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Permitting and Inspections Department
Michael A. Russell, MS, Director

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019

Request to Use a Third Party Plan Review Agency

You may choose a qualified Third Party Plan Review Agency to review project plans and documents for compliance with construction codes. This is an alternative to the standard plan review process by the Permitting and Inspection Department (PID) and the selected agency must be approved by PID before they begin. All permit applications are subject to reviews of other municipal and state authorities (including Zoning, Planning and Urban Development Department, Historic Preservation and Public Works Department), and must be completed prior to the Third Party Review. The PID will continue to perform the field inspections and certify compliance with the approved plans.

You may be eligible for a partial refund of your building permit application cost. After the third party agency completes your review, please apply for a partial refund by submitting the final documentation and paid invoice to permitting@portlandmaine.gov. The information submitted will be reviewed for completeness and a refund determination will be made by the Department Director.

Location Address: 100 West Commercial Street, Portland

Tax Assessor's CBL: 60 (Chart #) F (Block #) 1 (Lot #) **Date of Request:** 6/11/18

Owner Name: Canal Landing LLC **Phone:** (207) 774 - 1067

Address: 400 Commercial Street, Portland, ME 04101 **Email:** clintm@coastalcfo.com

Applicant Name (if different): _____ **Phone:** (____) _____ - _____

Address: _____ **Email:** _____

Third Party Plan Review Agency: SafeBuilt

Agency Contact Name: Eric Gleason **Phone:** (970) 413 - 1101

Address: 3755 Precision Drive, Ste. 140, Loveland, CO 80538 **Email:** egleason@safebuilt.com

Project Description:

Construction of two buildings on existing site plan (buildings C & D).

Tax bill references: 60-F-1, 71-F-2

I hereby certify the following:

- *I am the owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent.*
- *I understand that the same agency must be used for the entire construction code review for the project.*
- *I understand that I am responsible for initiating and coordinating the review process and payment with the selected Third Party Plan Review Agency.*

Signature: _____, Manager Date: 6/11/2018

PROFESSIONAL SERVICES AGREEMENT
BETWEEN NEW YARD, LLC
AND SAFEbuilt, LLC

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019

This Professional Services Agreement ("Agreement"), is entered into by and between New Yard, LLC, ("Client") and SAFEbuilt, LLC, ("Consultant"). Client and Consultant shall be jointly referred to as the "Parties".

RECITALS

WHEREAS, Client is seeking a consultant to perform services listed in Exhibit A – List of Services and Fee Schedule, ("Services");

WHEREAS, Consultant is ready, willing, and able to perform Services.

NOW THEREFORE, for good and valuable consideration, the sufficiency of which is hereby acknowledged, Client and Consultant agree as follows:

1. SCOPE OF SERVICES
   Consultant will provide "Services" to Client using qualified professionals. Consultant will perform work at a level of competency in accordance with industry standards. Consultant is not obligated to perform services beyond what is contemplated by this Agreement.

2. CHANGES TO SCOPE OF SERVICES
   Any changes to Services that are mutually agreed upon between Client and Consultant shall be made in writing which shall specifically designate any changes in compensation for such modified services and be made as a signed and fully executed amendment to the Agreement. No changes shall be binding absent a written Agreement or Agreement amendment executed by both Parties.

3. FEE STRUCTURE
   In consideration of Consultant providing services, Client shall pay Consultant for Services performed in accordance with Exhibit A – List of Services and Fee Schedule.

4. INVOICE & PAYMENT STRUCTURE
   Consultant will invoice Client monthly and provide all necessary supporting documentation. All payments are due to Consultant within thirty (30) days of invoice date. Payments owed to Consultant but not made within sixty (60) days of invoice date shall bear simple interest at the rate of one and one-half percent (1.5%) per month. If payment is not received within ninety (90) days of invoice date, Services will be discontinued until all invoices and interest are paid in full.

   Client may request additional information before accepting the invoice. When additional information is requested Client will identify specific item(s) in dispute and give specific reasons for any request. Undisputed portions of any invoice shall be due within thirty (30) days of Consultants invoice date. When additional information is requested, Client will submit payment within thirty (30) days of resolution of the dispute.

5. TERM
   This Agreement shall be effective on the date it is fully executed by both Parties and shall remain in effect through the latter of (i) sixty (60) days after project completion (as defined in Exhibit A attached hereto) and (ii) Consultant's receipt of final payment for Service.

6. TERMINATION

Either party may terminate this Agreement, or any part of this Agreement upon ten (10) days written notice, with or without cause. In case of such termination, Consultant shall be entitled to receive payment for work completed up to and including the date of termination within 30 days of the termination.

Upon receipt of notice of termination, Consultant shall immediately discontinue all services and work in connection with the performance of this Agreement and shall deliver to Client, in electronic and/or other formats all finished and unfinished documents and other work product prepared by Consultant under this Agreement. Consultant shall not be responsible or liable in any manner for Client's use of unfinished work product or documents.

7. CLIENT OBLIGATIONS

Client shall timely provide all data information, plans, specifications and other documentation required by Consultant to perform Services at no cost to Consultant.

8. PERFORMANCE STANDARDS

Consultant shall perform the Services using that degree of care, skill, and professionalism ordinarily exercised under similar circumstances by members of the same profession practicing or performing the substantially same or similar services. Consultant represents to Client that Consultant retains employees that possess the skills, knowledge, and abilities to competently, timely, and professionally perform Services in accordance with this Agreement. Client's sole remedy and Consultant's sole obligation in the event of failure to perform Services in accordance with the terms of this Section shall be re-performance of the services by Consultant.

9. INDEMNIFICATION

To the fullest extent permitted by law, Consultant shall defend, indemnify, and hold harmless Client, its officials, employees and volunteers and others working on behalf of Client, from and against any and all third-party claims, demands, suits, costs (including reasonable legal costs), expenses, and liabilities ("Claims") alleging personal injury, including bodily injury or death, and/or property damage, but only to the extent that any such Claims are caused by the negligence of, or material breach of any obligation under this Agreement by, Consultant or any officer, employee, representative, or agent of Consultant. Consultant shall have no obligations under this Section to the extent that any Claim arises as a result of Consultants compliance with Municipal law, ordinances, rules, regulations, resolution, executive orders or other instructions received from Municipality or Client on behalf of Municipality.

To the fullest extent permitted by law, Client shall defend, indemnify, and hold harmless Consultant, its officers, employees, representatives, and agents, from and against any and all Claims alleging personal injury, including bodily injury or death, and/or property damage, but only to the extent that such Claims are caused by (a) the negligence of, or material breach of any obligation under this Agreement by, Client or any officer, employee, representative, or agent of Client or (b) Consultant's compliance with Municipal law, ordinances, rules, regulations, resolutions, executive orders or other instructions received from Client. If either Party becomes aware of any incident likely to give rise to a Claim under the above indemnities, it shall notify the other and both Parties shall cooperate fully in investigating the incident.

10. ASSIGNMENT

Neither Party shall assign all or part of its rights, duties, obligations, responsibilities, nor benefits set forth in this Agreement to another entity without the written approval of both Parties; consent shall not be unreasonably withheld. Consultant is permitted to subcontract portions of Services to its parent or sister companies without notice to Client and to other third parties provided that Consultant give Client prior written notice of the persons or entities with which Consultant has subcontracted. Consultant remains responsible for any subcontractor's performance or failure to perform. Subcontractors will be subject to the

same performance criteria expected of Consultant. Performances clauses will be included in agreements with all subcontractors to assure quality levels and agreed upon schedules are met.

11. INSURANCE
    A. Consultant agrees to procure and maintain, at its own cost, a policy or policies of insurance sufficient to insure against all liability, claims, demands, and other obligations assumed by Consultant pursuant to this Agreement. Such insurance shall be in addition to any other insurance requirements imposed by law.
    B. At a minimum, Consultant shall procure and maintain, and shall cause any subcontractor of Consultant to procure and maintain, the minimum insurance coverages listed below. Such coverages shall be procured and maintained with forms and insurers acceptable to Client. In the case of any claims-made policy, the necessary retroactive dates and extended reporting periods shall be procured to maintain such continuous coverage.
    C. Worker's compensation insurance to cover obligations imposed by applicable law for any employee engaged in the performance of work under this Agreement, and Employer's Liability insurance with minimum limits of one million dollars ($1,000,000) bodily injury each accident, one million dollars ($1,000,000) bodily injury by disease – policy limit, and one million dollars ($1,000,000) bodily injury by disease – each employee.
    D. Commercial general liability insurance with minimum combined single limits of one million dollars ($1,000,000) each occurrence and two million dollars ($2,000,000) general aggregate. The policy shall be applicable to all premises and operations. The policy shall include coverage for bodily injury, broad form property damage, personal injury (including coverage for contractual and employee acts), blanket contractual, independent Consultant's, products, and completed operations. The policy shall contain a severability of interest provision and shall be endorsed to include Client and Client's officers, employees, and consultants as additional insureds. No additional insured endorsement shall contain any exclusion for bodily injury or property damage arising from completed operations.
    E. Professional liability insurance with minimum limits of five million dollars ($5,000,000) each claim and five million dollars ($5,000,000) general aggregate.
    F. Vehicle liability insurance with minimum combined single limits of one million dollars ($1,000,000) for bodily injury and property damage.
    G. Prior to Service commencement, Consultant shall submit certificates of insurance to Client.

12. INDEPENDENT CONTRACTOR
    Consultant is an independent contractor, and neither Consultant, nor any employee or agent thereof, shall be deemed for any reason to be an employee or agent of Client. As Consultant is an independent contractor, Client shall have no liability or responsibility for any direct payment of any salaries, wages, payroll taxes, or any and all other forms or types of compensation or benefits to any personnel performing services for Client under this Agreement. Consultant shall be solely responsible for all compensation, benefits, insurance and employment-related rights of any person providing Services hereunder during the course of or arising or accruing as a result of any employment, whether past or present, with Consultant, as well as all legal costs including attorney's fees incurred in the defense of any conflict or legal action resulting from such employment or related to the corporate amenities of such employment.

13. THIRD PARTY RELIANCE
    This Agreement is intended for the mutual benefit of the parties hereto and no third-party rights are intended or implied.

14. OWNERSHIP OF DOCUMENTS
    Except as expressly provided in this Agreement, Client shall retain ownership of all work product and deliverables created by Consultant pursuant to this Agreement and all records, documents, notes, data and other materials required for or resulting from the performance of Services hereunder shall not be used by

Consultant for any purpose other than the performance of Services hereunder without the express prior written consent of Client. All such records, documents, notes, data and other materials shall become the exclusive property of Client when Consultant has been compensated for the same as set forth herein, and Client shall thereafter retain sole and exclusive rights to receive and use such materials in such manner and for such purposes as determined by it. Notwithstanding the preceding, Consultant may use the work product, deliverables, applications, records, documents and other materials require for or resulting from the Services, all solely in anonymized form, for purposes of (i) benchmarking of Client's and others performance relative to that of other groups of customers served by Consultant; (ii) sales and marketing of existing and future Consultant services; (iii) monitoring Service performance and making improvements to the Services. For the avoidance of doubt, Client Data will be provided to third parties only on an anonymized basis and only as part of a larger body of anonymized data. If this Agreement expires or is terminated for any reason, all records, documents, notes, data and other materials maintained or stored in Consultant's secure proprietary software pertaining to Client will be exported into a CSV file and become property of Client. Notwithstanding the preceding, Consultant shall own all rights and title to any Consultant provided software and any improvements or derivative works thereof.

Upon reasonable prior written notice, Client and its duly authorized representatives shall have access to any books, documents, papers and records of Consultant that are related to this Agreement for the purposes of audit or examination, other than Consultant's financial records, and may make excerpts and transcriptions of the same at the cost and expense of Client.

15. SEVERABILITY

If any part of this Agreement shall be held to be invalid for any reason, the remainder of this Agreement shall be valid to the fullest extent permitted by law.

16. DISCRIMINATION & ADA COMPLIANCE

Consultant will not discriminate against any employee or applicant for employment because of race, color, religion, age, sex, disability or national origin. Such action shall include but not be limited to the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. Consultant agrees to post in conspicuous places, available to employees and applicants for employment, notice to be provided by an agency of the federal government, setting forth the provisions of the Equal Opportunity laws. Consultant shall comply with the appropriate provisions of the Americans with Disabilities Act (the "ADA"), as enacted and as from time to time amended, and any other applicable federal regulations. A signed certificate confirming compliance with the ADA may be requested by Client at any time during the term of this Agreement.

17. PROHIBITION AGAINST EMPLOYING ILLEGAL ALIENS:

Consultant shall not knowingly employ or contract with an illegal alien to perform work under this Agreement and will verify immigration status to confirm employment eligibility. Consultant shall not enter into an agreement with a subcontractor that fails to certify to Consultant that the subcontractor shall not knowingly employ or contract with an illegal alien to perform work under this Agreement.

18. SOLICITATION/HIRING OF CONSULTANT'S EMPLOYEES

During the term of this Agreement and for one year thereafter, Client shall not solicit, recruit or hire, or attempt to solicit, recruit or hire, any employee or former employee of Consultant who provided services to Client pursuant to this Agreement ("Service Providers"), or who interacted with Client in connection with the provision of such services (including but not limited to supervisors or managers of Service Providers, customer relations personnel, accounting personnel, and other support personnel of Consultant). The Parties agree that this provision is reasonable and necessary in order to preserve and protect Consultant's trade secrets and other confidential information, its investment in the training of its employees, the stability of its workforce, and its ability to provide competitive building department programs in this market. If any

provision of this section is found by a court or arbitrator to be overly broad, unreasonable in scope or otherwise unenforceable, the Parties agree that such court or arbitrator shall modify such provision to the minimum extent necessary to render this section enforceable. In the event that Client hires any such employee during the specified period, Client shall pay to Consultant a placement fee equal to twenty-five percent (25%) of the employee's annual salary including bonus.

19. NOTICES

Any notice under this Agreement shall be in writing and shall be deemed sufficient when directly presented in person, or sent, pre-paid, first class United States Mail, or delivered by electronic mail to the following addresses:

If to Client:	If to Consultant:
Clint Marshall New Yard, LLC 400 Commercial Street Portland, ME 04101 Email: clintm@coastalcfo.com	Thomas P. Wilkas, CFO SAFEbuilt, LLC 3755 Precision Drive, Suite 140 Loveland, CO 80538 Email: twilkas@safebuilt.com

20. FORCE MAJEURE

Any delay or nonperformance of any provision of this Agreement by either Party (with the exception of payment obligations) which is caused by events beyond the reasonable control of such party, shall not constitute a breach of this Agreement, and the time for performance of such provision, if any, shall be deemed to be extended for a period equal to the duration of the conditions preventing such performance.

21. DISPUTE RESOLUTION

In the event a dispute arises out of or relates to this Agreement, or the breach thereof, and if said dispute cannot be settled through negotiation, the Parties agree first to try in good faith to settle the dispute by mediation, before resorting to litigation or some other dispute resolution procedure. The cost thereof shall be borne equally by each Party.

22. ATTORNEY'S FEES

In the event of dispute resolution or litigation to enforce any of the terms herein, each Party shall pay all its own costs and attorney's fees.

23. AUTHORITY TO EXECUTE

The person or persons executing this Agreement represent and warrant that they are fully authorized to sign and so execute this Agreement and to bind their respective entities to the performance of its obligations hereunder.

24. GOVERNING LAW AND VENUE

This Agreement shall be construed under and governed by the laws of the State of Maine and all services to be provided will be provided in accordance with applicable federal, state and local law, without regard to its conflict of laws provisions.

25. COUNTERPARTS

This Agreement and any amendments may be executed in one or more counterparts, each of which shall be deemed an original, but all of which shall constitute one and the same instrument. For purposes of executing the Agreement, scanned signatures shall be as valid as the original.

26. ENTIRE AGREEMENT

This Agreement, along with attached exhibits, constitutes the complete, entire and final agreement of the Parties hereto with respect to the subject matter hereof, and shall supersede any and all previous communications, representations, whether oral or written, with respect to the subject matter hereof.

Invalidation of any of the provisions of this Agreement or any paragraph sentence, clause, phrase, or word herein or the application thereof in any given circumstance shall not affect the validity of any other provision of this Agreement.

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019

27. WAIVER

Failure to enforce any provision of this Agreement shall not be deemed a waiver of that provision. Waiver of any right or power arising out of this Agreement shall not be deemed waiver of any other right or power.

IN WITNESS HEREOF, the undersigned have caused this Agreement to be executed in their respective names on the dates hereinafter enumerated.

New Yard, LLC

Signature

Name: Pthomas Sprague Jr

Title: Manager

Date: 9 / 5 / 18

SAFEbuilt, LLC

Signature

Name: _____

Title: _____

Date: _____/_____/_____

EXHIBIT A – LIST OF SERVCIES AND FEE SCHEDULE

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
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1. JURISDICTION OF AUTHORITY

   Parties agree that the scope of Services to be provided under the Agreement include the full suite of code compliance plan review tasks required by the Jurisdiction of Authority, the specifics of which Consultant is responsible for confirming directly with the Jurisdiction.

   Consultant has been approved by the Jurisdiction of Authority to provide Third Party Plan Review services. Consultant's scope of authority for Third Party Plan Review includes plan review for compliance with construction codes only. Consultant's approval of project plans does not automatically guarantee the issuance of a permit by the Jurisdiction of Authority.

2. PROJECT DESCRIPTION

   Canal Landing, 100 Commercial Street, Portland, ME 04101

3. THIRD PARTY PLAN REVIEW SERVCIES

   Plans review is limited to structural, building, mechanical, electrical and plumbing trade/discipline. Each discipline will be reviewed by a plans examiner or licensed engineer.

   - ✓ Disciplines are defined as follows:
     - Building (architectural / structural)
     - Mechanical (HVAC)
     - Plumbing
     - Electrical
     - Fire (Sprinkler, Fire Alarm, etc.)
   - ✓ Post final comprehensive conditional plan approval – required if requested by Jurisdiction of Authority
     - Delegated Component Submittal
     - Shop Drawings

4. PLAN REVIEW FEE – includes the following services:

   - ✓ One meeting at Site included in plan review fee
   - ✓ One optional remote code consultation meeting after conclusion of the first review
   - ✓ Consultation via phone during duration of project regarding reviews preformed
   - ✓ Three reviews of all disciplines to verify that all comments have been addressed
     - Subsequent reviews are invoiced at the hourly rate for plans examiners and/or engineers
   - ✓ All shop drawings and delegated submissions submitted within the three reviews are reviewed at no additional cost
   - ✓ Shop drawings and delegated submissions not submitted within the three reviews for master permit are reviewed at the hourly rate for plans examiners and/or engineers
   - ✓ Changes to plans after conditional approval is granted are invoiced at the hourly rate for plans examiners and/or engineers
   - ✓ Additional permitting and plan review requirements will be coordinated with Jurisdiction of Authority staff prior to proceeding to determine necessity and scope

5. PLAN REVIEW PROCESS AND REQUIREMENTS

   - ✓ Complete structural calculations showing all wind pressures on all elements, design of connections, and verification that floors and roof have adequate capacity to act as diaphragms, and that walls have sufficient capacity to act as shear walls are required
   - ✓ Client will be responsible for ensuring Consultant comments are responded to in a timely fashion and include the necessary calculations and supporting documents as well as narratives
   - ✓ After first complete set of drawings are reviewed, each trade drawing can be submitted in piecemeal format. Each trade will be reviewed a maximum of three (3) times.
   - ✓ Consultant shall provide Services electronically or in paper format
     - Electronic plan submittals will be reviewed and returned electronically

- Paper plan submittals will be reviewed and returned in a paper format and shall occur via overnight delivery
  - ✓ Five (5) complete sets of plans, unsigned and unsealed shall be supplied to Consultant
  - ✓ Consultant costs for shipping/handling of paper plans will be assessed at final invoice

6. TIME OF PERFORMANCE

Services will be performed during normal business hours (Monday-Friday; excluding holidays).

✓ Plan review turnaround time shall be fifteen (15) working days

7. CONSULTANT CONTACT

Consultant will provide a qualified professional to oversee this project. They are available by phone and email using the contact information listed below.

Project Management / Performance Contact
Jim Testin, Regional Operations Director
Phone: 224-567-7657 / Email: jtestin@safebuilt.com

8. FEE STRUCTURE

Consultant fees for Services provided pursuant to this Agreement will be as follows:

Third Party Plan Review Fee Schedule	
Plan Review Fee: $ 7,812.50*	
*	Plan Review Fee listed above is an estimate based on proposed valuation of $2.5Million
*	Consultant's rate is calculated at twenty-five percent (25%) of Jurisdiction of Authority fee
*	Jurisdiction of Authority Fee @ 25% = $Consultant Plan Review Fee
Additional Services Hourly Rates	
Plans Examiner	$125.00 per hour – one (1) hour minimum
Engineer	$125.00 per hour – one (1) hour minimum
Reimbursable Expenses	
Includes copies and Fed-Ex/UPS delivery charges paid by Consultant on behalf of the Client (if required).	
Reimbursable and/or Additional Expense Fees will be assessed at final invoice.	

9. INVOICE & PAYMENT STRUCTURE

Consultant will invoice Client and provide all supporting documentation. All payments are due to Consultant within 30 days of invoice date.

Initial Invoice: Due when the following criteria has been met: • Agreement has been executed • Consultant has received complete set of plans and all supporting documentation
✓ $ 3,906.25 - 50% of Consultant Plan Review Fee
Second Invoice: • Due upon completion of the third review or approval of all disciplines, whichever occurs first. • Second Invoice amount will be adjusted to reflect actual amount due based on actual Jurisdiction of Authority permit fee when total Plan Review Fee listed above is an estimate.
✓ $ 3,906.25 - 50% of Consultant Plan Review Fee
✓ Reimbursable and/or Additional expenses as stated in Section 8 FEE STRUCTURE

COM*check* Software Version 4.1.0.0

Envelope Compliance Certificate

Reviewed for Code Compliance
Permitting and Inspections Department
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Section 1: Project Information

Energy Code: **2009 IECC**
Project Title:
Project Type: New Construction

Construction Site: Owner/Agent: Designer/Contractor:

Building Location (for weather data): Portland, Maine
Climate Zone: 6a
Vertical Glazing / Wall Area Pct.: **6%**

Building Use: Activity Type(s)	**Floor Area**
1-Warehouse : Nonresidential	19962
2-Warehouse : Nonresidential	4838
3-Retail : Nonresidential	4838

Section 2: Envelope Assemblies and Requirements Checklist

Envelope PASSES: Design 5% better than code.

Envelope Assemblies:

Component Name/Description	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor(a)
north wall B: Metal Building Wall, Single Layer Mineral Fiber, [Bldg. Use 1 - Warehouse]	3718	13.0	7.5	0.061	0.069
Window 1: Metal Frame, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, PF 0.19, [Bldg. Use 1 - Warehouse]	121	---	---	1.200	0.550
south wall B: Metal Building Wall, Single Layer Mineral Fiber, [Bldg. Use 1 - Warehouse]	4792	13.0	7.5	0.061	0.069
Window 2: Metal Frame, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, [Bldg. Use 1 - Warehouse]	83	---	---	1.200	0.550
Door 1: Insulated Metal, Non-Swinging, [Bldg. Use 1 - Warehouse]	320	---	---	0.057	0.500
Door 2: Insulated Metal, Swinging, [Bldg. Use 1 - Warehouse]	20	---	---	0.090	0.700
west wall b: Metal Building Wall, Single Layer Mineral Fiber, [Bldg. Use 1 - Warehouse]	3042	13.0	7.5	0.061	0.069
Window 6: Metal Frame, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, PF 0.19, [Bldg. Use 1 - Warehouse]	30	---	---	1.200	0.550
Window 7: Metal Frame, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, PF 0.48, [Bldg. Use 1 - Warehouse]	37	---	---	1.200	0.550
Door 5: Insulated Metal, Non-Swinging, [Bldg. Use 1 - Warehouse]	616	---	---	0.057	0.500
Door 6: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, PF 0.16, [Bldg. Use 1 - Warehouse]	120	---	---	1.200	0.800
east wall b: Metal Building Wall, Single Layer Mineral Fiber, [Bldg. Use 1 - Warehouse]	857	13.0	7.5	0.061	0.069
Door 7: Insulated Metal, Non-Swinging, [Bldg. Use 1 - Warehouse]	616	---	---	0.057	0.500
north wall a: Metal Building Wall, Single Layer Mineral Fiber, [Bldg. Use 3 - Retail]	942	13.0	7.5	0.061	0.069
Window 8: Metal Frame, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, PF 2.29, [Bldg. Use 3 - Retail]	272	---	---	1.200	0.550
Door 8: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, PF 2.29, [Bldg. Use 3 - Retail]	63	---	---	1.200	0.800

north wall a: Metal Building Wall, Single Layer Mineral Fiber, [Bldg. Use 2 - Warehouse]	387	13.0	7.5	0.061	0
west wall a: Metal Building Wall, Single Layer Mineral Fiber, [Bldg. Use 3 - Retail]	296	13.0	7.5	0.061	0.0
south wall a: Metal Building Wall, Single Layer Mineral Fiber, [Bldg. Use 3 - Retail]	2451	13.0	7.5	0.061	0.069
Window 3: Metal Frame, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, [Bldg. Use 3 - Retail]	140	---	---	1.200	0.550
Window 4: Metal Frame, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, [Bldg. Use 3 - Retail]	56	---	---	1.200	0.550
south wall a: Metal Building Wall, Single Layer Mineral Fiber, [Bldg. Use 2 - Warehouse]	1028	13.0	7.5	0.061	0.069
Window 5: Metal Frame, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, [Bldg. Use 2 - Warehouse]	28	---	---	1.200	0.550
Door 3: Insulated Metal, Non-Swinging, [Bldg. Use 2 - Warehouse]	160	---	---	0.057	0.500
Door 4: Insulated Metal, Swinging, [Bldg. Use 2 - Warehouse]	40	---	---	0.090	0.700
east wall a: Metal Building Wall, Single Layer Mineral Fiber, [Bldg. Use 3 - Retail]	1254	16.0	7.5	0.061	0.069
Window 9: Metal Frame, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, [Bldg. Use 3 - Retail]	121	---	---	1.200	0.550
Door 9: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, [Bldg. Use 3 - Retail]	108	---	---	1.200	0.800
east wall a: Metal Building Wall, Single Layer Mineral Fiber, [Bldg. Use 2 - Warehouse]	390	13.0	7.5	0.061	0.069
Roof 1: Metal Building, Standing Seam, [Bldg. Use 3 - Retail]	5399	32.0	0.0	0.049	0.049
Roof 2: Metal Building, Standing Seam, [Bldg. Use 3 - Retail]	20526	32.0	0.0	0.049	0.049
Floor 1: Slab-On-Grade:Unheated, Vertical 2 ft., [Bldg. Use 1 - Warehouse]	580	---	15.0	---	---
Floor 2: Slab-On-Grade:Unheated, Vertical 4 ft., [Bldg. Use 2 - Warehouse]	281	---	15.0	---	---

(a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.

Air Leakage, Component Certification, and Vapor Retarder Requirements:

- ☐ 1. All joints and penetrations are caulked, gasketed or covered with a moisture vapor-permeable wrapping material installed in accordance with the manufacturer's installation instructions.
- ☐ 2. Windows, doors, and skylights certified as meeting leakage requirements.
- ☐ 3. Component R-values & U-factors labeled as certified.
- ☐ 4. No roof insulation is installed on a suspended ceiling with removable ceiling panels.
- ☐ 5. 'Other' components have supporting documentation for proposed U-Factors.
- ☐ 6. Insulation installed according to manufacturer's instructions, in substantial contact with the surface being insulated, and in a manner that achieves the rated R-value without compressing the insulation.
- ☐ 7. Stair, elevator shaft vents, and other outdoor air intake and exhaust openings in the building envelope are equipped with motorized dampers.
- ☐ 8. Cargo doors and loading dock doors are weather sealed.
- ☐ 9. Recessed lighting fixtures installed in the building envelope are Type IC rated as meeting ASTM E283, are sealed with gasket or caulk.
- ☐ 10. Building entrance doors have a vestibule equipped with self-closing devices.
  Exceptions:
  - ☐ Building entrances with revolving doors.
  - ☐ Doors not intended to be used as a building entrance.
  - ☐ Doors that open directly from a space less than 3000 sq. ft. in area.
  - ☐ Doors used primarily to facilitate vehicular movement or materials handling and adjacent personnel doors.
  - ☐ Doors opening directly from a sleeping/dwelling unit.

Section 3: Compliance Statement

Compliance Statement: The proposed envelope design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed envelope system has been designed to meet the 2009 IECC requirements in COM*check* Version 4.1.0.0 and to comply with the mandatory requirements in the Requirements Checklist.

DEVIN COUGH — Name - Title

Signature

9/18/2018 — Date

CANAL LANDING

SAFEbuilt

1/16/19

Approved

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019

Devin Cough
Archetype PA
48 Union Wharf
Portland, Maine 04101

On behalf of:
BUILDING OFFICIAL
City of Portland, Maine

PLAN EXAMINATION CONDITIONAL APPROVAL

PROJECT/SITE DESCRIPTION:	DETAILS:	
Canal Landing	Review Type:	Bldg & Structural
PROJECT ADDRESS:	Plans Date:	1/3/2019
100 West Commercial Street – Portland, Maine	# of Sheets:	75
	Project Area (sq. ft.):	30,148

SAFEbuilt conducts plan examination and approval services as required by the State of Maine on behalf of the City of Portland.

The submittal described above has been reviewed for conformance with the State of Maine Uniform Building and Energy Code as well as applicable City of Portland Ordinances. The submittal has been conditionally approved. The conditions listed herein and on the attached pages shall be met during construction or installation and prior to occupancy or use.

The owner, as defined in Maine Statutes, is responsible for compliance with all code requirements. This approval is granted for permit issuance limited to the scopes of work associated with the plan review type listed above. Additional submittals may be required for other building components and systems in order to obtain permits for their construction. Check the requirements of the local authority having jurisdiction.

Permits shall be obtained from the local authority having jurisdiction prior to starting construction. There may be additional fees for permitting. The owner shall notify the local building inspector before commencement of construction activities and taking possession of the building. The building will be inspected during and after construction and may require an occupancy permit prior to occupying the building.

A full size copy of the approved plans, specifications, and this letter shall be on-site during construction and open to inspection.

SAFEbuilt is committed to helping create better communities and thanks you for your patience and continued cooperation. Feel free to contact the plan review team should you have any questions or concerns.

Sincerely,

Dan Hatch
Plan Review Manager
SAFEbuilt
(920) 461-8873
dhatch@safebuilt.com

SAFEbuilt

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019

Plan Specific Items:

This review only included building, structural, and exterior site work. The following items shall be submitted for review in accordance with IBC 107.3.4.1: Mechanical plans, electrical plans and coordinated energy calculations, sprinkler and fire protection plans, interior plumbing plans. Deferred items shall be sealed by a supervising professional in accordance with Maine Statute subsection 1255.

Building Plans Examiner: Dan Povolo, P.E. **Status: Conditionally Approved**

1. Exposed steel (including the columns at Line A.1) is to be protected against corrosion in accordance with AISC 360 Section B.13 as indicated in IBC 2015 Section 2203.2.

Structural Plans Examiner: Dan Povolo, P.E. **Status: Conditionally Approved**

1. Wind exposure B is shown on the drawings and in the calculations. Site has an open area to the south that would require a wind exposure C. Reviewer assumes that this load difference would not govern the structural design and the design as proposed is compliant. Verify members are adequate for the required wind load and provide design calculations with the correct wind exposure. Provide revised drawings for design changes as required.
2. Purlins are to be braced against rolling and anchorage is to be provided at the purlin to frame connection.
3. Page 4A detail B/4A (Gable) and C/4A (Single Slope) has a 2" x 2" x 14 ga angle for bottom flange purlin bracing. The axial force in the angle is to be resolved to the framing.
4. Provide frame drawings and design for Frame Lines 6 and 15.
5. Concrete walls are to be isolated from the steel columns to allow for relative lateral frame deflections.

Civil Plans Examiner: Christian Greene, CBO, Master Code Prof **Status: Conditionally Approved**

1. Plans are conditionally approved based on updated/revised drawings provided from designer 1-3-19.

General Notes:

Every effort has been made to identify code violations. Any oversight by the reviewer shall not be considered as authority to violate, set aside, cancel or alter applicable codes or ordinances. The plan review and permit issuance shall not be considered a warranty or guarantee. The designer is responsible for following all applicable federal, state, and municipal codes and ordinances.

In addition to all requirements as specified in this review of Building, Structural, HVAC/Mechanical, Plumbing, Electrical, Fire Alarm and Fire Sprinkler Plans, all conditions of approval, including but not limited to those applied through Portland's Building Department, Zoning, Plan Commission, and Maine State Fire Marshal's office apply.

Per Section 107.3.1 of the Maine Uniform Building and Energy Code (MUBEC), one set of printed approved stamped construction documents will be kept at the site of work and open to inspection by building officials.

Once conditional Approval is granted through plan review, applicant must review with the municipality with regards to any and all other additional requirements prior to commencement or concealment of work including but not limited to permit fees, required inspections, or additional approvals required at the municipal level.

It shall be the Owner's and Contractors responsibility to coordinate with the local jurisdiction to determine the full scope of what additional shop drawing submittals are required to be reviewed for conformance to the code.

COMcheck Software Version 4.1.0.0

Envelope Compliance Certificate

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019

CONDITIONALLY APPROVED

REVIEW BY:
SAFEbuilt.
APPROVED THIRD PARTY PLAN REVIEW AGENCY BY THE CITY OF PORTLAND, MAINE.
SEE REVIEW LETTER FOR MORE INFORMATION.
01/16/2019

Section 1: Project Information

Energy Code: **2009 IECC**
Project Title:
Project Type: New Construction

Construction Site: Owner/Agent: Designer/Contractor:

Building Location (for weather data): Portland, Maine
Climate Zone: 6a
Vertical Glazing / Wall Area Pct.: **6%**

Building Use: Activity Type(s)	Floor Area
1-Warehouse : Nonresidential	19962
2-Warehouse : Nonresidential	4838
3-Retail : Nonresidential	4838

Section 2: Envelope Assemblies and Requirements Checklist

Envelope PASSES: Design 5% better than code.

Envelope Assemblies:

Component Name/Description	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor(a)
north wall B: Metal Building Wall, Single Layer Mineral Fiber, [Bldg. Use 1 - Warehouse]	3718	13.0	7.5	0.061	0.069
Window 1: Metal Frame, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, PF 0.19, [Bldg. Use 1 - Warehouse]	121	---	---	1.200	0.550
south wall B: Metal Building Wall, Single Layer Mineral Fiber, [Bldg. Use 1 - Warehouse]	4792	13.0	7.5	0.061	0.069
Window 2: Metal Frame, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, [Bldg. Use 1 - Warehouse]	83	---	---	1.200	0.550
Door 1: Insulated Metal, Non-Swinging, [Bldg. Use 1 - Warehouse]	320	---	---	0.057	0.500
Door 2: Insulated Metal, Swinging, [Bldg. Use 1 - Warehouse]	20	---	---	0.090	0.700
west wall b: Metal Building Wall, Single Layer Mineral Fiber, [Bldg. Use 1 - Warehouse]	3042	13.0	7.5	0.061	0.069
Window 6: Metal Frame, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, PF 0.19, [Bldg. Use 1 - Warehouse]	30	---	---	1.200	0.550
Window 7: Metal Frame, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, PF 0.48, [Bldg. Use 1 - Warehouse]	37	---	---	1.200	0.550
Door 5: Insulated Metal, Non-Swinging, [Bldg. Use 1 - Warehouse]	616	---	---	0.057	0.500
Door 6: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, PF 0.16, [Bldg. Use 1 - Warehouse]	120	---	---	1.200	0.800
east wall b: Metal Building Wall, Single Layer Mineral Fiber, [Bldg. Use 1 - Warehouse]	857	13.0	7.5	0.061	0.069
Door 7: Insulated Metal, Non-Swinging, [Bldg. Use 1 - Warehouse]	616	---	---	0.057	0.500
north wall a: Metal Building Wall, Single Layer Mineral Fiber, [Bldg. Use 3 - Retail]	942	13.0	7.5	0.061	0.069
Window 8: Metal Frame, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, PF 2.29, [Bldg. Use 3 - Retail]	272	---	---	1.200	0.550
Door 8: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, PF 2.29, [Bldg. Use 3 - Retail]	63	---	---	1.200	0.800

north wall a: Metal Building Wall, Single Layer Mineral Fiber, [Bldg. Use 2 - Warehouse]	387	13.0	7.5	0.061	0.0
west wall a: Metal Building Wall, Single Layer Mineral Fiber, [Bldg. Use 3 - Retail]	296	13.0	7.5	0.061	0.069
south wall a: Metal Building Wall, Single Layer Mineral Fiber, [Bldg. Use 3 - Retail]	2451	13.0	7.5	0.061	0.069
Window 3: Metal Frame, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, [Bldg. Use 3 - Retail]	140	---	---	1.200	0.550
Window 4: Metal Frame, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, [Bldg. Use 3 - Retail]	56	---	---	1.200	0.550
south wall a: Metal Building Wall, Single Layer Mineral Fiber, [Bldg. Use 2 - Warehouse]	1028	13.0	7.5	0.061	0.069
Window 5: Metal Frame, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, [Bldg. Use 2 - Warehouse]	28	---	---	1.200	0.550
Door 3: Insulated Metal, Non-Swinging, [Bldg. Use 2 - Warehouse]	160	---	---	0.057	0.500
Door 4: Insulated Metal, Swinging, [Bldg. Use 2 - Warehouse]	40	---	---	0.090	0.700
east wall a: Metal Building Wall, Single Layer Mineral Fiber, [Bldg. Use 3 - Retail]	1254	16.0	7.5	0.061	0.069
Window 9: Metal Frame, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, [Bldg. Use 3 - Retail]	121	---	---	1.200	0.550
Door 9: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Type: Energy code default, Single Pane, Clear , SHGC 0.80, [Bldg. Use 3 - Retail]	108	---	---	1.200	0.800
east wall a: Metal Building Wall, Single Layer Mineral Fiber, [Bldg. Use 2 - Warehouse]	390	13.0	7.5	0.061	0.069
Roof 1: Metal Building, Standing Seam, [Bldg. Use 3 - Retail]	5399	32.0	0.0	0.049	0.049
Roof 2: Metal Building, Standing Seam, [Bldg. Use 3 - Retail]	20526	32.0	0.0	0.049	0.049
Floor 1: Slab-On-Grade:Unheated, Vertical 2 ft., [Bldg. Use 1 - Warehouse]	580	---	15.0	---	---
Floor 2: Slab-On-Grade:Unheated, Vertical 4 ft., [Bldg. Use 2 - Warehouse]	281	---	15.0	---	---

(a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.

Air Leakage, Component Certification, and Vapor Retarder Requirements:

- ☐ 1. All joints and penetrations are caulked, gasketed or covered with a moisture vapor-permeable wrapping material installed in accordance with the manufacturer's installation instructions.
- ☐ 2. Windows, doors, and skylights certified as meeting leakage requirements.
- ☐ 3. Component R-values & U-factors labeled as certified.
- ☐ 4. No roof insulation is installed on a suspended ceiling with removable ceiling panels.
- ☐ 5. 'Other' components have supporting documentation for proposed U-Factors.
- ☐ 6. Insulation installed according to manufacturer's instructions, in substantial contact with the surface being insulated, and in a manner that achieves the rated R-value without compressing the insulation.
- ☐ 7. Stair, elevator shaft vents, and other outdoor air intake and exhaust openings in the building envelope are equipped with motorized dampers.
- ☐ 8. Cargo doors and loading dock doors are weather sealed.
- ☐ 9. Recessed lighting fixtures installed in the building envelope are Type IC rated as meeting ASTM E283, are sealed with gasket or caulk.
- ☐ 10. Building entrance doors have a vestibule equipped with self-closing devices.
  Exceptions:
  - ☐ Building entrances with revolving doors.
  - ☐ Doors not intended to be used as a building entrance.
  - ☐ Doors that open directly from a space less than 3000 sq. ft. in area.
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DEVIN COUGH — Name - Title

Signature

9/18/2018 — Date

CANAL LANDING

GAGNON ENGINEERING, INC.

GORHAM, MAINE

Project: CANAL LANDING BUILDINGS
Subject: ALLOWABLE FOUNDATION GROUND PRESSURES
Item: Design Calculations

Roger R. Gagnon, PE
REV Date: Feb. 07, 2019

Purpose: Determine allowable ground pressures under footings
a) top of Compact Gravel
b) top of native ground

Conditions & Assumptions:

Existing Soils & Proposed Backfills are described in Geotechnical Reports by S.W. Cole Engineering titled "Geotechnical Engineering Services, Proposed Buildings C & D" August 11, 2015 and "Explorations & Geotechnical Engineering Services, Proposed Portland Yacht Services Expansion" May 8, 2018.

Foundation Plan: GEI Plan entitled "Canal Landing Work Building Foundation" dated 012519

Existing Subgrade soil, below elevation 8.0' is granular with a friction angle of 28 degree or better, with density of at least 115 pcf .
Added fill is 34 degree 125 pcf gravel. Ground water is maintained at or below elevation 7.0'

Ground Pressures Dissipate Rapidly below elevation 7.0'
Reference: "Soils in Construction" by Schroeder et al 5th Ed. Table 11.2

General Equation: $q_{uallow} := \frac{0.4 \cdot \gamma \cdot B_f \cdot N_\gamma + \gamma \cdot D_f \cdot N_q}{FS}$ Soils in Constrution, Eq. 11-4, (Note: Variables are defined below)

Top of Compact Gravel Allowable Bearing:

$\gamma_{34} := 0.125 \frac{kip}{ft^3}$ $B_f := 2\ ft$ $N_\gamma := 36$ $D_{34} := 3\ ft$ $N_q := 36$ $FS := 2.5$

$$q_{uallow34} := \frac{0.4 \cdot \gamma_{34} \cdot B_f \cdot N_\gamma + \gamma_{34} \cdot D_{34} \cdot N_q}{FS} = 6.84\ ksf \quad > 4.0\ ksf \ \therefore\ OK$$

Top of Native Ground Allowable Bearing (Proof-Rolled):

$\gamma_{28} := 0.115 \frac{kip}{ft^3}$ $B_f := 2\ ft$ $N_\gamma := 15.7$ $D_{28} := 4\ ft$ $N_q := 17.8$ $FS := 2.5$

$$q_{uallow28} := \frac{0.4 \cdot \gamma_{28} \cdot B_f \cdot N_\gamma + \gamma_{28} \cdot D_{28} \cdot N_q}{FS} = 3.85\ ksf \quad > 2.0\ ksf \ \therefore\ OK$$

REPORT

August 11, 2015
13-0912.3 S

Geotechnical Engineering Services

Proposed Buildings C & D
100 West Commercial Street
Portland, Maine

PREPARED FOR:
New Yard LLC
Attn: Phineas Sprague
40 West Commercial Street
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 and Special Inspections*
- *GeoEnvironmental Services*
- *Test Boring Explorations*

www.swcole.com

TABLE OF CONTENTS

S.W.COLE ENGINEERING, INC.
www.swcole.com

13-0912.3 S

August 11, 2015

New Yard LLC
Attn: Phineas Sprague
40 West Commercial Street
Portland, Maine 04101

Subject: Geotechnical Engineering Services
Proposed Buildings C & D
100 West Commercial Street
Portland, Maine

Dear Phin:

In accordance with our Contract Addendum, dated July 28, 2015, we have performed subsurface explorations for the subject project. This report presents our findings and geotechnical recommendations and its contents 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 building construction. Our scope of services included observing six test pit explorations, a geotechnical analysis of the subsurface findings and preparation of this report.

1.2 Proposed Construction

The site is situated along the northern bank of the Fore River on West Commercial Street in Portland, Maine. We understand a pre-engineered metal building is proposed along the northern edge of the site. According to plans prepared by FST (project civil engineer) the building will occupy a plan area of about 24,050 SF with a finished floor

elevation of 16.0 feet (project datum). Existing grades range from about elevation 13 to elevation 22 feet across the site. We understand the northern wall of the building will be notched into land rising toward West Commercial Street requiring a 6 to 7 foot tall retaining/foundation wall to accommodate the grade change. Additionally, we understand the southern wall of the building will have a truck dock raised above adjacent grades.

Proposed and existing site features are shown on the "Exploration Location Plan" attached as Sheet 1.

2.0 EXPLORATION AND TESTING

2.1 Explorations

Six test pits (TP-101 through TP-106) were made at the site on August 4, 2015 by Gorham Sand & Gravel (GS&G) working under subcontract to New Yard, LLC. The exploration locations were selected and established by S.W.COLE based on measurements from proposed building corners established by others. 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 4. A key to the notes and symbols used on the log is attached as Sheet 5. The ground surface elevations shown on the logs were estimated based on topographic information shown on Sheet 1.

2.2 Testing

The soils were visually classified as they were encountered in the explorations.

3.0 SITE AND SUBSURFACE CONDITIONS

3.1 Surficial

The site is located on the southern side of West Commercial Street along the Fore River in Portland, Maine. The site slopes downward from about elevation 22 feet along West Commercial Street to a former rail yard at about elevation 13 feet. A recently constructed railroad track bisects the site before reaching the Fore River. Existing site features are shown on the "Exploration Location Plan" attached as Sheet 1.

3.2 Soil and Bedrock

Test pits TP-101, TP-102 and TP-106 were made in the area of the former rail yard and encountered 2 to 4 feet of uncontrolled fill overlying undisturbed native deposits of silty sand layered with silty clay between approximate elevations 9 to 10 feet. Test pits TP-103, TP-104 and TP-105 were made on the high side of the site along West Commercial Street and encountered 7 to 9 feet of uncontrolled fill overlying undisturbed deposits varying from stratified silty sand and silty clay to gray silty clay between elevations 12 to 14 feet.

Not all the strata were encountered at each of the explorations; refer to the attached logs for more detailed descriptions of the subsurface findings.

3.3 Groundwater Conditions

The soils encountered at the explorations were generally moist to wet. Free groundwater was not encountered at the time of exploration. Groundwater levels are anticipated to be tidally influenced from the nearby Fore River and will fluctuate in response to periods of snowmelt and precipitation, as well as changes in site use.

3.4 Seismic and Frost Conditions

Based on the subsurface findings and our experience on the adjacent site, we interpret the site soils to correspond to Seismic Soil Site Class E according to 2012 IBC. The 100-year Air Freezing Index for the Portland, Maine area is about 1,407-Fahrenheit degree-days, which corresponds to a frost penetration depth on the order of 4.5 feet.

4.0 EVALUATION AND RECOMMENDATIONS

4.1 General Findings

Based on the subsurface findings, the proposed construction appears feasible from a geotechnical standpoint. The principle geotechnical considerations are:

- The existing fill must be removed beneath the proposed building foundations and replaced with compacted Structural Fill. The existing fills beneath the proposed retaining/foundation wall along the northern side of the building must be removed and replaced with crushed stone wrapped in non-woven geotextile fabric. The existing fills below slab areas should be densified prior to adding new fill.

- Spread footing foundations and on-grade floor slabs bearing on properly prepared subgrades appear appropriate for the proposed construction.

- Perimeter foundation underdrain pipes should be installed within the geotextile fabric wrapped crushed stone mat below the retaining/foundation wall along the northern side of the building.

- Imported Structural Fill, Crushed Stone and Subbase Gravel will be needed for construction. The existing ash-laden fills may be reused to raise site grades and backfill portions of the northern foundation/retaining wall. The existing sandy fills may be reused as Granular Borrow to raise building grades. The existing clay fills are unsuitable for building, pavement or gravel surfaced yard areas, but may be reused in landscape areas.

4.2 Subgrade Preparation

We recommend that site preparation begin with the construction of an erosion control system to protect adjacent drainage ways and areas outside the construction limits. All organics, topsoil, roots and railroad timbers must be removed from the site. As much vegetation as possible should remain outside the construction areas to lessen the potential for erosion and site disturbance.

Footing Subgrades: Existing uncontrolled fills must be completely removed from beneath the proposed building foundations until undisturbed native non-organic soils are encountered. Overexcavation of existing uncontrolled fills should extend 1-foot horizontally outward from outer edge of perimeter footings for each foot of excavation depth (1H:1V bearing splay). Overexcavations should be backfilled with compacted Structural Fill, except the northern foundation/retaining wall should be backfilled with at least 18 inches of Crushed Stone wrapped in non-woven geotextile fabric. S.W.COLE should observe exposed native soils prior to placement of compacted Structural Fill and geotextile wrapped crushed stone mats below the footings.

Slab Subgrades: We recommend the existing uncontrolled fills beneath slab areas be densified with 3 to 5 passes of a 10 ton vibratory roller compactor. Areas that become soft or yielding should be removed and replaced with compacted Granular Borrow.

4.3 Excavation and Dewatering

Excavation work will generally encounter existing fills, native layered silty sand and silty clay and native silty clays. Care must be exercised during construction to minimize disturbance of the bearing soils. We recommend that excavations be completed with a smooth-edged bucket to help lessen disturbance of native soils and foundation bearing surfaces.

Sumping and pumping dewatering techniques should be adequate to control groundwater in excavations. The layer of geotextile wrapped Crushed Stone recommended below northern foundation/retaining wall footing will provide a media from which to sump and pump, as needed. Controlling the water levels to below planned excavation depths will help stabilize subgrades during construction.

Excavations must be properly shored and/or sloped in accordance with OSHA Regulations to prevent sloughing and caving of the sidewalls during construction. The contractor is ultimately responsible for dewatering and stability of excavations.

4.4 Foundations

For foundations bearing on properly prepared subgrades, we recommend the following geotechnical parameters for design consideration:

Geotechnical Parameters for Spread Footings	
Design Frost Depth	4.5 feet
Net Allowable Soil Bearing Pressure	2.0 ksf
Base Friction Factor	0.35
Unit Weight of Backfill	130 pcf
At-Rest Lateral Earth Pressure Coefficient	0.5
Active Lateral Earth Pressure Coefficient	0.3
Internal Friction Angle of Backfill	30°
Seismic Soil Site Class (2015 IBC)	E

Footings should be at least 18-inches in width regardless of bearing pressure. We recommend design consider post-construction settlement of 1-inch total and ½-inch differential. Foundation and retaining walls that are restrained from rotation must be designed considering the at-rest lateral earth pressure.

4.5 Foundation Drainage

We recommend an underdrain pipe be installed within the geotextile fabric wrapped crushed stone mat below the northern foundation wall. The underdrain system should consist of a 4-inch diameter, perforated SDR-35 foundation drain pipe surrounded by at least 6-inches of Crushed Stone, fully enveloped in non-woven geotextile, such as Mirafi 180N or equivalent. The underdrain pipe must be connected to a positive gravity outlet protected from freezing, clogging and backflow. Surface grades should be sloped away from the building for positive drainage. General underdrain details are shown on Sheet 6.

4.6 Slab-On-Grade

On-grade floor slabs in heated areas may be designed using a subgrade reaction modulus of 100 pci (pounds per cubic inch) provided the slab is underlain by at least 12-inches of compacted Structural Fill overlying properly prepared subgrades. 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 particularly in areas of the building where the concrete slab will be covered with an impermeable surface treatment or floor covering that may be sensitive to moisture vapors. The vapor retarder must have a permeance that is less than the floor cover or surface treatment that is applied to the slab. The vapor retarder must have sufficient durability to withstand direct contact with the sub-slab base material and construction activity. The vapor retarder material shall be placed according to the manufacturer's recommended method, including the taping and lapping of all joints and wall connections. The architect and/or flooring consultant should select the vapor retarder products compatible with flooring and adhesive materials.

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

Entrance slabs adjacent to buildings must be designed to reduce the effects of differential frost action between adjacent pavement, doorways, and sidewalks. We recommend that 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. 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 6.

4.8 Backfill and Compaction

We recommend the following fill and backfill materials for use during construction:

Granular Borrow: Sand or silty sand meeting the requirements of MDOT Standard Specification 703.19 Granular Borrow. Granular Borrow is recommended for use as:

- Fill to raise building grades and backfill overexcavations (dry and non-freezing conditions and over dry subgrades)

Structural Fill: 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

Structural Fill is recommended for use as:

- Backfill for overexcavations below footings
- Backfill for building foundations and below entrance slabs
- Base gravel below on-grade floor slabs

Crushed Stone: Crushed Stone used below the northern foundation/retaining wall footing and underdrain should consist of crushed rock meeting the gradation requirements of MDOT Standard Specifications 703.22 “Underdrain Backfill Type C”.

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 areas be compacted to at least 95 percent of its maximum dry density as determined by ASTM D-1557. Crushed Stone should be compacted in loose lifts not exceeding 12-inches with 2 to 3 passes of a vibratory plate compactor with a static weight of at least 600 lbs.

4.9 Weather Considerations

Construction activity should be limited during wet weather and the site soils may require drying before construction activities may continue. The contractor should anticipate the need for water to temper fills in order to facilitate compaction during dry weather. If construction takes place during cold weather, subgrades, foundations and floor slabs must be protected during freezing conditions. 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.

4.10 Design Review and Construction Testing

S.W.COLE should be retained to review the foundation and earthwork construction documents to determine that our geotechnical recommendations have been properly interpreted and implemented.

A soils and concrete testing program should also be implemented during construction to observe compliance with the design concepts, plans, and specifications. S.W.COLE is available to provide earthwork observations as well as testing services for soils, concrete, asphalt, steel and spray-applied fireproofing construction materials.

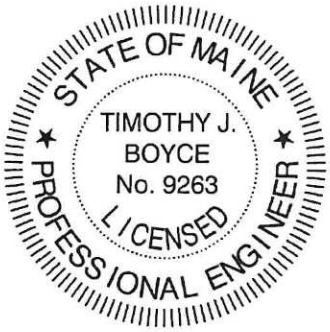
5.0 CLOSURE

It has been a pleasure to be of assistance to you with this phase of your project. We look forward to working with you during the construction phase of your project.

Sincerely,

S. W. Cole Engineering, Inc.

Digitally signed by Timothy J. Boyce
Date: 2019.02.08 15:39:13 -05'00'



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

TJB:rec

Attachment A
Limitations

This report has been prepared for the exclusive use of New Yard, LLC for specific application to the proposed Buildings C & D at 100 West Commercial Street in Portland, Maine. S. W. Cole Engineering, Inc. (S.W.COLE) 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.

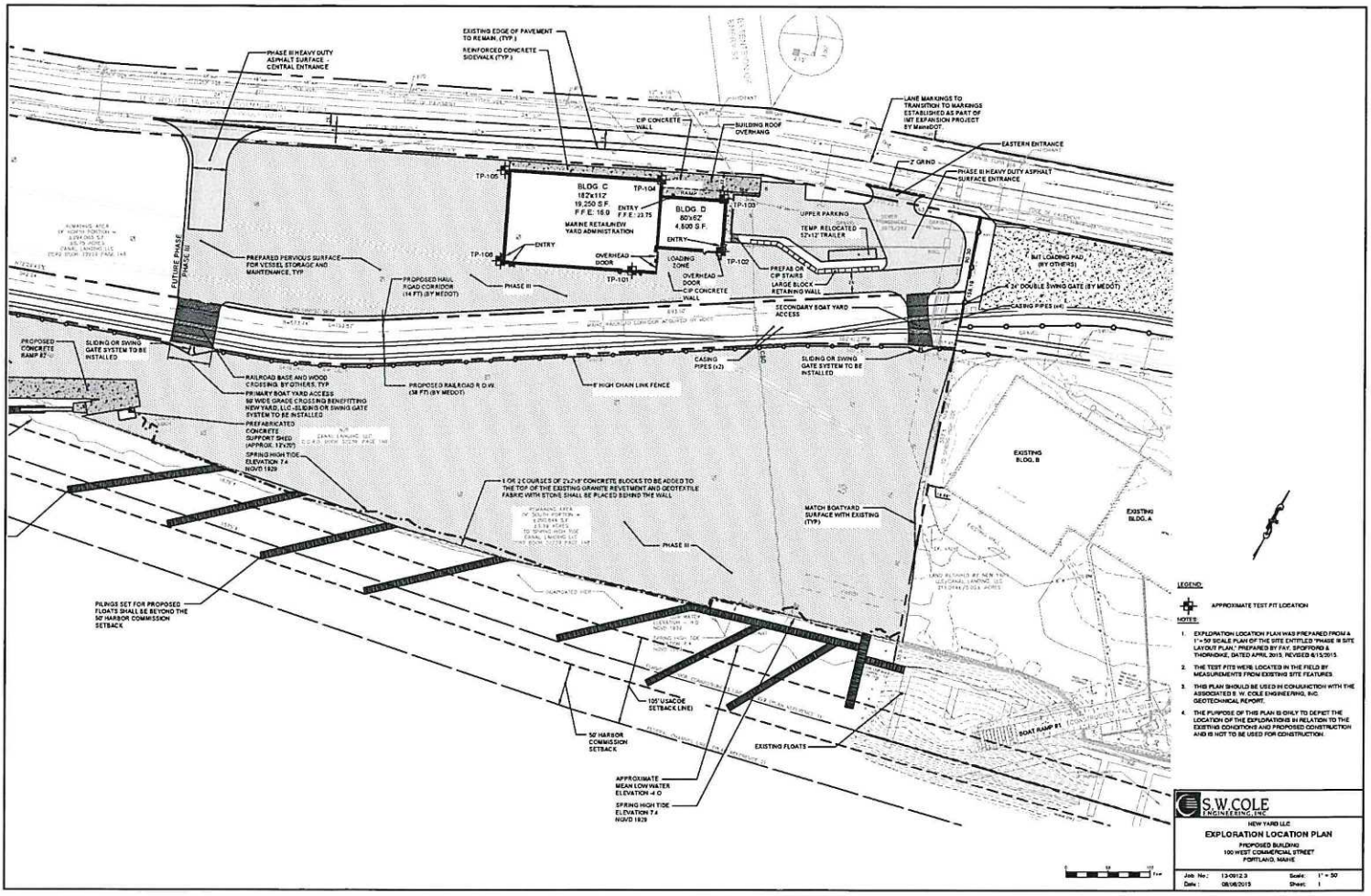
The analyses performed during this investigation and recommendations presented in this report are based in part upon the data obtained from subsurface explorations made at the site. Variations in subsurface conditions may occur between explorations and may not become evident until construction. If variations 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'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 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.

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019



S.W.COLE ENGINEERING, INC.

TEST PIT LOGS

PROJECT/CLIENT: PROPOSED RETAILS BUILDINGS C & D / NEW YARD, LLC
LOCATION: 100 WEST COMMERCIAL STREET, PORTLAND, MAINE

PROJECT NO.: 13-0912.3
SWC REP.: TJB

TEST PIT TP-101

DATE: 8/4/2015 SURFACE ELEVATION: ~ 13' LOCATION: SEE SHEET 1

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		2'	BLACK COAL ASH (FILL)	
		3'	TAN-OXIDE GRAVELLY SAND SOME SILT (FILL)	
			LAYERED TAN-OXIDE MOTTLED SILTY SAND AND OLIVE BROWN SILTY CLAY	
			BOTTOM OF EXPLORATION @ 5'	

COMPLETION DEPTH: 5' DEPTH TO WATER: NO FREE GROUNDWATER

TEST PIT TP-102

DATE: 8/4/2015 SURFACE ELEVATION: ~ 13' LOCATION: SEE SHEET 1

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		2'	BLACK COAL ASH (FILL)	
		3'	TAN-OXIDE GRAVELLY SAND SOME SILT (FILL)	
			LAYERED TAN-OXIDE MOTTLED SILTY SAND AND OLIVE BROWN SILTY CLAY	
			BOTTOM OF EXPLORATION @ 6'	

COMPLETION DEPTH: 6' DEPTH TO WATER: NO FREE GROUNDWATER

S.W.COLE ENGINEERING, INC.

TEST PIT LOGS

PROJECT/CLIENT: PROPOSED RETAILS BUILDINGS C & D / NEW YARD, LLC
LOCATION: 100 WEST COMMERCIAL STREET, PORTLAND, MAINE

PROJECT NO.: 13-0912.3
SWC REP.: TJB

TEST PIT TP-103

DATE: 8/4/2015 SURFACE ELEVATION: ~ 21' LOCATION: SEE SHEET 1

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		2'	BLACK COAL ASH (FILL)	
		7'	GRAY-BROWN SILTY CLAY (FILL)	
		9'	TAN FINE TO MEDIUM SAND TRACE SILT (FILL)	
			LAYERED TAN-OXIDE MOTTLED SILTY SAND AND OLIVE-BROWN SILTY CLAY	
			BOTTOM OF EXPLORATION @ 10'	

COMPLETION DEPTH: 10' DEPTH TO WATER: NO FREE GROUNDWATER

TEST PIT TP-104

DATE: 8/4/2015 SURFACE ELEVATION: ~ 22' LOCATION: SEE SHEET 1

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		3'	BROWN SILTY SAND AND BLACK COAL ASH (FILL)	
		4'	TAN SILTY FINE SAND (FILL)	
		8'	OLIVE-BROWN SILTY CLAY (FILL) BOTTOM OF EXPLORATION @ 6'	
			GRAY SILTY CLAY	
			BOTTOM OF EXPLORATION @ 11'	

COMPLETION DEPTH: 11' DEPTH TO WATER: NO FREE GROUNDWATER

S.W.COLE ENGINEERING, INC.

TEST PIT LOGS

PROJECT/CLIENT: PROPOSED RETAILS BUILDINGS C & D / NEW YARD, LLC
LOCATION: 100 WEST COMMERCIAL STREET, PORTLAND, MAINE

PROJECT NO.: 13-0912.3
SWC REP.: TJB

TEST PIT TP-105

DATE: 8/4/2015 SURFACE ELEVATION: ~ 21' LOCATION: SEE SHEET 1

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		4'	BROWN-BLACK SILTY SAND WITH BRICK AND ASH (FILL)	
		7'	TAN SILTY SAND (FILL)	
			LAYERED TAN-OXIDE MOTTLED SILTY SAND AND OLIVE BROWN SILTY CLAY	
			BOTTOM OF EXPLORATION @ 10'	

COMPLETION DEPTH: 10' DEPTH TO WATER: NO FREE GROUNDWATER

TEST PIT TP-106

DATE: 8/4/2015 SURFACE ELEVATION: ~ 13' LOCATION: SEE SHEET 1

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		4'	BLACK-BROWN ASH AND SAND WITH WOOD TIMBERS (FILL)	
			LAYERED TAN-OXIDE MOTTLED SILTY SAND AND OLIVE BROWN SILTY CLAY	
			BOTTOM OF EXPLORATION @ 6' NOTE: RELIC CLAY PIPE ON EDGE OF TEST PIT WITH CLEAR WATER	

COMPLETION DEPTH: 6' DEPTH TO WATER: NO FREE GROUNDWATER

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. - laboratory 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. – 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.
γ_T	-	total soil weight
γ_B	-	buoyant soil weight

Description of Proportions:

Trace:	0 to 5%
Some:	5 to 12%
"Y"	12 to 35%
And	35+%
With	Undifferentiated

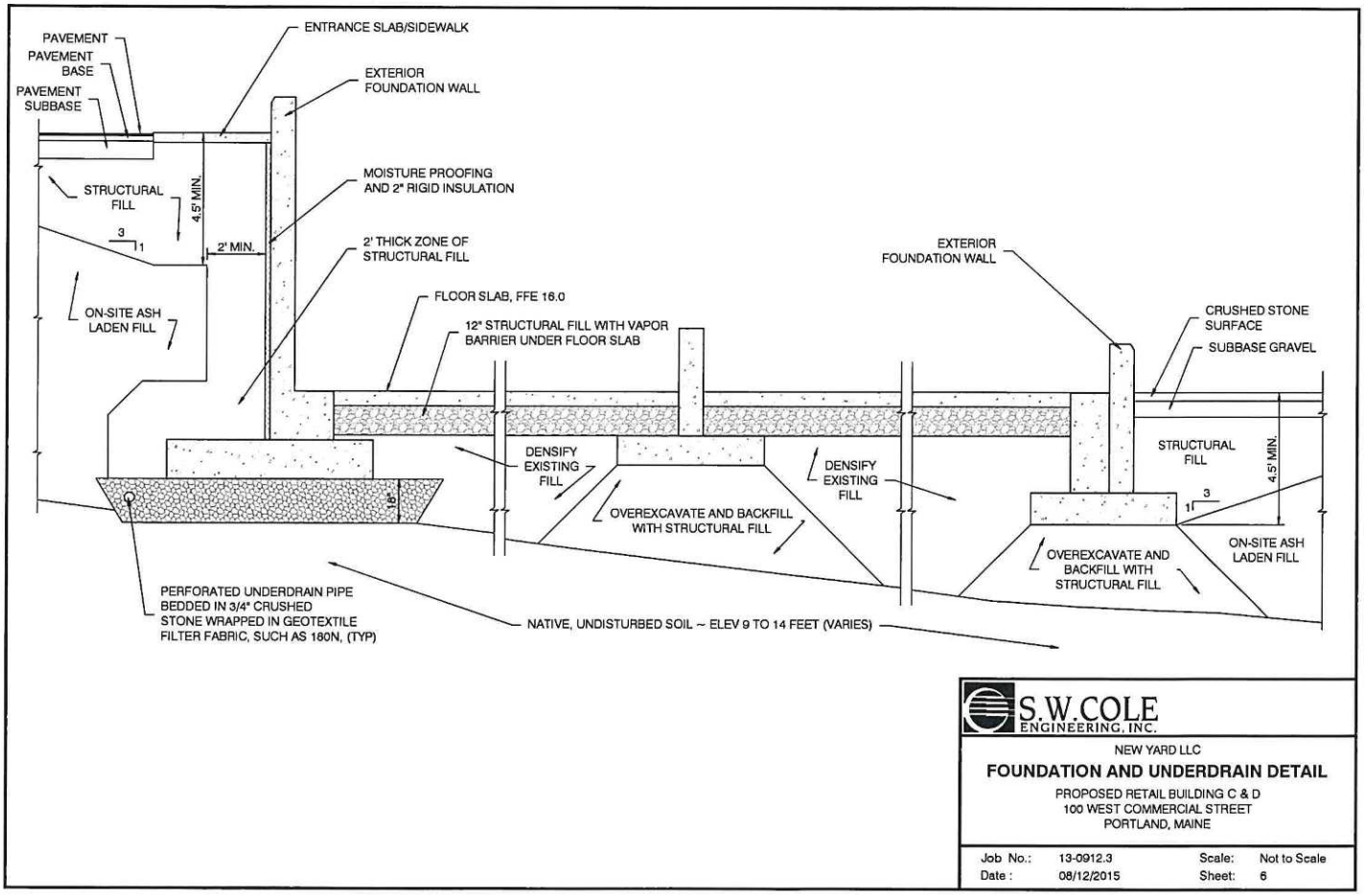
Description of Stratified Soils

Parting:	0 to 1/16" thickness
Seam:	1/16" to 1/2" thickness
Layer:	½" to 12" thickness
Varved:	Alternating seams or layers
Occasional:	one or less per foot of thickness
Frequent:	more than one per foot of thickness

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.

NEW YARD LLC

FOUNDATION AND UNDERDRAIN DETAIL

PROPOSED RETAIL BUILDING C & D
100 WEST COMMERCIAL STREET
PORTLAND, MAINE

Job No.:	13-0912.3	Scale:	Not to Scale
Date :	08/12/2015	Sheet:	6

Essex Structural Steel Co., Inc.
Penn Yan Manufacturing
607 Route 13
Cortland, NY 13045
(800) 323-7739 (607) 753-9384
Fax: (607) 753-6272

CONDITIONALLY APPROVED

REVIEW BY: SAFEbuilt®

APPROVED THIRD PARTY PLAN REVIEW AGENCY BY THE CITY OF PORTLAND, MAINE.

SEE REVIEW LETTER FOR MORE INFORMATION.

02/20/2019

IRISHSPAN INDUSTRIES, INC.
P.O. BOX 411
WEST KENNEBUNK, MAINE 04094

RE: S-1867-A
100 WEST COMMERCIAL STREET
PORTLAND YACHT STORAGE BUILDING
PORTLAND, MAINE 04101

The pre-engineered steel building for the above referenced project was designed and will be fabricated in accordance with the order documents and in general accordance with the latest procedures and design criteria of the following specifications.

1. AISC: Specification for the Design of Structural Steel for Buildings/ 13TH Ed.
2. AISI: Specification for Design of Cold Formed Steel Structural Members/ 2006 Ed.
3. MBMA: Low Rise Building Systems Manual/ 2006 Ed.
4. AWS: American Welding Standards D1.1/ 2006 Ed.

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019

Building Code:	IBC-2015
Roof Live Load:	20.0 psf
Ground Snow Load:	60.0 psf
Unbalanced, Uniform, Leeward:	63.0 psf
Unbalanced, Uniform, Windward:	12.6 psf
Roof Snow Load:	42.0 psf
Roof Snow + Drift(frame line 6/7)	119.0 psf
Frame Dead Load:	5.00 psf
Roof Collateral Load:	10.0 psf
Wind Load:	118 mph
Wind Pressure:	30.30 psf
Soil Classification:	E-Soil
Seismic Design Category:	"C"
Load Combinations:	Per IBC-2015
Importance Factor:	Snow = 1.0; Wind = 1.0; Seismic = 1.0
Thermal Factor:	1.0 (Enclosed, Heated Building)

Certification by Engineer
I ERIK WATSON, a licensed engineer in the State of Maine, certify that I have reviewed the design criteria for the steel building system described above and to the best of my knowledge all components have been designed to meet the applicable criteria as specified in the Order Documents.

Engineer's signature
PE

02/20/2019
Date

SEAL

STATE OF MAINE
ERIK M. WATSON
No. 12303
LICENSED
PROFESSIONAL ENGINEER

02/20/2019

Essex Structural Steel Co., Inc.
Penn Yan Manufacturing
607 Route 13
Cortland, NY 13045
(800) 323-7739 (607) 753-9384
Fax: (607) 753-6272

IRISHSPAN INDUSTRIES, INC.
P.O. BOX 411
WEST KENNEBUNK, MAINE 04094

RE: S-1867-B (Lean-to Building)
100 WEST COMMERCIAL STREET
PORTLAND YACHT
PORTLAND, MAINE 04101

The pre-engineered steel building for the above referenced project was designed and will be fabricated in accordance with the order documents and in general accordance with the latest procedures and design criteria of the following specifications.

1. AISC: Specification for the Design of Structural Steel for Buildings/ 13TH Ed.
2. AISI: Specification for Design of Cold Formed Steel Structural Members/ 2006 Ed.
3. MBMA: Low Rise Building Systems Manual/ 2006 Ed.
4. AWS: American Welding Standards D1.1/ 2006 Ed.

Building Code:	IBC-2015
Roof Live Load:	20.0 psf
Ground Snow Load:	60.0 psf
Roof Snow + Drift Load:	143.3 psf
Frame Dead Load:	6.75 psf
Roof Collateral Load:	0.0 psf
Wind Load:	118 mph
Wind Pressure:	30.30 psf
Soil Classification:	E-Soil
Seismic Design Category:	"C"
Load Combinations:	Per IBC-2015
Importance Factor:	Snow = 1.0; Wind = 1.0; Seismic = 1.0
Thermal Factor:	1.2 (Open, Un-Heated Building)

Certification by Engineer
I ERIK WATSON, a licensed engineer in the State of Maine, certify that I have reviewed the design criteria for the steel building system described above and to the best of my knowledge all components have been designed to meet the applicable criteria as specified in the Order Documents.

Engineer's signature 02/20/2019 Date
PE

SEAL

02/20/2019

Essex Structural Steel Co., Inc.
Penn Yan Manufacturing
607 Route 13
Cortland, NY 13045
(800) 323-7739 (607) 753-9384
Fax: (607) 753-6272

IRISHSPAN INDUSTRIES, INC.
P.O. BOX 411
WEST KENNEBUNK, MAINE 04094

RE: S-1867-B (Main Building)
100 WEST COMMERCIAL STREET
PORTLAND YACHT
PORTLAND, MAINE 04101

The pre-engineered steel building for the above referenced project was designed and will be fabricated in accordance with the order documents and in general accordance with the latest procedures and design criteria of the following specifications.

1. AISC: Specification for the Design of Structural Steel for Buildings/ 13TH Ed.
2. AISI: Specification for Design of Cold Formed Steel Structural Members/ 2006 Ed.
3. MBMA: Low Rise Building Systems Manual/ 2006 Ed.
4. AWS: American Welding Standards D1.1/ 2006 Ed.

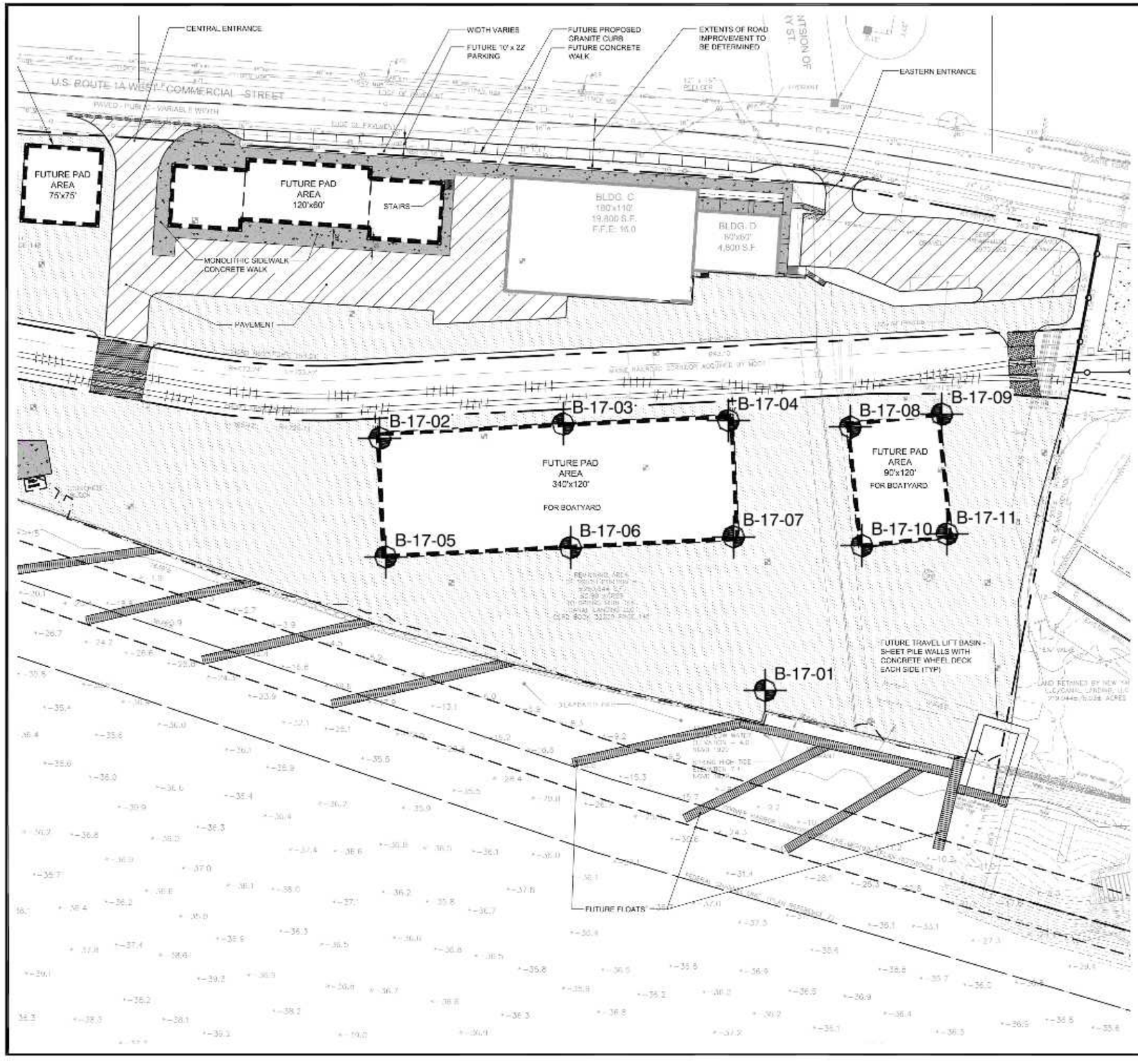
Building Code:	IBC-2015
Roof Live Load:	20.0 psf
Ground Snow Load:	60.0 psf
Roof Snow Load:	42.0 psf
Frame Dead Load:	8.5 psf
Roof Collateral Load:	10.0 psf
Wind Load:	118 mph
Wind Pressure:	30.30 psf
Soil Classification:	E-Soil
Seismic Design Category:	"C"
Load Combinations:	Per IBC-2015
Importance Factor:	Snow = 1.0; Wind = 1.0; Seismic = 1.0
Thermal Factor:	1.0 (Enclosed, Heated Building)

Certification by Engineer
I ERIK WATSON, a licensed engineer in the State of Maine, certify that I have reviewed the design criteria for the steel building system described above and to the best of my knowledge all components have been designed to meet the applicable criteria as specified in the Order Documents.

Engineer's signature 02/20/2019 Date
PE

SEAL

02/20/2019



CONDITIONALLY APPROVED

REVIEW BY:

SAFEbuilt.

APPROVED THIRD PARTY PLAN REVIEW AGENCY BY THE CITY OF PORTLAND, MAINE.

SEE REVIEW LETTER FOR MORE INFORMATION.

01/16/2019

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019

LEGEND:

APPROXIMATE BORING LOCATION

NOTES:

1. EXPLORATION LOCATION PLAN WAS PREPARED FROM A 1"=50' SCALE PLAN OF THE SITE ENTITLED "FUTURE PHASE CONCEPT PLAN," PREPARED BY FAY, SPOFFARD & THORNDIKE, DATED APRIL 2015, REVISED 11/10/2015.
2. THE BORINGS WERE LOCATED IN THE FIELD BY 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.

0 100 200 Feet

S.W.COLE ENGINEERING, INC.

CANAL LANDING, LLC

EXPLORATION LOCATION PLAN

PROPOSED PORTLAND YACHT SERVICES EXPANSION
WEST COMMERCIAL STREET
PORTLAND, MAINE

Job No.:	13-0912.4	Scale:	1" = 100'
Date :	09/21/2017	Sheet:	1

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BORING LOG

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

BORING NO.: B-17-01
SHEET: 1 of 2
PROJECT NO. 13-0912.4
DATE START: 9/11/2017
DATE FINISH: 9/11/2017

Drilling Information

LOCATION: See Exploration Location Plan | **ELEVATION (FT):** 9' +/- | **TOTAL DEPTH (FT):** 84.0 | **LOGGED BY:** Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC | **DRILLER:** Jeff Lee | **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted CME 850 | **AUGER ID/OD:** N/A / N/A | **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic | **HAMMER WEIGHT (lbs):** 140 / 140 | **CASING ID/OD:** 4 in / 4 1/2 in | **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: 0.81 | **HAMMER DROP (inch):** 30 / 30
WATER LEVEL DEPTHS (ft): ▽ 10 ft Soils Moist to Wet Below 5', Saturated Below 10' +/-
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level; ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling; D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear; Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot; WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector; S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/16	4-4-5-6			Loose, brown and black, SAND, some silt, with wood, ash, and coal (Fill)		
										2.0 Very loose, brown, SAND, some gravel, some silt (Fill)		
5	5		2D		5-7	24/16	1-1-2-1					
0	10		3D		10-12	24/20	1/12"-1/12"			10.0 Very loose, brown, silty fine to medium SAND (Fill)	▽	
-5	15		4D		15-17	24/8	9-12-10-6			15.0 Medium dense, brown, silty sandy GRAVEL (Fill)		
										16.0 Medium dense, gray, silty sandy GRAVEL		
-10	20		5D		20-22	24/20	1/12"-2-1			17.0 Very loose, gray, SILT and fine SAND, some clay, with frequent coarse sand seams and trace organics		
-15	25		6D		25-27	24/24	WOH/24"	q_P=0.5 to 1 ksf		25.0 Very loose, gray, clayey sandy SILT with organic odor		
-20	30		7D		30-32	24/14	2-3-4-5	q_P=1.5 to 2.5 ksf		30.0 Stiff, brown-gray, silty CLAY		
-25	35		1V 8D		35-35 35.1-37.1	0 24/5	2-4-3-3			No Vane Shear Penetration @ 1V		
-30												

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING LOG

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

BORING NO.: B-17-01
SHEET: 2 of 2
PROJECT NO. 13-0912.4
DATE START: 9/11/2017
DATE FINISH: 9/11/2017

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			9D		40-42	24/18	11-11-9-12			40.0 Medium dense, brown, fine SAND, trace silt, with occasional silt seams		
-35	45		10D		45-47	24/18	10-13-13-21			46.5 Medium dense to loose, gray-brown to gray, gravelly silty SAND		
-40	50		11D		50-52	24/24	3-3-2-4					
-45	55		12D		55-57	24/24	1-2-5-5					
-50	60		13D		60-62	24/16	5-6-6-6			60.0 Medium dense, gray to brown, medium to coarse SAND and GRAVEL, some silt		
-55	65		14D		65-67	24/10	13-15-13-20			65.0 Medium dense, orange-brown, medium SAND, trace silt 66.0 Dense, brown, SAND and GRAVEL, trace silt		
-60	70		15D		70-71.3	16/6	20-35-50/4"			70.0 Dense to very dense, brown and gray, silty SAND and GRAVEL with frequent cobbles		
-65	75		16D		75-77	24/14	22-24-27-30			75.0 Dense, orange-brown, silty sandy GRAVEL with frequent cobbles		
-70	80									79.0 Boulder - penetrate with roller cone 80.0 Very dense, gray-brown, silty SAND and GRAVEL with weathered bedrock fragments		
-75			17D		82-83.3	16/14	31-42-50/4"			84.0 Bottom of Exploration at 84.0 feet		

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

BORING NO.: B-17-02
SHEET: 1 of 2
PROJECT NO. 13-0912.4
DATE START: 9/12/2017
DATE FINISH: 9/12/2017

Drilling Information

LOCATION: See Exploration Location Plan | **ELEVATION (FT):** +/- | **TOTAL DEPTH (FT):** 42.0 | **LOGGED BY:** Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC | **DRILLER:** Jeff Lee | **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted CME 850 | **AUGER ID/OD:** N/A / N/A | **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic | **HAMMER WEIGHT (lbs):** 140 / 140 | **CASING ID/OD:** 4 in / 4 1/2 in | **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: 0.81 | **HAMMER DROP (inch):** 30 / 30
WATER LEVEL DEPTHS (ft): ▽ 10 ft Soils Saturated Below 10' +/-
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			1D		0-2	24/18	3-4-6-5			Loose, Black, ASH and slag with brick fragments (Fill)		
			2D		2-4	24/16	5-9-9-8			1.8 Medium dense, brown, gravelly SAND, some silt (Fill)		
	5		3D		5-7	24/14	3-4-5-5					
	10		4D		10-12	24/0	9-8-9-6			10.0 Medium dense to loose, gray silty SAND with shells and organic odor	▽	
	15		5D		15-17	24/12	3-1-1-1					
	20		6D		20-22	24/20	10-11-10-9			20.0 Stiff, brown to gray-brown, layered silty CLAY and SAND, trace silt		
	25		7D		25-27	24/16	2-2-2-4			25.0 Stiff to medium, gray with black streaking, silty CLAY with frequent sand seams and layers		
	30		8D		30-32	24/16	1-2-2-2					
	35		9D		35-37	24/22	2-3-4-3	q_p=0.5 ksf		38.0 Medium dense to dense, brown, silty fine SAND, with occasional clayey silt seams		

CITY OF PORTLAND MAINE RESURGAM

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

S.W.COLE ENGINEERING, INC.

BORING LOG

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

BORING NO.: B-17-02
SHEET: 2 of 2
PROJECT NO. 13-0912.4
DATE START: 9/12/2017
DATE FINISH: 9/12/2017

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION						Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data				
	-		10D	X	40-42	24/16	6-8-17-20					
										42.0 Bottom of Exploration at 42.0 feet		

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

BORING NO.: B-17-03
SHEET: 1 of 1
PROJECT NO. 13-0912.4
DATE START: 9/13/2017
DATE FINISH: 9/13/2017

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): +/-
TOTAL DEPTH (FT): 37.0
LOGGED BY: Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Jeff Lee
DRILLING METHOD: Cased Boring
RIG TYPE: Track Mounted CME 850
AUGER ID/OD: N/A / N/A
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic
HAMMER WEIGHT (lbs): 140 / 140
CASING ID/OD: 4 in / 4 1/2 in
CORE BARREL:
HAMMER EFFICIENCY FACTOR: 0.81
HAMMER DROP (inch): 30 / 30
WATER LEVEL DEPTHS (ft): ▽ 10 ft Soils Saturated Below 10' +/-
GENERAL NOTES: On Berm

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/5	1-2-2-2			Loose, black, silty SAND, some gravel, with ASH and organics (Fill)		
	5		2D		5-7	24/22	2-3-4-4			5.8 Loose, gray-brown and brown, silty fine SAND		
	10		3D		10-12	24/20	WOH-1-6-8			10.0 Loose to medium dense, brown, layered fine SAND and SILT, SAND some silt, and gravelly SAND, some silt	▽	
	15		4D		15-17	24/18	12-12-13-12					
	20		5D		20-22	24/16	5-6-7-7			20.0 Medium dense, brown, fine to medium SAND, trace silt		
	25		6D		25-27	24/16	4-7-6-8			25.0 Medium dense, brown, SAND, some silt, with clayey silt layers		
	30		7D		30-32	24/22	9-9-9-11			30.0 Medium dense, brown, SAND, trace silt		
	35		8D		35-37	24/20	12-11-11-14			37.0 Bottom of Exploration at 37.0 feet		

CITY OF PORTLAND MAINE RESUBMIT

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

BORING NO.: B-17-04
SHEET: 1 of 2
PROJECT NO. 13-0912.4
DATE START: 9/13/2017
DATE FINISH: 9/13/2017

Drilling Information

LOCATION: See Exploration Location Plan | **ELEVATION (FT):** +/- | **TOTAL DEPTH (FT):** 42.0 | **LOGGED BY:** Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC | **DRILLER:** Jeff Lee | **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted CME 850 | **AUGER ID/OD:** N/A / N/A | **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic | **HAMMER WEIGHT (lbs):** 140 / 140 | **CASING ID/OD:** 4 in / 4 1/2 in | **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: 0.81 | **HAMMER DROP (inch):** 30 / 30
WATER LEVEL DEPTHS (ft): ▽ 15 ft Soils Saturated Below 15' +/-
GENERAL NOTES: On Berm

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/8	2-5-6-4			Loose to medium dense, black, ASH with silty sand and brick (Fill)		
			2D		2-4	24/0	3-3-3-4					
	5		3D		5-7	24/14	2-4-8-7					
			4D		7-9	24/14	8-8-6-14					
	10		5D		10-12	24/18	6-3-3-3					
										10.5 Loose, brown, SAND, some silt, with occasional silty clay seams		
	15		6D		15-17	24/16	8-11-11-8			15.0 Medium dense, brown to gray, silty SAND, some gravel	▽	
	20		7D		20-22	24/24	WOH/24"			20.0 Stiff, gray, silty CLAY		
	25		1V 8D		25-25 25.1-27.1	0 24/22	WOH-1-1-1			25.0 Stiff, gray, silty CLAY with frequent silty sand and clayey silt seams and layers No Vane Shear Penetration @ 1V		
	30		9D		30-32	24/20	6-6-10-13			30.0 Medium dense, brown, SAND, trace silt, with occasional clayey silt seams		
	35		10D		35-37	24/16	7-9-9-10			35.0 Medium dense, brown, SAND, trace silt, trace fine gravel		

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

S.W.COLE ENGINEERING, INC.

BORING LOG

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

BORING NO.: B-17-04
SHEET: 2 of 2
PROJECT NO. 13-0912.4
DATE START: 9/13/2017
DATE FINISH: 9/13/2017

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
	-		11D	X	40-42	24/16	10-13-13-13			40.0 Medium dense, rust-brown, SAND, some silt		
										42.0 Bottom of Exploration at 42.0 feet		

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

BORING NO.: B-17-05
SHEET: 1 of 1
PROJECT NO. 13-0912.4
DATE START: 9/12/2017
DATE FINISH: 9/12/2017

Drilling Information

LOCATION: See Exploration Location Plan | **ELEVATION (FT):** +/- | **TOTAL DEPTH (FT):** 32.0 | **LOGGED BY:** Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC | **DRILLER:** Jeff Lee | **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted CME 850 | **AUGER ID/OD:** N/A / N/A | **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic | **HAMMER WEIGHT (lbs):** 140 / 140 | **CASING ID/OD:** 4 in / 4 1/2 in | **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: 0.81 | **HAMMER DROP (inch):** 30 / 30
WATER LEVEL DEPTHS (ft): ▽ 7 ft Soils Moist Below 5', Saturated Below 7' +/-
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level; ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling; D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear; Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot; WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector; S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/16	10-10-12-11			Medium dense to loose, black, ASH and slag, trace sand, trace gravel, with wood and mortar pieces (Fill)		
			2D		2-4	24/18	15-9-3-3					
	5		3D		5-7	24/14	3-3-2-1				▽	
										8.0 Loose, brown, gravelly SAND, some silt (Fill)		
	10		4D		10-12	24/14	3-3-2-1			11.5 Very loose, dark gray and black, SAND and SILT, with organics		
	15		5D		15-17	24/20	WOH/24"			15.0 Very loose, gray, sandy SILT, some clay, with shells and organic fibers		
	20		6D		20-22	24/1	WOH/24"					
	25		7D		25-27	24/20	3-3-6-12			24.0 Loose, gray and brown, layered silty CLAY, sandy SILT, and silty fine SAND		
										26.5 Medium dense, brown, fine SAND, some silt		
	30		8D		30-32	24/20	10-10-8-9			31.0 Medium dense, gray-brown, clayey sandy SILT		
										32.0 Bottom of Exploration at 32.0 feet		

CITY OF PORTLAND MAINE RESURGAM

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

BORING NO.: B-17-06
SHEET: 1 of 1
PROJECT NO. 13-0912.4
DATE START: 9/12/2017
DATE FINISH: 9/12/2017

Drilling Information

LOCATION: See Exploration Location Plan | **ELEVATION (FT):** +/- | **TOTAL DEPTH (FT):** 32.0 | **LOGGED BY:** Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC | **DRILLER:** Jeff Lee | **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted CME 850 | **AUGER ID/OD:** N/A / N/A | **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic | **HAMMER WEIGHT (lbs):** 140 / 140 | **CASING ID/OD:** 4 in / 4 1/2 in | **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: 0.81 | **HAMMER DROP (inch):** 30 / 30
WATER LEVEL DEPTHS (ft): ▽ 10 ft Soils Moist Below 5', Saturated Below 10' +/-
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level; ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/20	3-4-4-5			0.5 Loose, black, ASH and slag, trace organics (Fill)		
			2D		2-4	24/14	5-4-4-4			Loose, brown, silty fine SAND with occasional silty clay layers (Fill)		
	5		3D		5-7	24/22	2-2-2-2					
	10		4D		10-12	24/16	3-7-9-8			10.0 Medium dense, brown, SAND, some silt	▽	
	15		5D		15-17	24/18	8-18-22-24			15.0 Dense, gray, silty SAND, trace gravel		
	20		6D		20-22	24/18	5-6-7-8			20.0 Medium dense, brown, SAND, trace silt, with occasional silt layers		
	25		7D		25-27	24/16	8-8-8-10					
	30		8D		30-32	24/16	8-8-8-10			32.0 Bottom of Exploration at 32.0 feet		

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

BORING NO.: B-17-07
SHEET: 1 of 2
PROJECT NO. 13-0912.4
DATE START: 9/13/2017
DATE FINISH: 9/14/2017

Drilling Information

LOCATION: See Exploration Location Plan | **ELEVATION (FT):** +/- | **TOTAL DEPTH (FT):** 52.0 | **LOGGED BY:** Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC | **DRILLER:** Jeff Lee | **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted CME 850 | **AUGER ID/OD:** N/A / N/A | **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic | **HAMMER WEIGHT (lbs):** 140 / 140 | **CASING ID/OD:** 4 in / 4 1/2 in | **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: 0.81 | **HAMMER DROP (inch):** 30 / 30
WATER LEVEL DEPTHS (ft): ▽ 10 ft Soils Saturated Below 10' +/-
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/15	4-4-7-11			Loose to medium dense, black, ASH and brick (Fill)		
										4.0		
	5		2D		5-7	24/16	2-4-4-3			Loose, light brown, SAND, trace silt, trace fine gravel		
	10		3D		10-12	24/16	2-2-4-4			10.0 Loose, gray-brown SAND, some silt, some gravel	▽	
	15		4D		15-17	24/20	2-3-4-6	q_P=5 ksf		15.0 Loose, gray, clayey sandy SILT 16.0 Stiff, brown-gray, silty CLAY		
	20		5D		20-22	24/24	1-1-3-2	q_P=1.5 ksf		22.0 Medium, gray, silty CLAY		
	25		6D		25-27	24/24	WOH/18"-1			27.0 Medium, gray, silty CLAY layered with silty sand and clayey silt		
	30		7D		30-32	24/24	WOH/12"-1-3			31.5 Medium dense, brown, silty fine SAND		
	35		8D		35-37	24/20	7-8-7-12	q_P=1.5 ksf		36.0 Medium dense, gray-brown clayey SILT, some fine sand 37.0 Medium dense, brown, medium to coarse SAND, trace silt		

CITY OF PORTLAND MAINE RESURGAM

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

S.W.COLE ENGINEERING, INC.

BORING LOG

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

BORING NO.: B-17-07
SHEET: 2 of 2
PROJECT NO. 13-0912.4
DATE START: 9/13/2017
DATE FINISH: 9/14/2017

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			9D		40-42	24/16	7-8-9-12					
	45		10D		45-47	24/5	2-2-6-4			45.0 Loose, gray, silty SAND, trace gravel		
	50		11D		50-52	24/20	10-9-10-9			50.0 Medium dense, gray, gravelly silty SAND		
										52.0 Bottom of Exploration at 52.0 feet		

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

BORING NO.: B-17-08
SHEET: 1 of 1
PROJECT NO. 13-0912.4
DATE START: 9/15/2017
DATE FINISH: 9/15/2017

Drilling Information

LOCATION: See Exploration Location Plan | **ELEVATION (FT):** +/- | **TOTAL DEPTH (FT):** 32.0 | **LOGGED BY:** Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC | **DRILLER:** Jeff Lee | **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted CME 850 | **AUGER ID/OD:** N/A / N/A | **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic | **HAMMER WEIGHT (lbs):** 140 / 140 | **CASING ID/OD:** 4 in / 4 1/2 in | **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: 0.81 | **HAMMER DROP (inch):** 30 / 30
WATER LEVEL DEPTHS (ft): ▽ 10 ft Soils Saturated Below 10'
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level; ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/3	3-5-5-5			Medium dense, black, ASH and slag (Fill)		
			2D		2-4	24/16	4-7-4-4			2.0 Medium dense, brown, SAND, some silt, with silt seams		
	5		3D		5-7	24/14	2-2-3-3			5.0 Loose, brown, SAND, trace silt, trace gravel		
	10		4D		10-12	24/16	2-2-9-10			10.0 Loose to medium dense, gray-brown, silty SAND, some gravel, with organic fibers	▽	
	15		5D		15-17	24/24	3-WOH/18"			15.0 Loose, brown, silty fine SAND 16.0 Medium, gray, silty CLAY		
	20											
	25		6D		25-27	24/16	11-20-18-16			25.0 Dense, rust-brown, fine SAND, some silt		
	30		7D		30-32	24/15	12-11-11-13			30.0 Medium dense, brown, SAND, trace silt, trace gravel 32.0 Bottom of Exploration at 32.0 feet		

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

BORING NO.: B-17-09
SHEET: 1 of 2
PROJECT NO. 13-0912.4
DATE START: 9/15/2017
DATE FINISH: 9/15/2017

Drilling Information

LOCATION: See Exploration Location Plan | **ELEVATION (FT):** +/- | **TOTAL DEPTH (FT):** 50.0 | **LOGGED BY:** Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC | **DRILLER:** Jeff Lee | **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted CME 850 | **AUGER ID/OD:** N/A / N/A | **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic | **HAMMER WEIGHT (lbs):** 140 / 140 | **CASING ID/OD:** 4 in / 4 1/2 in | **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: 0.81 | **HAMMER DROP (inch):** 30 / 30
WATER LEVEL DEPTHS (ft): ▽ 10 ft Soils Wet Below 5', Saturated Below 10' +/-
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/16	4-5-5-7			Medium dense to loose, black, ASH and brick (Fill)		
			2D		2-4	24/12	2-2-2-3					
	5		3D		5-7	24/20	2-2-2-3			5.0 Loose, brown, SAND, some silt, with frequent silt seams		
	10		4D		10-12	24/8	4-5-7-13			10.0 Medium dense, brown, silty gravelly SAND	▽	
	15		5D		15-17	24/14	5-5-5-3			15.0 Loose, brown, SILT and fine SAND		
	20		6D		20-22	24/24	WOH/12"-1-3			20.0 Medium, gray, silty CLAY with frequent sand seams and layers		
	25		7D		25-27	24/24	WOH/12"-1-2					
	30		8D		30-32	24/24	WOR-WOH/18"			Hydraulic Push Rod Probe Below 32'		
	35									36.0 Hydraulic Push Refusal @ 36' - Probable Granular Soils Drive Rod Probe with 140 lb. Hammer 36' - 37' : 45 Blows 37' - 38' : 48 Blows		

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

S.W.COLE ENGINEERING, INC.

BORING LOG

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

BORING NO.: B-17-09
SHEET: 2 of 2
PROJECT NO. 13-0912.4
DATE START: 9/15/2017
DATE FINISH: 9/15/2017

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
	45									38' - 39' : 38 Blows 39' - 40' : 30 Blows 40' - 41' : 31 Blows 41' - 42' : 39 Blows 42' - 43' : 34 Blows 43' - 44' : 23 Blows 44' - 45' : 19 Blows 45' - 46' : 21 Blows 46' - 47' : 23 Blows 47' - 48' : 25 Blows 48' : 49' : 29 Blows 49' - 50' : 27 Blows		
	50									50.0 Bottom of Exploration at 50.0 feet		

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019

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BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

BORING NO.: B-17-10
SHEET: 1 of 2
PROJECT NO. 13-0912.4
DATE START: 9/14/2017
DATE FINISH: 9/14/2017

Drilling Information

LOCATION: See Exploration Location Plan | **ELEVATION (FT):** +/- | **TOTAL DEPTH (FT):** 52.0 | **LOGGED BY:** Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC | **DRILLER:** Jeff Lee | **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted CME 850 | **AUGER ID/OD:** N/A / N/A | **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic | **HAMMER WEIGHT (lbs):** 140 / 140 | **CASING ID/OD:** 4 in / 4 1/2 in | **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: 0.81 | **HAMMER DROP (inch):** 30 / 30
WATER LEVEL DEPTHS (ft): ▽ 10 ft Soils Saturated Below 10' +/-
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/6	4-7-7-7			0.3 Crushed Stone Surface (Fill)		
			2D		2-4	24/4	10-6-6-7			Medium dense, black, ASH, some silty sand and gravel (Fill) 2.0 Medium dense, brown, gravelly silty SAND with ash (Fill)		
	5		3D		5-7	24/16	2-3-3-4			5.0 Loose, brown, SAND, some silt		
	10		4D		10-12	24/14	2-2-2-3			10.0 Loose, gray-brown silty SAND, some gravel	▽	
										11.8 Loose, gray, silty SAND, some gravel, with occasional silt seams and organic odor		
	15		5D		15-17	24/16	4-4-6-5					
	20		6D		20-22	24/20	1-1/12"-1			20.0 Stiff, gray with black streaking, silty CLAY, with frequent sand seams and layers		
	25		1V 7D		25-25 25.1-27.1	0 24/12	1-1-1-1			No Vane Shear Penetration @ 1V		
	30		8D		30-32	24/22	WOR-WOM-WOH/12"					
	35		9D		35-37	24/22	WOH/12"-1-2					

CITY OF PORTLAND MAINE RESURGAM

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING LOG

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

BORING NO.: B-17-10
SHEET: 2 of 2
PROJECT NO. 13-0912.4
DATE START: 9/14/2017
DATE FINISH: 9/14/2017

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			2V		40-40.8	10				No Vane Shear Rotation @ 2V		
	45											
	50		10D		50-52	24/18	11-13-17-31	S_V=>1.2ksf		49.0 Medium dense to dense, brown and rust-brown, layered fine SAND, some silt and silty SAND		
										52.0 Bottom of Exploration at 52.0 feet		

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

S.W.COLE ENGINEERING, INC.

BORING LOG

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

BORING NO.: B-17-11
SHEET: 1 of 2
PROJECT NO. 13-0912.4
DATE START: 9/14/2017
DATE FINISH: 9/15/2017

Drilling Information

LOCATION: See Exploration Location Plan | **ELEVATION (FT):** | **TOTAL DEPTH (FT):** 72.0 | **LOGGED BY:** Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC | **DRILLER:** Jeff Lee | **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted CME 850 | **AUGER ID/OD:** N/A / N/A | **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic | **HAMMER WEIGHT (lbs):** 140 / 140 | **CASING ID/OD:** 4 in / 4 1/2 in | **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: 0.81 | **HAMMER DROP (inch):** 30 / 30
WATER LEVEL DEPTHS (ft): ▽ 6 ft Soils Saturated Below 6' +/-
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level; ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling; D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear; Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot; WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector; S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/16	5-5-5-5			Medium dense, black, ASH with brick and some silty sand (Fill)		
			2D		2-4	24/18	6-6-8-9			2.5 Medium dense, brown, SAND, some silt, with silt layers		
	5		3D		5-7	24/18	2-2-2-1			5.0 Loose, brown to gray, silty SAND with frequent silty clay and clayey silt seams and layers	▽	
	10		4D		10-12	24/20	1/12"-1/12"					
	15		5D		15-17	24/16	WOH-3-4-4			15.0 Very Loose, dark brown PEAT 16.0 Loose, dark brown, SAND, some silt, with organic fibers		
	20		6D		20-22	24/14	7-8-9-8			20.0 Medium dense, gray-brown, gravelly SAND, some silt		
	25		7D		25-27	24/20	3-2-2-1			25.0 Loose, gray, silty fine SAND with frequent silty clay layers		
	30		8D		30-32	24/24	WOH/24"			30.0 Medium, gray, silty CLAY with frequent sand seams and layers		
	35		9D		35-37	24/22	WOH-1-2-2					

Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions
02/21/2019

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

S.W.COLE ENGINEERING, INC.

BORING LOG

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

BORING NO.: B-17-11
SHEET: 2 of 2
PROJECT NO. 13-0912.4
DATE START: 9/14/2017
DATE FINISH: 9/15/2017

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			1V		40-40.8	10		S_V=0.74/0.18ksf				
			1V'		40.8-41.6	10		S_V=0.87/0.24ksf				
	45		2V		45-45.8	10		S_V=0.84/0.24ksf				
			2V'		45.8-46.6	10		S_V=0.93/0.21ksf				
	50		10D		50-52	24/24	WOR-WOH-2-2					
	55											
	60											
	65											
										66.0 Medium dense, gray, gravelly SILT and SAND		
	70		11D		70-72	24/22	11-11-10-12					
										72.0 Bottom of Exploration at 72.0 feet		

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-17-11

S.W.COLE ENGINEERING, INC. • Geotechnical Engineering • Field & Lab Testing • Scientific & Environmental Consulting

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. - laboratory 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. – 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.
γ_T	-	total soil weight
γ_B	-	buoyant soil weight

Description of Proportions:

Trace:	0 to 5%
Some:	5 to 12%
"Y"	12 to 35%
And	35+%

Description of Stratified Soils

Parting:	0 to 1/16" thickness
Seam:	1/16" to ½" thickness
Layer:	½" to 12" thickness
Varved:	Alternating seams or layers
Occasional:	one or less per foot of thickness
Frequent:	more than one per foot of thickness

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.