

CONTRACT DOCUMENTS AND SPECIFICATIONS

for

Mechanic Street Seawall at Pickering

Bid #29-13

State of New Hampshire

John P. Bohenko, City Manager

Prepared by:

City of Portsmouth
Engineering Division
Public Works Department

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City of Portsmouth
Portsmouth, New Hampshire
Department of Public Works

Mechanic Street Seawall at Pickering

INVITATION TO BID

Sealed bid proposals, **plainly marked, Mechanic Street Seawall at Pickering**, Bid Proposal #29-13 **on the outside of the mailing envelope as well as the sealed bid envelope**, addressed to the Finance/Purchasing Department, City Hall, 1 Junkins Avenue, Portsmouth, New Hampshire, 03801, will be accepted until March 4, 2013 at 2:00 pm; at which time all bids will be publicly opened and read aloud. There will be a mandatory pre-bid meeting held at 8:30 A.M. on Friday February 15, 2013 on site at the intersection of Mechanic and Pickering Streets. Contractors shall submit questions by noon on Wednesday February 20, 2013. Questions are to be submitted to Tom Richter at the Department of Public Works. trichter@cityofportsmouth.com The City shall respond to the questions by end of the day Monday February 25, 2013.

This project consists of the reconstruction of approximately 110 LF of an existing seawall along Mechanic Street between Pickering Street and Hunking Street. A small drainage system, 2 bar aluminum rail system, and stair access to the waterway are also a part of this project. Also the adjacent section of Mechanic Street will be rebuilt with a base course of asphalt.

Work may begin at any time on or after March 15, 2013. All sections of the work shall be completed by June 28, 2013. Liquidated damages shall be assessed at \$100.00 per day.

Bidders shall have a minimum of 5 years experience in marine construction and prior seawall construction. Contractor shall be responsible for all work specified in the contract documents including shoring, footings, wall construction, incidental work, and restoration of the existing work that was disturbed during construction. All work shall be in complete accordance with sound construction practices and in conformance with the attached contract documents.

Bidders must determine the quantities of work required and the conditions under which the work will be performed.

The City of Portsmouth reserves the right to reject any or all bids, to waive technical or legal deficiencies, to re-bid, and to accept any bid that it may deem to be in the best interest of the City.

Specifications may be obtained from the Finance/Purchasing Department on the third floor at the above address, or by calling the Purchasing Coordinator at 603-610-7227, or at the City's website: <http://www.cityofportsmouth.com/finance/purchasing.htm> Addenda to this project, if any, including written answers to questions, will not be provided directly to vendors, but will be posted on the City of Portsmouth website.

Hard copies of the plans and specifications may be obtained from the Purchasing Department, at Portsmouth City Hall, upon payment of a fee of \$20.00 per set, which will not be refunded. Partial sets will not be distributed. All requests for mailed documents must be accompanied by an additional fee of \$10.00 to cover the cost of postage and handling.

Each Bidder shall furnish a bid security in the amount of ten percent (10%) of the bid. The Bid Security may be in the form of a certified check or a bid bond executed by a surety company authorized to do business in the State of New Hampshire, made payable to the City of Portsmouth, N.H.

INSTRUCTIONS TO BIDDERS

BIDDING REQUIREMENTS AND CONDITIONS

1. Special Notice to Bidders

Appended to these instructions is a complete set of bidding and general contract forms. These forms may be detached and executed for the submittal of bids. The plans, specifications, and other documents designated in the proposal form will be considered as part of the proposal, whether attached or not.

The bidders must submit a statement of bidder's qualifications.

Addenda to this bid document, if any, including written answers to questions, will be posted on the City of Portsmouth website at <http://www.cityofportsmouth.com/finance/purchasing.htm> under the project heading. Addenda and updates will NOT be sent directly to firms. Contractors submitting a bid should check the web site daily for addenda and updates after the release date. Firms should print out, sign and return addenda with the proposal. Failure to do so may result in disqualification.

2. Interpretation of Quantities in Bid Schedules

The quantities appearing in the bid schedule are approximate only and are prepared for the comparison of bids. Payment to the contractor will be made only for actual work performed and accepted in accordance with the contract. Any scheduled item of work to be done and materials to be furnished may be increased, decreased or omitted as hereinafter provided, and no claim for loss, anticipated profits or costs incurred in anticipation of work not ultimately performed will be allowed due to such increase or decrease.

3. Examination of Plans, Specifications and Site Work

The bidder is expected to examine carefully the site of the proposed work, the plans, standard specifications, supplemental specifications, special provisions and contract forms before submitting a proposal. The submission of a bid shall be considered conclusive evidence that the bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of the contract. It will be conclusive evidence that the bidder has also investigated and is satisfied with the sources of supply for all materials.

Plans, surveys, measurements, dimensions, calculations, estimates and statements as to the condition under which the work is to be performed are believed to be correct, but the contractors must examine for themselves, as no allowance will be made for any errors or inaccuracies that maybe found therein.

4. Familiarity with Laws

The bidder is assumed to have made himself or herself familiar with all federal and state laws and all local by-laws, ordinances and regulations which in any manner affect those engaged or employed on the work or affect the materials or equipment used in the work or affect the conduct of the work, and the bidder, if awarded the contract, shall be obligated to perform the work in conformity with said laws, by-laws, ordinances and regulations notwithstanding its ignorance thereof. If the bidder shall discover any provision in the plans or specifications which is in conflict with any such law, by-law, ordinance or regulation the bidder shall forthwith report it to the engineer in writing.

5. Preparation of Proposal

a) The bidder shall submit its proposal upon the forms furnished by the Owner. The bidder shall specify a lump sum price in figures, for each pay item for which a quantity is given and shall also show the products of the respective prices and quantities written in figures in the column provided for that purpose and the total amount of the proposal obtained by adding the amount of the several items. All words and figures shall be in ink or typed. If a unit price or a lump sum bid already entered by the bidder on the proposal form is to be altered it should be crossed out with ink, the new unit price or lump sum bid entered above or below it and initialed by the bidder, also with ink.

b) The bidder's proposal must be signed with ink by the individual, by one or more general partners of a partnership, by one or more members or officers of each firm representing a joint venture; by one or more officers of a corporation, by one or more members (if member-managed) or managers (if manager-managed) of a limited liability company, or by an agent of the contractor legally qualified and acceptable to the owner. If the proposal is made by an individual, his or her name and post office address must be shown, by a partnership the name and post office address of each general and limited partner must be shown; as a joint venture, the name and post office address of each venturer must be shown; by a corporation, the name of the corporation and its business address must be shown, together with the name of the state in which it is incorporated, and the names, titles and business addresses of the president, secretary and treasurer.

6. Nonconforming Proposals

Proposals will be considered nonconforming and may be rejected in the Owner's sole discretion for any of the following reasons:

- If the proposal is on a form other than that furnished by the Owner, or if the form is altered or any portion thereof is detached;
- If there are unauthorized additions, conditional or altered bids, or irregularities of any kind which may tend to make the proposal or any portion thereof incomplete, indefinite or ambiguous as to its meaning;
- If the bidder adds any provisions reserving the right to accept or reject an award, or to enter into a contract pursuant to an award; or
- If the proposal does not contain a unit price for each pay item listed except in the case of authorized alter pay items.

7. Proposal Guaranty

No proposal will be considered unless accompanied by a bid bond, surety, or similar guaranty of the types and in an amount not less than the amount indicated in the Invitation to Bid. All sureties shall be made payable to the "City of Portsmouth". If a bid bond is used by the bidder it shall be:

- In a form satisfactory to the Owner;
- With a surety company licensed, authorized to do business in, and subject to the jurisdiction of the courts of the State of New Hampshire; and
- Conditioned upon the faithful performance by the principal of the agreements contained in the sub-bid or the general bid.

In the event any irregularities are contained in the proposal guaranty, the bidder will have four business days (not counting the day of opening) to correct any irregularities. The corrected guaranty must be received by 4:00 p.m. If irregularities are not corrected to the satisfaction of the Owner, the Owner, in its sole discretion, may rejected the bid.

8. Delivery of Proposals

When sent by mail, the sealed proposal shall be addressed to the Owner at the address and in the care of the official in whose office the bids are to be received. All proposals shall be filed prior to the time and at the place specified in the invitation for bids. Proposals received after the time for opening of the bids will be returned to the bidder, unopened.

9. Withdrawal of Proposals

A bidder will be permitted to withdraw his or her proposal unopened after it has been submitted if the Owner receives a request for withdrawal in writing prior to the time specified for opening the proposals.

10. Public Opening of Proposals

Proposals will be opened and read publicly at the time and place indicated in the invitation for bids. Bidders, their authorized agents, and other interested parties are invited to be present.

11. Disqualification of Bidders

Any or all of the following reasons may be deemed by Owner in its sole discretion as being sufficient for the disqualification of a bidder and the rejection of his proposal:

- More than one proposal for the same work from an individual, firm, or corporation under the same or different name;
- Evidence of collusion among bidders;
- Failure to submit all required information requested in the bid specifications;
- If the Contractor is not listed with the New Hampshire Department of Transportation as a pre-qualified contractor under the classifications of either Road Construction or Site Construction;
- Lack of competency or of adequate machinery, plant or other equipment, as revealed by the statement of bidders qualification or otherwise;
- Uncompleted work which, in the judgment of the owner, might hinder or prevent the prompt completion of additional work if awarded;
- Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contracts;
- Default or unsatisfactory performance on previous contracts; or
- Such disqualification would be in the best interests of the Owner.

12. Material Guaranty and Samples

Before any contract is awarded, the bidder may be required to furnish a complete statement of the origin, composition and manufacture of any or all materials to be used in the construction of the work, and the Owner may, in its sole discretion, reject the bid based on the contents of the statement or as a result of the failure of the bidder to submit the statement.

AWARD AND EXECUTION OF CONTRACT

1. Consideration of Proposals

After the proposals are opened and read, they will be compared on the basis of the total price for all sections of work and any such additional considerations as may be identified in the bid documents. The results of such comparisons will be immediately available to the public. In case of a discrepancy between the prices written in words and those written figures, the prices written in words shall govern. In case of a discrepancy between the total shown in the proposal and that obtained by adding the products of the quantities of items and unit bid prices, the latter shall govern.

2. Award of Contract

Within 30 calendar days after the opening of proposals, if a contract is to be awarded, the award will be made to the lowest responsible and qualified bidder whose proposal complies with all the requirements prescribed. The successful bidder will be notified, in writing, mailed to the address on his or her proposal, that his or her bid has been accepted and that the bidder has been awarded the contract.

3. Reservation of Rights

The Owner reserves the right to reject any or all proposals, to waive technicalities or to advertise for new proposals, if, in the sole discretion of the Owner, the best interest of the City of Portsmouth will be promoted thereby. The Owner further reserves the right to modify the scope of work in the event that bids exceed budgeted amounts.

The Owner reserves the right to cancel the award of any contract at any time before the execution of such contract by all parties without any liability of the Owner.

The City reserves the right to make such inquiries regarding the firm's qualifications and reputation as it deems necessary to evaluate the firm. The City reserves the right to negotiate directly with the firm selected for additional project work including construction administration services, and/or additional project engineering and design services.

The City reserves the right after bid opening and prior to award of the contract, to modify the amount of work in the event that bids exceed budgeted amount.

4. Return of Proposal Guaranty

All proposal guaranties, except those of the three lowest bidders, will be returned upon request following the opening and checking of the proposals. The proposal guaranties of the three lowest bidders will be returned within ten days following the award of the contract if requested.

5. Contract Bonds

At the time of the execution of the contract, the successful bidder shall furnish:

- A performance bond in the amount of 100 percent of the contract amount.
- Labor and materials payment bond in the sum equal to 100 percent of the contract amount.

At the time of project completion, the Owner may, in its sole discretion, permit the Contractor to substitute a maintenance bond in lieu of holding retainage for the entire guaranty period. If a bond is furnished it shall meet the following criteria:

- The bond shall be in an amount equal to 20 percent of the contract amount. Such bond shall guarantee the repair of all damage due to faulty materials or workmanship provided or done by the contractor. The guarantee shall remain in effect for a period of one year after the date of final acceptance of the job by the Owner.

Each bond shall be: (1) in a form satisfactory to the Owner; (2) with a surety company licensed and authorized to do business and with a resident agent designated for services of process in the State of New Hampshire; and (3) conditioned upon the faithful performance by the principal of the agreements contained in the original bid. All premiums for the contract bonds are to be paid by the contractor.

6. Execution and Approval of Contract

The successful bidder is required to present all contract bonds, to provide proof of insurance, and to execute the contract within 10 days following receipt of the City's notification of acceptance of the bid. No contract shall be considered as in effect until it has been fully executed by all parties.

7. Failure to Execute Contract

Failure to execute the contract and file acceptable bonds within 10 days after notification of acceptance of bid shall be just cause for the cancellation of the award and the forfeiture of the proposal guarantee which shall become the property of the Owner, not as a penalty, but in liquidation of damages sustained. Award may then be made to the next lowest responsible bidder, or the City may exercise its reserved rights including the rejection of all bids or re-advertisement.

PROPOSAL FORM

Mechanic Street Seawall at Pickering

CITY OF PORTSMOUTH, N.H.

To the City of Portsmouth, New Hampshire, herein called the Owner.

The undersigned, as Bidder, herein referred to as singular and masculine declares as follows:

1. All interested in the Bid as Principals are named herein.
2. This bid is not made jointly, or in conjunction, cooperation or collusion with any other person, firm, corporation, or other legal entity;
3. No officer, agent or employee of the Owner is directly or indirectly interested in this Bid.
4. The bidder has carefully examined the sites of the proposed work and fully informed and satisfied himself as to the conditions there existing, the character and requirements of the proposed work, the difficulties attendant upon its execution and the accuracy of all estimated quantities stated in this Bid, and the bidder has carefully read and examined the Drawings, Agreement, Specifications and other Contract Documents therein referred to and knows and understands the terms and provisions thereof;
5. The bidder understands that the quantities of work calculated in the Bid or indicated on the Drawings or in the Specifications or other Contract Documents are approximate and are subject to increase or decrease or deletion as deemed necessary by the Portsmouth City Engineer. Any such changes will not result in or be justification for any penalty or increase in contract prices; and agrees that, if the Bid is accepted the bidder will contract with the Owner, as provided in the Contract Documents, this Bid Form being part of said Contract Documents, and that the bidder will supply or perform all labor, services, plant, machinery, apparatus, appliances, tools, supplies and all other activities required by the Contract Documents in the manner and within the time therein set forth, and that the bidder will take in full payment therefor the following item prices, to wit:

PROPOSAL FORM (continued)

Base Bid

ITEM #	EST. QTY.	UNITS	ITEM DESCRIPTION & UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	ITEM TOTAL IN FIGURES
1	1	U	Mechanic Street Seawall Replacement at Pickering Street (Complete in accordance with plan & spec)	\$_____	\$_____

			(Unit price in words)		
04410-1	300	CF	Supplemental Granite Block From City Yard (Complete in accordance with plan & spec)	\$_____	\$_____

			(Unit price in words)		

BID ALTERNATE

04410-2	300	CF	Supplemental Granite Block Contractor Supplied (Complete in accordance with plan & spec)	\$_____	\$_____

			(Unit price in words)		

To Bidder: It is the intention of this contract that the items listed above describe completely and thoroughly the entirety of the work as shown on the plans and as described in the specifications. All other items required to accomplish the above items are considered to be subsidiary work, unless shown as a pay item.

PROPOSAL FORM (continued)

TOTAL FOR PROJECT (BASE BID) AND BASIS FOR AWARD

In Figures \$ _____

In Words \$ _____

The undersigned agrees that for extra work, if any, performed in accordance with the terms and provisions of the Contract Documents, the bidder will accept compensation as stipulated therein.

Date

Company

By: _____
Signature

Business Address

Title: _____

City, State, Zip Code

Telephone: _____

We certify that the Company is currently pre-qualified with the State of New Hampshire for Site Work or Road Construction.

The Bidder has received and acknowledged Addenda No. _____ through _____. All Bids are to be submitted on this form and in a sealed envelope, plainly marked on the outside with the Bidder's name and address and the Project name as it appears at the top of the Proposal Form.

In order to follow the City's sustainability practices, future bid invitations/specifications may be sent electronically. Please provide an email address as to where I could email future bid invitations/specifications of this type. Thank you in advance for your cooperation.

Email Address: _____

BID SECURITY BOND

(This format provided for convenience, actual Bid Bond is acceptable in lieu of, if compatible.)

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned

_____, as Principal, and

_____, as Surety, are hereby

held and firmly bound unto _____

IN THE SUM OF _____

as liquidated damages for payment of which, well and truly to be made we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

The condition of this obligation is such that whereas the Principal has submitted to the

_____ A CERTAIN Bid attached hereto and hereby made a part hereof to enter into a contract in writing, hereinafter referred to as the "AGREEMENT" and or "CONTRACT", for

NOW THEREFORE,

- (a) If said Bid shall be rejected or withdrawn as provided in the INFORMATION FOR BIDDERS attached hereto or, in the alternative,
- (b) If said Bid shall be accepted and the Principal shall duly execute and deliver the form of AGREEMENT attached hereto and shall furnish the specified bonds for the faithful performance of the AGREEMENT and/or CONTRACT and for the payment for labor and materials furnished for the performance of the AGREEMENT and or CONTRACT,

then this obligation shall be void , otherwise it shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder in no event shall exceed the amount of this obligation.

BID SECURITY BOND (continued)

The Surety, for value received, hereby agrees that the obligation of said surety and its bond shall be in no way impaired or affected by any extensions of the time within such BID may be accepted, and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the parties hereto have duly executed
this bond on the _____ day of _____, 20__.

(Name of Principal) L.S.

(SEAL)

BY _____

(Name of Surety)

BY _____

STATEMENT OF BIDDER'S QUALIFICATIONS

Supply with Bid

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. Add separate sheets if necessary

1. Name of Bidder
2. Permanent Main Office Address
3. Form of Entity
4. When Organized
5. Where Organized
6. How many years have you been engaged in the contracting business under your present name; also state names and dates of previous firm names, if any.
7. Contracts on hand; (schedule these, showing gross amount of each contract and the approximate anticipated dates of completion).
8. General character of work performed by your company.
9. Have you ever failed to complete any work awarded to you? ____ (no) ____ (yes). If so, where and why?
10. Have you ever defaulted on a contract?
____ (no) ____ (yes). If so, where and why?
11. Have you ever failed to complete a project in the time allotment according to the Contract Documents?
____ (no) ____ (yes). If so, where and why?
12. List the most important contracts recently executed by your company, stating approximate cost for each, and the month and year completed.
13. List your major equipment available for this contract.
14. List your key personnel such as project superintendent and foremen available for this contract.

STATEMENT OF BIDDERS QUALIFICATIONS (continued)

- 15. List any subcontractors whom you would expect to use for the following (unless this work is to be done by your own organization).
 - a. Concrete Work _____
 - b. Paving _____
 - c. Steel Work _____
 - d. Granite Steps _____
 - f. Guardrail _____
 - g. Stone Work _____

- 16. With what banks do you do business?
 - a. Do you grant the Owner permission to contact this/these institutions?
 ____ (yes) ____ (no).

b. Latest Financial Statements, certified audited if available, prepared by an independent certified public accountant, may be requested by Owner. If requested, such statements must be provided within five (5) business days or the bid proposal will be rejected. Certified Audited Statement are preferred. Internal statements may be attached only if independent statements were not prepared.

Dated at _____ this _____ day of _____, 20__.

Name of Bidder

BY _____

TITLE _____

State of _____

County of _____

_____ being duly sworn, deposes and

says that the bidder is _____ of _____
(Name of Organization)

and answers to the foregoing questions and all statements contained therein are true and correct.

Sworn to before me this _____ day of _____, 20__.

Notary of Public

My Commission expires _____

CONTRACT AGREEMENT

Mechanic Street Seawall at Pickering

THIS AGREEMENT made as of the **XXh** day of **XXXXXXX** in the year **2013**, by and between the City of Portsmouth, New Hampshire (hereinafter call the Owner) and **XXXXXXXXXXXXXXXXXXXXXXXXXXXX** (hereinafter called the Contractor),

WITNESSETH; that the Owner and Contractor, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE I - Work - The Contractor shall perform all work as specified or indicated in the Contract Documents for the completion of the Project. The Contractor shall provide, at his expense, all labor, materials, equipment and incidentals as may be necessary for the expeditious and proper execution of the Project.

ARTICLE II - ENGINEER - The Engineer as used in this Contract shall refer to the Director of Public Works, or his authorized representative will act as engineer in connection with completion of the Project in accordance with the Contract Documents.

ARTICLE III - CONTRACT TIME - The work will commence in accordance with the Notice to Proceed. **All work shall be completed no later than June 28, 2013.**

ARTICLE IV - CONTRACT PRICE - Owner shall pay Contractor for performance of the work in accordance with the Contract Documents as shown under item prices in the Bid Proposal.

ARTICLE V - PAYMENT - Partial payments will be made in accordance with the Contract Documents. Upon final acceptance of the work and settlement of all claims, Owner shall pay the Contractor the unpaid balance of the Contract Price, subject to additions and deductions provided for in the Contract Documents.

ARTICLE VI - RETAINAGE – To insure the proper performance of this Contract, the Owner shall retain ten percent of the Contract Price as specified in the Contract Documents.

ARTICLE VII - LIQUIDATED DAMAGES - In event the Contractor fails to successfully execute the work within the specified contract time the Owner shall assess the Contractor liquidated damages in the amount of **one hundred dollars (\$100)** for each calendar day beyond the specified completion date for each section of work. Liquidated damages shall be deducted from the Contract Price prior to final payment of the Contractor.

CONTRACT AGREEMENT (continued)

ARTICLE VIII – CONTRACT DOCUMENTS – The Contract Documents which comprise the contract between Owner and Contractor are attached hereto and made a part hereof and consist of the following:

- 8.1 This Agreement
- 8.2 Contractor's Bid and Bonds
- 8.3 Notice of Award, Notice to Proceed
- 8.4 Instruction to Bidders
- 8.5 General Requirements, Control of Work, Temporary Facilities, Measurement and Payment, Standard Specifications
- 8.6 Insurance Requirements
- 8.7 Standard and Technical Specifications
- 8.8 Drawings
- 8.9 Special Provisions, Special Conditions and Critical Timelines
- 8.10 Any modifications, including change orders, duly delivered after execution of this Agreement.

ARTICLE IX – TERMINATION FOR DEFAULT – Should contractor at any time refuse, neglect, or otherwise fail to supply a sufficient number or amount of properly skilled workers, materials, or equipment, or fail in any respect to prosecute the work with promptness and diligence, or fail to perform any of its obligations set forth in the Contract, Owner may, at its election, terminate the employment of Contractor, giving notice to Contractor in writing of such election, and enter on the premises and take possession, for the purpose of completing the work included under this Agreement, of all the materials, tools and appliances belonging to Contractor, and to employ any other persons to finish the work and to provide the materials therefore at the expense of the Contractor.

ARTICLE X – INDEMNIFICATION OF OWNER – Contractor will indemnify Owner against all suits, claims, judgments, awards, loss, cost or expense (including without limitation attorneys' fees) arising in any way out of the Contractor's negligent performance of its obligations under this Contract. Contractor will defend all such actions with counsel satisfactory to Owner at its own expense, including attorney's fees, and will satisfy any judgment rendered against Owner in such action.

ARTICLE XI – PERMITS – The Contractor will secure at its own expense, all permits and consents required by law as necessary to perform the work and will give all notices and pay all fees and otherwise comply with all applicable City, State, and Federal laws, ordinances, rules and regulations.

ARTICLE XII – INSURANCE – The Contractor shall secure and maintain, until acceptance of the work, insurance with limits not less than those specified in the Contract.

ARTICLE XIII – MISCELLANEOUS –

- A. Neither Owner nor Contractor shall, without the prior written consent of the other, assign, sublet or delegate, in whole or in part, any of its rights or obligations under any of the Contract Documents; and, specifically not assign any monies due, or to become due, without the prior written consent of Owner.
- B. Owner and Contractor each binds himself, his partners, successors, assigns and legal representatives, to the other party hereto in respect to all covenants, agreements and obligations contained in the Contract Documents.
- C. The Contract Documents constitute the entire Agreement between Owner and Contractor and may only be altered amended or repealed by a duly executed written instrument.
- D. The laws of the State of New Hampshire shall govern this Contract without reference to the conflict of law principles thereof.
- E. Venue for any dispute shall be the Rockingham County Superior Court unless the parties otherwise agree.

IN WITNESS WHEREOF, the parties hereunto executed this AGREEMENT the day and year first above written.

CONTRACTOR

BY: _____

TITLE: _____

CITY OF PORTSMOUTH, N.H.

BY: _____

John P. Bohenko

TITLE: City Manager

NOTICE OF INTENT TO AWARD

Date:

TO:

IN AS MUCH as you were the low responsible bidder for work entitled:

Mechanic Street Seawall at Pickering

You are hereby notified that the City intends to award the aforesaid project to you.

Immediately take the necessary steps to execute the Contract and to provide required bonds and proof of insurance within ten (10) calendar days from the date of this Notice.

The City reserves the right to revoke this Notice if you fail to take the necessary steps to execute this Contract.

City of Portsmouth
Portsmouth, New Hampshire

Judie Belanger,
Finance Director

NOTICE TO PROCEED

DATE: XXXXXXXXXX, 2013

Mechanic Street Seawall at Pickering

TO:

YOU ARE HEREBY NOTIFIED TO COMMENCE WORK IN ACCORDANCE WITH THE AGREEMENT DATED XXXXXXXXX, 2013. ALL WORK SHALL BE COMPLETED NO LATER THAN June 28, 2013.

CITY OF PORTSMOUTH, N.H.

BY: Steve Parkinson, PE

TITLE: Public Works Director

ACCEPTANCE OF NOTICE

RECEIPT OF THE ABOVE NOTICE TO PROCEED IS HEREBY ACKNOWLEDGED BY

This the _____ day of _____ 20__

By: _____

Title: _____

CHANGE ORDER

Change Order Number

Date of Issuance:

Owner: CITY OF PORTSMOUTH, N.H

Contractor:

You are directed to make the following changes in the Contract Documents:

Description:

Purpose of Change Order:

Attachments:

CHANGE IN CONTRACT PRICE

CHANGE IN CONTRACT TIME

Original Contract Price:
\$

Original Completion Date:

Contract Price prior to this Change Order:
\$

Contract Time prior to this Change Order:

Net Increase of this Change Order:
\$

Net Increase of this Change Order:

Contract Price with all approved Change Orders:
\$

Contract Time with all approved Change Orders:

RECOMMENDED:

APPROVED:

APPROVED:

by _____

by _____

by _____

by _____

PW Director

City Finance

City Manager

Contractor

PERFORMANCE BOND

(This format provided for convenience, actual Performance Bond is acceptable in lieu, if compatible)

Bond Number _____

KNOW ALL MEN BY THESE PRESENTS

that _____ as Principal, hereinafter called Contractor, and _____ (Surety Company) a corporation organized and existing under the laws of the State of _____ and authorized to do business in the State of New Hampshire as surety, hereinafter called Surety, are held and firmly bound unto the City of Portsmouth, N.H. Obligee, hereinafter called Owner, in the amount of _____ Dollars (\$ _____), for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents. WHEREAS, Contractor has by written agreement dated _____ entered into a contract with Owner for _____ in accordance with drawings and specifications prepared by the Public Works Department, 680 Peaverly Hill Road, Portsmouth, N.H. 03801, which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Contractor shall well and faithfully do and perform the things agreed by him to be done and performed, according to the terms of said Contract and such alterations as may be made in said Contract during progress work, and shall further indemnify and save harmless the said Owner in accordance with the Contract and shall remedy without cost to the Owner any defect which may develop within one year from the time of completion and acceptance of the work.

The Surety hereby waives notice of any alteration in work or extension of time made by the Owner or any of its agents or representatives.

Whenever Contractor shall be, and declared by Owner to be, in default under the Contract, the Owner having performed Owner's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

- (1) Complete the Contract in accordance with its terms and conditions, or

LABOR AND MATERIAL PAYMENT BOND

(This format provided for convenience, actual Labor and Material Bond is acceptable in lieu, if compatible)

Bond Number _____

KNOW ALL MEN BY THESE PRESENTS:

that _____

as Principal, hereinafter called Contractor, and _____ (Surety Company) a corporation organized and existing under the laws of the State of

_____ and authorized to do business in the State of New Hampshire hereinafter called Surety, are held and firmly bound unto the City of Portsmouth, N.H. Obligee, hereinafter called Owner, for the use and benefit of claimants as herein below defined, in the

amount of _____ Dollars (\$ _____), for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal has by written agreement dated _____ entered into a

contract with Owner for _____ in accordance with drawings and specifications prepared by the Public Works Department, 680 Peverly Hill Road, Portsmouth, N.H. 03801, which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that the Principal shall promptly make payment to all claimants as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract and for the hire of all equipment, tools, and all other things contracted for or used in connection therewith, then this obligation shall be void, otherwise it shall remain in full force and effect, subject however, to the following conditions:

(1) A claimant is defined as one having a direct contract with the Principal or, with a subcontractor of the Principal for labor, material, equipment, or other things used or reasonably required for use in the performance of the Contract. "Labor and material" shall include but not be limited to that part of water, gas, power, light, heat, oil and gasoline, telephone service or rental of equipment applicable to the Contract.

(2) The above named Principal and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such a claimant, may sue on this bond for the use of such claimant, prosecute the suit by final judgment for such sum or sums as may be

LABOR AND MATERIAL PAYMENT BOND (continued)

justly due claimant, and have execution thereon. The Owner shall not be liable for the payment of any such suit or any costs or expenses of any such suit, and principal and surety shall jointly and severally indemnify, defend and hold the Owner harmless for any such suit, costs or expenses.

(3) No suit or action shall be commenced hereunder by any claimant:

(a) Unless Claimant, other than one having a direct contract with the Principal, shall have given notice to all the following:

The Principal, the Owner and the Surety above named, within six (6) calendar months after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, Owner, and Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the State of New Hampshire save that such service need not be made by a public officer.

(b) After the expiration of one (1) year following the date on which Principal ceased all work on said contract, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

(c) Other than in a State court of competent jurisdiction in and for the county or other political subdivision of the State in which the project, or any part thereof, is situated, or in the United States District Court for the district in which the project, or any part thereof, is situated, and not elsewhere. (4) The amount of this bond may be reduced by and to the extent of any payment of payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed on record against said improvement, whether or not claim for the amount of such lien by presented under and against this bond.

Signed and sealed this _____ day of _____, 20____. In the presence of:

(Witness) BY: _____
(Principal) (Seal)

(Surety Company)

(Witness) BY: _____
(Title) (Seal)

LABOR AND MATERIAL PAYMENT BOND (continued)

Note:

If the Principal (Contractor) is a partnership, the Bond should be signed by each of the partners.

If the Principal (Contractor) is a corporation, the Bond should be signed in its correct corporate name by its duly authorized Officer or Officers.

If this bond is signed on behalf of the Surety by an attorney-in-fact, there should be attached to it a duly certified copy of his Power of Attorney showing his authority to sign such Bonds.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Agreement.

MAINTENANCE BOND

At the Owner's election, a maintenance bond may be substituted for retainage at the completion of the project. If the Owner permits a maintenance bond, it shall be in the amount of **Twenty Percent (20%)** of the contract price with a corporate surety approved by the Owner. Such bond shall be provided at the time of Contract completion and shall guarantee the repair of all damage due to faulty materials or workmanship provided or done by the Contractor. This guarantee shall remain in effect for a period of one year after the date of final acceptance of the job by the Owner.

CONTRACTOR'S AFFIDAVIT

STATE OF _____:

COUNTY OF _____:

Before me, the undersigned, a _____
(Notary Public, Justice of the Peace)

in and for said County and State personally appeared, _____
(Individual, Partner, or duly authorized representative of Corporate)

who, being duly sworn, according to law deposes and says that the cost of labor, material, and equipment and outstanding claims and indebtedness of whatever nature arising out of the performance of the Contract between

CITY OF PORTSMOUTH, NEW HAMPSHIRE

and
(Contractor)

of _____

Dated: _____

has been paid in full for Construction of:

Mechanic Street Seawall at Pickering

(Individual, Partner, or
duly authorized
representative of
Corporate Contractor)

Sworn to and subscribed
before me this _____ day
of _____ 20____

CONTRACTOR'S RELEASE

KNOW ALL MEN BY THESE PRESENTS that _____ does hereby
acknowledge that _____ has on this day had, and received from the CITY OF
PORTSMOUTH NEW HAMPSHIRE, final and completed payment for the Construction of:

Mechanic Street Seawall at Pickering

NOW THEREFORE, the _____, for myself, my heirs, executors, and administrators) (for
itself, its successors and assigns) do/does by these presents remise, release, quit-claim and forever discharge the City
of Portsmouth, New Hampshire, its successors and assigns, of and from all claims and demands arising from or in
connection with the said Contract dated _____, and of and from all, and all manners of
action and actions, cause and causes of action and actions, suits, debts, dues, duties, sum and sums of money,
accounts, reckonings, bonds, bills, specifications, covenants, contracts, agreements, promises, variances, damages,
judgments, extents, executions, claims and demand, whatsoever in law of equity, or otherwise, against the City of
Portsmouth, New Hampshire, its successors and assigns, which (I, my heirs, executors, or administrators) (it, its
successors and assigns) ever had, now have or which (I, my heirs, executors, or administrators) (it, its successors and
assigns) hereafter can shall or may have, for, upon or by reason of any matter, cause, or thing whatsoever; from the
beginning of record time to the date of these presents.

IN WITNESS WHEREOF,

Contractor:

print name of witness: _____

By: _____
Its Duly Authorized _____

Dated: _____

GENERAL REQUIREMENTS

SCOPE OF WORK

1. INTENT OF CONTRACT

The intent of the Contract is to provide for the construction and completion in every detail of the work described. The Contractor shall furnish all labor, materials, equipment, tools, transportation and supplies required to complete the work in accordance with the terms of the Contract. The Contractor shall be required to conform to the intent of the plans and specifications. No extra claims shall be allowed for portions of the work not specifically addressed in the plans and specifications but required to produce a whole and complete project, such work will be considered subsidiary to the bid items.

2. INCIDENTAL WORK

Incidental work items for which separate payment is not measured includes, but is not limited to, the following items:

- a. Clearing, grubbing and stripping (unless otherwise paid for)
- b. Clean up
- c. Plugging existing sewers and manholes
- d. Signs
- e. Mobilization/Demobilization (unless otherwise paid for)
- f. Restoration of property
- g. Cooperation with other contractors, abutters and utilities.
- h. Utility crossings, (unless otherwise paid for)
- i. Minor items - such as replacement of fences, guardrails, rock wall, etc.
- j. Steel and/or wood sheeting as required.
- k. Accessories and fasteners or components required to make items paid for under unit prices or lump sum items complete and functional.

3. ALTERATION OF PLANS OR OF CHARACTER OF WORK

The Owner reserves the right, without notice to Surety, to make such alterations of the plans or of the character of the work as may be necessary or desirable to complete fully and acceptably the proposed construction; provided that such alterations do not increase or decrease the contract cost. Within these cost limits, the alterations authorized in writing by the Owner shall not impair or affect any provisions of the Contract or bond and such increases or decreases of the quantities as a result from these alterations or deletions of certain items, shall not be the basis of claim for loss or for anticipated profits by the contractor. The contractor shall perform the work as altered at the contract unit price or prices.

4. EXTRA WORK ITEMS

Extra work shall be performed by the Contractor in accordance with the specifications and as directed, and will be paid for at a price as provided in the Contract documents or if such pay items are not applicable than at a price negotiated between the contractor and the Owner or at the unit bid price. If the Owner determines that extra work is to be performed, a change order will be issued.

5. CHANGE ORDERS

The Owner reserves the right to issue a formal change order for any increase, decrease, deletion, or addition of work or any increase in contract time or price. The contractor shall be required to sign the change order and it shall be considered as part of the Contract documents.

6. FINAL CLEANING UP

Before acceptance of the work, the contractor shall remove from the site all machinery, equipment, surplus materials, rubbish, temporary buildings, barricades and signs. All parts of the work shall be left in a neat and presentable condition. On all areas used or occupied by the contractor, regardless of the contract limits, the bidder shall clean-up all sites and storage grounds.

The items prescribed herein will not be paid for separately, but shall be paid for as part of the total contract price.

7. ERRORS AND INCONSISTENCY IN CONTRACT DOCUMENTS

Any provisions in any of the Contract Documents that may be in conflict with the paragraphs in these General Requirements shall be subject to the following order of precedence for interpretation.

1. Standard Specifications for Road & Bridge Construction will govern General Requirements.
2. Technical Specifications will govern Standard Specifications.
3. Plans will govern Technical Specifications, and General Requirements.

8. QUALITY ASSURANCE

The Contractor shall be responsible at all times for maintaining quality assurance during performance of his work. Particular attention to compaction shall be paid during backfilling operation.

In-place density tests of the backfill material will be conducted by an independent testing laboratory. The amount and frequency of testing will be determined at the time of construction, by the engineer.

A minimum of one density test per 50 feet of road may be required.

Satisfactory compaction shall be a minimum of 95% of the maximum density for the embankment and a minimum of 95% of the maximum density for gravel base course and subbase gravel course.

The Contractor shall be responsible for procuring and paying for the testing services

9. DUST CONTROL FOR STREET

Calcium chloride shall be spread only on disturbed unpaved areas. Calcium chloride shall not be spread on paved areas that are covered by granular material. These areas shall be swept clean of all granular material.

Dust on paved areas shall be controlled with water before sweeping.

This work and materials shall be considered as subsidiary obligation of the contract for which no specific payment will be made

CONTROL OF WORK

1. AUTHORITY OF ENGINEER

(a) All work shall be done under supervision of the City Engineer and to his satisfaction. The City Engineer will decide all questions which may arise as to the quality and acceptability of materials furnished and work performed and as to the rate of progress of the work; all questions that may arise as to the interpretation of the plans and specifications; and all questions as to the acceptable fulfillment of the Contract by the Contractor.

(b) The City Engineer will have the authority to suspend the work wholly or in part for such periods as he may deem necessary due to the failure of the Contractor to correct conditions unsafe for workers or the general public; for failure to carry out provisions of the Contract; for failure to carry out orders; for conditions considered unsuitable for the prosecution of the work, including unfit weather; or for any other condition or reason deemed to be in the public interest. The Contractor shall not be entitled any additional payments arising out of any such suspensions.

(c) The Owner reserves the right to demand a certificate of compliance for a material or product used on the project. When the certificate of compliance is determined to be unacceptable to the City Engineer the Contractor may be required to provide engineering and testing services to guarantee that the material or product is suitable for use in the project, at its expense (see Sample of Certificate of Compliance).

2. PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPES

(a) The Contractor shall use every precaution to prevent injury or damage to wires, poles, or other property of public utilities; trees, shrubbery, crops, and fences along and adjacent to the right-of-way, all underground structures such as pipes and conduits, within or outside of the right-of-way; and the Contractor shall protect and carefully preserve all property marks until an authorized agent has witnessed or otherwise referenced their location.

(b) The Contractor shall be responsible for all damage or injury to property of any character, during the prosecution of the work, resulting from any act, omission, neglect, or misconduct in his manner or method of executing the work, or at any time due to defective work or materials, and said responsibility will not be released until the project shall have been completed and accepted.

(c) When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or as a result of the failure to perform work by the Contractor, the Contractor shall restore, at its own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing rebuilding, or otherwise restoring as may be directed, or the Contractor shall make good such damage or injury in an acceptable manner.

(d) The Contractor shall paint with tree paint all scars made on fruit or ornamental trees by equipment, construction operations, or the removal of limbs larger than one inch in diameter. Damaged trees must be replaced if so determined by the City Arborist, in his or her sole discretion.

(e) If the Contractor fails to repair, rebuild or otherwise restore such property as may be deemed necessary, the Owner, after 48 hours notice, may proceed to do so, and the cost thereof may be deducted from any money due or which may become due the Contractor under the contract.

(f) It is the intent of the Parties that the Contractor preserve, to as great an extent as possible, the natural features of the site.

CONTROL OF WORK (continued)

3. MAINTENANCE DURING CONSTRUCTION

The Contractor shall maintain the work during construction and until the project is accepted. This maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and workers to ensure that the structure is kept in satisfactory conditions at all times.

4. SAFETY PRECAUTIONS

Upon commencement of work, the Contractor shall be responsible for initiating, maintaining and supervising all safety precautions necessary to ensure the safety of employees on the site, other persons who may be affected thereby, including the public, and other property at the site or adjacent thereto.

5. PERMITS

It will be the responsibility of the Contractor to obtain all permits required for the operation of equipment in, or on, all city streets and public ways.

6. BARRICADES, WARNING SIGNS AND TRAFFIC OFFICERS

(a) The Contractor shall provide, erect and maintain all necessary barricades, suitable and sufficient lights, danger signals, signs and other traffic control devices, and shall take all necessary precautions for the protection of the work and safety of the public. Roadway closed to traffic shall be protected by effective barricades. Obstructions shall be illuminated during hours of darkness. Suitable warning signs shall be provided to control and direct traffic in a proper manner, as approved by the engineer.

(b) The Contractor will be held responsible for all damage to the work from traffic, pedestrians, animals or any other cause due to lack of adequate controlling devices.

(c) The Contractor shall provide such police officers as the City Engineer deems necessary for the direction and control of traffic within the site of project.

The work prescribed herein will not be paid for separately but will be paid for as part of the Contract Price unless specifically appearing as a bid item.

TEMPORARY FACILITIES

1. STORAGE FACILITIES

(a) The Contractor shall not store materials or equipment in a public right-of-way beyond the needs of one working day. Equipment and materials shall be stored in an approved location.

(b) The Contractor shall protect all stored materials from damage by weather or accident and shall insure adequate drainage at and about the storage location.

(c) Prior to final acceptance of the work all temporary storage facilities and surplus stored materials shall be removed from the site.

2. SANITARY FACILITIES

(a) The Contractor shall provide for toilet facilities for the use of the workers employed on the work.

(b) Temporary toilet facilities may be installed provided that the installation and maintenance conform with all State and local laws, codes, regulations and ordinances governing such work. They shall be properly lit and ventilated, and shall be kept clean at all times.

(c) Prior to final acceptance of the work all temporary toilet facilities shall be removed from the site.

3. TEMPORARY WATER

The Contractor shall make all arrangements with the local water department for obtaining water connections to provide the water necessary for construction operations and shall pay all costs.

4. TEMPORARY ELECTRICITY

The Contractor shall make all arrangements with the Public Service Company for obtaining electrical connections to provide the electrical power necessary for construction operations and security lighting and shall pay all electrical connection and power costs.

The Contractor shall be responsible with obtaining an electrical permit from the City Electrical Inspector.

INSURANCE REQUIREMENTS

Insurance shall be in such form as will protect the Contractor from all claims and liabilities for damages for bodily injury, including accidental death, and for property damage, which may arise from operations under this contract whether such operation by himself or by anyone directly or indirectly employed by him.

AMOUNT OF INSURANCE

- A) Comprehensive General Liability:
Bodily injury or Property Damage - \$2,000,000
Per occurrence and general aggregate
- B) Automobile and Truck Liability:
Bodily Injury or Property Damage - \$2,000,000
Per occurrence and general aggregate

Insurance coverage requirements may be met by excess policies.

Additionally, the Contractor shall purchase and maintain the following types of insurance:

- A) Full Workers Comprehensive Insurance coverage for all people employed by the Contractor to perform work on this project. This insurance shall at a minimum meet the requirements of the most current laws of the State of New Hampshire.
- B) Contractual Liability Insurance coverage in the amounts specified above under Comprehensive General Liability.
- C) Product and Completed Operations coverage to be included in the amounts specified above under Comprehensive General Liability.
- D) Coverage for marine operations in the amount required for commercial general liability.

ADDITIONAL INSURED

All liability policies (including any excess policies used to meet coverage requirements) shall include the City of Portsmouth, New Hampshire as named Additional Insured's.

- 1) The contractor's insurance shall be primary in the event of a loss.
- 2) City of Portsmouth shall be listed as a Certificate Holder. The City shall be identified as follows:

City of Portsmouth
Attn: Legal Department
1 Junkins Avenue
Portsmouth, NH 03801

MEASUREMENT AND PAYMENT

1. MEASUREMENT OF QUANTITIES

- (a) All work completed under the contract will be measured according to the United States standard measure.
- (b) The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice. Unless otherwise stated all quantities measured for payment shall be computed or adjusted for "in place" conditions.
- (c) Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures having an area of 9 square feet or less. Unless otherwise specified, transverse measurements for area computations will be the dimensions shown on the plans or ordered in writing.
- (d) Structures will be measured according to lines shown on the plans or as ordered unless otherwise provided for elsewhere in the specifications.
- (e) In computing volumes of excavation, embankment, and borrow, the average end area method will be used. Where it is impracticable to measure by the cross-section method, acceptable methods involving three-dimensional measurement may be used. When measurement of borrow in vehicles is permitted, the quantity will be determined as 80 percent of the loose volume.
- (f) In computing volumes of concrete, stone and masonry, the prismatic method will be used. The term "ton" will mean the short ton consisting of 2,000 pounds avoirdupois.
- (g) Except as specified below, all materials that are measured or proportioned by weight shall be weighed on scales which the Contractor has had sealed by the State or by a repairman registered by the Commissioner of Agriculture. All weighing shall be performed in a manner prescribed under the Rules and Regulations of the Bureau of Weights and Measures of the New Hampshire Department of Agriculture.
- (h) Weighing of materials on scales located outside New Hampshire will be permitted for materials produced or stored outside the state, when requested by the Contractor and approved. Out-of-state weighing in order to be approved, must be performed by a licensed public weigh master or a person of equal authority in the state concerned on scales accepted in the concerned state.
- (i) Each truck used to haul material being paid for by weight shall bear a plainly legible identification mark, and if required, shall be weighed empty daily at such times as directed.
- (j) When material is weighed, the individual weight slips, which shall be furnished by the Contractor, for trucks, trailers, or distributors, shall show the following information: the date; the project; the material or commodity; the dealer or vendor; the Contractor or Subcontractor; the location of the scales; the vehicle registration number or other approved legible identification mark; the tare and net weights, with gross weights when applicable; and the weigher's signature or his signed initials.

MEASUREMENT AND PAYMENT (continued)

(k) The right is reserved to weight any truck, trailer, or distributor, at locations designated, before and after making deliveries to the project.

(l) Bituminous materials will be measured by the gallon or ton.

(m) When material is specified to be measured by the cubic yard but measurement by weight is approved, such material may be weighed and the weight converted to cubic yards for payment purposes. Necessary conversion factors will be determined by the Owner.

(n) The term "lump sum" when used as an item of payment will mean complete payment for the work described in the item.

(o) When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories, so as to provide the item complete and functional. Except as may be otherwise provided, partial payments for lump sum items will be made approximately in proportion to the amount of the work completed on those items.

(p) Material wasted without authority will not be included in the final estimate.

2. SCOPE OF PAYMENT

(a) The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials and for performing all work under the contract in a complete and acceptable manner and for all risk, loss, damage or expense of whatever character arising out of the nature of the work or the prosecution thereof.

(b) The Contractor shall be liable to the Owner for failure to repair, correct, renew or replace, at his own expense, all damage due or attributable to defects or imperfections in the construction which defects or imperfections may be discovered before or at the time of the final inspection and acceptance of the work.

(c) No monies, payable under the contract or any part thereof, except the first estimate, shall become due or payable if the Owner so elects, until the Contractor shall satisfy the Owner that the Contractor has fully settled or paid all labor performed or furnished for all equipment hired, including trucks, for all materials used, and for fuels, lubricants, power tools, hardware and supplies purchased by the Contractor and used in carrying out said contract and for labor and parts furnished upon the order of said Contractor for the repair of equipment used in carrying out said contract; and the Owner, if he so elects, may pay any and all such bills, in whole or in part, and deduct the amount of amounts so paid from any partial or final estimate, excepting the first estimate.

MEASUREMENT AND PAYMENT (continued)

3. COMPENSATION FOR ALTERED QUANTITIES

(a) Except as provided for under the particular contract item, when the accepted quantities of work vary from the quantities in the bid schedule the Contractor shall accept as payment in full, so far as contract items are concerned, at the original contract unit prices for the accepted quantities of work done. No allowance will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor resulting either directly from such alterations or indirectly from unbalanced allocation among the contract items of overhead expense on the part of the Bidder and subsequent loss of expected reimbursements therefore or from any other cause.

(b) Extra work performed will be paid for at the contract bid prices or at the price negotiated between the Owner and the Contractor if the item was not bid upon. If no agreement can be negotiated, the Contractor will accept as payment for extra work, cost plus 15% (overhead and profit). Costs shall be substantiated by invoices and certified payroll.

4. PARTIAL PAYMENTS

Partial payments will be made on a monthly basis during the contract period. From the total amount ascertained as payable, an amount equivalent to ten percent (10%) of the whole will be deducted and retained by the Owner until such time as the work receives final acceptance.

5. FINAL ACCEPTANCE

Upon due notice from the Contractor of presumptive completion of the entire project, the City Engineer will make an inspection. If all construction provided for and contemplated by the contract is found complete to his satisfaction, this inspection shall constitute the final inspection and the City Engineer will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of the final inspection.

If, however, the inspection discloses any work in whole or in part, as being unsatisfactory, the City Engineer will give the Contractor the necessary instructions for correction of such work, and the Contractor shall immediately comply with and execute such instructions. Upon correction of the work, another inspection will be made which shall constitute the final inspection provided the work has been satisfactorily completed. In such event, the City Engineer will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

MEASUREMENT AND PAYMENT (continued)

6. ACCEPTANCE AND FINAL PAYMENT

(a) When the project has been accepted and upon submission by the Contractor of all required reports, completed forms and certifications, the Owner will review the final estimate of the quantities of the various classes of work performed. The Contractor may be required to certify that all bills for labor and material used under this contract have been paid.

(b) The Contractor shall file with the Owner any claim that the Contractor may have regarding the final estimate at the same time the Contractor submits the final estimate. Failure to do so shall be a waiver of all such claims and shall be considered as acceptance of the final estimate. From the total amount ascertained as payable, an amount equal to ten percent (10%) of the whole will be deducted and retained by the Owner for the guaranty period. This retainage may be waived, at the discretion of the City, provided the required Maintenance Bond has been posted. After approval of the final estimate by the Owner, the Contractor will be paid the entire sum found to be due after deducting all previous payments and all amounts to be retained or deducted under the provisions of the contract.

(c) All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

7. GENERAL GUARANTY AND WARRANTY OF TITLE

(a) Neither the final certification of payment nor any provision in the contract nor partial or entire use of the improvements embraced in this Contract by the Owner or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express or implied warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting therefrom which shall appear within a period of twelve (12) months from the date of final acceptance of the work. The Owner will give notice of defective materials and work with reasonable promptness.

(b) No material, supplies or equipment to be installed or furnished under this Contract shall be purchased subject to any chattel mortgage or under a conditional sale, lease purchase or other agreement by which an interest therein or in any part thereof is retained by the Seller or supplier. The Contractor shall warrant good title to all materials, supplies and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same together with all improvements and appurtenances constructed or placed thereon by him to the Owner free from any claims, liens or charges. Neither the Contractor nor any person, firm or corporation furnishing any material or labor for any work covered by this Contract shall have the right to a lien upon any improvements or appurtenances thereon.

Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any bond given by the Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the Owner. The provisions of this paragraph shall be inserted in all subcontractors and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

MEASUREMENT AND PAYMENT (continued)

8. NO WAIVER OF LEGAL RIGHTS

(a) Upon completion of the work, the Owner will expeditiously make final inspection and notify the Contractor of acceptance. Such final acceptance, however, shall not preclude or stop the Owner from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Owner be precluded or be stopped from recovering from the Contractor or his Surety, or both, such overpayment as it may sustain by failure on the part of the Contractor to fulfill his obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

(b) The Contractor, without prejudice to the Contract shall be liable to the terms of the Contract, shall be liable to the Owner for latent defects, fraud or such gross mistakes as may amount to fraud, and as regards the Owner's right under any warranty or guaranty.

9. TERMINATION OF CONTRACTOR'S RESPONSIBILITY

Whenever the improvement provided for by the Contract shall have been completely performed on the part of the Contractor and all parts of the work have been released from further obligations except as set forth in his bond and as provided in Section 8 above.

STANDARD SPECIFICATIONS

The Standard Specifications for Road and Bridge Construction of the State of New Hampshire Department of Transportation and any Addenda shall apply but without regard to Section 100 "General Conditions" of those Standard Specifications and any fuel or asphalt adjustment provisions.

SHOP DRAWINGS

Shop Drawings for this project shall be submitted under the following conditions:

1. The Contractor shall submit working and detail drawings, well in advance of the work, to the City Engineer & Building Inspector for review.
2. The Contractor's drawings shall consist of shop detail, erection and other working plans showing dimensions, sizes and quality of material, details and other information necessary for the complete fabrication and erection of the pertinent work.
3. The Contractor shall submit three (3) sets of drawings to the City Engineer.
4. Prior to the approval of the drawings, any work done or materials ordered for the work involved shall be at the Contractor's risk.
5. One (1) set of the drawings will be returned to the Contractor approved or marked with corrections to be made. After approval has been given, the Contractor shall supply the City Engineer with two sets of the revised detail working drawings.
6. The City Engineer's approval of the Contractor's working drawings will not relieve the Contractor from responsibility for errors in dimensions or for incorrect fabrication processes, or from responsibility to complete the contract work.

**SPECIAL CONDITIONS
&
CRITICAL TIMELINES**

REQUIRED DEADLINES

The City has made certain representations to the residents, business owners and stakeholders of this project. A very important part of this project will be meeting certain goals by certain dates. The following criteria and dates are crucial to the success of this project.

The wall must be finished and the adjacent section of Mechanic Street base paved by June 28, 2013 in order for the final paving of the South End to commence in July 2013.

Failure to complete by this date will result in liquidated damages of \$100.00 per day.

Access must be available at all times to the two abutting businesses Geno's Coffee Shop and the Chandler's Loft and all cooperation given to customers, tourists, and residents alike. Since the road will be closed in the vicinity of the seawall, the contractor will be required to place appropriate signage on Marcy Street directing customers to the each business. These sign shall be specific to each business and be permanently mounted on Marcy street to direct customers around to each business. Also a detour package of signs will be required. These signs will be considered subsidiary to the project and no separate payment will be made.

Accommodations must be made for delivery trucks for the businesses on Mechanic Street.

Dust and mud must be controlled at all times to protect the residents, businesses, and traveling public.

The project site must be kept clean and passable on nights and weekends with gravel areas watered and kept dust free with calcium chloride. Pavements shall be swept clean each night, especially on Fridays and before holidays.

TECHNICAL SPECIFICATIONS

As noted above, the Standard Technical Specifications for this project are the Standard Specifications for Road and Bridge Construction of the State of New Hampshire Department of Transportation and any Addenda shall apply without regard to Section 100 “General Conditions” of those Standard Specifications and any fuel or asphalt adjustment provisions.

Additional Technical Specifications and Special Provisions for this project are attached.

TECHNICAL SPECIFICATIONS
TABLE OF CONTENTS

<u>Specification Section</u>		<u>Number of Pages</u>
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**SECTION 01000
GENERAL REQUIREMENTS**

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Work under this Contract includes, but is not limited to the following:
1. Complete preparatory work and operations, including but not limited to those necessary for the movement of personnel, equipment, supplies, and incidentals to and from the project site and all other work and operations which must be performed, or for costs which must be incurred, prior to beginning work.
 2. Provide, install and maintain site access and temporary construction facilities.
 3. Prepare and submit to New Hampshire Department of Environmental Services an erosion control/water quality protection plan for approval prior to commencing work.
 4. Remove one timber pile, existing seawall, and steel railing, including all associated hardware and appurtenances.
 5. Salvage suitable granite block stones for reuse as granite facing for the replacement seawall. Miscellaneous items from the seawall that are not suitable for reuse, such as granite curb and brick, shall become the property of the contractor.
 6. Construct new concrete seawall with granite facing and all associated reinforcing, hardware and appurtenances. Provide and install supplemental granite block as required.
 7. Backfill and place bituminous binder course along Mechanic Street within the project limits.
 8. Legally dispose of all materials not identified for salvage or reuse.
 9. Submit a record drawing of as-built conditions upon completion of the work.

1.02 CONTRACTOR USE OF SITE AND DELIVERY

- A. The portion of Mechanic Street affected by the project, approximately defined as extending from Pickering Street to the private granite seawall at the boathouse structure (approximately 110 linear feet), may be closed for the duration of the construction work.
- B. The Contractor shall provide and maintain adequate barricades and signs to properly regulate the street closure, pedestrian traffic and vehicular traffic. Due to the existing street configuration and layout in the area, traffic control personnel are required for deliveries to the project site that will interfere with the flow of

traffic. A traffic control plan shall be submitted to the City for approval before commencing with work.

- C. The Contractor shall provide, install and maintain temporary fencing around the landside project limits.
- D. The Contractor shall provide, install and maintain temporary cofferdam or similar to protect the project site from tide, wave, and stormwater.
- E. Throughout the duration of the work, access to the privately owned structures at either end of the project limits shall be maintained. Short-term periods of no or limited access may be permitted with advanced notification and coordination with the City and the property owners.
- F. The Contractor shall repair, at its own expense, any damage caused to the public or private property; remove from the site all debris, excess materials, tools, and equipment; and shall leave the premises in a neat and orderly condition, to the satisfaction of the Engineer and Owner.
- G. The Contractor shall comply with navigational laws, Coast Guard Rules and Regulations, and regulatory agencies if entering the waterways around the site.

1.03 CONSTRUCTION SCHEDULES AND COORDINATION

- A. Unless otherwise specified, within seven (7) calendar days from the Notice to Proceed, the Contractor shall submit to the Engineer a schedule of construction tasks and schedule.
- B. The Construction schedule shall be maintained on the project site for review during site meetings. If a major change is made to the schedule, the updated schedule shall be submitted to the Engineer immediately.
- C. Prior to commencing construction, the Contractor shall prepare and submit to the Engineer and the New Hampshire Department of Environmental Services an erosion control/water quality protection plan for approval prior to commencing work.
- D. Prior to commencing construction, the Contractor shall submit a description of equipment to be used and disposal and handling of materials.
- E. Contractor shall submit shop drawings and product data for approval as required by sections.
- F. Contractor shall coordinate backfill and bituminous base course along Mechanic Street with the City and the South End Sidewalk & Road Replacement Project (completed by others).

- G. Contractor shall submit a letter indicating that all work has been completed per the project requirements and requesting that the Engineer perform a final inspection of all work prior to Contractor demobilization.

1.04 QUALITY CONTROL AND WORKMANSHIP

- A. The Contractor shall maintain quality control, equipment, services, site conditions, and workmanship, to produce work of specified quality.
- B. The Contractor shall comply with industry standards except when specified tolerances or requirements are more restrictive or when more precise workmanship is necessary.
- C. Perform work by persons qualified to produce workmanship of specified quality.
- D. The Contractor shall coordinate and be responsible for all costs for sampling and testing as required by the project specifications.

1.05 CONSTRUCTION FACILITIES

- A. Provide and maintain temporary sanitary facilities for construction personnel.
- B. Contractor shall provide on-site phone service, or other telephone facilities such that the Contractor can be reached at any time throughout the work day.
- C. Contractor shall provide phone numbers for communication and emergency contact during off work hours.

1.06 PERMITS AND MITIGATION MEASURE

- A. Attention is directed to the New Hampshire Department of Environmental Services Wetland Bureau permit related to this Contract. All stipulations of these documents shall be adhered to at all times throughout the duration of this contract, at no additional cost to the Owner. A copy of the Wetland Bureau permit is included at the end of this specification section.
- B. The Contractor shall apply and obtain any other permits or approvals required by local, state or federal governing authorities.
- C. The Contractor shall comply with all applicable local, state and federal requirements, as well as industry standards and practices regarding materials, methods of work and disposal of excess and waste materials.

1.07 SURVEY CONTROL

- A. Locate, protect and maintain bench marks, monuments, control points and project engineering reference points.

- B. The Contractor shall provide, at its own expense, all materials and labor as may be required to establish and maintain all project control range lines, additional reference marks and line and grade stakes. If the Contractor, through willfulness or carelessness, removes or permits the removal of such reference marks before prosecution of the work requires it, they shall be replaced at the Contractor's own expense.
- C. All work shall conform during its progress, and on its completion, truly to the lines and grades given by the Contract Documents. The work shall be done in a thoroughly substantial and workmanlike manner, in accordance with the contract Drawings, these specifications, and as directed by the Engineer.
- D. The Contractor shall make, check and be responsible for all measurements and dimensions necessary for proper construction. The Contractor shall notify the Engineer of discrepancies with the contract drawings.

1.08 SITE AND SUBSURFACE INFORMATION

- A. It was not possible for the Owner and/or Engineer to observe all existing conditions when developing the construction documents. The accuracy of the existing conditions data is not guaranteed to the Contractor. The Contractor is advised that unforeseen conditions are expected to be discovered relating to the limits of seawall removal and end detailing of the replacement seawall at either end of the project limits.
- B. During the execution of the work, it shall be the Contractor's responsibility to discover, identify and observe existing conditions not anticipated by the Construction Documents and promptly notify the Engineer of such conditions, at no additional cost, in writing with proposed solutions.
- C. Test boring logs and locations for the project are as indicated on the Contract Drawings. The Contractor is cautioned that refusal elevations indicated on the boring logs does not necessarily mean that bedrock was encountered. Information provided is for the actual locations only, and any inferences drawn are the responsibility of the Contractor.
- D. Utilities shown on the Construction drawings are approximate based on limited available information. The Contractor is responsible for verification of utility locations and shall contact DigSAFE at least 72 working hours in advance of commencing the work.
 - 1. The Contractor shall comply with City of Portsmouth ordinances, rules and regulations.
 - 2. The Contractor shall provide proper notice, make necessary arrangements and perform all other Service required for the removal or the care, protection,

and maintenance of utilities, above or below ground, on and around the site, assuming all responsibility and paying all related costs. Service to existing structures shall not be disrupted without the prior approval of the City and the owner of the structure.

1.09 DATUMS

- A. Vertical datum used for this project is Mean Lower Low Water (MLLW).
- B. Contractor shall consult the Tide Tables issued by NOAA in order to evaluate tidal conditions affecting work.

1.10 INSPECTIONS

- A. All materials or equipment that are not suitable for use on this project and/or have been rejected by the Engineer shall be removed from the site immediately; the cost of the removal of these materials shall be the responsibility of the Contractor.
- B. The Engineer shall be permitted at all times to inspect the work and check the lines, grades, elevations, reference marks, etc., set by the Contractor. Any errors or discrepancies in these items discovered by checks shall be corrected by the Contractor. Such checks shall not be construed to be an approval of the Contractor's work and shall not relieve or diminish in any way the responsibilities of the Contractor for the accurate and satisfactory completion of the entire work. The Contractor shall be available to assist the Engineer with these checks as needed.

1.11 DOCUMENTS REQUIRED AND PHOTOGRAPHS

- A. Maintain at the project site, one copy each of the following:
 - 1. Contract Drawings
 - 2. Specifications
 - 3. Addenda
 - 4. Reviewed shop Drawings
 - 5. Change orders
 - 6. Other modifications to Contract
 - 7. Field test reports
 - 8. Copy of approved work schedule
 - 9. Regulatory approvals and requirements
- B. Photographs
 - 1. The Contractor shall, at its own expense, furnish digital photographs of the project. Photographs shall be scheduled at low tide to reveal as many site features as possible. The photographs shall be taken with a digital camera and electronic files of each view shall be furnished to the City and the Engineer.

2. Photographs shall be taken at each milestone in the project, including but not necessarily limited to:
 - a. Before the projects commences
 - b. During removals
 - c. During setting granite facing, seawall formwork and reinforcing steel
 - d. Backfilling Mechanic Street
 - e. Completion of project
3. A minimum of ten (10) photographs shall be taken at each milestone and shall include at a minimum the following:
 - a. North and south limits of the seawall
 - b. Face of seawall along the project limits
 - c. Topside looking north along Mechanic Street
 - d. Topside looking south along Mechanic Street

1.12 MUD AND DUST CONTROL

- A. The Contractor shall continuously implement a mud and dust control program to minimize dust generation and prevent tracking of mud onto roadways. Pavement shall be swept clean daily. Any gravel surface shall have calcium chloride applied to control dust.

1.13 RECORD DRAWINGS

- A. The Contractor shall maintain and submit red line Record Drawings of all work in a format acceptable to the City and the Engineer upon completion and prior to final payment.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

PART 4 METHOD OF MEASUREMENT AND PAYMENT

There is no separate measurement or payment for work covered by this Section.

END OF SECTION

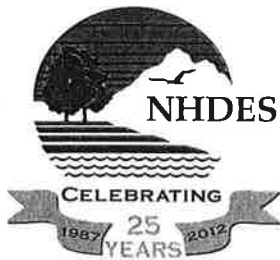
See following sheets for NHDES Wetland Bureau Permit

ATTACHMENTS TO SECTION 01000

**NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES
WETLANDS BUREAU PERMIT NO. 2012-00751**

Note: The following copy of the issued permit has a portion of the conditions inadvertently missing. A complete copy will be made available when revised and issued by NHDES. For the Contractors information, the anticipated missing conditions are shown below.

6. Appropriate turbidity controls shall be installed prior to construction, shall be maintained during construction such that no turbidity escapes the immediate impact area, and shall remain until suspended particles have settled and the water at the work site has returned to normal clarity.
7. Unconfined work within the river, exclusive of work associated with installation of a cofferdam, shall be done during periods of low tide.



The State of New Hampshire
Department of Environmental Services

Thomas S. Burack, Commissioner

*Celebrating 25 Years of Protecting
New Hampshire's Environment*



WETLANDS AND NON-SITE SPECIFIC PERMIT 2012-00751

Permittee: City of Portsmouth DPW
680 Peverly Hill Road
Portsmouth, NH 03801

Project Location: Mechanic & Pickering Streets, Portsmouth
Portsmouth Tax Map/Lot No. 103 / NA

Waterbody: Piscataqua River

**NOTE--
CONDITIONS**

APPROVAL DATE: 09/10/2012

EXPIRATION DATE: 09/10/2017

Based upon review of the above referenced application, in accordance with RSA 482-A and RSA 485-A:17, a Wetlands Permit and Non-Site Specific Permit was issued. This permit shall not be considered valid unless signed as specified below.

PERMIT DESCRIPTION: Reconstruct 107 linear feet of existing seawall adjacent to a city street in the working waterfront area of the Piscataqua Back Channel, in Portsmouth, including: 395 square feet of tidal impact to reconstruct the seawall and construct stonework stairs as public access to the intertidal zone; 1,100 square feet of developed upland tidal buffer zone impact associated with wall removal and roadbed excavation and replacement; and 1,070 square feet of temporary tidal substrate impact adjacent to work area for work access and installation of water quality protections.

**THIS APPROVAL IS SUBJECT TO THE FOLLOWING PROJECT SPECIFIC
CONDITIONS:**

1. All work shall be in accordance with revised plans by Vine & Associates/GZA Inc. dated July 2012, as received by the NH Department of Environmental Services (DES) on 8/2/2012.
2. This permit is contingent upon submission to and approval by DES of an erosion control/water quality protection plan prior to the commencement of project work.
3. The contractor responsible for completion of the work shall utilize techniques described in the New Hampshire Stormwater Manual, Volume 3, Erosion and Sediment Controls During Construction (December 2008).
4. Any further alteration of areas on this property that are within the jurisdiction of the DES Wetlands Bureau will require a new application and further permitting by the Bureau.
5. Appropriate siltation/erosion controls shall be in place prior to construction, shall be maintained during construction, and remain in place until the area is stabilized. Silt fence(s) must be removed once the area is stabilized.
6. Appropriate turbidity controls shall be installed prior to construction, shall be maintained during construction such that no turbidity escapes the immediate impact area, and shall remain

www.des.nh.gov

29 Hazen Drive • PO Box 95 • Concord, NH 03302-0095
(603) 271-3503 • TDD Access: Relay NH 1-800-735-2964

8. Cofferdams shall not be installed during periods of high tide. Once a cofferdam is fully effective, confined work can proceed without restriction.
9. Temporary cofferdams shall be entirely removed immediately following construction.
10. Dredged material shall be placed outside of the jurisdiction of the DES Wetlands Bureau.
11. Construction equipment shall be inspected daily for leaking fuel, oil and hydraulic fluid prior to entering surface waters or wetlands.
12. Faulty equipment shall be repaired prior to entering jurisdictional areas.
13. The contractor shall have appropriate oil spill kits on site and readily accessible at all times during construction and each operator shall be trained in its use.
14. All refueling of equipment shall occur outside of surface waters or wetlands.

GENERAL CONDITIONS THAT APPLY TO ALL DES WETLANDS PERMITS:

1. A copy of this permit shall be posted on site during construction in a prominent location visible to inspecting personnel;
2. This permit does not convey a property right, nor authorize any injury to property of others, nor invasion of rights of others;
3. The Wetlands Bureau shall be notified upon completion of work;
4. This permit does not relieve the applicant from the obligation to obtain other local, state or federal permits, and/or consult with other agencies as may be required (including US EPA, US Army Corps of Engineers, NH Department of Transportation, NH Division of Historical Resources (NH Department of Cultural Resources), NHDES-Alteration of Terrain, etc.);
5. Transfer of this permit to a new owner shall require notification to and approval by DES;
6. This permit shall not be extended beyond the current expiration date.
7. This project has been screened for potential impacts to **known** occurrences of rare species and exemplary natural communities in the immediate area. Since many areas have never been surveyed, or have received only cursory inventories, unidentified sensitive species or communities may be present. This permit does not absolve the permittee from due diligence in regard to state, local or federal laws regarding such communities or species.
8. Review enclosed sheet for status of the US Army Corps of Engineers' federal wetlands permit.

APPROVED: _____


for Dori Wiggin
DES Wetlands Bureau

BY SIGNING BELOW I HEREBY CERTIFY THAT I HAVE FULLY READ THIS PERMIT AND AGREE TO ABIDE BY ALL PERMIT CONDITIONS.

OWNER'S SIGNATURE (required)

CONTRACTOR'S SIGNATURE (required)

*NEW HAMPSHIRE
DEPARTMENT OF STATE*



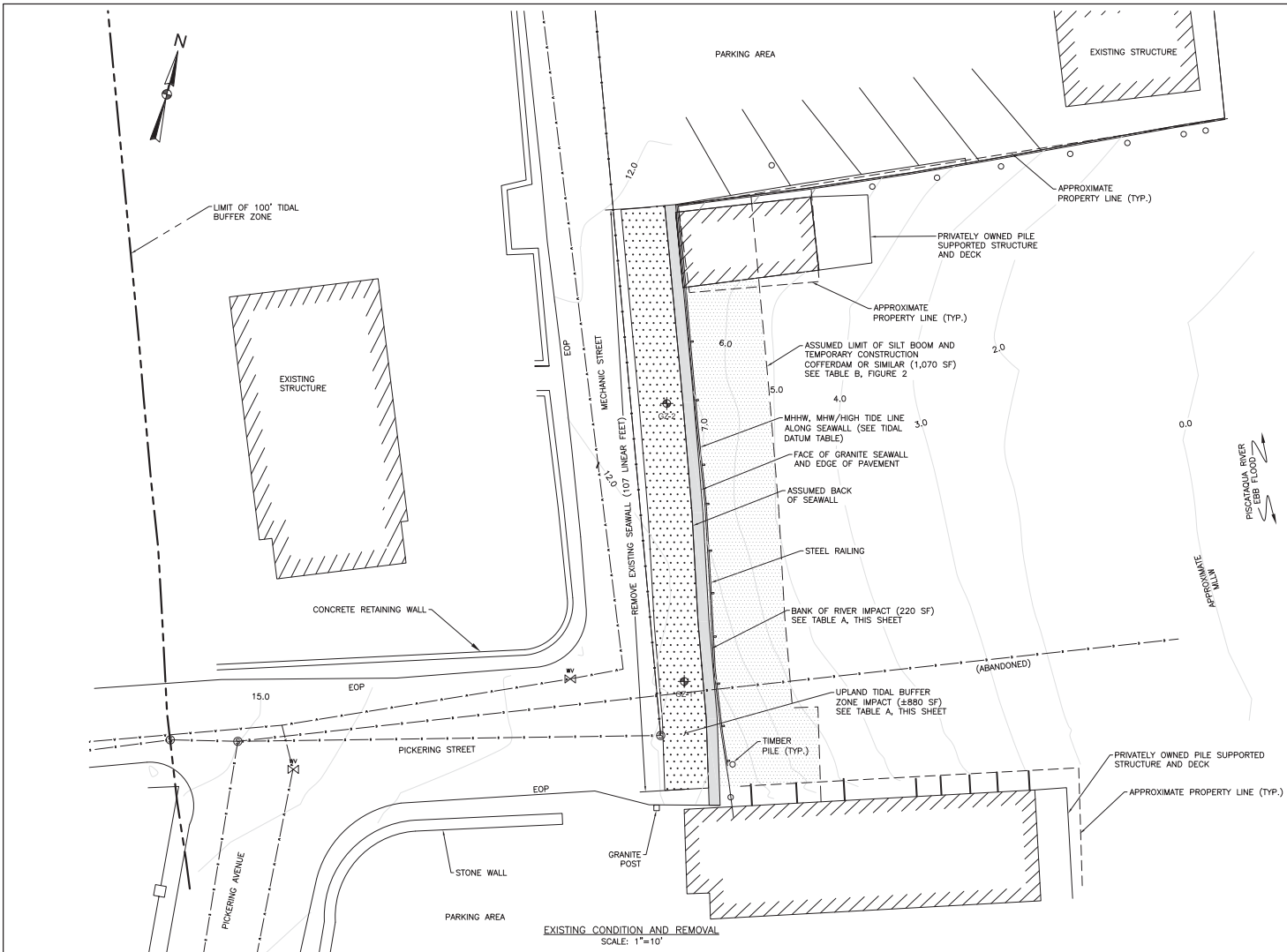
I, David M. Scanlan, Deputy Secretary Of State, of the State of New Hampshire, do hereby certify that the Governor and Executive Council, at their meeting on November 14, 2012 approved ITEM #118 Authorized the City of Portsmouth DPW's request to perform work on the Piscataqua River in Portsmouth.



In Testimony Whereof , I hereto set my hand and cause to be affixed the Seal of the State of New Hampshire, this fourteenth day of November, in the year of Our Lord, two thousand and twelve.


Deputy Secretary of State

© 2012 - GZA GeoEnvironmental, Inc. G2A-1\170907\18.017097000 Mechanic Street Seawall Replacement\Figures-GAD\G188001 Site Plan.dwg [Figure 1 - Existing Conditions and Removal Plan] August 01, 2012 - 1:20pm johno.uzel



TIDAL DATUMS (1983-2001 TIDAL EPOCH)	
ESTIMATED 100-YEAR FLOOD ELEVATION (STILLWATER)	= 12.76'
HIGHEST OBSERVED WATER LEVEL (2/19/1972)	= 12.34'
MEAN HIGHER HIGH WATER (MHHW)	= 8.84'
MEAN HIGH WATER (MHW)	= 8.43'
NORTH AMERICAN VERTICAL DATUM-1988 (NAVD88)	= 4.62'
MEAN TIDE LEVEL (MTL)	= 4.37'
NATIONAL GEODETIC VERTICAL DATUM-1929 (NGVD29)	= 3.86'
MEAN LOW WATER (MLW)	= 0.32'
MEAN LOWER LOW WATER (MLLW)	= 0.00'

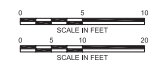
REFERENCE (TIDAL DATUM):
SEAVEY ISLAND, PORTSMOUTH HARBOR NOAA STA ID #8419870

TABLE A: SEAWALL REMOVAL RESOURCE IMPACTS		
RESOURCE	ITEM	IMPACT
BANK OF RIVER	REMOVE EXISTING SEAWALL	220 SF= ±110 LF x 2' WALL WIDTH AT TOP OF WALL
UPLAND TIDAL BUFFER	ROADWAY EXCAVATION FOR ACCESS TO SEAWALL	880 SF= ±110 LF x 8' BEYOND EXISTING SEAWALL

LEGEND:

- BORING COMPLETED BY NEW HAMPSHIRE BORING, INC. ON JULY 14, 2011
- SEWER MANHOLE
- WATER GATE
- EXISTING DRAIN LINE
- EXISTING SEWER LINE
- EXISTING WATER LINE
- RIVER BANK IMPACT AREA
- UPLAND TIDAL BUFFER IMPACT AREA
- TIDAL WETLAND TEMPORARY IMPACT AREA

FOR PERMITTING PURPOSES ONLY
NOT FOR CONSTRUCTION



- NOTES:**
- UTILITIES AND GENERAL SITE INFORMATION SHOWN ARE APPROXIMATE AND BASED ON LINWORK FROM CITY OF PORTSMOUTH PUBLIC WORKS DEPARTMENT.
 - A LIMITED TOPOGRAPHIC SURVEY OF THE SEAWALL AND IMMEDIATELY ADJACENT FEATURES WAS PERFORMED BY VINE ASSOCIATES, A DIVISION OF GZA GEOENVIRONMENTAL, ON JULY 21, 2011.
 - THE ELEVATIONS SHOWN REFERENCE THE MEAN LOWER LOW WATER DATUM (MLLW). SEE TIDAL DATUMS TABLE.
 - IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ERECTION PROCEDURES AND SEQUENCE TO ENSURE THE SAFETY OF THE FACILITIES. THE CONTRACTOR IS RESPONSIBLE TO ERECT, MAINTAIN AND REMOVE TEMPORARY ERECTION MATERIALS AND EQUIPMENT. ALL PROPOSED STAGING AREAS SHALL BE COORDINATED WITH THE CITY BEFORE STARTING THE WORK.
 - THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ENVIRONMENTAL CONTROLS AS REQUIRED BY FEDERAL, STATE AND MUNICIPAL REGULATIONS AND PERMITS. ENVIRONMENTAL CONTROLS SHALL INCLUDE, BUT NOT BE LIMITED TO, TURBIDITY AND DUST.
 - THE CONTRACTOR SHALL FOLLOW ALL APPLICABLE FEDERAL, STATE AND MUNICIPAL REGULATIONS, INCLUDING THE FEDERAL DEPARTMENT OF LABOR, SAFETY, HEALTH ACT, U.S. ARMY CORPS OF ENGINEERS, STATE/LOCAL WETLANDS CONTROL, AND PERMITS.
 - STORAGE, FUELING AND LUBRICATION OR EQUIPMENT AND MOTOR VEHICLES SHALL BE CONDUCTED IN A MANNER THAT AFFORDS THE MAXIMUM PROTECTION AGAINST SPILL AND EVAPORATION. FUEL, LUBRICANTS AND OIL SHALL BE MANAGED AND STORED IN ACCORDANCE WITH ALL FEDERAL, STATE, REGIONAL, AND LOCAL LAWS AND REGULATIONS. THERE SHALL BE NO STORAGE OF FUEL ON THE PROJECT SITE. FUEL MUST BE BROUGHT TO THE PROJECT SITE AS NEEDED. EQUIPMENT OPERATION, ACTIVITIES, OR PROCESSES PERFORMED BY THE CONTRACTOR SHALL BE IN ACCORDANCE WITH ALL FEDERAL AND STATE AIR EMISSION AND PERFORMANCE LAWS AND STANDARDS.
 - THE CONTRACTOR SHALL PROVIDE CONTROL MEASURES AS REQUIRED BY ENVIRONMENTAL REGULATIONS AND AS REQUIRED TO PREVENT DEBRIS FROM ENTERING THE RIVER.

UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THIS DRAWING IS SOLELY FOR USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THIS DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE IN ANY OTHER LOCATION OR FOR ANY OTHER PURPOSES WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THIS DRAWING BY THE CLIENT OR OTHERS WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

NHDES FILE #2012-00751
CITY OF PORTSMOUTH, MECHANIC & PICKERING STREET

**MECHANIC STREET SEAWALL REPLACEMENT
EXISTING CONDITIONS AND REMOVAL PLAN**

PREPARED BY: VINE ASSOCIATES	PREPARED FOR: CITY OF PORTSMOUTH, NH
DESIGNED BY: CWC DATE: JULY 2012	CHECKED BY: CWC SCALE: AS SHOWN REVISION NO.:
PROJECT NO.: 18.0170970,00	FIGURE 1 SHEET NO. 1 OF 3

© 2012 - GZA Geoscientific, Inc. GZA-1170907-00 Mechanical Street Seawall Portsmouth Figures-GAD-G088001 Site Plan.dwg [Figure 2 - Proposed Plan] August 01, 2012 - 10:28am jmhucall

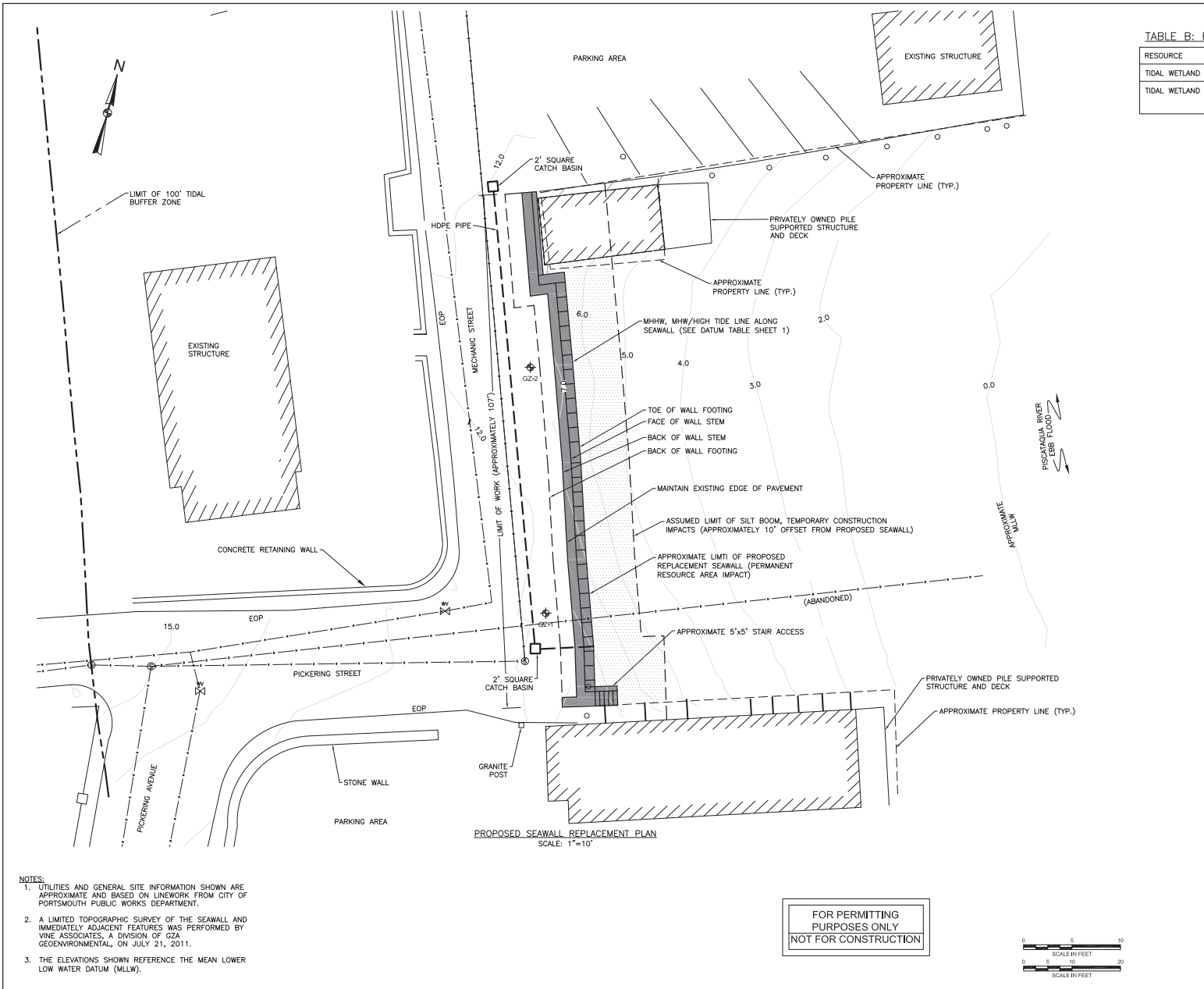


TABLE B: REPLACEMENT SEAWALL RESOURCE IMPACTS

RESOURCE	ITEM	IMPACT
TIDAL WETLAND	PROPOSED WALL	395 SF = (92'x4') + (5'x5')
TIDAL WETLAND	TEMPORARY CONSTRUCTION COFFERDAM OR SIMILAR	1,070 SF = ±107 LF x 10' WATERWARD OF REPLACEMENT SEAWALL

- LEGEND:**
- BORING COMPLETED BY NEW HAMPSHIRE BORING, INC. ON JULY 14, 2011
 - GZ-2
 - SEWER MANHOLE
 - WATER GATE
 - EXISTING DRAIN LINE
 - EXISTING SEWER LINE
 - EXISTING WATER LINE
 - PROPOSED BELOW GRADE STORMWATER DRAIN
 - TIDAL WETLAND PERMANENT IMPACT AREA
 - TIDAL WETLAND TEMPORARY IMPACT AREA

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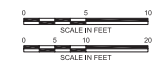
NHDES FILE #2012-00751
CITY OF PORTSMOUTH, MECHANIC & PICKERING STREET

MECHANIC STREET SEAWALL REPLACEMENT PROPOSED PLAN

PREPARED BY: VINE ASSOCIATES GZA Geoscientific, Inc. ENGINEERS AND SCIENTISTS	PREPARED FOR: CITY OF PORTSMOUTH, NH
PROJ. MGR.: CWC DESIGNED BY: CWC DATE: JULY 2012	CHECKED BY: CWC JIZ SCALE: AS SHOWN PROJECT NO.: 18.0170970.00 REVISION NO.:

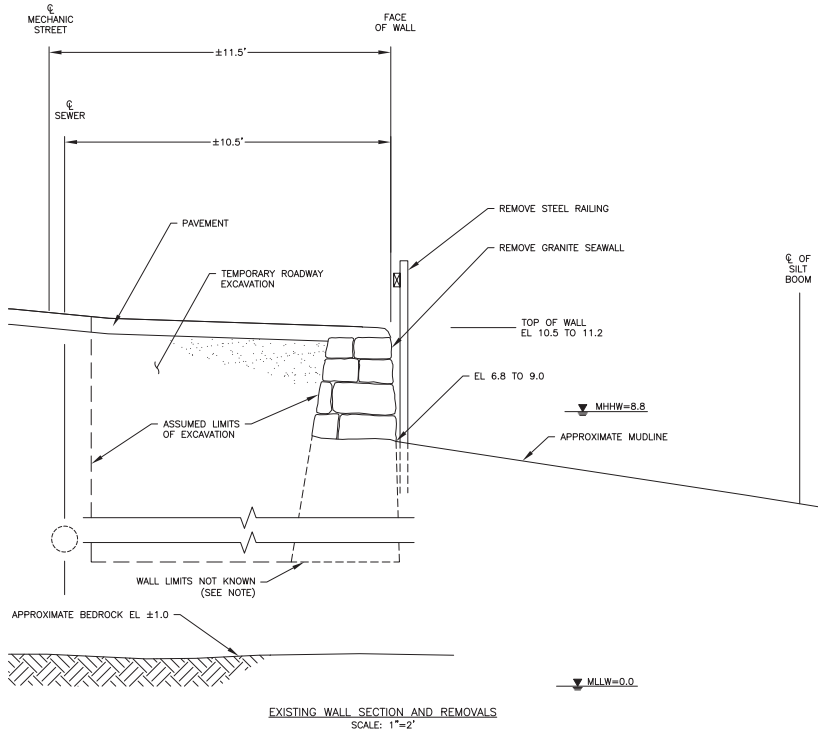
FIGURE
2
SHEET NO. 2 OF 3

FOR PERMITTING PURPOSES ONLY
NOT FOR CONSTRUCTION



- NOTES:**
- UTILITIES AND GENERAL SITE INFORMATION SHOWN ARE APPROXIMATE AND BASED ON LINENWORK FROM CITY OF PORTSMOUTH PUBLIC WORKS DEPARTMENT.
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 - THE ELEVATIONS SHOWN REFERENCE THE MEAN LOWER LOW WATER DATUM (MLLW).

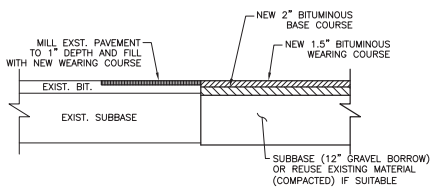
© 2012 - GZA GeoEnvironmental, Inc. 024-A-170907-00 Mechanical Street Sewall Portsmouth Figures-CAD (01/2012) - 133pm jphouzal



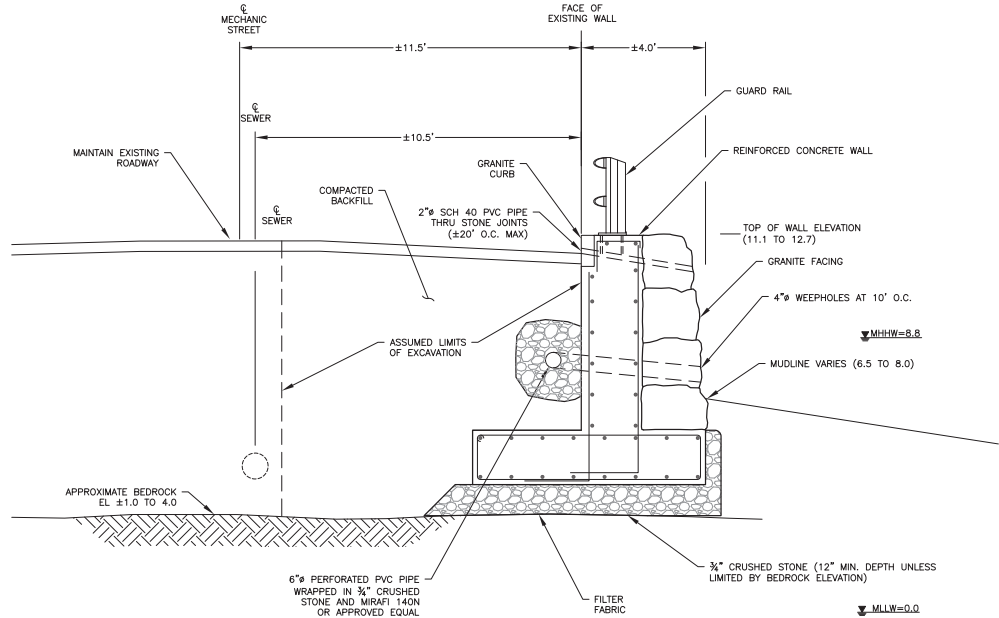
EXISTING WALL SECTION AND REMOVALS
SCALE: 1"=2"

NOTE:

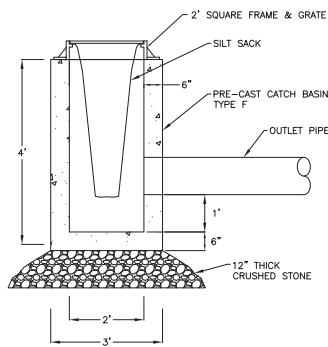
THE LIMITS OF THE WALL ARE NOT KNOWN. THE WALL IS ASSUMED TO BE OF GRANITE BLOCK CONSTRUCTION WITH MISCELLANEOUS GRANITE CURB SECTION, BRICKS, ETC. INCORPORATED ALONG THE FACE OF THE WALL. BASED ON BORINGS GZ-1 AND GZ-2, THE APPARENT BEDROCK IS LOCATED APPROXIMATELY 7' TO 10' BELOW THE TOP OF THE WALL.



PROPOSED PAVEMENT DETAIL
SCALE: N.T.S.



PROPOSED WALL SECTION (TYP)
SCALE: 1"=5"



CATCH BASIN TYPICAL SECTION
SCALE: N.T.S.

FOR PERMITTING
PURPOSES ONLY
NOT FOR CONSTRUCTION

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NHDES FILE #2012-00751
CITY OF PORTSMOUTH, MECHANIC & PICKERING STREET

**MECHANIC STREET SEAWALL REPLACEMENT
PROPOSED SECTIONS AND DETAILS**

PREPARED BY: Vine Associates Engineers & Scientists	DESIGNED BY: CWC	CHECKED BY: CWC	REVIEWED BY: JUZ	SCALE: AS SHOWN	FIGURE 3
DATE: JULY 2012	PROJECT NO. 16.0170970.00	REVISION NO.	CITY OF PORTSMOUTH, NH SHEET NO. 3 OF 3		



**SECTION 02003
DEMOLITION AND REMOVAL**

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The work under this Section shall include, but is not limited to, demolition and legal disposal of the existing seawall shown on the contract drawings, including all miscellaneous appurtenances and support members, existing structural members, timber piles, and other site materials that are necessary to be removed for final construction.
- B. The Contractor shall furnish all labor, materials, equipment and services necessary for and incidental to the execution and completion of all demolition as shown on the Drawings and as required to complete the project.
- C. Items identified for salvage or re-use shall be removed, stored to the approval of the Engineer and City, and replaced as indicated on the contract drawing or as directed by the Engineer.
- D. All demolition shall be accomplished in a neat, workmanlike manner, and at such time or times as is most suitable to the progress and proper coordination of the project.
- E. Demolition near existing structures and areas designated to remain shall be completed with care and caution. Any damage to existing structures or areas to remain that results from the Contractor's work or the work of Contractor's subcontractors shall be repaired by the Contractor at no additional cost to the City.

1.02 SUBMITTALS

The Contractor shall submit the following items:

- 1. Verification that disposal site is legal, by certification documentation.
- 2. Silt boom product data.

PART 2 MATERIAL

2.01 SILT BOOM AND SILTATION CONTROL

- A. The silt boom shall consist of polyethylene floatation devices with a permanently attached fabric curtain, weighted at the bottom. The curtain material shall be woven polypropylene with a 200 pound minimum tensile strength.
- B. Contractor shall provide siltation control in accordance with regulatory approvals for the construction work.

PART 3 EXECUTION

3.01 PROTECTION OF EXISTING STRUCTURES AND UTILITIES

- A. The Contractor shall take all necessary precautions to ensure that existing facilities, structures and equipment within and adjacent to the site, and indicated to remain, are not damaged and remain operational during the demolition work.
- B. Existing utility systems within and adjacent to the site shall remain in continuous service and shall be protected from damage during construction. Where interruption of a service is required, it shall be scheduled in advance and coordinated with the Owner.
- C. The Contractor shall provide booms to contain any debris which may fall into the river.
- D. The Contractor shall follow the requirements of the New Hampshire Department of Environmental Service Wetlands Bureau permit and all other local, state and federal agency requirements.
- E. Work or features scheduled to remain that are damaged by the Contractor shall be restored at its own expense to the satisfaction of the Owner.

3.02 DEMOLITION AND DISPOSAL OF MATERIAL

- A. All material resulting from demolition shall become the property of the Contractor except if indicated otherwise, and shall be properly and legally disposed of at the Contractor's own expense, as demolition progresses.
- B. The Contractor shall employ an acceptable method for dust control and street cleaning during demolition and construction.
- C. The Contractor shall maintain throughout construction the laydown area and stored materials so as not to create any stagnant water and/or run-off which could create objectionable conditions.
- D. The Contractor shall appropriately store and remove in a timely manner all waste generated by construction activities.
- E. Disposal methods shall be in accordance with all federal, state and local requirements, as well as being acceptable to the Owner and to the Engineer. Burning of removed materials is not permitted on the site.
- F. Clean adjacent structures of all mud, dust, dirt and debris resulting from removal operations.

3.03 DEMOLITION AND REMOVAL OF EXISTING MEMBERS

- A. The Contractor shall remove all existing items designated for removal in their entirety, or to lines and grades shown on the drawings or as specified herein.
- B. Items designated to be salvaged and re-used shall be removed and stored in a careful manner so as not to damage any items. Any material mishandled or damaged in any way shall be replaced at the contractor's expense.
- C. Any removed materials or soils that are temporarily stored on site shall be protected from erosion, run-off, and from causing sedimentation.

PART 4 MEASUREMENT AND PAYMENT

There is no separate measurement or payment for work covered by this Section.

END OF SECTION

**SECTION 02220
EXCAVATION, BACKFILL AND COMPACTION**

PART 1 GENERAL

The work under this section includes, but is not necessarily limited to, excavation, backfilling, and the supply and placement of filter fabric and crushed stone for the seawall repair and excavation, backfilling and compaction of Mechanic Street as indicated on the Contract Drawings and specified herein. The Contractor shall provide all labor, equipment, materials, tools and accessories to complete the work.

1.01 REFERENCES

- A. State of New Hampshire Department of Transportation Standard Specification for Road and Bridge Construction, 2010 edition (NHDOT).
- B. ASTM Standards
 - ASTM D1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³).
 - ASTM D 6938 Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

1.02 SUBMITTALS

- A. Submit procedures and equipment for excavation, backfilling, and compaction of fill, backfill and crushed stone.
- B. Submit product data for all fill, backfill, and crushed stone.
- C. Submit compaction test results.

1.03 UTILITIES AND PROTECTION

- A. The Contractor shall locate and mark active underground utility lines before commencing work. Utility services to remain shall be protected from damage and shall be plotted on the Record Plans by the Contractor. Utilities which are not active shall be protected or properly removed as directed by the Engineer and the City. Existing utilities shall not be interrupted except when authorized in writing both by the Engineer and by authorities having jurisdiction.
- B. Excavated areas shall be kept free from water, snow and ice during construction. Pumping operations shall be performed should surface rain or groundwater be encountered during construction. Sheeting, shoring and trench boxes shall be of

proper strength and shall be placed where necessary to prevent caving, erosion or gullyng of excavation sites.

- C. The Contractor must coordinate with the City's Department of Public Works and applicable inspection offices for all utility connections (water supply, sanitary waste, gas, etc.) and drainage requirements.

PART 2 PRODUCTS

2.01 FILL MATERIALS

- A. Gravel fill shall be clean, free from clay, loam or organic matter, and shall conform to NHDOT 209, Granular Backfill (Gravel).
- B. Structural fill be clean, free from clay, loam or organic matter, and shall conform to NHDOT 304.3, Crushed Gravel.
- C. Crushed stone shall be clean, free from clay, loam or organic matter, and shall conform to NHDOT 304.4, Crushed Stone (Fine).

PART 3 EXECUTION

3.01 EXCAVATION

- A. The Contractor shall excavate the existing soils or fill to the dimensions and elevations shown on the Contract Drawings, or as necessary to install the various components of the work.
- B. The Contractor shall separate excavated materials as suitable and unsuitable for backfill, as approved by the Engineer. Unsuitable material shall be immediately removed from the site. All material removed from the site shall be disposed of legally. Suitable material taken from excavations shall be stockpiled for future backfilling within the staging areas as indicated on the Drawings or as directed by the Engineer.
- C. The Contractor shall maintain project benchmarks for horizontal and vertical control of excavations and backfilling.
- D. Suitable material for backfilling shall meet the requirements of the fill materials specified in these Contract Documents. Soils with significant fines content, organic material, miscellaneous fill or other objectionable material will not be allowed as backfill.
- E. Excavation for footings shall be made to the design elevation leaving a bottom of undisturbed earth, smooth, and free of loose materials, when bedrock is not encountered. The final removal of the existing soils or fill to the grade indicated

shall produce a uniform foundation. Removal shall be made by hand unless the use of power equipment for this purpose performs satisfactorily. This portion of the excavation shall be made in as short a time as possible before the constructing the seawall footing.

- a. When ordered by the Engineer or City, a layer of structural fill of sufficient depth to stabilize the foundation material shall be applied prior to placing the footing formwork.
 - b. Excavation beyond the design grade indicated shall be backfilled with structural fill and compacted, at no cost to the City.
- F. Excavated material shall not be deposited or piled so as to cause excessive settlement or endanger portions of any new or existing structures, such as surcharge loading of bulkheads or walls.
- G. Unsuitable soil or materials found during excavation shall be removed, as determined in the field by the Engineer. The Engineer shall be present during excavation of unsuitable soil or materials to verify the volume of material removed. Grades will be restored with approved fill as directed by the Engineer.
- H. The Contractor shall take appropriate measures to shore the walls of the excavation when necessary, particularly when made below water level. Excavations shall be in accordance with local and state safety regulations and the Occupational Safety and Health Act (OSHA) standards.

3.02 INSPECTION

- A. The Contractor shall verify that stockpiled fill to be reused has been approved by the Engineer.
- B. Before backfilling, the Contractor shall verify that drainage and utility installation has been inspected.
- C. Prior to backfilling, the Contractor shall verify that areas to be backfilled are free of debris, snow, ice, or water, and that ground surfaces are not frozen.

3.03 PREPARATION

- A. When necessary, compact subgrade surfaces to density requirements for fill or backfill material.
- B. Cut out soft areas not readily capable of in situ compaction. Backfill with structural fill and compact to density equal to requirements for subsequent backfill material.

3.04 FILLING AND BACKFILLING

- A. Fill or backfill areas to the contours and elevations as shown on the Contract Drawings. Employ a placement method so not to disturb or damage drainage pipes and utilities.
- B. Fill or backfill with hand operated equipment next to the pile supported structures.
- C. Use unfrozen materials.
- D. Backfill systematically, as early as possible, to allow maximum time for natural settlement. Do not backfill over frozen, porous, wet, or spongy subgrade surfaces.
- E. Maximum thickness of loose lifts for fill, backfill, or crushed stone shall be eight (8) inches unless approved by the Engineer.
- F. Make changes in grade gradual. Blend slopes into level areas.
- G. Do not place, spread, or roll any fill material during unfavorable weather conditions. Do not resume operations until moisture content and fill density are satisfactory to the Engineer.
- H. Where soil has been softened or eroded by flooding or placement during unfavorable weather, remove all damaged areas and recompact as specified for fill and compaction below, at no additional cost to the Owner.

3.05 COMPACTION

- A. Compact all materials by vibratory plate tampers, plate impact compactor (jumping jack), hand tamping or other approved means.
- B. Crushed stone below the seawall footing shall be compacted during low tide/dewatered conditions.
- C. Compact fill and backfill to not less than 95% of the maximum dry densities as determined by ASTM D 1557 and in accordance with ASTM D 6938. Contractor to complete compaction tests at a frequency of one per every 500 square feet of each lift, but no less than 4 tests completed on the final lift.
- D. Do not compact fully saturated or submerged soils.

3.06 TOLERANCES

Top Surface of Backfilling: Plus or minus one (1) inch.

3.07 CLEANUP

At the end of all filling and grading operations and before acceptance of the work, the Contractor shall remove all debris, materials, rubbish, etc., from the site, disposing of them in a manner satisfactory to the Engineer. The premises shall be maintained clean, presentable and satisfactory.

PART 4 - MEASUREMENT AND PAYMENT

There is no separate measurement or payment for work covered by this Section.

END OF SECTION

**SECTION 02373
GEOTEXTILE**

PART 1 GENERAL

The work under this Section covers the geotextile (filter fabric) to construct the seawall replacement as shown on the drawings and specified herein.

1.01 REFERENCES

State of New Hampshire Department of Transportation Standard Specification for Road and Bridge Construction, 2010 edition (NHDOT).

1.02 SUBMITTALS

A minimum of seven days prior to scheduled use, submit manufacturer's certificate of compliance stating that the geotextile meets the requirements of this section. For needle punched geotextiles, the manufacturer shall also certify that the geotextile has been continuously inspected using permanent on-line full-width metal detectors and does not contain any needles which could damage other geosynthetic layers. The certificate of compliance shall be attested to by a person having legal authority to bind the geotextile manufacturer.

PART 2 MATERIAL

2.01 GEOTEXTILE

- C. Geotextile for subsurface drainage shall conform to NHDOT 593, Application Type 1 – Subsurface Drainage and shall be listed on the NHDOT Qualified Products List.
- D. Geotextile for seawall base foundation shall conform to NHDOT 593, Application Type 3 – Stabilization and shall be listed on the NHDOT Qualified Products List.

PART 3 EXECUTION

3.01 PROTECTION, PLACEMENT AND REPAIR

Protection, placement, and repair shall be in accordance with NHDOT 593 which includes but may not be limited to the following:

- A. Protection of Geotextile: To prevent damage to the fabric, the Contractor shall exercise necessary care while transporting, storing, and installing the fabric. Prior to installation, the fabric shall be protected from weather, direct sunlight or other ultra-violet exposure, and from dust, mud, dirt, debris, and other elements which may affect its performance. Fabric that is torn, punctured, or otherwise damaged shall not

be placed. After placement, fabric shall be covered within 5 days. Traffic or construction equipment shall not be permitted directly on the geotextile.

- B. Placement of Geotextile and Overlying Material: Prior to placement of the fabric, the site shall be prepared to provide a smooth surface which is free from debris, obstructions, and depressions which could result in gaps, tears, or punctures in the fabric during cover operations.
1. Successive sheets placed above water shall be overlapped by a minimum of 18 inches. Sheets placed below water shall be sewn or overlapped by a minimum of 3 feet. Larger overlaps may be required by the Engineer in soft soil conditions or if gaps between adjacent sheets occur during placement of overlying material. Pins or staples may be used to anchor the fabric as directed by the Engineer.
 2. The geotextile shall be placed loosely (free of tension) with no wrinkles, creases, or folds, and with no void spaces between the geotextile and the ground surface. Successive sheets shall be shingled such that the upstream sheet is placed over the downstream sheet.
 3. Trench excavation for subsurface drainage shall be done in such a way so as to prevent large voids from occurring in the sides and bottom of the trench.
 - a. Placement of drainage aggregate (crushed stone) shall proceed immediately following placement of the geotextile. The geotextile shall be covered with a minimum of 12 inches (0.3 meter) of loosely placed aggregate prior to compaction. If a collector pipe is to be installed in the trench, a bedding layer of drainage aggregate shall be placed below the pipe, with the remainder of the aggregate placed to the minimum required construction depth.
 - b. After placing the drainage aggregate (crushed stone), the geotextile shall be folded over the top of the aggregate in a manner that produces an overlap not less than 12 inches.
 4. Overlying fill or aggregate materials shall be placed, as soon as possible after installation of the geotextile, by end dumping onto the geotextile from the edge of the geotextile, or over previously placed materials. Construction vehicles shall not be allowed directly on the geotextile. Materials shall be placed such that at least the minimum specified lift thickness is between the geotextile and equipment tires or tracks at all times. Turning of vehicles shall not be allowed on the first lift above the geotextile
 5. Placement procedures that result in instability or damage to the geotextile shall be modified to eliminate further damage. The Engineer may order remedial measures such as increasing the initial lift thickness or decreasing equipment loads.
- C. Repair of Geotextile: Fabric that is damaged during or after placement shall be replaced or repaired by stitching or patching at the expense of the Contractor. Patches shall be of the same material as the placed geotextile. The patch shall be joined to the existing fabric using overlapped seams as specified above or as directed

by the Engineer.

PART 4 MEASUREMENT AND PAYMENT

There is no separate measurement or payment for work covered by this Section.

END OF SECTION

**GEOTEXTILE
02373-3**

**SECTION 02510
BITUMINOUS PAVEMENT**

PART 1 GENERAL

The work under this Section covers the removal and proper disposal of the existing bituminous pavement and replacement of the base course along Mechanic Street within the project limits as shown on the drawings and specified herein.

1.01 REFERENCES

State of New Hampshire Department of Transportation Standard Specification for Road and Bridge Construction, 2010 edition (NHDOT).

1.02 EQUIPMENT

Equipment used to sawcut bituminous pavement shall be capable of sawing the pavement and shall produce a substantially vertical and sound face without deformation of the adjacent pavement. The use of methods other than sawing (i.e. cutting wheels, pavement breakers), which deform the pavement or leave an unsound face, will not be permitted

PART 2 MATERIAL

Bituminous base course material shall be NHDOT Type B as coordinated with the City and the South End Sidewalk & Road Replacement Project. The final wearing course will be completed by others.

PART 3 EXECUTION

3.01 REMOVAL

Bituminous pavement shall be sawcut, full-depth, and completely removed from within the limits indicated. Removed material shall be properly disposed of off-site.

3.02 PLACEMENT

Base Course shall be placed after backfill and successful compaction of Mechanic Street has been completed. Prior to placing the base course, sweep the subbase of dust and loose material.

PART 4 MEASUREMENT AND PAYMENT

There is no separate measurement or payment for work covered by this Section.

END OF SECTION

**BITUMINOUS PAVEMENT
02510-1**

**SECTION 02800
SITE IMPROVEMENTS**

PART 1 GENERAL

The work under this section includes general site improvements related to the seawall replacement as shown on the drawings and specified herein.

1.01 REFERENCES

- A. State of New Hampshire Department of Transportation Standard Specification for Road and Bridge Construction, 2010 edition (NHDOT).
- B. American Association of State Highway and Transportation Officials (AASHTO)
AASHTO M 287 Standard Specification for Class PS46 Poly(Vinyl Chloride) (PVC) Pipe
- C. American Welding Society (AWS)
AWS D1.6 Structural Welding Code – Stainless Steel

1.02 SUBMITTALS

Contractor shall submit product data, cut sheets, and, where specified, design calculations stamped by a Professional Engineer for the following items:

- Granite curb,
- Granite stairs,
- Seawall drain pipe,
- Handrail system and anchorage details (including design calculations), and
- Bridge rail system.

PART 2 MATERIAL

2.01 GRANITE CURB

Granite curb shall be new, hard, durable, reasonably uniform in appearance and free from weak seams. Granite curb shall meet the requirements of NHDOT 609 for straight curb.

2.02 GRANITE STAIRS

Granite steps shall be Swenson Granite Works, Woodbury Grey Granite with rock face and thermal finish (treads), or and approved equivalent.

2.03 SEAWALL DRAIN PIPE

Pipe for the seawall drain/weep system shall be polyvinyl chloride (PVC), schedule 80 pipe conforming to AASHTO M 278.

2.04 DRAINAGE SYSTEM

Catch basins and drainage pipe shall be per the contract drawings and applicable NHDOT standards.

2.05 HANDRAIL

The stair access handrail shall be constructed of schedule 80 stainless steel pipe, type 316. The top railing shall be continuous throughout the entire length of the railing. The handrail system shall be designed for the following loads:

1. Concentrated load of 200 lbs applied at any point and in any direction,
2. A uniform load of 50 lbs./ft. applied horizontally,
3. Concentrated and uniform loads need not be assumed to act concurrently.

2.06 BRIDGE RAIL

Bridge rail shall be NHDOT 2-bar aluminum bridge rail with aluminum balusters in accordance with NHDOT 563, NHDOT Standard Details Sheets titled "Bridge Rail Details (2-Bar Aluminum)" and "Aluminum Baluster Details," and the following modifications:

1. Stainless steel for anchor studs and associated hex nuts shall be Type 316.
2. The length of the balusters shall be modified for the 2-bar bridge rail system such that 3" clear is provided to the top of the concrete seawall.
3. Components of the bridge rail system shall be anodized to a black (hard satin finish) color, Federal Standard 595 Color No. 27038. The anodic coating shall be Architectural Class I with a minimum thickness of 0.7 mils and a minimum weight of 35 mg./sq. in.
 - a. Samples from production lots of finished material, as selected by the Engineer, shall be tested in accordance with the following ASTM Specifications available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania:
 - ASTM B137 Coating Weight
 - ASTM B244 Coating Thickness
 - ASTM B 136 Sealing
 - b. Color range samples shall be submitted by the selected finisher for the Engineer's approval before proceeding with production. All the color should be obtained from one source. These samples shall be used for comparison purposes during production finishing, and shall be of actual sections large enough so that good comparisons can be made to establish the limits of the allowable color shade range. Material outside the allowable color shade range, as determined by the

Engineer, will be rejected. The final color shall be checked with the powder coated product prior to production to match the colors as closely as possible.

PART 3 EXECUTION

3.01 GRANITE CURB

Granite curb shall be installed so that the front top arris line conforms to the line and grade required.

Joints shall have a 1 inch width per NHDOT 609 Table 1 and shall be pointed with mortar and the exposed portions finished with a jointer per NHDOT 609.

3.02 GRANITE STAIRS

Granite stairs shall be installed with dowels as indicated on the drawings. Stairs shall be set so that water will not accumulate on the walking surface.

3.03 SEAWALL DRAIN PIPE

- A. Seawall drain and weep hole pipes shall be constructed to the lines, grades, elevations, and dimensions shown on the Drawings and as directed by the Engineer. The pipes shall be fit within granite block to granite block joints. Granite blocks shall be shaped and drilled as required. Pipes shall be recessed a minimum of 1 inch from the face of the granite block facing, but with free a drainage opening.
- B. Weep hole pipe shall be tee connected to the longitudinal collection pile running along the seawall.

3.04 HANDRAIL

Interconnect handrail members by butt-welding or welding with internal fittings. Welding shall conform ANSI/AWS D1.6 "Structural Welding Code – Stainless Steel". At tee and cross connections notch ends of intersecting members to fit contour of pipe to which end is joined and weld all around.

Form simple and compound curves by bending pipe in jigs to produce uniform curvature. Maintain cylindrical cross-section of pipe throughout entire bend without buckling, twisting, cracking or otherwise deforming exposed surfaces of pipe.

The Contractor shall install the pipe and hardware for handrail as shown or ordered. Anchor posts in preset sleeves with an inside diameter not less than 1/2 in. greater than the outside diameter of the post.

Set handrail accurately in location, alignment and elevation with edges and surfaces level, plumb and true. Fill annular space between posts and sleeve or holes with grout

3.05 BRIDGE RAIL

Bridge rail shall be installed per NHDOT 563, NHDOT Standard Details Sheets titled “Bridge Rail Details (2-Bar Aluminum)” and “Aluminum Baluster Details.

PART 4 MEASUREMENT AND PAYMENT

There is no separate measurement or payment for work covered by this Section.

END OF SECTION

**SECTION 03300
MARINE CONCRETE**

PART 1 - GENERAL

Work under this section covers all cast-in-place concrete and any incidental concrete work necessary to construct the seawall replacement as shown on the drawings and specified herein.

1.01 REFERENCES

D. State of New Hampshire Department of Transportation Standard Specification for Road and Bridge Construction, 2010 edition (NHDOT).

E. ACI International Standards

ACI 214R	Evaluation of Strength Test Results of Concrete
ACI 301	Specifications for Structural Concrete
ACI 304.2R	Placing Concrete by Pumping Methods
ACI 304R	Guide for Measuring, Mixing, Transporting, and Placing Concrete
ACI SP-2	ACI Manual of Concrete Inspection

F. American Association of State Highway and Transportation Officials (AASHTO)

AASHTO M 182	Standard Specification for Burlap Cloth Made from Jute or Kenaf and Cotton Mats
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G. ASTM Standards

ASTM A 615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A 775	Epoxy-Coated Reinforcing Steel Bars
ASTM C 31	Making and Curing Concrete Test Specimens in the Field
ASTM C 33	Concrete Aggregates
ASTM C 42	Obtaining and Testing Drilled Cores and Sawed Beam of Concrete
ASTM C 94	Ready-Mixed Concrete
ASTM C 143	Slump of Hydraulic Cement Concrete
ASTM C 157	Length Change of Hardened Hydraulic-Cement Mortar and Concrete
ASTM C 171	Sheet Materials for Curing Concrete
ASTM C 172	Sampling Freshly Mixed Concrete

ASTM C 173	Air Content of Freshly Mixed Concrete by the Volumetric Method
ASTM C 227	Potential Alkali Reactivity of Cement-Aggregate Combinations (Mortar-Bar Method)
ASTM C 231	Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C 1077	Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation
ASTM C 1202	Standard Test Method for Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration
ASTM C 1260	Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
ASTM D5249	Standard Specification for Backer material for Use with Cold- and Hot-applied Joint Sealants in Portland Cement Concrete and Asphalt Joints

1.02 DEFINITIONS

- A. "Cementitious material" as used herein shall include portland cement, pozzolan, fly ash, ground granulated blast-furnace slag, and silica fume.
- B. "Design strength" (f_c) is the specified compressive strength of concrete to meet structural design criteria.
- C. "Marine concrete" is that concrete that will be in contact with or subject to submersion, tidal variations, splash, or spray from water in navigable waterways.
- D. "Pozzolan" is a silicious or silicious and aluminous material, which in itself possesses little or no cementitious value but will, in finely divided form and in the presence of moisture, chemically react with calcium hydroxide at ordinary temperatures to form compounds possessing cementitious properties.
- E. "Field test strength" (f_{cr}) is the required compressive strength of concrete to meet structural and durability criteria. Determine (f_{cr}) during mixture proportioning process.

1.03 SUBMITTALS

- A. Concrete Mixture Design. At least 30 days prior to concrete placement, submit proportions for the concrete mixture that meets the properties specified and is suitable for the job conditions. Submit a complete list of materials including type; brand; source and amount of cement, aggregate, fly ash, (or slag pozzolans), silica fume, ground slag, anti-washout and other admixtures for underwater concreting, corrosion inhibitors; and applicable reference specifications. Submit additional

data regarding concrete aggregates if the source of aggregate changes. An identical concrete mixture previously approved and used within the past 12 months by the NHDOT may be used if copies of the previous approval, location, and aggregate, fly ash, silica fume, and pozzolan test results are submitted. The approval of aggregate, fly ash, silica fume, and pozzolan test results shall have been within 6 months of submittal date. Obtain acknowledgement of receipt prior to concrete placement. The mixture shall be prepared by an accredited laboratory experienced in this field and under the direction of a licensed/registered civil engineer, who shall sign all reports and designs.

1. Submit test results for aggregate quality in accordance with ASTM C 33, and the combined gradation curve for grading proposed for use in the work and used in the mixture qualification. Where there is potential for alkali-silica reaction, provide results of tests conducted in accordance with ASTM C 227 or ASTM C 1260.
- B. Drawings: Submit shop drawings indicating seawall dimensions and reinforcing details. Include bar reinforcing size, layout and quantities; splicing placement and laps of bars; accessories; embedded items; location of penetrations; and concrete cover. Do not scale dimensions from structural drawings to determine lengths of reinforcing bars. Only complete drawings will be accepted. Include location and details of utility conduit penetrations.
- C. Certificates: Submit certificates for the following:
1. Concrete Placement and Compaction: Submit technical literature for equipment and methods proposed for use in placing, vibrating and compacting concrete. Submittal shall include technical literature describing the equipment including vibrator diameter, length, frequency, amplitude, centrifugal force, and manufacturer's description of the radius of influence under load. Where flat work is to be cast, provide similar information relative to the proposed compacting screed or other method to ensure dense placement.
 2. Submit data on qualifications of proposed testing agency and technicians for approval by the Engineer prior to performing any work.
 - a. Work on concrete under this contract shall be performed by an ACI Concrete Field Testing Technician Grade 1 or Grade 2 qualified in accordance with ACI SP-2 or equivalent. Equivalent certification programs shall include requirements for written and performance examinations as stipulated in ACI SP-2.
 - b. Testing agencies that perform testing services on concrete materials shall meet the requirements of ASTM C 1077.
- D. Batch Tickets. Submit batch tickets for each load of concrete delivered to the project site.

- E. Test Reports. Submit results for field tests completed on fresh concrete and compressive strength tests completed on hardened concrete.

PART 2 - PRODUCTS

2.01 CONCRETE

- A. Durability and Strength. Meet the requirements of NHDOT Class AAA (Overlay) 5000 psi, with a maximum w/c ratio of 0.400.
 - 1. Slump. NHDOT 520.3.1.4.1.2. The concrete mixture shall have a slump between 2 inches and 3 inches. Concrete with a high range water reducer shall have a maximum slump of 8 inches.
 - 2. Chloride Ion Penetration. To ensure the durability of concrete in marine environment, concrete shall be proportioned to have the chloride ion penetration test in accordance with ASTM C 1202, and be below 2000 coulombs for concrete specimens tested at 28 days.
- B. Required Average Strength of Concrete. The minimum compressive strength (fcr) of the selected mixture shall equal or exceed the strength required under ACI 301 for laboratory mixture designs and which passes the test indicated in the subparagraph entitled "Chloride Ion Penetration." The average compressive strength produced under field tests shall be the minimum compressive strength (fcr) required during construction.

2.02 MATERIALS

- A. Concrete Mixture. All materials, including cementitious, aggregates, admixtures, and water, shall be in accordance with NHDOT 520.
- B. Shrinkage Reducing Admixture. Provide a shrinkage reducing admixture, ASTM C 157, in the concrete topping mixture. Provide dosage as recommended by manufacturer.
- C. Nonshrink Grout. In accordance with NHDOT Qualified Products List for Fast Setting Grouts for Anchor Bolts.
- D. Materials for Forms. Provide wood, plywood, or steel. Use plywood or steel forms where a smooth form finish is required. Form material shall be sufficiently flat and rigid to meet specified construction tolerances
- E. Reinforcing Bars. ACI 301 unless otherwise specified. ASTM A 615, Grade 60 Epoxy coated, ASTM A 775. Do not use uncoated reinforcing steel. Reinforcing steel shall be supplied in the shape and length required for the project without modification in the field.

- F. Materials for Curing Concrete
 - 1. Impervious Sheeting. ASTM C 171; waterproof paper, clear or white polyethylene sheeting, or white burlap-polyethylene sheeting.
 - 2. Pervious Sheeting. AASHTO M 182
 - 3. Liquid curing compound. NHDOT 520. Type ID (fugitive dye), Class B or Type 2 (white pigmented), Class B conforming to AASHTO M 148 except as modified herein. The vehicle shall have a resin base and contain no waxy compounds. The compound shall dry to touch within 4 hours when applied at the rate of 1 gallon per 200 square feet of concrete
- G. Non-shrink Grout. Non-shrinking, non-ferrous, cement base grout or fast setting anchor cement shall be a product as included on the NHDOT Qualified Products List for Fast Setting Grouts for Anchor Bolts. Unless otherwise directed, the recommendations of the manufacturer of the product shall be followed exactly, so as to completely fill the space around the anchor/bolt.
- H. Backer Rod. Backer rod shall be expanded closed cell polyethylene meeting the requirements of ASTM 5249.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Surfaces on which concrete is to be placed shall be clean, damp, and free of debris, dirt, frost, ice, marine growth and standing or running water. Dewater as necessary.
- B. Notify Engineer minimum 24 hours prior to commencement of concreting operations. Engineer shall inspect reinforcing and framework prior to concrete operation.

3.02 FORMS

- A. ACI 301. Set forms mortar-tight and true to line and grade. Chamfer above grade exposed joints, edges, and external corners of concrete 0.75 inch unless otherwise indicated. Forms submerged in water shall be watertight.
- B. Formwork shall be gasketed or otherwise rendered sufficiently tight to prevent leakage of paste or grout under heavy, high-frequency vibration. Limit reuse of plywood to no more than three times. Reuse may be further limited by the Engineer or the City if deemed unsatisfactory.
- C. Patch form tie holes with a nonshrink patching material in accordance with the manufacturer's recommendations and subject to approval.

3.03 HANDLING STORAGE AND PLACING REINFORCEMENT AND MISCELLANEOUS MATERIALS

ACI 301. Remove rust, scale, oil, grease, clay, or foreign substances from reinforcing that would reduce the epoxy coating bond from reinforcing. Do not tack weld. Do not field bend or cut to length in the field.

- A. Handling and Storage. Provide systems for handling coated bars which have padded contact areas, nylon slings, etc., all free of dirt and grit. Lift bundled coated bars with strong back, multiple supports, or platform bridge to prevent sagging and abrasion. Bundling bands shall be padded where in contact with bars. Do not drop or drag bars or bundles. Store coated bars both in shop and in field, aboveground, on wooden or padded cribbing. Space the dunnage close enough to prevent excessive sags. Stack large quantities of straight bars with adequate protective blocking between layers. Schedule deliveries of epoxy coated bars to the job site to avoid the need for long term storage. Protect from direct sunlight and weather. Bars to be stored longer than 12 hours at the job site shall be covered with opaque polyethylene sheeting or other suitable equivalent protective material.
- B. Coating Repair. Carefully handle and install bars to minimize job site patching. Use the same precautions as described above for handling, and storage when placing coated reinforcement. Do not drag bars over other bars or over abrasive surfaces. Keep bar free of dirt and grit. It is not expected that coated bars, when in final position ready for concrete placement, will be completely free of damaged areas; however, excessive nicks and scrapes which expose steel will be cause for rejection. Inspect for defects and provide required repairs prior to assembly. After assembly, reinspect and provide final repairs.
1. Immediately prior to application of the patching material, any rust and debonded coating shall be manually removed from the reinforcement by suitable techniques employing devices such as wire brushes and emery paper. Care shall be exercised during this surface preparation so that the damaged areas are not enlarged more than necessary to accomplish the repair. Damaged areas shall be clean of dirt, debris, oil, and similar materials prior to application of the patching material.
 2. Repair and patching shall be done in accordance with the patching material manufacturer's recommendations. These recommendations, including cure times, shall be available at the job site at all times.
 3. Allow adequate time for the patching materials to cure in accordance with the manufacturer's recommendation prior to concrete placement.
 4. Rinse placed reinforcing bars with fresh water to remove chloride contamination prior to placing concrete.

- C. Reinforcement Supports. Place reinforcement and secure with noncorrodible chairs, spacers, or hangers. Support reinforcement on the ground with concrete or other noncorrodible material, having a compressive strength equal to or greater than the concrete being placed.
- D. Splicing. ACI 301. Do not splice at points of maximum stress.
- E. Cover. Concrete cover for reinforcement shall be 3 in. unless otherwise indicated. Placement tolerance is plus 1/4 inch.
- F. Setting Miscellaneous Material and Anchorages. Place and secure anchors, bolts, pipe sleeves, conduits, and other such items in position before concrete placement. Plumb anchor bolts and check location and elevation. Temporarily fill voids in sleeves with readily removable material to prevent the entry of concrete. Electrically isolate exposed steel work and its anchor systems from the primary steel reinforcement with at least 2 inches of concrete. Coat exposed steel work to reduce corrosion. Take particular care to ensure against corrosion on edges and horizontal surfaces. Use epoxy coatings for protection of carbon steel plates and fittings.
- G. Construction Joints. Locate joints to least impair strength. Continue reinforcement across joints unless otherwise indicated.

3.04 BATCHING, MIXING, AND TRANSPORTING CONCRETE

ASTM C 94, ACI 301, and ACI 304R, except as modified herein. Furnish mandatory batch tickets imprinted with mix identification, batch size, batch design and measured weights, moisture in the aggregates, and time batched for each load of ready mix concrete.

- A. Mixing. ASTM C 94 and ACI 301. Machine mix concrete. Begin mixing within 30 minutes after the cement has been added to the aggregates. Place concrete within 90 minutes of either addition of mixing water to cement and aggregates or addition of cement to aggregates if the air temperature is less than 85 degrees F. Reduce mixing time and place concrete within 60 minutes if the air temperature is greater than 85 degrees F except as follows: if set retarding admixture is used and slump requirements can be met, limit for placing concrete may remain at 90 minutes. Dissolve admixtures in the mixing water and mix in the drum to uniformly distribute the admixture throughout the batch.
- B. Transporting. Transport concrete from the mixer to the forms as rapidly as practicable. Prevent segregation or loss of ingredients. Clean transporting equipment thoroughly before each batch. Do not use aluminum pipe or chutes. Remove concrete which has segregated in transporting and dispose of as directed.

3.05 PLACING CONCRETE

- A. Place concrete in incremental heights in conjunction with granite block facing.
- B. Before concrete placement, coat the contact surfaces of forms with a nonstaining mineral oil, nonstaining form coating compound, or two coats of nitrocellulose lacquer. Do not use mineral oil on forms for surfaces to which adhesive, paint, or other finish material is to be applied.
- C. Before concrete placement, the back side of granite blocks forming the face of the seawall shall be damp and coated with a cement-based mortar, no greater than 1 hour before placing concrete for the seawall.
- D. Before concrete placement, backer rod shall be placed in the granite block joints to prevent leakage of paste or grout during concrete placement operations. The backer rod shall be set in 2 inches to 3 inches from the face of the granite blocks. The backer rod shall be removed after the concrete has cured.
- E. Ensure reinforcement, inserts, embedded parts, joints and granite blocks are not disturbed during concrete placement.
- F. Place concrete as soon as practicable after the forms and the reinforcement have been inspected and approved. Do not place concrete when weather conditions prevent proper placement and consolidation; in uncovered areas during periods of precipitation; or in standing water unless otherwise approved. Prior to placing concrete, remove dirt, construction debris, water, snow, and ice from within the forms. Deposit concrete as close as practicable to the final position in the forms. Do not exceed a free vertical drop of 3 feet from the point of discharge. Place concrete in one continuous operation from one end of the structure towards the other or lifts for vertical construction.
- G. Concrete shall be placed in layers not to exceed 12 inches and placing intervals shall not exceed 30 minutes unless otherwise permitted. Concrete which has attained a partial set shall not be used.
- H. Vibration. Consolidation of all concrete shall be achieved by the use of approved internal vibrators with a frequency range of 7,000 to 10,000 impulses per minute. Vibrators used in concrete containing epoxy coated reinforcing steel shall be equipped with a non-metallic or non-metallic-coated head. Concrete shall not be moved excessive distances by the use of vibrators. Vibrators shall be inserted vertically into the fresh concrete and withdrawn slowly. Vibration shall continue until consolidation is achieved and stopped before segregation occurs or water is forced to exterior concrete surfaces in appreciable amounts. Concrete shall not be placed at a rate greater than that which can be thoroughly consolidated by the vibrators in use. Provide at least one reserve vibrator on site during concrete placement operations.

- I. Pumping. ACI 304R and ACI 304.2R. Pumping shall not result in separation or loss of materials nor cause interruptions sufficient to permit loss of plasticity between successive increments. Loss of slump in pumping equipment shall not exceed 2 inches. Do not use pipe made of aluminum or aluminum alloy. Avoid rapid changes in pipe sizes. Limit maximum size of coarse aggregate to 33 percent of the diameter of the pipe. Maximum size of well rounded aggregate shall be limited to 40 percent of the pipe diameter. Take samples for testing at the discharge end.
- J. Hot Weather Placement. NHDOT 520. The Contractor shall maintain the as delivered concrete below 85 ° F. This may require the addition of ice to the mixing water, sprinkling the forms and reinforcing steel, scheduling the concrete placements for early morning or evening hours, or any other approved methods.
1. After placement, the concrete shall be maintained below 100 ° F by sunshades, windscreen, fog spray, wet burlap, or other approved methods.
 2. If excess water demand or too rapid setting is anticipated, a Water-Reducing or Retarding Admixture may be added to the mix in the amounts ordered.
 3. When daytime air temperatures exceed 85 ° F, concrete temperature exceeds 80 ° F, and in the opinion of the Engineer, satisfactory surface finish cannot be achieved, nighttime or early morning placement may be required. No additional compensation will be allowed for this work.
- K. Cold Weather Placement. NHDOT 520. When the average daily temperature falls below 35° F for more than 1 day, protective measures shall be taken to prevent damage to the concrete by freezing. The Contractor shall submit proposed protective methods for approval. Concrete shall be protected from freezing for a minimum of 5 days.
1. Insulation shall be approved blanket, batt or board insulation with a thermal conductivity of less than 0.25 BTU per hour per square foot for a thermal gradient of 1° F/inch.
 2. Concrete shall be brought to the required temperature by the use of heated mixing water or heated aggregates or both. The maximum allowable temperature of water shall be 160o F and the maximum allowable temperature for aggregates shall be 100o F. The heated water shall be added to the aggregates prior to the addition of the cement.
 3. Concrete delivery temperature shall be 50° to 70o F for sections 24 in. or less in thickness and 40° to 55o F for sections thicker than 24 in. unless otherwise permitted.
 4. If the air temperature and transporting distance prevent the delivery of the concrete at the required temperature without exceeding the maximum allowable temperature, the placement shall be canceled until such time as the requirements can be met.
 5. Forms, reinforcing steel, existing concrete and all other materials which will be in contact with the fresh concrete shall be brought to a temperature of 50o

F and all frost shall be removed within the limits of the foundation prior to placing concrete.

6. Concrete shall be placed in the forms as soon as possible after delivery and as rapidly as possible without exceeding form and tie capacities. Tarpaulins or other approved materials shall be used to cover the top openings in forms to prevent heat loss. Only that portion of the form required for placement shall be opened and the opening shall be recovered between trucks unless otherwise permitted.
7. Finishing shall be completed as rapidly as possible. Liquid curing compound shall be applied to exposed surfaces immediately after finishing. After the concrete has set, plastic shall be placed over the exposed areas. When insulation is used, a covering of approved insulation or a layer of hay and a tarpaulin shall be placed over the plastic and secured in place.
8. The concrete temperature shall be maintained between 50° and 100° F for the first 72 hours and between 40° and 100° F for the next 48 hours. The concrete shall then be permitted to cool at a rate not to exceed 1° F per hour until it reaches the atmospheric temperature

3.06 SURFACE FINISHES

- A. All concrete shall be screeded to the established elevations, then steel troweled to the finish lines on the drawings with allowable tolerance not exceeding 1/8 inch in any direction when treated with a 10-foot long straightedge.
- B. Repair formed surfaces by removing minor honeycombs, pits greater than three square inch surface area or 0.75 inch maximum depth, or otherwise defective areas. Provide edges perpendicular to the surface and patch with nonshrink grout. Patch tie holes and defects when the forms are removed. Concrete with extensive honeycomb including exposed steel reinforcement, cold joints, entrapped debris, separated aggregate, or other defects which affect the serviceability or structural strength will be rejected, unless correction of defects is approved. Obtain approval of corrective action prior to repair.
- C. If the above requirements are not met, the Contractor shall, at its own expense, correct the conditions, as directed by the Engineer, using materials and methods approved by the Engineer.

3.07 CURING AND PROTECTION

Concrete shall be cured per one of the following NHDOT 520 curing methods, as modified.

- A. Concrete shall be kept moist until it can support curing covers at which time it shall be completely covered with a vapor-proof barrier conforming to Sheeting Curing Material specified under Part 2. Water shall be reapplied as necessary to keep the surface of the concrete wet for the entire 7 day cure period.

- B. Immediately after finishing, all exposed surfaces shall be treated with a liquid curing compound conforming to the requirement of Liquid Curing Compound Curing Material under Part 2 at the rate of 1 gallon per 200 square feet or by fog spray, sprinkling or ponding of water conforming to NHDOT 520 or any combination of the above, when the weather permits. Within 24 hours of finishing, these surfaces shall be completely covered with a vapor-proof barrier conforming to Sheeting Curing Material specified under Part 2 for the remainder of the 7 days.

3.08 QUALITY CONTROL

- A. Sampling. ASTM C 172. Collect samples of fresh concrete to perform tests specified.
- B. Slump Test. ASTM C 143. Complete one test on each truck of concrete delivered. Take concrete samples during concrete placement.
- C. Temperature Tests. Complete one test on each truck of concrete delivered. Take concrete samples during concrete placement.
- D. Air Content Test. ASTM C 173 or ASTM C 231. Complete one air content test on each truck of concrete delivered. Take concrete samples during concrete placement.
- E. Compressive Strength Tests
 - 1. Mold and cure six 6x12 inch cylinders for each truck of concrete delivered, in accordance with ASTM C 31. Prevent evaporation and loss of water from the specimen.
 - 2. Test cylinders for compressive strength per ACI 214R. Test one cylinder at 3 days, two cylinders at 7 days, two cylinders at 28 days, and hold one cylinder in reserve.
 - a. The compressive strength test results for acceptance shall be the average of the compressive strengths from the two specimens tested at 28 days. If one specimen in a test shows evidence of improper sampling, molding or testing, discard the specimen and consider the strength of the remaining cylinder to be the test result. If both specimens in a test show any defects, the Engineer may allow the entire test to be discarded.
 - b. If the average of any three consecutive strength test results is less than the specified strength (f'c) by more than 500 psi, take a minimum of three core samples in accordance with ASTM C 42, from the in-place work represented by the low test results. Locations represented by erratic core strengths shall be retested. Remove concrete not meeting strength criteria and provide new acceptable concrete. Repair core holes with nonshrink grout.

- c. Strength test reports shall include location in the work where the batch represented by a test was deposited, batch ticket number, time batched and sampled, slump, air content, mixture and ambient temperature.. Reports of strength tests shall include detailed information of storage and curing of specimens prior to testing.
- d. Final reports shall be provided within 7 days of test completion.

F. Acceptance of Concrete Strength

- 1. Standard Molded and Cured Strength Specimens. When the averages of all sets of three consecutive compressive strength test results equal or exceed the design compressive strength ($f'c$) or the required field test strength (fcr) whichever is higher, and no individual strength test falls below the specified compressive strength ($f'c$) or the required field durability strength (fcr) by more than 500 psi, whichever is higher. These criteria also apply when accelerated strength testing is specified unless another basis for acceptance is specified.
- 2. Core Tests. When the average compressive strengths of the representative cores are equal to at least 85 percent of the design strength ($f'c$) or the required average test strength (fcr), whichever is higher, and if no single core is less than 75 percent of the specified strength ($f'c$) or the required average field test strength (fcr), whichever is higher, strength of concrete is satisfactory.

PART 4 - MEASUREMENT AND PAYMENT

There is no separate measurement or payment for work covered by this Section.

END OF SECTION

**SECTION 04410
STONE MASONRY**

PART 1 GENERAL

Work under this section includes all labor, materials and equipment necessary to complete stone work related to the seawall reconstruction as shown on the drawings and specified herein.

1.01 SUBMITTALS

Contractor shall submit product data and cut sheets for

1. Supplemental granite block if required,
2. Stainless steel dowels, and
3. Mortar and anchorage grout.

1.02 QUALITY ASSURANCE

The Contractor shall provide a qualified stone mason to supervise the selection, fitting, working and placement of all stonework meeting these specifications and the intent of the project. If the Contractor is not experienced in stone masonry, it shall employ a stone mason to supervise stone placements and ensure quality stonework construction.

PART 2 PRODUCTS

2.01 GRANITE BLOCK

- A. Salvaged Granite Block. Granite block removed from the existing seawall and considered for reuse in the seawall reconstruction shall meet the following:
1. Sound, dense, hard and of good quality and resistant to weathering and disintegration from the marine environment and freeze/thaw cycles. Granite blocks with cracks or soft seams shall be considered as separate blocks.
 2. Block shape with a minimum of three relatively flat surfaces
 3. Weigh not less than 160 pounds per cubic foot.
 4. Size and shape consistent with the adjacent, privately-owned, granite block seawall at the northern limit of the project. Typical acceptable granite block shall be approximately 18 inches deep, 18 to 30 inches high and 3 to 6 feet long. Smaller granite blocks meeting all other requirements may be acceptable based on granite block layout of the seawall facing.
- B. Supplemental Granite Block. Supplemental granite block may be required if removal of the seawall does not result in sufficient quantity of acceptable granite block. If

supplemental granite block is required, the Contractor shall coordinate with the Engineer and City to view the City's stockpile of granite at the Harvard Street yard or the Constitution Avenue yard. The Engineer, City and Contractor shall determine if a sufficient supply of granite block similar to that salvaged from the seawall is available.

1. If acceptable granite blocks in the City's yard are identified, the Contractor is responsible for loading, transporting and unloading the granite block and any preparation or cleanup of the granite blocks as required for their use.
2. If acceptable granite blocks in the City's yard are not identified, the Contractor shall provide supplemental granite block. The granite block shall be of similar color and texture as granite block salvaged from the seawall and shall meet all requirements of salvaged granite block. The Contractor is responsible for loading, transporting and unloading the granite block and any preparation or cleanup of the granite blocks as required for their use.

2.02 DOWELS

Stainless Steel, Type 316.

2.03 MORTAR AND ANCHORAGE GROUT

- A. Mortar: field mixed mortar shall use Type II Portland cement. Premixed mortar/concrete bags that are comprised of Type II or Type IS cement are acceptable.
- B. Anchorage grout. Dowel anchorage grout shall be non-shrink, non-metallic, cement-based grout appropriate for saltwater/marine environment and submersion. Minimum 28-day compressive strength of 7,000 psi

PART 3 EXECUTION

3.01 GRANITE BLOCK PREPARATION

- A. Granite block shall be approved for re-use by the Engineer before the Contractor commences with setting the granite blocks.
- B. Before commencing with placing granite blocks, the Contractor shall clean the granite blocks of all vegetation, marine growth, organic matter, oil, grease, paint, and any bonding inhibiting deposits by high pressure water blasting or other submitted to and approved by the Engineer.
- C. Salvage granite blocks may require modification by splitting, drilling, tooling, parching, and anchoring to closely approximate existing adjacent construction. Shaping of granite block shall be completed before the granite block is laid in the wall. Minimize modifications to the extent possible. Proposed modifications shall be submitted to the Engineer for acceptance before commencing.

1. New split surfaces shall be rough or natural split to provide surfaces which closely approximate the existing granite block, and which vary not more than existing granite block surfaces from true plane and square.
 2. Set new split stone surfaces of salvaged stone to conceal the new surface from view, if possible.
- D. Holes for dowels shall be drilled in the granite blocks at the locations indicated on the drawings before the granite blocks are placed, unless otherwise permitted.
1. Fill all unused holes in both concealed and exposed top surfaces of granite blocks with mortar to prevent standing water. Where exposed to view, color and general appearance of mortar shall closely approximate the stone.

3.02 GRANITE BLOCK SETTING

- A. Granite blocks shall be set in conjunction with marine concrete placement. The granite blocks shall act as the concrete formwork for the face of the seawall. The granite blocks shall be adequately placed or braced such that they do not move during concrete placement or concrete consolidation operations.
- B. Granite blocks shall be selected and placed to show the straightest, flattest face(s), free of defects to the extent possible.
- C. Granite block shall be carefully set without jarring granite already laid and shall be handled with a lewis or other suitable device which will not mar the stone. Rolling or turning of granite block will not be permitted.
- D. Granite blocks shall be solidly set and interlocked for a stable condition prior to concrete placement. Any block that can be rocked or moved by hand or foot pressure shall be reset.
- E. Granite blocks shall be set with neat tight stone placement in regular courses of uniform height throughout entire length of the course. The vertical joints between granite blocks shall be staggered at least 8 inches between adjacent courses.
- F. Granite blocks shall be set to comply with the following tolerances, to the extent achievable with the salvaged granite blocks, for an overall installation that is straight and true to line. All tolerances shall be measured between or along block joint arris lines.
1. Variation in vertical plane shall not exceed 1 inch landward between a given course and the adjacent lower course. The finished granite facing shall be straight or with a slight batter landward.
 2. Variation from vertical plane shall not exceed 1 inch between adjacent granite blocks.

- G. The back side of granite blocks shall be damp and coated with a cement-based mortar as specified in specification 03300 Marine Concrete. Granite block shall not be set when containing frost or during freezing weather unless permitted. When permission is granted, the granite blocks and mortar shall be protected in the same manner as specified in specification 03300 Marine Concrete, except that liquid curing compound shall not be used.
- H. Backer rod shall be placed between granite block joints prior to concrete placement and removed after concrete curing as specified in specification 03300 Marine Concrete.

PART 4 MEASUREMENT AND PAYMENT

There is no separate measurement or payment for work covered by this Section, except for the following items for supplemental granite block.

- A. Measurement for payment for Item 04410 Supplemental Granite Block from City Yard shall include identifying quantity of supplemental granite block required, coordinating with the Engineer and City for review of material at the City Yard, loading, transporting and unloading the granite block and shall be measured per cubic feet complete.
- B. Measurement for payment for Item 04410-1 Supplemental Granite Block Contractor Supplied shall include identifying quantity of supplemental granite block required, procuring granite block that meets the project requirements, loading, transporting and unloading the granite block and shall be measured per cubic feet complete.

<u>Item</u>	<u>Description</u>	<u>Unit</u>
04410	Supplemental Granite Block from City Yard	Cubic Feet (CF)
04410-1	Supplemental Granite Block Contactor Supply	Cubic Feet (CF)

END OF SECTION

MECHANIC STREET SEAWALL REPLACEMENT AT PICKERING STREET



DEPARTMENT OF
PUBLIC WORKS
CITY OF PORTSMOUTH, NH
WINTER 2013

PREPARED BY
VINE ASSOCIATES, A DIVISION OF GZA GEOENVIRONMENTAL, INC.
372 MERRIMAC STREET
NEWBURYPORT, MA



LOCUS MAP

DRAWING INDEX:

SHEET 1	COVER
SHEET 2	NOTES
SHEET 3	EXISTING CONDITIONS AND REMOVALS
SHEET 4	GEOTECHNICAL BORING LOGS
SHEET 5	REPLACEMENT PLAN
SHEET 6	REPLACEMENT SECTIONS AND ELEVATION
SHEET 7	REPLACEMENT DETAILS
SHEET 8	STAIR ACCESS AND MISCELLANEOUS DETAILS
SHEET 9	NHDOT STANDARD, BRIDGE RAIL DETAILS (2-BAR ALUMINUM)



Frank S. Vettere

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NHDES FILE #2012-00751
CITY OF PORTSMOUTH, MECHANIC & PICKERING STREET

MECHANIC STREET SEAWALL
COVER

PREPARED BY: Vine ASSOCIATES A DIVISION OF		PREPARED FOR: CITY OF PORTSMOUTH, NH	
PROJ MGR: CWC	DESIGNED BY: CWC	REVIEWED BY: RJM	CHECKED BY: JJZ
DATE: JANUARY 2013	PROJECT NO: 18.0170970.00	DRAWN BY: JJZ	SCALE: AS SHOWN
		REVISION NO:	DRAWING
		JANUARY 2013	1
			SHEET NO. 1 OF 9

CONTACT NUMBERS:
PUBLIC WORKS: 427-1530
WATER DEPARTMENT 427-1552
AMERICAN FLAGGING: 890-1154
GAS EMERGENCY: 866-900-4115
EMERGENCY: 911

GENERAL NOTES:

- THE SCOPE OF WORK INCLUDES ALL LABOR, TOOLS, EQUIPMENT, ACCESSORIES, AND MATERIALS TO FURNISH AND INSTALL THE SEAWALL REPLACEMENT. THE SEAWALL REPLACEMENT INCLUDES, BUT IS NOT LIMITED TO:
 - PREPARE AND SUBMIT TO NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES AN EROSION CONTROL/WATER QUALITY PROTECTION PLAN FOR APPROVAL PRIOR TO COMMENCING WORK.
 - REMOVE EXISTING SEAWALL TO THE BOTTOM OF REPAIR ELEVATION INCLUDING TEMPORARY REMOVAL OF PAVEMENT AND ROADWAY FILL MATERIAL, AS NEEDED TO COMPLETE THE REPAIR WORK. USE OF EXPLOSIVES IS NOT PERMITTED.
 - SALVAGE SUITABLE GRANITE BLOCK STONES FOR REUSE AS GRANITE FACING FOR THE REPLACEMENT SEAWALL. MISCELLANEOUS ITEMS FROM THE SEAWALL THAT ARE NOT SUITABLE FOR REUSE, SUCH AS GRANITE CURB AND BRICK, SHALL BE COME THE PROPERTY OF THE CONTRACTOR. ANY EXCESS GRANITE BLOCK SUITABLE FOR REUSE SHALL BECOME THE PROPERTY OF THE CITY AND THE CONTRACTOR SHALL LOAD, TRANSPORT, AND UNLOAD THE GRANITE BLOCK AT A SITE COORDINATED WITH THE CITY.
 - HARBOR BOTTOM MATERIAL REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
 - CONSTRUCT REINFORCED CONCRETE SEAWALL, AS SHOWN.
 - CONSTRUCT STONE BLOCK FACING UTILIZING SALVAGED STONE BLOCKS FROM THE SITE, AS SHOWN.
 - PROVIDE SUPPLEMENTAL GRANITE BLOCK AS NEEDED, SEE SPECIFICATIONS.
 - UPON COMPLETION OF THE SEAWALL, REGRADE THE MUDLINE ALONG THE FACE OF THE SEAWALL TO MATCH APPROXIMATE EXISTING GRADE.
 - CONSTRUCT DRAINAGE SYSTEM, AS SHOWN.
 - REMOVE PAVEMENT, FULL-WIDTH, OF MECHANIC STREET AND REPLACE WITH BITUMINOUS BASE COURSE ONLY. THIS WORK SHALL BE COORDINATED WITH THE CITY AND THE SOUTH END SIDEWALK & ROAD REPLACEMENT PROJECT. THE FINAL WEARING COURSE WILL BE COMPLETED BY OTHERS.
 - SUBMIT A RECORD DRAWING OF AS-BUILT CONDITIONS UPON COMPLETION OF THE WORK.
- UTILITIES AND GENERAL SITE INFORMATION SHOWN ARE APPROXIMATE AND BASED ON LINWORK FROM CITY OF PORTSMOUTH PUBLIC WORKS DEPARTMENT. VERIFICATION OF ACTUAL UTILITY LOCATIONS IS THE RESPONSIBILITY OF THE CONTRACTOR.
- A LIMITED TOPOGRAPHIC SURVEY OF THE SEAWALL AND IMMEDIATELY ADJACENT FEATURES WAS PERFORMED BY VINE ASSOCIATES, A DIVISION OF GZA GEOENVIRONMENTAL, ON JULY 21, 2011.

- ELEVATIONS SHOWN ARE IN FEET AND REFERENCE THE MEAN LOWER LOW WATER DATUM (MLLW). SEE TIDAL DATUMS TABLE.
- DIMENSIONS, ELEVATIONS AND CONDITIONS RELATING TO THE WORK SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ORDERING MATERIAL OR COMMENCING WORK. THE CONTRACTOR SHALL ADVISE THE OWNER OF ANY DISCREPANCIES FROM THE WORK SHOWN ON THE DRAWINGS.
- THE CONTRACTOR SHALL MAINTAIN ADEQUATE SURVEY CONTROL, AT ALL TIMES, TO ESTABLISH AND MAINTAIN ALL LINES AND ELEVATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE DONE TO STRUCTURES, UTILITIES AND VESSELS OR INJURIES TO THE PUBLIC RESULTING FROM THE CONTRACTOR'S WORK OR WORK OF THE CONTRACTOR'S SUBCONTRACTORS. THE CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN TEMPORARY CONSTRUCTION FENCES AND BARRIERS AROUND THE CONTRACTOR WORK AREA. DEBRIS AND OIL ABSORBENT BOOMS SHALL BE PLACED SEAWARD OF THE LIMIT OF WORK.
- ACCESS TO THE PRIVATELY OWNED STRUCTURES AT EITHER END OF THE SEAWALL REPLACEMENT WORK SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION. TEMPORARY, SHORT-TERM, PERIODS OF NO OR LIMITED ACCESS MAY BE PERMITTED WITH ADVANCED NOTIFICATION AND COORDINATION WITH THE CITY AND THE PROPERTY OWNER.
- THE PORTION OF MECHANIC STREET AFFECTED BY THE SEAWALL REPLACEMENT MAY BE CLOSED FOR THE DURATION OF THE CONSTRUCTION WORK. THIS AREA MAY ALSO BE USED AS CONTRACTOR LAYDOWN AREA. THE CONTRACTOR SHALL EXERCISE CAUTION TO NOT DAMAGE ADJACENT PRIVATE PROPERTY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE RESULTING FROM THE CONTRACTOR'S WORK OR WORK OF THE CONTRACTOR'S SUBCONTRACTORS. THE CONTRACTOR SHALL EXERCISE CAUTION TO NOT DAMAGE ADJACENT PRIVATE PROPERTY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE RESULTING FROM THE CONTRACTOR'S WORK OR WORK OF THE CONTRACTOR'S SUBCONTRACTORS.
- THE CONTRACTOR SHALL PERFORM WORK AS PER THE WETLANDS AND SITE SPECIFIC PERMIT 2012-00751 ISSUED BY THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES (NHDES). ANY CHANGES FROM THE PERMIT AND/OR THESE CONSTRUCTION PLANS SHALL BE APPROVED BY THE ENGINEER AND NHDES.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE REMOVAL AND ERECTION PROCEDURES AND SEQUENCE TO ENSURE THE SAFETY OF THE FACILITIES. THE CONTRACTOR IS RESPONSIBLE TO ERECT, MAINTAIN AND REMOVE TEMPORARY ERECTION MATERIALS AND EQUIPMENT. ALL PROPOSED STAGING AREAS SHALL BE COORDINATED WITH THE CITY BEFORE STARTING THE WORK.
- THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ENVIRONMENTAL CONTROLS AS REQUIRED BY FEDERAL, STATE AND MUNICIPAL REGULATIONS AND PERMITS. ENVIRONMENTAL CONTROLS SHALL INCLUDE, BUT NOT BE LIMITED TO, SILTATION/EROSION CONTROL, TURBIDITY AND DUST.
- THE CONTRACTOR SHALL FOLLOW ALL APPLICABLE FEDERAL, STATE AND MUNICIPAL REGULATIONS, INCLUDING THE FEDERAL DEPARTMENT OF LABOR, SAFETY, HEALTH ACT, U.S. ARMY CORPS OF ENGINEERS, STATE/LOCAL WETLANDS CONTROL, AND PERMITS.
- STORAGE, FUELING AND LUBRICATION OF EQUIPMENT AND MOTOR VEHICLES SHALL BE CONDUCTED IN A MANNER THAT AFFORDS THE MAXIMUM PROTECTION AGAINST SPILL AND EVAPORATION. FUEL, LUBRICANTS AND OIL SHALL BE MANAGED AND STORED IN ACCORDANCE WITH ALL FEDERAL, STATE, REGIONAL, AND LOCAL LAWS AND REGULATIONS. THERE SHALL BE NO STORAGE OF FUEL ON THE PROJECT SITE. FUEL MUST BE BROUGHT TO THE PROJECT SITE AS NEEDED, EQUIPMENT OPERATION, ACTIVITIES, OR PROCESSES PERFORMED BY THE CONTRACTOR SHALL BE IN ACCORDANCE WITH ALL FEDERAL AND STATE AIR EMISSION AND PERFORMANCE LAWS AND STANDARDS.
- THE CONTRACTOR SHALL PROVIDE CONTROL MEASURES AS REQUIRED BY ENVIRONMENTAL REGULATIONS AND AS REQUIRED TO PREVENT DEBRIS FROM ENTERING THE RIVER.
- TEMPORARY COFFERDAM SHALL NOT BE INSTALLED DURING PERIODS OF HIGH TIDE.
- UNCONFINED WORK, WITHIN THE RIVER, SHALL BE DONE AT PERIODS OF LOW TIDE.

MATERIAL NOTES:

- MATERIAL AND PRODUCT REQUIREMENTS, WHERE REFERENCED AS NHDOT, THE REQUIREMENT REFERS TO THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION - 2010 EDITION.

GRAVEL FILL	NHDOT 209, GRANULAR BACKFILL
CRUSHED STONE	NHDOT 304.4, CRUSHED STONE (FINE)
CONCRETE	28-DAY COMPRESSIVE STRENGTH OF 5,000 PSI NHDOT 520, CLASS AAA (OVERLAY) MAXIMUM 0.400 W/C RATIO CORROSION INHIBITOR
GEOTEXTILE	NHDOT 593 APPLICATION 1 - SUBSURFACE DRAINAGE FOR DRAINAGE WORK APPLICATION 2 - STABILIZATION FOR WALL BASE FOUNDATION
REINFORCING STEEL	ASTM A615, GRADE 60 EPOXY COATED, ASTM A775
DOWELS	STAINLESS STEEL, TYPE 316
GROUT	NON-SHRINK, NON-METALLIC, CEMENT-BASED GROUT APPROPRIATE FOR SALTWATER/MARINE ENVIRONMENT AND SUBMERSION MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 7,000 PSI

TIDAL DATUMS (1983-2001 TIDAL EPOCH)

ESTIMATED 100-YEAR FLOOD ELEVATION (STILLWATER)	=	12.76'
HIGHEST OBSERVED WATER LEVEL (2/19/1972)	=	12.34'
MEAN HIGHER HIGH WATER (MHHW)	=	8.84'
MEAN HIGH WATER (MHW)	=	8.43'
NORTH AMERICAN VERTICAL DATUM-1988 (NAVD88)	=	4.62'
MEAN TIDE LEVEL (MTL)	=	4.37'
NATIONAL GEODETIC VERTICAL DATUM-1929 (NGVD29)	=	3.86'
MEAN LOW WATER (MLW)	=	0.32'
MEAN LOWER LOW WATER (MLLW)	=	0.00'

REFERENCE (TIDAL DATUM):
SEAVEY ISLAND, PORTSMOUTH HARBOR NOAA STA ID #8419870

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**MECHANIC STREET SEAWALL
AERIAL IMAGE**

REFERENCE:
AERIAL IMAGE FROM GOOGLE EARTH PROFESSIONAL DATED 2005.
LINWORK FROM CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS.



**MECHANIC STREET SEAWALL
(LOOKING TOWARDS SOUTH)**



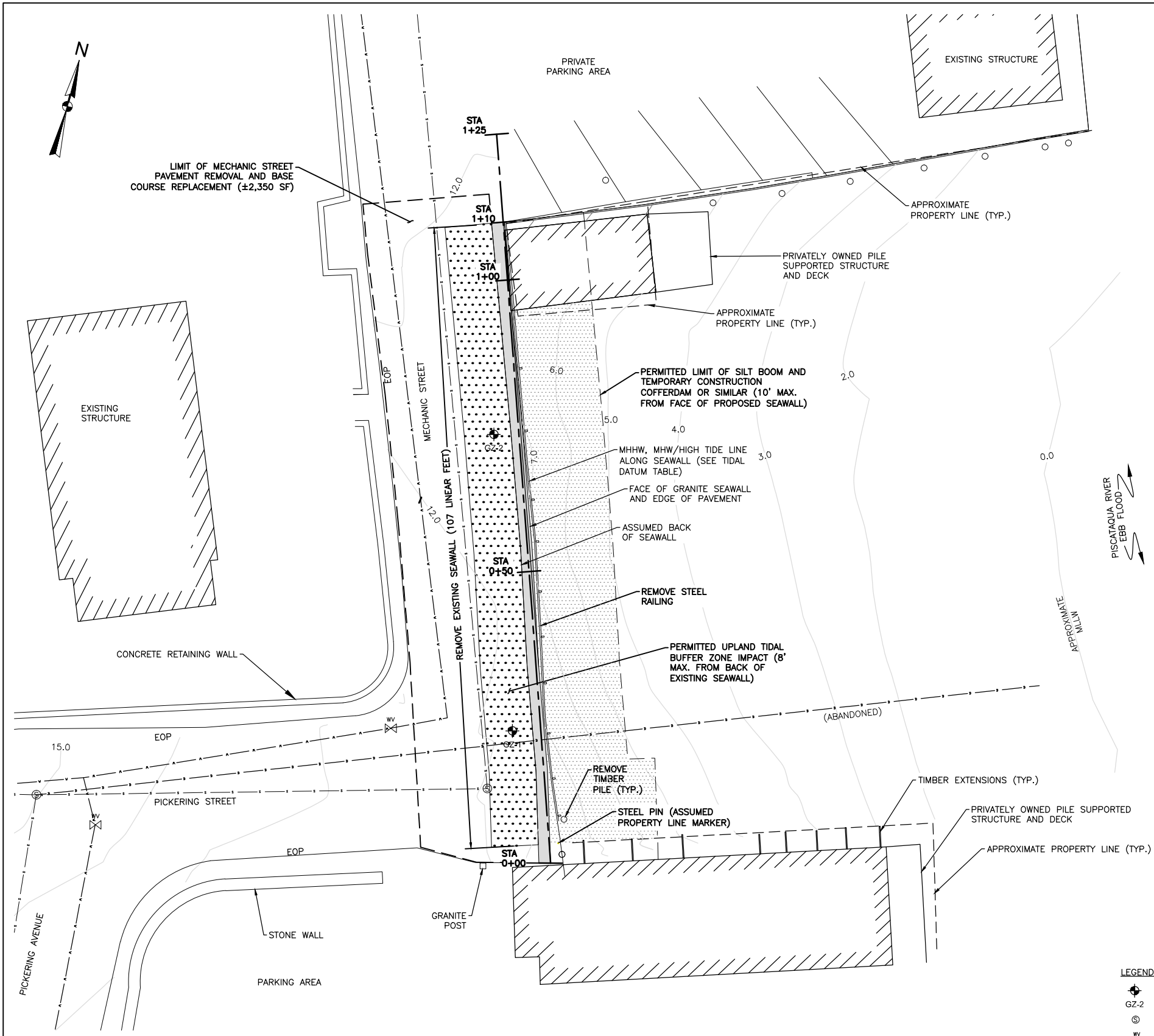
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NHDES FILE #2012-00751
CITY OF PORTSMOUTH, MECHANIC & PICKERING STREET

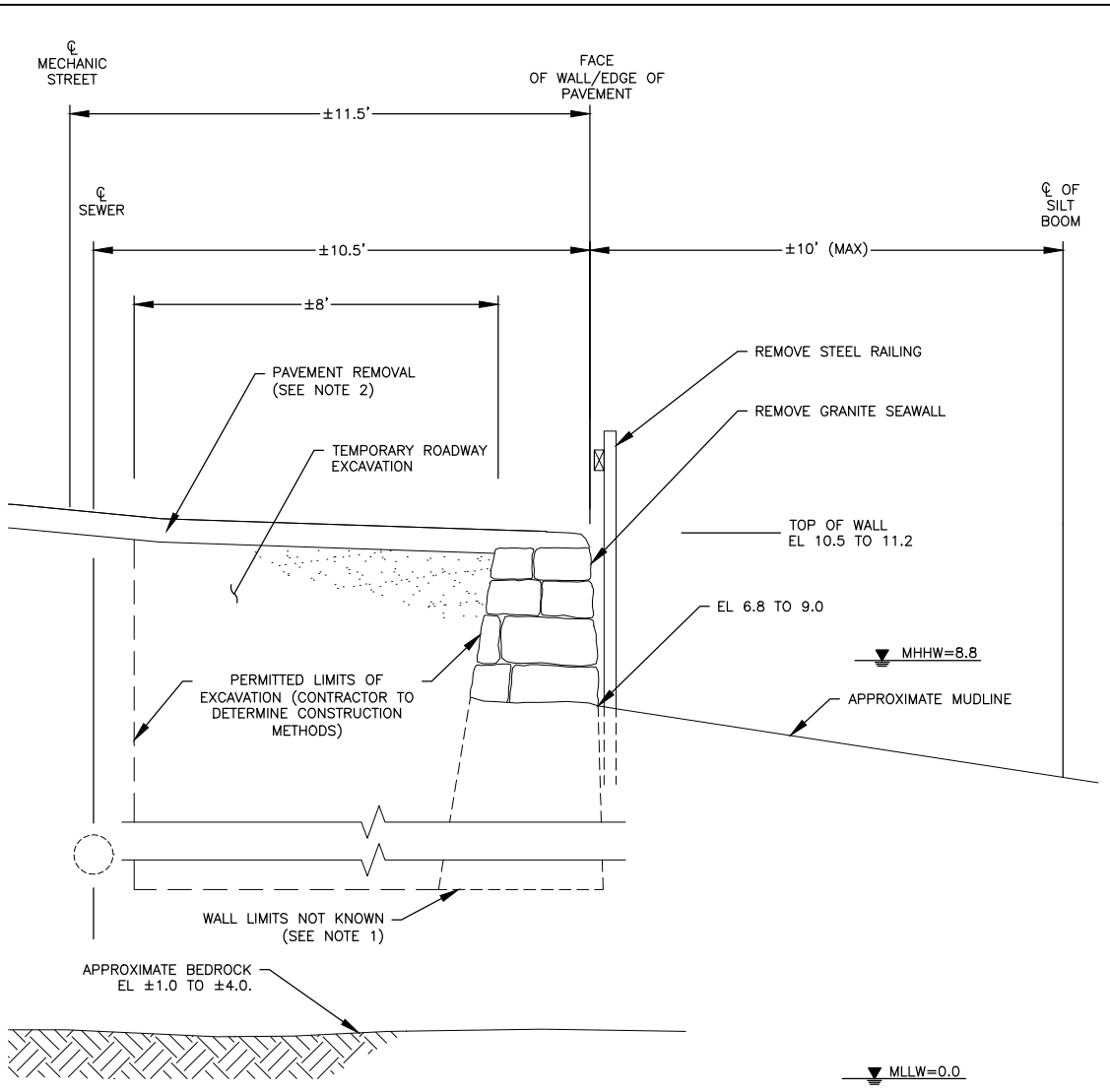
**MECHANIC STREET SEAWALL
NOTES**

PREPARED BY: Vine ASSOCIATES A DIVISION OF GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: CITY OF PORTSMOUTH, NH			
PROJ MGR: CWC	DESIGNED BY: CWC	REVIEWED BY: RJM	CHECKED BY: JJZ	DRAWING 2 SHEET NO. 2 OF 9
DATE: JANUARY 2013	PROJECT NO. 18.0170970.00	SCALE: AS SHOWN	REVISION NO. JANUARY 2013	

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EXISTING CONDITION AND REMOVAL
SCALE: 1"=10'



EXISTING WALL SECTION AND REMOVALS
SCALE: 1"=2'

NOTE:

1. THE LIMITS OF THE WALL ARE NOT KNOWN. THE WALL IS ASSUMED TO BE OF GRANITE BLOCK CONSTRUCTION WITH MISCELLANEOUS GRANITE CURB SECTION, BRICKS, ETC. INCORPORATED ALONG THE FACE OF THE WALL. BASED ON BORINGS GZ-1 AND GZ-2, THE APPARENT BEDROCK IS LOCATED APPROXIMATELY 7' TO 10' BELOW THE TOP OF THE WALL.
2. THE CONTRACTOR SHALL REMOVE PAVEMENT, FULL-WIDTH, OF MECHANIC STREET WITHIN THE PROJECT LIMITS.

LEGEND:

- BORING COMPLETED BY NEW HAMPSHIRE BORING, INC. ON JULY 14, 2011
- SEWER MANHOLE
- WATER GATE
- EXISTING DRAIN LINE
- EXISTING SEWER LINE
- EXISTING WATER LINE
- SEAWALL REMOVAL
- PERMITTED UPLAND TIDAL BUFFER IMPACT AREA
- PERMITTED TIDAL WETLAND TEMPORARY IMPACT AREA

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NHDES FILE #2012-00751
CITY OF PORTSMOUTH, MECHANIC & PICKERING STREET

MECHANIC STREET SEAWALL
EXISTING CONDITIONS AND REMOVALS

PREPARED BY: Vine Associates A DIVISION OF GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: CITY OF PORTSMOUTH, NH
PROJ MGR: CWC DESIGNED BY: CWC DATE: JULY 2012	REVIEWED BY: RJM DRAWN BY: JJZ PROJECT NO.: 18.0170970.00
CHECKED BY: JJZ SCALE: AS SHOWN REVISION NO.:	DRAWING 3 SHEET NO. 3 OF 9

TEST BORING LOG											
			City of Portsmouth Mechanic St Seawall Rehabilitation Portsmouth, New Hampshire			BORING NO.: GZ-1 SHEET: 1 of 1 PROJECT NO: 18.170970.00 REVIEWED BY:					
Drilling Co.: New Hampshire Boring Foreman: Greg Leavitt Logged By: Jason Clegg			Type of Rig: Truck Rig Model: Drilling Method: Rotary Wash			Boring Location: See Plan Ground Surface Elev. (ft.): Final Boring Depth (ft.): 15 Date Start - Finish: 7/14/2011 - 7/14/2011			H. Datum: V. Datum:		
Auger/Casing Type: HW I.D./O.D. (in.): 4"/4.5" Hammer Weight (lb.): 300 lb Hammer Fall (in.): 24"			Sampler Type: Split Spoon I.D./O.D. (in.): 1-3/8"/2" Sampler Hmr Wt (lb): 140 Sampler Hmr Fall (in): 30 Other: Safety Hammer			Groundwater Depth (ft.) Date Time Water Depth Stab. Time 7/14/11 0936 4' 12 mins					
Depth (ft.)	Casing Blows/ Core Rate	Sample					SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Description Elev. (ft.)
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)					
		S-1	1-3	24	8	11 8 5 5	13	ASPHALT S-1: Medium dense, brown, fine to coarse SAND, some Silt, trace Gravel, trace Glass.	1	0.5'	ASPHALT
		S-2	3-5	24	0	9 9 8 6	17	S-2: No recovery in spoon (see note 2). Medium dense, brown, fine to coarse SAND, some Silt, little Gravel, trace Asphalt.	2		FILL
		S-3	5-7	24	15	8 11 9 7	20	S-3: Top 6": Brown, fine to coarse SAND, some Silt, trace Gravel, trace Brick.		6.8'	
		S-4	7-8.8	21	12	17 32 30 30/3"	62	Mid 5": Dark gray, fine to medium SAND, some Silt, trace Gravel, trace Brick. Bottom 4": Olive, fine to medium SAND and SILT, trace Gravel.	3	8.8'	SILTY SAND
		C-1	10-15	60	57	4 3 4 6	R	S-4: Very dense, olive, fine to medium SAND and SILT, trace Gravel. C-1: Hard, slightly weathered, fine-grained, dark gray, METAPELITE, with close (2"-1') horizontal (0"-5") to vertical (85"-90") iron oxide/clay, stained joints/fractures.	4		METAPELITE BEDROCK
								Bottom of boring at 15 feet.	6	15'	
REMARKS 1. Drilled through asphalt roadway to 1 foot before taking sample S-1. 2. Drove HW casing to 5 feet and retrieved it to obtain sample S-2. 3. Split spoon bouncing on obstruction at 8.8 feet. 4. Rollerbit into potential bedrock from 8.8 to 10 feet. Observed dark gray, fine-grained rock fragments in wash water from 8.8 to 10 feet. 5. Cored bedrock from approximately 10 to 15 feet using NX sized core barrel. Data in column named "Blows/6" represents core barrel penetration rate in minutes per foot. RQD = "Rock Quality Designation". 6. Borehole backfilled with soil cuttings, bentonite chips and gravel to approximately 0.5 feet and cold patched about 6-inches of asphalt to surface.											
See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.										Boring No.: GZ-1	

GEOTECHNICAL BORING LOG
GZ-1

TEST BORING LOG											
			City of Portsmouth Mechanic St Seawall Rehabilitation Portsmouth, New Hampshire			BORING NO.: GZ-2 SHEET: 1 of 1 PROJECT NO: 18.170970.00 REVIEWED BY:					
Drilling Co.: New Hampshire Boring Foreman: Greg Leavitt Logged By: Jason Clegg			Type of Rig: Truck Rig Model: Drilling Method: Rotary Wash			Boring Location: See Plan Ground Surface Elev. (ft.): Final Boring Depth (ft.): 7 Date Start - Finish: 7/14/2011 - 7/14/2011			H. Datum: V. Datum:		
Auger/Casing Type: HW I.D./O.D. (in.): 4"/4.5" Hammer Weight (lb.): 300 lb Hammer Fall (in.): 24"			Sampler Type: Split Spoon I.D./O.D. (in.): 1-3/8"/2" Sampler Hmr Wt (lb): 140 Sampler Hmr Fall (in): 30 Other: Safety Hammer			Groundwater Depth (ft.) Date Time Water Depth Stab. Time 7/14/11 1050 3.5' 10 mins					
Depth (ft.)	Casing Blows/ Core Rate	Sample					SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Description Elev. (ft.)
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)					
		S-1	1-3	24	10	11 10 10 18	20	ASPHALT S-1: Medium dense, brown, fine to coarse SAND, some Gravel, little Silt.	1	0.5'	ASPHALT
		S-2	3-5	24	3	15 8 9 4	17	S-2: Medium dense, brown, fine to coarse SAND, little Silt, little Gravel.			FILL
		S-3	5-6.4	16	6	6 26 100/4"	R	S-3: Top 2": Brown, fine to coarse SAND, little Silt, little Gravel. Bottom 4": Dark gray, ROCK fragments, trace Silt.	2		
								Bottom of boring at 7 feet.	3		POSSIBLE BEDROCK
REMARKS 1. Drilled through asphalt roadway to 1 foot before taking sample S-1. 2. Rollerbit into possible bedrock from 6.4 to 7 feet. Observed dark gray rock fragments in wash water. Close to no water return. 3. Borehole backfilled with soil cuttings, bentonite chips and gravel to approximately 0.5 feet and cold patched about 6-inches of asphalt to surface.											
See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.										Boring No.: GZ-2	

GEOTECHNICAL BORING LOG
GZ-2



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NHDES FILE #2012-00751
CITY OF PORTSMOUTH, MECHANIC & PICKERING STREET

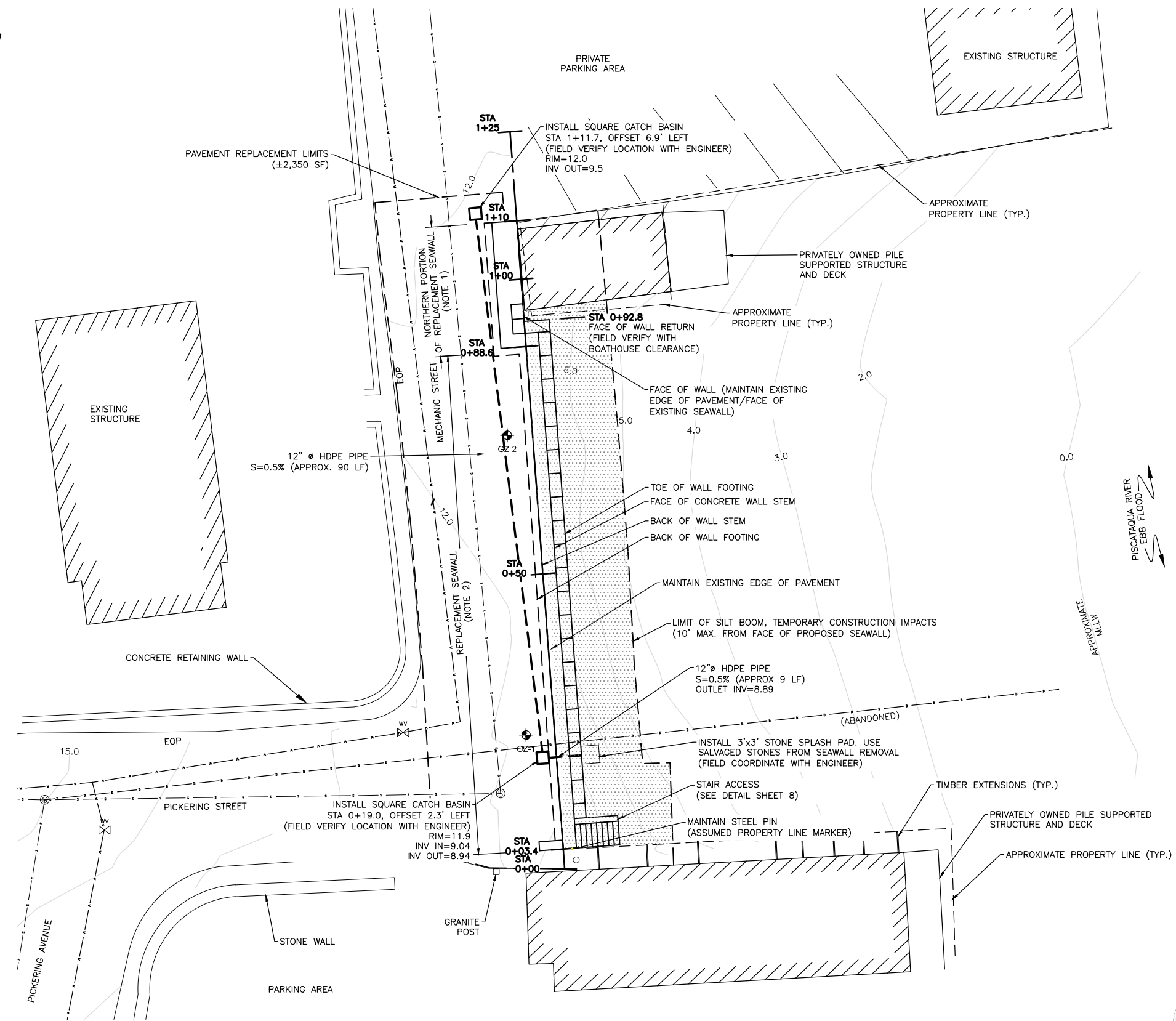
MECHANIC STREET SEAWALL
GEOTECHNICAL BORING LOGS

PREPARED BY: GZA GeoEnvironmental, Inc. ENGINEERS AND SCIENTISTS
A DIVISION OF www.gza.com

PREPARED FOR: CITY OF PORTSMOUTH, NH

PROJ MGR: CWC	REVIEWED BY: RJM	CHECKED BY: JJZ	DRAWING
DESIGNED BY: CWC	DRAWN BY: JJZ	SCALE: AS SHOWN	
DATE: JANUARY 2013	PROJECT NO: 18.0170970.00	REVISION NO: JANUARY 2013	4 SHEET NO. 4 OF 9

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PROPOSED SEAWALL REPLACEMENT PLAN
SCALE: 1"=10'



Frank J. Vettere

NOTES:

1. THE NORTHERN PORTION OF THE REPLACEMENT SEAWALL SHALL BE SET SUCH THAT THE FACE OF THE REPLACEMENT WALL STEM MAINTAINS THE FACE OF THE EXISTING WALL/EDGE OF PAVEMENT. GRANITE FACING IS NOT INCLUDED WITHIN THIS PORTION OF THE REPLACEMENT WALL.
2. EXCEPT AT THE NORTHERN PORTION OF THE REPLACEMENT SEAWALL, THE REPLACEMENT SEAWALL SHALL BE SET SUCH THAT THE BACK OF THE REPLACEMENT WALL STEM MAINTAINS THE FACE OF THE EXISTING WALL/EDGE OF PAVEMENT. GRANITE FACING SHALL BE SET ALONG THE FACE OF THE REPLACEMENT SEAWALL STEM INCLUDING THE WALL RETURN TO THE NORTHERN PORTION OF THE SEAWALL.

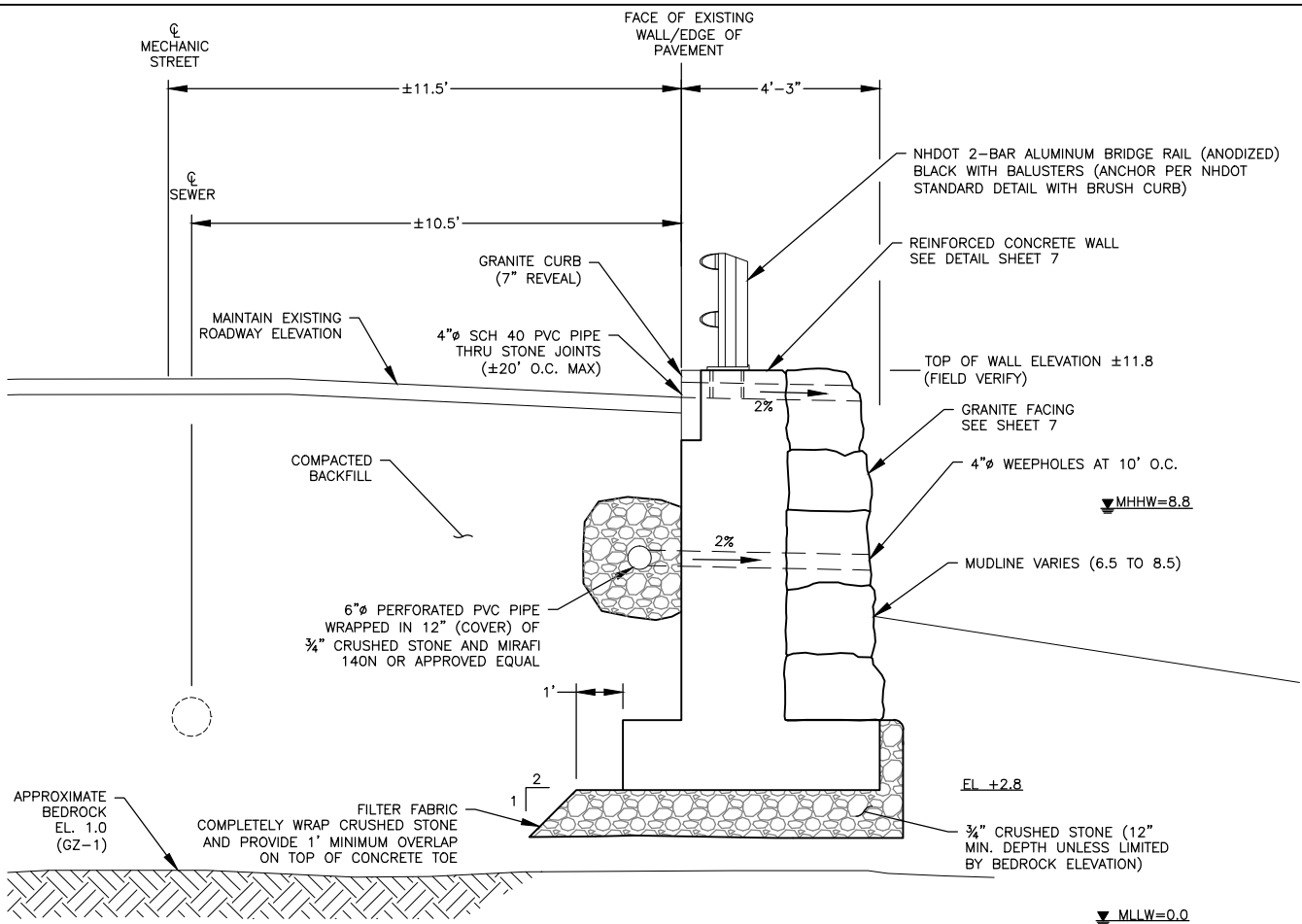
LEGEND:

- BORING COMPLETED BY NEW HAMPSHIRE BORING, INC. ON JULY 14, 2011
- SEWER MANHOLE
- WATER GATE
- EXISTING DRAIN LINE
- EXISTING SEWER LINE
- EXISTING WATER LINE
- PROPOSED BELOW GRADE STORMWATER DRAIN
- TIDAL WETLAND TEMPORARY IMPACT AREA

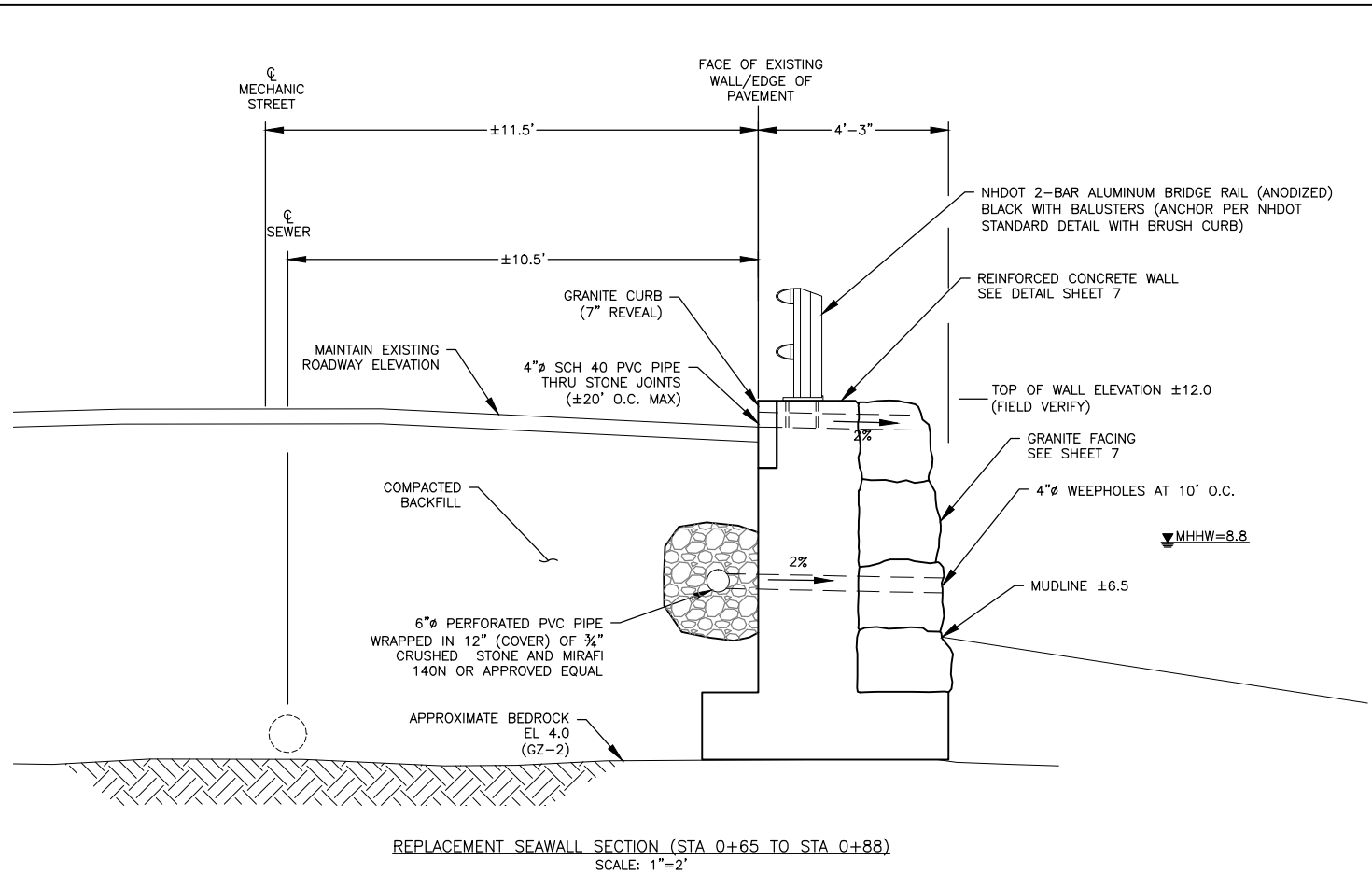
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NHDES FILE #2012-00751 CITY OF PORTSMOUTH, MECHANIC & PICKERING STREET			
MECHANIC STREET SEAWALL REPLACEMENT PLAN			
PREPARED BY: Vine ASSOCIATES A DIVISION OF GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: CITY OF PORTSMOUTH, NH		
PROJ MGR: CWC DESIGNED BY: CWC DATE: JULY 2012	REVIEWED BY: RJM DRAWN BY: JJZ PROJECT NO. 18.0170970.00	CHECKED BY: JJZ SCALE: AS SHOWN REVISION NO. JANUARY 2013	DRAWING 5 SHEET NO. 5 OF 9

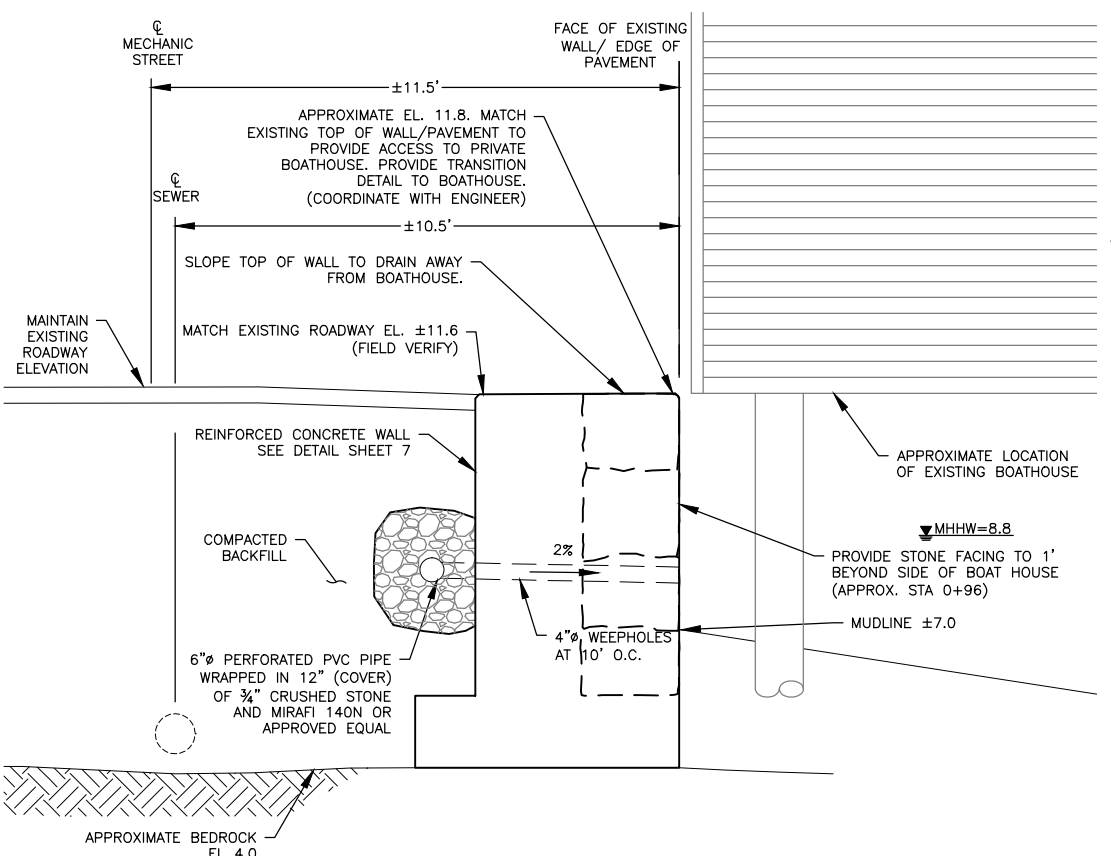
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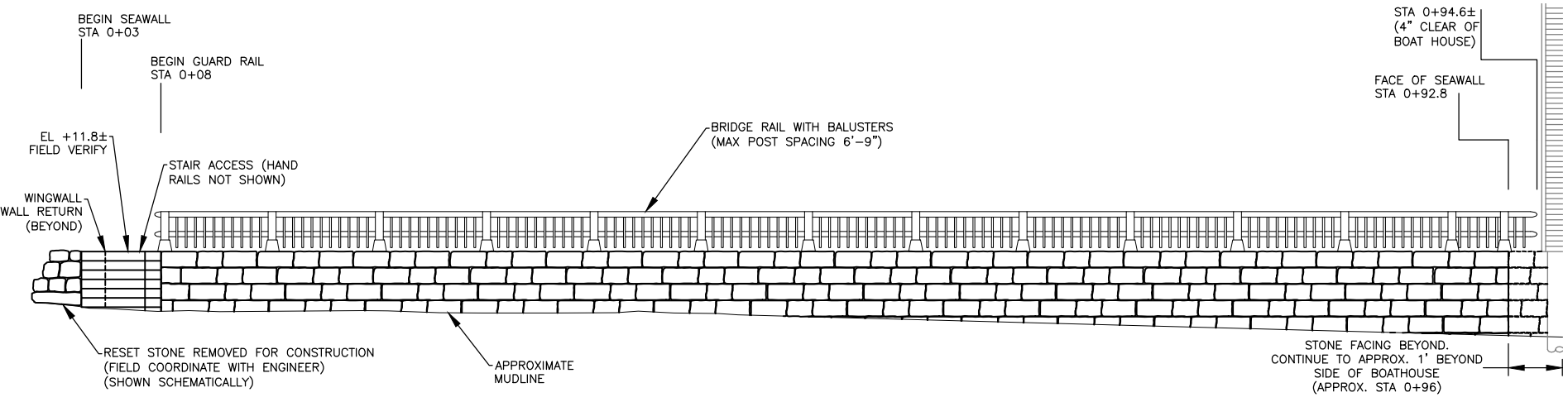
REPLACEMENT SEAWALL SECTION (STA 0+03 TO STA 0+65)
SCALE: 1"=2'



REPLACEMENT SEAWALL SECTION (STA 0+65 TO STA 0+88)
SCALE: 1"=2'



REPLACEMENT SEAWALL SECTION (STA 0+88 TO STA 1+10)
SCALE: 1"=2'



SEAWALL ELEVATION
SCALE: 1"=5'



Frank S. Vetere

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NHDES FILE #2012-00751
CITY OF PORTSMOUTH, MECHANIC & PICKERING STREET

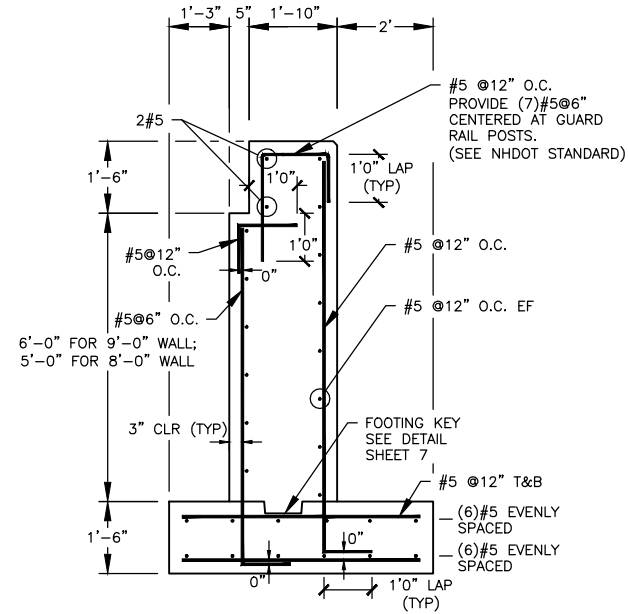
MECHANIC STREET SEAWALL
REPLACEMENT SECTIONS AND ELEVATION

PREPARED BY: Vine Associates, Inc. GZA GeoEnvironmental, Inc.
ENGINEERS AND SCIENTISTS

PROJ MGR: CWC	DESIGNED BY: CWC	REVIEWED BY: RJM	CHECKED BY: JJZ	DRAWING NO. 6
DATE: JULY 2012	PROJECT NO. 18.0170970.00	SCALE: AS SHOWN	REVISION NO. JANUARY 2013	SHEET NO. 6 OF 9

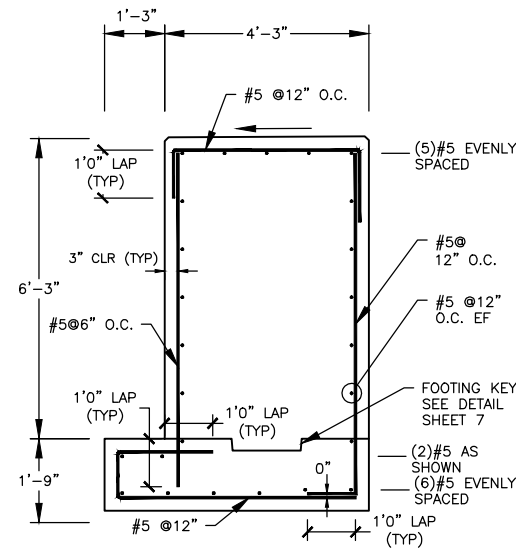


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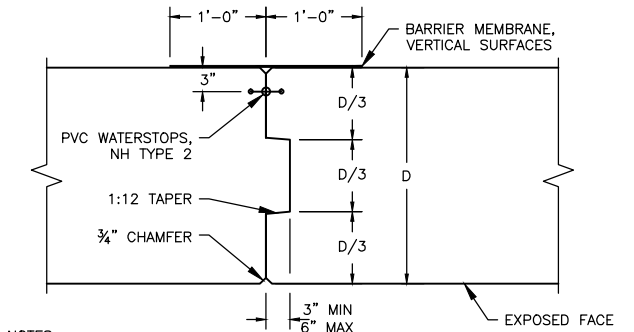
REPLACEMENT SEAWALL REINFORCING
SCALE: 1"=2'

SEAWALL SECTION SHOWN IF FOR AN 8' TO 9' OVERALL WALL HEIGHT (INCLUDING FOOTING). IF BEDROCK IS ENCOUNTERED AT AN ELEVATION ABOVE EL. 4.0, NOTIFY THE ENGINEER



REPLACEMENT SEAWALL REINFORCING
(STA 0+65 TO STA 0+88)
SCALE: 1"=2'

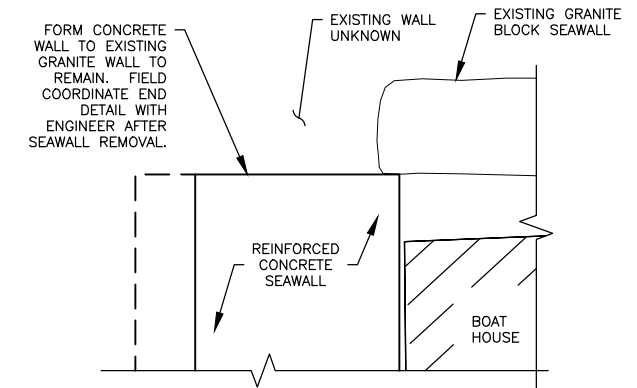
SEAWALL SECTION BASED ON AN OVERALL 8 FT HEIGHT (INCLUDING FOOTING). IF BEDROCK IS ENCOUNTERED, AT AN ELEVATION ABOVE EL. +4.0 NOTIFY THE ENGINEER



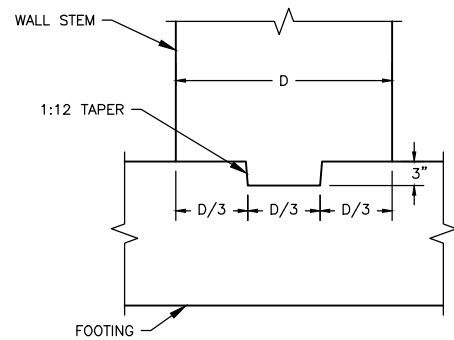
NOTES:

- IF REINFORCING EXTENDS THROUGH THE JOINT, WATERSTOP IS NOT REQUIRED
- MAXIMUM 50 FOOT SPACING.

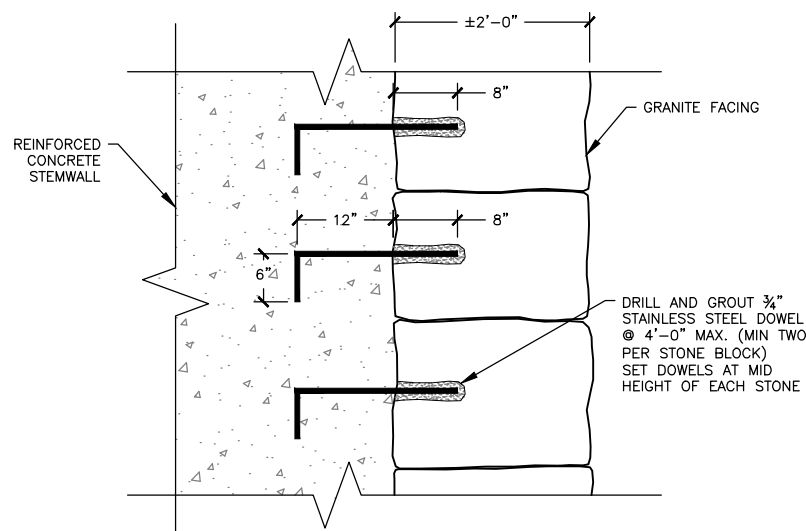
CONSTRUCTION JOINT DETAIL
SCALE: N.T.S.



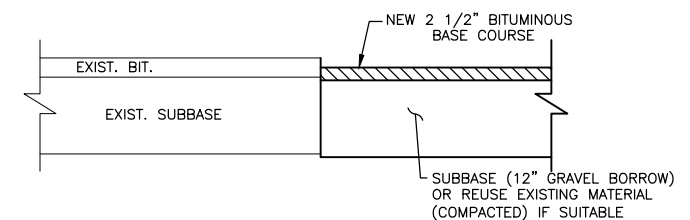
SEAWALL NORTH END DETAIL -- PLAN
SCALE: 1"=2'



FOOTING KEY DETAIL
SCALE: N.T.S.



GRANITE FACING CONNECTION DETAIL
SCALE: N.T.S.



PROPOSED PAVEMENT DETAIL
SCALE: N.T.S.



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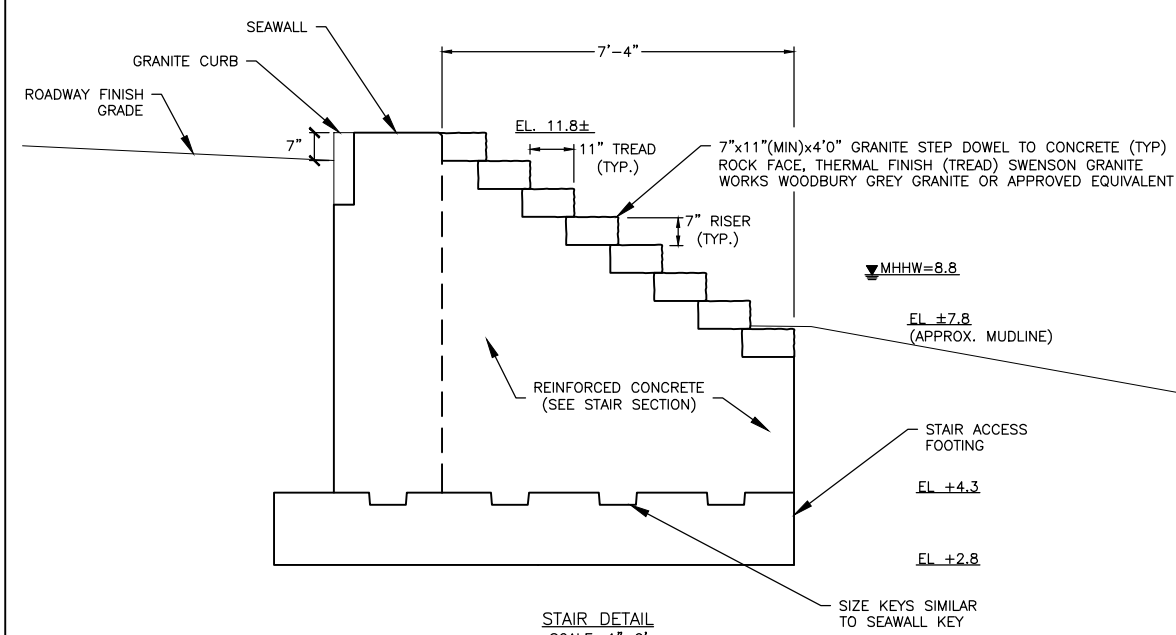
NHDES FILE #2012-00751
CITY OF PORTSMOUTH, MECHANIC & PICKERING STREET

MECHANIC STREET SEAWALL
REPLACEMENT DETAILS

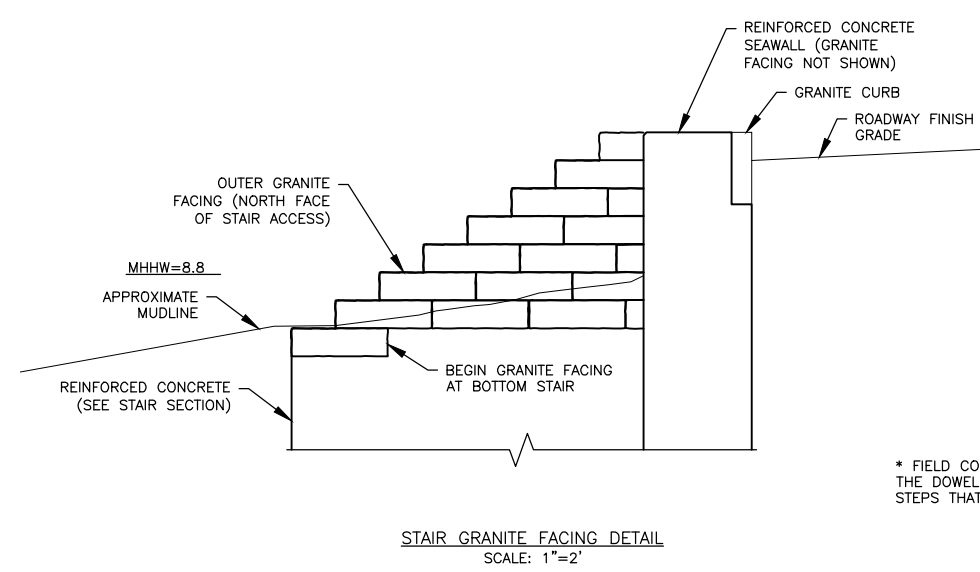
PREPARED BY: Vine ASSOCIATES A DIVISION OF GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: CITY OF PORTSMOUTH, NH	
PROJ MGR: CWC	DESIGNED BY: CWC	REVIEWED BY: RJM	CHECKED BY: JJZ
DATE: JANUARY 2013	PROJECT NO: 18.0170970.00	SCALE: AS SHOWN	DRAWING REVISION NO: 7
			SHEET NO. 7 OF 9



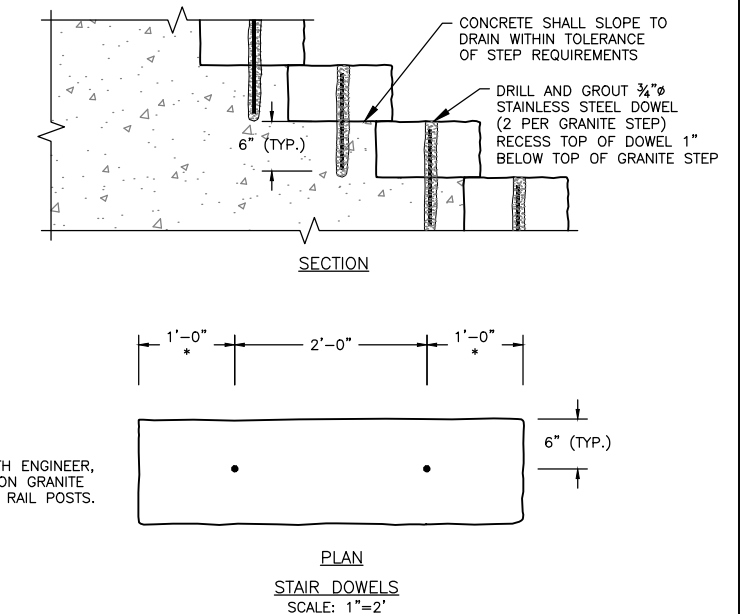
© 2012 - GZA GeoEnvironmental, Inc. GZA-170900-18.0170970.00 Mechanical Street Seawall Figures-CAD (CURRENT Site Plan.dwg [Construction Drawings] February 05, 2013 - 8:16am jathuz.zll



STAIR DETAIL
SCALE: 1"=2'

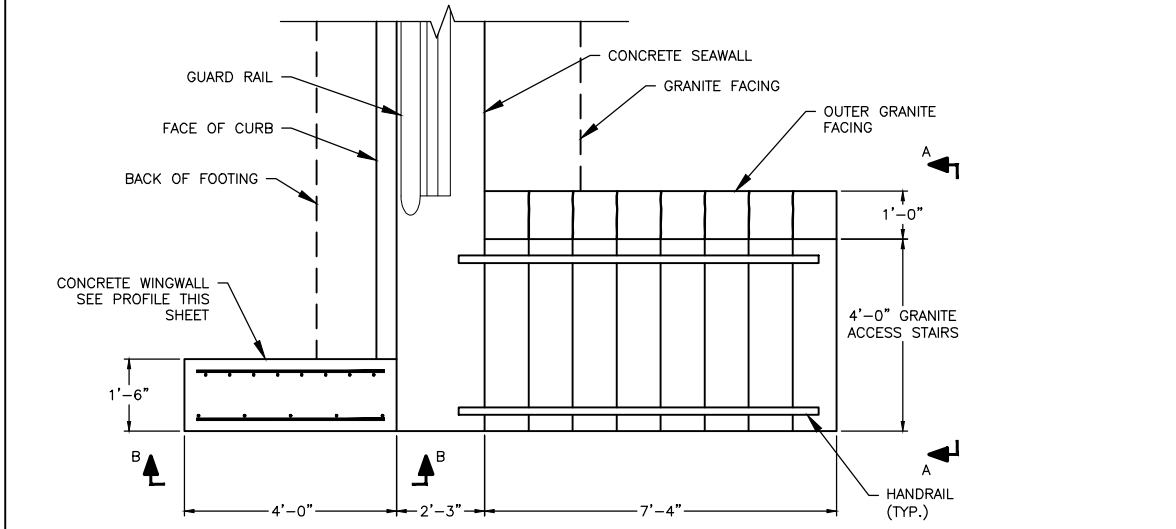


STAIR GRANITE FACING DETAIL
SCALE: 1"=2'

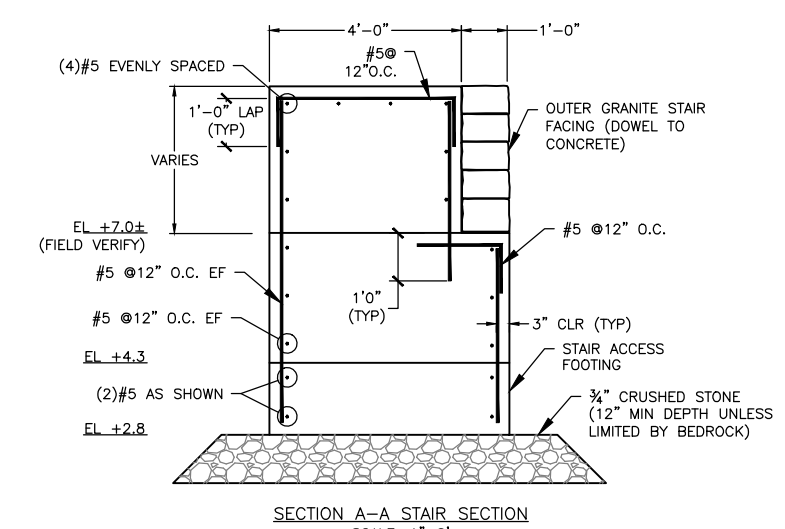


PLAN STAIR DOWELS
SCALE: 1"=2'

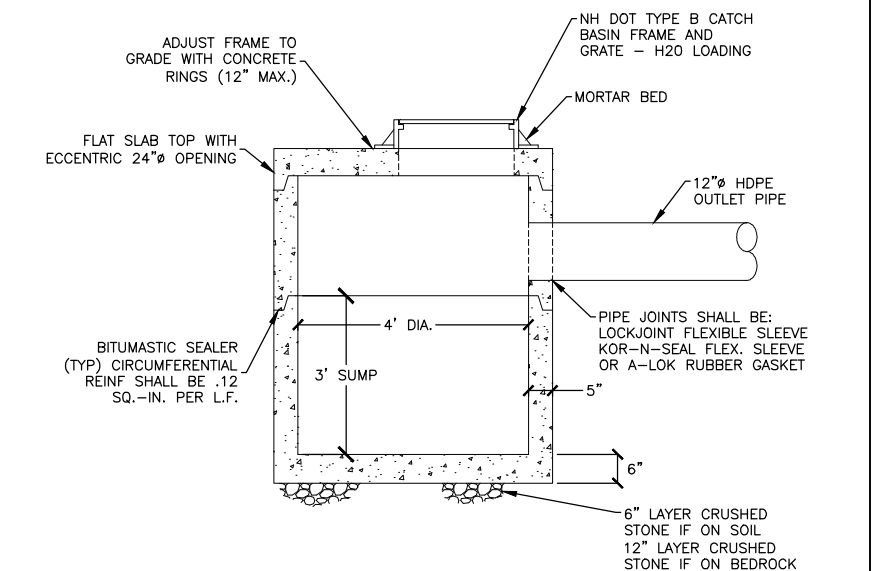
* FIELD COORDINATE WITH ENGINEER, THE DOWEL LOCATIONS ON GRANITE STEPS THAT HAVE HAND RAIL POSTS.



STAIR DETAIL PLAN
SCALE: 1"=2'



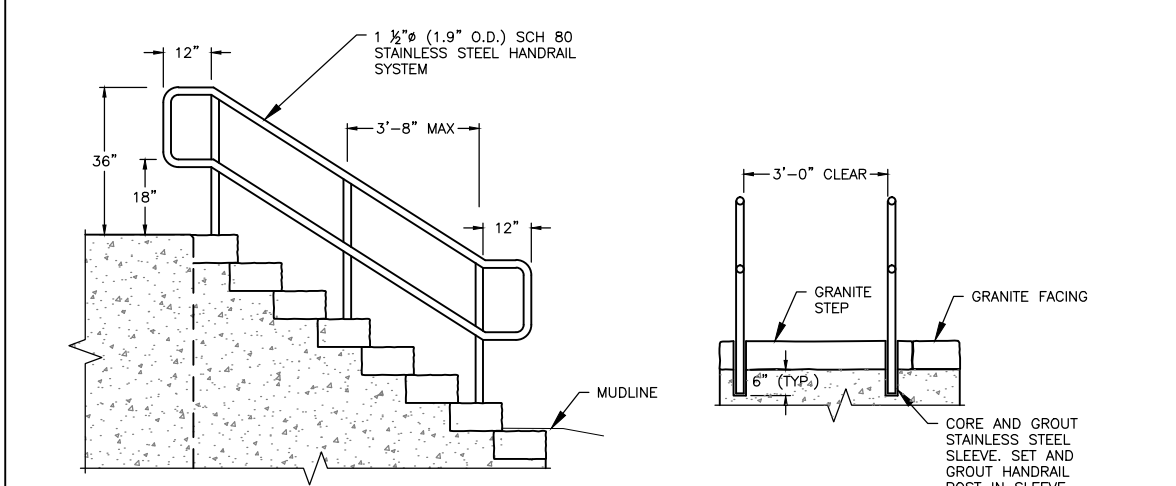
SECTION A-A STAIR SECTION
SCALE: 1"=2'



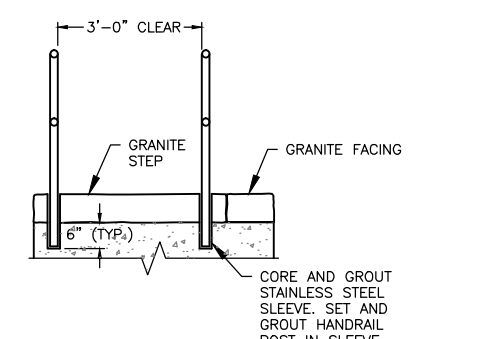
4\"/>

NOTES:

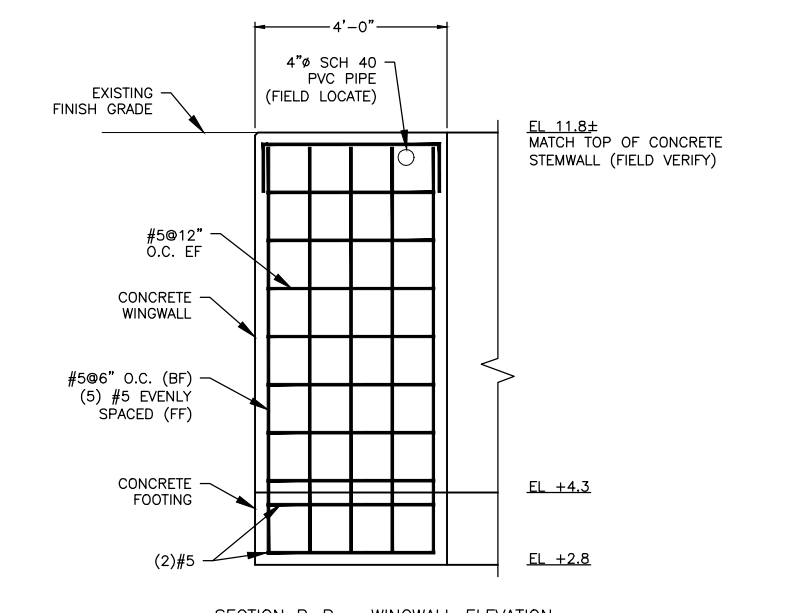
1. ALL SECTIONS SHALL BE CONCRETE CLASS AA (4000 PSI). CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ. IN. PER L.F. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
2. THE TONGUE OR THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER L.F.
3. STEPS ARE NOT ALLOWED.
4. CATCH BASINS SHALL HAVE EJP FLOW DIRECTION CATCH BASIN LINER (EJP PRODUCT NUMBER 68896).
5. EACH CATCH BASIN SHALL BE FITTED WITH A SNORKEL. SNORKEL SHALL BE THE ELIMINATOR CATCH BASIN OIL AND DEBRIS TRAP MANUFACTURED BY GROUND WATER RESCUE, INC.. THE ELIMINATOR SHALL BE INSTALLED ON EACH OUT-FLOWING INVERT.



HANDRAIL DETAIL
SCALE: 1"=2'



HANDRAIL SECTION
SCALE: 1"=2'



SECTION B-B - WINGWALL ELEVATION
SCALE: 1"=2'



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<p>NHDES FILE #2012-00751 CITY OF PORTSMOUTH, MECHANIC & PICKERING STREET</p>			
<p>MECHANIC STREET SEAWALL STAIR ACCESS AND MISCELLANEOUS DETAILS</p>			
<p>PREPARED BY: Vine Associates A DIVISION OF GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com</p>	<p>PREPARED FOR: CITY OF PORTSMOUTH, NH</p>		
<p>PROJ MGR: CWC DESIGNED BY: CWC DATE: JANUARY 2013</p>	<p>REVIEWED BY: RJM DRAWN BY: JJZ PROJECT NO. 18.0170970.00</p>	<p>CHECKED BY: JJZ SCALE: AS SHOWN REVISION NO. JANUARY 2013</p>	<p>DRAWING 8 SHEET NO. 8 OF 9</p>

