficiency Factor/60%)*N-uncorrected<br>T <sub>v</sub> = Pocket Torvane Shear Strength (psf)<br>WC = Water Content, percent<br>LL = Liquid Limit<br>PL = Plastic Limit<br>PI = Plasticity Index<br>G = Grain Size Analysis<br>C = Consolidation Test |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |             |                                                                                                                                     |                                                      |
| Depth (ft.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Sample Information |                                                                                                                                       |                    |                                                                      |               |                                           |              | Graphic Log | Visual Description and Remarks                                                                                                      | Laboratory Testing Results/AASHTO and Unified Class. |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Sample No.         | Pen./Rec. (in.)                                                                                                                       | Sample Depth (ft.) | Blows (6 in.) Shear Strength (psf) or RQD (%)                        | N-uncorrected | N <sub>60</sub>                           | Casing Blows |             |                                                                                                                                     |                                                      |
| 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                                                                                                                                       |                    |                                                                      |               |                                           | HW           | 214.7       | Bituminous Concrete                                                                                                                 |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1D                 | 24/13                                                                                                                                 | 1.0 - 3.0          | 8/6/3/5                                                              | 9             | 14                                        |              |             | Brown, dry, medium dense, fine to coarse SAND, little gravel, trace silt, well graded (Fill). PID Reading = 0 ppm.                  |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2D                 | 24/11                                                                                                                                 | 3.0 - 5.0          | 3/7/5/3                                                              | 12            | 18                                        |              |             | Brown, dry, medium dense, fine to coarse SAND, some gravel, little silt, well graded (Fill). PID Reading = 0 ppm.                   |                                                      |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 3D                 | 24/8                                                                                                                                  | 5.0 - 7.0          | 3/4/3/4                                                              | 7             | 11                                        |              |             | Brown, dry, medium dense, fine to coarse SAND, little silt, trace gravel, well graded (Fill). PID Reading = 0.1 ppm.                |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 4D                 | 24/15                                                                                                                                 | 7.0 - 9.0          | 8/9/10/9                                                             | 19            | 29                                        |              |             | Brown, dry, medium dense, fine to coarse SAND, some gravel, trace silt, well graded (Fill). PID Reading = 0.1 ppm.                  |                                                      |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 5D                 | 24/7                                                                                                                                  | 9.0 - 11.0         | 6/6/7/9                                                              | 13            | 20                                        |              |             | Brown, dry, medium dense, fine to coarse SAND, some gravel, little silt, well graded (Fill). PID Reading = 0.2 ppm.                 |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 6D                 | 24/13                                                                                                                                 | 11.0 - 13.0        | 16/18/12/10                                                          | 30            | 46                                        | 15           |             | Brown, dry, dense, fine to coarse SAND, little gravel, trace silt, well graded (Fill). PID Reading = 0.2 ppm.                       |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 7D                 | 24/13                                                                                                                                 | 13.0 - 15.0        | 9/11/11/7                                                            | 22            | 33                                        | 11           |             | Brown-grey, dry, dense, fine to coarse SAND, some gravel, trace silt, well graded (Fill). PID Reading = 0.3 ppm.                    |                                                      |
| 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 8D                 | 24/6                                                                                                                                  | 15.0 - 17.0        | 4/1/3/3                                                              | 4             | 6                                         | 18           |             | Grey, wet, loose, fine to coarse Sandy GRAVEL, little silt, well graded (Glaciomarine Deposit). PID Reading = 0.4 ppm.              | G#3724333<br>A-1-a(0), GW                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 9D                 | 24/4                                                                                                                                  | 17.0 - 19.0        | 4/5/9/7                                                              | 14            | 21                                        | 28           |             | Similar to D8, except medium dense, trace silt (Glaciomarine Deposit). PID Reading = 0.2 ppm.                                       |                                                      |
| 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 10D                | 24/17                                                                                                                                 | 19.0 - 21.0        | 4/5/5/9                                                              | 10            | 15                                        | 34           |             | Grey, wet, medium dense, fine to coarse SAND, little gravel, trace silt, well graded (Glaciomarine Deposit). PID Reading = 0.4 ppm. |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 11D                | 24/8                                                                                                                                  | 21.0 - 23.0        | 8/8/8/11                                                             | 16            | 24                                        | 32           |             | Grey, wet, medium dense, fine to coarse sandy GRAVEL, little silt (Glaciomarine Deposit). PID Reading = 0.3 ppm.                    |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |                                                                                                                                       |                    |                                                                      |               |                                           | 48           |             | Note: Washed ahead from 23 to 24 ft.                                                                                                |                                                      |
| 25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 12D                | 12/5                                                                                                                                  | 24.0 - 25.0        | 8/8/8/11                                                             | 16            | 24                                        | 47           |             | Grey, wet, medium dense, Gravelly fine to coarse SAND, trace                                                                        |                                                      |
| <b>Remarks:</b><br>1. PID Make/Model: MiniRAE 3000 1592-919973.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |             |                                                                                                                                     |                                                      |
| Stratification lines represent approximate boundaries between soil types; transitions may be gradual.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                    |                                                                                                                                       |                    |                                                                      |               |                                           |              |             | Page 1 of 2                                                                                                                         |                                                      |
| * 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-SWAN-111                                                                                                             |                                                      |

|                                                                                                                                                                                                                                                                                  |                    |                 |                                                                                                                                                                                                    |                                                |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                               |              |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| <b>Maine Department of Transportation</b><br>Soil/Rock Exploration Log<br>US CUSTOMARY UNITS                                                                                                                                                                                     |                    |                 |                                                                                                                                                                                                    |                                                | <b>Project:</b> Route 141 Slope Stabilization<br><b>Location:</b> Swanville, Maine |                                                                                                                                                                                                                                                                                                                                                                                               |              | <b>Boring No.:</b> HB-SWAN-111<br><b>WIN:</b> 023012.00                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
| <b>Driller:</b> S.W. Cole                                                                                                                                                                                                                                                        |                    |                 | <b>Elevation (ft.):</b> 216.0                                                                                                                                                                      |                                                |                                                                                    | <b>Auger ID/OD:</b> --                                                                                                                                                                                                                                                                                                                                                                        |              |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
| <b>Operator:</b> K. Hanscom                                                                                                                                                                                                                                                      |                    |                 | <b>Datum:</b> NAVD 88                                                                                                                                                                              |                                                |                                                                                    | <b>Sampler:</b> Standard Split Spoon                                                                                                                                                                                                                                                                                                                                                          |              |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
| <b>Logged By:</b> J. Ilunga                                                                                                                                                                                                                                                      |                    |                 | <b>Rig Type:</b> Diedrich D-50 ATV                                                                                                                                                                 |                                                |                                                                                    | <b>Hammer Wt./Fall:</b> 140#30"                                                                                                                                                                                                                                                                                                                                                               |              |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
| <b>Date Start/Finish:</b> 5-15-2023/5-15-2023                                                                                                                                                                                                                                    |                    |                 | <b>Drilling Method:</b> HW                                                                                                                                                                         |                                                |                                                                                    | <b>Core Barrel:</b> --                                                                                                                                                                                                                                                                                                                                                                        |              |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
| <b>Boring Location:</b> Sta. 139+60, 6' E of Centerline                                                                                                                                                                                                                          |                    |                 | <b>Casing ID/OD:</b> HW-4.0 in. ID                                                                                                                                                                 |                                                |                                                                                    | <b>Water Level*:</b> 15 ft                                                                                                                                                                                                                                                                                                                                                                    |              |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
| <b>Hammer Efficiency Factor:</b> 0.91                                                                                                                                                                                                                                            |                    |                 | <b>Hammer Type:</b> Automatic <input checked="" type="checkbox"/> Hydraulic <input type="checkbox"/> Rope & Cathead <input type="checkbox"/>                                                       |                                                |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                               |              |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
| Definitions:<br>D = Split Spoon Sample<br>MD = Unsuccessful Split Spoon Sample Attempt<br>U = Thin Wall Tube Sample<br>MU = Unsuccessful Thin Wall Tube Sample Attempt<br>V = Field Vane Shear Test, PP = Pocket Penetrometer<br>MV = Unsuccessful Field Vane Shear Test Attempt |                    |                 | R = Rock Core Sample<br>SSA = Solid Stem Auger<br>HSA = Hollow Stem Auger<br>RC = Roller Cone<br>WOH = Weight of 140 lb. Hammer<br>WOR/C = Weight of Rods or Casing<br>WO1P = Weight of One Person |                                                |                                                                                    | Su = Peak/Remolded Field Vane Undrained Shear Strength (psf)<br>Su(lab) = Lab Vane Undrained Shear Strength (psf)<br>qp = Unconfined Compressive Strength (ksf)<br>N-uncorrected = Raw Field SPT N-value<br>Hammer Efficiency Factor = Rig Specific Annual Calibration Value<br>N60 = SPT N-uncorrected Corrected for Hammer Efficiency<br>N60 = (Hammer Efficiency Factor/60%)*N-uncorrected |              |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
|                                                                                                                                                                                                                                                                                  |                    |                 | Ty = Pocket Torvane Shear Strength (psf)<br>WC = Water Content, percent<br>LL = Liquid Limit<br>PL = Plastic Limit<br>PI = Plasticity Index<br>G = Grain Size Analysis<br>C = Consolidation Test   |                                                |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                               |              |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
| Depth (ft.)                                                                                                                                                                                                                                                                      | Sample Information |                 |                                                                                                                                                                                                    |                                                |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                               |              | Graphic Log                                                                        | Visual Description and Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Laboratory Testing Results/ AASHTO and Unified Class. |
|                                                                                                                                                                                                                                                                                  | Sample No.         | Pen./Rec. (in.) | Sample Depth (ft.)                                                                                                                                                                                 | Blows (16 in.) Shear Strength (psf) or RQD (%) | N-uncorrected                                                                      | N60                                                                                                                                                                                                                                                                                                                                                                                           | Casing Blows |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
| 25                                                                                                                                                                                                                                                                               |                    |                 |                                                                                                                                                                                                    |                                                |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                               | 46           |  | silt (Glaciomarine Deposit). PID Reading = 0.3 ppm.<br><br>Similar to 10D (Glaciomarine Deposit).<br><br>-----29.0'<br>Grey, wet, medium dense, fine to coarse SAND, little gravel, trace silt, well graded (Glaciomarine Deposit). PID Reading = 0.2 ppm.<br><br>Similar to 14D (Glaciomarine Deposit). PID Reading = 0.5 ppm.<br><br>-----33.0'<br>Grey, wet, medium dense, fine to medium SAND, little coarse sand, little gravel, trace silt, poorly-graded (Glaciomarine Deposit). PID Reading = 0.4 ppm.<br><br>-----35.0'<br><b>Bottom of Exploration at 35.0 feet below ground surface.</b> |                                                       |
|                                                                                                                                                                                                                                                                                  | 13D                | 24/11           | 26.0 - 28.0                                                                                                                                                                                        | 8/8/9/13                                       | 17                                                                                 | 26                                                                                                                                                                                                                                                                                                                                                                                            | 45           |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
|                                                                                                                                                                                                                                                                                  |                    |                 |                                                                                                                                                                                                    |                                                |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                               | 26           |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
|                                                                                                                                                                                                                                                                                  |                    |                 |                                                                                                                                                                                                    |                                                |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                               | 36           |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
|                                                                                                                                                                                                                                                                                  | 14D                | 24/15           | 29.0 - 31.0                                                                                                                                                                                        | 5/7/10/15                                      | 17                                                                                 | 26                                                                                                                                                                                                                                                                                                                                                                                            | 48           |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
| 30                                                                                                                                                                                                                                                                               |                    |                 |                                                                                                                                                                                                    |                                                |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                               | 60           |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
|                                                                                                                                                                                                                                                                                  | 15D                | 24/11           | 31.0 - 33.0                                                                                                                                                                                        | 12/11/9/9                                      | 20                                                                                 | 30                                                                                                                                                                                                                                                                                                                                                                                            |              |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
|                                                                                                                                                                                                                                                                                  |                    |                 |                                                                                                                                                                                                    |                                                |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                               |              |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
|                                                                                                                                                                                                                                                                                  | 16D                | 24/18           | 33.0 - 35.0                                                                                                                                                                                        | 11/8/6/6                                       | 14                                                                                 | 21                                                                                                                                                                                                                                                                                                                                                                                            |              |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
|                                                                                                                                                                                                                                                                                  |                    |                 |                                                                                                                                                                                                    |                                                |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                               |              |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
| 35                                                                                                                                                                                                                                                                               |                    |                 |                                                                                                                                                                                                    |                                                |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                               |              |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
|                                                                                                                                                                                                                                                                                  |                    |                 |                                                                                                                                                                                                    |                                                |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                               |              |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
| 40                                                                                                                                                                                                                                                                               |                    |                 |                                                                                                                                                                                                    |                                                |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                               |              |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
|                                                                                                                                                                                                                                                                                  |                    |                 |                                                                                                                                                                                                    |                                                |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                               |              |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
|                                                                                                                                                                                                                                                                                  |                    |                 |                                                                                                                                                                                                    |                                                |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                               |              |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
| 45                                                                                                                                                                                                                                                                               |                    |                 |                                                                                                                                                                                                    |                                                |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                               |              |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
|                                                                                                                                                                                                                                                                                  |                    |                 |                                                                                                                                                                                                    |                                                |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                               |              |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
|                                                                                                                                                                                                                                                                                  |                    |                 |                                                                                                                                                                                                    |                                                |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                               |              |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
| 50                                                                                                                                                                                                                                                                               |                    |                 |                                                                                                                                                                                                    |                                                |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                               |              |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
| <b>Remarks:</b><br>1. PID Make/Model: MiniRAE 3000 1592-919973.                                                                                                                                                                                                                  |                    |                 |                                                                                                                                                                                                    |                                                |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                               |              |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                       |
| Stratification lines represent approximate boundaries between soil types; transitions may be gradual.                                                                                                                                                                            |                    |                 |                                                                                                                                                                                                    |                                                |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                               |              |                                                                                    | Page 2 of 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                       |
| * 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-SWAN-111                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                       |

**BEDROCK CORE PHOTOGRAPHS  
ROUTE 141 SLOPE STABILIZATION  
SWANVILLE, MAINE  
File No. 0205290-002**

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**Top Row:** HB-SWAN-108, Run No. 1 16.7 ft (left) to 19.6 ft (right)

**Top Middle Row:** Empty

**Bottom Middle Row:** Empty

**Bottom Row:** Empty

**BEDROCK CORE PHOTOGRAPHS  
ROUTE 141 SLOPE STABILIZATION  
SWANVILLE, MAINE  
File No. 0205290-002**

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**Top Row:** HB-SWAN-109, Run No. 1 31.2 ft (left) to 36.2 ft (right)

**Top Middle Row:** Empty

**Bottom Middle Row:** Empty

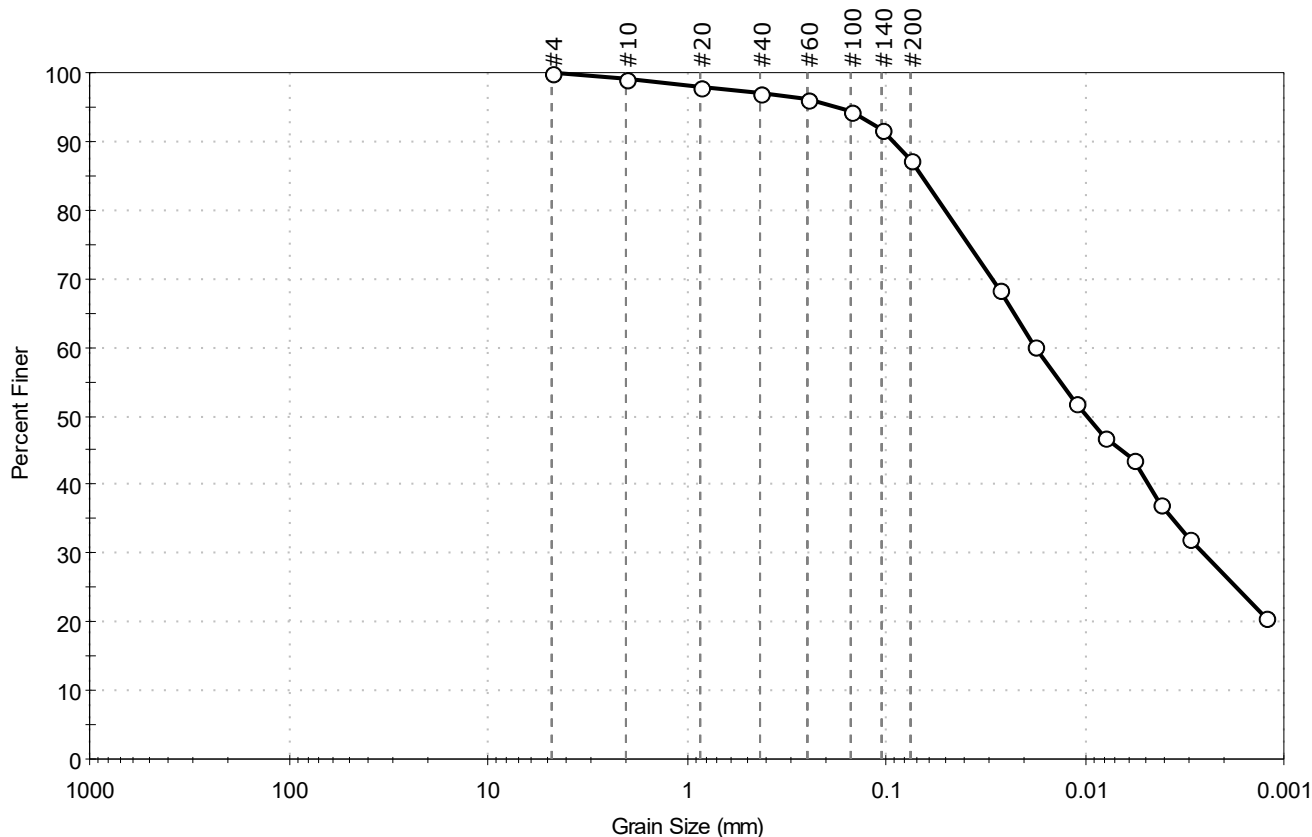
**Bottom Row:** Empty

## **APPENDIX B**

### **Geotechnical Laboratory Test Results**

|                                                 |                        |                 |
|-------------------------------------------------|------------------------|-----------------|
| Client: Haley & Aldrich, Inc.                   | Project No: GTX-317493 |                 |
| Project: Rte 141 Slope Stabilization            |                        |                 |
| Location: Swanville, ME                         |                        |                 |
| Boring ID: HB-SWAN-101                          | Sample Type: bucket    | Tested By: ckg  |
| Sample ID: 4D                                   | Test Date: 07/24/23    | Checked By: ank |
| Depth: 8-10'                                    | Test Id: 724325        |                 |
| Test Comment: ---                               |                        |                 |
| Visual Description: Moist, yellowish brown clay |                        |                 |
| Sample Comment: ---                             |                        |                 |

## Particle Size Analysis - ASTM D6913/D7928



| % Cobble | % Gravel | % Sand | % Silt & Clay Size |
|----------|----------|--------|--------------------|
| —        | 0.0      | 12.7   | 87.3               |

| Sieve Name | Sieve Size, mm     | Percent Finer | Spec. Percent | Complies |
|------------|--------------------|---------------|---------------|----------|
| #4         | 4.75               | 100           |               |          |
| #10        | 2.00               | 99            |               |          |
| #20        | 0.85               | 98            |               |          |
| #40        | 0.42               | 97            |               |          |
| #60        | 0.25               | 96            |               |          |
| #100       | 0.15               | 94            |               |          |
| #140       | 0.11               | 92            |               |          |
| #200       | 0.075              | 87            |               |          |
| Hydrometer | Particle Size (mm) | Percent Finer | Spec. Percent | Complies |
| ---        | 0.0267             | 68            |               |          |
| ---        | 0.0179             | 60            |               |          |
| ---        | 0.0112             | 52            |               |          |
| ---        | 0.0080             | 47            |               |          |
| ---        | 0.0057             | 44            |               |          |
| ---        | 0.0042             | 37            |               |          |
| ---        | 0.0030             | 32            |               |          |
| ---        | 0.0012             | 21            |               |          |

### Coefficients

$D_{85} = 0.0663$  mm       $D_{30} = 0.0026$  mm  
 $D_{60} = 0.0176$  mm       $D_{15} = \text{N/A}$   
 $D_{50} = 0.0098$  mm       $D_{10} = \text{N/A}$   
 $C_u = \text{N/A}$        $C_c = \text{N/A}$

### Classification

ASTM N/A

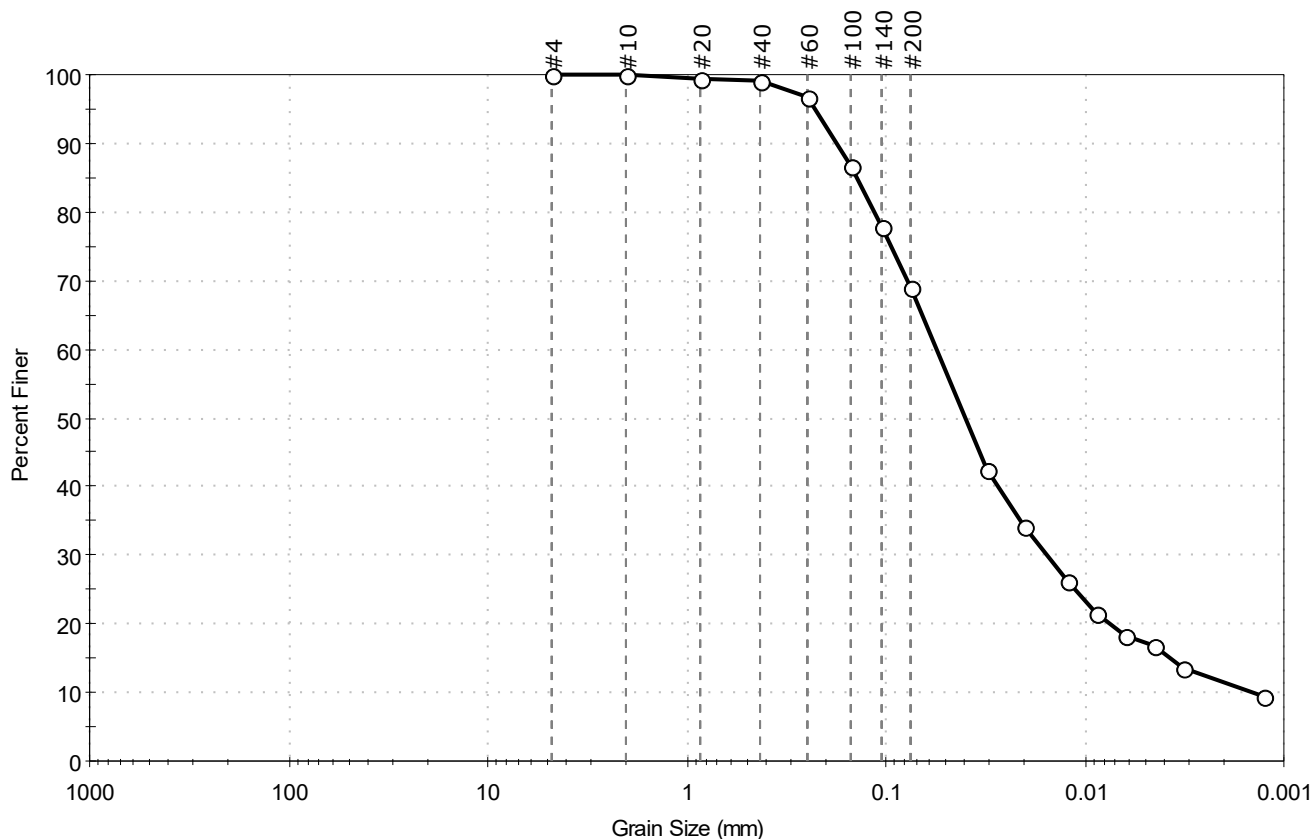
AASHTO Silty Soils (A-4 (0))

### Sample/Test Description

Sand/Gravel Particle Shape : ---  
 Sand/Gravel Hardness : ---  
 Dispersion Device : Apparatus A - Mech Mixer  
 Dispersion Period : 1 minute  
 Est. Specific Gravity : 2.65  
 Separation of Sample: #200 Sieve

|                                                            |                        |                 |
|------------------------------------------------------------|------------------------|-----------------|
| Client: Haley & Aldrich, Inc.                              | Project No: GTX-317493 |                 |
| Project: Rte 141 Slope Stabilization                       |                        |                 |
| Location: Swanville, ME                                    |                        |                 |
| Boring ID: HB-SWAN-102                                     | Sample Type: bucket    | Tested By: ckg  |
| Sample ID: 6D                                              | Test Date: 07/24/23    | Checked By: ank |
| Depth: 12-14'                                              | Test Id: 724326        |                 |
| Test Comment: ---                                          |                        |                 |
| Visual Description: Moist, dark yellowish brown sandy silt |                        |                 |
| Sample Comment: ---                                        |                        |                 |

## Particle Size Analysis - ASTM D6913/D7928



| % Cobble | % Gravel | % Sand | % Silt & Clay Size |
|----------|----------|--------|--------------------|
| —        | 0.0      | 30.8   | 69.2               |

| Sieve Name | Sieve Size, mm     | Percent Finer | Spec. Percent | Complies |
|------------|--------------------|---------------|---------------|----------|
| #4         | 4.75               | 100           |               |          |
| #10        | 2.00               | 100           |               |          |
| #20        | 0.85               | 99            |               |          |
| #40        | 0.42               | 99            |               |          |
| #60        | 0.25               | 97            |               |          |
| #100       | 0.15               | 87            |               |          |
| #140       | 0.11               | 78            |               |          |
| #200       | 0.075              | 69            |               |          |
| Hydrometer | Particle Size (mm) | Percent Finer | Spec. Percent | Complies |
| ---        | 0.0314             | 42            |               |          |
| ---        | 0.0204             | 34            |               |          |
| ---        | 0.0124             | 26            |               |          |
| ---        | 0.0088             | 22            |               |          |
| ---        | 0.0063             | 18            |               |          |
| ---        | 0.0045             | 17            |               |          |
| ---        | 0.0032             | 14            |               |          |
| ---        | 0.0013             | 9             |               |          |

### Coefficients

$D_{85} = 0.1397$  mm       $D_{30} = 0.0156$  mm  
 $D_{60} = 0.0557$  mm       $D_{15} = 0.0038$  mm  
 $D_{50} = 0.0403$  mm       $D_{10} = 0.0014$  mm  
 $C_u = 39.786$        $C_c = 3.121$

### Classification

ASTM N/A

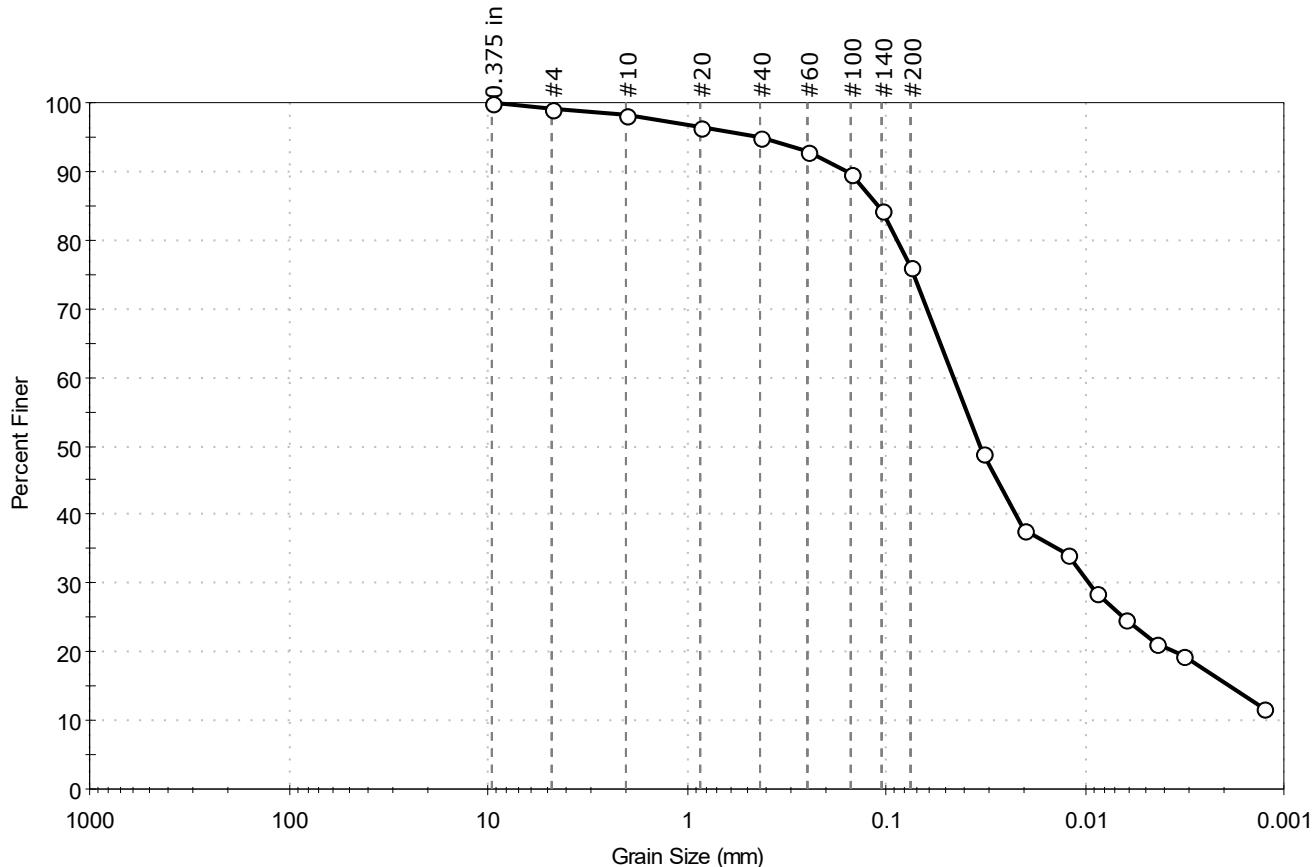
AASHTO Silty Soils (A-4 (0))

### Sample/Test Description

Sand/Gravel Particle Shape : ---  
 Sand/Gravel Hardness : ---  
 Dispersion Device : Apparatus A - Mech Mixer  
 Dispersion Period : 1 minute  
 Est. Specific Gravity : 2.65  
 Separation of Sample: #200 Sieve

|                                                 |                        |
|-------------------------------------------------|------------------------|
| Client: Haley & Aldrich, Inc.                   | Project No: GTX-317493 |
| Project: Rte 141 Slope Stabilization            |                        |
| Location: Swanville, ME                         |                        |
| Boring ID: HB-SWAN-103                          | Sample Type: bucket    |
| Sample ID: 3D                                   | Test Date: 07/24/23    |
| Depth: 5-7'                                     | Test Id: 724327        |
| Test Comment: ---                               | Tested By: ckg         |
| Visual Description: Moist, brown silt with sand | Checked By: ank        |
| Sample Comment: ---                             |                        |

## Particle Size Analysis - ASTM D6913/D7928



| % Cobble | % Gravel | % Sand | % Silt & Clay Size |
|----------|----------|--------|--------------------|
| —        | 0.8      | 23.2   | 76.0               |

| Sieve Name | Sieve Size, mm     | Percent Finer | Spec. Percent | Complies |
|------------|--------------------|---------------|---------------|----------|
| 0.375 in   | 9.50               | 100           |               |          |
| #4         | 4.75               | 99            |               |          |
| #10        | 2.00               | 98            |               |          |
| #20        | 0.85               | 96            |               |          |
| #40        | 0.42               | 95            |               |          |
| #60        | 0.25               | 93            |               |          |
| #100       | 0.15               | 90            |               |          |
| #140       | 0.11               | 84            |               |          |
| #200       | 0.075              | 76            |               |          |
| Hydrometer | Particle Size (mm) | Percent Finer | Spec. Percent | Complies |
| ---        | 0.0322             | 49            |               |          |
| ---        | 0.0201             | 38            |               |          |
| ---        | 0.0122             | 34            |               |          |
| ---        | 0.0088             | 29            |               |          |
| ---        | 0.0062             | 25            |               |          |
| ---        | 0.0044             | 21            |               |          |
| ---        | 0.0032             | 19            |               |          |
| ---        | 0.0013             | 12            |               |          |

### Coefficients

$D_{85} = 0.1112$  mm       $D_{30} = 0.0095$  mm  
 $D_{60} = 0.0454$  mm       $D_{15} = 0.0019$  mm  
 $D_{50} = 0.0332$  mm       $D_{10} = \text{N/A}$   
 $C_u = \text{N/A}$        $C_c = \text{N/A}$

### Classification

ASTM N/A

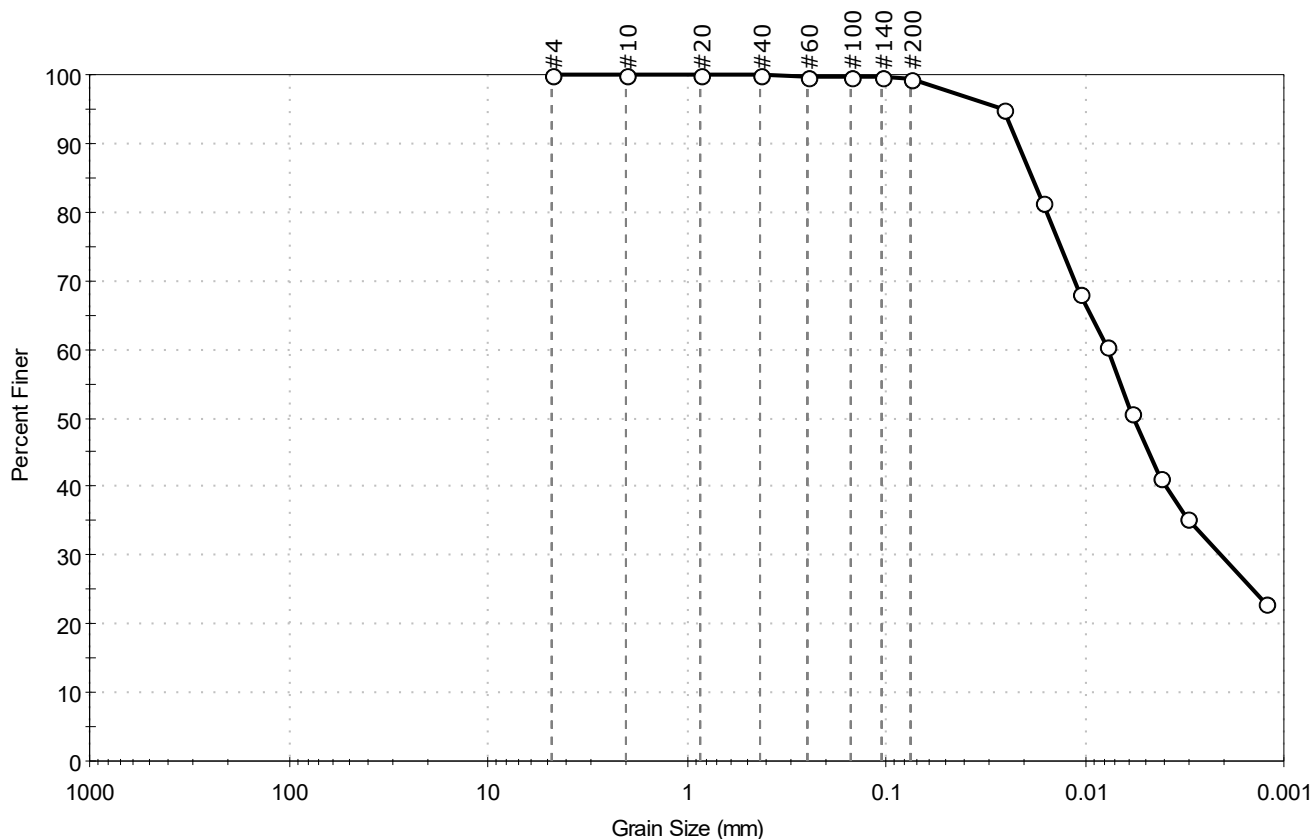
AASHTO Silty Soils (A-4 (0))

### Sample/Test Description

Sand/Gravel Particle Shape : ---  
 Sand/Gravel Hardness : ---  
 Dispersion Device : Apparatus A - Mech Mixer  
 Dispersion Period : 1 minute  
 Est. Specific Gravity : 2.65  
 Separation of Sample: #200 Sieve

|                                                 |                        |                 |
|-------------------------------------------------|------------------------|-----------------|
| Client: Haley & Aldrich, Inc.                   | Project No: GTX-317493 |                 |
| Project: Rte 141 Slope Stabilization            |                        |                 |
| Location: Swanville, ME                         |                        |                 |
| Boring ID: HB-SWAN-104                          | Sample Type: bucket    | Tested By: ckg  |
| Sample ID: 5D                                   | Test Date: 07/24/23    | Checked By: ank |
| Depth: 9-11'                                    | Test Id: 724328        |                 |
| Test Comment: ---                               |                        |                 |
| Visual Description: Moist, yellowish brown clay |                        |                 |
| Sample Comment: ---                             |                        |                 |

## Particle Size Analysis - ASTM D6913/D7928



| % Cobble | % Gravel | % Sand | % Silt & Clay Size |
|----------|----------|--------|--------------------|
| —        | 0.0      | 0.5    | 99.5               |

| Sieve Name | Sieve Size, mm     | Percent Finer | Spec. Percent | Complies |
|------------|--------------------|---------------|---------------|----------|
| #4         | 4.75               | 100           |               |          |
| #10        | 2.00               | 100           |               |          |
| #20        | 0.85               | 100           |               |          |
| #40        | 0.42               | 100           |               |          |
| #60        | 0.25               | 100           |               |          |
| #100       | 0.15               | 100           |               |          |
| #140       | 0.11               | 100           |               |          |
| #200       | 0.075              | 100           |               |          |
| Hydrometer | Particle Size (mm) | Percent Finer | Spec. Percent | Complies |
| ---        | 0.0257             | 95            |               |          |
| ---        | 0.0162             | 81            |               |          |
| ---        | 0.0105             | 68            |               |          |
| ---        | 0.0078             | 60            |               |          |
| ---        | 0.0058             | 51            |               |          |
| ---        | 0.0042             | 41            |               |          |
| ---        | 0.0030             | 35            |               |          |
| ---        | 0.0012             | 23            |               |          |

### Coefficients

$D_{85} = 0.0182$  mm       $D_{30} = 0.0021$  mm  
 $D_{60} = 0.0077$  mm       $D_{15} = \text{N/A}$   
 $D_{50} = 0.0056$  mm       $D_{10} = \text{N/A}$   
 $C_u = \text{N/A}$        $C_c = \text{N/A}$

### Classification

ASTM N/A

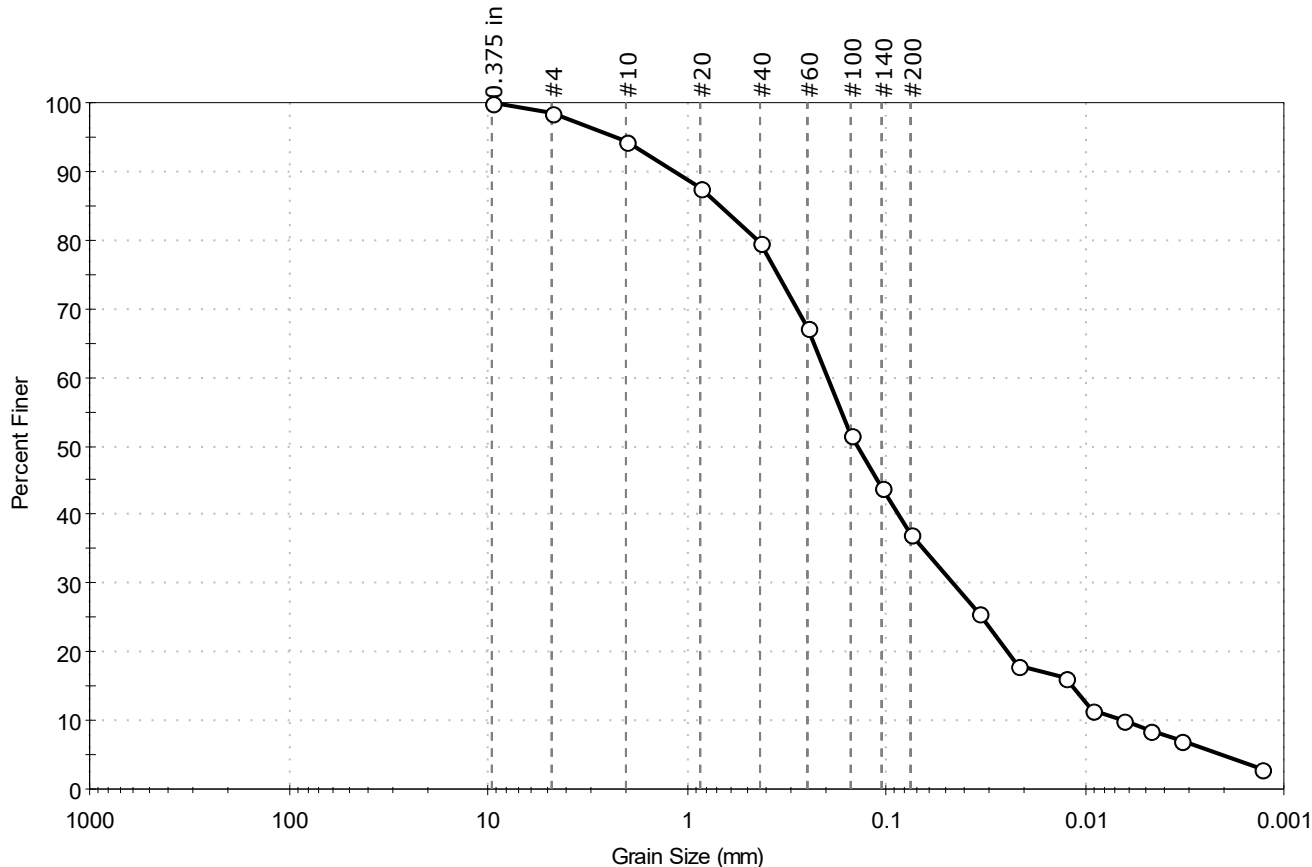
AASHTO Silty Soils (A-4 (0))

### Sample/Test Description

Sand/Gravel Particle Shape : ---  
 Sand/Gravel Hardness : ---  
 Dispersion Device : Apparatus A - Mech Mixer  
 Dispersion Period : 1 minute  
 Est. Specific Gravity : 2.65  
 Separation of Sample: #200 Sieve

|                                             |                        |                 |
|---------------------------------------------|------------------------|-----------------|
| Client: Haley & Aldrich, Inc.               | Project No: GTX-317493 |                 |
| Project: Rte 141 Slope Stabilization        |                        |                 |
| Location: Swanville, ME                     |                        |                 |
| Boring ID: HB-SWAN-105                      | Sample Type: bucket    | Tested By: ckg  |
| Sample ID: 4D                               | Test Date: 07/24/23    | Checked By: ank |
| Depth: 7-9'                                 | Test Id: 724329        |                 |
| Test Comment: ---                           |                        |                 |
| Visual Description: Moist, brown silty sand |                        |                 |
| Sample Comment: ---                         |                        |                 |

## Particle Size Analysis - ASTM D6913/D7928



| % Cobble | % Gravel | % Sand | % Silt & Clay Size |
|----------|----------|--------|--------------------|
| —        | 1.4      | 61.6   | 37.0               |

| Sieve Name | Sieve Size, mm     | Percent Finer | Spec. Percent | Complies |
|------------|--------------------|---------------|---------------|----------|
| 0.375 in   | 9.50               | 100           |               |          |
| #4         | 4.75               | 99            |               |          |
| #10        | 2.00               | 94            |               |          |
| #20        | 0.85               | 88            |               |          |
| #40        | 0.42               | 80            |               |          |
| #60        | 0.25               | 67            |               |          |
| #100       | 0.15               | 52            |               |          |
| #140       | 0.11               | 44            |               |          |
| #200       | 0.075              | 37            |               |          |
| Hydrometer | Particle Size (mm) | Percent Finer | Spec. Percent | Complies |
| ---        | 0.0340             | 26            |               |          |
| ---        | 0.0216             | 18            |               |          |
| ---        | 0.0125             | 16            |               |          |
| ---        | 0.0092             | 12            |               |          |
| ---        | 0.0065             | 10            |               |          |
| ---        | 0.0047             | 9             |               |          |
| ---        | 0.0033             | 7             |               |          |
| ---        | 0.0013             | 3             |               |          |

### Coefficients

$D_{85} = 0.6745$  mm       $D_{30} = 0.0458$  mm  
 $D_{60} = 0.1975$  mm       $D_{15} = 0.0115$  mm  
 $D_{50} = 0.1396$  mm       $D_{10} = 0.0064$  mm  
 $C_u = 30.859$        $C_c = 1.660$

### Classification

ASTM N/A

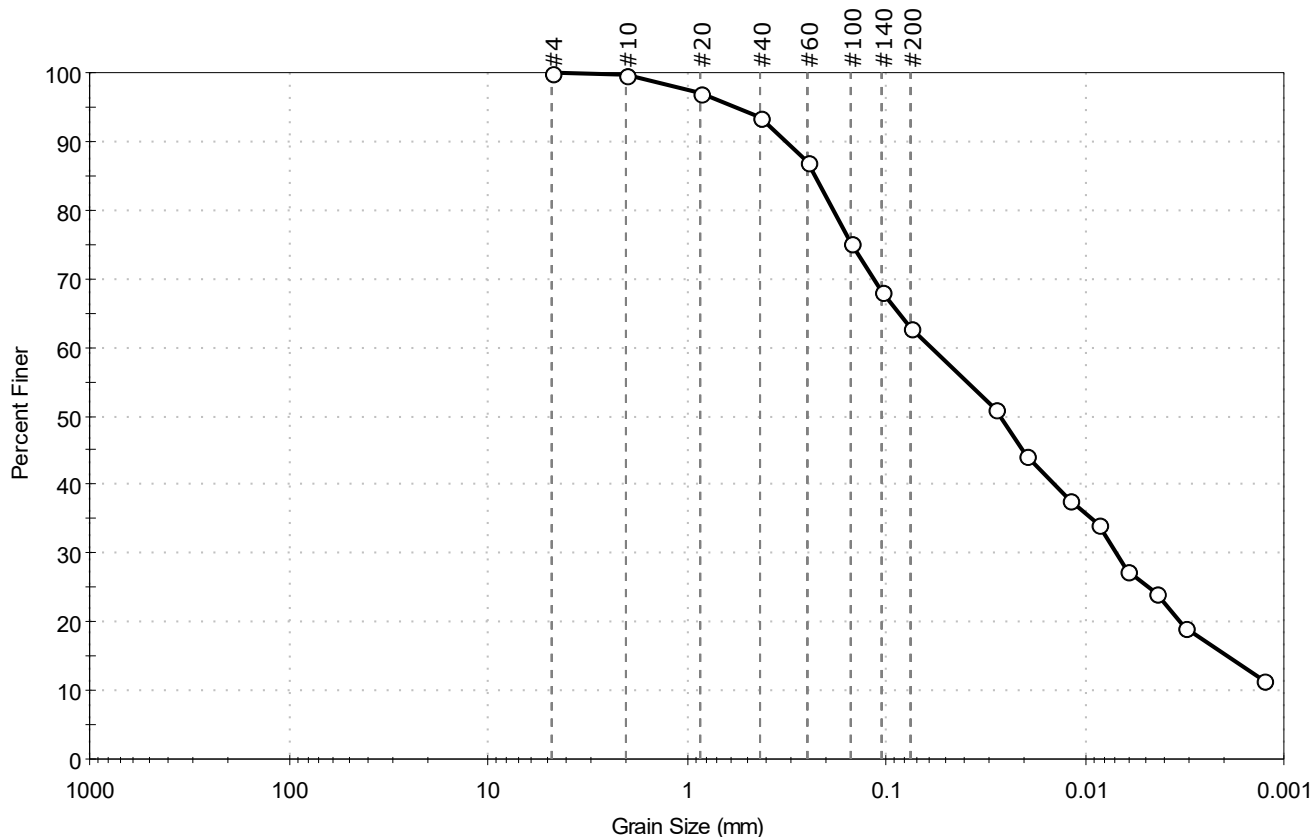
AASHTO Silty Soils (A-4 (0))

### Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR  
 Sand/Gravel Hardness : HARD  
 Dispersion Device : Apparatus A - Mech Mixer  
 Dispersion Period : 1 minute  
 Est. Specific Gravity : 2.65  
 Separation of Sample: #200 Sieve

|                                                       |                        |                 |
|-------------------------------------------------------|------------------------|-----------------|
| Client: Haley & Aldrich, Inc.                         | Project No: GTX-317493 |                 |
| Project: Rte 141 Slope Stabilization                  |                        |                 |
| Location: Swanville, ME                               |                        |                 |
| Boring ID: HB-SWAN-106                                | Sample Type: bucket    | Tested By: ckg  |
| Sample ID: 4D                                         | Test Date: 07/24/23    | Checked By: ank |
| Depth: 7-9                                            | Test Id: 724330        |                 |
| Test Comment: ---                                     |                        |                 |
| Visual Description: Moist, yellowish brown sandy silt |                        |                 |
| Sample Comment: ---                                   |                        |                 |

## Particle Size Analysis - ASTM D6913/D7928



| % Cobble | % Gravel | % Sand | % Silt & Clay Size |
|----------|----------|--------|--------------------|
| —        | 0.0      | 37.0   | 63.0               |

| Sieve Name | Sieve Size, mm     | Percent Finer | Spec. Percent | Complies |
|------------|--------------------|---------------|---------------|----------|
| #4         | 4.75               | 100           |               |          |
| #10        | 2.00               | 100           |               |          |
| #20        | 0.85               | 97            |               |          |
| #40        | 0.425              | 93            |               |          |
| #60        | 0.25               | 87            |               |          |
| #100       | 0.15               | 75            |               |          |
| #140       | 0.106              | 68            |               |          |
| #200       | 0.075              | 63            |               |          |
| Hydrometer | Particle Size (mm) | Percent Finer | Spec. Percent | Complies |
| ---        | 0.075              | 63            |               |          |
| ---        | 0.06               | 51            |               |          |
| ---        | 0.05               | 44            |               |          |
| ---        | 0.0425             | 38            |               |          |
| ---        | 0.0355             | 34            |               |          |
| ---        | 0.025              | 28            |               |          |
| ---        | 0.018              | 24            |               |          |
| ---        | 0.015              | 19            |               |          |
| ---        | 0.0075             | 12            |               |          |

### Coefficients

$D_{85} = 0.2287$  mm       $D_{30} = 0.0069$  mm  
 $D_{60} = 0.0588$  mm       $D_{15} = 0.0019$  mm  
 $D_{50} = 0.0267$  mm       $D_{10} = \text{N/A}$   
 $C_u = \text{N/A}$        $C_c = \text{N/A}$

### Classification

ASTM N/A

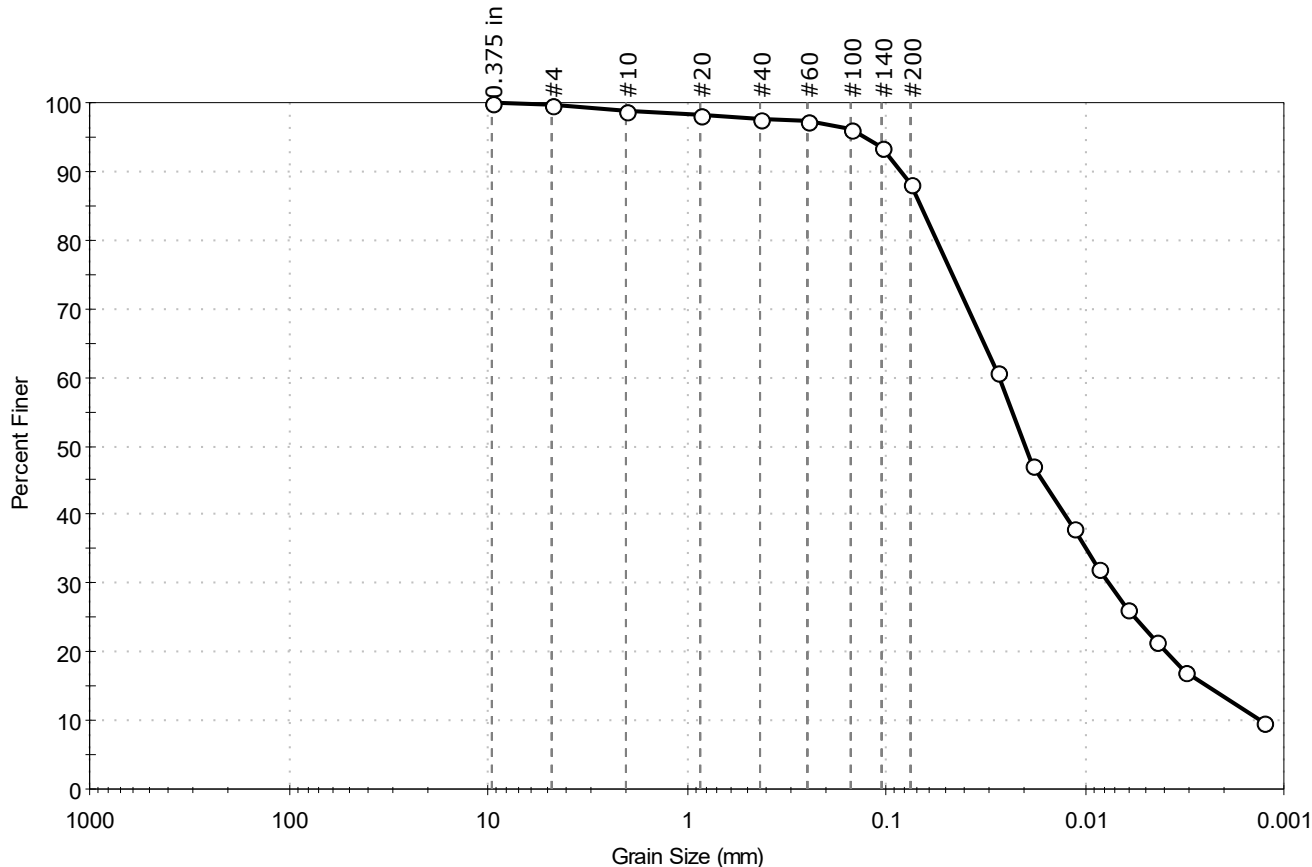
AASHTO Silty Soils (A-4 (0))

### Sample/Test Description

Sand/Gravel Particle Shape : ---  
 Sand/Gravel Hardness : ---  
 Dispersion Device : Apparatus A - Mech Mixer  
 Dispersion Period : 1 minute  
 Est. Specific Gravity : 2.65  
 Separation of Sample: #200 Sieve

|                                                 |                        |                 |
|-------------------------------------------------|------------------------|-----------------|
| Client: Haley & Aldrich, Inc.                   | Project No: GTX-317493 |                 |
| Project: Rte 141 Slope Stabilization            |                        |                 |
| Location: Swanville, ME                         |                        |                 |
| Boring ID: HB-SWAN-108                          | Sample Type: bucket    | Tested By: ckg  |
| Sample ID: 3D                                   | Test Date: 07/24/23    | Checked By: ank |
| Depth: 5-7'                                     | Test Id: 724331        |                 |
| Test Comment: ---                               |                        |                 |
| Visual Description: Moist, yellowish brown silt |                        |                 |
| Sample Comment: ---                             |                        |                 |

## Particle Size Analysis - ASTM D6913/D7928



| % Cobble | % Gravel | % Sand | % Silt & Clay Size |
|----------|----------|--------|--------------------|
| —        | 0.2      | 11.7   | 88.1               |

| Sieve Name | Sieve Size, mm     | Percent Finer | Spec. Percent | Complies |
|------------|--------------------|---------------|---------------|----------|
| 0.375 in   | 9.50               | 100           |               |          |
| #4         | 4.75               | 100           |               |          |
| #10        | 2.00               | 99            |               |          |
| #20        | 0.85               | 98            |               |          |
| #40        | 0.42               | 98            |               |          |
| #60        | 0.25               | 97            |               |          |
| #100       | 0.15               | 96            |               |          |
| #140       | 0.11               | 94            |               |          |
| #200       | 0.075              | 88            |               |          |
| Hydrometer | Particle Size (mm) | Percent Finer | Spec. Percent | Complies |
| ---        | 0.0278             | 61            |               |          |
| ---        | 0.0183             | 47            |               |          |
| ---        | 0.0115             | 38            |               |          |
| ---        | 0.0085             | 32            |               |          |
| ---        | 0.0061             | 26            |               |          |
| ---        | 0.0044             | 22            |               |          |
| ---        | 0.0032             | 17            |               |          |
| ---        | 0.0013             | 10            |               |          |

### Coefficients

$D_{85} = 0.0671$  mm       $D_{30} = 0.0075$  mm  
 $D_{60} = 0.0272$  mm       $D_{15} = 0.0024$  mm  
 $D_{50} = 0.0200$  mm       $D_{10} = 0.0013$  mm  
 $C_u = 20.923$        $C_c = 1.591$

### Classification

ASTM N/A

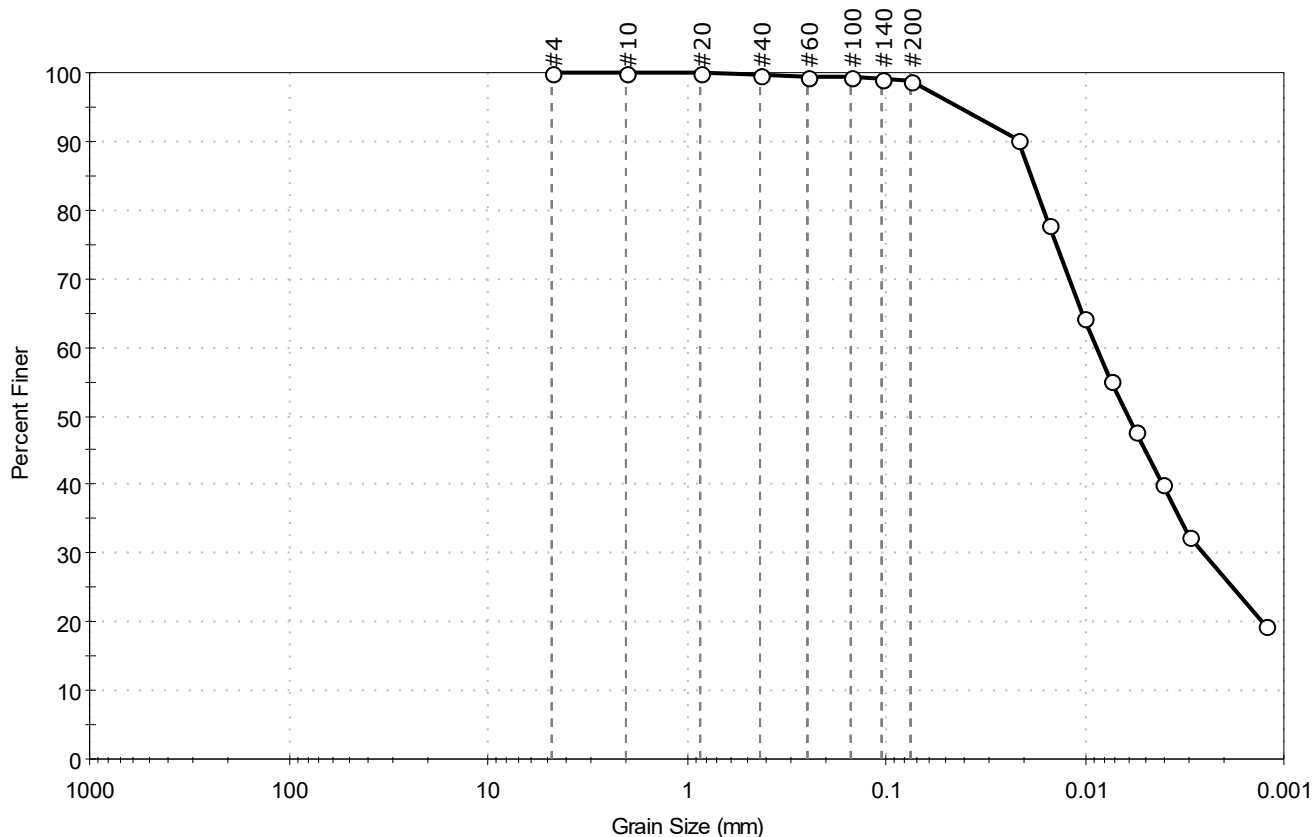
AASHTO Silty Soils (A-4 (0))

### Sample/Test Description

Sand/Gravel Particle Shape : ---  
 Sand/Gravel Hardness : ---  
 Dispersion Device : Apparatus A - Mech Mixer  
 Dispersion Period : 1 minute  
 Est. Specific Gravity : 2.65  
 Separation of Sample: #200 Sieve

|                                                 |                        |                 |
|-------------------------------------------------|------------------------|-----------------|
| Client: Haley & Aldrich, Inc.                   | Project No: GTX-317493 |                 |
| Project: Rte 141 Slope Stabilization            |                        |                 |
| Location: Swanville, ME                         |                        |                 |
| Boring ID: HB-SWAN-109                          | Sample Type: bucket    | Tested By: ckg  |
| Sample ID: 7D                                   | Test Date: 07/24/23    | Checked By: ank |
| Depth: 20-22'                                   | Test Id: 724332        |                 |
| Test Comment: ---                               |                        |                 |
| Visual Description: Moist, yellowish brown clay |                        |                 |
| Sample Comment: ---                             |                        |                 |

## Particle Size Analysis - ASTM D6913/D7928



| % Cobble | % Gravel | % Sand | % Silt & Clay Size |
|----------|----------|--------|--------------------|
| —        | 0.0      | 1.1    | 98.9               |

| Sieve Name | Sieve Size, mm     | Percent Finer | Spec. Percent | Complies |
|------------|--------------------|---------------|---------------|----------|
| #4         | 4.75               | 100           |               |          |
| #10        | 2.00               | 100           |               |          |
| #20        | 0.85               | 100           |               |          |
| #40        | 0.42               | 100           |               |          |
| #60        | 0.25               | 100           |               |          |
| #100       | 0.15               | 99            |               |          |
| #140       | 0.11               | 99            |               |          |
| #200       | 0.075              | 99            |               |          |
| Hydrometer | Particle Size (mm) | Percent Finer | Spec. Percent | Complies |
| ---        | 0.0215             | 90            |               |          |
| ---        | 0.0150             | 78            |               |          |
| ---        | 0.0100             | 64            |               |          |
| ---        | 0.0075             | 55            |               |          |
| ---        | 0.0056             | 48            |               |          |
| ---        | 0.0040             | 40            |               |          |
| ---        | 0.0030             | 32            |               |          |
| ---        | 0.0012             | 20            |               |          |

### Coefficients

$D_{85} = 0.0185$  mm       $D_{30} = 0.0025$  mm  
 $D_{60} = 0.0087$  mm       $D_{15} = \text{N/A}$   
 $D_{50} = 0.0061$  mm       $D_{10} = \text{N/A}$   
 $C_u = \text{N/A}$        $C_c = \text{N/A}$

### Classification

ASTM N/A

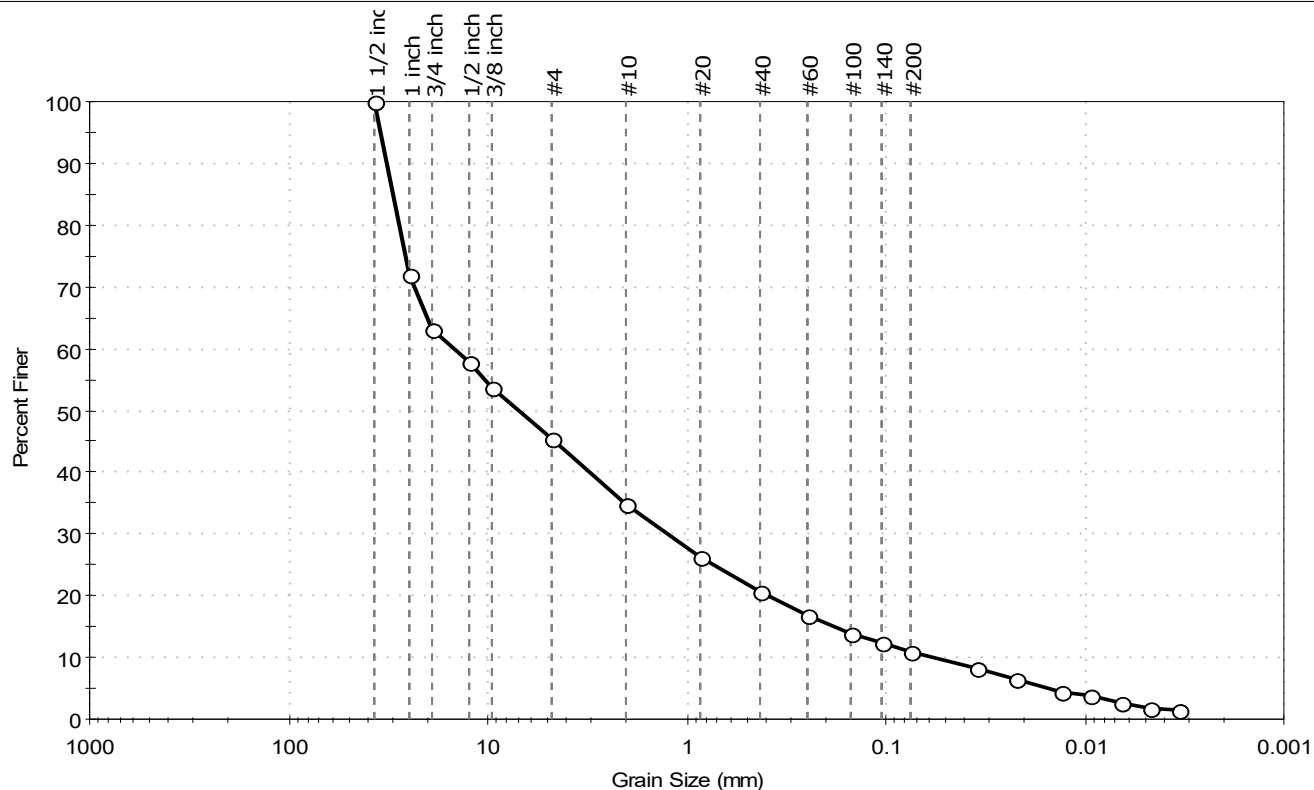
AASHTO Silty Soils (A-4 (0))

### Sample/Test Description

Sand/Gravel Particle Shape : ---  
 Sand/Gravel Hardness : ---  
 Dispersion Device : Apparatus A - Mech Mixer  
 Dispersion Period : 1 minute  
 Est. Specific Gravity : 2.65  
 Separation of Sample: #200 Sieve

|                     |                                        |              |            |
|---------------------|----------------------------------------|--------------|------------|
| Client:             | Haley & Aldrich, Inc.                  |              |            |
| Project:            | Rte 141 Slope Stabilization            |              |            |
| Location:           | Swanville, ME                          | Project No:  | GTX-317493 |
| Boring ID:          | HB-SWAN-111                            | Sample Type: | bucket     |
| Sample ID:          | 8D                                     | Test Date:   | 07/24/23   |
| Depth :             | 15-17'                                 | Test Id:     | 724333     |
| Test Comment:       | ---                                    |              |            |
| Visual Description: | Moist, brown gravel with silt and sand |              |            |
| Sample Comment:     | ---                                    |              |            |

## Particle Size Analysis - ASTM D6913/D7928



| % Cobble | % Gravel | % Sand | % Silt & Clay Size |
|----------|----------|--------|--------------------|
| —        | 54.5     | 34.7   | 10.8               |

| Sieve Name | Sieve Size, mm     | Percent Finer | Spec. Percent | Complies |
|------------|--------------------|---------------|---------------|----------|
| 1 1/2 inch | 37.50              | 100           |               |          |
| 1 inch     | 25.00              | 72            |               |          |
| 3/4 inch   | 19.00              | 63            |               |          |
| 1/2 inch   | 12.50              | 58            |               |          |
| 3/8 inch   | 9.50               | 54            |               |          |
| #4         | 4.75               | 45            |               |          |
| #10        | 2.00               | 35            |               |          |
| #20        | 0.85               | 26            |               |          |
| #40        | 0.42               | 21            |               |          |
| #60        | 0.25               | 17            |               |          |
| #100       | 0.15               | 14            |               |          |
| #140       | 0.11               | 12            |               |          |
| #200       | 0.075              | 11            |               |          |
| Hydrometer | Particle Size (mm) | Percent Finer | Spec. Percent | Complies |
| ---        | 0.0349             | 8             |               |          |
| ---        | 0.0223             | 6             |               |          |
| ---        | 0.0132             | 5             |               |          |
| ---        | 0.0093             | 4             |               |          |
| ---        | 0.0066             | 3             |               |          |
| ---        | 0.0047             | 2             |               |          |
| ---        | 0.0034             | 1             |               |          |

### Coefficients

D<sub>85</sub> = 30.1910 mm      D<sub>30</sub> = 1.2321 mm  
 D<sub>60</sub> = 14.7517 mm      D<sub>15</sub> = 0.1793 mm  
 D<sub>50</sub> = 6.9617 mm      D<sub>10</sub> = 0.0580 mm  
 C<sub>u</sub> = 254.340      C<sub>c</sub> = 1.774

### Classification

ASTM      N/A

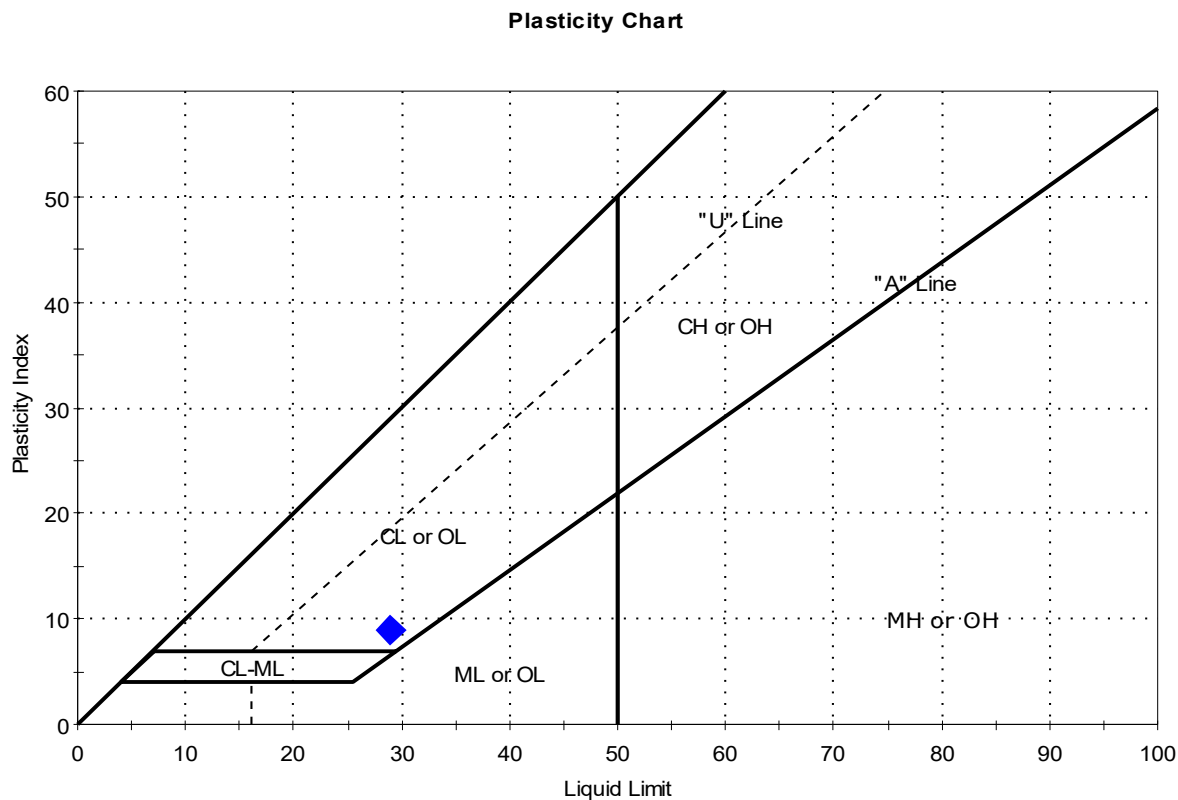
AASHTO      Stone Fragments, Gravel and Sand (A-1-a (0))

### Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR  
 Sand/Gravel Hardness : HARD  
 Dispersion Device : Apparatus A - Mech Mixer  
 Dispersion Period : 1 minute  
 Est. Specific Gravity : 2.65  
 Separation of Sample: #200 Sieve

|                     |                               |              |            |
|---------------------|-------------------------------|--------------|------------|
| Client:             | Haley & Aldrich, Inc.         | Project No:  | GTX-317493 |
| Project:            | Rte 141 Slope Stabilization   |              |            |
| Location:           | Swanville, ME                 |              |            |
| Boring ID:          | HB-SWAN-101                   | Sample Type: | bucket     |
| Sample ID:          | 5D                            | Test Date:   | 07/24/23   |
| Depth :             | 10-12'                        | Test Id:     | 724334     |
| Test Comment:       | ---                           | Tested By:   | cam        |
| Visual Description: | Moist, light olive brown clay | Checked By:  | ank        |
| Sample Comment:     | ---                           |              |            |

## Atterberg Limits - ASTM D4318



| Symbol | Sample ID | Boring | Depth  | Natural Moisture Content, % | Liquid Limit | Plastic Limit | Plasticity Index | Liquidity Index | Soil Classification |
|--------|-----------|--------|--------|-----------------------------|--------------|---------------|------------------|-----------------|---------------------|
| ◆      | 5D        | SWAN-1 | 10-12' | 31                          | 29           | 20            | 9                | 1.3             |                     |

Sample Prepared using the WET method

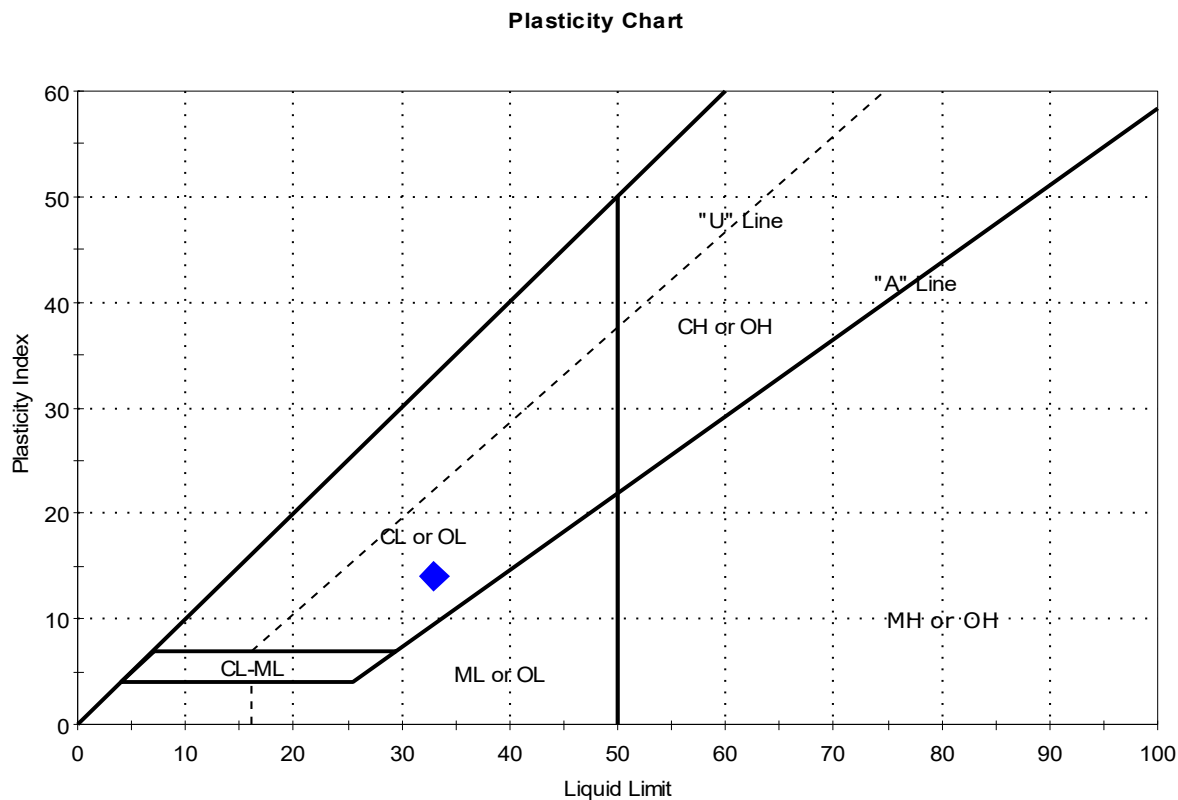
Dry Strength: VERY HIGH

Dilatancy: SLOW

Toughness: LOW

|                     |                             |              |            |
|---------------------|-----------------------------|--------------|------------|
| Client:             | Haley & Aldrich, Inc.       | Project No:  | GTX-317493 |
| Project:            | Rte 141 Slope Stabilization |              |            |
| Location:           | Swanville, ME               |              |            |
| Boring ID:          | HB-SWAN-102                 | Sample Type: | bucket     |
| Sample ID:          | 7D                          | Test Date:   | 07/24/23   |
| Depth :             | 14-16'                      | Test Id:     | 724335     |
| Test Comment:       | ---                         | Tested By:   | cam        |
| Visual Description: | Moist, olive clay           | Checked By:  | ank        |
| Sample Comment:     | ---                         |              |            |

## Atterberg Limits - ASTM D4318



| Symbol | Sample ID | Boring | Depth  | Natural Moisture Content, % | Liquid Limit | Plastic Limit | Plasticity Index | Liquidity Index | Soil Classification |
|--------|-----------|--------|--------|-----------------------------|--------------|---------------|------------------|-----------------|---------------------|
| ◆      | 7D        | SWAN-1 | 14-16' | 26                          | 33           | 19            | 14               | 0.5             |                     |

Sample Prepared using the WET method

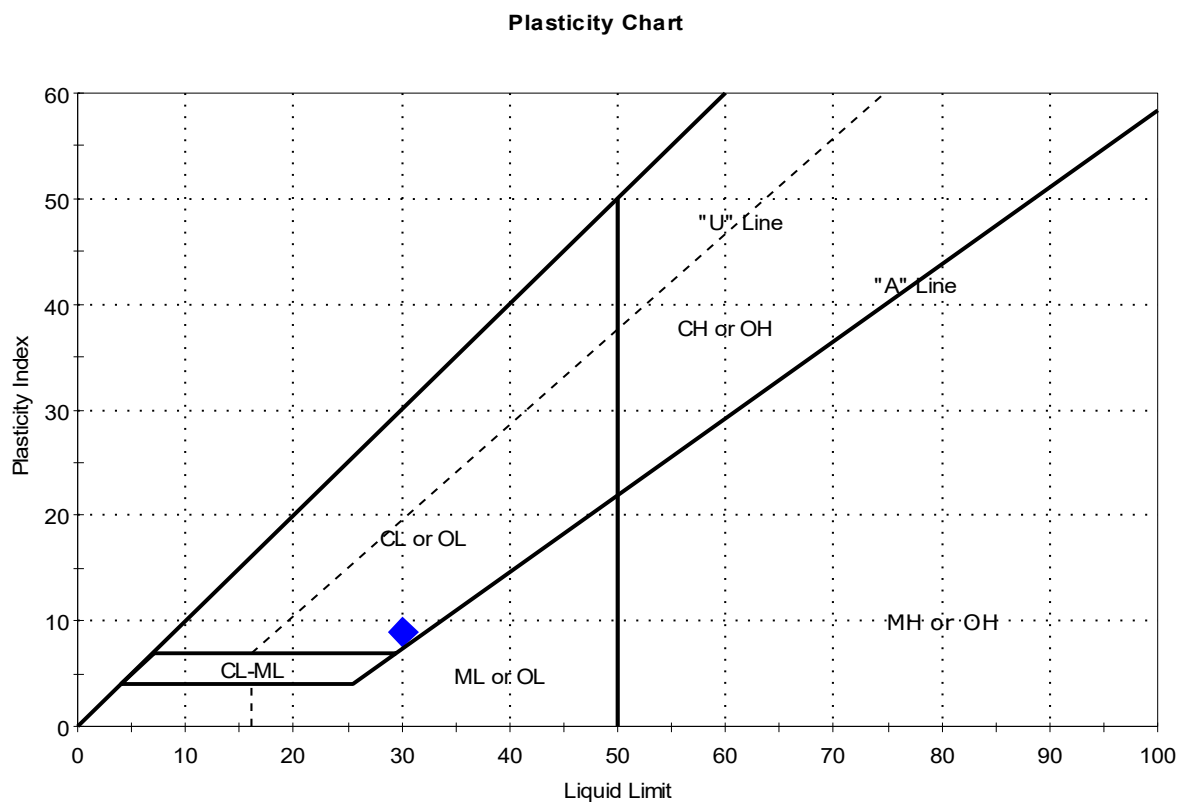
Dry Strength: VERY HIGH

Dilatancy: SLOW

Toughness: LOW

|                     |                             |              |            |
|---------------------|-----------------------------|--------------|------------|
| Client:             | Haley & Aldrich, Inc.       |              |            |
| Project:            | Rte 141 Slope Stabilization |              |            |
| Location:           | Swanville, ME               | Project No:  | GTX-317493 |
| Boring ID:          | HB-SWAN-104                 | Sample Type: | bucket     |
| Sample ID:          | 6D                          | Test Date:   | 07/24/23   |
| Depth :             | 11-13'                      | Test Id:     | 724336     |
| Test Comment:       | ---                         |              |            |
| Visual Description: | Moist, brown clay           |              |            |
| Sample Comment:     | ---                         |              |            |

## Atterberg Limits - ASTM D4318



| Symbol | Sample ID | Boring | Depth  | Natural Moisture Content, % | Liquid Limit | Plastic Limit | Plasticity Index | Liquidity Index | Soil Classification |
|--------|-----------|--------|--------|-----------------------------|--------------|---------------|------------------|-----------------|---------------------|
| ◆      | 6D        | SWAN-1 | 11-13' | 28                          | 30           | 21            | 9                | 0.8             |                     |

Sample Prepared using the WET method

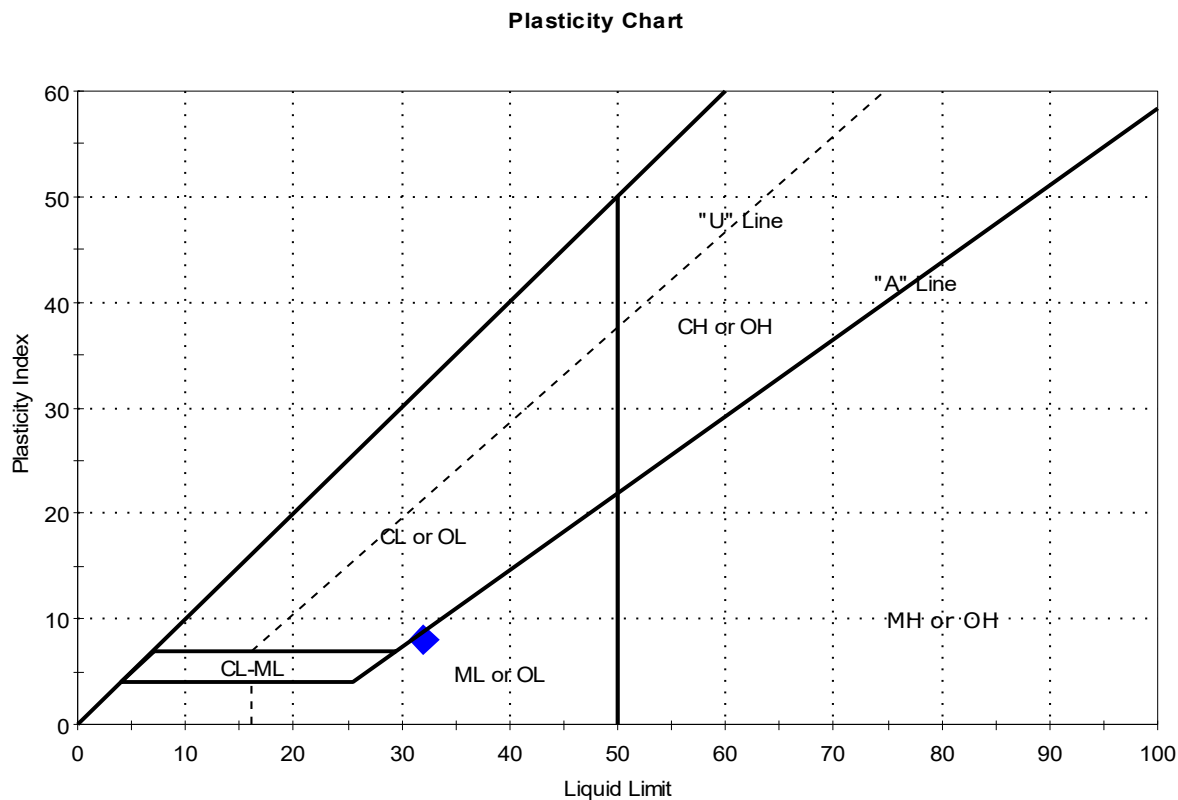
Dry Strength: VERY HIGH

Dilatancy: SLOW

Toughness: LOW

|                     |                             |              |            |
|---------------------|-----------------------------|--------------|------------|
| Client:             | Haley & Aldrich, Inc.       |              |            |
| Project:            | Rte 141 Slope Stabilization |              |            |
| Location:           | Swanville, ME               | Project No:  | GTX-317493 |
| Boring ID:          | HB-SWAN-105                 | Sample Type: | bucket     |
| Sample ID:          | 3D                          | Test Date:   | 07/24/23   |
| Depth :             | 5-7'                        | Test Id:     | 724337     |
| Test Comment:       | ---                         |              |            |
| Visual Description: | Moist, yellowish brown silt |              |            |
| Sample Comment:     | ---                         |              |            |

## Atterberg Limits - ASTM D4318



| Symbol | Sample ID | Boring | Depth | Natural Moisture Content, % | Liquid Limit | Plastic Limit | Plasticity Index | Liquidity Index | Soil Classification |
|--------|-----------|--------|-------|-----------------------------|--------------|---------------|------------------|-----------------|---------------------|
| ◆      | 3D        | SWAN-1 | 5-7'  | 29                          | 32           | 24            | 8                | 0.6             |                     |

Sample Prepared using the WET method

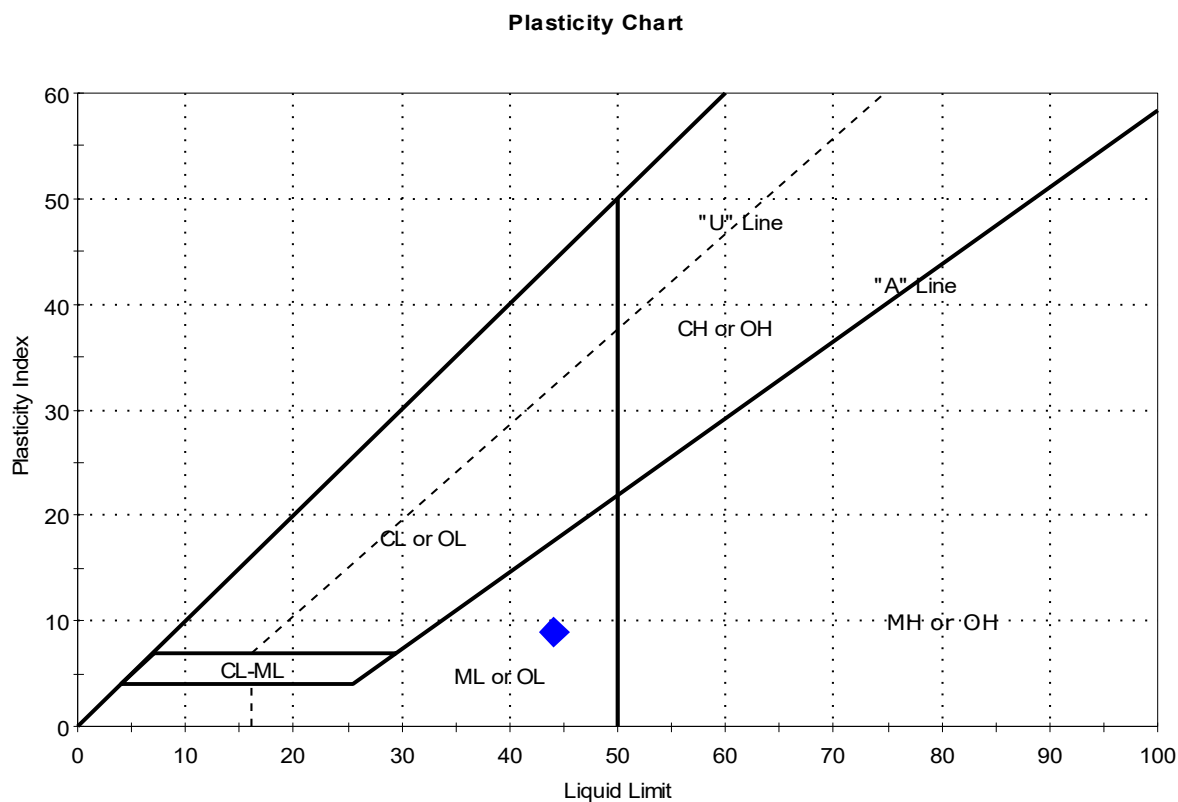
Dry Strength: MEDIUM

Dilatancy: SLOW

Toughness: LOW

|                     |                                          |              |            |
|---------------------|------------------------------------------|--------------|------------|
| Client:             | Haley & Aldrich, Inc.                    | Project No:  | GTX-317493 |
| Project:            | Rte 141 Slope Stabilization              |              |            |
| Location:           | Swanville, ME                            |              |            |
| Boring ID:          | HB-SWAN-109                              | Sample Type: | bucket     |
| Sample ID:          | 2D                                       | Test Date:   | 07/24/23   |
| Depth :             | 10-12'                                   | Test Id:     | 724338     |
| Test Comment:       | ---                                      | Tested By:   | cam        |
| Visual Description: | Moist, dark brown sandy silt with gravel | Checked By:  | ank        |
| Sample Comment:     | ---                                      |              |            |

## Atterberg Limits - ASTM D4318



| Symbol | Sample ID | Boring | Depth  | Natural Moisture Content, % | Liquid Limit | Plastic Limit | Plasticity Index | Liquidity Index | Soil Classification |
|--------|-----------|--------|--------|-----------------------------|--------------|---------------|------------------|-----------------|---------------------|
| ◆      | 2D        | SWAN-1 | 10-12' | 38                          | 44           | 35            | 9                | 0.3             |                     |

Sample Prepared using the WET method

Dry Strength: MEDIUM

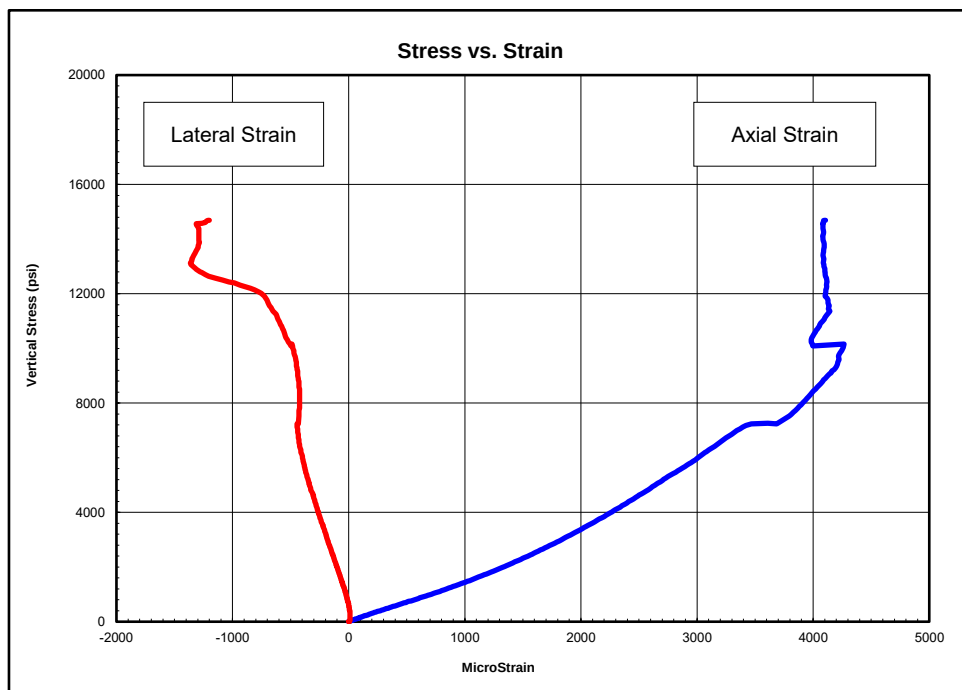
Dilatancy: SLOW

Toughness: LOW



|                     |                                            |
|---------------------|--------------------------------------------|
| Client:             | Haley & Aldrich, Inc.                      |
| Project Name:       | Rte 141 Slope Stabilization                |
| Project Location:   | Swanville, ME                              |
| GTX #:              | 317493                                     |
| Test Date:          | 7/19/2023                                  |
| Tested By:          | te                                         |
| Checked By:         | jsc                                        |
| Boring ID:          | HB-SWAN-108                                |
| Sample ID:          | R1                                         |
| Depth, ft:          | 18.61-18.98                                |
| Sample Type:        | rock core                                  |
| Sample Description: | See photographs<br>Intact material failure |

## Compressive Strength and Elastic Moduli of Rock by ASTM D7012 - Method D



Peak Compressive Stress: 14,688 psi

Young's Modulus and Poisson's Ratio within the third stress range could not be determined.

| Stress Range, psi | Young's Modulus, psi | Poisson's Ratio |
|-------------------|----------------------|-----------------|
| 1500-5400         | 2,240,000            | 0.18            |
| 5400-9300         | 2,440,000            | 0.06            |
| 9300-13200        | ---                  | ---             |

**Notes:** Test specimen tested at the approximate as-received moisture content and at standard laboratory temperature.  
The axial load was applied continuously at a stress rate that produced failure in a test time between 2 and 15 minutes.  
Young's Modulus and Poisson's Ratio calculated using the tangent to the line in the stress range listed.  
Calculations assume samples are isotropic, which is not necessarily the case.

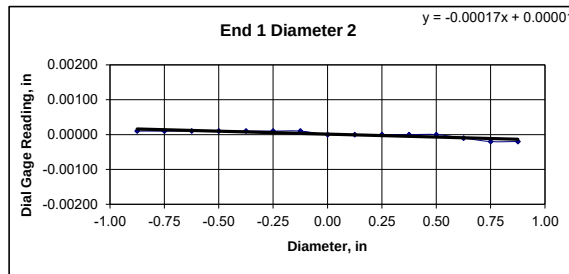
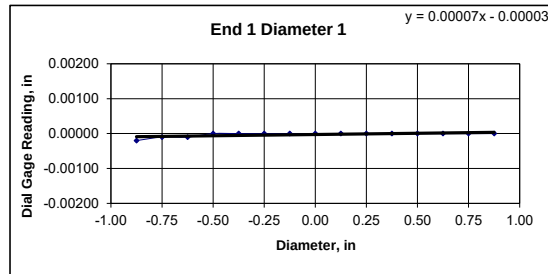


|                     |                             |             |           |
|---------------------|-----------------------------|-------------|-----------|
| Client:             | Haley & Aldrich, Inc.       | Test Date:  | 7/18/2023 |
| Project Name:       | Rte 141 Slope Stabilization | Tested By:  | te        |
| Project Location:   | Swanville, ME               | Checked By: | smd       |
| GTX #:              | 317493                      |             |           |
| Boring ID:          | HB-SWAN-108                 |             |           |
| Sample ID:          | R1                          |             |           |
| Depth:              | 18.61-18.98 ft              |             |           |
| Visual Description: | See photographs             |             |           |

## UNIT WEIGHT DETERMINATION AND DIMENSIONAL AND SHAPE TOLERANCES OF ROCK CORE SPECIMENS BY ASTM D4543

| BULK DENSITY                     |        |                                                |            | DEVIATION FROM STRAIGHTNESS (Procedure S1)                                                               |  |
|----------------------------------|--------|------------------------------------------------|------------|----------------------------------------------------------------------------------------------------------|--|
|                                  | 1      | 2                                              | Average    | Maximum gap between side of core and reference surface plate:<br>Is the maximum gap $\leq$ 0.02 in.? YES |  |
| Specimen Length, in:             | 4.18   | 4.18                                           | 4.18       | Maximum difference must be < 0.020 in.<br><b>Straightness Tolerance Met? YES</b>                         |  |
| Specimen Diameter, in:           | 1.99   | 1.99                                           | 1.99       |                                                                                                          |  |
| Specimen Mass, g:                | 548.37 |                                                |            |                                                                                                          |  |
| Bulk Density, lb/ft <sup>3</sup> | 160    |                                                |            |                                                                                                          |  |
| Length to Diameter Ratio:        | 2.1    |                                                |            |                                                                                                          |  |
|                                  |        | <b>Minimum Diameter Tolerance Met?</b>         | <b>YES</b> |                                                                                                          |  |
|                                  |        | <b>Length to Diameter Ratio Tolerance Met?</b> | <b>YES</b> |                                                                                                          |  |

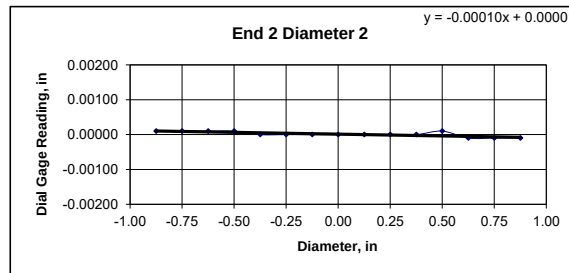
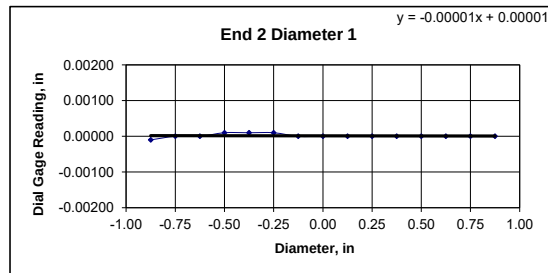
| END FLATNESS AND PARALLELISM (Procedure FP1)                                        |          |          |          |         |         |         |         |         |         |         |         |         |          |          |          |
|-------------------------------------------------------------------------------------|----------|----------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|----------|----------|
| END 1                                                                               | -0.875   | -0.750   | -0.625   | -0.500  | -0.375  | -0.250  | -0.125  | 0.000   | 0.125   | 0.250   | 0.375   | 0.500   | 0.625    | 0.750    | 0.875    |
| Diameter 1, in                                                                      | -0.00020 | -0.00010 | -0.00010 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000  | 0.00000  | 0.00000  |
| Diameter 2, in (rotated 90°)                                                        | 0.00010  | 0.00010  | 0.00010  | 0.00010 | 0.00010 | 0.00010 | 0.00010 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000  | -0.00020 | -0.00020 |
| Difference between max and min readings, in:                                        |          |          |          |         |         |         |         |         |         |         |         |         |          |          |          |
| 0° = 0.00020                      90° = 0.00030                                     |          |          |          |         |         |         |         |         |         |         |         |         |          |          |          |
| END 2                                                                               | -0.875   | -0.750   | -0.625   | -0.500  | -0.375  | -0.250  | -0.125  | 0.000   | 0.125   | 0.250   | 0.375   | 0.500   | 0.625    | 0.750    | 0.875    |
| Diameter 1, in                                                                      | -0.00010 | 0.00000  | 0.00000  | 0.00010 | 0.00010 | 0.00010 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000  | 0.00000  | 0.00000  |
| Diameter 2, in (rotated 90°)                                                        | 0.00010  | 0.00010  | 0.00010  | 0.00010 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00010 | -0.00010 | -0.00010 | -0.00010 |
| Difference between max and min readings, in:                                        |          |          |          |         |         |         |         |         |         |         |         |         |          |          |          |
| 0° = 0.0002                      90° = 0.0002                                       |          |          |          |         |         |         |         |         |         |         |         |         |          |          |          |
| Maximum difference must be < 0.0020 in.                      Difference = ± 0.00015 |          |          |          |         |         |         |         |         |         |         |         |         |          |          |          |
| Flatness Tolerance Met? YES                                                         |          |          |          |         |         |         |         |         |         |         |         |         |          |          |          |



### DIAMETER 1

|                             |         |  |
|-----------------------------|---------|--|
| End 1:                      |         |  |
| Slope of Best Fit Line      | 0.00007 |  |
| Angle of Best Fit Line:     | 0.00409 |  |
| End 2:                      |         |  |
| Slope of Best Fit Line      | 0.00001 |  |
| Angle of Best Fit Line:     | 0.00033 |  |
| Maximum Angular Difference: | 0.00377 |  |

**Parallelism Tolerance Met? YES**  
Spherically Seated



### DIAMETER 2

|                             |         |  |
|-----------------------------|---------|--|
| End 1:                      |         |  |
| Slope of Best Fit Line      | 0.00017 |  |
| Angle of Best Fit Line:     | 0.00966 |  |
| End 2:                      |         |  |
| Slope of Best Fit Line      | 0.00010 |  |
| Angle of Best Fit Line:     | 0.00589 |  |
| Maximum Angular Difference: | 0.00377 |  |

**Parallelism Tolerance Met? YES**  
Spherically Seated

| PERPENDICULARITY (Procedure P1)            |         |                                       |                |       |        | (Calculated from End Flatness and Parallelism measurements above) |                                                 |
|--------------------------------------------|---------|---------------------------------------|----------------|-------|--------|-------------------------------------------------------------------|-------------------------------------------------|
| END 1                                      |         | Difference, Maximum and Minimum (in.) | Diameter (in.) | Slope | Angle° | Perpendicularity Tolerance Met?                                   | Maximum angle of departure must be $\leq$ 0.25° |
| Diameter 1, in                             | 0.00020 | 1.990                                 | 0.00010        | 0.006 | YES    |                                                                   |                                                 |
| Diameter 2, in (rotated 90°)               | 0.00030 | 1.990                                 | 0.00015        | 0.009 | YES    |                                                                   |                                                 |
| <b>Perpendicularity Tolerance Met? YES</b> |         |                                       |                |       |        |                                                                   |                                                 |
| END 2                                      |         |                                       |                |       |        |                                                                   |                                                 |
| Diameter 1, in                             | 0.00020 | 1.990                                 | 0.00010        | 0.006 | YES    |                                                                   |                                                 |
| Diameter 2, in (rotated 90°)               | 0.00020 | 1.990                                 | 0.00010        | 0.006 | YES    |                                                                   |                                                 |

|                   |                             |
|-------------------|-----------------------------|
| Client:           | Haley & Aldrich, Inc.       |
| Project Name:     | Rte 141 Slope Stabilization |
| Project Location: | Swanville, ME               |
| GTX #:            | 317493                      |
| Test Date:        | 7/19/2023                   |
| Tested By:        | te                          |
| Checked By:       | smd                         |
| Boring ID:        | HB-SWAN-108                 |
| Sample ID:        | R1                          |
| Depth, ft:        | 18.61-18.98                 |



After cutting and grinding

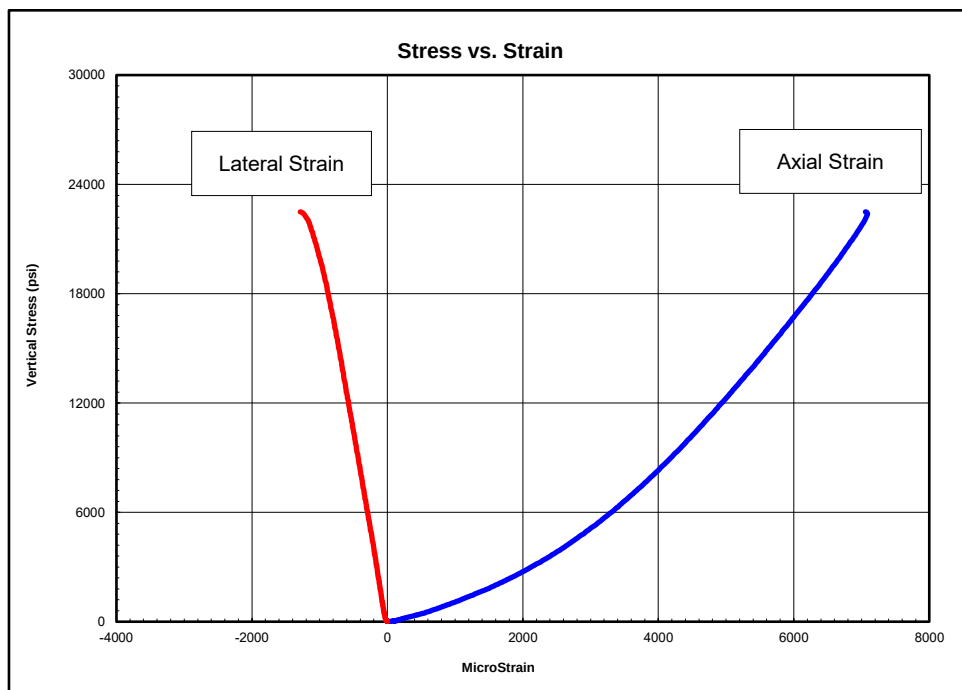


After break



|                     |                                            |
|---------------------|--------------------------------------------|
| Client:             | Haley & Aldrich, Inc.                      |
| Project Name:       | Rte 141 Slope Stabilization                |
| Project Location:   | Swanville, ME                              |
| GTX #:              | 317493                                     |
| Test Date:          | 7/19/2023                                  |
| Tested By:          | te                                         |
| Checked By:         | jsc                                        |
| Boring ID:          | HB-SWAN-109                                |
| Sample ID:          | R1                                         |
| Depth, ft:          | 31.47-31.84                                |
| Sample Type:        | rock core                                  |
| Sample Description: | See photographs<br>Intact material failure |

## Compressive Strength and Elastic Moduli of Rock by ASTM D7012 - Method D



Peak Compressive Stress: 22,491 psi

| Stress Range, psi | Young's Modulus, psi | Poisson's Ratio |
|-------------------|----------------------|-----------------|
| 2200-8200         | 2,650,000            | 0.12            |
| 8200-14200        | 4,060,000            | 0.19            |
| 14200-20200       | 4,020,000            | 0.19            |

**Notes:** Test specimen tested at the approximate as-received moisture content and at standard laboratory temperature.  
The axial load was applied continuously at a stress rate that produced failure in a test time between 2 and 15 minutes.  
Young's Modulus and Poisson's Ratio calculated using the tangent to the line in the stress range listed.  
Calculations assume samples are isotropic, which is not necessarily the case.

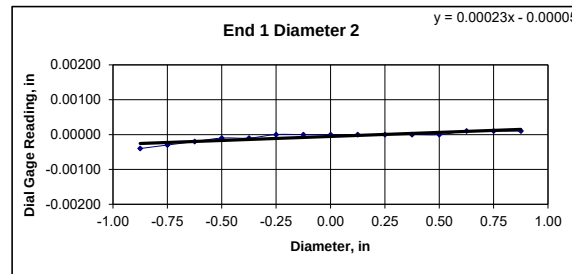
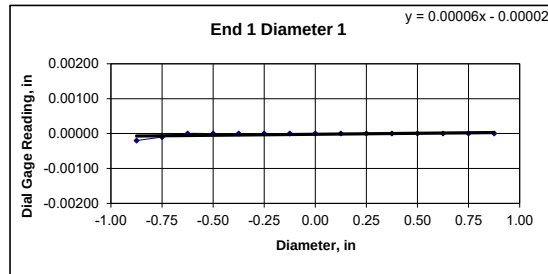


|                     |                             |             |           |
|---------------------|-----------------------------|-------------|-----------|
| Client:             | Haley & Aldrich, Inc.       | Test Date:  | 7/18/2023 |
| Project Name:       | Rte 141 Slope Stabilization | Tested By:  | te        |
| Project Location:   | Swanville, ME               | Checked By: | smd       |
| GTX #:              | 317493                      |             |           |
| Boring ID:          | HB-SWAN-109                 |             |           |
| Sample ID:          | R1                          |             |           |
| Depth:              | 31.47-31.84 ft              |             |           |
| Visual Description: | See photographs             |             |           |

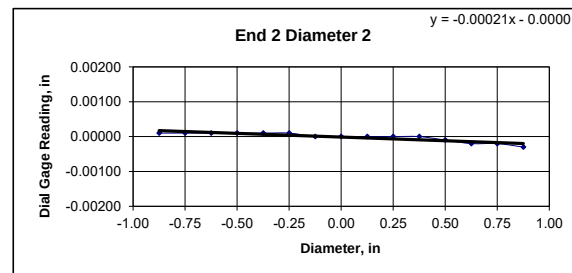
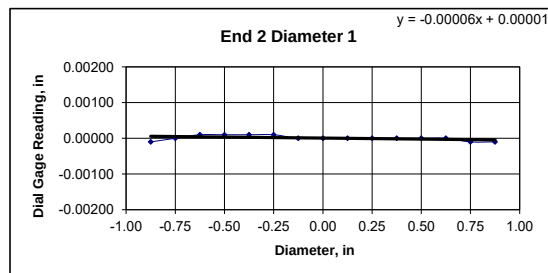
## UNIT WEIGHT DETERMINATION AND DIMENSIONAL AND SHAPE TOLERANCES OF ROCK CORE SPECIMENS BY ASTM D4543

| BULK DENSITY                       |        |                                            |                                                    | DEVIATION FROM STRAIGHTNESS (Procedure S1)                                                               |  |
|------------------------------------|--------|--------------------------------------------|----------------------------------------------------|----------------------------------------------------------------------------------------------------------|--|
|                                    | 1      | 2                                          | Average                                            | Maximum gap between side of core and reference surface plate:<br>Is the maximum gap $\leq$ 0.02 in.? YES |  |
| Specimen Length, in:               | 4.24   | 4.24                                       | 4.24                                               | Maximum difference must be $<$ 0.020 in.<br><b>Straightness Tolerance Met? YES</b>                       |  |
| Specimen Diameter, in:             | 1.96   | 1.96                                       | 1.96                                               |                                                                                                          |  |
| Specimen Mass, g:                  | 552.11 |                                            |                                                    |                                                                                                          |  |
| Bulk Density, lb/ft <sup>3</sup> : | 164    |                                            |                                                    |                                                                                                          |  |
| Length to Diameter Ratio:          | 2.2    | <b>Minimum Diameter Tolerance Met? YES</b> | <b>Length to Diameter Ratio Tolerance Met? YES</b> |                                                                                                          |  |

| END FLATNESS AND PARALLELISM (Procedure FP1)                                                                                                                                                                        |          |          |          |          |          |         |         |         |         |         |         |          |          |          |          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|----------|----------|----------|---------|---------|---------|---------|---------|---------|----------|----------|----------|----------|
| END 1                                                                                                                                                                                                               | -0.875   | -0.750   | -0.625   | -0.500   | -0.375   | -0.250  | -0.125  | 0.000   | 0.125   | 0.250   | 0.375   | 0.500    | 0.625    | 0.750    | 0.875    |
| Diameter 1, in                                                                                                                                                                                                      | -0.00020 | -0.00010 | 0.00000  | 0.00000  | 0.00000  | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000  | 0.00000  | 0.00000  | 0.00000  |
| Diameter 2, in (rotated 90°)                                                                                                                                                                                        | -0.00040 | -0.00030 | -0.00020 | -0.00010 | -0.00010 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000  | 0.00010  | 0.00010  | 0.00010  |
| Difference between max and min readings, in:<br>0° = 0.00020                      90° = 0.00050                                                                                                                     |          |          |          |          |          |         |         |         |         |         |         |          |          |          |          |
| END 2                                                                                                                                                                                                               | -0.875   | -0.750   | -0.625   | -0.500   | -0.375   | -0.250  | -0.125  | 0.000   | 0.125   | 0.250   | 0.375   | 0.500    | 0.625    | 0.750    | 0.875    |
| Diameter 1, in                                                                                                                                                                                                      | -0.00010 | 0.00000  | 0.00010  | 0.00010  | 0.00010  | 0.00010 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000  | 0.00000  | -0.00010 | -0.00010 |
| Diameter 2, in (rotated 90°)                                                                                                                                                                                        | 0.00010  | 0.00010  | 0.00010  | 0.00010  | 0.00010  | 0.00010 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | -0.00010 | -0.00020 | -0.00020 | -0.00030 |
| Difference between max and min readings, in:<br>0° = 0.0002                      90° = 0.0004<br>Maximum difference must be < 0.0020 in.                      Difference = ± 0.00025<br>Flatness Tolerance Met? YES |          |          |          |          |          |         |         |         |         |         |         |          |          |          |          |



|                                                      |            |
|------------------------------------------------------|------------|
| DIAMETER 1                                           |            |
| End 1:                                               |            |
| Slope of Best Fit Line:                              | 0.00006    |
| Angle of Best Fit Line:                              | 0.00327    |
| End 2:                                               |            |
| Slope of Best Fit Line:                              | 0.00006    |
| Angle of Best Fit Line:                              | 0.00327    |
| Maximum Angular Difference:                          | 0.00000    |
| <b>Parallelism Tolerance Met? Spherically Seated</b> | <b>YES</b> |



|                                                      |            |
|------------------------------------------------------|------------|
| DIAMETER 2                                           |            |
| End 1:                                               |            |
| Slope of Best Fit Line:                              | 0.00023    |
| Angle of Best Fit Line:                              | 0.01326    |
| End 2:                                               |            |
| Slope of Best Fit Line:                              | 0.00021    |
| Angle of Best Fit Line:                              | 0.01211    |
| Maximum Angular Difference:                          | 0.00115    |
| <b>Parallelism Tolerance Met? Spherically Seated</b> | <b>YES</b> |

| PERPENDICULARITY (Procedure P1) (Calculated from End Flatness and Parallelism measurements above) |                                       |                |         |        |                                 | Maximum angle of departure must be $\leq$ 0.25° |  |
|---------------------------------------------------------------------------------------------------|---------------------------------------|----------------|---------|--------|---------------------------------|-------------------------------------------------|--|
| END 1                                                                                             | Difference, Maximum and Minimum (in.) | Diameter (in.) | Slope   | Angle° | Perpendicularity Tolerance Met? |                                                 |  |
| Diameter 1, in                                                                                    | 0.00020                               | 1.960          | 0.00010 | 0.006  | YES                             | <b>Perpendicularity Tolerance Met? YES</b>      |  |
| Diameter 2, in (rotated 90°)                                                                      | 0.00050                               | 1.960          | 0.00026 | 0.015  | YES                             |                                                 |  |
| END 2                                                                                             |                                       |                |         |        |                                 |                                                 |  |
| Diameter 1, in                                                                                    | 0.00020                               | 1.960          | 0.00010 | 0.006  | YES                             |                                                 |  |
| Diameter 2, in (rotated 90°)                                                                      | 0.00040                               | 1.960          | 0.00020 | 0.012  | YES                             |                                                 |  |

|                   |                             |
|-------------------|-----------------------------|
| Client:           | Haley & Aldrich, Inc.       |
| Project Name:     | Rte 141 Slope Stabilization |
| Project Location: | Swanville, ME               |
| GTX #:            | 317493                      |
| Test Date:        | 7/19/2023                   |
| Tested By:        | te                          |
| Checked By:       | smd                         |
| Boring ID:        | HB-SWAN-109                 |
| Sample ID:        | R1                          |
| Depth, ft:        | 31.47-31.84                 |



After cutting and grinding



After break