REPORT

October 11, 2012
12-0597

Geotechnical Engineering Services

Proposed Hyatt Place Hotel
Union Street and Fore Street
Portland, Maine

PREPARED FOR:
Cow Plaza Hotel, LLC
Attn: Tim Soley
100 Commercial Street, Suite 306
Portland, Maine 04101

PREPARED BY:
S.W.COLE ENGINEERING, INC.
286 Portland Road
Gray, Maine 04039
(207) 657-2866

S.W.COLE ENGINEERING, INC.

- *Geotechnical Engineering*
- *Construction Materials Testing*
- *GeoEnvironmental Services*
- *Ecological Services*

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TABLE OF CONTENTS

12-0597 S

October 11, 2012

Cow Plaza Hotel, LLC
Attn: Tim Soley
100 Commercial Street, Suite 306
Portland, Maine 04101

Subject: Geotechnical Engineering Services
Proposed Hyatt Place Hotel
Union Street and Fore Street
Portland, Maine

Dear Tim:

In accordance with our Revised Agreement dated July 17, 2012, S.W.COLE ENGINEERING, INC. has observed subsurface explorations and completed geotechnical engineering services for the Proposed Hyatt Place Hotel in Portland, Mane. This report summarizes our findings and geotechnical recommendations relative to foundations and earthwork associated with the proposed construction. The contents of this report are subject to the limitations set forth in Attachment A.

1.0 INTRODUCTION

1.1 Scope and Purpose

The purpose of our services was to obtain subsurface information at the site in order to develop geotechnical recommendations relative to foundations and earthwork associated with the proposed construction. Our scope of work included test boring and test pit explorations, supplemental auger probe explorations, soils laboratory testing, a geotechnical analysis of the subsurface findings, and preparation of this report.

1.2 Proposed Construction

Based on the information provided, we understand the site consists of a 0.44-acre paved parking lot on the northeast corner of Union Street and Fore Street in Portland, Maine. We understand the proposed development includes the construction of a 7-story, 123-room hotel on the site occupying a plan area of 11,200 square feet. We understand the ground floor will have a finished floor elevation of 25 feet approximately level with Fore Street which will require an approximately 8 to 10 foot cut along the back (north) side of the site. We understand current planning includes a 3 to 4-foot deep pool on the on the ground floor. The proposed building footprint and existing site features are shown on the "Exploration Location Plan" attached as Sheet 1.

We anticipate the building will be steel-framed with precast plank flooring. We understand the estimated column loads will be 500 kips for interior columns, 250 kips for perimeter columns and 125 kips for corner columns. We understand uplift loads approaching 240 kips are estimated for braced framed locations.

2.0 EXPLORATION AND TESTING

2.1 Explorations

Ten test pit explorations (TP-1 through TP-10) were made at the site on July 21, 2012 by R.E.Coleman of Falmouth, Maine working under subcontract to Shinberg Consulting (project manager). The test pit locations were selected and established in the field by Shinberg Consulting. S.W.COLE ENGINEERING, INC. measured the test pit locations from existing site features and logged the subsurface conditions.

Twelve test borings (B-1 through B-12) and 19 auger probes (P-101 through P-119) were made at the site on July 21, July 28 and August 18, 2012 by Great Works Test Boring, Inc. of Rollinsford, New Hampshire working under subcontract to S.W.COLE ENGINEERING, INC. The exploration locations were selected and established in the field by S.W.COLE ENGINEERING, INC. based on taped measurements from existing site features. Each of the explorations was terminated on a refusal surface (probable bedrock or boulder). Bedrock was cored at test borings B-1, B-4 and B-10. Rock core recovery and Rock Quality Designation (RQD) are shown on the rock core logs.

The approximate exploration locations are shown on the "Exploration Location Plan" attached as Sheet 1. Logs of the explorations are attached as Sheets 2 through 21. A

summary table of the auger probe refusal depths and comments regarding the refusal surface is attached as Sheet 22. A key to the notes and symbols used on the logs is attached as Sheet 23. The elevations shown on the exploration logs and auger probe summary sheet were estimated based on topographic information shown on Sheet 1.

2.2 Testing

The test borings were made using a combination of solid-stem auger and cased wash-boring drilling techniques. The soils were sampled at 2 to 5 foot intervals using a split spoon sampler and Standard Penetration Test (SPT) methods. SPT blow counts are shown on the test boring logs.

Soil and rock core samples obtained from the explorations were returned to our laboratory for classification and testing. Laboratory testing included three soil moisture content tests, three grain size analyses, two unconfined rock compressive strength tests and two rock core unit weight tests. Moisture content, rock compressive strength and rock core unit weight test results are shown on the logs. Gradation test results are attached as Sheets 24, 25 and 26.

3.0 SITE AND SUBSURFACE CONDITIONS

3.1 Site Conditions

The site is located within an existing 180-foot long by 65-foot wide paved parking lot at the northeast corner of the intersection of Union Street and Fore Street in Portland, Maine. The site is bound to the north by an existing Central Maine Power Company (CMP) substation yard, to the south by Fore Street, to the west by Union Street and to the east by an existing Parking Garage with first floor retail space. Based on the topographic information on Sheet 1, existing grades across the parking lot slope gently downward from northeast to southwest from about elevation 30 to 26 feet before sloping down steeply to Fore Street, which is approximately 2 to 5 feet below the existing parking lot grade. The site slopes steeply upward along the north side from a parking lot grade of elevation 28 to 29 feet to the adjacent CMP substation yard at about elevation 33 feet, approximately 8 feet above proposed finished floor elevation.

3.2 Subsurface Conditions

Underlying a 3 to 3.5-inch thick surficial layer of pavement, the explorations generally encountered about 1.5 to 2 feet of granular fill followed by a 2 to 2.5-inch thick layer of

relic pavement underlain by uncontrolled fill with debris and relic foundations to a depth of about 6 to 10 feet. The uncontrolled fill was underlain by native silty sand with some gravel followed by medium dense to dense glacial till mantling bedrock at depths ranging from approximately 6 to 22 feet. The principal strata encountered are summarized below. Interpretive subsurface sections are illustrated on Sheet 1. Refer to the attached logs for a more detailed descriptions at the exploration locations.

Fills (Granular and Uncontrolled): Underlying the pavement, we observed fill soils generally consisting of medium dense gravel and sand with trace silt that were noted to a depth of about 1.5 to 2 feet. Directly below the gravel and sand fill soils, a layer of relic pavement was observed followed by uncontrolled fill consisting of gravelly sand with some silt and debris (bricks, ash, glass, metal) and relic foundations. The uncontrolled fill extended to depths varying from about 6 to 10 feet.

Native Silty Sands: Underlying the fills, in borings B-1, B-2, B-4, B-5, B-9, B-10 and B-12, the borings generally encountered native loose to medium dense, brown to gray silty sand with some gravel. In borings B-5, B-9 and B-12 the silty clay seams were observed in the native silty sand. The native silty sands were generally observed to be about 3 to 10.5 feet thick.

Glacial Till: Underlying the fills and native silty sand, an approximately 1.5 to 7-foot thick stratum of glacial till consisting of medium dense to dense, brown-gray silty gravelly sand with cobbles was observed. Glacial till was not observed in borings B-8 and B-10.

Bedrock: Underlying the native soils, the explorations encountered bedrock at depths ranging from about 6 to 22 feet below the ground surface. Upon encountering bedrock, borings B-1, B-4 and B-10 were continued up to 10 feet into bedrock utilizing a NQ rock core barrel. Bedrock was classified as gray metamorphic siltstone / meta-pelite with an RQD of 0 to 62 percent, corresponding to a rock quality of very poor to fair. In general, the bedrock is highly fractured in the upper 5 feet with some clay in-filled fractures and becomes moderately to slightly fractured with depth.

3.3 Groundwater Conditions

Free water was observed in borings B-2, B-5 and B-9 at depths varying from about 12 to 13 feet below the ground surface. Saturated soils were observed in borings B-1 and B-4 below a depth of 10 feet prior to rock coring. Free water was not observed in the remaining borings at the time of our explorations. We anticipate groundwater likely becomes perched on relatively impervious glacial till and bedrock. It should be anticipated seasonal groundwater levels will fluctuate, especially during periods of snowmelt and heavy precipitation.

4.0 EVALUATION AND RECOMMENDATIONS

4.1 General Findings

The explorations at the site generally encountered about 6 to 10 feet of uncontrolled fill with miscellaneous debris and relic foundations underlain by native silty sand with some gravel followed by glacial till mantling bedrock at depths ranging from about 6 to 22 feet below the ground surface. Interpretive subsurface sections along the front (south) and back (north) exterior walls, as well as, through the anticipated pool area are shown on Sheet 1.

Based on the subsurface findings, it is our opinion the proposed construction appears feasible from a geotechnical standpoint. The principal geotechnical considerations are as follows:

- Foundations: Based on the subsurface findings and our understanding of the proposed construction, we recommend columns and walls be supported on foundations bearing directly or socketed into bedrock encountered at depths of 6 to 22 feet below existing grades. As discussed, we recommend footings cast on sound bedrock for shallow excavation depths and drilled shafts or drilled and grouted H-piles extending into bedrock for deeper excavation depths.

- Uncontrolled Fill: Uncontrolled fill consisting of loose silty gravelly sand to gravelly sand with some silt and debris (bricks, ash, glass, metal), relic foundations and occasional voids were observed within the explorations to depths varying from about 6 to 10 feet below ground surface. Relic foundations must be removed to a depth of at least 2 feet below on-grade floor slabs. Uncontrolled fills may remain beneath on-grade floor slabs provided they are

proof-rolled and densified; any areas observed to be soft or yielding after densification will need to be removed and replaced.

- Excavation Shoring: We anticipate nearly vertical cuts of 5 to 12 feet high will be required around the proposed building perimeter. We anticipate excavations will encounter loose to medium dense fills with debris and native loose silty sands to sandy silts. The observed fills and native soils will tend to slough and cave; therefore, excavations will require shoring. We anticipate shoring could consist of steel H-piles drilled and grouted into bedrock and precast concrete panels or wood lagging to form a cantilevered wall around the building perimeter where the depth to bedrock is too great to excavate for footings or as needed to support adjacent properties and structures. As discussed, the shoring wall could be designed to serve as a permanent foundation wall.

- Frost Considerations: The uncontrolled fill and native soils are frost susceptible and therefore not suitable for reuse for foundations exposed to freezing. Foundations should have at least 4.5 feet of soil cover or insulation for frost protection.

- Adjacent Foundations and Structures: Foundation records for the adjacent parking structure and CMP substation will need to be evaluated to help coordinate foundation design and excavation to preclude damage or undermining of adjacent foundations , slabs and properties.

4.2 Site and Subgrade Preparation

Existing utilities, relic foundations and soils with organics must be completely removed or relocated from beneath the proposed building footprint. We recommend any uncontrolled fills that remain beneath on-grade slabs must be proof-rolled and densified. Any areas observed to be soft or yielding following densification should be removed and replaced with Structural Fill.

Footings and drilled foundations should be excavated to and founded on sound, intact bedrock. Bedrock surfaces should be cleaned of loose debris prior to casting foundations. Bearing surfaces must be observed by the Geotechnical Engineer of Record prior to casting foundations.

4.3 Excavation and Dewatering

Excavations will generally encounter fills and loose native silty sands and sandy silts. Care must be exercised during construction to minimize disturbance of soil subgrades supporting on-grade floor slabs and pavements. We recommend a smooth-edged bucket be utilized to excavate soil subgrades. Subgrades that become disturbed should be recompacted or overexcavated and replaced with compacted Structural Fill.

Sumping and pumping dewatering techniques should be adequate to control water inflow into excavations above the groundwater table. Controlling the water levels below the groundwater table will likely require sheeting and extensive dewatering in order to maintain a stable excavation. In all cases, excavations must be properly shored and/or sloped according to OSHA regulations to prevent sloughing and caving of the sidewalls during construction.

4.4 Foundation Design

Based on the subsurface findings, we interpret the soils profile to represent a Seismic Soil Site Class D according to 2009 IBC (N-Value method). The 25-year Air Freezing Index for the Portland area is about 1,290-Fahrenheit degree-days, which corresponds to a frost penetration depth on the order of 4.5 feet. We recommend foundations exposed to freezing be covered with at least 4.5 feet of soil for frost protection.

4.4.1 Spread Footings

We recommend the proposed building be supported on spread footing foundations bearing on sound intact bedrock where the excavation depth to bedrock is shallow. We recommend the following geotechnical parameters for design consideration:

- Net Allowable Soil Bearing Pressure = 20 ksf or less (sound, intact bedrock)
- Base Friction Factor = 0.7 (Concrete to Bedrock)
- Passive Lateral Earth Pressure Coefficient = 3.0 (ultimate)
- At-Rest Lateral Earth Pressure Coefficient = 0.5
- Total Unit Weight of Backfill = 130 pcf (Structural Fill)
- Internal Friction Angle of Backfill = 30 degrees

Post-construction settlement is anticipated to be less than ¼ inch for foundations founded on bedrock. S.W.COLE ENGINEERING should observe the foundation subgrades prior to installing formwork, reinforcing steel and concrete placement.

4.4.2 Drilled Foundation

We recommend the proposed building be supported on drilled foundations were the depth to bedrock would require a deep braced excavation. We anticipate drilled foundations will consist of either reinforced concrete shafts (drilled piers) or steel H-piles grouted into a pre-drilled rock socket.. Drilled foundations should be socketed at least 2 feet into competent bedrock. Deeper rock sockets may be required depending on the load requirements and to resist lateral loads for shoring and retaining walls.

The base of the rock sockets should be leveled and cleaned of loose material and soil. We recommend deep foundations be drilled using steel casing within the overburden soils in order to maintain sidewall stability. Prior to installing reinforcing steel or H-piles, S.W.COLE ENGINEERING should observe the base of each drilled foundation. Temporary steel casings should be removed during concrete placement while maintaining a positive head of concrete above the casing bottom to maintain shaft sidewall stability.

Drilled Shafts: Based on the estimated structural loading we anticipate 3 to 5-foot diameter drilled shafts could be used to support column loads where excavation depth would require shoring. Considering the subsurface conditions encountered, we anticipate drilled shaft axial capacity will be controlled by the concrete compressive strength. We recommend an allowable end-bearing pressure of 20 ksf utilizing a factor of safety of 2.0. For piers socketed deeper than two feet, additional axial compressive capacity can be mobilized from skin friction between the pier and rock socket. For a design concrete strength of 4,000 psi, a unit skin friction of 17 ksf is recommended for the portion of the pier socketed greater than two feet into bedrock. For a design concrete strength of 5,000 psi, a unit skin friction of 20 ksf is recommended for the portion of the pier socketed greater than two feet into bedrock. Post-construction settlement of drilled piers socketed into bedrock should not exceed ¼-inch.

Drilled and Grouted Steel H-Piles: Based on the estimated structural loading we anticipate steel H-piles placed and grouted in 2-foot diameter rock sockets could be used to support the proposed building. Considering the subsurface conditions

encountered, the axial capacity of the drilled and grouted steel H-piles will be controlled by the allowable structural capacity of the H-pile section. We offer the following pile sections for consideration:

Pile Type	Section	Allowable Axial Compressive Capacity (kips)
Steel H-Pile, ASTM A572 Grade 50	HP 10 x 57	290
	HP 12 x 53	265
NOTE: Pile capacity based 50 ksi yield stress and safety factor of 3.		

Post-construction settlement of H-piles socketed and grouted into bedrock should not exceed ¼-inch.

4.4.3 Uplift Resistance for Drilled Foundations

Uplift resistance of drilled foundations can be developed from skin friction between the drilled foundation and rock socket. We do not recommend including skin friction from the overburden soils in design for uplift resistance. Most bedrock surfaces are fractured, thus we recommend neglecting the upper 2 feet of each rock socket. We recommend a unit skin friction (working bond strength) of 17 ksf for the portion of the drilled foundation socket greater than two feet into bedrock.

In addition to skin friction, uplift loads can also be evaluated considering a rock cone pull-out resulting from fracture failure of the bedrock. The dead weight of the concrete pier, the weight of the bedrock in the rock cone pull-out, and the overlying weight of the soil can be used to resist uplift loads. Evaluation should consider pullout resistance from overlapping failure surfaces of closely spaced drilled foundations. We recommend the following parameters for evaluation of the rock cone pull-out:

- Rock cone pull-out angle = 30 degrees total from vertical side of socket
- Dry unit weight of soil = 115 pcf
- Dry unit weight of bedrock = 150 pcf
- Dry unit weight of concrete = 150 pcf

We recommend that when evaluating for static loads that buoyant unit weights be used for materials below the water table. Short-term dynamic loads can use dry unit weights.

4.4.4 Rock Anchors for Spread Footings

Based on the Foundation Concept Plan provided by the project structural engineer on October 5, 2012, we understand rock anchors are needed to resist uplift loads ranging from 24 to 157 kips at six column locations anticipated to be spread footings. We recommend rock anchors consist of a single high-strength steel rod, such as a Dywidag, that is drilled and grouted into bedrock. We recommend the rock anchors be designed considering an ultimate unit grout-to-rock bond strength of 120 psi (17 ksf) or less. For rock anchors, we recommend an minimum unbonded length (free-stressing length) of 9 feet into bedrock. The bonded length will depend upon the uplift load and the diameter of the drill hole. Rock anchor spacing should be at least 1.2 times the free-stressing length; closer spacing will reduce allowable anchor loads.

For the anticipated uplift loads, we offer the following single rock anchor uplift capacities for preliminary design consideration:

Single Rock Anchor Uplift Capacities				
Uplift Capacity (kips)	Borehole Dia. (inches)	Free-Stress Length (feet)	Bonded Length (feet)	Total Length (feet)
35	6	7	5	12
120	6	14	12	26
140	6	15	14	29
160	6	16	16	32
NOTE: Bonded lengths and uplift capacities estimated using a safety factor of 2.				

S.W.COLE ENGINEERING, INC is available to assist in rock anchor design, as necessary.

The drill hole for each rock anchor should be cleaned of any drilling fines and tightness tested to determine the need for pre-grouting. Rock anchors should be installed according to the manufacturers recommendations. Additionally, each anchor should be tested to verify the load carrying capacity of the anchor and to preload the steel tendon. After testing, we recommend locking off each anchor at the design load.

4.5 Foundation Underdrains

We recommend perimeter underdrains be installed at the foundation or pile cap subgrade elevation. Underdrain pipe should consist of 4-inch diameter perforated foundation drain pipe enveloped in at least 6-inches of Crushed Stone wrapped in a

geotextile filter fabric, such as Mirafi 140N. The underdrains must have positive gravity outlets protected from freezing. General underdrain details are illustrated on Sheet 27.

4.6 Slab-on-Grade Floors

We anticipate on-grade concrete floors will be underlain by loose to medium dense fill and native loose silty sands to sandy silts. We recommend on-grade concrete floors be supported on a minimum of 12 inches of compacted Crushed Stone underlain by a geotextile filter fabric, such as Mirafi 140N, overlying properly prepared subgrades. Where the crushed stone layer is installed directly on bedrock, the filter fabric is not necessary. On-grade floor slabs founded on properly prepared subgrades, may be designed considering a modulus of subgrade reaction of 180 pci be considered in the floor slab design. The structural engineer or concrete consultant must design steel reinforcing and joint spacing appropriate to slab thickness and function.

We recommend a sub-slab vapor retarder be installed below the concrete floor slab. A layer of geotextile filter fabric should be installed over the crushed stone base to help protect the vapor retarder. The architect and/or flooring consultant should select the vapor retarder product that is compatible with sealant, flooring and adhesive materials to be applied to the floor slabs.

The floor slab should be appropriately cured using moisture retention methods after casting. Typical floor slab curing methods should be used for at least 7 days. The architect or flooring consultant should assign curing methods consistent with current applicable American Concrete Institute (ACI) procedures with consideration of curing method compatibility to proposed surface treatments, flooring and adhesive materials.

4.7 Entrance Slabs and Sidewalks

Entrance slabs, sidewalks and pavements adjacent to buildings must be designed to reduce the effects of differential frost action between adjacent pavement, doorways, and entrances. We recommend clean, non-frost susceptible sand and gravel meeting the requirements of Structural Fill be provided to a depth of at least 4.5 feet below the top of entrance slabs, sidewalks and pavements. This thickness of Structural Fill should extend the full width of the entrance slabs and outward at least 4.5 feet, thereafter transitioning up to the bottom of the adjacent sidewalk or pavement subbase gravel at a

3H:1V or flatter slope. General details of this frost transition zone are illustrated on Sheet 27.

4.8 Backfill and Compaction

Based on the subsurface findings, the existing fills and native soils are unsuitable for reuse as backfill. We recommend the following materials for use as fill and foundation backfill.

Granular Borrow: Compacted fill in paved areas and to raise grades beneath heated areas of the building. A sand, silty sand or sand and gravel meeting the requirements of MaineDOT Standard Specification 703.19 "Granular Borrow" as given below.

MaineDOT 703.19 Granular Borrow	
Sieve Size	**Percent Finer by Weight**
6 inch	100
#40	0 to 70
200	0 to 10

Structural Fill: Fill to raise grades in building areas, backfill for overexcavations and backfill for foundations should be clean, non-frost susceptible sand and gravel meeting the gradation requirements for Structural Fill as given below.

Structural Fill	
Sieve Size	**Percent Finer by Weight**
4 inch	100
3 inch	90 to 100
¼ inch	25 to 90
#40	0 to 30
#200	0 to 5

Crushed Stone: Slab base materials and drainage aggregate around foundation underdrains should meet the requirements for MaineDOT Standard Specification 703.22 Type C "Underdrain Aggregate".

Placement and Compaction: Fill should be placed in horizontal lifts and compacted such that the desired density is achieved throughout the lift thickness with 3 to 5 passes of the compaction equipment. Loose lift thicknesses for grading, fill and backfill activities should not exceed 12 inches. We recommend that fill and backfill in building

and paved areas be compacted to at least 95 percent of its maximum dry density as determined by ASTM D-1557. Crushed Stone below foundations should be compacted to 100 percent of its dry rodded unit weight in accordance with ASTM C-29.

4.9 Weather Considerations

Construction activity should be limited during freezing weather. If construction takes place during cold, freezing weather, subgrades, foundations and floor slabs must be protected from freezing. Concrete and fill must not be placed on frozen soil; and once placed, the concrete and soil beneath the structure must be protected from freezing.

In all cases, sitework and construction activities should take appropriate measures to protect exposed subgrades. This may require the use of staging areas to preclude subgrade damage due to construction traffic. Geotextile fabric may be needed below staging areas and proposed paved areas to help stabilize subgrades subjected to temporary construction traffic.

4.10 Design Review and Construction Services

S.W.COLE ENGINEERING should be retained to review the final design and specifications to determine that our recommendations have been properly interpreted and implemented.

We recommend a quality assurance testing program be implemented during construction to observe compliance with the design concepts, plans, and specifications. S.W.COLE ENGINEERING is available to observe the foundation construction and subgrade preparation, as well as to provide field and laboratory testing services for soil, concrete, steel, masonry, spray-applied fire-proofing, and asphalt construction materials.

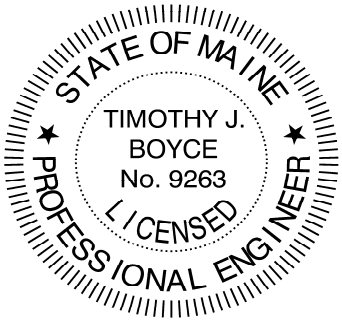
5.0 CLOSURE

It has been a pleasure to be of assistance during this phase of your project. We look forward to the opportunity to work with you as the design progresses and during construction.

Sincerely,

S.W.COLE ENGINEERING, INC.

Michael A. St. Pierre, P.E.
Geotechnical Engineer



Timothy J. Boyce, P.E.
Senior Geotechnical Engineer

MAS/TJB:tjb

Attachment A
Limitations

This report has been prepared for the exclusive use of Cow Plaza Hotel, LLC for specific application to the Proposed Hyatt Place Hotel located at the intersection of Union Street and Fore Street in Portland, Maine. S.W.COLE ENGINEERING, INC. has endeavored to conduct the work in accordance with generally accepted soil and foundation engineering practices. No warranty, expressed or implied, is made.

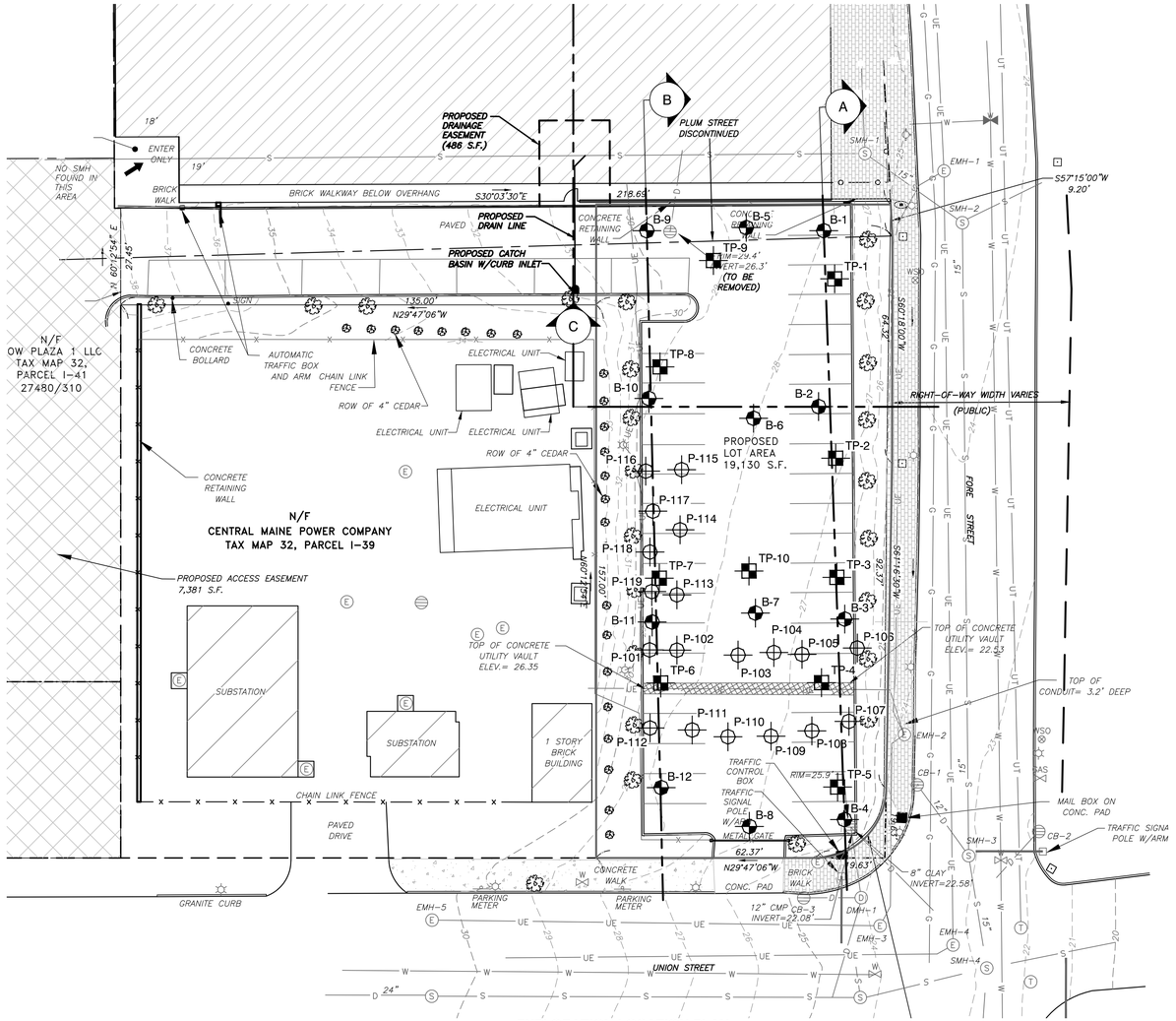
The soil profiles described in the report are intended to convey general trends in subsurface conditions. The boundaries between strata are approximate and are based upon interpretation of exploration data and samples.

The analyses performed during this assessment and recommendations presented in this report are based in part upon the data obtained from subsurface explorations made at the site. Variations in subsurface conditions may occur between explorations and may not become evident until construction. If variations in subsurface conditions become evident after submission of this report, it will be necessary to evaluate their nature and to review the recommendations of this report.

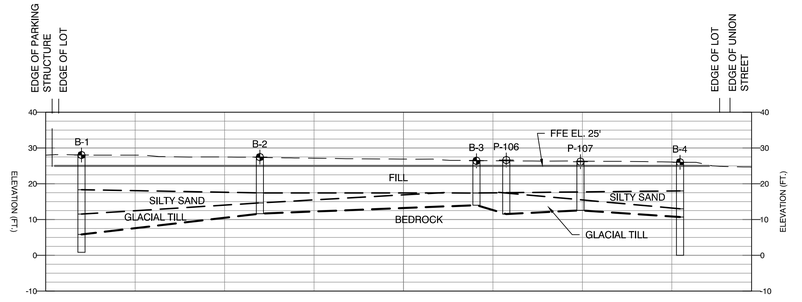
Observations have been made during exploration work to assess site groundwater levels. Fluctuations in water levels will occur due to variations in rainfall, temperature, and other factors.

S.W.COLE ENGINEERING, INC.'s scope of work has not included the investigation, detection, or prevention of any Biological Pollutants at the project site or in any existing or proposed structure at the site. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and the byproducts of any such biological organisms.

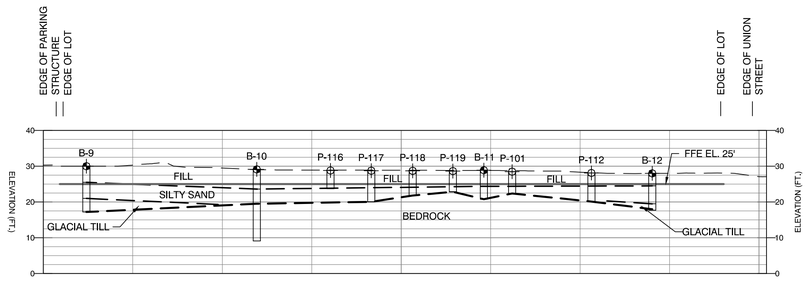
Recommendations contained in this report are based substantially upon information provided by others regarding the proposed project. In the event that any changes are made in the design, nature, or location of the proposed project, S.W.COLE ENGINEERING, INC. should review such changes as they relate to analyses associated with this report. Recommendations contained in this report shall not be considered valid unless the changes are reviewed by S.W.COLE ENGINEERING, INC.



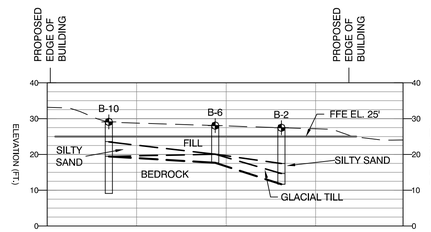
EXPLORATION LOCATION PLAN
SCALE: 1"=20'



INTERPRETIVE GEOLOGIC PROFILE - A
SCALE: 1" = 20' H.
1" = 20' V.



INTERPRETIVE GEOLOGIC PROFILE - B
SCALE: 1" = 20' H.
1" = 20' V.



INTERPRETIVE GEOLOGIC PROFILE - C
SCALE: 1" = 20' H.
1" = 20' V.

LEGEND:

- APPROXIMATE BORING LOCATION
- APPROXIMATE TEST PIT LOCATION
- APPROXIMATE PROBE LOCATION

NOTES:

1. EXPLORATION LOCATION PLAN WAS PREPARED FROM A 1"=20' SCALE PLAN OF THE SITE ENTITLED "EXISTING CONDITIONS SURVEY," PREPARED BY NORTHEAST CIVIL SOLUTIONS, DATED JULY 2012 AND PROVIDED AS A PORTABLE DOCUMENT FORMAT (PDF).
2. THE EXPLORATIONS WERE LOCATED IN THE FIELD BY TAPED MEASUREMENTS FROM EXISTING SITE FEATURES.
3. THIS PLAN SHOULD BE USED IN CONJUNCTION WITH THE ASSOCIATED S.W. COLE ENGINEERING, INC. GEOTECHNICAL REPORT.
4. THE PURPOSE OF THIS PLAN IS ONLY TO DEPICT THE LOCATION OF THE EXPLORATIONS IN RELATION TO THE EXISTING CONDITIONS AND PROPOSED CONSTRUCTION AND IS NOT TO BE USED FOR CONSTRUCTION.

0 10 20 40 60 80
SCALE IN FEET

NO.	DATE	DESCRIPTION	BY
2	10/04/2012	FINAL REPORT SUBMISSION	CEM
1	08/21/2012	ADDED BORINGS B-2, B-3, B-5 THROUGH B-9, B-11, B-12, TEST PITS TP-1 THROUGH TP-10 AND PROBES P-101 THROUGH P-119	TJH/CEM
--	07/25/2012	PRELIMINARY SUBMISSION	CEM

S.W. COLE ENGINEERING, INC.

COW PLAZA HOTEL, LLC, C/O SHINBERG CONSULTING

EXPLORATION LOCATION PLAN

PROPOSED HYATT PLACE HOTEL
UNION STREET AND FORE STREET
PORTLAND, MAINE

Job No.: 12-0597 Scale: As Noted
Date : 07/25/2012 Sheet: 1

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-1**
SHEET: 1 OF 1
PROJECT NO.: 12-0597

PROJECT / CLIENT: PROPOSED 8-STORY HYATT PLACE / COW PLAZA HOTEL, LLC c/o SHINBERG CONSULTING
LOCATION: UNION STREET AND FORE STREET / PORTLAND, MAINE
DRILLING CO. : GREAT WORKS TEST BORING
DRILLER: JEFF LEE

DATE START: 7/21/2012
DATE FINISH: 7/21/2012
ELEVATION: ±28.0'
SWC REP.: M. ST. PIERRE

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"	140 lbs	30"
SAMPLER:	SS	1 3/8"	140 lbs	30"
CORE BARREL:	NQ2	2"		

WATER LEVEL INFORMATION
SOILS SATURATED BELOW ±10'

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.3'	3.5" BITUMINOUS ASPHALT
									2.2'	BROWN GRAVEL AND SAND, TRACE SILT WITH COBBLES (FILL)
	1D	24"	2"	4.0'	6	16	13	12		BROWN STREAKED RED-BROWN SILTY SAND, SOME GRAVEL WITH DEBRIS (BRICKS, ASH, GLASS, METAL) (FILL) ~ MEDIUM DENSE ~
	2D	24"	20"	7.0'	4	5	7	8		
									9.7'	
	3D	24"	20"	12.0'	3	3	4	10		GRAY SILTY SAND, SOME GRAVEL ~ MEDIUM DENSE ~
	4D	24"	22"	17.0'	4	5	11	12	16.5'	
	5D	24"	3"	22.0'	34	41	21	36		BROWN-GRAY SILTY GRAVELLY SAND WITH COBBLES (GLACIAL TILL) ~ DENSE TO VERY DENSE ~
									22.2'	
	R1	60"	12"	27.2'						BEDROCK (SEE ROCK CORE LOG)
									27.2'	RQD = 0%
										(DRILL CASING CRIMPED UNABLE TO ADVANCE CORE BARREL BELOW 27.2') BOTTOM OF EXPLORATION @ 27.2'

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-1**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-2**
SHEET: 1 OF 1
PROJECT NO.: 12-0597

PROJECT / CLIENT: PROPOSED 8-STORY HYATT PLACE / COW PLAZA HOTEL, LLC c/o SHINBERG CONSULTING
LOCATION: UNION STREET AND FORE STREET / PORTLAND, MAINE
DRILLING CO. : GREAT WORKS TEST BORING DRILLER: WILL AIKMAN

DATE START: 7/28/2012
DATE FINISH: 7/28/2012
ELEVATION: ±27.4'
SWC REP.: M. ST. PIERRE

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	SSA	2 1/2" O.D.		
SAMPLER:	SS	1 3/8"	140 lbs	30"
CORE BARREL:				

WATER LEVEL INFORMATION
FREE WATER AT ±13' ON 07/28/2012

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.3'	3.5" BITUMINOUS ASPHALT
									2.0'	BROWN GRAVEL AND SAND, TRACE SILT WITH COBBLES (FILL)
									2.2'	2" BITUMINOUS ASPHALT
										BROWN TO DARK BROWN GRAVELLY SAND, SOME SILT
										WITH DEBRIS (BRICK, ASH)
										(FILL)
	1D	24"	19"	7.0'	9	15	11	13		~ MEDIUM DENSE ~
									10.0'	
										GRAY SILTY SAND, SOME GRAVEL
	2D	24"	17"	12.0'	9	5	7	10		~ MEDIUM DENSE ~
									12.8'	
										BROWN-GRAY SILTY GRAVELLY SAND (GLACIAL TILL)
									15.3'	~ DENSE ~
	3D	4"	4"	15.3'	50/4"				15.8'	ADVANCED BY SOLID STEM AUGER FROM 15.3 TO 15.8' (WEATHERED BEDROCK)
										AUGER REFUSAL AT 15.8'
										(BEDROCK)

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-2**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-3**
SHEET: 1 OF 1
PROJECT NO.: 12-0597

PROJECT / CLIENT: PROPOSED 8-STORY HYATT PLACE / COW PLAZA HOTEL, LLC c/o SHINBERG CONSULTING
LOCATION: UNION STREET AND FORE STREET / PORTLAND, MAINE
DRILLING CO. : GREAT WORKS TEST BORING DRILLER: WILL AIKMAN

DATE START: 7/28/2012
DATE FINISH: 7/28/2012
ELEVATION: ±26.4'
SWC REP.: M. ST. PIERRE

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	SSA	2 1/2" O.D.		
SAMPLER:	SS	1 3/8"	140 lbs	30"
CORE BARREL:				

WATER LEVEL INFORMATION
NO FREE WATER OBSERVED

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.3'	3.5" BITUMINOUS ASPHALT
									2.0'	BROWN GRAVEL AND SAND, TRACE SILT WITH COBBLES (FILL)
									2.2'	2" BITUMINOUS ASPHALT
										BROWN TO DARK BROWN GRAVELLY SAND, SOME SILT
										WITH DEBRIS (BRICK, ASH)
										(FILL)
	1D	24"	14"	7.0'	5	6	3	3		~ LOOSE TO MEDIUM DENSE ~
									9.0'	
										BROWN-GRAY SILTY GRAVELLY SAND (GLACIAL TILL)
										~ MEDIUM DENSE ~
	2D	24"	13"	12.0'	7	10	14	14	12.2'	
									12.4'	ADVANCED BY SOLID STEM AUGER FROM 15.3 TO 15.8' (WEATHERED BEDROCK)
										AUGER REFUSAL AT 12.4'
										(BEDROCK)

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-3**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-4**
SHEET: 1 OF 1
PROJECT NO.: 12-0597

PROJECT / CLIENT: PROPOSED 8-STORY HYATT PLACE / COW PLAZA HOTEL, LLC c/o SHINBERG CONSULTING
LOCATION: UNION STREET AND FORE STREET / PORTLAND, MAINE
DRILLING CO. : GREAT WORKS TEST BORING DRILLER: JEFF LEE

DATE START: 7/21/2012
DATE FINISH: 7/21/2012
ELEVATION: ±26.0'
SWC REP.: M. ST. PIERRE

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"	140 lbs	30"
SAMPLER:	SS	1 3/8"	140 lbs	30"
CORE BARREL:	NQ2	2"		

WATER LEVEL INFORMATION
SOILS SATURATED BELOW ±10'

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.3'	3.5" BITUMINOUS ASPHALT
									1.5'	BROWN GRAVEL AND SAND, TRACE SILT WITH COBBLES (FILL)
									1.7'	2" BITUMINOUS ASPHALT
										BROWN TO DARK BROWN GRAVELLY SAND, SOME SILT
										WITH DEBRIS (BRICK, ASH, GLASS, METAL)
										(FILL)
	1D	24"	12"	7.0'	2 FOR 12"		2	1		7" VOID AT ±5.4'
									8.0'	~ LOOSE ~
										GRAY SILTY SAND, SOME GRAVEL
	2D	24"	7"	12.0'	2	2	3	18		~ LOOSE TO MEDIUM DENSE ~
									13.0'	
										BROWN-GRAY SILTY GRAVELLY SAND (GLACIAL TILL)
									15.3'	~ DENSE ~
	3D	5"	5"	15.4'	50/5"				16.0'	ADVANCED BY SOLID STEM AUGER FROM 15.3 TO 16' (BEDROCK)
										BEDROCK
										(SEE ROCK CORE LOG)
	R1	60"	18"	21.0'						RQD = 0%
	R2	60"	51"	26.0'					26.0'	RQD = 26%
										BOTTOM OF EXPLORATION @ 26.0'

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-4**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-5**
SHEET: 1 OF 1
PROJECT NO.: 12-0597

PROJECT / CLIENT: PROPOSED 8-STORY HYATT PLACE / COW PLAZA HOTEL, LLC c/o SHINBERG CONSULTING
LOCATION: UNION STREET AND FORE STREET / PORTLAND, MAINE
DRILLING CO. : GREAT WORKS TEST BORING DRILLER: WILL AIKMAN

DATE START: 7/28/2012
DATE FINISH: 7/28/2012
ELEVATION: ±28.9'
SWC REP.: M. ST. PIERRE

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	SSA	2 1/2" O.D.		
SAMPLER:	SS	1 3/8"	140 lbs	30"
CORE BARREL:				

WATER LEVEL INFORMATION
WATER AT 12.8' ON 07/28/2012

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.3'	3.5" BITUMINOUS ASPHALT
									1.9'	BROWN GRAVEL AND SAND, TRACE SILT WITH COBBLES (FILL)
									3.5'	BROWN STREAKED RED-BROWN SILTY SAND, SOME GRAVEL WITH DEBRIS (BRICKS, ASH) (FILL)
	1D	24"	24"	7.0'	3	3	4	4		BROWN SILTY FINE SAND WITH BROWN-GRAY SILTY CLAY SEAMS (¼" TO ½" THICK) ~ LOOSE ~
									10.8'	
	2D	24"	20"	12.0'	4	8	14	15		GRAY SILTY SAND, SOME GRAVEL ~ MEDIUM DENSE ~
									14.0'	
									15.8'	BROWN-GRAY SILTY GRAVELLY SAND WITH COBBLES (GLACIAL TILL) ~ DENSE ~
	3D	16"	14"	16.3'	16	25	50/4"			ADVANCED BY SOLID STEM AUGER FROM 15.8 TO 18' (WEATHERED BEDROCK)
									18.0'	AUGER REFUSAL AT 18.0' (BEDROCK)

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-5**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-6**
SHEET: 1 OF 1
PROJECT NO.: 12-0597

PROJECT / CLIENT: PROPOSED 8-STORY HYATT PLACE / COW PLAZA HOTEL, LLC c/o SHINBERG CONSULTING
LOCATION: UNION STREET AND FORE STREET / PORTLAND, MAINE
DRILLING CO. : GREAT WORKS TEST BORING DRILLER: WILL AIKMAN

DATE START: 7/28/2012
DATE FINISH: 7/28/2012
ELEVATION: ±28.0'
SWC REP.: M. ST. PIERRE

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	SSA	2 1/2" O.D.		
SAMPLER:	SS	1 3/8"	140 lbs	30"
CORE BARREL:				

WATER LEVEL INFORMATION
NO FREE WATER OBSERVED

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.3'	3.5" BITUMINOUS ASPHALT
									2.0'	BROWN GRAVEL AND SAND, TRACE SILT WITH COBBLES (FILL)
									2.2'	2" BITUMINOUS ASPHALT
										BROWN TO DARK BROWN GRAVELLY SAND, SOME SILT
										WITH DEBRIS (BRICK, ASH)
										(FILL)
	1D	24"	22"	7.0'	12	12	12	41		~ MEDIUM DENSE ~
									8.0'	
										BROWN-GRAY SILTY GRAVELLY SAND (GLACIAL TILL)
									10.1'	~ MEDIUM DENSE ~
	2D	1"	1"	10.1'	50/1"				10.4'	ADVANCED BY SOLID STEM AUGER FROM 10.1 TO 10.4' (WEATHERED BEDROCK)
										AUGER REFUSAL AT 10.4'
										(BEDROCK)

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-6**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-7**
SHEET: 1 OF 1
PROJECT NO.: 12-0597

PROJECT / CLIENT: PROPOSED 8-STORY HYATT PLACE / COW PLAZA HOTEL, LLC c/o SHINBERG CONSULTING
LOCATION: UNION STREET AND FORE STREET / PORTLAND, MAINE
DRILLING CO. : GREAT WORKS TEST BORING DRILLER: WILL AIKMAN

DATE START: 7/28/2012
DATE FINISH: 7/28/2012
ELEVATION: ±27.5'
SWC REP.: M. ST. PIERRE

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	SSA	2 1/2" O.D.		
SAMPLER:	SS	1 3/8"	140 lbs	30"
CORE BARREL:				

WATER LEVEL INFORMATION
NO FREE WATER OBSERVED

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.3'	3.5" BITUMINOUS ASPHALT
									1.8'	BROWN GRAVEL AND SAND, TRACE SILT WITH COBBLES (FILL)
									2.0'	2" BITUMINOUS ASPHALT
										BROWN TO DARK BROWN GRAVELLY SAND, SOME SILT
										WITH DEBRIS (BRICK, ASH)
										(FILL)
	1D	24"	7"	7.0'	3	6	9	7		~ LOOSE TO MEDIUM DENSE ~
									8.0'	
										BROWN-GRAY SILTY GRAVELLY SAND (GLACIAL TILL)
									9.6'	~ MEDIUM DENSE TO DENSE ~
										AUGER REFUSAL AT 9.6'
										(BEDROCK)

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-7**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-8**
SHEET: 1 OF 1
PROJECT NO.: 12-0597

PROJECT / CLIENT: PROPOSED 8-STORY HYATT PLACE / COW PLAZA HOTEL, LLC c/o SHINBERG CONSULTING
LOCATION: UNION STREET AND FORE STREET / PORTLAND, MAINE
DRILLING CO. : GREAT WORKS TEST BORING DRILLER: WILL AIKMAN

DATE START: 7/28/2012
DATE FINISH: 7/28/2012
ELEVATION: ±27.1'
SWC REP.: M. ST. PIERRE

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	SSA	2 1/2" O.D.		
SAMPLER:	SS	1 3/8"	140 lbs	30"
CORE BARREL:				

WATER LEVEL INFORMATION
NO FREE WATER OBSERVED

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.3'	3.5" BITUMINOUS ASPHALT
									1.7'	BROWN GRAVEL AND SAND, TRACE SILT WITH COBBLES (FILL)
	1D	7"	6"	5.6'	10	50/1"				BROWN TO DARK BROWN GRAVELLY SAND, SOME SILT WITH DEBRIS (CONCRETE, BRICK, ASH) (FILL)
									8.6'	AUGER REFUSAL AT 8.6' (PROBABLE BEDROCK)

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-8**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-9**
SHEET: 1 OF 1
PROJECT NO.: 12-0597

PROJECT / CLIENT: PROPOSED 8-STORY HYATT PLACE / COW PLAZA HOTEL, LLC c/o SHINBERG CONSULTING
LOCATION: UNION STREET AND FORE STREET / PORTLAND, MAINE
DRILLING CO. : GREAT WORKS TEST BORING DRILLER: WILL AIKMAN

DATE START: 7/28/2012
DATE FINISH: 7/28/2012
ELEVATION: ±30.0'
SWC REP.: M. ST. PIERRE

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	SSA	2 1/2" O.D.		
SAMPLER:	SS	1 3/8"	140 lbs	30"
CORE BARREL:				

WATER LEVEL INFORMATION

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.3'	3.5" BITUMINOUS ASPHALT
									1.8'	BROWN GRAVEL AND SAND, TRACE SILT WITH COBBLES (FILL)
										BROWN STREAKED RED-BROWN SILTY SAND, SOME GRAVEL WITH DEBRIS (BRICKS, ASH) (FILL)
									4.5'	
									5.4'	BROWN CLAYEY SILT ~ STIFF ~
	1D	24"	24"	7.0'	4	6	5	8		BROWN-GRAY SILTY FINE SAND WITH BROWN-GRAY SILTY CLAY SEAMS (¼" TO ½" THICK)
									9.0'	~ LOOSE ~
										BROWN-GRAY SILTY GRAVELLY SAND (GLACIAL TILL) ~ DENSE ~
	2D	14"	13"	11.2'	5	16	50.2		11.2'	
									12.8'	ADVANCED BY SOLID STEM AUGER FROM 11.2 TO 12.8' (WEATHERED BEDROCK)
										AUGER REFUSAL AT 12.8' (BEDROCK)

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
DRILLER - VISUALLY
SOIL TECH. - VISUALLY
LABORATORY TEST

REMARKS:

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-9**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-10**
SHEET: 1 OF 1
PROJECT NO.: 12-0597

PROJECT / CLIENT: PROPOSED 8-STORY HYATT PLACE / COW PLAZA HOTEL, LLC c/o SHINBERG CONSULTING
LOCATION: UNION STREET AND FORE STREET / PORTLAND, MAINE
DRILLING CO. : GREAT WORKS TEST BORING DRILLER: JEFF LEE

DATE START: 7/21/2012
DATE FINISH: 7/21/2012
ELEVATION: ±29.1'
SWC REP.: M. ST. PIERRE

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"	140 lbs	30"
SAMPLER:	SS	1 3/8"	140 lbs	30"
CORE BARREL:	NQ2	2"		

WATER LEVEL INFORMATION
NO FREE WATER ENCOUNTERED
PRIOR TO ROCK CORING

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.3'	3.5" BITUMINOUS ASPHALT
									2.0'	BROWN GRAVEL AND SAND, TRACE SILT WITH COBBLES (FILL)
										BROWN TO DARK BROWN GRAVELLY SAND, SOME SILT
										WITH DEBRIS (BRICKS, ASH, GLASS, METAL)
										(FILL)
									5.5'	~ MEDIUM DENSE ~
	1D	24"	19"	7.0'	3	5	5	4		BROWN-GRAY SILTY SAND, SOME GRAVEL
									9.6'	~ MEDIUM DENSE ~
									10.0'	ADVANCED BY ROLLER CONE FROM 9.6 TO 10' (BEDROCK)
										BEDROCK
										(SEE ROCK CORE LOG)
	R1	60"	59"	15.0'						RQD = 60%
	R2	60"	47"	20.0'					20.0'	RQD = 62%
										BOTTOM OF EXPLORATION @ 20.0'

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-10**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-11**
SHEET: 1 OF 1
PROJECT NO.: 12-0597

PROJECT / CLIENT: PROPOSED 8-STORY HYATT PLACE / COW PLAZA HOTEL, LLC c/o SHINBERG CONSULTING
LOCATION: UNION STREET AND FORE STREET / PORTLAND, MAINE
DRILLING CO. : GREAT WORKS TEST BORING DRILLER: WILL AIKMAN

DATE START: 7/28/2012
DATE FINISH: 7/28/2012
ELEVATION: ±28.9'
SWC REP.: M. ST. PIERRE

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	SSA	2 1/2" O.D.		
SAMPLER:	SS	1 3/8"	140 lbs	30"
CORE BARREL:				

WATER LEVEL INFORMATION
NO FREE WATER OBSERVED

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.3'	3.5" BITUMINOUS ASPHALT
									1.8'	BROWN GRAVEL AND SAND, TRACE SILT WITH COBBLES (FILL)
										BROWN TO DARK BROWN GRAVELLY SAND, SOME SILT (FILL)
										~ LOOSE TO MEDIUM DENSE ~
									4.5'	
										BROWN-GRAY SILTY GRAVELLY SAND (GLACIAL TILL)
	1D	21"	20"	6.8'	12	13	12	50/3"		~ MEDIUM DENSE TO DENSE ~
									7.1'	
									8.1'	ADVANCED BY SOLID STEM AUGER FROM 7.1 TO 8.1' (WEATHERED BEDROCK)
										AUGER REFUSAL AT 8.1'
										(BEDROCK)

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-11**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-12**
SHEET: 1 OF 1
PROJECT NO.: 12-0597

PROJECT / CLIENT: PROPOSED 8-STORY HYATT PLACE / COW PLAZA HOTEL, LLC c/o SHINBERG CONSULTING
LOCATION: UNION STREET AND FORE STREET / PORTLAND, MAINE
DRILLING CO. : GREAT WORKS TEST BORING DRILLER: WILL AIKMAN
DATE START: 7/28/2012
DATE FINISH: 7/28/2012
ELEVATION: ±28.0'
SWC REP.: M. ST. PIERRE

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	SSA	2 1/2" O.D.		
SAMPLER:	SS	1 3/8"	140 lbs	30"
CORE BARREL:				

WATER LEVEL INFORMATION
NO FREE WATER OBSERVED

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.3'	3.5" BITUMINOUS ASPHALT
									1.6'	BROWN GRAVEL AND SAND, TRACE SILT WITH COBBLES (FILL)
										BROWN TO DARK BROWN GRAVELLY SAND, SOME SILT (FILL)
									3.5'	~ LOOSE TO MEDIUM DENSE ~
										BROWN-GRAY FINE SANDY SILT
										WITH GRAY SILTY CLAY SEAMS (¼" TO ½" THICK)
	1D	24"	24"	7.0'	6	7	6	5		~ MEDIUM DENSE ~
									8.5'	
										BROWN-GRAY SILTY GRAVELLY SAND (GLACIAL TILL)
									10.2'	~ DENSE ~
	2D	2"	2"	10.2'	50/2"				10.3'	ADVANCED BY SOLID STEM AUGER FROM 10.2 TO 10.3' (WEATHERED BEDROCK)
										AUGER REFUSAL AT 10.3'
										(BEDROCK)

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-12**

S.W.COLE ENGINEERING, INC.

TEST PIT LOGS

PROJECT/CLIENT: PROPOSED 8-STORY HYATT PLACE/COW PLAZA HOTEL, LLC c/o SHINBERG CONSULTING PROJECT NO.: 12-0597
LOCATION: UNION STREET & FORE STREET / PORTLAND, MAINE SWC REP.: MAS

TEST PIT TP-1

DATE: 7/21/2012 SURFACE ELEVATION: ±28.0' LOCATION: SEE SHEET 1

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		0.3'	3.5" BITUMINOUS ASPHALT	
		1.8'	BROWN GRAVELLY SAND, TRACE SILT WITH COBBLES (FILL)	
		2.0'	2.5" BITUMINOUS ASPHALT	
S-1	4.5'		BROWN TO DARK BROWN GRAVELLY SAND, SOME SILT WITH DEBRIS (BRICK, ASH, GLASS, METAL) (FILL)	w_c = 8.3%
		6.5'		
			BOTTOM OF EXPLORATION @ 6.5'	

COMPLETION DEPTH: 6.5' DEPTH TO WATER: NO FREE WATER OBSERVED

TEST PIT TP-2

DATE: 7/21/2012 SURFACE ELEVATION: ±27.1' LOCATION: SEE SHEET 1

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		0.3'	3.5" BITUMINOUS ASPHALT	
		2.0'	BROWN GRAVELLY SAND, TRACE SILT WITH COBBLES (FILL)	
			BROWN TO DARK BROWN GRAVELLY SAND, SOME SILT WITH DEBRIS (BRICK, ASH, GLASS, METAL) (FILL)	
		6.5'		
			REFUSAL @ 6.5' (PROBABLE FOUNDATION)	

COMPLETION DEPTH: 6.5' DEPTH TO WATER: NO FREE WATER OBSERVED

S.W.COLE ENGINEERING, INC.

TEST PIT LOGS

PROJECT/CLIENT: PROPOSED 8-STORY HYATT PLACE/COW PLAZA HOTEL, LLC c/o SHINBERG CONSULTING PROJECT NO.: 12-0597
LOCATION: UNION STREET & FORE STREET / PORTLAND, MAINE SWC REP.: MAS

TEST PIT TP-3

DATE: 7/21/2012 SURFACE ELEVATION: ±26.8' LOCATION: SEE SHEET 1

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		0.3'	3.5" BITUMINOUS ASPHALT	
		2.0'	BROWN GRAVELLY SAND, TRACE SILT WITH COBBLES (FILL)	
		2.2'	2" BITUMINOUS ASPHALT	
S-1	5-6'	7.0'	BROWN TO DARK BROWN GRAVELLY SAND, SOME SILT WITH DEBRIS (BRICK, ASH, GLASS, METAL) (FILL)	
			BOTTOM OF EXPLORATION @ 7.0'	

COMPLETION DEPTH: 7.0' DEPTH TO WATER: NO FREE WATER OBSERVED

TEST PIT TP-4

DATE: 7/21/2012 SURFACE ELEVATION: ±26.6' LOCATION: SEE SHEET 1

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		0.3'	3.5" BITUMINOUS ASPHALT	
		2.0'	BROWN GRAVELLY SAND, TRACE SILT WITH COBBLES (FILL)	
		2.2'	2" BITUMINOUS ASPHALT	
		4.2'	BROWN TO DARK SILTY BROWN GRAVELLY SAND WITH DEBRIS (BRICK, ASH, GLASS, METAL) (FILL)	
			REFUSAL AT 4.2' (CONCRETE ELECTRICAL BANK)	

COMPLETION DEPTH: 4.2' DEPTH TO WATER: NO FREE WATER OBSERVED

S.W.COLE ENGINEERING, INC.

TEST PIT LOGS

PROJECT/CLIENT: PROPOSED 8-STORY HYATT PLACE/COW PLAZA HOTEL, LLC c/o SHINBERG CONSULTING PROJECT NO.: 12-0597
LOCATION: UNION STREET & FORE STREET / PORTLAND, MAINE SWC REP.: MAS

TEST PIT TP-5

DATE: 7/21/2012 SURFACE ELEVATION: ±26.2' LOCATION: SEE SHEET 1

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		0.3'	3.5" BITUMINOUS ASPHALT	
		1.6'	BROWN GRAVELLY SAND, TRACE SILT WITH COBBLES (FILL)	
		1.8'	2" BITUMINOUS ASPHALT	
			BROWN TO DARK BROWN SILTY GRAVELLY SAND WITH CONSTRUCTION DEBRIS (BRICK, ASH, GLASS, METAL) (FILL)	
S-1	6-7'	7.0'		w_c = 11.5%
			BOTTOM OF EXPLORATION @ 7.0'	

COMPLETION DEPTH: 7.0' DEPTH TO WATER: NO FREE WATER OBSERVED

TEST PIT TP-6

DATE: 7/21/2012 SURFACE ELEVATION: ±28.6' LOCATION: SEE SHEET 1

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		0.3'	3.5" BITUMINOUS ASPHALT	
		1.8'	BROWN GRAVELLY SAND, TRACE SILT WITH COBBLES (FILL)	
			REFUSAL AT 1.8' (CONCRETE ELECTRICAL BANK)	

COMPLETION DEPTH: 1.8' DEPTH TO WATER: NO FREE WATER OBSERVED

S.W.COLE ENGINEERING, INC.

TEST PIT LOGS

PROJECT/CLIENT: PROPOSED 8-STORY HYATT PLACE/COW PLAZA HOTEL, LLC c/o SHINBERG CONSULTING PROJECT NO.: 12-0597
LOCATION: UNION STREET & FORE STREET / PORTLAND, MAINE SWC REP.: MAS

TEST PIT TP-7

DATE: 7/21/2012 SURFACE ELEVATION: ±28.8' LOCATION: SEE SHEET 1

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		0.3'	3.5" BITUMINOUS ASPHALT	
S-1	1-1.5'	1.5'	BROWN GRAVELLY SAND, TRACE SILT WITH COBBLES (FILL)	w_c = 2.7%
		3.0'	DARK BROWN GRAVELLY SAND, SOME SILT WITH ORGANICS (ROOTS) AND DEBRIS (BRICK, ASH, GLASS, METAL) (FILL)	
		7.0'	BROWN STEAKED RED-BROWN SILTY SAND, SOME GRAVEL WITH DEBRIS (BRICK, ASH, GLASS, METAL) (FILL)	
			REFUSAL @ 7.0' (PROBABLE FOUNDATION)	

COMPLETION DEPTH: 7.0' DEPTH TO WATER: NO FREE WATER OBSERVED

TEST PIT TP-8

DATE: 7/21/2012 SURFACE ELEVATION: ±29.0' LOCATION: SEE SHEET 1

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		0.3'	3.5" BITUMINOUS ASPHALT	
		1.8'	BROWN GRAVELLY SAND, TRACE SILT WITH COBBLES (FILL)	
S-1	2-2.5'	5.5'	BROWN TO DARK BROWN GRAVELLY SAND, SOME SILT WITH DEBRIS (BRICK, ASH, GLASS, METAL) (FILL)	
S-2	6-7'	7.0'	BROWN SILTY GRAVELLY SAND (GLACIAL TILL)	
			BOTTOM OF EXPLORATION @ 7.0'	

COMPLETION DEPTH: 7.0' DEPTH TO WATER: NO FREE WATER OBSERVED

S.W.COLE ENGINEERING, INC.

TEST PIT LOGS

PROJECT/CLIENT: PROPOSED 8-STORY HYATT PLACE/COW PLAZA HOTEL, LLC c/o SHINBERG CONSULTING PROJECT NO.: 12-0597
LOCATION: UNION STREET & FORE STREET / PORTLAND, MAINE SWC REP.: MAS

TEST PIT TP-9

DATE: 7/21/2012 SURFACE ELEVATION: ±29.2' LOCATION: SEE SHEET 1

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		0.3'	3.5" BITUMINOUS ASPHALT	
		2.0'	BROWN GRAVELLY SAND, TRACE SILT WITH COBBLES (FILL)	
		2.2'	2" BITUMINOUS ASPHALT	
			BROWN TO DARK BROWN GRAVELLY SAND, SOME SILT WITH CONSTRUCTION DEBRIS (BRICK, ASH, GLASS, METAL) (FILL)	
		5.5'		
		7.0'	BROWN SILTY GRAVELLY SAND (GLACIAL TILL)	
			BOTTOM OF EXPLORATION @ 7.0'	

COMPLETION DEPTH: 7.0' DEPTH TO WATER: NO FREE WATER OBSERVED

TEST PIT TP-10

DATE: 7/21/2012 SURFACE ELEVATION: ±27.7' LOCATION: SEE SHEET 1

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		0.3'	3.5" BITUMINOUS ASPHALT	
		1.8'	BROWN GRAVELLY SAND, TRACE SILT WITH COBBLES (FILL)	
			BROWN TO DARK BROWN GRAVELLY SAND, SOME SILT WITH CONSTRUCTION DEBRIS (BRICK, ASH, GLASS, METAL) (FILL)	
		7.0'		
			BOTTOM OF EXPLORATION @ 7.0'	

COMPLETION DEPTH: 7.0' DEPTH TO WATER: NO FREE WATER OBSERVED

S.W.COLE ENGINEERING, INC.

ROCK CORE LOG

PROJECT: PROPOSED 8-STORY HYATT PLACE HOTEL

BORING NO.: B-1

CLIENT: COW PLAZA HOTEL, LLC c/o SHINBERG CONSULTING

PROJECT NO.: 12-0597

LOGGED BY M. ST. PIERRE DATE: 7/23/2012 SHEET 1 OF 1

CHECKED BY A. STRUGATSKIY DATE: 7/24/2012 CORE SIZE NQ2

DEPTH BELOW SURFACE (FT)	CORE RUN	CORE INTERVAL (FT)	CORE RECOVERY (FT)	RQD (%)	ROCK QUALITY	GRAPHIC LOG	ROCK DESCRIPTION AND IDENTIFICATION
21							OVERBURDEN SOILS (SEE BORING LOG)
22							START OF ROCK CORE AT 22.2'
23	R1	22.2'	±1.0'	0%	VERY POOR		± 2" GRAVEL FRAGMENT IN TOP OF RUN **GRAY METAMORPHIC SILTSTONE / META-PELITE** - MODERATE TO STRONG - SLATEY, THINLY FOLIATED AT 80 TO 90° - MODERATELY WEATHERED - INTENSELY FRACTURED - HEAVY IRON-OXIDE STAINING ALONG FOLIATION PLANES AND FRACTURES - PHYLLITIC IN PLACES - NO CALCITE OBSERVED
24							
25		5.0'					
26							ZONE OF NO RECOVERY
27		27.2'					
28							BOTTOM OF EXPLORATION AT 27.2'
29							
30							

S.W.COLE ENGINEERING, INC.

ROCK CORE LOG

PROJECT: PROPOSED 8-STORY HYATT PLACE HOTEL
BORING NO.: B-4
CLIENT: COW PLAZA HOTEL, LLC c/o SHINBERG CONSULTING
PROJECT NO.: 12-0597

LOGGED BY M. ST. PIERRE DATE: 7/23/2012 SHEET 1 OF 1
CHECKED BY A. STRUGATSKIY DATE: 7/24/2012 CORE SIZE NQ2

DEPTH BELOW SURFACE (FT)	CORE RUN	CORE INTERVAL (FT)	CORE RECOVERY (FT)	RQD (%)	ROCK QUALITY	GRAPHIC LOG	ROCK DESCRIPTION AND IDENTIFICATION
14							OVERBURDEN SOILS (SEE BORING LOG)
15							
16							START OF ROCK CORE AT 16.0'
17	R1	16.0'	1.5'	0%	VERY POOR		**GRAY METAMORPHIC SILTSTONE / META-PELITE** - MODERATE TO STRONG - SLATY, THINLY FOLIATED AT 80 TO 90° - MODERATELY WEATHERED - INTENSELY FRACTURED - PHYLLITIC TEXTURE - HEAVY IRON-OXIDE VIENING AND STAINING ON FOLATION PLANES AND FRACTURES FROM ±16 TO 21.2' - NO CALCITE OBSERVED
18							
19		5.0'					
20							ZONE OF NO RECOVERY
21		21.0'					
22	R2	21.0'	4.2'	26%	POOR		- SLIGHTLY TO MODERATELY FRACTURED
23							(M)
24		5.0'					(M) - BECOMES DARK GRAY
25							(M) **(24.6-25.4') Q_u = 3410 psi, γ = 151 pcf**
26		26.0'					ZONE OF NO RECOVERY
27							BOTTOM OF EXPLORATION AT 26.0'

S.W.COLE ENGINEERING, INC.

ROCK CORE LOG

PROJECT: PROPOSED 8-STORY HYATT PLACE HOTEL
BORING NO.: B-10
CLIENT: COW PLAZA HOTEL, LLC c/o SHINBERG CONSULTING
PROJECT NO.: 12-0597

LOGGED BY M. ST. PIERRE DATE: 7/23/2012 SHEET 1 OF 1
CHECKED BY A. STRUGATSKIY DATE: 7/24/2012 CORE SIZE NQ2

DEPTH BELOW SURFACE (FT)	CORE RUN	CORE INTERVAL (FT)	CORE RECOVERY (FT)	RQD (%)	ROCK QUALITY	GRAPHIC LOG	ROCK DESCRIPTION AND IDENTIFICATION
8							OVERBURDEN SOILS (SEE BORING LOG)
9							
10							START OF ROCK CORE AT 10.0'
11		10.0'					**GRAY METAMORPHIC SILTSTONE / META-PELITE** - MODERATE TO STRONG - SLATY, THINLY FOLIATED AT 70 TO 90° - MODERATELY WEATHERED - SLIGHTLY TO MODERATELY FRACTURED - PHYLLITIC TEXTURE - IRON-OXIDE VIENING WITH PREXINNAL SULFIDE (PYRITE) MINERALIZATION PRIMARILY COINCIDING WITH FRACTURES - NO CALCITE OBSERVED
12							
13	R1	5.0'	5.0'	60%	FAIR		**(13.1-14.2') Q_u = 7690 psi, γ = 157 pcf**
14							(M)
15		15.0'					(M)
16		15.0'					CLAY INFILLED FRACTURE FROM ±15.3 TO 15.6'
17							(M)
18	R2	5.0'	3.9'	62%	FAIR		
19							
20		20.0'					ZONE OF NO RECOVERY
21							BOTTOM OF EXPLORATION AT 20.0'

S.W.COLE ENGINEERING, INC.

AUGER PROBE DATA

SHEET: 1 OF 1

PROJECT / CLIENT: PROPOSED HYATT PLACE / COW PLAZA HOTEL, LLC c/o SHINBERG CONSULTING

PROJECT NO.: 12-0597

LOCATION: UNION STREET AND FORE STREET / PORTLAND, MAINE

DATE START: 8/18/2012

DRILLING CO. : GREAT WORKS TEST BORING

DRILLER: JEFF LEE

DATE FINISH: 8/18/2012

SWC REP.: E. WALKER

PROBE	APPROXIMATE GROUND SURFACE ELEVATION	APPROXIMATE DEPTH TO REFUSAL ON BEDROCK	COMMENTS
P-101	±28.5'	6.1'	
P-102	±28.3'	6.2'	
P-103	±27.6'	10.5'	
P-104	±27.2'	12.7'	
P-105	±26.9'	12.9'	
P-106	±26.6'	15.1'	PROBABLE WEATHERED BEDROCK ENCOUNTERED @ ±14.5'
P-107	±26.2'	13.6'	
P-108	±26.5'	14.9'	PROBABLE WEATHERED BEDROCK ENCOUNTERED @ ±14.0'
P-109	±27.0'	14.0'	
P-110	±27.5'	14.3'	PROBABLE WEATHERED BEDROCK ENCOUNTERED @ ±13.5'
P-111	±27.9'	9.1'	
P-112	±28.1'	8.0'	
P-113	±28.4'	6.2'	
P-114	±28.5'	6.3'	
P-115	±28.6'	10.0'	PROBABLE WEATHERED BEDROCK ENCOUNTERED @ ±9.5'
P-116	±28.8'	5.1'	REFUSAL ON PROBABLE BOULDER
P-117	±28.7'	8.7'	
P-118	±28.7'	6.9'	
P-119	±28.6'	5.8'	

*APPROXIMATE GROUND SURFACE ELEVATIONS WERE INTERPOLATED BASED ON EXISTING GROUND SURFACE CONTOURS SHOWN ON SHEET 1.

KEY TO THE NOTES & SYMBOLS
Test Boring and Test Pit Explorations

All stratification lines represent the approximate boundary between soil types and the transition may be gradual.

Key to Symbols Used:

w	-	water content, percent (dry weight basis)
q_u	-	unconfined compressive strength, kips/sq. ft. - based on laboratory unconfined compressive test
S_v	-	field vane shear strength, kips/sq. ft.
L_v	-	lab vane shear strength, kips/sq. ft.
q_p	-	unconfined compressive strength, kips/sq. ft. based on pocket penetrometer test
O	-	organic content, percent (dry weight basis)
W_L	-	liquid limit - Atterberg test
W_P	-	plastic limit - Atterberg test
WOH	-	advance by weight of hammer
WOM	-	advance by weight of man
WOR	-	advance by weight of rods
HYD	-	advance by force of hydraulic piston on drill
RQD	-	Rock Quality Designator - an index of the quality of a rock mass. RQD is computed from recovered core samples.
γ_T	-	total soil weight
γ_B	-	buoyant soil weight

Description of Proportions:

0 to 5% TRACE
5 to 12% SOME
12 to 35% "Y"
35+% AND

REFUSAL: **Test Boring Explorations** - Refusal depth indicates that depth at which, in the drill foreman's opinion, sufficient resistance to the advance of the casing, auger, probe rod or sampler was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

REFUSAL: **Test Pit Explorations** - Refusal depth indicates that depth at which sufficient resistance to the advance of the backhoe bucket was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

Although refusal may indicate the encountering of the bedrock surface, it may indicate the striking of large cobbles, boulders, very dense or cemented soil, or other buried natural or man-made objects or it may indicate the encountering of a harder zone after penetrating a considerable depth through a weathered or disintegrated zone of the bedrock.

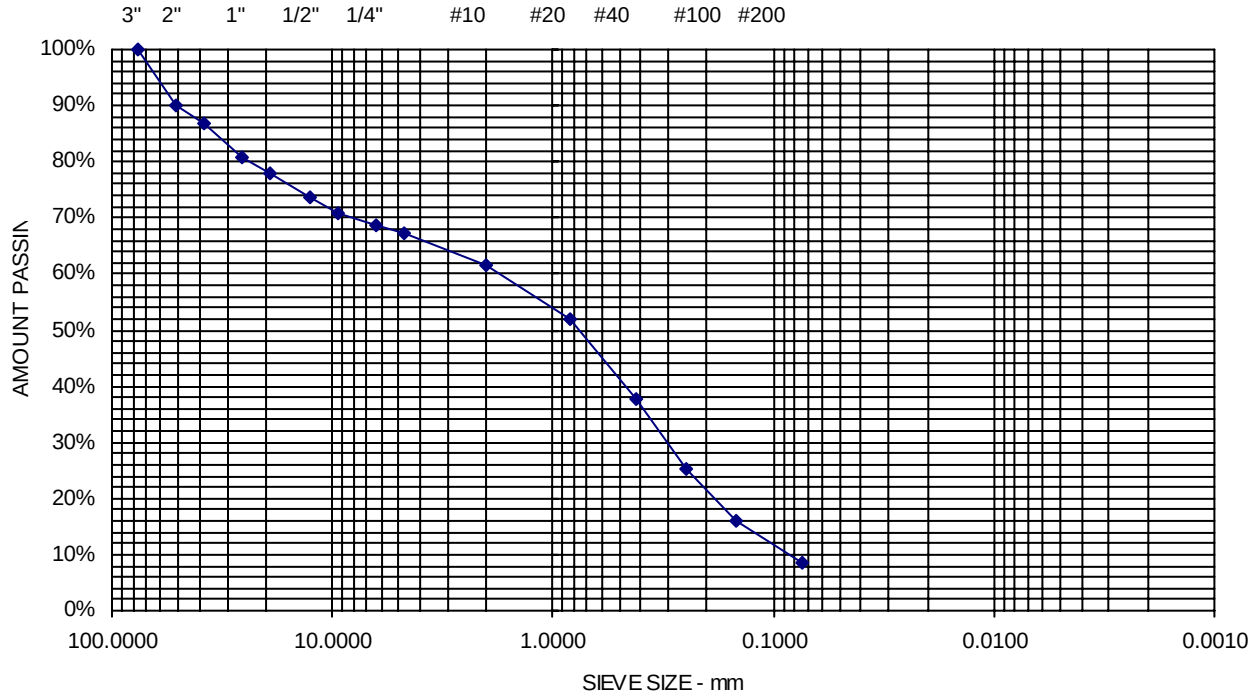
S.W.COLE ENGINEERING, INC.

Report of Gradation

ASTM C-117 & C-136

Project Name	PORTLAND ME - PROPOSED HYATT PLACE - GEOTECHNICAL ENGINEERING SERVICES	Project Number	12-0597
Client	COW PLAZA HOTEL LLC	Lab ID	7080A
Exploration	**TP-1**	Date Received	7/24/2012
Material Source	**S-1, 4-5'**	Date Completed	7/25/2012
		Tested By	TAMMY HOPKINS

STANDARD DESIGNATION (mm/µm)	SIEVE SIZE	AMOUNT PASSING (%)	
75 mm	**3"**	**100**	
50 mm	**2"**	**90**	
38.1 mm	**1-1/2"**	**87**	
25.0 mm	**1"**	**81**	
19.0 mm	**3/4"**	**78**	
12.5 mm	**1/2"**	**74**	
9.5 mm	**3/8"**	**71**	
6.3 mm	**1/4"**	**69**	
4.75 mm	**No. 4**	**67**	32.9% Gravel
2.00 mm	**No. 10**	**61**	
850 um	**No. 20**	**52**	
425 um	**No. 40**	**38**	58.4% Sand
250 um	**No. 60**	**25**	
150 um	**No. 100**	**16**	
75 um	**No. 200**	**8.7**	8.7% Fines



Comments: WC=8.3%

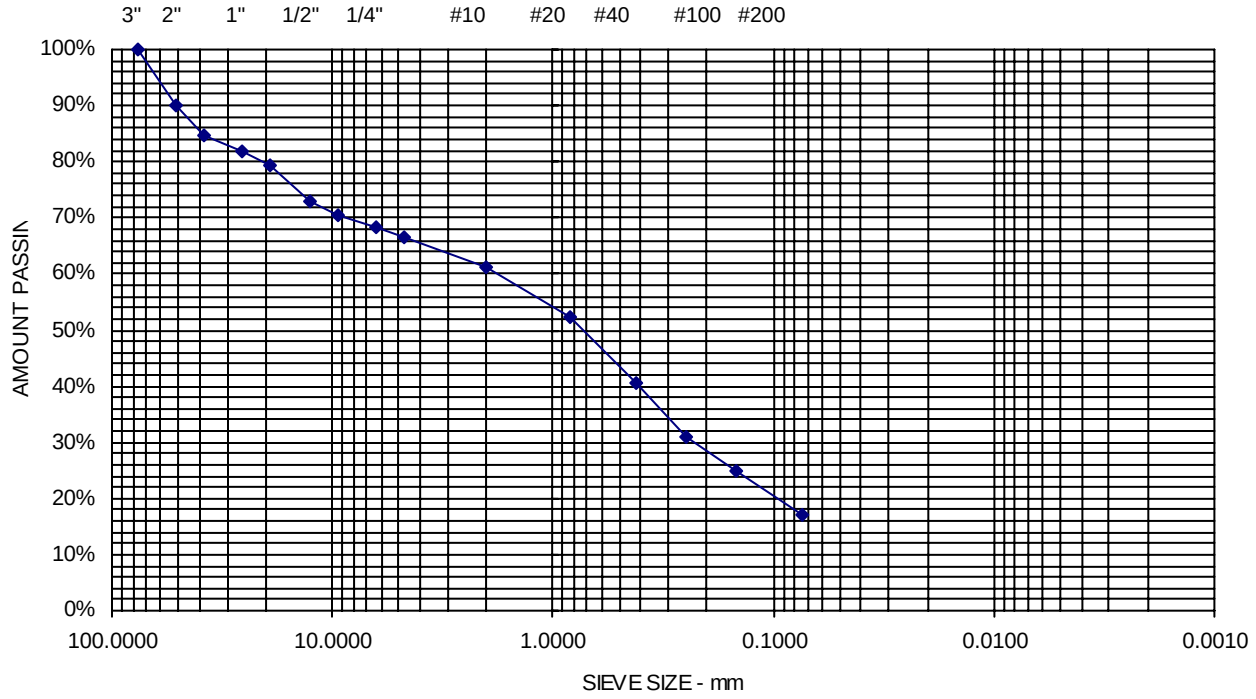
S.W.COLE ENGINEERING, INC.

Report of Gradation

ASTM C-117 & C-136

Project Name	PORTLAND ME - PROPOSED HYATT PLACE - GEOTECHNICAL ENGINEERING SERVICES	Project Number	12-0597
Client	COW PLAZA HOTEL LLC	Lab ID	7081A
Exploration	**TP-5**	Date Received	7/24/2012
Material Source	**S-1, 6-7'**	Date Completed	7/25/2012
		Tested By	TAMMY HOPKINS

STANDARD DESIGNATION (mm/µm)	SIEVE SIZE	AMOUNT PASSING (%)	
75 mm	**3"**	**100**	
50 mm	**2"**	**90**	
38.1 mm	**1-1/2"**	**85**	
25.0 mm	**1"**	**82**	
19.0 mm	**3/4"**	**79**	
12.5 mm	**1/2"**	**73**	
9.5 mm	**3/8"**	**70**	
6.3 mm	**1/4"**	**68**	
4.75 mm	**No. 4**	**67**	33.5% Gravel
2.00 mm	**No. 10**	**61**	
850 um	**No. 20**	**52**	
425 um	**No. 40**	**40**	49.5% Sand
250 um	**No. 60**	**31**	
150 um	**No. 100**	**25**	
75 um	**No. 200**	**17.1**	17.1% Fines



Comments: WC=11.5%

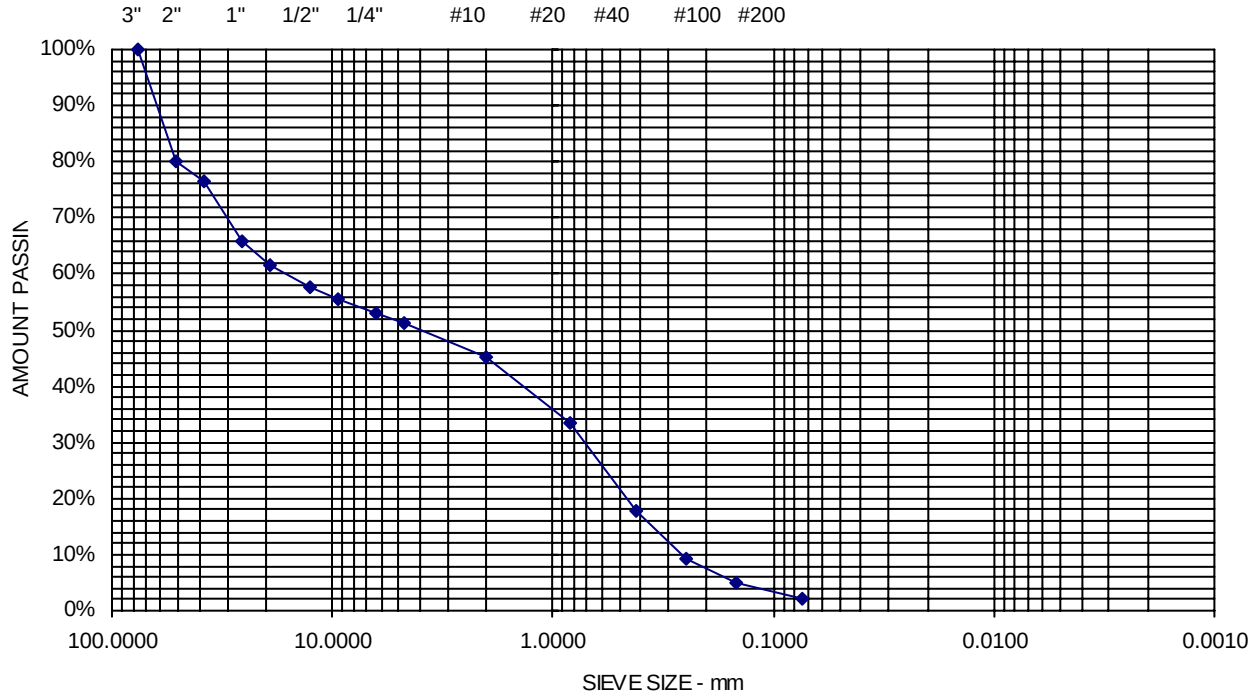
S.W.COLE ENGINEERING, INC.

Report of Gradation

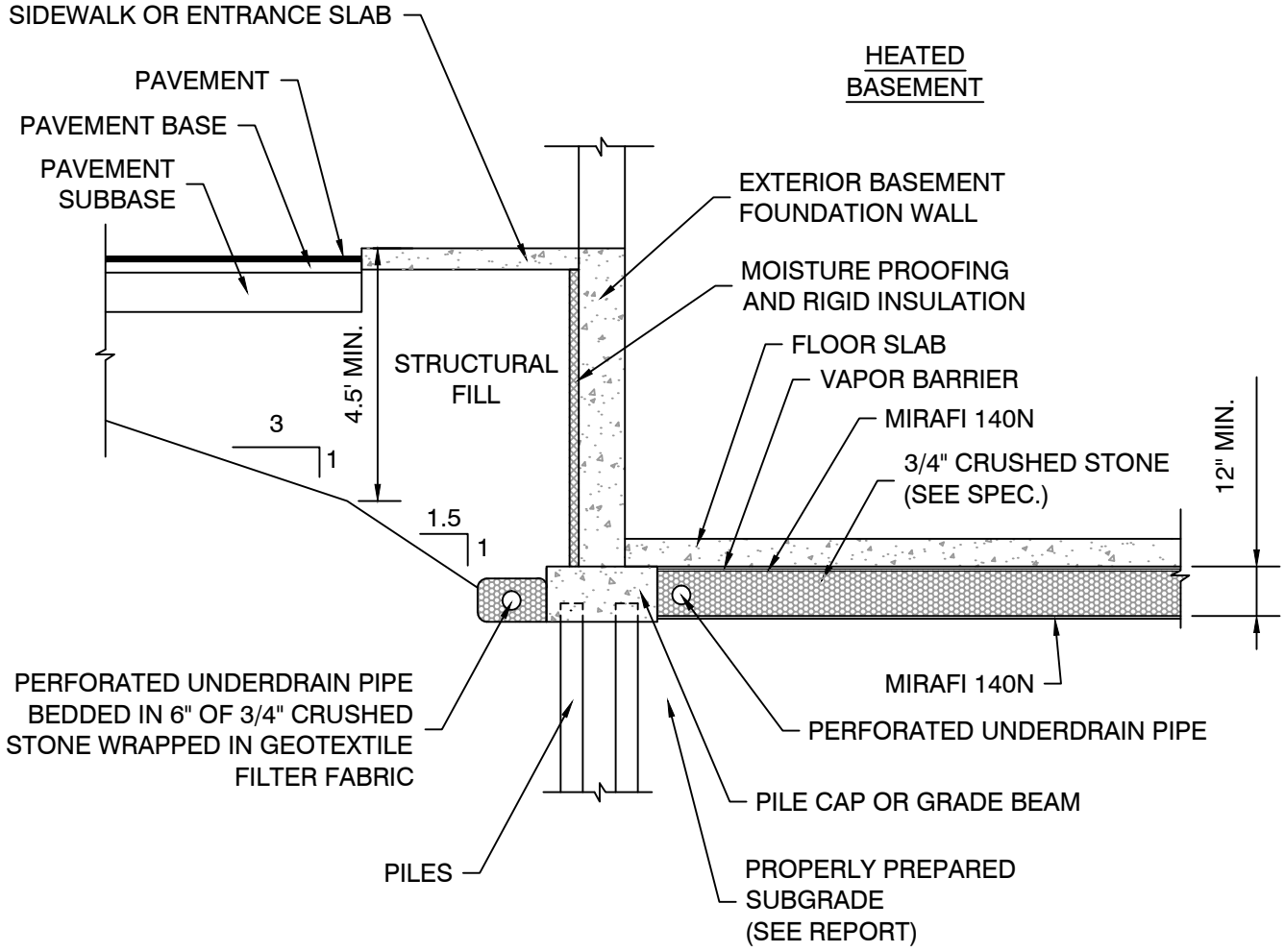
ASTM C-117 & C-136

Project Name	PORTLAND ME - PROPOSED HYATT PLACE - GEOTECHNICAL ENGINEERING SERVICES	Project Number	12-0597
Client	COW PLAZA HOTEL LLC	Lab ID	7082A
Exploration	**TP-7**	Date Received	7/24/2012
Material Source	**S-1, 20-25'**	Date Completed	7/25/2012
		Tested By	TAMMY HOPKINS

STANDARD DESIGNATION (mm/µm)	SIEVE SIZE	AMOUNT PASSING (%)	
75 mm	**3"**	**100**	
50 mm	**2"**	**80**	
38.1 mm	**1-1/2"**	**76**	
25.0 mm	**1"**	**66**	
19.0 mm	**3/4"**	**62**	
12.5 mm	**1/2"**	**58**	
9.5 mm	**3/8"**	**56**	
6.3 mm	**1/4"**	**53**	
4.75 mm	**No. 4**	**51**	48.7% Gravel
2.00 mm	**No. 10**	**45**	
850 um	**No. 20**	**33**	
425 um	**No. 40**	**18**	49.2% Sand
250 um	**No. 60**	**9**	
150 um	**No. 100**	**5**	
75 um	**No. 200**	**2.1**	2.1% Fines



Comments: WC=2.7%



NOTE:

1. UNDERDRAIN INSTALLATION AND MATERIAL GRADATION RECOMMENDATIONS ARE CONTAINED WITHIN THIS REPORT.

2. DETAIL IS PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY, NOT FOR CONSTRUCTION.

S.W.COLE ENGINEERING, INC.

COW PLAZA HOTEL, LLC, C/O SHINBERG CONSULTING

UNDERDRAIN DETAIL

PROPOSED HYATT PLACE HOTEL
UNION STREET AND FORE STREET
PORTLAND, MAINE

Job No.:	12-0597	Scale:	Not to Scale
Date :	10/05/2012	Sheet:	27