

GEOTECHNICAL REPORT

**PROPOSED EBEN HILL AND
OCEAN EAST CONDOMINIUMS
PORTLAND, MAINE**

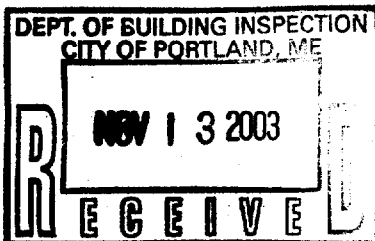
Prepared for:

Realty Resources, LLC

Prepared by:

Summit Geotechnical Services
Project #7278
December 2001

Mike August



RE: 739 Ocean Ave

Ocean Ave / Presumpscot

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403 A004*

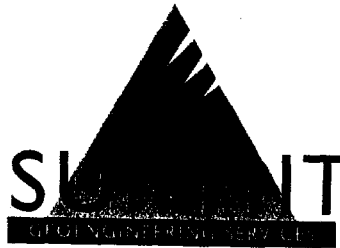
SECTION 2 SITE AND PROJECT DESCRIPTION

The Eben Hill and Ocean East Condominium project consists of a total of 96 condominium units planned for a S-shaped parcel of about 19 acres. The condominium units will be constructed on either side of a proposed through street that will run from Ocean Avenue on the west side to Presumpscot Street on the east. The Eben Hill portion of the project will be located off Presumpscot Street and is comprised of 36 units in 6 buildings and a community center. Sixty units in 13 buildings are proposed for the Ocean East project area. We understand that the condominium buildings will be two story, wood framed structures with a slab-on-grade first floor level. Primary access to Ocean East will be from Ocean Avenue. Access into the site from Presumpscot Street is by the paved True Street. The proposed development is illustrated on Figure 1 in Appendix A.

The project area in the eastern portion of the Eben Hill project area is a mostly open field with an occupied farmhouse and barn approximately 700 feet inside the property from Presumpscot Street. The remaining Eben Hill project area and the Ocean East project area is primarily undeveloped woodland, except for a cleared Central Maine Power utility easement with overhead power lines.

Existing ground surface within the project area ranges from about elevation 29 feet (NGVD) near Presumpscot Street to about elevation 104 feet within the CMP easement. From Presumpscot Street, the land surface rises toward the northwest for approximately 500 feet at about 3 percent slope to about elevation 36 feet. Further to the west and north, the land surface rises more rapidly at an average grade of about 6H:1V to about elevation 100 feet easement with locally steeper areas approaching 2H:1V slope. The terrain in the Ocean East project area is undulating with low-lying areas between bedrock ridges. Bedrock outcrops are prevalent in the elevated portions of the site.

December 4, 2001
Summit #7278



Mr. Corbin Findlan
Realty Resources, LLC
247 Commercial Street
Rockport, Maine 04856

Reference: Geotechnical Investigation
Proposed Eben Hill and Ocean East Condominiums, True Street
Portland, Maine

Dear Mr. Findlan:

We have completed our geotechnical investigation and evaluation in connection with construction of the condominium project. The following report presents a summary of our investigation, evaluations of the subsurface conditions, and design and construction recommendations for the proposed development.

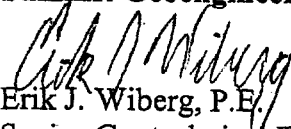
In general, the soil in the eastern, lower portions of the Eben Hill project area and the western portion of the Ocean East project area near Ocean Avenue consists of 10 to 15 feet of glacial marine deposits, which in turn overlies glacial till or schist bedrock. The glacial marine soils transition to a thin layer glacial till overlying schist bedrock in the elevated portions of the site. These materials are suitable for support of the of the proposed condominium complex buildings on conventional spread footing foundations and slabs-on-grade. General foundation recommendations are presented in this report.

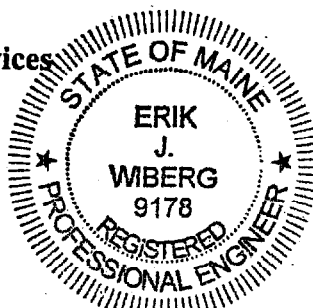
Groundwater was observed at depths of 6 to 10 feet below ground surface in the glacial marine deposits. In general, groundwater was not observed in the thin soils overlying bedrock; where groundwater was observed in the soil, we believe that it was infiltrated surface water from recent rainfall that perched on the underlying bedrock surface.


Bedrock was relatively shallow over a significant portion of the site and blasting and rock excavation will likely be required during installation of underground utilities in these areas.

We have appreciated providing geotechnical engineering services for this phase of the project. If there are any questions, or we may be of further assistance, please do not hesitate to call.

Very Truly Yours,
Summit Geotechnical Services


Erik J. Wiberg, P.E.
Senior Geotechnical Engineer




William M. Peterlein, P.E.
Principal Geotechnical Engineer

SECTION 1 INTRODUCTION

1.1 Introduction

Realty Resources, LLC is planning to construct a condominium development over several abutting parcels with a combined area of approximately 19 acres. The site consists of two project areas, namely the Ocean East and Eben Hill condominiums. Summit Geoengineering Services (Summit) was asked to perform a geotechnical investigation at the site in areas of the proposed development. Our investigation was completed in general accordance with our proposal to Realty Resources, LLC dated August 17, 2001.

1.2 Scope of Services

Our scope of proposed field exploration consisted of excavating 20 to 25 test pits along the proposed roadway through the development, building areas, and stormwater detention areas. The primary intent of the investigation was to develop subsurface information for construction and development of the project with emphases placed on the depth to bedrock. The explorations were followed by evaluations of the subsurface conditions and preparing a geotechnical report summarizing our findings. This work was performed in its entirety as proposed.

1.3 Hazardous Waste Disclaimer

The scope of our work on this project does not include an environmental assessment or further investigation into the presence or absence of contaminated soil or groundwater. Hazardous materials including contaminated soil or groundwater were not encountered in the test pits. Visual observations of ground surface at the site did not reveal any obvious areas of potential contamination.

SECTION 3 EXPLORATION

A summary of the exploration methods and logs of the test pits completed in the Eben Hill and Ocean East condominium project areas are presented in Appendix B, Exploration Data. The subsurface conditions encountered at the test pits are summarized in Table 1 of Appendix B. The test pit locations are shown in Figure 1 on the site layout plan prepared by Coffin Engineering & Surveying, LLC.

The subsurface conditions were explored with 27 test pits (TP-1 through TP-28, TP-22 excluded) were excavated by R.J. Grondin & Sons, Inc. under contract to Summit on October 17 and 18, 2001. Summit was on site to coordinate the explorations. TP-1 through TP-16 were excavated in the Ocean East project area and TP-17 through TP-28 were excavated in the Eben Hill project area. The test pits were excavated to bedrock refusal or to a sufficient depth necessary to establish subsurface conditions relative to the proposed development at the test pit location. The depth of the test pits ranged from 0.9 feet below ground surface at TP-19 to 14 feet at TP-26.

The test pit locations were survey located by Coffin Engineering & Surveying prior to excavation based on proposed test pit layout plan prepared by Summit. The test pits were excavated at the survey locations, except where the staked location was inaccessible to the excavation equipment or where relocation was necessary to avoid existing utilities. Coffin provided ground surface elevations at the staked test pit locations. Ground surface elevations at relocated test pits were estimated from the site topographic mapping illustrated on the site layout plan.

SECTION 4 SUBSURFACE CONDITIONS

4.1 Soil

In general, the soil in the eastern portion of the Eben Hill project area and low lying areas in the Ocean East project area consists of topsoil overlying glacial marine deposits, which in turn

overlies glacial till or schist bedrock. The glacial marine soils transition to a relatively thin layer of glacial till overlying bedrock as the land surface increases in elevation from Presumpscot Street. Approximately 1.5 feet of fill was encountered at TP-11, which is located near the west property line near a residential subdivision. A summary of subsurface conditions encountered at the test pits is presented in Table 1 in Appendix B.

The *topsoil* at the site consists of dark brown, silty fine sand with little organics and root matter. Within the wooded areas a forest duff organic layer overlies the topsoil. The thickness of the topsoil in the open field area near Presumpscot Street was generally thicker than the topsoil in the wooded areas or where the depth to bedrock was shallow. In the open areas, the thickness of the topsoil layer ranged from 0.7 to 1.1 feet thick; within the wooded area the thickness of the topsoil ranged from 0.3 to 0.9 feet thick.

In general, the topsoil in the open areas will be more readily reclaimable for reuse in landscaping due to its relatively uniform consistency and absence of rock and substantial root matter. Reuse of topsoil from wooded areas without processing will be more difficult due to the shallow bedrock conditions and potential for entraining roots and rock fragments during stripping and grubbing.

Glacial marine deposits were encountered at TP-1 and TP-6 in the Ocean East project area and at TP-23 through TP-28 in the Eben Hill project area. In general, the glacial marine deposit typically consists of stiff to very stiff, olive to gray-brown, cohesive silty clay to clayey silt overlying glacial till or bedrock. At TP-25 the stiff, cohesive glacial marine deposit was underlain by approximately 4 feet of silty sand. Very soft, blue gray clayey silt was encountered in the Eben Hill project area at a depth of approximately 10 to 10.5 feet in TP-26, 27 and 28.

Glacial till occurred directly over bedrock was encountered in a majority of the test pits, particularly in the elevated portions of the site where bedrock was shallow. The glacial till consisted of sand with silt and with varying amounts of gravel and boulders. Boulders encountered in the test pits were typically less than 12 inches in maximum dimension. The thickness of the glacial till ranged from 0.5 to 4 feet.

4.2 Bedrock

Bedrock was encountered in all test pits except for TP-27 and TP-28, which were excavated in the lower portion of the Eben Hill project area. Bedrock depths and elevations at each test pit location are shown on Table 1 in Appendix B. Bedrock outcrops are prevalent throughout the elevated portion of the site. The depth to bedrock in the Ocean East project area test pits ranged from 0.2 feet at TP-5 to about 13 feet at TP-1. Excluding TP-1 where the bedrock depth is significantly deeper than at other test pit location, the average depth to bedrock in the Ocean East test pits was 2.4 feet.

The depth to bedrock in the eastern portion of the Eben Hill project area (TP-24 through TP-28) was greater than 10 feet below ground surface. The depth to bedrock decreased to the west and north with an average depth to bedrock of 2.6 feet for TP-16 through TP-23.

As noted on several test pit logs, bedrock outcrops and ridges were observed in the vicinity of the test pits. Bedrock outcrops identified during the site survey by Coffin Engineering & Surveying are shown on Figure 1. The surface of the bedrock was weathered at many of the test pits. The weathered zones typically ranged from 0.2 to 2.0 feet thick. The weathered zones will be able to be excavated by backhoe or hoe ram. Blasting will be required to remove hard bedrock.

4.3 Groundwater

The depth to groundwater was estimated based on observed changes in soil moisture (i.e., moist to wet) or by depth to water seeping from the test pit sidewalls. The observed groundwater depths are summarized in Table 1 in Appendix B. The depth to groundwater will fluctuate due to season and rainfall and is likely to be closer to ground surface in the spring.

As indicated in Table 1, groundwater was observed in 9 of the 27 test pits. At TP-2, TP-3 and TP-20, groundwater was observed in the thin soil overlying bedrock and is likely the result of

infiltrated surface water perched on the bedrock surface and not permanent groundwater conditions. Groundwater at the other six locations (TP-1 and TP-24 through TP-28) occurred in relatively thick glacial marine deposits. The transition from olive to blue-gray glacial marine clayey soil generally indicates the location of the permanent ground water table. Blue-gray clayey silt was encountered at TP-26, 27 and 28 at a depth of approximately 10 feet below ground surface.

In the low lying areas near Presumpscot Street and poorly drained, wetland areas near Ocean Avenue, infiltrated surface water perches on the less pervious glacial marine soils or bedrock during wet periods. Runoff from sloped portions of the site is probably rapid and a majority of the surface water that infiltrates flows through the soil above the bedrock.

SECTION 5 EVALUATION

Based on the soil conditions observed at the site and our understanding of proposed site grading, conventional spread footing foundations with a slab-on-grade are recommended at all proposed condominium buildings and at the community center near the Presumpscot Street entrance.

Based on conceptual grading plans for the Eben Hill project area, proposed grades are within 1 to 2 feet of existing grades in most areas. It is our understanding that the proposed grades indicated in Figure 1 near the community center, which indicate final grade 4 to 5 feet below existing grade, will be adjusted up to within 2 feet of existing ground surface. Approximately 4 to 6 feet of fill is proposed over glacial marine deposit in the vicinity of TP-23 and TP-25. Development of proposed site grading for the Ocean East project area was in progress at the time of our evaluation and not available for this evaluation. It is our understanding that proposed first floor level of each unit in Ocean East will be located above existing grade. Based on the above, we anticipate that the total settlement due to the earth and building loads at the proposed building locations shown on Figure 1 will be within tolerable less than 1 inch.

Detailed grading information on the slope transition from the area adjacent to the buildings down to existing grade east of the condominium buildings at TP-23 and TP-25 had not been developed. A 4-foot thick layer of very soft to soft blue, blue-gray clayey silt was encountered at TP-26 (excavated approximately 100 feet east of TP-25) at depth of 10 feet below existing ground surface. Depending on the horizontal extent, the fill could extend over soft clayey silt deposit. We recommend a fill slope not steeper than 4H:1V be used in the transition from fill to existing grade. If a steeper slope is required, we recommend that a detailed slope stability evaluation be conducted.

Bedrock excavation should not be a construction issue in the open area near Presumpscot Street or in the vicinity of TP-1 near Ocean Avenue. At other locations of the site, bedrock occurred at or within a few feet of ground surface. On the order of 5 feet of rock excavation could be required to construct Eben Hill condominium structures in the vicinity of TP-17, 19, 21 and 22 depending on design finish slab elevation. Rock excavation should also be anticipated for construction of the Ocean East units. Bedrock removal will likely be required to install underground electric, storm sewer and potable water utilities over a significant portion of the site.

SECTION 6

DESIGN AND CONSTRUCTION RECOMMENDATIONS

6.1 Building Foundations

A. Allowable Bearing Pressure. We recommend that the following allowable bearing pressures be used for proportioning the interior and exterior spread footings at the proposed building locations:

RECOMMENDED ALLOWABLE BEARING PRESSURES	
Soil Type	Allowable Bearing (psf)
Glacial Marine	2,500
Glacial Till	4,000
Weathered Bedrock	10,000
Hard Bedrock	20,000

These allowable bearing pressures are for construction of typical foundation systems. They should be reviewed for unusual foundation loadings or configurations. Estimated total settlements for these allowable bearing pressures is less than 1 inch. Differential settlements will be within tolerable limits.

The above bearing pressures are based on the densifying the existing subgrade soils by proof-rolling the proposed building areas prior to footing excavation, and on compacting the bottom of footing excavation trenches prior to footing construction. Pockets left after excavation of boulders from beneath the foundation should be backfilled with Structural Fill or native soil, also compacted to 95 percent of the maximum modified Proctor dry density.

Proof-rolling of the entire footprint should consist of a minimum of three passes along the longitudinal axis of the building and then three passes in the transverse direction using a large vibratory roller (minimum 3-ton at drum static weight). Subgrade soils in footing trenches should be densified following footing excavation and prior to footing construction using the largest practical compaction equipment within the footing trench. Following this, footing construction can proceed normally.

B. Seismic Design. The soil and bedrock west and north of TP-25, inclusive, at this site is classified as a Soil Profile Type S_1 in accordance with the 1996 BOCA National Building Code. The associated Site Coefficient for seismic design in these areas is 1.0. Very soft to soft, silty clay to clayey silt deposits were encountered at a depth of about 10 feet in the vicinity of the proposed community center (see logs for TP-26 and TP-28). We recommend a Site Coefficient of 1.5 for the community center.

C. Frost Protection. The minimum recommended footing depth for frost protection of foundation elements is 4 feet below exterior finished grade for footings constructed in soils or weathered rock. This frost penetration depth is based on a design air-freezing index of 1,600 degree days. We recommend that a minimum depth of 2 feet be provided for frost protection of foundations constructed directly on a hard bedrock surface. Perimeter underdrains should be installed at perimeter foundation walls in hard bedrock cuts to drain accumulated surface water.

In order to protect foundations from the potentially damaging effects of frost heave, we recommend that the outside of foundation walls be backfilled with Foundation Backfill meeting the following gradation requirements:

FOUNDATION BACKFILL	
Sieve Size	Percent Finer*
6 inch	100
¼ inch	25 to 70
No. 40	0 to 30
No. 200	0 to 5

* Reference: MDOT Specification 703.06, Type C Base Aggregate

The soil should be compacted to a minimum of 95 percent of its maximum dry density determined in accordance with ASTM D1557, Modified Proctor Density. This soil should be placed in 9 to 12-inch thick lifts. Where hand compaction equipment is used, the lift thickness should be reduced to 6 to 8 inches.

Based on the relatively high percentage of silt in the native soils, these soils are not expected to meet the gradation requirements for Foundation Backfill. If reuse of these soils is proposed during construction, they should be tested for compatibility with their intended use.

D. Foundation Drainage. We recommend that perimeter foundation underdrains be installed at the perimeter of all foundations of structures in the vicinity of TP-1 through TP-9 in Ocean East and at the community center at the Presumpscot Street entrance. At all other proposed condominium locations, we recommend that as a minimum foundation drains be installed at the base of the foundation footings on the upgradient side of the structures. As noted in Section 4.C above, perimeter underdrains should also be installed at perimeter foundation walls in hard bedrock cuts to drain accumulated surface water.

Underdrains should consist of 4 inch rigid perforated PVC surrounded by a minimum of 6 inches crushed stone wrapped in filter fabric to prevent clogging from the migration of the fine soil particles from the native soils and Foundation Backfill. The underdrain pipe should be outlet to a location where it will be free flowing.

The finish grade around the perimeter of all buildings should be sloped away from the building to promote drainage away from the foundations.

E. Slabs-on-grade. We recommend that all native soil beneath building slab areas be proof-rolled prior to placing the sub-slab fill. Proof-rolling should consist of a minimum of three passes in the longitudinal direction of the building and then three passes in the transverse direction using a large (3 ton at drum static weight) vibratory roller. We recommend that slabs be constructed on a minimum of 12 inches of Structural Fill, as specified below.

STRUCTURAL FILL	
Sieve Size	Percent Finer*
3 inch	100
1/4 inch	60 to 100
No. 40	0 to 50
No. 200	0 to 7

* **Reference:** MDOT Specification 703.06, Type F Subbase Aggregate

The Structural Fill can be placed in a single 12-inch lift, and should be compacted to 95 percent of its maximum dry density determined in accordance with ASTM D1557, Modified Proctor Density. Based on the use of compacted Structural Fill beneath all floor slabs, we recommend that a subgrade modulus of 150 pci (pounds/in³) be used in floor slab design.

In consideration of the proposed slab-on-grade construction and finish flooring that could be applied to the slab, we recommend that a vapor retarder be placed directly below the concrete slab. The vapor retarder should have a vapor transmission rate less than the flooring applied to the slab to prevent accumulation of moisture beneath the flooring and should be installed in accordance with the manufacturer's recommendations.

Where slabs-on-grade is proposed over bedrock, we recommend a minimum of 6 inches of bedrock

Fill required beneath the Structural Fill should consist of Granular Borrow. That portion of the soil passing the 3-inch sieve should meet the following specification.

GRANULAR BORROW	
Sieve Size	Percent Finer*
3 inch	100
No. 40	0 to 70
No. 200	0 to 20

* Reference: MDOT Specification 703.19, Granular Borrow

The maximum particle size should be limited to 6 inches. Granular Borrow should be placed in a maximum of 12-inch lifts, and should be compacted to 95 percent, in accordance with ASTM D1557.

6.2 Pavement Section Recommendations

The subgrade soils beneath new pavement areas will consist of bedrock, glacial till, glacial marine, or imported fill soils. The mean annual freezing index for the Portland area is estimated to be 900 degree days. We recommend a minimum total pavement section thickness of 50% of the mean annual frost depth or 21 inches.

We further recommend that the minimum pavement section consist of the following materials:

MATERIAL	THICKNESS (in)	SPECIFICATION
Asphalt Surface Coarse	1	MDOT 703.09 Grading D
Asphalt Binder Coarse	2	MDOT 703.09 Grading B
Base Soil	6	MDOT 703.06 Type A
Subbase Soil	12	MDOT 703.06 Type D

The material specifications are referenced to the 1995 Maine Department of Transportation Standard Specifications for Highways and Bridges. All base and subbase soil should be placed in 9 to 12 inch lifts and be compacted to a minimum of 95 percent of its maximum dry density in accordance with ASTM D1557.

Where bedrock excavation is required to construct parking lots, we recommend that a minimum of 6 inches of Type A Base Aggregate be placed and compacted between the pavement and bedrock.

The glacial marine deposits encountered at TP-1, TP-27, and TP-28 will be sensitive to construction disturbance. If the subgrade beneath proposed paved areas becomes soft or yields excessively during construction, we recommend that a woven geotextile be placed on the subgrade prior to placing and the pavement base material.

Underdrains should be provided in parking lot and driveway areas where the pavement surface is more than 2 feet below the existing ground surface. The underdrains should consist of 4 inch rigid perforated PVC placed a minimum of 12 inches below the pavement surface and spaced at a maximum of 50 feet center to center.

All public roadways or paved areas to be maintained or accepted by the City of Portland should be constructed in accordance with City of Portland design standards.

6.3 General Construction Recommendations

The major consideration with respect to earthwork and foundation construction in the area of the site subject to this investigation is the presence of near surface bedrock. The depth to weathered rock or bedrock in a majority of proposed building areas is at or within a few feet existing ground surface. The weathered layer can be removed with conventional mechanical equipment. Excavation of the hard bedrock may require blasting. Existing buildings could be located within 300 feet of potential blasting areas. We recommend that a blast plan and blast vibration/frequency criteria be developed prior to blasting operations, once the extent of rock removal has been determined. General recommendations for blasting are presented in Appendix C.

Excavation into the native soil should not be difficult with conventional excavation equipment. Due to the relatively high fines content, native soil is not expected to meet the specifications for Foundation or Structural Fill. Sandy glacial till soil is more likely to meet the gradation requirements of Granular Borrow. If native soils are proposed for use as Foundation Fill, Structural Fill, or Granular Borrow during construction, they should be tested for compatibility with its intended use. Excavated native soil will be suitable for use as Common Borrow (MDOT 703.18).

Fill material used beneath pavement subbase soil and as site fill in landscaped areas should meet the requirements for Common Borrow (MDOT 703.18) and should be placed in lifts not

exceeding 12 inches in thickness and compacted to a minimum of 95 percent of its maximum Modified Proctor dry density.

We recommend that the banks of open cuts deeper than 4 feet in the native soils at the site be sloped at a maximum of 1H:1V. Excavation extending below the groundwater table should be flattened to 1.5H:1V. Cuts into stable bedrock can be vertical. These recommended slopes are based on the current OSHA guidelines.

We do not expect groundwater to be encountered during construction of the foundations. We recommend that temporary groundwater control measures be used to allow for in-the-dry conditions during footing construction work if groundwater is encountered. Measures such as footing excavation side trenches directed to sump locations should be used to lower groundwater levels in footing excavations. We also recommend that surface water be diverted away from excavations.

SECTION 7 CLOSURE

This report has been prepared for the sole use of our client and other consultants engaged in this project. Our opinions, conclusions, and recommendations are based on our judgment and generally accepted principles of geotechnical engineering. No other warranty is expressed or implied.

Some changes in materials from those presented in this report can be anticipated. Should conditions be encountered which differ materially from those discussed, we should be notified so that we can re-evaluate our recommendations.

APPENDIX A
SITE PLAN

APPENDIX B
EXPLORATION DATA

EXPLORATION DATA

I. General Information

Project No.: 7278

Exploration Contractor: R.J. Grondin & Sons, Inc.
Gorham, Maine

Project Site Representative: Erik J. Wiberg, P.E.

Exploration Date: October 17 and 18, 2001

Test Pit Location: Proposed test pits locations were survey located with ground surface elevations by Coffin Engineering & Surveying, LLC prior to excavation. Some test pits were offset from staked locations to avoid underground utilities.

Soil Classification Methods: Field ASTM D-2488, Description of Soils, USCS estimated.

II. Exploration Methods and Equipment

Excavation Equipment: Caterpillar 320L Tracked Backhoe
John Deere 595D Backhoe (TP-27)

Sampling Method: Grab

**TABLE B-1
TEST PIT SUMMARY**

Test Pit	Ground Elevation* (ft, NGVD)	Fill (ft)	Soil Depth Range (ft)				Weathered Rock	Top of Bedrock		Groundwater***	
			Topsoil	Glacial Marine		Glacial Till		Depth	Elevation (ft)	Depth (ft)	Elevation (ft, NGVD)
				Granular	Cohesive						
OCEAN EAST											
TP-1	86.5		0 - 0.8	0.8 - 3.0	3.0 - 9.0	9.0 - 12.8		12.8	73.7	5.5	81.0
TP-2	88.3		0 - 1.3			1.3 - 2.0		2.0	86.3	1.3	87.1
TP-3	88**		0 - 0.5			0.5 - 1.3	1.3 - 1.5	1.5	86.5	1.0	87.0
TP-4	87**		0 - 1.0			1.0 - 1.5		1.5	85.5		
TP-5	86.5		0 - 0.2				0.2 - 0.5	0.5	86.0		
TP-6	79**		0 - 0.5	0.5 - 3.6				3.6	75.4		
TP-7	93**		0 - 0.5			0.5 - 1.8	1.8 - 2.5	2.5	90.5		
TP-8	95.1		0 - 0.3			0.3 - 0.8	0.8 - 1.0	1.0	94.1		
TP-9	94.2		0 - 0.5			0.5 - 1.0	1.0 - 1.5	1.5	92.7		
TP-10	97.2		0 - 0.5			0.5 - 3.5		3.5	93.7		
TP-11	100.4	0 - 1.5	1.5 - 2.0				2.0 - 2.3	2.3	98.1		
TP-12	94.1		0 - 0.5			0.5 - 0.8	0.8 - 1.5	1.5	92.6		
TP-13	96.7		0 - 0.8			0.8 - 6.0		6.0	90.7		
TP-14	96.1		0 - 0.9			0.9 - 1.3	1.3 - 1.5	1.5	94.6		
TP-15	88.6		0 - 0.5			0.5 - 4.2		4.2	84.4		
TP-16	86.9		0 - 0.6			0.6 - 2.0	2.0 - 2.5	2.5	84.4		

* Ground surface elevations provided by Coffin Engineering & Surveying, LLC unless otherwise noted.

** Ground surface elevation estimated from Coffin topographic mapping.

*** Groundwater depth estimated from observed changes in soil moisture or from observed seepage from test pit side wall. Absence of data means no groundwater was observed at the test pit on the date of excavation, but does not imply that groundwater will not be encountered at these locations during construction.

**TABLE B-1 (continued)
TEST PIT SUMMARY**

Test Pit	Ground Elevation* (ft, NGVD)	Fill (ft)	Soil Depth Range (ft)				Weathered Rock	Top of Bedrock		Groundwater***	
			Topsoil	Glacial Marine		Glacial Till		Depth	Elevation (ft)	Depth (ft)	Elevation (ft, NGVD)
				Granular	Cohesive						
EBEN HILL											
TP-17	76.0		0 - 1.0			1.0 - 2.5		2.5	73.5		
TP-18	64.9		0 - 1.0			1.0 - 2.0	2.0 - 2.5	2.5	62.4		
TP-19	57.7					0.0 - 0.9		0.9	56.8		
TP-20	80.3		0 - 0.7			0.7 - 1.5	1.5 - 3.5	3.5	76.8	2.0	78.3
TP-21	66.1		0 - 1.1			1.1 - 2.5		2.5	63.6		
TP-22			Not Excavated								
TP-23	47.1		0 - 0.7	0.7 - 3.8				3.8	43.3		
TP-24	40.8		0 - 1.0	1.0 - 6.0		6.0 - 10.2		10.2	30.6	9.2	31.6
TP-25	40.9		0 - 0.7	5.0 - 8.2	0.7 - 5.0	8.2 - 11.0		11.0	29.9	10.0	30.9
TP-26	36.4		0 - 0.7		0.7 - 14.0			14.0	22.4	9.8	26.6
TP-27	30**		0 - 1.1		1.1 - 11.5			> 11.5		7.0	23.0
TP-28	35**		0 - 1.0		1.0 - 12.0			> 12.0		6.0	29.0

* Ground surface elevations provided by Coffin Engineering & Surveying, LLC unless otherwise noted.

** Ground surface elevation estimated from Coffin topographic mapping.

*** Groundwater depth estimated from observed changes in soil moisture or from observed seepage from test pit side wall. Absence of data means no groundwater was observed at the test pit on the date of excavation, but does not imply that groundwater will not be encountered at these locations during construction.

SUMMIT		TEST PIT LOG		Test Pit #	TP-1
GEOENGINEERING SERVICES 640 Main Street Lewiston, Maine 04240		Project: Geotechnical Investigation Eben Hill and Ocean East Condominiums, Portland, ME		Project #	7278
				Groundwater:	
Contractor: R.J. Grondin & Sons, Inc.		Ground Surface Elevation: 86.5 feet (NGVD)			
Equipment: Caterpillar 320L Excavator		Reference: Coffin Engineering & Surveying point data			
Summit Staff: Erik J. Wiberg, P.E.		Date: 10/18/01	Weather: Clear, 40's		
Depth (ft)	DESCRIPTION				
	ENGINEERING	GEOLOGIC/GENERAL			
1	Dark brown, silty fine SAND with little organics and roots, SM	TOPSOIL			
2	Gray, fine SAND with little to some silt, occasional gravel, wet, SM	0.8 GLACIAL MARINE			
3	Gray to orange-brown, mottled, fine SAND with some silt and little clay, moist, SM	Qu = 2.75 tsf at 2.5 ft. (see note)			
4		Qu = 2.0 tsf at 3.5 ft.			
5		Qu = 2.5 tsf at 4.5 ft.			
6	Gray to orange-brown, mottled, SILT with little sand and little to some clay, moist, ML	Slow seepage at 5.5 ft.			
7	Wet below 5.5 ft.	Qu = 2.25 tsf at 5.5 ft.			
8					
9					
10		9.0 GLACIAL TILL			
11	Tan, fine SAND with some silt and little gravel, few cobbles and occasional boulders to 12-inch, moist to wet, SM	Moderate seepage at 9.5 ft.			
12					
13					
14	Bedrock encountered at 12.75 ft. Bottom of exploration at 12.75 ft.	12.75 BEDROCK			
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17		Note: Unconfined compressive strengths measured by hand penetrometer on excavation sidewall.			
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SUMMIT		TEST PIT LOG		Test Pit #	TP-2
GEOENGINEERING SERVICES 640 Main Street Lewiston, Maine 04240		Project: Geotechnical Investigation Eben Hill and Ocean East Condominiums, Portland, ME		Project #	7278
				Groundwater:	1.25 ft BGS
Contractor:	R.J. Grondin & Sons, Inc.	Ground Surface Elevation:	88.3 feet (NGVD)		
Equipment:	Caterpillar 320L Excavator	Reference:	Coffin Engineering & Surveying point data		
Summit Staff:	Erik J. Wiberg, P.E.	Date:	10/18/01	Weather:	Clear, 40's

Depth (ft)	DESCRIPTION	
	ENGINEERING	GEOLOGIC/GENERAL
	Organic duff, OL	ORGANICS
1	Dark brown, fine SAND with some silt and little organics, some roots, SM	0.3 TOPSOIL
2	Tan to orange-brown, fine SAND with some gravel and little silt, wet, SM	1.3 GLACIAL TILL
3	Bedrock encountered at 2.0 ft. Bottom of exploration at 2.0 ft.	2.0 BEDROCK
4		Exposed bedrock ridge 50 ft. east of TP-2
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SUMMIT GEOENGINEERING SERVICES 640 Main Street Lewiston, Maine 04240		TEST PIT LOG Project: Geotechnical Investigation Eben Hill and Ocean East Condominiums, Portland, ME		Test Pit # TP-3
Contractor: R.J. Grondin & Sons, Inc.		Ground Surface Elevation: Approx. 88 feet (NGVD)		Project # 7278
Equipment: Caterpillar 320L Excavator		Reference: Coffin Engineering & Surveying topographic map		Groundwater: 1.0 ft BGS
Summit Staff: Erik J. Wiberg, P.E.		Date: 10/18/01	Weather: Clear, 40's	
Depth (ft)	DESCRIPTION			
	ENGINEERING		GEOLOGIC/GENERAL	
1	Dark brown, fine SAND with some silt and little organics, some roots, SM		TOPSOIL	
2	Reddish-brown, GRAVEL with some sand and little silt, occasional cobbles, moist to wet, GM		0.5	GLACIAL TILL
3	Weathered rock		1.3	WEATHERED ROCK
4	Bedrock encountered at 1.5 ft. Bottom of exploration at 1.5 ft.		1.5	BEDROCK
5			Exposed bedrock ridge (N-S alignment) 35 ft. south of TP-3	
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SUMMIT GEOENGINEERING SERVICES 640 Main Street Lewiston, Maine 04240		TEST PIT LOG Project: Geotechnical Investigation Eben Hill and Ocean East Condominiums, Portland, ME		Test Pit # TP-4 Project # 7278 Groundwater: None observed
Contractor: R.J. Grondin & Sons, Inc.		Ground Surface Elevation: Approx. 87 feet (NGVD)		
Equipment: Caterpillar 320L Excavator		Reference: Coffin Engineering & Surveying topographic map		
Summit Staff: Erik J. Wiberg, P.E.		Date: 10/18/01	Weather: Clear, 40's	
Depth (ft)	DESCRIPTION			
	ENGINEERING	GEOLOGIC/GENERAL		
1	Dark brown, fine SAND with some silt and little organics, some roots, moist, SM	TOPSOIL		
2	Reddish-brown, GRAVEL with some sand and little silt, occasional cobbles, moist, GM	1.0	GLACIAL TILL	
3	Bedrock encountered at 1.5 ft. Bottom of exploration at 1.5 ft.	1.5	BEDROCK	
4		Exposed bedrock 50 ft. west of TP-4		
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SUMMIT GEOENGINEERING SERVICES 640 Main Street Lewiston, Maine 04240	TEST PIT LOG		Test Pit # TP-5
	Project: Geotechnical Investigation Eben Hill and Ocean East Condominiums, Portland, ME		Project # 7278
			Groundwater: None observed
Contractor: R.J. Grondin & Sons, Inc.	Ground Surface Elevation: 86.5 feet (NGVD)		
Equipment: Caterpillar 320L Excavator	Reference: Coffin Engineering & Surveying point data		
Summit Staff: Erik J. Wiberg, P.E.	Date: 10/18/01	Weather: Clear, 40's	

Depth (ft)	DESCRIPTION	
	ENGINEERING	GEOLOGIC/GENERAL
	Dark brown, fine SAND with organics and silt, moist, SM	TOPSOIL
1	Weathered rock	0.2 WEATHERED ROCK
2	Bedrock encountered at 0.5 ft. Bottom of exploration at 0.5 ft.	0.5 BEDROCK
3		Exposed bedrock 15 ft. south of TP-5
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SUMMIT GEOENGINEERING SERVICES 640 Main Street Lewiston, Maine 04240		TEST PIT LOG		Test Pit #	TP-6
		Project: Geotechnical Investigation		Project #	7278
		Eben Hill and Ocean East Condominiums, Portland, ME		Groundwater:	None observed
Contractor:	R.J. Grondin & Sons, Inc.	Ground Surface Elevation:	Approx. 79 feet (NGVD)		
Equipment:	Caterpillar 320L Excavator	Reference:	Coffin Engineering & Surveying topographic map		
Summit Staff:	Erik J. Wiberg, P.E.	Date:	10/18/01	Weather:	Clear, 40's

Depth (ft)	DESCRIPTION	
	ENGINEERING	GEOLOGIC/GENERAL
1	Dark brown, fine SAND with little to some silt, and little organics, some roots, moist, SM	TOPSOIL
2	Olive-tan, fine SAND with some silt and little fine gravel, moist, SM	0.5 GLACIAL MARINE
3	Gray to orange-brown, fine SAND with little silt, dry, faint mottling, SP-SM	
4	Orange-brown to gray, fine SAND with some silt and trace gravel, moist, SM	
5	Bedrock encountered at 3.6 ft. Bottom of exploration at 3.6 ft.	
6		3.6 BEDROCK
7		Standing water at ground surface approximately 50 ft. south of TP-6
8		TP-6 dry 1.5 hr. after excavation
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SUMMIT GEOENGINEERING SERVICES 640 Main Street Lewiston, Maine 04240		TEST PIT LOG		Test Pit #	TP-7
		Project: Geotechnical Investigation Eben Hill and Ocean East Condominiums, Portland, ME		Project #	7278
Contractor: R.J. Grondin & Sons, Inc.		Ground Surface Elevation: Approx. 93 feet (NGVD)		Groundwater: None observed	
Equipment: Caterpillar 320L Excavator		Reference: Coffin Engineering & Surveying topographic map			
Summit Staff: Erik J. Wiberg, P.E.		Date: 10/18/01	Weather: Clear, 40's		

Depth (ft)	DESCRIPTION	
	ENGINEERING	GEOLOGIC/GENERAL
1	Dark brown, fine SAND with little silt and little organics, some roots, moist, SM	TOPSOIL
2	Reddish-brown to tan, fine GRAVEL with some sand and trace to little silt, GW-GM	0.5 GLACIAL TILL
3	Weathered rock	1.8 WEATHERED ROCK
3	Bedrock encountered at 2.5 ft. Bottom of exploration at 2.5 ft.	2.5 BEDROCK
4		Boulders/bedrock exposed near TP-7.
5		Exposed bedrock approx. 40 ft. west of TP-7.
6		Exposed bedrock approx. 60 ft. southwest of TP-7.
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SUMMIT		TEST PIT LOG		Test Pit #	TP-3
GEOENGINEERING SERVICES 640 Main Street Lewiston, Maine 04240		Project: Geotechnical Investigation Eben Hill and Ocean East Condominiums, Portland, ME		Project #	7278
				Groundwater:	
Contractor:	R.J. Grondin & Sons, Inc.	Ground Surface Elevation:		95.1 feet (NGVD)	
Equipment:	Caterpillar 320L Excavator	Reference:		Coffin Engineering & Surveying point data	
Summit Staff:	Erik J. Wiberg, P.E.	Date:	10/18/01	Weather:	Clear, 40's
Depth (ft)	DESCRIPTION				
	ENGINEERING	GEOLOGIC/GENERAL			
1	Dark brown, fine SAND with organic and little silt, moist, SM	TOPSOIL			
		0.3	GLACIAL TILL		
2	Reddish-brown, SILT with some fine sand to fine SAND with some silt, little gravel moist, ML/SM	0.8	WEATHERED ROCK		
		1.0	BEDROCK		
3	Weathered rock				
4	Bedrock encountered at 1.0 ft.				
5	Bottom of exploration at 1.0 ft.				
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SUMMIT GEOENGINEERING SERVICES 640 Main Street Lewiston, Maine 04240	TEST PIT LOG		Test Pit # TP-9
	Project: Geotechnical Investigation Eben Hill and Ocean East Condominiums, Portland, ME		Project # 7278
			Groundwater: None observed

Contractor: R.J. Grondin & Sons, Inc.	Ground Surface Elevation: 94.2 feet (NGVD)
Equipment: Caterpillar 320L Excavator	Reference: Coffin Engineering & Surveying point data
Summit Staff: Erik J. Wiberg, P.E.	Date: 10/18/01 Weather: Clear, 40's

Depth (ft)	DESCRIPTION	
	ENGINEERING	GEOLOGIC/GENERAL
1	Dark brown, fine SAND with little organics and little silt, moist, SM	TOPSOIL
		0.5 GLACIAL TILL
2	Olive-brown, fine SAND with little silt and little gravel, moist, SM	1.0 WEATHERED ROCK
	Weathered rock	1.5 BEDROCK
3	Bedrock encountered at 1.5 ft. Bottom of exploration at 1.5 ft.	
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SUMMIT GEOENGINEERING SERVICES 640 Main Street Lewiston, Maine 04240		TEST PIT LOG		Test Pit # TP-10
		Project: Geotechnical Investigation Eben Hill and Ocean East Condominiums, Portland, ME		Project # 7278
		Ground Surface Elevation: 97.2 feet (NGVD)		Groundwater: None observed
Contractor: R.J. Grondin & Sons, Inc.		Reference: Coffin Engineering & Surveying point data		
Equipment: Caterpillar 320L Excavator		Date: 10/17/01 Weather: PC, 60's		
Summit Staff: Erik J. Wiberg, P.E.				
Depth (ft)	DESCRIPTION			
	ENGINEERING		GEOLOGIC/GENERAL	
1	Dark brown, fine SAND with some silt and little organics, moist, SM		TOPSOIL 0.5	
2	Reddish-brown, fine SAND with some silt and little gravel, occasional cobble, moist, SM		GLACIAL TILL	
3	Tan GRAVEL with some sand and trace to little silt, cobbles to 12-inch, dry, GW-GM/GM			
4	Bedrock encountered at 3.5 ft. Bottom of exploration at 3.5 ft.		3.5 BEDROCK	
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8			Exposed bedrock 35 ft. W of TP-10 Exposed bedrock 20 ft. E of TP-10	
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SUMMIT GEOENGINEERING SERVICES 640 Main Street Lewiston, Maine 04240		TEST PIT LOG Project: Geotechnical Investigation Eben Hill and Ocean East Condominiums, Portland, ME		Test Pit # TP-11 Project # 7278 Groundwater: None observed
Contractor: R.J. Grondin & Sons, Inc.		Ground Surface Elevation: 100.4 feet (NGVD)		
Equipment: Caterpillar 320L Excavator		Reference: Coffin Engineering & Surveying point data		
Summit Staff: Erik J. Wiberg, P.E.		Date: 10/17/01	Weather: PC, 60's	
Depth (ft)	DESCRIPTION			
	ENGINEERING		GEOLOGIC/GENERAL	
1	Olive-brown, fine sand with some silt, trace clay, some roots, occasional gravel, moist, SM		FILL	
2	Dark brown, fine SAND with some silt, little organics, moist, SM		1.5	TOPSOIL
3	Light brown, weakly cemented SAND, dry, SM		2.0	WEATHERED ROCK
	Weathered rock		2.3	BEDROCK
4	Bedrock encountered at 2.3 ft. Bottom of exploration at 2.3 ft.			
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SUMMIT GEOENGINEERING SERVICES 640 Main Street Lewiston, Maine 04240		TEST PIT LOG Project: Geotechnical Investigation Eben Hill and Ocean East Condominiums, Portland, ME		Test Pit # TP-12 Project # 7278 Groundwater: None observed
Contractor: R.J. Grondin & Sons, Inc.		Ground Surface Elevation: 94.1 feet (NGVD)		
Equipment: Caterpillar 320L Excavator		Reference: Coffin Engineering & Surveying point data		
Summit Staff: Erik J. Wiberg, P.E.		Date: 10/17/01	Weather: PC, 60's	
Depth (ft)	DESCRIPTION			
	ENGINEERING	GEOLOGIC/GENERAL		
	Brown, fine SAND with some silt and little organics, roots, SM	0.5	TOPSOIL	
1	Reddish-brown, fine SAND with little to some silt, occasional weathered rock.	0.8	GLACIAL TILL	
2	Weathered rock	1.5	WEATHERED ROCK	
3	Bedrock encountered at 1.5 ft.		BEDROCK	
4	Bottom of exploration at 1.5 ft.		Exposed bedrock ridge (N-S alignment) 15 ft. east of TP-12	
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SUMMIT GEOENGINEERING SERVICES 640 Main Street Lewiston, Maine 04240		TEST PIT LOG Project: Geotechnical Investigation Eben Hill and Ocean East Condominiums, Portland, ME		Test Pit # TP-13 Project # 7278 Groundwater: None observed
Contractor: R.J. Grondin & Sons, Inc.		Ground Surface Elevation: 96.7 feet (NGVD)		
Equipment: Caterpillar 320L Excavator		Reference: Coffin Engineering & Surveying point data		
Summit Staff: Erik J. Wiberg, P.E.		Date: 10/17/01	Weather: PC, 60's, Occasional rain	
Depth (ft)	DESCRIPTION			
	ENGINEERING	GEOLOGIC/GENERAL		
1	Dark brown, SILT with some organics and trace fine SAND, roots, ML/OL	TOPSOIL		
2	Orange-brown, fine SAND with little fine gravel, dry, SM	0.8 GLACIAL TILL		
3	Light brown to orange-brown, mottled, GRAVEL with some sand and little silt, dry, GM			
4				
5	Light brown to orange-brown, mottled, fine to medium SAND with little to some gravel and little silt, dry, SM			
6				
7	Bedrock encountered at 6.0 ft. Bottom of exploration at 6.0 ft.	6.0 BEDROCK		
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9		Exposed bedrock ridge 35 ft. ENE of TP-13 Exposed bedrock ridge 25 ft. WNW of TP-13		
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SUMMIT GEOENGINEERING SERVICES 640 Main Street Lewiston, Maine 04240	TEST PIT LOG		Test Pit # TP-14
	Project: Geotechnical Investigation Eben Hill and Ocean East Condominiums, Portland, ME		Project # 7278 Groundwater: None observed
Contractor: R.J. Grondin & Sons, Inc.	Ground Surface Elevation: 96.1 feet (NGVD)		
Equipment: Caterpillar 320L Excavator	Reference: Coffin Engineering & Surveying point data		
Summit Staff: Erik J. Wiberg, P.E.	Date: 10/17/01	Weather:	PC, 60's, Occasional rain

Depth (ft)	DESCRIPTION	
	ENGINEERING	GEOLOGIC/GENERAL
		TOPSOIL
1	Brown, fine SAND with some silt and trace to little organics, moist, SM	
	Reddish-brown, fine sand with some silt, SM	0.9 GLACIAL TILL
2	Weathered rock, moist	1.25 WEATHERED ROCK
	Bedrock encountered at 1.5 ft.	1.5 BEDROCK
3	Bottom of exploration at 1.5 ft.	
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5		Exposed bedrock ridge 30 ft. E of TP-14
6		Exposed bedrock knoll 5 ft. SE of TP-14
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SUMMIT GEOENGINEERING SERVICES 640 Main Street Lewiston, Maine 04240		TEST PIT LOG		Test Pit # TP-15
		Project: Geotechnical Investigation Eben Hill and Ocean East Condominiums, Portland, ME		Project # 7278
				Groundwater: None observed
Contractor: R.J. Grondin & Sons, Inc.		Ground Surface Elevation: 88.6 feet (NGVD)		
Equipment: Caterpillar 320L Excavator		Reference: Coffin Engineering & Surveying point data		
Summit Staff: Erik J. Wiberg, P.E.		Date: 10/17/01	Weather: PC, 60's	
Depth (ft)	DESCRIPTION			
	ENGINEERING	GEOLOGIC/GENERAL		
1	Brown, fine SAND with some silt and little organics, moist, SM	TOPSOIL 0.5		
2	Orange-brown fine SAND with some silt and little gravel, occasional boulders, moist, SM	GLACIAL TILL		
3	Light brown, GRAVEL with some sand and trace to little silt, occasional weathered rock fragments and boulders, dry, GW-GM			
4				
5	Bedrock encountered at 4.2 ft. Bottom of exploration at 4.2 ft.	4.2 BEDROCK		
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8		Exposed bedrock 15 ft. SE of TP-15 Exposed bedrock ridge 50' NW of TP-15		
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SUMMIT GEOENGINEERING SERVICES 640 Main Street Lewiston, Maine 04240		TEST PIT LOG		Test Pit # TP-16
Contractor: R.J. Grondin & Sons, Inc.		Project: Geotechnical Investigation Eben Hill and Ocean East Condominiums, Portland, ME		Project # 7278
Equipment: Caterpillar 320L Excavator		Ground Surface Elevation: 86.9 feet (NGVD)		Groundwater: None observed
Summit Staff: Erik J. Wiberg, P.E.		Reference: Coffin Engineering & Surveying point data		
		Date: 10/17/01	Weather: PC, 60's	
Depth (ft)	DESCRIPTION			
	ENGINEERING		GEOLOGIC/GENERAL	
1	Brown, fine SAND with some silt and little organics, moist, SM		TOPSOIL 0.6	
2	Reddish-brown fine SAND with some silt and little gravel, occasional boulders, dry to moist, SM		GLACIAL TILL	
3	Weathered rock		2.0 WEATHERED ROCK	
4	Bedrock encountered at 2.5 ft. Bottom of exploration at 2.5 ft.		2.5 BEDROCK	
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6			Exposed bedrock ridge 15' N of TP-16	
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SUMMIT		TEST PIT LOG		Test Pit #	TP-17
GEOENGINEERING SERVICES 640 Main Street Lewiston, Maine 04240		Project: Geotechnical Investigation Eben Hill and Ocean East Condominiums, Portland, ME		Project #	7278
				Groundwater:	
Contractor:	R.J. Grondin & Sons, Inc.	Ground Surface Elevation:		76.0 feet (NGVD)	
Equipment:	Caterpillar 320L Excavator	Reference:	Coffin Engineering & Surveying point data		
Summit Staff:	Erik J. Wiberg, P.E.	Date:	10/17/01	Weather:	PC, 60's
Depth (ft)	DESCRIPTION				
	ENGINEERING		GEOLOGIC/GENERAL		
1	Brown, fine SAND with some silt and little organics, substantial roots, moist, SM		TOPSOIL		
2	Orange-brown, coarse to fine SAND with little silt, moist, SP-SM/SM		1.0 GLACIAL TILL		
3			2.5 BEDROCK		
4	Bedrock encountered at 2.5 ft. Bottom of exploration at 2.5 ft.				
5			Exposed bedrock 30' SE of TP-17		
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SUMMIT GEOENGINEERING SERVICES 640 Main Street Lewiston, Maine 04240		TEST PIT LOG Project: Geotechnical Investigation Eben Hill and Ocean East Condominiums, Portland, ME		Test Pit # TP-18 Project # 7278 Groundwater: None observed
Contractor: R.J. Grondin & Sons, Inc.		Ground Surface Elevation: 64.9 feet (NGVD)		
Equipment: Caterpillar 320L Excavator		Reference: Coffin Engineering & Surveying point data		
Summit Staff: Erik J. Wiberg, P.E.		Date: 10/17/01	Weather: PC, 60's	
Depth (ft)	DESCRIPTION			
	ENGINEERING	GEOLOGIC/GENERAL		
1	Brown, fine SAND with some silt and little organics, roots, moist, SM	TOPSOIL		
2	Tan, medium to fine SAND with little silt and trace gravel, moist, SP-SM	1.0	GLACIAL TILL	
3	Weathered rock	2.0	WEATHERED ROCK	
4	Bedrock encountered at 2.5 ft. Bottom of exploration at 2.5 ft.	2.5	BEDROCK	
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6			Exposed bedrock 10' S of TP-18	
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SUMMIT GEOENGINEERING SERVICES 640 Main Street Lewiston, Maine 04240	TEST PIT LOG	Test Pit # TP-19
	Project: Geotechnical Investigation Eben Hill and Ocean East Condominiums, Portland, ME	Project # 7278 Groundwater: None observed
Contractor: R.J. Grondin & Sons, Inc.	Ground Surface Elevation: 57.7 feet (NGVD)	
Equipment: Caterpillar 320L Excavator	Reference: Coffin Engineering & Surveying point data	
Summit Staff: Erik J. Wiberg, P.E.	Date: 10/17/01	Weather: PC, 60's

Depth (ft)	DESCRIPTION	
	ENGINEERING	GEOLOGIC/GENERAL
1	Brown, GRAVEL with some silt and weathered rock rock, GM	GLACIAL TILL
2	Bedrock encountered at 0.9 ft. Bottom of exploration at 0.9 ft.	0.9 BEDROCK
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SUMMIT		TEST PIT LOG		Test Pit #	TP-20
GEOENGINEERING SERVICES 640 Main Street Lewiston, Maine 04240		Project: Geotechnical Investigation Eben Hill and Ocean East Condominiums, Portland, ME		Project #	7278
				Groundwater:	2.0 ft BGS
Contractor:	R.J. Grondin & Sons, Inc.	Ground Surface Elevation:	80.3 feet (NGVD)		
Equipment:	Caterpillar 320L Excavator	Reference:	Coffin Engineering & Surveying point data		
Summit Staff:	Erik J. Wiberg, P.E.	Date:	10/17/01	Weather:	PC, 60's
Depth (ft)	DESCRIPTION				
	ENGINEERING	GEOLOGIC/GENERAL			
1	Dark brown, SILT with little fine sand and little organics, moist, ML	TOPSOIL			
2	Reddish-brown, coarse SAND to fine GRAVEL with little silt, wet, SM/GM	0.7	GLACIAL TILL		
3	Weathered rock, wet	1.5	WEATHERED ROCK Slow seepage at 2.0 ft.		
4	Bedrock encountered at 3.5 ft.	3.5	BEDROCK		
5	Bottom of exploration at 3.5 ft.				
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SUMMIT GEOENGINEERING SERVICES 640 Main Street Lewiston, Maine 04240	TEST PIT LOG	Test Pit # TP-21
	Project: Geotechnical Investigation Eben Hill and Ocean East Condominiums, Portland, ME	Project # 7278
		Groundwater: None observed

Contractor: R.J. Grondin & Sons, Inc.	Ground Surface Elevation: 66.1 feet (NGVD)
Equipment: Caterpillar 320L Excavator	Reference: Coffin Engineering & Surveying point data
Summit Staff: Erik J. Wiberg, P.E.	Date: 10/17/01 Weather: PC, 60's

Depth (ft)	DESCRIPTION	
	ENGINEERING	GEOLOGIC/GENERAL
1	Dark brown, SILT with little fine sand and little organics, moist, ML	TOPSOIL
2	Reddish-brown, coarse GRAVEL with little to some fine sand and little silt, moist, GM	1.1 GLACIAL TILL
3	Bedrock encountered at 2.5 ft. Bottom of exploration at 2.5 ft.	2.5 BEDROCK
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SUMMIT GEOENGINEERING SERVICES 640 Main Street Lewiston, Maine 04240		TEST PIT LOG		Test Pit # TP-22
		Project: Geotechnical Investigation Eben Hill and Ocean East Condominiums, Portland, ME		Project # 7278 Groundwater:
Contractor: R.J. Grondin & Sons, Inc.		Ground Surface Elevation:		
Equipment: Caterpillar 320L Excavator		Reference: Coffin Engineering & Surveying point data and topo		
Summit Staff: Erik J. Wiberg, P.E.		Date: 10/17/01	Weather: PC, 60's	
Depth (ft)	DESCRIPTION			
	ENGINEERING		GEOLOGIC/GENERAL	
1	Proposed test pit location is in residential driveway. Test pit not excavated			
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SUMMIT GEOENGINEERING SERVICES 640 Main Street Lewiston, Maine 04240		TEST PIT LOG Project: Geotechnical Investigation Eben Hill and Ocean East Condominiums, Portland, ME		Test Pit # TP-23
Contractor: R.J. Grondin & Sons, Inc.		Ground Surface Elevation: 47.1 feet (NGVD)		Project # 7278
Equipment: Caterpillar 320L Excavator		Reference: Coffin Engineering & Surveying point data		Groundwater: None observed
Summit Staff: Erik J. Wiberg, P.E.		Date: 10/17/01	Weather: PC, 60's	
Depth (ft)	DESCRIPTION			
	ENGINEERING		GEOLOGIC/GENERAL	
1	Brown, fine SAND with some silt and trace organics, roots, dry, SM		TOPSOIL	
2	Orange-brown, fine SAND with little silt, moist, SM		0.7 GLACIAL MARINE	
3	Tan, fine SAND with trace to little silt, little fine gravel, very faint mottling, dry, SP-SM			
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5	Bedrock encountered at 3.8 ft. Bottom of exploration at 3.8 ft.		3.8 BEDROCK	
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SUMMIT GEOENGINEERING SERVICES 640 Main Street Lewiston, Maine 04240		TEST PIT LOG		Test Pit # TP-24
Contractor: R.J. Grondin & Sons, Inc.		Project: Geotechnical Investigation Eben Hill and Ocean East Condominiums, Portland, ME		Project # 7278
Equipment: Caterpillar 320L Excavator		Ground Surface Elevation: 40.8 feet (NGVD)		Groundwater: 9.2 ft BGS
Summit Staff: Erik J. Wiberg, P.E.		Reference: Coffin Engineering & Surveying point data	Date: 10/17/01	Weather: PC, 60's
Depth (ft)	DESCRIPTION			
	ENGINEERING		GEOLOGIC/GENERAL	
1	Brown, fine SAND with some silt and little organics, roots, moist, SM		TOPSOIL	
2	Orange-brown, mottled, fine SAND with some silt and with thin lenses of silt with clay, moist, SM		1.0 GLACIAL MARINE	
3	Olive, SILT with some clay and trace fine sand, moist, ML			
4				
5	Orange-brown to olive, fine SAND with some silt and little gravel, strong mottling, moist, SM			
6				
7	Orange-brown, fine SAND with some silt and occasional bouldes, moist, SM		6.0 GLACIAL TILL	
8			Boulders to 12-inches encountered below 6 feet. Excavation difficult due to dense soil conditions.	
9				
10			Slow seepage observed at 9.25 ft. 3 hours after excavation. Hole open to 10 ft.	
11	Refusal encountered at 10.2 ft. Bottom of exploration at 10.2 ft.		10.2 BEDROCK	
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SUMMIT		TEST PIT LOG		Test Pit #	TP-25
GEOENGINEERING SERVICES 640 Main Street Lewiston, Maine 04240		Project: Geotechnical Investigation Eben Hill and Ocean East Condominiums, Portland, ME		Project #	7278
				Groundwater:	10.0 ft BGS
Contractor:	R.J. Grondin & Sons, Inc.	Ground Surface Elevation:	40.9 feet (NGVD)		
Equipment:	Caterpillar 320L Excavator	Reference:	Coffin Engineering & Surveying point data		
Summit Staff:	Erik J. Wiberg, P.E.	Date:	10/17/01	Weather:	PC, 60's
Depth (ft)	DESCRIPTION				
	ENGINEERING	GEOLOGIC/GENERAL			
1	Brown, fine SAND with some silt and trace organics, roots, moist, SM	TOPSOIL			
2	Olive, SILT with some clay and trace fine sand, occasional feeder roots, friable, moist, ML	0.7 GLACIAL MARINE			
3					
4	Olive to tan, mottled, SILT with some clay, moist, firm, ML	Qu > 4.5 tsf at 4.0 ft. (see note)			
5					
6	Olive-gray, fine SAND with some silt and tan silty sand lenses, mottled, moist, SM	Soil horizons dip at about 10-15 degrees toward the east			
7					
8	Tan to light brown, fine SAND with trace to little silt and trace gravel, faint mottling, dry, SP-SM	Sidewall cave in at 7.5 ft.			
9					
10	Olive to brownish-gray, SAND with some silt and little clay, mottled, firm, SM	8.2 GLACIAL TILL Qu > 4.5 tsf (excavated sample) Slow seepage observed at 10 ft. 3 hours after exc.			
11					
12	Refusal encountered at 11.0 ft. Bottom of exploration at 11.0 ft.	11.0 BEDROCK			
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15		Note: Unconfined compressive strengths measured by hand penetrometer on excavation sidewall.			
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