Updated 1/19/10

STATE PROJECT

Effective January 20, 2010
Supersedes December 1, 2008

BIDDING INSTRUCTIONS

FOR ALL PROJECTS:

1. Use pen and ink to complete all paper Bids.
2. As a minimum, the following must be received prior to the time of Bid opening:

For a Paper Bid:

a) a copy of the Notice to Contractors, b) the completed Acknowledgement of Bid Amendments form, c) the completed Schedule of Items, d) two copies of the completed and signed Contract Offer, Agreement & Award form, e) a Bid Guaranty, and f) any other certifications or Bid requirements listed in the Bid Documents as due by Bid opening.

For an Electronic Bid:

a) a completed Bid using Expedite® software and submitted via the Bid Express™ webbased service, b) a Bid Guaranty (as described below) or a faxed copy of a Bid Bond (with original to be delivered within 72 hours), and c) any other certifications or Bid requirements listed in the Bid Documents as due by Bid opening.

3. Include prices for all items in the Schedule of Items.
4. Include a Bid Guaranty. Acceptable forms are:
   a) a properly completed and signed Bid Bond on the Department's prescribed form (or on a form that does not contain any significant variations from the Department's form as determined by the Department) for 5% of the Bid Amount or
   b) an Official Bank Check, Cashier's Check, Certified Check, U.S. Postal Money Order or Negotiable Certificate of Deposit in the amount stated in the Notice to Contractors.
5. If a paper Bid is to be sent, Federal Express overnight delivery is suggested as the package is delivered directly to the DOT Headquarters Building located at 16 Child Street in Augusta.
6. Other means, such as U.S. Postal Service's Express Mail has proven not to be reliable.

IN ADDITION, FOR FEDERAL AID PROJECTS:

7. Complete the DBE Proposed Utilization form in the proper amounts, and submit with your bid on bid opening day. If you are submitting your bid electronically, you must FAX your DBE Utilization Form to (207) 624-3431.

If you need further information regarding Bid preparation, call the DOT Contracts Section at (207) 624-3410.

For complete bidding requirements, refer to Section 102 of the Maine Department of Transportation, Standard Specifications, Revision of December 2002.

January 30, 2004
Supercedes February 11, 2003

NOTICE

The Maine Department of Transportation is attempting to improve the way Bid Amendments/Addendums are handled, and allow for an electronic downloading of bid packages from our website, while continuing to maintain a planholders list.

Prospective bidders, subcontractors or suppliers who wish to download a copy of the bid package and receive a courtesy notification of project specific bid amendments, must provide an email address to Diane Barnes or David Venner at the MDOT Contracts mailbox at: MDOT.contracts@maine.gov. Each bid package will require a separate request.

Additionally, interested parties will be responsible for reviewing and retrieving the Bid Amendments from our web site, and acknowledging receipt and incorporating those Bid Amendments in their bids using the Acknowledgement of Bid Amendment Form.

The downloading of bid packages from the MDOT website is not the same as providing an electronic bid to the Department. Electronic bids must be submitted via http://www.BIDX.com. For information on electronic bidding contact Larry Childs at Larry.Childs@maine.gov.

NOTICE

For security and other reasons, all Bid Packages which are mailed, shall be provided in double (one envelope inside the other) envelopes. The *Inner Envelope* shall have the following information provided on it:

Bid Enclosed - Do Not Open
PIN:
Town:
Date of Bid Opening:
Name of Contractor with mailing address and telephone number:

In Addition to the usual address information, the *Outer Envelope* should have written or typed on it:

Double Envelope: Bid Enclosed
PIN:
Town:
Date of Bid Opening:
Name of Contractor:
This should not be much of a change for those of you who use Federal Express or similar services.

Hand-carried Bids may be in one envelope as before, and should be marked with the following infrormation:

Bid Enclosed: Do Not Open
PIN:
Town:
Name of Contractor:

STATE OF MAINE DEPARTMENT OF TRANSPORTATION

Bid Guaranty-Bid Bond Form

KNOW ALL MEN BY THESE PRESENTS THAT_____

_____, of the City/Town of _____and State of_____

as Principal, and _____as Surety, a

Corporation duly organized under the laws of the State of_____and having a usual place of

Business in _____and hereby held and firmly bound unto the Treasurer of

the State of Maine in the sum of_____,for payment which Principal and Surety bind

themselves, their heirs, executers, administrators, successors and assigns, jointly and severally.

The condition of this obligation is that the Principal has submitted to the Maine Department of Transportation, hereafter Department, a certain bid, attached hereto and incorporated as a part herein, to enter into a written contract for the construction of _____

_____

_____and if the Department shall accept said bid and the Principal shall execute and deliver a contract in the form attached hereto (properly completed in accordance with said bid) and shall furnish bonds for this faithful performance of said contract, and for the payment of all persons performing labor or furnishing material in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said bid, then this obligation shall be null and void; otherwise it shall remain in full force, and effect.

Signed and sealed this_____day of _____20_____

WITNESS:

_____

_____

_____

WITNESS

_____

_____

_____

PRINCIPAL:

By_____

By:_____

By:_____

SURETY:

By_____

By:_____

Name of Local Agency: _____

NOTICE

Bidders:

Please use the attached “Request for Information” form when faxing questions and comments concerning specific Contracts that have been Advertised for Bid. Include additional numbered pages as required. Questions are to be faxed to the number listed in the Notice to Contractors. This is the only allowable mechanism for answering Project specific questions. Maine DOT will not be bound to any answers to Project specific questions received during the Bidding phase through other processes.

State of Maine
Department of Transportation

REQUEST FOR INFORMATION

Date _____ Time _____

Information Requested: **PIN: _____** **Town(s): _____**

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Request by: _____ **Phone: (_____)_____**
Bid Date: _____ **Fax: (_____)_____**

Complete top portion of form and transmit to the number listed in the Notice to Contractors

RFI No: _____ **RFI received: _____**

Response:_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Response By:_____ Date: _____

September 14, 2007

Vendor Registration

Prospective Bidders must register as a vendor with the Department of Administrative & Financial Services if the vendor is awarded a contract. Vendors will not be able to receive payment without first being registered. Vendors/Contractors will find information and register through the following link –
http://www.maine.gov/purchases/vendorinfo/vss.htm .

June 2010

OCEAN GATEWAY
Pier 2 Berth 2

PORTLAND-CUMBERLAND COUNTY
PIN 017832.00

SECTION 1

STATE OF MAINE DEPARTMENT OF TRANSPORTATION
NOTICE TO CONTRACTORS

Sealed Bids addressed to the Maine Department of Transportation, Augusta, Maine 04333 and endorsed on the wrapper "Bids for Ocean Gateway pier 2 Berth 2 in the City of portland" will be received from contractors at the Reception Desk, Maine DOT Building, Capitol Street, Augusta, Maine, until 11:00 o'clock A.M. (prevailing time) on August 4, 2010 and at that time and place publicly opened and read. Bids will be accepted from all bidders. The lowest responsive bidder must have completed, or successfully complete, a Bridge or Marine prequalification, or project specific prequalification to be considered for the award of this contract. **We now accept electronic bids for those bid packages posted on the bidx.com website. Electronic bids do not have to be accompanied by paper bids. Please note: the Department will accept a facsimile of the bid bond; however, the original bid bond must then be received at the MDOT Contract Section within 72 hours of the bid opening. Until further notice, dual bids (one paper, one electronic) will be accepted, with the paper copy taking precedence**

Description: PIN 17832.00

Location: In Cumberland County, project is located on Commercial street in Portland

Outline of Work: Limited demolition of existing structures and the construction of new dolphins with mooring and berthing features, floating pier, gangways and catwlks and associated electrical work and other incidental work.

For general information regarding Bidding and Contracting procedures, contact Scott Bickford at (207)624-3410. Our webpage at http://www.maine.gov/mdot/contractor-consultant-information/contractor_cons.php contains a copy of the schedule of items, Plan Holders List, written portions of bid amendments (not drawings), and bid results. For Project-specific information fax all questions to **Project Manager** Paul Pottle at (207)624-3431. Questions received after 12:00 noon of Monday prior to bid date will not be answered. Bidders shall not contact any other Departmental staff for clarification of Contract provisions, and the Department will not be responsible for any interpretations so obtained. Hearing impaired persons may call the Telecommunication Device for the Deaf at 888-516-9364.

Plans, specifications and bid forms may be seen at the Maine DOT Building in Augusta, Maine. They may be purchased from the Department between the hours of 8:00 a.m. to 4:30 p.m. by cash, credit card (Visa/Mastercard) or check payable to Treasurer, State of Maine sent to Maine Department of Transportation, Attn.: Mailroom, 16 State House Station, Augusta, Maine 04333-0016. They also may be purchased by telephone at (207) 624-3536 between the hours of 8:00 a.m. to 4:30 p.m. Full size plans $43.00 ($48.00 by mail). Half size plans $22.00 ($25.00 by mail), Bid Book $10 ($13 by mail), Single Sheets $2, payment in advance, all non-refundable.

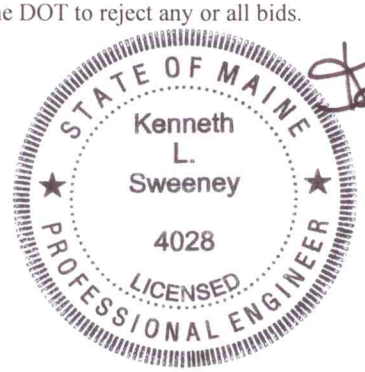
Each Bid must be made upon blank forms provided by the Department and must be accompanied by a bid bond at 5% of the bid amount or an official bank check, cashier's check, certified check, certificate of deposit, or United States postal money order in the amount of $00000 payable to Treasurer, State of Maine as a Bid guarantee. A Contract Performance Surety Bond and a Contract Payment Surety Bond, each in the amount of 100 percent of the Contract price, will be required of the successful Bidder.

This Contract is subject to all applicable State Laws.

All work shall be governed by "State of Maine, Department of Transportation, Standard Specifications, Revision of December 2002", price $10 [$13 by mail], and Standard Details, Revision of December 2002, price $20 [$25 by mail]. Standard Detail updates can be found at http://www.maine.gov/mdot/contractor-consultant-information/contractor_cons.php

The right is hereby reserved to the Maine DOT to reject any or all bids.

Augusta, Maine
July 14, 2010



KENNETH L. SWEENEY P. E.
CHIEF ENGINEER

March 14, 2007
Supersedes March 3, 1966

Non-federal Projects Only

NOTICE TO CONTRACTORS - PREFERRED EMPLOYEES

Sec. 1303. Public Works; minimum wage

In the employment of laborers in the construction of public works, including state highways, by the State or by persons contracting for the construction, preference must first be given to citizens of the State who are qualified to perform the work to which the employment relates and, if they can not be obtained in sufficient numbers, then to citizens of the United States. Every contract for public works construction must contain a provision for employing citizens of this State or the United States. The hourly wage and benefit rate paid to laborers employed in the construction of public works, including state highways, may not be less than the fair minimum rate as determined in accordance with section 1308. Any contractor who knowingly and willfully violates this section is subject to a fine of not less than $250 per employee violation. Each day that any contractor employs a laborer at less than the wage and benefit minimum stipulated in this section constitutes a separate violation of this section. [1997, c. 757, §1 (amd).]

PORTLAND
PIN 017832.00
June 29, 2010
Supercedes October 29, 2003

SPECIAL PROVISION 102.7.3
ACKNOWLEDGMENT OF BID AMENDMENTS
&
SUBMISSION OF BID BOND VALIDATION NUMBER (IF APPLICABLE)

With this form, the Bidder acknowledges its responsibility to check for all Amendments to the Bid Package. For each Project under Advertisement, Amendments are located at http://www.maine.gov/mdot/comprehensive-list-projects/project-information.php It is the responsibility of the Bidder to determine if there are Amendments to the Project, to download them, to incorporate them into their Bid Package, and to reference the Amendment number and the date on the form below. The Maine DOT will not post Bid Amendments any later than noon the day before Bid opening without individually notifying all the planholders.

Amendment Number	Date

The Contractor, for itself, its successors and assigns, hereby acknowledges that it has received all of the above referenced Amendments to the Bid Package.

CONTRACTOR

_____ _____
Date Signature of authorized representative

_____
(Name and Title Printed)

SCHEDULE OF ITEMS REVISED:

CONTRACT ID: 017832.00 PROJECT(S): 17832.00

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
	SECTION 0001 PROJECT ITEMS					
0010	202.01 REMOVING STRUCTURES AND OBSTRUCTIONS	LUMP	LUMP			
0020	501.2431 18" STEEL PIPE PILE DELIVERED AND INSTALLED (0.500" WALL THICKNESS)	3600.000 LF				
0030	501.2441 24" STEEL PIPE PILE DELIVERED AND INSTALLED (0.500" WALL THICKNESS)	1720.000 LF				
0040	501.2451 24" STEEL PIPE PILE DELIVERED AND INSTALLED (0.750" WALL THICKNESS)	160.000 LF				
0050	501.2461 30" STEEL PIPE PILE DELIVERED AND INSTALLED (0.500" WALL THICKNESS)	3020.000 LF				
0060	504.502 DOLPHIN / FENDER STRUCTURES	LUMP	LUMP			
0070	504.510 MISC. FABRICATION	LUMP	LUMP			
0080	504.851 PEDESTRIAN GANGWAYS AND PIERS	LUMP	LUMP			
0090	504.852 CATWALKS	LUMP	LUMP			

SCHEDULE OF ITEMS REVISED:

CONTRACT ID: 017832.00 PROJECT(S): 17832.00

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0100	504.853 FLOAT AND ACCESS RAMP	LUMP	LUMP			
0110	504.855 FOAM FILLED FENDERS	LUMP	LUMP			
0120	639.18 FIELD OFFICE TYPE A	1.000 EA				
0130	659.10 MOBILIZATION	LUMP	LUMP			
0140	910.42 ELECTRICAL - PIER FACILITY	LUMP	LUMP			
	SECTION 0001 TOTAL					
	TOTAL BID					

CONTRACT AGREEMENT, OFFER & AWARD

AGREEMENT made on the date last signed below, by and between the State of Maine, acting through and by its Department of Transportation (Department), an agency of state government with its principal administrative offices located at Child Street, Augusta, Maine, with a mailing address at 16 State House Station, Augusta, Maine 04333-0016, and

_____

a corporation or other legal entity organized under the laws of the State of _____, with its principal place of business located at _____

_____

The Department and the Contractor, in consideration of the mutual promises set forth in this Agreement (the "Contract"), hereby agree as follows:

A. The Work.

The Contractor agrees to complete all Work as specified or indicated in the Contract including Extra Work in conformity with the Contract, PIN No. **17832.00**, for the **Ocean Gateway Pier 2 Berth 2** in the city of **Portland**, County of **Cumberland**, Maine. The Work includes construction, maintenance during construction, warranty as provided in the Contract, and other incidental work.

The Contractor shall be responsible for furnishing all supervision, labor, equipment, tools supplies, permanent materials and temporary materials required to perform the Work including construction quality control including inspection, testing and documentation, all required documentation at the conclusion of the project, warranting its work and performing all other work indicated in the Contract.

The Department shall have the right to alter the nature and extent of the Work as provided in the Contract; payment to be made as provided in the same.

B. Time.

The Contractor agrees to complete all Work, except warranty work, on or before **July 15, 2011.** Further, the Department may deduct from moneys otherwise due the Contractor, not as a penalty, but as Liquidated Damages in accordance with Sections 107.7 and 107.8 of the State of Maine Department of Transportation Standard Specifications, Revision of December 2002 and related Special Provisions.

C. Price.

The quantities given in the Schedule of Items of the Bid Package will be used as the basis for determining the original Contract amount and for determining the amounts of the required Performance Surety Bond and Payment Surety Bond, and that the amount of this offer is _____

_____

$_ _____ Performance Bond and Payment Bond each being 100% of the amount of this Contract.

D. Contract.

This Contract, which may be amended, modified, or supplemented in writing only, consists of the Contract documents as defined in the Plans, Standard Specifications, Revision of December 2002, Standard Details Revision of December 2002 as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds. It is agreed and understood that this Contract will be governed by the documents listed above.

E. Certifications.

By signing below, the Contractor hereby certifies that to the best of the Contractor's knowledge and belief:

1. All of the statements, representations, covenants, and/or certifications required or set forth in the Bid and the Bid Documents, including those in the Contract are still complete and accurate as of the date of this Agreement.

2. The Contractor knows of no legal, contractual, or financial impediment to entering into this Contract.

3. The person signing below is legally authorized by the Contractor to sign this Contract on behalf of the Contractor and to legally bind the Contractor to the terms of the Contract.

F. Offer.

The undersigned, having carefully examined the site of work, the Plans, Standard Specifications Revision of December 2002, Standard Details Revision of December 2002 as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of:

PIN 17832.00 – Ocean Gateway Pier 2 Berth 2 – in the City of Portland,
State of Maine, on which bids will be received until the time specified in the "Notice to Contractors" do(es) hereby bid and offer to enter into this contract to supply all the materials, tools, equipment and labor to construct the whole of the Work in strict accordance with the terms and conditions of this Contract at the unit prices in the attached "Schedule of Items".

The Offeror agrees to perform the work required at the price specified above and in accordance with the bids provided in the attached "Schedule of Items" in strict accordance with the terms of this solicitation, and to provide the appropriate insurance and bonds if this offer is accepted by the Government in writing.

As Offeror also agrees:

First: To do any extra work, not covered by the attached "Schedule of Items", which may be ordered by the Resident, and to accept as full compensation the amount determined upon a "Force Account" basis as provided in the Standard Specifications, Revision of December 2002, and as addressed in the contract documents.

Second: That the bid bond at 5% of the bid amount or the official bank check, cashier's check, certificate of deposit or U. S. Postal Money Order in the amount given in the "Notice to Contractors", payable to the Treasurer of the State of Maine and accompanying this bid, shall be forfeited, as liquidated damages, if in case this bid is accepted, and the undersigned shall fail to abide by the terms and conditions of the offer and fail to furnish satisfactory insurance and Contract bonds under the conditions stipulated in the Specifications within 15 days of notice of intent to award the contract.

Third: To begin the Work as stated in Section 107.2 of the Standard Specifications Revision of December 2002 and complete the Work within the time limits given in the Special Provisions of this Contract.

Fourth: That this offer shall remain open for 30 calendar days after the date of opening of bids.

Fifth: The Bidder hereby certifies, to the best of its knowledge and belief that: the Bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of competitive bidding in connection with its bid, and its subsequent contract with the Department.

IN WITNESS WHEREOF, the Contractor, for itself, its successors and assigns, hereby execute two duplicate originals of this Agreement and thereby binds itself to all covenants, terms, and obligations contained in the Contract Documents.

CONTRACTOR

_____	_____
Date	(Signature of Legally Authorized Representative of the Contractor)
_____	_____
Witness	(Name and Title Printed)

G. Award.

Your offer is hereby accepted. This award consummates the Contract, and the documents referenced herein.

MAINE DEPARTMENT OF TRANSPORTATION

_____	_____
Date	By: David A. Cole, Commissioner
_____	
Witness	

CONTRACT AGREEMENT, OFFER & AWARD

AGREEMENT made on the date last signed below, by and between the State of Maine, acting through and by its Department of Transportation (Department), an agency of state government with its principal administrative offices located at Child Street, Augusta, Maine, with a mailing address at 16 State House Station, Augusta, Maine 04333-0016, and

_____

a corporation or other legal entity organized under the laws of the State of _____, with its principal place of business located at _____

_____

The Department and the Contractor, in consideration of the mutual promises set forth in this Agreement (the "Contract"), hereby agree as follows:

A. The Work.

The Contractor agrees to complete all Work as specified or indicated in the Contract including Extra Work in conformity with the Contract, PIN No. **17832.00**, for the **Ocean Gateway Pier 2 Berth 2** in the city of **Portland**, County of **Cumberland**, Maine. The Work includes construction, maintenance during construction, warranty as provided in the Contract, and other incidental work.

The Contractor shall be responsible for furnishing all supervision, labor, equipment, tools supplies, permanent materials and temporary materials required to perform the Work including construction quality control including inspection, testing and documentation, all required documentation at the conclusion of the project, warranting its work and performing all other work indicated in the Contract.

The Department shall have the right to alter the nature and extent of the Work as provided in the Contract; payment to be made as provided in the same.

B. Time.

The Contractor agrees to complete all Work, except warranty work, on or before **July 15, 2011.** Further, the Department may deduct from moneys otherwise due the Contractor, not as a penalty, but as Liquidated Damages in accordance with Sections 107.7 and 107.8 of the State of Maine Department of Transportation Standard Specifications, Revision of December 2002 and related Special Provisions.

C. Price.

The quantities given in the Schedule of Items of the Bid Package will be used as the basis for determining the original Contract amount and for determining the amounts of the required Performance Surety Bond and Payment Surety Bond, and that the amount of this offer is _____

_____

$_ _____ Performance Bond and Payment Bond each being 100% of the amount of this Contract.

D. Contract.

This Contract, which may be amended, modified, or supplemented in writing only, consists of the Contract documents as defined in the Plans, Standard Specifications, Revision of December 2002, Standard Details Revision of December 2002 as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds. It is agreed and understood that this Contract will be governed by the documents listed above.

E. Certifications.

By signing below, the Contractor hereby certifies that to the best of the Contractor's knowledge and belief:

1. All of the statements, representations, covenants, and/or certifications required or set forth in the Bid and the Bid Documents, including those in the Contract are still complete and accurate as of the date of this Agreement.

2. The Contractor knows of no legal, contractual, or financial impediment to entering into this Contract.

3. The person signing below is legally authorized by the Contractor to sign this Contract on behalf of the Contractor and to legally bind the Contractor to the terms of the Contract.

F. Offer.

The undersigned, having carefully examined the site of work, the Plans, Standard Specifications Revision of December 2002, Standard Details Revision of December 2002 as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of:

PIN 17832.00 – Ocean Gateway Pier 2 Berth 2 – in the City of Portland,
State of Maine, on which bids will be received until the time specified in the "Notice to Contractors" do(es) hereby bid and offer to enter into this contract to supply all the materials, tools, equipment and labor to construct the whole of the Work in strict accordance with the terms and conditions of this Contract at the unit prices in the attached "Schedule of Items".

The Offeror agrees to perform the work required at the price specified above and in accordance with the bids provided in the attached "Schedule of Items" in strict accordance with the terms of this solicitation, and to provide the appropriate insurance and bonds if this offer is accepted by the Government in writing.

As Offeror also agrees:

First: To do any extra work, not covered by the attached "Schedule of Items", which may be ordered by the Resident, and to accept as full compensation the amount determined upon a "Force Account" basis as provided in the Standard Specifications, Revision of December 2002, and as addressed in the contract documents.

Second: That the bid bond at 5% of the bid amount or the official bank check, cashier's check, certificate of deposit or U. S. Postal Money Order in the amount given in the "Notice to Contractors", payable to the Treasurer of the State of Maine and accompanying this bid, shall be forfeited, as liquidated damages, if in case this bid is accepted, and the undersigned shall fail to abide by the terms and conditions of the offer and fail to furnish satisfactory insurance and Contract bonds under the conditions stipulated in the Specifications within 15 days of notice of intent to award the contract.

Third: To begin the Work as stated in Section 107.2 of the Standard Specifications Revision of December 2002 and complete the Work within the time limits given in the Special Provisions of this Contract.

Fourth: That this offer shall remain open for 30 calendar days after the date of opening of bids.

Fifth: The Bidder hereby certifies, to the best of its knowledge and belief that: the Bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of competitive bidding in connection with its bid, and its subsequent contract with the Department.

IN WITNESS WHEREOF, the Contractor, for itself, its successors and assigns, hereby execute two duplicate originals of this Agreement and thereby binds itself to all covenants, terms, and obligations contained in the Contract Documents.

CONTRACTOR

_____	_____
Date	(Signature of Legally Authorized Representative of the Contractor)
_____	_____
Witness	(Name and Title Printed)

G. Award.

Your offer is hereby accepted. This award consummates the Contract, and the documents referenced herein.

MAINE DEPARTMENT OF TRANSPORTATION

_____	_____
Date	By: David A. Cole, Commissioner
_____	
Witness	

CONTRACT AGREEMENT, OFFER & AWARD

AGREEMENT made on the date last signed below, by and between the State of Maine, acting through and by its Department of Transportation (Department), an agency of state government with its principal administrative offices located at Child Street Augusta, Maine, with a mailing address at 16 State House Station, Augusta, Maine 04333-0016, and **(Name of the firm bidding the job)** a corporation or other legal entity organized under the laws of the State of Maine, with its principal place of business located at **(address of the firm bidding the job)**

The Department and the Contractor, in consideration of the mutual promises set forth in this Agreement (the "Contract"), hereby agree as follows:

A. The Work.

The Contractor agrees to complete all Work as specified or indicated in the Contract including Extra Work in conformity with the Contract, PIN No.**1224.00**, for the **Hot Mix Asphalt Overlay** in the town/city of **South Nowhere,** County of **Washington**, Maine. The Work includes construction, maintenance during construction, warranty as provided in the Contract, and other incidental work.

The Contractor shall be responsible for furnishing all supervision, labor, equipment, tools supplies, permanent materials and temporary materials required to perform the Work including construction quality control including inspection, testing and documentation, all required documentation at the conclusion of the project, warranting its work and performing all other work indicated in the Contract.

The Department shall have the right to alter the nature and extent of the Work as provided in the Contract; payment to be made as provided in the same.

B. Time.

The Contractor agrees to complete all Work, except warranty work, on or before **November 15, 2006.** Further, the Department may deduct from moneys otherwise due the Contractor, not as a penalty, but as Liquidated Damages in accordance with Sections 107.7 and 107.8 of the State of Maine Department of Transportation Standard Specifications, Revision of December 2002 and related Special Provisions.

C. Price.

The quantities given in the Schedule of Items of the Bid Package will be used as the basis for determining the original Contract amount and for determining the amounts of the required Performance Surety Bond and Payment Surety Bond, and that the amount of this offer is **____(Place bid here in alphabetical form such as One Hundred and Two dollars and 10 cents)_____ $_(repeat bid here in numerical terms, such as $102.10)_____** Performance Bond and Payment Bond each being 100% of the amount of this Contract.

D. Contract.

This Contract, which may be amended, modified, or supplemented in writing only, consists of the Contract documents as defined in the Plans, Standard Specifications, Revision of December 2002, Standard Details Revision of December 2002, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds. It is agreed and understood that this Contract will be governed by the documents listed above.

E. Certifications.

By signing below, the Contractor hereby certifies that to the best of the Contractor's knowledge and belief:

1. All of the statements, representations, covenants, and/or certifications required or set forth in the Bid and the Bid Documents, including those in Appendix A to Division 100 of the Standard Specifications Revision of December 2002 (Federal Contract Provisions Supplement), and the Contract are still complete and accurate as of the date of this Agreement.

2. The Contractor knows of no legal, contractual, or financial impediment to entering into this Contract.

3. The person signing below is legally authorized by the Contractor to sign this Contract on behalf of the Contractor and to legally bind the Contractor to the terms of the Contract.

F. Offer.

The undersigned, having carefully examined the site of work, the Plans, Standard Specifications, Revision of December 2002, Standard Details Revision of December 2002, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of:

PIN 1234.00 South Nowhere, Hot Mix Asphalt Overlay ,

State of Maine, on which bids will be received until the time specified in the "Notice to Contractors" do(es) hereby bid and offer to enter into this contract to supply all the materials, tools, equipment and labor to construct the whole of the Work in strict accordance with the terms and conditions of this Contract at the unit prices in the attached "Schedule of Items".

The Offeror agrees to perform the work required at the price specified above and in accordance with the bids provided in the attached "Schedule of Items" in strict accordance with the terms of this solicitation, and to provide the appropriate insurance and bonds if this offer is accepted by the Government in writing.

As Offeror also agrees:

First: To do any extra work, not covered by the attached "Schedule of Items", which may be ordered by the Resident, and to accept as full compensation the amount determined upon a "Force Account" basis as provided in the Standard Specifications, Revision of December 2002, and as addressed in the contract documents.

Second: That the bid bond at 5% of the bid amount or the official bank check, cashier's check, certificate of deposit or U. S. Postal Money Order in the amount given in the "Notice to Contractors", payable to the Treasurer of the State of Maine and accompanying this bid, shall be forfeited, as liquidated damages, if in case this bid is accepted, and the undersigned shall fail to abide by the terms and conditions of the offer and fail to furnish satisfactory insurance and Contract bonds under the conditions stipulated in the Specifications within 15 days of notice of intent to award the contract.

Third: To begin the Work as stated in Section 107.2 of the Standard Specifications Revision of 2002 and complete the Work within the time limits given in the Special Provisions of this Contract.

Fourth: The Contractor will be bound to the Disadvantaged Business Enterprise (DBE) Requirements contained in the attached Notice (Additional Instructions to Bidders) and submit a completed Contractor's Disadvantaged Business Enterprise Utilization Plan by 4:30pm on the day of bid opening to the Contracts Engineer.

Fifth: That this offer shall remain open for 30 calendar days after the date of opening of bids.

Sixth: The Bidder hereby certifies, to the best of its knowledge and belief that: the Bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of competitive bidding in connection with its bid, and its subsequent contract with the Department.

IN WITNESS WHEREOF, the Contractor, for itself, its successors and assigns, hereby execute two duplicate originals of this Agreement and thereby binds itself to all covenants, terms, and obligations contained in the Contract Documents.

CONTRACTOR

_____	**(Sign Here)**
Date	(Signature of Legally Authorized Representative of the Contractor)
____(**Witness Sign Here)**	**(Print Name Here)**
Witness	(Name and Title Printed)

G. Award.

Your offer is hereby accepted. This award consummates the Contract, and the documents referenced herein.

MAINE DEPARTMENT OF TRANSPORTATION

Date	By: David A. Cole, Commissioner
(Witness)	

BOND # _____

CONTRACT PERFORMANCE BOND
(Surety Company Form)

KNOW ALL MEN BY THESE PRESENTS: That _____ _____ **and the State of** _____, as principal, and……....., a corporation duly organized under the laws of the State of ..... and having a usual place of business ...., as Surety, are held and firmly bound unto the Treasurer of the State of Maine in the sum of _____ **and 00/100 Dollars ($)**, to be paid said Treasurer of the State of Maine or his successors in office, for which payment well and truly to be made, Principal and Surety bind themselves, their heirs, executors and administrators, successors and assigns, jointly and severally by these presents.

The condition of this obligation is such that if the Principal designated as Contractor in the Contract to construct Project Number _____ in the Municipality of _____ promptly and faithfully performs the Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the State of Maine.

Signed and sealed this ..... day of ....., 20…. .

WITNESSES:	SIGNATURES: CONTRACTOR:
Signature.....	.....….....
Print Name Legibly	Print Name Legibly ...….....
	SURETY:
Signature	....….....
Print Name Legibly	Print Name Legibly .....
SURETY ADDRESS:	NAME OF LOCAL AGENCY:
.....	ADDRESS .....
.....	..….....
.....	.....….....
TELEPHONE.....	.....….....

BOND # _____

CONTRACT PAYMENT BOND
(Surety Company Form)

KNOW ALL MEN BY THESE PRESENTS: That _____
_____ **and the State of** _____, as principal, and.....
a corporation duly organized under the laws of the State of ..... and having a usual place of business in .....,
as Surety, are held and firmly bound unto the Treasurer of the State of Maine for the use and benefit of claimants as herein below defined, in the sum of _____ **and 00/100 Dollars ($)** for the payment whereof Principal and Surety bind themselves, their heirs, executors and administrators, successors and assigns, jointly and severally by these presents.

The condition of this obligation is such that if the Principal designated as Contractor in the Contract to construct Project Number _____ in the Municipality of _____ promptly satisfies all claims and demands incurred for all labor and material, used or required by him in connection with the work contemplated by said Contract, and fully reimburses the obligee for all outlay and expense which the obligee may incur in making good any default of said Principal, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

A claimant is defined as one having a direct contract with the Principal or with a Subcontractor of the Principal for labor, material or both, used or reasonably required for use in the performance of the contract.

Signed and sealed this ..... day of ....., 20 ... .

WITNESS:	SIGNATURES:
	CONTRACTOR:
Signature……..	.....
Print Name Legibly	Print Name Legibly ….....
	SURETY:
Signature.....	.....
Print Name Legibly	Print Name Legibly ….....
SURETY ADDRESS:	NAME OF LOCAL AGENCY:
.....	ADDRESS ….....
.....	…….....
TELEPHONE	…….....

State of Maine
Department of Labor
Bureau of Labor Standards
Technical Services Division
Augusta, Maine 04333-0045
Telephone (207) 623-7906

Wage Determination - In accordance with 26 MRSA §1301 et. seq., this is a determination by the Bureau of Labor Standards, of the fair minimum wage rate to be paid laborers and workers employed on the below titled project.

Title of Project : Ocean Gateway-Mega Berth Portland
Location of Project : Portland, Cumberland County

2010 Fair Minimum Wage Rates
Heavy & Bridge Cumberland County

Occupation Title	Minimum Wage	Minimum Benefit	Total	Occupation Title	Minimum Wage	Minimum Benefit	Total
Asbestos/Lead Removal	$17.00	$0.85	$17.85	Ironworker - Structural	$21.50	$6.25	$27.75
Backhoe Loader Operator	$28.88	$4.13	$33.01	Laborers/Helper/Tender	$13.00	$1.33	$14.33
Blaster	$14.50	$1.91	$16.41	Laborer - Skilled	$15.78	$2.23	$18.01
Boilermaker	$30.19	$16.99	$47.18	Line Erector, Power	$22.99	$4.53	$27.52
Boom Truck Operator	$17.00	$3.13	$20.13	Loader Op, Front-End	$14.00	$1.44	$15.44
Bulldozer Operator	$17.35	$2.64	$19.99	Mechanic - Maintenance	$19.75	$4.66	$24.41
Carpenter	$19.00	$4.42	$23.42	Millwright	$22.25	$6.46	$28.71
Carpenter - Rough	$17.01	$2.64	$19.65	Painter	$14.00	$0.54	$14.54
Cement Mason/Finisher	$17.00	$1.30	$18.30	Pile Driver Operator	$23.91	$3.99	$27.90
Commun Equip Installer	$13.80	$1.11	$14.91	Pipe/Stm/Sprkler Fitter	$23.75	$4.96	$28.71
Commun Trans Erectr	$19.20	$2.91	$22.11	Pipelayer	$24.00	$12.42	$36.42
Crane Op =>15 Tons	$22.00	$5.40	$27.40	Plumber - Licensed	$21.50	$3.77	$25.27
Driller - Rock	$16.00	$9.13	$25.13	Plumber Helper - Lic	$16.00	$3.06	$19.06
Electrician, Licensed	$27.83	$5.31	$33.14	Rigger	$24.00	$4.73	$28.73
Electrician Hlpr (Licensed)	$16.50	$2.57	$19.07	Roller Operator - Earth	$12.80	$2.35	$15.15
Excavator Operator	$15.00	$3.18	$18.18	Sheet Metal Worker	$23.38	$16.12	$39.50
Fence Setter	$13.00	$1.33	$14.33	Truck Driver - Light	$15.75	$2.17	$17.92
Flagger	$13.40	$2.05	$15.45	Truck Driver - Medium	$14.70	$5.84	$20.54
Grader/Scraper Operator	$17.39	$3.67	$21.06	Truck Driver, Heavy	$12.88	$1.44	$14.32
Insulation Installer	$16.00	$6.19	$22.19	Truck Driver, Tractor Trlr	$17.84	$5.38	$23.22
Ironworker - Reinforcing	$21.15	$17.05	$38.20				

The Laborer classifications include a wide range of work duties. Therefore, if any specific occupation to be employed on this project is not listed in this determination, call the Bureau of Labor Standards at the above number for further clarification.

Welders are classified in the trade to which the welding is incidental.

Apprentices - The minimum wage rate for registered apprentices are those set forth in the standards and policies of the Maine State Apprenticeship and Training Council for approved apprenticeship programs.

Posting of Schedule - Posting of this schedule is required in accordance with 26 MRSA §1301 et. seq., by any contractor holding a State contract for construction valued at $50,000 or more and any subcontractors to such a contractor.

Appeal - Any person affected by the determination of these rates may appeal to the Commissioner of Labor by filing a written notice with the Commissioner stating the specific grounds of the objection within ten (10) days from the filing of these rates with the Secretary of State.

Determination No: HB-034-2010

Filing Date: June 28, 2010

Expiration Date: 12-31-2010

A true copy

Attest: 

William A. Peabody
Director
Bureau of Labor Standards

BLS 424HB (R2010) (Heavy & Bridge Cumberland)

Use of Existing Documents

The documents developed to bid the first Ocean Gateway project done in 2005/2006 had bid documents that included the Pier 2 Berth 2 project. These documents have been assembled from the original documents and are what makes up the basis of this bid package. In order to convey all of the information that was provided under the first project, the questions and responses as well as any clarifications that were issued by addendum are being proved here and shall become part of the bid documents. Please review the following information and incorporate it into the plans and specifications.

In Specification Section 02450-Foundation and Load-Bearing Elements, add the following in pen and ink:

ADDITIONS:

- Dynamic Pile Test in accordance with Standard Specification Section 501.07 shall be performed by Contractor at the following frequency:
  - 1 vertical pile on Pier A at Location F4.5 (as identified on Sheet W400)
  - 1 vertical pile on Pier A at Location F7.0 (as identified on Sheet W400)

MODIFICATION:

Section 711.01-Spiral welded pipe is not acceptable steel pipe pile.

Refer to Specification Section 05050-Structural Basic Metal Materials and Methods for additional information.

In Specification Section 03300 – Cast-In Place Concrete, replace the current modification paragraph **Section 502.05 Composition and Proportioning** in its entirety with the following in pen and ink:

Section 502.05 Composition and Proportioning – add the following at the end of the paragraph: Concrete class for all Marine/Water Component cast in place structures shall be Class LP (5,075 psi minimum) with note 3 added to the notes in Table 1. All other cast in place concrete shall be Class A. All concrete work shall be done under Quality Control Method B and the corresponding P value will be $300.00 per cubic yard.

Class of concrete and quality control method B will supercede various notes and references on the drawings referring to cast in place concrete. The Special Provision on Independent Testing shall not be modified by this change.

On Sheet W401, add Note as follows:
All plate for fins shall be ASTM A572, Grade 50.

Question: Are the new piles that to be driven on Pier A, Pier 2 fenders, Pier 2 Berth 2 going to get anodes on them?

Response: No

Question: Can not find coating system for pipe piling.

Response: See Book II Section 09960-Paints and Coatings-Water/Marine Components page 09960-6, Section 506.03.

Question; Modification in Book II Specification section 05050 to Standard Specification Section 711.01 Steel Pipe Piles, ASTM A252 Grade 3, minimum yield stress greater than or equal to 50 ksi. ASTM A252, Grade 3 = 45 ksi. How do you want to handle this spec?

Response: Steel pipe piles shall have a minimum yield stress greater than or equal to 50 ksi as stated.

Question: Welding inspection - please clarify for pipe pile systems.

Response: Visual Inspections – all welds; Magnetic Practical Testing – Fifteen percent of all welds, done randomly throughout the pile splicing operation.
Question: Please verify that the steel for the Float shown on Drawings W316-M to W317-M is to be painted with the same system specified under Section 09960, Paragraph 2.02A. This item was not listed under Paragraph 3.10B of the same section.

Response: See Section 13990 Float, Section 11 Painting for float paint requirements.

Question: Sheet 62 of 288 - Walkway for New Breasting Dolphin #1 to New Pedestrian Gangway # 2, What supports the north end at the new pedestrian gangway #2?

Response: Walkway is cantilevered from Breasting Dolphin #1. See Sheet W300-M ALT., Section B and W301-M ALT, Section A, for welds**.**

Question: Please confirm that all pipe piles are concrete filled. Where on drawings is this so indicated? What are the specifications for concrete?

Response: Refer to Specification Section 02450 – Foundation and Load Bearing Elements for specification on which piles are to be concrete filled. Refer to Bid Amendment No. 1 dated February 14, 2005 for concrete specification of filled piles.

Question: RE: Pile spin fins (W401), are there any specifications on the type of steel for the fins.

Response: See the addition of a note to sheet W401

Question: On Sheet W100-M Alt #4 Sheet 103 of 288. How do you get from the new float to Breasting Dolphin #2 and #3. The site plan show the little ramps but no details. On sheet 109 of 288 shows BD#2 and #3 with no opening for the little ramps. Please reply.

Response: BD#2 and #3 will be accessed by ladders as shown on Sheet 109 of 288.

Question: Barge builders are refusing to bid this barge because of the interior painting requirements. Would you please consider either eliminating the interior painting or go with a Flote Coat system? Please advise!

Response: Barge shall be painted as specified.

Question: Is fill concrete put in piles on Pier 2 Berth 2?

Response: Refer to Specification Section 02450 – Foundation and Load Bearing Elements for specification on which piles are to be concrete filled.

Question:
Please verify that the pile type WILL NOT be changed to a spiral welded type pipe as indicated in addendum 1 of the previous bid process dated 2-14-05.

Response:
Pile type will not be changed to spiral welded pipe under the Base Bid.

OCEAN GATEWAY
Pier 2 Berth 2

PORTLAND-CUMBERLAND COUNTY
PIN 017832.00

SECTION 2

SPECIAL PROVISION
SECTION 102
BIDDING

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 DESCRIPTION:

A. Work under this Contract will be paid for as defined within this section. References in Division 100 through Division 700 of the State of Maine Department of Transportation Standard Specifications to "method of measurement" and "basis of payment" should be disregarded, unless noted otherwise.

B. Scope: This section describes the measurement and payment for the Work to be completed under each item in the Bid. Work as defined in the State of Maine Department of Transportation Standard Specifications, is all labor, services, personnel, Materials, Equipment, tools, supplies, and Incidentals required or indicated by the Contract in Conformity with the same. All Work not specifically identified in the Schedule of Items shall be considered a subsidiary obligation of Contractor and all costs in connection therewith shall be included in the prices bid.

A. Payment Procedures are described in Section 108 of the State of Maine Department of Transportation Standard Specifications.

1.02 SUBMITTALS:

A. Detailed Cost Breakdown: Within five (5) working days of the date of the Bid Opening, submit a detailed cost breakdown for all items listed within the Schedule of Items. The detail shall be sufficient for the Department to estimate the amount of work performed to make Progress Payment, consistent with Section 108.

1.03 DESCRIPTION OF SCHEDULE OF ITEMS:

SECTION 0001

202.01 – Removing Structures And Obstructions:

1. Payment: Lump sum price as stated in the Bid Form.

2. Measurement: Determine value of Work completed to date from detailed cost breakdown approved by RESIDENT.

3. Includes erosion and sedimentation controls, dust controls, demolition of marine/water components, demolition of mooring platform building, demolition of utility bridge, demolition of all items within building and utility bridge, demolition of railings, restoration/preparation of existing surfaces as specified and as shown on the project drawings to complete the Work.

501.2431 – 18" Ø (0.500" wall thickness) Steel Pipe Pile:

1. Payment: Unit price per linear foot as stated in the Bid Form.

2. Measurement: As measured in place from the tip of the pile to the cutoff elevation as shown on the plans.

3. Includes erosion and sedimentation controls, setup, furnishing piles with tips (spin fin with open shoe or conical as specified), coating, staging, driving, splicing, testing and all Work necessary to install the piles as shown on the Drawings and as specified.

501.2441 – 24" Ø (0.500" wall thickness) Steel Pipe Pile:

1. Payment: Unit price per linear foot as stated in the Bid Form.

2. Measurement: As measured in place from the tip of the pile to the cutoff elevation as shown on the plans.

3. Includes erosion and sedimentation controls, setup, furnishing piles with tips (spin fin with open shoe or conical as specified), coating, staging, driving, splicing, testing and all Work necessary to install the piles as shown on the Drawings and as specified.

501.2451 – 24" Ø (0.750" wall thickness) Steel Pipe Pile:

1. Payment: Unit price per linear foot as stated in the Bid Form.

2. Measurement: As measured in place from the tip of the pile to the cutoff elevation as shown on the plans.

3. Includes erosion and sedimentation controls, setup, furnishing piles with tips (spin fin with open shoe or conical as specified), coating, staging, driving, splicing, testing and all Work necessary to install the piles as shown on the Drawings and as specified.

501.2461 – 30" Ø (0.500" wall thickness) Steel Pipe Pile:

1. Payment: Unit price per linear foot as stated in the Bid Form.

2. Measurement: As measured in place from the tip of the pile to the cutoff elevation as shown on the plans.

3. Includes erosion and sedimentation controls, setup, furnishing piles with tips (spin fin with open shoe or conical as specified), coating, staging, driving, splicing, testing and all Work necessary to install the piles as shown on the Drawings and as specified.

639.18– Engineering Facility Field Office, Type A:

1. Payment: Each as stated in the Bid Form

2. Measurement: Engineering field office measured as each building provided, equipped and maintained satisfactorily.

3. Includes costs for providing Type A Engineering Field Office as specified in Section 639 of

the State of Maine DOT Standard Specifications.

PART 2 - PRODUCTS (not applicable)

PART 3 - EXECUTION

3.01 GENERAL:

A. Measurement: Notify RESIDENT when necessary measurements must be taken. Notify in advance. Do not proceed until measurements have been taken.

*** END OF SECTION ***

SPECIAL PROVISION
SECTION 104.4

Communications and Coordination
(Progress Meetings)

Progress meetings shall be held weekly in the Departments Field Office. A time shall be determined for the meetings, this time shall be agreeable to all parties; the Owner, the Contractor and the City. The current schedule will be discussed and updates will be given to all parties on what the next three weeks activities are and their potential impact on the sites, the harbors and adjacent facilities/properties

SPECIAL PROVISION
SECTION 107.3
ALLOWABLE WORK TIMES
(Night Work)

The following is in addition to the requirements of Section 107.3.2

The Contractor is being made aware of the close proximity of the local residences. The Contractor shall conduct operations so as not to generate loud noises between the hours of 8:00 PM and 6:00 AM unless otherwise approved. Local requirements concerning noise may impose additional restrictions and must be complied with by the Contractor.

SPECIAL PROVISION

SECTION 102
BIDDING
(PRE-BID SITE VISIT)

The DEPARTMENT in cooperation with the City will make two time slots available to all prospective Bidders (CONTRACTORS) for gaining access to the site to review the actual conditions of the work. The facility will be available for contractors to inspect the condition of the site on July 14th and July 20th from 9:00 A.M to 11:00 A.M. CONTRACTORS will only be given these time slots and they will accompanied by a City representative. CONTRACTORS should try to limit their number of people to those who need to see the site and should try to arrive as a group to assist security in showing you the facility. All visitors will need to check in with security located at the new facility on the Ocean Gateway Site now referred to as the Visitors Information Center (Receiving Building). All visitors must remain with the site representative at all times. The head of security is Toni Doucette. All those attending the site visit will need to carry with them photographic identifications (Passport or Driver's License) to obtain access to the site; no exceptions shall be made.

The CONTRACTOR may ask questions during the visit, but none of the answers provided can be interpreted to modify the Contract Documents, unless a formal response is requested in writing and an addendum is issued.

SPECIAL PROVISION

SECTION 104
SITE ACCESS AND COORDINATION

104.01 DESCRIPTION: The Ocean Gateway site is comprised of an active marine terminal (Portland Ocean Terminal) with backland utilized for parking areas and pedestrian facilities, located within downtown Portland. The site has several special requirements that must be met in order to successfully complete the project. Continued access/uninterrupted operation of the facility, and reducing construction impacts to the surrounding area are extremely important. Along with operations, security at this facility is essential. The following outlines the requirements for completing work and access to the facility. Complying with the requirements outlined within this Special Provision shall be considered incidental to Schedule of Items.

1. PARKING - Due to limited space on and around the site, the CONTRACTOR may need to make arrangements with the CITY or private land owners to meet their total parking needs. The City will provide the contractor complete access to the Amerthist lot which is located on the Eastern end of the Ocean Gateway Facility. The contractor can contact Bob Leeman with the City at 207-233-0350.

2. ACCESS/STAGING - The CONTRACTOR shall be responsible for coordinating construction sequence and site access with the RESIDENT and CITY prior to commencement of construction and throughout the duration of the project. The City will make available to the contractor the Amerthist lot located on the Eastern end of the Ocean Gateway Facility for use in staging construction materials and deliveries.

   Upon review of the CONTRACTOR's proposed sequence of construction by RESIDENT and CITY, the CONTRACTOR shall be granted access to those portions of the project site as agreed to by the City and the Department, only for the durations set forth in that agreement. Temporary fencing shall be the responsibility of the CONTRACTOR to limit access to areas of the project site or those granted for use by the contractor.

3. TRAFFIC CONTROL - The CONTRACTOR shall prepare and submit a Traffic Control Plan (TCP) in accordance with Section 652.3.3. This TCP shall meet as a minimum, all items specified under Section 652 – Maintenance of Traffic, as well as address coordination with terminal operations and the surrounding area. CONTRACTOR shall be responsible for furnishing, installing, and maintaining all Traffic Control Devices in accordance with Section 652 and the TCP.

   - EASTERN PROMENADE TRAIL: CONTRACTOR shall conduct all construction activities such that there is no impact on the use of this trail by the public.

4. SECURITY - As of July 1, 2004, the Maritime Transportation Security Act (MTSA) is in effect at all marine terminals in the United States. The MTSA is a strict set of regulations that all terminal and vessel operators must follow as part of the Homeland Security Initiative. Marine facilities have been identified as "at risk" targets for acts of terror.

The CITY strictly enforces these regulations at this terminal. Please note that the City expects that all tenants and contractors at this facility will follow these regulations. Procedures change based on alert levels and the type of activity that is taking place at the facility. All personnel that will be working within the secure areas must have a TWIC (Transportation Worker Identification Credential) card or be accompanied by someone who has a TWIC card and is authorized to be in the secure areas. The contractor should also plan to have all deliveries made outside the secure area or have a person available who can accompany the delivery into the secure area. No one who is not authorized or covered with a TWIC card should be allowed into or left in secured areas without someone who is authorized or covered with a TWIC card.

SPECIAL PROVISION

SECTION 105
ASBESTOS CONTAINING MATERIALS and LEAD-BASED PAINT

Woodard & Curran, on behalf of MDOT, retained Licensed Asbestos Building Inspectors and Licensed Lead Inspectors to identify potential asbestos containing building materials and lead-based paint in the pipe bridge and mooring platform building scheduled to be demolished as part of this project.

Buildings Inspected	**Asbestos Results**	**Lead Results**
Pipe Bridge Building (This includes the Utility Corridor (previously demolished), Utility Bridge, and Mooring Platform Building)	None identified	Red, green, silver, blue, peach, and white piping and hanger supports have lead-based paint, as does the yellow handrail.

Demolition of these structures is not regulated under asbestos regulations (Maine Asbestos Management Regulations or OSHA 29 CFR 1926.1101.) Lead-based paint on items such as piping, supports, and railings that can be removed by unbolting or whole and in intact condition without actions creating dust and potential exposure hazards is not regulated. If such components cannot be removed without burning, cutting, scraping, grinding, crushing, crumbling, sanding, or other actions creating dust and potential exposure, then requirements under OSHA 29 CFR 1926.62 should be followed for training, personal monitoring, and personal protection. Waste can be disposed of as demolition debris at an appropriate solid waste facility.

The complete results of the inspection are available in the report:

Air Quality Management Services, Inc. 2004. Limited Asbestos & Lead-based Paint Survey, Old BIW Complex (City of Portland Ocean Gateway Project). June 28, 2004.

Pin 17832.00
Portland
June 29, 2010

SPECIAL PROVISION

SECTION 107
TIME
(Contract Time)

All work shall be completed by July 15, 2011, which is the specified completion date for this contract.

PIN 17832.00
Portland
June 29, 2010

SPECIAL PROVISIONS
SECTION 107.9
TIME
(Project Closeout)

The following is in addition to the requirements of Section 107.9.

The Contractor shall maintain, at the site, a set of Drawings, on which shall be recorded accurately as the work progresses, the actual dimensions and grades of all his work, indicating thereon all variations from the Contract Drawings. The record shall include the work of all Subcontractors. Record drawings shall be reviewed by the Resident, and the Contractor shall make all necessary changes according to the Resident's review.

Prior to final acceptance of the Work, all recorded data shall be transferred by the Contractor, to a complete set of reproducible record drawings, in ink or photolitho reproductions of the original of the Contract Drawings showing "As-Built" conditions. Reproductions shall be 3 mil mylar, single matted, as approved by the Department. The contractor may elect to work with a copy of the electronic documents and make changes to them and provide a complete set of "as builts" on disk.

SPECIAL PROVISION SECTION 110

INDEMNIFICATION, BONDING AND INSURANCE

Replace this entire Section with the following:

Scope of Section This Section contains general requirements for indemnification, bonding, and insurance by the Contractor.

110.1 Indemnification The Contractor agrees to indemnify, defend, and hold harmless the Department and its officers, directors, employees, agents and consultants from and against all claims, actions, torts, costs, losses, and damages for bodily injury (including sickness, disease, or death) and property damage arising out of or relating to this Contract or the performance of Work by the Contractor and its Subcontractors, subconsultants, Engineers, suppliers, any individuals or entities directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, excepting only claims directly and solely caused by the negligence of the Department. Damages covered include, but are not limited to, all Dispute resolution costs, court costs, attorney's fees, and the fees of Engineers and consultants, arbitrators, and other professionals related to Dispute defense and preparation.

This indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Contractor or any Subcontractor, subconsultant, Engineer, supplier, or other individual or entity under Workers' Compensation acts, disability benefit acts, or other employee benefit acts.

110.1.1 Indemnification The Contractor agrees to indemnify, defend, and hold harmless the City of Portland and its officers, directors, employees, agents and consultants from and against all claims, actions, torts, costs, losses, and damages for bodily injury (including sickness, disease, or death) and property damage arising out of or relating to this Contract or the performance of Work by the Contractor and its Subcontractors, subconsultants, Engineers, suppliers, any individuals or entities directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, excepting only claims directly and solely caused by the negligence of the City of Portland. Damages covered include, but are not limited to, all Dispute resolution costs, court costs, attorney's fees, and the fees of Engineers and consultants, arbitrators, and other professionals related to Dispute defense and preparation.

This indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Contractor or any Subcontractor, subconsultant, Engineer, supplier, or other individual or entity under Workers' Compensation acts, disability benefit acts, or other employee benefit acts.

110.2 Bonding

110.2.1 Bonds The Contractor shall provide signed, valid, and enforceable Performance and Payments Bonds complying with the Contract. The Department may also require Warranty and

Maintenance Bonds for specific items using a Contract specific special provision. For a related provision, see Section 103.5 - Award Conditions.

The Contractor shall procure bonds from a company organized and operating in the United States, licensed or approved to do business in the State of Maine by the State of Maine Department of Business Regulation, Bureau of Insurance, and listed on the latest Federal Department of the Treasury listing for "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies".

The bonds shall each be in the full Contract amount, payable to the "Treasurer - State of Maine," and on the Department's forms, on exact copies thereof, or on forms that do not contain any significant variations from the Department's forms as solely determined by the Department.

By issuing a bond, the Surety agrees to be bound by all terms of the Contract, including those related to payment, time of performance, quality, warranties, and the Department's self-help remedy provided in Section 112.1 - Default to the same extent as if all terms of the Contract are contained in the bond(s).

Regarding claims related to any obligations covered by these bonds, the Surety shall provide, within 60 Days of Receipt of written notice thereof, full payment of the entire claim or written notice of all bases upon which it is denying or contesting payment. Failure of the Surety to provide such notice within the 60-day period constitutes the Surety's waiver of any right to deny or contest payment and the Surety's acknowledgment that the claim is valid and undisputed.

If the Surety becomes financially insolvent or stops operating in the United States, the Contractor shall file new bonds complying with this Section within 10 Days of the date the Contractor is notified of such change.

For a related provision, see Section 106.9.4 - Other Warranty Provisions.

110.2.2 Bond for Use of Municipal Roads A bond for use of municipal Roads may be required as provided in Section 105.5 - Hauling of Materials and Equipment.

110.2.3 Bonding for Landscape Subcontractors The Contractor shall retain only Landscape Subcontractors that provide a signed, valid, and enforceable Performance, Warranty, or Maintenance Bond complying with the Contract.

All Bonds shall be procured from a company organized and operating in the United States, licensed or approved to do business in the State of Maine by the State of Maine Department of Business Regulation, Bureau of Insurance, and listed on the latest Federal Department of the Treasury listing for "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies."

The bonds shall each be in the full Subcontract amount, payable to the "Treasurer - State of Maine," and on the Department's forms, on exact copies thereof, or on forms that do not contain any significant variations from the Department's forms as solely determined by the Department.

By issuing a bond, the Surety agrees to be bound by all terms of the Contract, including those related to payment, time for performance, quality, warranties, and the Department's self-help

remedy provided in Section 112.1 - Default to the same extent as if all terms of the Contract are contained in the bond(s).

Regarding claims related to any obligations covered by these bonds, the Surety shall provide, within 60 Days of Receipt of written notice thereof, full payment of the entire claim or written notice of all bases upon which it is denying or contesting payment. Failure of the Surety to provide such notice within the 60-day period constitutes the Surety's waiver of any right to deny or contest payment and the Surety's acknowledgment that the claim is valid and undisputed.

The Landscape Subcontractor shall pay all premiums and take all other actions necessary to keep said bond in effect for the duration of the Landscape Subcontractor's obligations. If the Surety becomes financially insolvent, ceases to be licensed or approved to do business in the State of Maine, or stops operating in the United States, the Contractor shall file new bonds complying with this Section within 10 Days of the date the Contractor is notified or becomes aware of such change.

110.3 Insurance The Contractor shall provide signed, valid, and enforceable certificate(s) of insurance complying with this Section. All insurance must be procured from insurance companies licensed or approved to do business in the State of Maine by the State of Maine, Department of Business Regulation, Bureau of Insurance. The Contractor shall pay all premiums and take all other actions necessary to keep required insurances in effect for the duration of the Contract obligations, excluding warranty obligations.

110.3.1 Workers' Compensation For all operations performed by the Contractor and any Subcontractor, the Contractor and each Subcontractor shall carry Workers' Compensation Insurance or shall qualify as a self-insurer with the State of Maine Workers' Compensation Board in accordance with the requirements of the laws of the State of Maine. If maritime exposures exist, coverage shall include United States Long Shore and Harbor Workers coverage.

110.3.2 Commercial General Liability With respect to all operations performed by the Contractor and any Subcontractors, the Contractor and any Subcontractors shall carry commercial general liability insurance in an amount not less than $1,000,000.00 per occurrence and $2,000,000.00 in the Aggregate. The coverage must include products, completed operations, and Contractual liability coverages, and Insurance Services Office (ISO) form #CG25031185 or equivalent. The Contractual liability insurance shall cover the Contractor's obligations to indemnify the Department and the City as provided in this Contract including Sections 110.1 and 110.1.1 - Indemnification. The coverage shall also include protection against damage claims due to use of explosives, collapse, and underground coverage if the Work involves such exposures.

110.3.3 Automobile Liability The Contractor shall carry Automobile Liability Insurance covering the operation of all motor vehicles including any that are rented, leased, borrowed, or otherwise used in connection with the Project. The minimum limit of liability under this Section shall be $1,000,000.00 per occurrence.

110.3.4 Professional Liability Contractors who engage in design Work, preliminary Engineering Work, and environmental consulting Work for the Department shall maintain a Professional Liability policy for errors and omissions with a minimum limit of liability of $500,000.00. "Design Work" includes the design of temporary Structures and all other Work that requires design computations. This policy shall cover "Wrongful Acts," meaning negligent

acts, errors or omissions by the Contractor, or any entity for whom the Contractor is legally liable, arising out of the performance of, or failure to perform, professional services.

110.3.5 Owners and Contractors Protective Liability The Contractor shall carry an Owners and Contractors Protective (OCP) Policy covering all operations performed by the Contractor and any Subcontractor, in an amount not less than $1,000,000.00 per occurrence and $2,000,000.00 in the Aggregate, naming the Department as the sole insured party under the policy.

110.3.5.1 Owners and Contractors Protective Liability The Contractor shall carry an Owners and Contractors Protective (OCP) Policy covering all operations performed by the Contractor and any Subcontractor, in an amount not less than $1,000,000.00 per occurrence and $2,000,000.00 in the Aggregate, naming the City of Portland as the sole insured party under the policy.

110.3.6 Builders Risk Unless required by Special Provision, the Department does not require the Contractor to carry Builders Risk Insurance. However, the Contractor is advised of its risks for damage to the Work as provided in Section 104.3.10 - Responsibility for Damage to the Work. The Contractor is responsible for managing and insuring these risks as it deems appropriate.

110.3.7 Environmental Impairment If required by Special Provision, the Contractor shall carry Environmental Impairment insurance to cover the risk of sudden or accidental discharge of pollutants during the prosecution of the Work. The limits of liability for this coverage shall be in the amount of $1,000,000.00 per occurrence and $2,000,000.00 in the Aggregate. Regardless of whether such insurance is carried by the Contractor, the Contractor is responsible for managing these risks as it deems appropriate.

110.3.8 Administrative & General Provisions

A. Additional Insured Each policy with the exception of Workers' Compensation and Professional Liability insurance shall name the Department of Transportation and the City of Portland as additional insured parties.

B. Defense of Claims Each insurance policy shall include a provision requiring the carrier to investigate, defend, indemnify, and hold harmless all named insureds against any and all claims for death, bodily injury, or property damage, even if groundless.

C. Primary Insurance The insurance coverage provided by the Contractor shall be primary insurance with respect to the State, its officers, agents, and employees. Any insurance or self-insurance maintained by the State for its officers, agents, and employees is in excess of the Agent's insurance and shall not contribute with it.

D. Reporting Any failure to comply with reporting provisions of the policies shall not affect coverage provided to the State, its officers, agents, and employees.

E. Separate Application The insurance provided by the Contractor shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

OCEAN GATEWAY
Pier 2 Berth 2

PORTLAND-CUMBERLAND COUNTY
PIN 017832.00

SECTION 3

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
AUGUSTA, MAINE

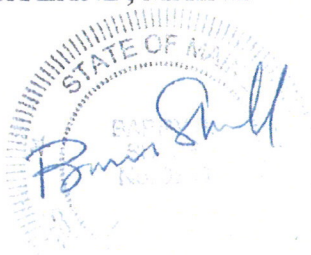
TECHNICAL SPECIFICATIONS FOR:

OCEAN GATEWAY PIER 2 BERTH 2
CITY OF PORTLAND, MAINE

PROJECT PIN: 0017812.00

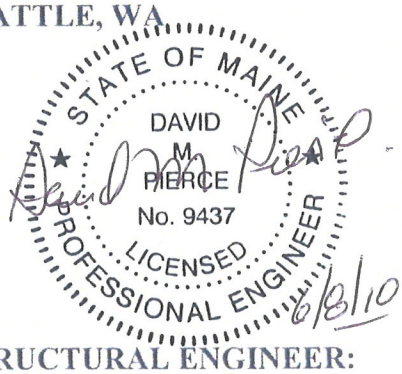
JUNE 8, 2010

CIVIL ENGINEER:
WOODARD & CURRAN INC.
PORTLAND, MAINE

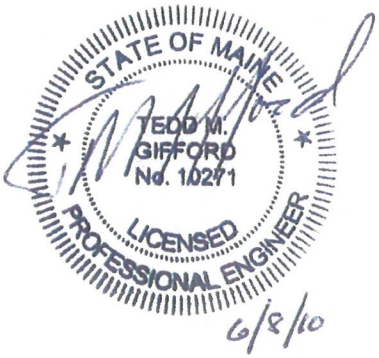


JUNE 8, 2010

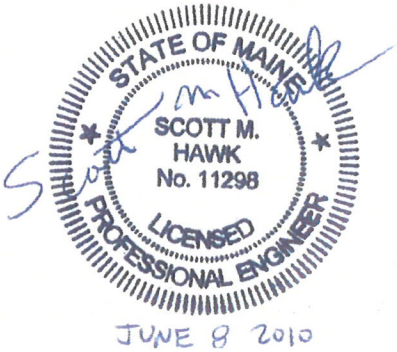
MARINE ENGINEER:
PND ENGINEERS
SEATTLE, WA



ELECTRICAL ENGINEER:
WOODARD & CURRAN INC.
PORTLAND, MAINE



STRUCTURAL ENGINEER:
WOODARD & CURRAN INC.
PORTLAND, MAINE



OCEAN GATEWAY PIER 2 BERTH 2
CITY OF PORTLAND, MAINE

TABLE OF CONTENTS

SECTION 02010 - EXISTING SUBSURFACE CONDITIONS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Examination of the Site

1. Before submitting bids, the CONTRACTOR shall visit the site and inform himself as to the location, nature of the work, equipment and facilities needed, general and local conditions prevailing at the site and all matters which may affect the work under this contract.
2. Before submitting bids, the CONTRACTOR shall examine all sources of information concerning ground water levels and subsoil conditions. Each bidder shall draw his own conclusions concerning how these affect his work. Conditions which would not permit the Contractor to fulfill the intent of the contract shall be brought to the attention of the DEPARTMENT consistent with Notice to Contractors.
3. Boring Test Data: See attached reports.

B. Test Boring Results

1. The DEPARTMENT assumes no responsibility for the accuracy of the test results as shown in the Specifications. They are included only as a general indication of the materials likely to be found adjacent to the holes bored at the site of the proposed work. The CONTRACTOR shall examine this data and make his own investigation and other preliminary data, and he shall base his bid on his opinion of the conditions likely to be encountered.
2. The bidder's submission of his proposal shall be considered "prima facie" evidence that he has made his examination as described in this Section.

1.02 RELATED REQUIREMENTS
A. Instructions to Bidders

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 02220 – DEMOLITION

All work and materials shall conform to the Drawings and the provisions of MDOT SECTION 201 – CLEARING RIGHT-OF-WAY, SECTION 202 – REMOVING STRUCTURES AND OBSTRUCTIONS, SECTION 637 – DUST CONTROL with the following modifications and additions:

MODIFICATIONS:

Section 201.01 Description – Replace "limits of right-of-way and easement areas" with "project work limits".

Section 202 Removing Structures and Obstructions – Replace all references to "right-of-way" with "project work limits".

Section 202.02 Removing Buildings – Removal and disposal of all components coated with lead based paints shall be in accordance with all applicable local, state and federal regulations.

Lead-based paint components such as piping, supports, railings, or other fastened components that can be removed by unbolting or whole in an intact condition without burning, cutting, scraping, grinding, crushing, crumbling, sanding or other actions creating dust and potential exposure hazards shall be removed and disposed in such a manner. In the event components can not be removed without potential dust exposure, then requirements under OSHA 29 CFR 1926.62, local and state regulations shall be followed for training, personal monitoring, and personal protection.

Section 202.03 Removing Existing Superstructure, Structural Concrete, Railings, Curbs, Sidewalks and Bridges – Add the following: Refer to project drawings for materials to be retained by City.

ADDITIONS:

JOB CONDITIONS:

A. Occupancy: CITY will be continuously occupying areas adjacent to demolition. Conduct demolition work in manner that will minimize disruption of CITY's normal operations.

B. Permits: CONTRACTOR shall determine and obtain all required permits for demolition.

C. Condition of Structures: The DEPARTMENT and CITY assume no responsibility for actual condition of structures to be demolished.

1. Conditions existing at time of inspection for bidding purposes will be maintained by CITY in so far as practicable. However, variations within structure may occur by CITY's removal and salvage operations prior to start of demolition work.

D. Partial Removal: Items must be removed from structure as work progresses. Salvaged items must be transported from site as they are removed.

E. Explosives: Use of explosives will not be permitted for demolition purposes.

F. Traffic: Conduct demolition operations and removal of debris to ensure no interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks or other occupied or used facilities without permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways.

G. Protections: Provide temporary barricades and other forms of protection to ensure safe passage of personnel around area of demolition. Conduct operations to prevent injury to adjacent buildings, structures, other facilities, and persons.
   1. Provide protective measures as required to provide free and safe passage of people.
   2. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to the demolished and adjacent facilities or work to remain.
   3. Remove protections at completion of Work.
   4. Demolition activities will be completed in a manner consistent with 29 CFR 1926/1910 - OSHA Safety and Health Standards for Construction Industry. It is the responsibility of the CONTRACTOR to assure compliance with the OSHA standards.

H. Damages: Promptly repair damages caused to adjacent facilities by demolition operations at no cost to DEPARTMENT.

I. Environmental Controls: Use water sprinkling, temporary enclosures, and other suitable methods to limit dust and dirt rising and scattering in air to lowest practical level. Comply with governing regulations, permits, laws, ordinances, etc. pertaining to environmental protection. Dust control will be maintained in accordance with the provisions of MDOT Section 637 and is the responsibility of the CONTRACTOR.

PREPARATION:

A. General: Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to the demolished and adjacent facilities or work to remain.

B. Stop demolition operations and notify RESIDENT immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations.

C. Locate, identify, stub-off and disconnect building utility services that are not indicated to remain in accordance with plans.

DEMOLITION:

A. General: Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on Drawings or as specified in accordance with demolition schedule and applicable regulations.

B. Provide services for effective air and water pollution controls (water sprinkling, temporary enclosures, and other suitable methods) to limit dust and dirt rising and scattering in air to lowest practical level. Comply with governing regulations, permits, laws, and ordinances pertaining to demolition of structures.

C. Saw-cut asphalt and concrete paved surfaces before removal. Joint cut should be neat and straight.

SALVAGED MATERIALS:

A. General: Where shown on the Drawings or specified as Salvage, Property of the CITY, or Deliver to CITY, carefully remove indicated items, clean, store, and deliver to CITY at the Public Works Materials Stock Yard located on Outer Congress Street.

B. Any unanticipated items of significant historic or commercial value discovered in the demolition work shall remain the property of the CITY. CONTRACTOR will have the option to take possession of all other demolition materials or to dispose of them suitably. No materials assigned to CONTRACTOR may remain on site without written authorization from RESIDENT.

*** END OF SECTION ***

SECTION 02450 – FOUNDATION AND LOAD-BEARING ELEMENTS

All work and materials shall conform to the Drawings and the provisions of MDOT SECTION 501 – FOUNDATION PILES with the following modifications:

MODIFICATIONS:

Section 501.03 Equipment for Driving Piles, Approval of Pile Driving Equipment - Second Paragraph, Add the following: The Contractor shall submit to the Resident for approval, wave equation analysis that is prepared by a licensed Professional Engineer showing that the proposed driving system is sized such that the specified piles can be driven to the required ultimate capacity, without damage.

Section 501.031 Fender and Float Pile Installation - Add the following: All fender and float piles shall be driven full length with either an impact or vibratory hammer as necessary. Pier 2 Berth 2 fender piles shall be driven directly through the pipe collar. Submit method for review and approval to protect the collar and pile during set-up and driving. The float piles for the Ro-Ro Ramp and Pier 2 Berth 2 shall be driven directly through the float pile hoops.

Section 501.05 -Replace first paragraph with the following: Pipe piles shall be driven closed ended, unless otherwise specified. When open ended pipe piles are specified or when the ends are not completely closed ended when driven, the inside of the pile need not be thoroughly cleaned out.

Second Paragraph, Add the following: The following pipe piles shall be filled with concrete: RO-RO Ramp abutment and approach slab piles, Pier A piles, Pier B piles and Pier C piles.

*** END OF SECTION ***

SECTION - 05050 STRUCTURAL BASIC METAL MATERIALS AND METHODS

All work and materials shall conform to the Drawings and the provisions of MDOT SECTION 504 – STRUCTURAL STEEL, SECTION 505 – STUD WELDED SHEAR CONNECTORS, ANCHORS & FASTENERS and SECTION 700 – MATERIALS with the following modifications:

MODIFICATIONS:

Section 711.01 - Delete first paragraph and replace with: Steel pipe piles shall conform to the requirements of ASTM A252, Grade 3, with a minimum yield stress (Fy) greater than or equal to 50 ksi. Spiral welded pipe is not acceptable.

Section 713.01 - Delete the first paragraph and replace with the following: Highway bridge steel, which includes the RO-RO Ramp, shall meet the requirements of AASHTO M 270M/ M 270 (ASTM A 709/ A 709M), Grade 50.

Delete forth paragraph and replace with the following: All other structural steel shall conform to one or more of the following:

ASTM A709, Grade 50
ASTM A572, Grade 50
ASTM A500, Grade B, Fy = 46 ksi
ASTM A53, Grade B, Type E or S

Steel for ancillary bridge products shall conform to AASHTO M 270/ M270 (ASTM A 709/ A 709/M) or one or more of the following:

ASTM A36/ A36M
ASTM A572/ A572M
ASTM A588/ A588M
ASTM A53
ASTM A500, Grade B, Fy = 46 ksi
ASTM A595 Grade C
ASTM A786/ A786M
ASTM A847
ASTM A992/992M

*** END OF SECTION ***

SECTION 05120 - STRUCTURAL STEEL

PART 1 GENERAL

1.01 DESCRIPTION

A. Furnish, fabricate and erect structural steel and appurtenances as shown on the Drawings and specified herein.

1.02 RELATED WORK

A. Section 05500, Miscellaneous Metal

1.03 QUALITY ASSURANCE

A. Standards: Except as otherwise specified herein or shown on the Drawings, conform to the applicable requirements of the following reference standards and codes which are hereby made a part of this Section, as they relate to structural steel work.

1. BOCABuilding Code.
2. AISC Specification for the Design, Fabrication and Erection of Structural Steel for Buildings
3. AISC Code of Standard Practice for Steel Buildings and Bridges
4. AWS, Structural Welding Code, AWS D1.1
5. ASTM A 6, General Requirements for Delivery of Rolled Steel Plates, Shapes, Sheet and Bars for Structural Use
6. Steel Structures Painting Council (SSPC), Surface Preparation Specifications
7. AISC Specification for Structural Joints Using ASTM A 325 or A 490 Bolts as approved by Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation.

B. Welder Qualification: For welding in shop and field use only welders holding evidence of qualification under AWS procedures for the type of weld involved and who hold current State of Maine certificates. Perform welding procedures and welding operations in accordance with AWS Code.

C. Source Quality Control:

1. Give the Resident at least 10 days notice prior to the beginning of work at the mill or shop where material for the work is to be manufactured or fabricated, in order that inspection may be arranged. Do not fabricate material until inspection has been performed or is waived by the Resident.
2. Cooperate with the Resident to ensure that the inspection work is properly carried out during all stages of construction.
3. Perform radiographic and magnetic particle inspection in accordance with the provision of AWS, as required by the Resident.
4. Cut and machine test specimens in accordance with ASTM A370, as required by the Resident.
5. Test a random selection of at least five bolts from each bin of bolts or rivets to be used, as required by the Resident.

D. Allowable Tolerances:

1. Structural Members, General:

a. Fabricate structural members which consist primarily of a single rolled shape, to be straight within the appropriate tolerances allowed by ASTM A 6 or otherwise indicated.
b. Fabricate built-up structural members assembled by bolting or welding, to be straight within the tolerances allowed for wide flange shapes by ASTM A 6 or as otherwise indicated.
c. Maintain the straightness of compression members within 1/1000 of the axial length between points laterally supported.

2. Setting of Anchor Bolt Sleeves, Shear Key Blockouts and Shear Key Sleeves: Locate the sleeves accurately enough to ensure that the amount of adjustment permitted by moving the bolts or shear keys within the sleeves is sufficient to allow proper centering of the bolts and shear keys.

E. Stock Material:

1. When it is proposed to use stock material, advise the Resident of such intention at least 10 days in advance of commencing fabrication to permit sampling and testing.
2. Use only stock materials which can be positively identified as having been rolled from a given heat and for which certified mill tests can be produced.

F. Welder's Identification Mark:

1. Assign each welder and welding operator an identification mark to stamp on the pieces he has welded in the shop and in the field.
2. Welder or welding operator shall place his identification mark by metal die stamp in letters 3/8 inch high in the position that the identification of the welder or operator will appear adjacent to each of his welds in the finally assembled members for ready reference to the radiographic films and identification by the Resident.

G. Material Acceptance: Replace rejected material promptly and make good rejected workmanship at no cost to the DEPARTMENT.

1.04 SUBMITTALS

A. Submit complete shop drawings, details, erection drawings and certifications for review prior to fabrication.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver anchor bolts and other anchorage devices to be embedded in the work of other trades to the project site in sufficient time to permit their timely installation. Provide proper setting drawings, templates and directions for installation.

B. Store structural steel members above ground on platforms, skids or other supports and avoid bending, scraping and overstressing the incumbers. Store all fasteners and welding electrodes in a

weather-tight and dry place until ready for use. Store packaged materials in their original containers.

PART 2 PRODUCTS

2.01 MATERIALS

A. Shapes, Plates and Bars: ASTM A 36

B. Steel, Pipe, Welded and Seamless: ASTM A 53
1. Electric-Resistance Welded: Type E, Grade B (Fy = 35 ksi)
2. Seamless: Type S, Grade B (Fy = 35 ksi)

C. Structural Tubing, Carbon Steel, Welded and Seamless:
1. Cold-Formed: ASTM A500, Grade B (Fy = 46 ksi)
2. Hot-Formed: ASTM A501 (Fy = 36 ksi)

D. Bolts:
1. Anchor Bolts - ASTM A 307
2. Structural Steel - ASTM A 325

E. Welding Electrodes: E70 Series, conforming to AWS Code for method employed.

F. Shop Paint Primer: Lead-free, low VOC, rust inhibitive metal primer compatible with the intermediate and top coats specified in Section 09900.

2.02 FABRICATION

A. Meet all requirements of the specified standards.

B. For steel members called to be galvanized, a zinc coating shall be applied after fabrication in conformance with ASTM A 123.

C. Fabricate and assemble structural steel in the shop to the greatest extent possible. Do all shearing and flame cutting carefully and accurately using machine equipment where at all possible.

D. Weld connections or bolt as indicated. Weld shop connections not otherwise shown. Eccentric connections are not permitted unless shown in detail on the Structural Drawings.

E. Drift pins may be used for assembling parts provided metal is not distorted or holes enlarged. Ream holes requiring enlargement to admit bolts. Misaligned holes will subject members to rejection.

F. Use of gas cutting torch will be allowed where metal being cut is not carrying stress during the operation and provided stresses will not be transmitted through a flame- cut surface. Make cuts smooth and regular in contour. Cuts exposed in the finished work shall be ground and dressed smooth without nicks or gouges. To determine effective width of members so cut, deduct 1/8-inch from least width at gas cut edge. Make radius or re-entrance of cut fillets as large as practical, but in no case less than 1/2-inch. All such cuts are subject to prior approval of the Resident. Do not use cutting torch to align bolt holes.

G. Shop Cleaning and Painting:

1. Cleaning: Thoroughly clean all loose mill scale, rust, dirt, grease, and other foreign matter from structural steel items. Prepare surfaces for painting in accordance with SSPC-SP6, Commercial Blast Cleaning or SSPC-SP8, Pickling, or as otherwise recommended by the coating manufacturer.
2. Painting: Except where encased in concrete or secured as contact surfaces in joints connected by high strength bolts, apply one shop coat of primer, all as per paint manufacturer's specifications for application and coverage. Do not shop paint surfaces to be field welded. Prior to assembly give two coats of shop paint to parts inaccessible after assembly. Provide shop paint conforming with and compatible with the coating system specified in Section 09900. Coat non-painted bearing surfaces with an approved rust preventative applied in the shop. Remove such coating immediately prior to field erection, using a remover approved by the coating manufacturer.

PART 3 EXECUTION

3.01 PREPARATION

A. Before starting work, verify locations and elevations of bearings and anchor bolts. Ensure accurate bearing of steel and correct location of anchorage.

3.02 ERECTION

A. Erect structural steel in accordance with the requirements of the specified standards.

B. Weld or bolt field connections as indicated.

C. Bolting:
1. As erection progresses, bolt up work to take care of all dead loads, construction live loads, lateral forces and erection stresses.
2. Unless otherwise noted, erection bolts used in welded construction may be either tightened securely and left in place or removed and the holes filled with plug welds.

D. Temporary Bracing: Provide temporary bracing wherever necessary to provide for all loads to which structure is subjected including erection equipment and its operation. Leave in place until no longer required for safety. Make proper provisions for construction loads, piles of materials, equipment, etc., carried by structural frame during erection.

E. Touch-up Painting: After erection, clean all fixed connections (bolts and welds) and spot paint all abrasions, with same primer used in shop.

3.03 FIELD QUALITY CONTROL

A. Erection Tolerances: Erect individual pieces so that the deviation from plumb, level and alignment shall not exceed 1:500.

END OF SECTION

SECTION - 06500 STRUCTURAL PLASTICS

All work shall conform to the Drawings, MDOT Standard Specifications and the following:

UHMW shall be Tivar 1000 or approved equal.

*** END OF SECTION ***

SECTION - 09960 PAINTS AND COATNGS-WATER/MARINE COMPONENTS

All work and materials shall conform to the Drawings and the provision of MDOT SECTION 506 – PAINTING STRUCTURAL STEEL with the following additions:

Section 506.01 Paint – Add the following:

PART 1 - GENERAL

1.01 DESCRIPTION

A. Coating systems for steel.

1.02 REFERENCES

A. ASTM D 16 - Terminology Relating to Paint, Varnish, Lacquer, and Related Products.
B. SSPC-SP 1 - Solvent Cleaning.
C. SSPC-SP 2 - Hand Tool Cleaning.
D. SSPC-SP 3 - Power Tool Cleaning.
E. SSPC-SP 6/NACE 3 - Commercial Blast Cleaning.

1.03 DEFINITIONS

A. Definitions of Painting Terms: ASTM D 16, unless otherwise specified.
B. Dry Film Thickness (DFT): Thickness of a coat of paint in fully cured state measured in mils (1/1000 inch).

1.04 SUBMITTALS

A. Comply with Section 01330 - Submittal Procedures.
B. Product Data: Submit manufacturer's product data for each coating, including generic description, complete technical data, surface preparation, and application instructions.
C. Color Samples: Submit manufacturer’s color samples showing full range of standard colors.
D. Manufacturer’s Quality Assurance: Submit manufacturer’s certification that coatings comply with specified requirements and are suitable for intended application.
E. Applicator’s Quality Assurance: Submit list of a minimum of 5 completed projects of similar size and complexity to this Work. Include for each project:
    1. Project name and location.
    2. Name of owner.
    3. Name of contractor.
    4. Name of architect.
    5. Name of coating manufacturer.
    6. Approximate area of coatings applied.
    7. Date of completion.
F. Warranty: Submit manufacturer’s standard warranty.

1.05 QUALITY ASSURANCE

A. Manufacturer's Qualifications:
   1. Specialize in manufacture of coatings with a minimum of 10 years successful experience.
   2. Able to demonstrate successful performance on comparable projects.
   3. Single Source Responsibility: Coatings and coating application accessories shall be products of a single manufacturer.

B. Applicator's Qualifications:
   1. Experienced in application of specified coatings for a minimum of 5 years on projects of similar size and complexity to this Work.
   2. Applicator's Personnel: Employ persons trained for application of specified coatings.

C. Preapplication Meeting: Convene a preapplication meeting two weeks before start of application of coating systems. Require attendance of parties directly affecting work of this section, including Contractor, Architect, applicator, and manufacturer's representative. Review the following:
   1. Environmental requirements.
   2. Protection of surfaces not scheduled to be coated.
   3. Surface preparation.
   4. Application.
   5. Repair.
   6. Field quality control.
   7. Cleaning.
   8. Protection of coating systems.
   9. One-year inspection.
   10. Coordination with other work.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying:
   1. Coating or material name.
   2. Manufacturer.
   3. Color name and number.
   4. Batch or lot number.
   5. Date of manufacture.
   6. Mixing and thinning instructions.

B. Storage:
   1. Store materials in a clean dry area and within temperature range in accordance with manufacturer's instructions.
   2. Keep containers sealed until ready for use.
   3. Do not use materials beyond manufacturer's shelf life limits.

C. Handling:
   1. Protect materials during handling and application to prevent damage or contamination.
   2. Use only soft straps for lifting and handling.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Weather:
   1. Air and Surface Temperatures: Prepare surfaces and apply and cure coatings within air and surface temperature range in accordance with manufacturer's instructions.
   2. Surface Temperature: Minimum of 5 degrees F (3 degrees C) above dew point.
   3. Relative Humidity: Prepare surfaces and apply and cure coatings within relative humidity range in accordance with manufacturer's instructions.
   4. Precipitation: Do not prepare surfaces or apply coatings in rain, snow, fog, or mist.
   5. Wind: Do not spray coatings if wind velocity is above manufacturer's limit.

B. Ventilation: Provide ventilation during coating evaporation stage in confined or enclosed areas in accordance with manufacturer's instructions.

C. Dust and Contaminants:
   1. Schedule coating work to avoid excessive dust and airborne contaminants.
   2. Protect work areas from excessive dust and airborne contaminants during coating application and curing.

PART 2 - PRODUCTS

2.01 MANUFACTURER

A. Tnemec Company Incorporated, 6800 Corporate Drive, Kansas City, Missouri 64120-1372. Toll Free (800) 863-6321. Phone (816) 483-3400. Fax (816) 483-3969. Web Site www.tnemec.com or approved equal.

2.02 TOTALLY SPRAY-APPLIED SHOP COATING SYSTEMS FOR STEEL

A. Exterior Atmospheric Exposure, Public Contact:
   1. System Type: Urethane zinc-rich/urethane.
   2. Surface Preparation: SSPC-SP 6/NACE 3.
   3. Shop or Field Primer: Series 90-97 Tneme-Zinc or approved equal. DFT 3.5 to 4.0 mils.
   4. Field Finish Coat: Series 1075 Endura-Shield or approved equal. DFT 4.0 to 5.0 mils.
   5. Total DFT: 7.5 to 9.0 mils.
   6. Finish Color: As selected by Resident from manufacturer's standard colors

2.03 ACCESSORIES

A. Coating Application Accessories:
   1. Accessories required for application of specified coatings in accordance with manufacturer's instructions, including thinners.
   2. Products of coating manufacturer.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine areas and conditions under which coating systems are to be applied. Notify Resident of areas or conditions not acceptable. Do not begin surface preparation or application until unacceptable areas or conditions have been corrected.

3.02 PROTECTION OF SURFACES NOT SCHEDULED TO BE COATED

A. Protect surrounding areas and surfaces not scheduled to be coated from damage during surface preparation and application of coatings.
B. Immediately remove coatings that fall on surrounding areas and surfaces not scheduled to be coated.

3.03 SURFACE PREPARATION OF STEEL

A. Prepare steel surfaces in accordance with manufacturer's instructions.
B. Fabrication Defects:
   1. Correct steel and fabrication defects revealed by surface preparation.
   2. Remove weld spatter and slag.
   3. Round sharp edges and corners of welds to a smooth contour.
   4. Smooth weld undercuts and recesses.
   5. Grind down porous welds to pinhole-free metal.
   6. Remove weld flux from surface.
C. Ensure surfaces are dry.
D. Totally Spray-Applied Shop Coating Systems for Steel: Remove visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter in accordance with SSPC-SP 6/NACE 3.
E. Abrasive Blast-Cleaned Surfaces: Coat abrasive blast-cleaned surfaces with primer before visible rust forms on surface. Do not leave blast-cleaned surfaces uncoated for more than 8 hours.

3.04 APPLICATION

A. Apply coatings in accordance with manufacturer's instructions.
B. Mix and thin coatings, including multi-component materials, in accordance with manufacturer's instructions.
C. Keep containers closed when not in use to avoid contamination.
D. Do not use mixed coatings beyond pot life limits.
E. Use application equipment, tools, pressure settings, and techniques in accordance with manufacturer's instructions.
F. Uniformly apply coatings at spreading rate required to achieve specified DFT.
G. Apply coatings to be free of film characteristics or defects that would adversely affect performance or appearance of coating systems.
H. Stripe paint with brush critical locations on steel such as welds, corners, and edges using specified primer.
I. Apply coatings per manufacturer's recommendation at bolt hole locations.

3.05 REPAIR

A. Materials and Surfaces Not Scheduled To Be Coated: Repair or replace damaged materials and surfaces not scheduled to be coated.
B. Damaged Coatings: Touch-up or repair damaged coatings. Touch-up of minor damage shall be acceptable where result is not visibly different from adjacent surfaces. Recoat entire surface where touch-up result is visibly different, either in sheen, texture, or color.
C. Coating Defects: Repair in accordance with manufacturer's instructions coatings that exhibit film characteristics or defects that would adversely affect performance or appearance of coating systems.

3.06 FIELD QUALITY CONTROL

A. Manufacturer's Field Services: Manufacturer's representative shall provide technical assistance and guidance for surface preparation and application of coating systems.

3.07 CLEANING

A. Remove temporary coverings and protection of surrounding areas and surfaces.

3.08 PROTECTION OF COATING SYSTEMS

A. Protect surfaces of coating systems from damage during construction.

3.09 ONE-YEAR INSPECTION

A. Owner will set date for one-year inspection of coating systems.
B. Inspection shall be attended by Owner, Contractor, Architect, and manufacturer's representative.
C. Repair deficiencies in coating systems as determined by Architect in accordance with Manufacturer's instructions.

3.10 SCHEDULES

A. Surfaces not to be painted under this section:
   1. Galvanized steel items.
   2. Aluminum items.
   3. Stainless steel items.
   4. Items with factory applied final finish.
   5. Coating for reinforcing steel under Section 503.051 Epoxy Coatings.
   6. Metallized surfaces specified under Section 506.02 Metallizing.
   7. Coating for steel pipe piles specified under Section 506.03 Fusion-bonded Coatings.
B. Surfaces to be painted under this section:
   1. Ro-Ro Ramp with the exception of above items and items noted on the plans.
   2. Pier 2 Berth 2 Passenger Gangways 1 – 3 with the exception of walking surfaces and the metal roofing.
   3. Pier 2 Berth 2 Gangway Landing Platform
   4. Pier 2 Berth 2 Float Access Ramp with the exception of walking surfaces.

Section 506.02 – Metallizing – Add the following: Dolphin caps, fenders, pier cap, BD1 access ramp and other items as specified on the drawings shall be spray metalized with aluminum or zinc per SSPC Guide No. 23. Minimum coating thickness of 10 mils is required. Contractor shall mask off all areas that will be field welded such as pile, plate or stud locations. Areas of steel encased in concrete within 2" of any concrete edge may be left bare.

All Non Slip steel walking surfaces shall be thermal sprayed with *DURALCAN* 90/10 as manufactured by AlcoTec, Traverse City, MI (616-941-4111), or approved equal, to obtain a slip resistant surface. Apply per manufacturer's recommendations.

Section 506.03 Fusion-bonded Coatings – Add the following: All pile and pile pieces shall be fusion bonded epoxy powder coated, unless otherwise noted in the pile schedules on the individual plan sheets. The coating shall be Scotchkote #206N Fusion Bonded Epoxy Coating as manufactured by 3M Company, Corrosion Protection Department, Austin, TX, or equivalent by Morton International, Woodstock, IL or approved equal.

Scothckote #206N Fusion Bonded Epoxy Coating application shall conform to 3M, Scotchkote 206N, *Fusion Bonded Epoxy Coating - Application Specification*, which is herein made a part of this specification and the following:

All surfaces shall be thoroughly prepared for coating application in strict accordance with the coating manufacturer's recommendation. All cleaning and coating work must be performed in a heated building. Preceding grit blasting, steel must be heated to at least 100 degrees F to eliminate possibility of moisture on the surfaces to be cleaned and coated.

All work blasted in one day must be coated on that day.

Piles shall be coated on the outside only. The fusion bonded epoxy coating shall be applied in an environmentally controlled plant that is fully enclosed. The coating system shall be fully automatic with the capabilities of preheating and post baking. The grit blast cleaning machine shall be fully automatic and fully enclosed in an environmentally controlled plant. The finished coating thickness shall be 10 mils nominal as tested in accordance with ASTM-G12.

The cured coating shall be of uniform color, gloss and thickness, and shall be free of blisters, pinholes, fish eyes, sags, runs, and any irregularities.

The Resident shall have access to each part of the process and shall have the right and opportunity to witness any of the quality control tests and/or perform such tests himself on a random sampling basis.

Any damage to the fusion bonded epoxy powder coating system shall be shop of field repaired using a two part thermosetting epoxy liquid coating. The coating shall be Scotchkote #312 Liquid Epoxy Coating as manufactured by 3M Company, Corrosion Protection Department, Austin, TX or approved equal.

Scotchkote #312 Liquid Epoxy Coating applications shall conform to 3M, *Scotchkote #312 Liquid Epoxy Coating, Instruction Sheet*, which is herein made a part of this specification and the following:

The finished coating thickness shall be 10 mils nominal as tested in accordance with ASTM-G12.

Section 506.04 – Repair – Add the following: No welding through coatings shall be performed. The coating within one inch of the weld shall be removed prior to welding and repaired after welding.

Damaged galvanizing and metalizing, including that removed for welding, shall be repaired by stick galvanizing with zinc or aluminum alloy sticks to a minimum thickness of 12 mils per the manufacturer's recommendations. Contractor shall submit repair material and methods for review and approval.

*** END OF SECTION ***

SECTION 13960 – FOAM FILLED MARINE FENDERS

All work and materials shall conform to the Drawings, MDOT Standard Specifications and the following:

PART 1 - GENERAL

1.01 DESCRIPTION

A. This work includes, but not necessarily limited to, providing all labor, materials, tools and equipment necessary for furnishing and installing of foam filled marine fenders and associated hardware and appurtenances.

1.02 REFERENCES

A. Specifications:
   1. FEDERAL
      a. RR-C-271 Chains and attachments, welded, weldless and roller chain.

B. Standards:
   1. FEDERAL
      a. FED-STD-595 Color
   2. MILITARY
      a. MIL-STD-129 Marking for shipment and storage
   3. ASTM (American Society for Testing and Materials):
      a. A-123 Zinc (Hot Galvanized) Coatings
      b. D-412 Rubber Properties in Tension, Test Methods for
      c. D-624 Rubber Property Tear Resistance, Test for
      e. D-1052 Measuring Rubber Deterioration, (Method for Cut Growth)
      f. D-3575 Flexible Cellular Materials Made from Olefin Polymers
      g. D-1630 Rubber Property Abrasion Resistance, Test for (NBS Abrader)
      h. D-2240 Rubber Property Durometer Hardness, Test for

PART 2 - PRODUCTS

2.01 FENDERS

A. Configuration

Fender shall have a cylindrical mid-body with conical shaped ends terminating in an end fitting on the cylinder's centerline at each end. The diameter and length dimensions of the fender shall be as specified. The fittings at either end shall be connected through a central bore of the fender by a central chain, and shall terminate in a swivel fitting which allows the end fitting to rotate freely on the axis of the fender. The interior of the fender shall be completely filled with an energy absorbing closed-cell foam core as specified.

B. Foam Core

The energy absorbing foam core shall be of heat laminated construction using a resilient closed-cell, cross-linked polyethylene foam with the following properties. Use of chipped or granulated

particulate foam is not acceptable. Use of adhesive to bond the foam together is not acceptable. The tests shown below all form a part of ASTM D-3575.

Density	: 3.6 lb/ft3 to 4.4 lb/ft3 (58 kg/m3 to 70 kg/m3)
Tensile Strength	: 60 psi minimum (414 kPa)
Elongation (Ultimate)	: 140 % minimum
Water Absorption	: less than 0.2 lb/ft2 (1.0 kg/m2) of cut surface

C. Fender Skin

The fender skin shall be constructed of elastomer and filament reinforcing as specified. Separate filament reinforcing wraps shall be applied as specified under Filament Wrap. The filament wraps shall be evenly distributed in the inner 75 % to 90 % of the coating thickness. The outer 10 % to 25 % of elastomer shall have no filament reinforcement. The elastomer and filaments shall be applied in a continuous manner to assure adhesion between the various layers.

D. Elastomer

The elastomer used in the fender skin shall be the reaction product solely of toluene diisocyanate, polyether polyol, and an aromatic diamine. The elastomer shall meet the following unreinforced properties:

Shore A. Hardness (ASTM D 2240)	: 75 to 95
Tensile Strength (ASTM D 412)	: 2 000 psi minimum (13.8 MPa)
Elongation (Ultimate) (ASTM D 412)	: 300 % minimum
Tear Strength (ASTM D 624)	: 185 lb/in minimum (32.4 kN/m)
Flex Life (Ross) (ASTM D 1052)	: 10 000 Cycles minimum
Abrasion Resistance (NBS) (ASTM D 1630)	: 100 minimum

E. Filament Wrap

Construct each filament reinforcing wrap of continuous filaments applied in an overlapping helical pattern, at a helix angle of 45° to 60° to the longitudinal axis of the fender. A wrap shall consist of two such filament helixes of equal but opposing helix angles. The spacing between the filaments in the same helix shall be no more than 0.125 in (3.2 mm), measured in a direction parallel to the longitudinal axis of the fender. Each wrap shall extend along the entire longitudinal axis of the fender and shall also encircle and encase the fender end fittings, for the purpose of distributing impact loads over the surface and conducting the forces of impact loads to the end fittings.

F. Filament Reinforcement:

The reinforcing filaments in the outer skin shall be nylon tire cord of 2520 denier (0.280 g/m) weight with the following properties:

Breaking Strength : 52 lb (231 N)

Elongation (Ultimate) : 16 %

G. Reinforced Skin Properties

The reinforced skin, when constructed in accordance with this specification, shall exhibit the following properties when tested in accordance with the guidelines below:

Tensile Strength: When a full-thickness specimen is tested in tension, with the longitudinal direction of pull aligned with the filament direction (in one direction), the specimen shall have the following breaking strength: 4,500 psi minimum (31.0 MPa).

Elongation (Ultimate): In the test for Tensile Strength, the specimen shall have the following elongation at break: 16% minimum.

Tear Strength: When a full-thickness specimen is tested in tear, with the specimen shaped like Die C in ASTM D-624, and with the direction of pull aligned with the filament direction (in one helix direction), the specimen shall have the following tear strength: 450 lb/in (78.8 kN/m).

Manufacturer shall supply test reports with his bid indicating compliance with these reinforced skin properties. Failure to comply shall be cause for rejection of the bid.

H. Hardware

The end fittings of the fender shall be steel and galvanized per ASTM A-123. The end fittings and internal connecting chain shall be designed and sized to transmit the safe working load and accept the shackle size specified.

I. Fender End Fittings: The fender shall employ a fitting at each end of the fender body located on the central axis of the fender inside the foam core of the fender. The fitting shall include a tubular central member located on the central axis of the fender and a truncated cone-shaped annular seat integral with the central member. The cone-shaped annular seat of each fitting shall cooperate with the axially adjacent conical shaped end of the fender to extend the conical shape of that end to the central

member. The fitting shall also have an attachment element including an annular flange affixed to the end of the central member and one or more plates for attaching the end of the fender to a structure by means of a mooring chain or the like.

The elastomeric fender skin shall integrally encase the foam core and the central tubular member and truncated cone-shaped annular seat of each end fitting. The fibers of the filament reinforcing wrap shall also integrally encircle the foam core and the annular seat of each end fitting.

The end fittings at the ends of the fender shall connect to the central chain passing through the center of the fender and the tubular central members so that loads are transferred from the mooring chains to the attachment elements through the central chain. The connection between the end fittings and the central chain shall allow for tensioning or adjustment of the tension in the central chain.

J. Performance

The fender shall be designed so that when compressed across its diameter by two parallel flat plates extending the full length and width of the fender, the fender shall absorb the specified energy (+/- 15 %) with a corresponding specified force (+/- 15 %). This energy absorption performance shall be achieved prior to the point at which the deflection of the fender exceeds 60 % of its initial diameter. Performance shall be based on the following characteristics (provide catalog data and measurement units).

Fender diameter:	6.0 ft (1.8m)
Eye-to-eye length:	16.0 ft (4.9m)
Length of mid-body:	11.4 ft (3.5m)
Skin Thickness:	1.25 in (32mm)
Energy Absorption (60 % compression):	427 ft-kip (59 ton-m)
Reaction Force (60 % compression):	265 kip (120 ton)

K. Acceptable Manufacturer

The manufacturer must have at least 5 years of sales records for this type of foam filled fender.

An acceptable product meeting the above requirements is the 1.8 m x 4.9 m (6.0’ x 16.0’) SEA GUARD◆ Marine Fender manufactured by Seaward, a Division of Trelleborg Engineered Products, Inc., 3470 Martinsburg Pike, Clearbrook, Virginia, 22624, U.S.A., (Telephone: 1-800-828-5360, Fax: 540-667-7987) or approved equal.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Fenders size and location shall be as noted on the individual plan sheets.

*** END OF SECTION ***

SECTION 13970– LIFE RINGS

All work and materials shall conform to the Drawings, MDOT Standard Specifications and the following:

PART 1 - GENERAL

1.01 DESCRIPTION

A. This work includes, but not necessarily limited to, providing all labor, materials, tools and equipment necessary for furnishing and installing of life ring cabinets and associated attachments and appurtenances.

PART 2 - PRODUCTS

2.01 LIFE RINGS

A. Life Rings shall be U.S. Coast Guard approved 30-inch diameter life rings with 90-feet of ½-inch diameter flexible nylon rope and connection/holding cabinet and hanger available from Cheyenne Manufacturing, Inc., Bush Prarie, WA, 1-800-424-7575 or approved equal.

PART 3 - EXECUTION

3.01 I INSTALLATION

A. Life ring cabinets shall be installed as shown on the plans.

*** END OF SECTION ***

SECTION 13980 – BEARINGS

All work and materials shall conform to the Drawings and the provisions of MDOT Section 523 – BEARINGS.

*** END OF SECTION ***

SECTION 13990 – FLOAT

All work and materials shall conform to the Drawings, MDOT Standard Specifications and the following:

1. Materials and Workmanship

All work performed on the float shall be in accordance with good commercial marine practice, and all material incorporated in the float shall be new, suitable and of best quality for the service intended. All materials and articles placed aboard the float shall be free from imperfections and defects affecting appearance or serviceability due to exposure, mishandling or other damage. Defects appearing at any stage of the work prior to the delivery of the float shall be cause for rejection, even though the work may have previously been passed as satisfactory.
Welding procedure and practice shall be accordance with the American Welding Society and the American Bureau of Shipping recommendations. Additional detailed welding requirements are given in Note 3.3.
Welding schedules, as approved by Owner, shall be carefully followed in performing the work under the Contract. Structural welding shall be carried out in such sequence as to make allowance to compensate for creep and shrinkage as the work progresses, holding distortion to an acceptable minimum.

2. Access

Arrangements for examination, access and cleaning and painting shall be provided for all compartments in the float by means of permanent ladders, handgrabs and manholes. In general, each void or tank space in the hull shall have two accesses.

3. Structural hull

3.1 Gereral

The hull shall be longitudinally framed and of all welded construction. Basic scantlings shall be as shown on the Contract Plans. Local structure where required shall be developed by the Contractor. Alternate structure to that shown on the Contract Plans may be submitted for approval. Adequate limbers shall be provided for drainage of all bilges and compartments within the hull.

3.2 Workmanship

All workmanship shall be of a standard of quality consistent to insure that the requisite tightness is obtained, exposed surfaces are smooth, proper fit and alignment accomplished, and stress concentrations minimized.
Lifting eyes and staging clips which are welded completely around may be left in place or cut off beyond the weld provided they will not be unsafe, will not interfere with the intended function of the vessel and will not create stress concentrations.

3.3 Welding

All welding on exterior exposed areas shall be continuous. Decks, bulkheads, shell, etc., shall have surfaces reasonably fair, without buckles, kinks, or other surface irregularities.

3.4 Testing and Inspection of Welds

Industrial radiographic inspection, or any other method satisfactory to the Owner, shall be employed at the coverage rate specified in the ABS barge rules. Should the Owner, due to unsatisfactory welding as a whole, deem it necessary to increase the percentage or area of internal examination, it shall be done at the Contractor's expense.

4. Manholes

A minimum of two manholes shall be provided into each tank or void space below the main deck. All manholes in way of the concrete slab shall be provided with 1/2 inch plate coamings and one inch plate bottom-tapped top rings. One cover per compartment shall be fitted with 4 inch IPS Schedule 60 half couplings and flush bronze plugs for sounding and salvage air. Stainless steel bolts and neoprene gaskets shall be fitted to all manholes.

5. Ladders

Vertical ladders shall be provided in way of each manhole leading to tanks or voids below the main deck. Vertical ladders shall be constructed of 3 inch by 1/2 inch stringers with 3/4 inch square bar treads welded to the stringers. Treads shall be at least 16 inches wide with 7 inches of toe room and shall be spaced 12 inches apart. All vertical ladders shall be bolted in place. Handgrabs shall be located on deck at the top end of all vertical ladders.

6. Rails

Railings around the perimeter of the float shall be located as shown on the Plans.
Railings shall be three course, 42 inches above the finished deck and shall be constructed of 1-1/4 inch steel pipe with pipe stanchions and shall be galvanized. Stanchions shall be 1-1/4 inch Schedule 40 steel pipe with suitable handrail fittings. They shall be installed with spacing not to exceed five feet.

7. Mooring Fittings

All fittings are to be steel and bearing surfaces ground smooth. All fittings shall be capable of withstanding a minimum line load of 50,000 pounds without permanent deformation. Mooring fittings shall be located generally as shown on the drawings. Smooth welded steel extra heavy pipe molding or half round bars shall be fitted in way of mooring fittings.

8 Concrete Slab

The main deck shall be covered with a bonded reinforced concrete slab after all fittings, boundaries, curb form plates and other structure are installed and after all watertight testing is completed. Slab thickness shall be of the thickness noted on details. Slab installation shall be scheduled for at least 20 days cure time prior to delivery voyage.
The following materials and procedures shall be used:

8.1 Quality Assurance

Materials and installation procedures shall comply, as a minimum, with the following codes and standards:

A. Uniform Building Code, 1988

B. ACI 301 "Specifications for Structural Concrete in Buildings"

C. ACI 347 "Recommended Practice for Concrete Formwork"

D. ACI 315 "Manual of standard Practice for Detailing Reinforced Concrete Structures."

E. ACI 318 "Building Code Requirements for Reinforced Concrete

F. Concrete Reinforcing Steel Institute, "Manual of Standard Practice."

Contractor shall employ the services of an approved testing laboratory to perform materials evaluation tests. Free access shall be allowed to material stockpiles and facilities. One slump test per pour shall be made to verify consistency and conformity with specifications. Three compression test cylinders shall be taken for each 50 yards or each day's pour, whichever is greater, in accordance with ASTM C31. Compression tests shall be performed in accordance with ASTM C39 and ASI-318, one at seven days and two at twenty-eight days.
Manufacturers' product data shall be submitted to the Owner's Representative, together with application and installation instructions, for all proprietary products including reinforcement and forming accessories, admixtures and curing and patching compounds.
The Contractor shall submit for approval shop drawings showing arrangement of concrete reinforcement, including bar schedules, diagrams of bent bars, stirrup spacing and chair arrangement, in accordance with ACI 315.

8.2 Tolerances

Slab thickness tolerance shall be maintained to minus 1/4 inch and to plus 1/2 inch except in way of indentations or distortions in existing plating.

8.3 Project Conditions

Adjacent finishes shall be protected against splatter during placement. In case of freezing weather, completed work shall be covered to prevent freezing.

8.4 Reinforcing Materials

All reinforcing bar and fabric shall be epoxy coated in accordance with ASTM A-775. Reinforcing bar shall be ANSI/ASTM A615, Grade 60. Welded wire fabric (WWF) shall be ANSI/ASTM A185. Steel tie wire shall be plain, cold drawn ANSI/ASTM A82.
Slab shall be reinforced with 12" x 12" x #4 WWF supported by chairs to 1-1/2 inch clear cover. Alternative patters of weld wire fabric may be used, consisting of closer spacing and smaller bar size, provided that a equivalent area of reinforcing is provided.

8.5 Concrete Materials

Portland cement shall comply with ANSI/ASTM C150, Type II. The same brand and type shall be used throughout the project, except as approved by the Owner's Representative.
Aggregates shall be normal weight, conforming to ANSI/ASTM C33 and paragraph 403 of ACI Building Code. Each type of aggregate used shall be from a single source throughout the project. Maximum aggregate size shall be 3/4 inch.
Calcium chloride thiocyanates or admixtures containing more than 0.1 percent chloride ions are not permitted.
Water used shall be clean potable water.
Air-entraining admixtures conforming to ANSI/ASTM C260 (3% to 6%) shall be used.
Pozzolith 300 series shall be used in all mixes at the rate of 4 oz. per 100 lbs. cement.
Two pounds per yard of Fibermesh polypropylene fiber shall be added to mix.

8.6 Proportioning and Design of Mixes

Design mixes shall be prepared by either the laboratory trial batch method or the field experience method as defined in ACI 301. If the trial batch method is used, an approved independent testing laboratory shall be employed for

preparing and reporting mix designs. Written reports for each proposed mix shall be submitted at least 15 days prior to the start of work, and concrete production shall not commence prior to approval.
Trial batches should be evaluated for 6 sack, 6-1/2 sack and 7 sack of cement per cubic yard. The concrete strength, workability and curing characteristics should be determined. The advisability of using a water-reducing admixture to aid in placing the concrete should also be determined.
The Contractor shall prepare and submit with the above trial batch evaluations his proposed procedures for hot weather concreting. These procedures should be in accordance with ACI Standard 305R, Recommended Practice for Hot Weather Concreting. Very early morning placement of all concrete is recommended. The procedure submittal should address the following minimum topics:

A. Temperature of concrete

B. Use of Admixtures to control water and set

C. Production and Delivery

D. Placement and Protection

E. Concrete Testing

Mixes shall be designed to provide normal weight concrete with the following properties:

A. f'_c = 4000 psi

B. W/C less than 0.4

C. Six sack minimum cement content

D. Concrete slump at point of placement, not less than 3 inches nor more than 5 inches

E. Comply with ANSI/ASTM C94, except delete references to allowing additional water to be added to batch for material with insufficient slump. Addition of water will not be permitted. During hot weather, a shorter mixing time than specified in C94 will be required. When air temperature is between 85°F and 90°F, reduce mixing and delivery time from 90 minutes to 75 minutes. Above 90°F, reduce to 60 minutes.

8.7 Surface Preparation

After completion of all surrounding steel installation and welding, deck surface shall be blasted to remove all loose rust, scale, mill scale, slag, flux deposits or preconstruction primer. The time between blasting and concrete placement shall be kept to a minimum by carefully scheduling the installation of reinforcing, screeds and construction joint forms. However, no primer or other protective treatments shall be applied to steel unless approved by the bonding agent manufacturer.

8.8 Placing Reinforcement

Reinforcement shall be accurately placed, and secured against displacement during placing operations, by means of metal chairs, runners, bolsters, spacers or hangers as required. Minimum concrete cover shown in reinforcing details shall be maintained. Wire ties shall be set so that ends are directed into concrete, not towards exposed surfaces.
Welded wire fabric shall be installed in as long lengths as practical and adjoining pieces lapped at least one full mesh. End laps in adjacent widths shall be offset to prevent continuous laps in either direction.

8.9 Joints

Construction joints shall be placed to avoid unjointed slab dimensions in excess of twenty feet. Keyways at least 1-1/2 inches deep shall be provided in construction joints. Reinforcement shall be continuous across joints except as

otherwise detailed. Alternatively, joints may be sawed in continuously poured slab sections at twenty foot intervals, and caulked after cure.

8.10 Installation of Imbedded Items

Anchorage devices, foundations and other imbedded items shall be completed prior to placement of concrete. Edge forms and intermediate screed strips shall be set to obtain required elevations and contours, and shall be sufficiently strong to support the strike-off templates or compacting type screeds used.

8.11 Bonding Compound

Steel deck and all embedded steel surfaces and steel boundaries shall be treated with Concresive LPL-1001 fresh concrete epoxy bonding agent, manufactured by Master Builder Technology, (formerly Adhesive Engineering Company. The deck surface shall be clean and free of standing water. Air and deck temperatures shall be between 50°F and 100°F at the time of application. Epoxy shall be applied by spray or roller immediately before fresh concrete is placed as follows: within one hour if temperature is between 50°F and 72°F, or within twenty minutes if temperature is between 77°F and 100°F. Application shall be performed by an applicator licensed by the manufacturer.

8.12 Concrete Placement

All formwork, reinforcing steel and embedded items shall be inspected and approved prior to placement.
Placement shall comply with ACI 304 and with these specifications. Concrete shall be deposited continuously so that it is not deposited in contact with concrete that has hardened sufficiently to cause the formation of seams or planes of weakness, and shall be deposited as nearly as practicable to its final location to avoid segregation. Do not use vibrators to transport concrete. Concrete shall be consolidated during placement to ensure that it is thoroughly worked around reinforcement and embedded items and into corners.
Slab surfaces shall be brought to correct level with straightedge and strike-off, then smoothed with darbies or bull floats to a smooth surface. Slab surfaces shall then be left undisturbed until finishing.

8.13 Finishing

After surface water has disappeared and concrete is sufficiently stiff, surface shall be consolidated with floats.
Surface shall be checked and leveled to a tolerance of 1/8 inch in ten feet when tested with a 10 foot straightedge.
High spots shall be cut down and low spots filled, and the surface refloated to a uniform smooth granular surface.
After floating, surface shall be roughened with a course fiber bristle broom in the fore and aft direction.
All edges in contact with vertical steel surfaces and all construction joints shall be cove toweled for subsequent application of caulking.

8.14 Curing and Protection

Apply an approved curing and sealing compound to all exposed surfaces within two hours of completion of finishing operations. Apply uniformly in a continuous operation by spray or roller in accordance with manufacturer's recommendations. Areas subjected to heavy rainfall within three hours of initial application shall be recoated as required.

8.15 Caulking

An approved caulking compound, Sikadur 51 flexible epoxy control joint sealant and adhesive or equal, shall be applied to all joints and boundaries after slab is completely cured and finish coatings are applied to adjoining steel surfaces.

8.16 Repairs

At the direction of the Owners Representative, any loose topping, slabs which show excessive shrinkage cracks or do not draw properly, or otherwise do not meet specification requirements shall be removed and replaced.
Isolated random cracks and single holes not larger than 1 inch diameter may be repaired by the dry pack method. Cracks shall be grooved out and holes cut to sound concrete, then patched with dry pack mortar and an approved bonding compound. Larger defects shall be repaired by removing to sound concrete with clean, square cuts perpendicular to surface, exposing reinforcing steel to at least 3/4 inch all around, and replacing with patching concrete and approved bonding compound.
Any crazing cracks in excess of 0.005 inch width or which may penetrate to reinforcing steel or structural steel shall be repaired by one of the above methods or by an approved proprietary repair method.

9 Cathodic Protections

A total of twelve hull zincs shall be installed along the length of the bilges. Each zinc shall weigh approximately 22 pounds and be tapered. Zincs shall be mounted on flat bar stand-offs using bronze bolts, and are not to be painted. Location of zincs shall be as directed by Owner.

10 Portable Fire Extinguishers

Owner furnished portable 15 lb. CO_2 fire extinguishers shall be installed as directed, in accordance with the facility fire protection plan.

11 Painting

11.1 General

All coating materials shall be applied in strict conformity to the manufacturer's instructions, including those with regard to surface preparation.

Where not otherwise specified, all parts or spaces such as exposed piping, wiring, ladders, etc., which are normally painted, shall be cleaned and painted to conform to the surroundings or to comparable parts or spaces. All fixtures, label plates, etc., which are not to be painted shall be protected during coating operations and, upon completion of the work, all paint and masking shall be removed. All surfaces, including items of machinery and equipment which become damaged, soiled or covered with overspray shall be cleaned, touched up or repaired prior to delivery.

The paints employed in a given coating system shall be from the same manufacturer, International Paint Company or equal unless otherwise specified herein, or otherwise approved by the manufacturers concerned, and Owner. Each coat of paint shall be compatible with the coat of paint which it will cover, including preconstruction primers that are to be retained as part of the final coating system.

The term "DFT" as used herein shall mean the minimum dry film thickness.

Prior to final coatings selection, each coating being considered shall be fully identified by means of a Paint and Coating Data Sheet. Information given on the Data Sheet shall be a basis for ensuring proper storage, application and other aspects of each coating.

A pre-construction conference shall be held between the Owner and Contractor for the purpose of establishing criteria and agreements pertaining to coatings application. Subjects of discussion shall include, but not be limited to, the following: role of the coatings representative, method of measuring coating thickness, procedure for inspecting each surface prior to its being coated, procedure for informing Owner when coatings are to be applied and other aspects of this subject leading to maximum assurance that coatings will be applied successfully and in accordance with the specification.

All paints and coatings used which make pesticidal claims, such as in the case of anti-fouling paints, shall be registered with the U.S. Environmental Protection Agency.

Local jurisdiction solvent regulations shall be complied with by the use, when required, of complying substitute solvents, demonstrated as being suitable in coating performance and shelf life stability.

Unless otherwise specified, or approved in writing by the manufacturer, paint and other coating material shall not be thinned with solvent, nor altered in any manner by Contractor.

Successive coating applications shall be of noticeably different colors in order to aid the inspection process. Finish colors shall be to Owner's choice.

American National Standards Institute safety colors, ANSI Z53.1-1971, shall be used to distinguish hatch openings, machinery, moving parts and fittings that present a hazard.

Walking and working areas, including but not limited to staircases and platforms, shall be coated with "non-slip" type coatings, or shall be finished by other means which will result in a substantially higher coefficient of friction for those surfaces as compared with adjacent surfaces not so treated.

Ferrous piping required to be galvanized shall be galvanized after fabrication. Where this is not practicable, galvanized surfaces destroyed by fabrication shall be repaired by the "metal spray" method, or, as in the case of welds made aboard ship, cleaned by wire brushing with a steel or stainless steel brush followed by a fresh water wash and coated with suitable anti-corrosive cold galvanizing paint such as MIL-P-21035, "Galvacon" or "Galvex." Screwed connections may be made after galvanizing.

These specifications shall specifically identify all areas that are not to be painted. Where not otherwise stated, all structural and non-structural parts and spaces, doors, fittings, vendor supplied items, etc., which are normally painted shall, after proper surface preparation, be painted to conform to the surroundings or to comparable parts or spaces.
Exterior applications of inorganic zinc silicate to decks shall be carefully inspected, cleaned to remove oxidized products and touched up where required prior to the application of succeeding coats.

After application of coatings to any interior space is completed, the space shall be properly ventilated so that coatings are properly cured and the compartment is gas-free.

11.2 Surface Preparation

All new and disturbed areas of structure, piping or fittings shall be wheelabrated or gritblasted to near white metal (SSPC-SP10-63T) and coated in accordance with the following procedures.

The use of wheelabrated preprimed steel plates and shapes in the erection of structure is encouraged. If wheelabrated and primed steel is used, Contractor shall obtain approval from Owner's Representative of the wheelabrating and priming system and of all materials and methods for subsequent surface preparation. The Contractor shall obtain a certificate of weldability of the preconstruction priming system.

When blasting is performed, Contractor shall prevent damage to neighboring equipment, intact coatings, etc., by abrasive grains or dross. Blast abrasives shall be of such a configuration as to create a surface profile in accordance with the coating manufacturer's recommendations. Abrasives shall be clean, dry and free of any material likely to stimulate corrosion of the steel to be blasted.

Where wirebrushing is specified, the use of a power wirebrush or equivalent power tool is intended. Where gritblasting is required, it shall be in conformity with the specifications of the Steel Structures Painting Council as indicated.

Where blasting is performed, the Contractor shall seal off machinery, equipment and all openings to prevent damage from grit. The blasted surface shall be coated with the first coat of specified coatings the same day blasting is performed and before sundown of that day.

Control of the quality of surface preparation shall be maintained by a system of inspection by the coating manufacturer's representative. The inspection schedule and procedure shall be approved by the Owner's Representative before work is begun.

Where solvent cleaning, power tool cleaning or pickling is specified herein, it shall be as follows:

SP-1	Solvent Cleaning
SP-3	Power Tool Cleaning
SP-8	Pickling

Prior to the application of coating materials, all surfaces shall be free of foreign matter such as crayon marks, dirt, grease, oil, residual abrasive from blasting, rust, salt deposits, welding slag, etc. Galvanized metal not thoroughly weathered shall be degreased and shall receive an application of metal pretreatment of the vinyl butyral/acid type. For the following surfaces required to be painted, or where painting is applied in order to avoid masking, the following shall apply:

Surface	Cleaning Agent
Aluminum (1)	Alodine, Alumiprep, or equal
Brass, Bronze	Thoroughly clean with copper solvent
Galvanized Metal (1)	Galvaprep, Lithoform, or equal

Where the item or surface to be cleaned contains crevices which could retain harmful acids or salts, solvent cleaning, followed by the application of Pre-treatment (Wash) Primer, shall be employed.

Weather exposed steel surfaces shall be abrasive blasted to "near white". Where wheelabrated and primed material has been used, all weld lines and damaged areas shall be spot blasted prior to application of first overcoat. Note that the term "weather exposed steel," as employed in this section, means all steel from keel to the topmost area (except: galvanized and stainless steel; and surfaces oiled or greased), which, after erection or installation, is exposed directly or indirectly to the weather. Surface preparation of main deck areas to be covered by concrete is described in Section 8.

Interior steel not required to be overcoated with inorganic zinc silicate, except as noted below, shall receive commercial blast, SSPC-SP-6. Where surfaces have been cleaned and primed prior to erection, all welded joints resulting from erection shall be blasted. Any areas to receive inorganic zinc silicate coatings, and entire hull exterior from keel to deck edge shall have a near white blast, SSPC-SP-10.

11.3 Main Deck

Main deck, fittings and structure to be covered or in contact with concrete deck slab shall be blasted in accordance with Section 8, and left unprimed prior to application of Concresive epoxy bonding compound. Remainder of decks, deck fittings, bitts, chocks and curbs that are to be exposed shall have welds and damaged preconstruction primer blasted to SSPC-SP-10, and be coated as follows:

A. Apply one (1) full coat Interzinc Primer Green, No.QHA028/QHA027 at 3.0 mils dry film thickness. Interval before overcoating shall be a minimum of 24 hours.

B. Apply one (1) full coat Intertuf HB Epoxy Gray No. KHA302/KHA062 at 4.0 mils dry film thickness. Interval before overcoating shall be a minimum of 6 hours and a maximum of one month.

C. To horizontal deck surfaces only, apply one (1) full coat Intergard Nonskid Dark Gray No. EKG312A/EBQ029A.

11.4 Void Compartments

All void spaces below main deck shall have welds and damaged preconstruction primer blasted to SSPC-SP-10 and be coated as follows:

A. Apply one (1) full coat zinc rich epoxy, Interzinc No. EPA075/EPA075 at 3.0 mils dry film thickness.

11.5 Exterior Topsides

Topsides above the two foot waterline shall have welds and damaged preconstruction primer blasted to SSPC-SP-10 and be coated as follows:

A. Apply one (1) full coat Interzinc Primer Green, No.QHA028/QHA027 at 3.0 mils dry film thickness. Interval before overcoating shall be a minimum of 24 hours.

B. Apply one (1) full coat Intertuf HB Epoxy Gray No. KHA302/KHA062 at 4.0 mils dry film thickness. Interval before overcoating shall be a minimum of 6 hours and a maximum of one month.

C. Apply one (1) full coat Interthane Finish Black, No. PSY999/PSA154 at 2.0 mills dry film thickness.

11.6 Exterior Bottom

Exterior below two foot waterline shall be abrasive blasted to SSPC-SP-10 throughout, and coated with a self-polishing copolymer (SPC) system as follows. Note that manufacturer's recommendations require that all topside painting must be completed prior to application of SPC coating system. Actual dry times to overcoat indicated below are approximate, and will be determined on-site by the manufacturer's representative.

A. Apply one (1) full coat Intergard Universal Epoxy Red No. FPL274/FPA327, at 5.0 mils dry film thickness. Interval before overcoating shall be a minimum of four hours and a maximum of one month.

B. Apply one (1) full coat Intergard Universal Epoxy Gray No. FAJ034/FAA262 at 5.0 mils dry film thickness. Interval before overcoating shall be a minimum of five hours, and a maximum of one month.

C. Apply one (1) full coat Intersmooth SPC Hisol Plum No. BFA254 4.0 mils dry, 8.0 mils wet film thickness. Interval before overcoating shall be a minimum of eight (8) hours.

D. Apply one (1) full coat Intersmooth SPC Hisol Pink No. BFA256 4.0 mils dry, 8.0 mils wet film thickness. Interval before overcoating shall be a minimum of twelve (12) hours.

E. Apply one (1) full coat Intersmooth SPC Hisol Plum No. BFA254 4.0 mils dry, 8.0 mils wet film thickness. Drying time before undocking shall be a minimum of twenty-four hours.

11.7 Guarantee

The coating system shall be guaranteed for the period defined by the Contract. The coating systems shall be considered a failure if 2% or more of the surface area in a given tank, space or surface has developed detachment, blistering and/or cracking. A rust failure resulting in a condition in excess of Rust Grade 6 (1% area breakdown) in accordance with the "Standard Method of Evaluating Degree of Rusting on Painted Steel Surfaces, ASTM D 6109-68 (1974)" shall be corrected to the standard established in the original specification.

12 Ring Life Buoys

Four (4) 30 inch Coast Guard approved ring life buoys each with a 15 fathom line shall be provided. Ring buoys shall be mounted at the deck edge fore and aft on both sides of the float, or as specified on the facility lifesaving plan

13 Nameplates, Notices and Markings

13.1 General

Nameplates and notices shall be plastic, engraved on metal or prepared by the "metal-photo" process, Federal Specification GG-P-455, for hatch and manhole labels, warning lights, etc., and operating and maintenance instruction plates.
Plastic plates shall be machine engraved 1/32 inch deep on black laminated phenolic having a white center.
All label plates shall be attached with stainless steel screws or approved adhesives, only screws or other approved means are to be used in weather locations. Metalic plates shall be insulated to prevent contact with dissimilar materials.
Safety signs, warning signs, and safety line markings required by stevedore's work rules shall be provided.
Lettering shall be clear and concise with a minimum of abbreviations. Where abbreviations are necessary, they shall conform to accepted standards. All labels, signs and notices shall be in English.

13.2 Manhole Markings

All manholes shall have a label plate similar to identification plates specified above. It shall designate the compartment to which access is made, and shall also include a warning similar to the following:

WARNING !
Confined space.
Use only approved entry procedures.

13.3 Shell Plate Markings

Shell plating at the two foot waterline shall be marked by horizontal 2 inch long welded beads, 1/8 inch thick, at intervals of 10 feet for guidance in application of paint.

Location of all main athwartship bulkheads shall be indicated by frame numbers on the outside of the shell plating at the ten foot waterline by small bead markings in arabic numerals, 6 inches high for use in drydocking. "Layup" type waterline marks, a horizontal line at the light floating waterline with a six inch high triangle point down to the line, shall be outlined in weld bead and painted white, near each of the four corners of the float.

14 Outfit

Passenger walkways, ramps, railings, attached electrical and lighting and other appurtenances will be installed by others on the steel deck inserts shown on these plans.

*** END OF SECTION ***

SECTION 16100 – GENERAL ELECTRICAL

PART 1 – GENERAL

1.01 SCOPE:

A. The CONTRACTOR shall provide the labor, tools, equipment, and materials necessary to furnish and install all electrical work in accordance with the Contract Drawings and as specified herein.

B. In General, electrical work shall include but not be limited to the following:

1. All support material and hardware for raceway and electrical equipment.
2. Building wall, floor and roof penetrations for raceways.
3. Fire rated sealing of all electrical penetrations.
4. Start up, acceptance testing test reports and instruction of systems operation to the OWNER.

C. All work shall be in accordance with the latest issue of the National Electrical Code, NEC.

D. Install new conduits and wiring as indicated and as specified herein.

1.02 SHOP DRAWINGS:

A. Shop Drawings shall be submitted for the following items (Shop Drawings are required prior to acceptance):

1. Wiring materials and devices.
2. Submittals and shop drawings shall be provided for all proposed equipment, components, and accessories.

1.03 PROJECT CLOSE-OUT DOCUMENTATION:

A. Safety----MSDS sheets received.

B. Instruction manuals shall be provided for all proposed equipment, components, and accessories.

PART 2 – PRODUCTS

2.01 WIRING MATERIALS:

A. In general, raceways shall run concealed above ceilings and within finished walls – securely supported in accordance with code requirements. Where there is no alterations work which would allow for concealed wiring, then wiring may be exposed. Wiring in process areas with no finished ceilings (exposed construction) shall be exposed overhead such that all raceways are parallel or perpendicular to joists, columns or beams.

B. Unless indicated otherwise, all wiring shall be enclosed in conduit; all sized in accordance with code requirements for the conductors indicated. Minimum size shall be 3/4” except as noted. Underground conduits and conduits in poured concrete shall be 3/4” minimum size.

1. Rigid steel conduit, including couplings, elbows, bends, and nipples, shall conform to the requirements of UL 6 and NEMA C80.1. Steel fittings shall be galvanized by the hot-dip process.

2. Fittings for rigid steel conduit shall be threaded and shall conform to NEMA FB 1. Gaskets shall be solid for fittings sized 1-1/2 inches and less. Conduit fittings with blank covers shall have gaskets except in clean, dry areas or at the lowest point of a conduit run where drainage is required. Covers shall have captive screws and be accessible after the work has been completed.

3. Where indicated, provide PVC-Coated Rigid Steel Conduit. Rigid steel conduit shall be coated with 40 mils thick polyvinylchloride coating. Fittings, elbows and accessories shall include factory applied 20 mils thick polyvinylchloride coating and be manufactured by the same as that of the conduit. Use tools as recommended by the manufacturer so as not to damage PVC coating. Where coating is damaged, touch-up with PVC paint in the field after installation.

4. PVC Schedule 40: Conduit shall be made of polyvinyl chloride compound that shall be homogeneous plastic material free from cracks, holes or foreign inclusions. Conduit shall be rated for use with 90 degree C conductors, UL Listed. Use solvent cement to join conduits as manufactured the same as the conduit manufacturer.

5. PVC Schedule 80: Heavy wall PVC conduit that shall be made of polyvinyl chloride compound that shall be homogeneous plastic material free from cracks, holes or foreign inclusions. Conduit shall be rated for use with 90 degree C conductors, UL Listed. Use solvent cement to join conduits as manufactured the same as the conduit manufacturer.

6. Use Schedule 40 PVC conduit for exterior direct buried installations and for exterior concrete encased installations.

7. The transition from and concrete encasement and underground to riser shall be rigid galvanized steel conduit.

8. Liquid-tight flexible metallic conduit shall be provided with a protective jacket of PVC extruded over a flexible interlocked galvanized steel core to protect wiring against moisture, oil, chemicals, and corrosive fumes.

9. All conduits shall be substantially supported with approved coated galvanized clips or hangers spaced not to exceed ten feet (10') on centers except ½" rigid conduit and ½" and ¾" electrical metallic tubing shall have supports spaced not to exceed six feet (6'). Provide and install supporting racks of coated Power-Strut, or approved equal, for parallel runs of conduit.

C. All exposed wiring shall have threaded cast "Condulet" type fittings. Fitting and boxes for exterior installation shall be weatherproofed.

D. All new junction boxes and enclosures shall be of the correct type, shape, size, and depth to suit location /application, and shall have an approved NEMA rating for each location installed. Box bodies shall be provided with integral threaded conduit openings, as required. Mounting lugs shall be provided at the back or at the bottom corner of the box body. Boxes shall be provided with neoprene cover gaskets that will prevent the entrance of water into the enclosure.

1. In general, boxes that are exposed to weather, process areas, normally wet locations, and locations exposed in mechanical spaces shall be cast-metal. Boxes in all other finished/concealed areas shall be sheet metal.

2. Pull boxes shall be installed where indicated or required in accordance with NEC. Boxes shall be of adequate size for all conductors installed therein, and shall have either screw type or hinged flush covers as required.

3. Use general purpose boxes (NEMA 1) in finished/concealed areas with framed construction.

4. Use dust-tight and oil-tight boxes (NEMA 12) in other dry interior areas.

5. Use explosion proof boxes (NEMA 7) for interior hazardous areas as designated on the plans.

6. Use corrosion resistance watertight boxes (NEMA 4X) for all exterior wet locations and corrosion filled areas. 316 Stainless Steel NEMA 4X boxes shall be used for exposed installations on the pier or in the pier ramp utility chase.

7. All boxes shall be rigidly supported as approved.

8. Conduit Connections: When conduit is joined to a non-threaded or hubless NEMA 1 or NEMA 1A box or enclosure, it shall be joined by means of two locknuts and insulated or grounding bushing, as required. When conduit is joined to a non-threaded or hubless NEMA 12 or watertight box or enclosure, it shall be joined be means of Myers "Scru-Tite," or equal hubs.

9. Conduits and sleeves penetrating fire rated barriers shall be sealed and/or filled with approved material to maintain the fire rating.

PART 3 – EXECUTION

3.01 WORKMANSHIP & INSTALLATION:

A. All work shall be in accordance with the National Electrical Code requirements as amended to date with the local electric utility company's rules, the Fire Underwriter's requirements and all local, State and Federal laws and regulations. All equipment shall be Underwriters' listed (UL).

B. Electrical work shall be accomplished with all affected circuits or equipment de-energized. When an electrical outage cannot be accomplished in this manner for the required work, the following requirements are mandatory:

1. Electricians must use full protective equipment (i.e., certified and tested insulating material to cover exposed energized electrical components, certified and tested insulated tools, etc.) while working on energized systems in accordance with NFPA 70E.
2. Electricians must wear personal protective equipment while working on energized systems in accordance with NFPA 70E.
3. Before initiating any work, a job specific work plan must be developed by the contractor and the Owner. The work plan must include procedures to be used on and near the live electrical equipment, barriers to be installed, and safety equipment to be used and exit pathways.
4. Work on energized circuits or equipment cannot begin until prior written approval is obtained from the Owner.

C. The drawings indicate the extent and the general location and arrangement of equipment, conduit and wiring. The Contractor shall become familiar with all details of the work and verify all dimensions in the field so that the outlets and equipment will be properly located and readily accessible. Raceways, junction and outlet boxes and lighting fixtures shall not be supported from sheet metal roof decks. If any conflicts occur necessitating departures from the drawings, details of and reasons for departures shall be submitted and approved prior to implementing any change.

D. The location of conduits, outlets, equipment, etc., as shown shall be considered as approximate only. The Contractor shall field verify all existing conditions prior to installation of all new equipment.

E. All equipment shall be in first-class condition at time of delivery of building to Owners with all scratches, mars, etc., refinished to factory standards.

F. Installation of Conduit

1. Provide PVC coated rigid conduit, fittings and support clamps for all conduit installed exposed on the pier or in the pier ramp utility chase. PVC coated liquid-tight flexible metal conduit shall be used for transitions where conduit leaves fixed grade and is fastened to pier structures. No exposed steel surfaces shall be left on conduit, conduit threads, or conduit fittings where PVC coated conduit is provided. Touch up all scratches and exposed steel with PVC compound as manufactured by the conduit manufacturer. Provide 316 stainless steel U-Channel as required for conduit supports exposed on the pier.

2. Use rigid steel conduit (at grade locations) for exposed outdoor locations.

3. Use Schedule 40 PVC conduit for exterior direct buried installations and for exterior concrete encased installations. Use Schedule 80 PVC conduit for underground installations under driveways.

4. The transition from concrete encasement and underground to riser shall be PVC-Coated rigid galvanized steel conduit.

5. In general, all elbows in nonmetallic conduit runs shall be rigid galvanized steel to eliminate "burn through" when pulling in conductors. Use rigid galvanized steel conduit sweeps for underground elbows in conduit sizes 2 inch and larger.

6. Where conduit(s) pass(es) from refrigerated or cooled atmosphere to warmer areas where condensation of water vapor may occur within raceways, conduit bodies sealed with "Duct Seal" type compound shall be provided after conductors are installed.

7. Install top of underground conduit 30 inches (min.) below finished grade.

8. Slope exterior underground conduit away from building. Seal penetration around conduits entering the building.

9. Install exposed conduits, parallel or perpendicular to walls, ceilings, or structural members. Do not run through structural members. Avoid horizontal runs within partitions or sidewalls. Avoid ceiling inserts, lights, or ventilation ducts or outlets. Do not run conduits across pipe shafts or ventilation duct openings and keep conduits a minimum of 6 inches from parallel runs of flues, hot water pipes, or other sources of heat. Wherever possible, install horizontal raceway runs above water and steam piping.

10. Conduits shall be of sizes required by the National Electrical Code increased to include bonding conductor as specified. No wire shall be installed until work which might cause damage to wires or conduits has been completed. Conduits shall be thoroughly cleaned of water or other foreign matter before wire is installed.

11. Conduits shall be fastened by suitable galvanized clips or approved hangers. Clips and boxes shall be fastened by wood screws on wooden surfaces, machine screws on metal, toggle bolts in masonry block, or by expansion shields in concrete. Parallel runs of conduit shall be neatly clustered with all bends and offsets of uniform pattern.

12. Do not run conduits exposed on the exterior surface of buildings. Conduits penetrating exterior walls below grade, at grade floors, or below grade floors shall be sealed to prevent moisture migration. The exterior of the conduit shall be sealed with a mechanical pipe seal.

The interior conduit seal shall be a gland type sealing bushing or RTV closed cell silicone foam. Ensure that conduits do not retain water against these seals.

13. All empty conduits shall have nylon pull rope or min. #12AWG wire installed and labeled.

3.02 IDENTIFICATION:

A. Provide exterior warning signs where required. Warning and caution signs shall be weather resistant, non-fading, preprinted cellulose acetate butyrate signs with 20 gauge, galvanized steel backing, with colors, legend, and size appropriate to the location.

B. Provide interior warning signs where required. Warning signs and caution signs shall be aluminum signs with preprinted baked enamel finish and punched for fasteners. Colors, legend, and size appropriate to location.

C. Install underground line marking tape where required and as indicated. Underground line marking tape shall be permanent, bright colored, continuous printed, metal backed, plastic tape compounded for direct burial service not less than 6 inches wide. Printed legend indicative of general type of underground line below.

3.03 TESTING AND ADJUSTING:

A. Final acceptance of the equipment and/or workmanship will depend upon performance characteristics as determined by the subject tests, in addition to complete operation tests, on all electrical equipment to show that it will perform the functions for which it was designed.

B. If the test and inspection data submitted should indicate deficiencies in the operation of the electrical apparatus or in the manufacturer thereof, the CONTRACTOR shall promptly implement the necessary adjustments, corrections, modifications and/or replacements necessary to be made to meet the specified requirements.

*** END OF SECTION ***

APPENDIX 1
PIN 017832.00

GEOTECHNICAL DATA REPORT

UNDERGROUND
ENGINEERING &
ENVIRONMENTAL
SOLUTIONS

Haley & Aldrich, Inc.
500 SouthBorough Drive
Suite 10
South Portland, ME 04106-6935
Tel: 207.772.5439
Fax: 207.871.5999
www.HaleyAldrich.com

HALEY & ALDRICH

12 September 2003
File No. 26354-003

Woodard & Curran, Inc.
41 Hutchins Drive
Portland, Maine 04102

Attention: Mr. Barry Scheff, P.E.

Subject: Geotechnical Data Report
Proposed Ocean Gateway Project
Commercial Street
Portland, Maine

Ladies and Gentlemen:

This data report presents the results of recent subsurface investigations and laboratory testing made in connection with the proposed Ocean Gateway Project located along Commercial Street in Portland, Maine. This work was completed as part of Task 2.4 (Geotechnical) of our Phase I final design engineering services contract dated 21 October 2002.

The field exploration program consisted of drilling three test borings on land and three test borings over water; laboratory testing was conducted on selected soil samples obtained from the water borings to assist in soil classification and for determination of engineering properties of the soils. The land borings were drilled in the vicinity of the proposed transfer bridge and receiving station, and the water borings were drilled near the proposed mooring dolphins associated with Pier 2 megaberth.

Previously we conducted an evaluation of readily available subsurface information at the project site. Refer to our report dated 2 November 2000 for subsurface information obtained in previous explorations at the project site.

SUBSURFACE EXPLORATIONS

A field exploration program was undertaken to provide information on subsurface conditions at the proposed transfer bridge, receiving station and megaberth mooring dolphins. Three borings were drilled on land (designated LB1-03 through LB3-03) and three borings were drilled over water (WB1-03 through WB3-03) by Maine Test Borings, Inc. during the period 7 July through 7 August 2003. A Haley & Aldrich representative was present to monitor the drilling operations and to make a record of the encountered conditions.

The borings were drilled at the locations indicated on Figure 1, Site and Exploration Location Plan. The boring locations were established in the field by Woodard & Curran using GPS survey techniques. Ground surface elevations were estimated by Haley & Aldrich using topographic information indicated on the survey plan provided by Woodard & Curran. Ground surface elevations discussed in this report are in feet and are referenced to Mean Lower Low Water datum (MLLW).

Test boring logs prepared by Haley & Aldrich are included in Appendix A of this report.

The land borings were drilled using hollow stem augers (HSAs) to depths ranging from 22 to 30 ft. below ground surface and were terminated in naturally deposited soils. Boring LB2-03 apparently encountered a vertical timber pile generally between 16.5 ft. and 30 ft. below ground surface; the boring was terminated at a depth of 30 ft. and the drill rig was repositioned approximately 2 ft. to the north and boring LB2A-03 was drilled. The bore holes were backfilled with drill spoil and sand, and a surface patch of bituminous concrete was placed at the completion of drilling activities.

The water borings were drilled using a barge-mounted drill rig using 3- and 4-in. diameter steel casing to depths ranging from 148.7 ft. to 166 ft. below the harbor bottom and were terminated in very dense naturally deposited granular soils.

Soil samples were collected at nominal 5-ft. depth intervals, except at LB1-03 and LB2-03 where near-surface fill material was continuously sampled, by driving a 1-3/8-in. ID split spoon sampler with a 140-lb. hammer dropped from a height of 30 in. Sampler blows for each 6-in. increment of penetration are indicated in the boring logs. Field vane shear tests (8 tests) were conducted in WB3-03 to measure undrained shear strength characteristics of the marine silt and clay sediments. The field vanes were 2 inches in diameter and 7 inches long and were turned using a calibrated torque wrench. Calculated undisturbed and remolded shear strengths are indicated in the boring log.

LABORATORY TESTING

A limited laboratory testing program was undertaken to assist in soil classification and for determination of engineering properties of the soils. Fourteen (14) representative soil samples were collected from borings WB1-03, WB2-03 and WB3-03 for testing. The testing consisted of sieve (14 tests) and hydrometer (2) analyses and water content determinations (14). The tests were conducted generally in accordance with ASTM test procedures in the Haley & Aldrich Boston laboratories.

The test results are presented in Appendix B in the form of grain size distribution curves (sieve and hydrometer tests) and water content summaries.

SUBSURFACE CONDITIONS

The borings encountered four principal soil units at the site; FILL, HARBOR BOTTOM DEPOSIT, MARINE DEPOSIT AND GLACIAL DEPOSIT. Not all of the soil units were encountered in each test boring. A generalized description of the soils encountered in each unit is summarized as follows:

FILL - The three borings drilled on land (LB1-03 through LB3-03) encountered from approximately 9 to 15 ft. of fill material beneath a surficial layer of bituminous concrete pavement. The encountered soils consist of loose to medium dense, dark brown to brown well-graded sand with gravel to loose brown poorly-graded sand. The fill contained variable amounts of ash, slag, brick, and glass. Boring LB2-03 encountered wood that was likely a vertical timber pile.

HARBOR BOTTOM DEPOSIT – The three borings drilled over the water (WB1-03 through WB3-03) encountered from 2.5 to 4.5 ft. of very soft, black, ORGANIC SOIL with occasional shell fragments and a variable amount of medium to fine sand. These soils represent sediments recently deposited on the harbor bottom. Borings WB1-03 and WB2-03 were drilled within the limits of an area dredged in the mid-1980's for the ship repair facility.

MARINE DEPOSITS – All of the test borings encountered a sequence of marine deposits that typically included a layer of SILT and fine SAND overlying lean CLAY and another layer of SILT and fine SAND.

The upper marine layer consists of loose to very loose, gray SILT and silty SAND with occasional black streaks and shell fragments. The encountered thickness of the upper marine silt/sand layer generally ranges from 7.5 to 13.5 ft.

The intermediate marine layer generally consists of very soft to medium stiff, gray lean CLAY with layers and lenses of silt and fine sand, and frequent black streaks. The undrained shear strength, as measured with the field van shear testing apparatus, ranged from about 480 lbs. per sq. ft. (psf) near the top to greater than 900 psf near the bottom. The encountered thickness of the intermediate marine layer generally ranges from 16 (WB2-03) to 61 ft. (WB1-03).

The lower marine layer generally consists of loose to medium dense, gray poorly-graded SAND with occasional silty fine sand seams; medium dense to very dense, gray well-graded SAND with silt and gravel; and very dense, dark gray SILT. The encountered thickness of the lower marine layer generally ranges from 45 (WB1-02) to 82 ft. (WB2-03). There appears to be inclusions of glacial deposits within the marine sand layer as encountered in WB2-03 and WB3-03.

GLACIAL DEPOSIT – The three borings drilled on the water encountered glacially-derived soils (likely glacial till and glaciofluvial) generally consisting of dense to very dense, gray well-graded SAND with silt and gravel. The drilling action suggests that there are cobble- and boulder-sized rock fragments within the soil unit. The soil in some of the recovered samples was bonded (typical of glacial till) while some of the samples contained layers and lenses of silt and sand. In WB2-03 there appears to be an approximately 17.5-ft thick layer of glacial deposits within the marine unit (38.5 to 56 ft. depth range) and in WB3-03 there appears to be an approximately 30-ft. thick layer of glacial deposits within the marine unit (67 to 97 ft. depth range).

Refer to the test boring logs included in Appendix A for a more detailed description of conditions encountered in each of the test borings.

GENERAL ENGINEERING COMMENTS

The subsurface conditions encountered in the three borings drilled on land suggest that the fill material behind the seawall ranges from about 10 to 15 ft. in thickness and consists primarily of granular soils with variable amounts of brick, ash, slag, glass, etc. It is likely that the transfer bridge and the receiving station can be supported on spread footing and continuous wall foundations bearing at a depth of 4.5 ft. below ground surface. An additional 2 ft. of existing fill should be removed below the foundation bearing level and replaced with compacted structural fill. Foundation design recommendations for the transfer bridge and the receiving station will be provided in a subsequent geotechnical engineering report.

The three borings drilled in the vicinity of the proposed megaberth dolphin locations encountered a variable thickness of loose granular and soft cohesive soil deposits overlying dense to very dense granular soils. The pile foundations that will be needed to support the mooring dolphins will have to be driven into the underlying dense granular soils to develop the required capacity to resist the design axial, tension and lateral loading conditions. For planning purposes we estimate the top of the foundation bearing level at the three boring locations are as follows:

Boring	El. Harbor Bottom	Depth to Top of Bearing Level	Elevation of Top of Bearing Level
WB1-03	- 57.5	90 ft.	- 147.5
WB2-03	- 59.3	38.5 ft.	- 90.3
WB3-03	- 33.5	67 ft.	- 100.5

The required depth of penetration into the bearing material will be a function of the design loading for the individual and dolphin pile groups. Design recommendations for the dolphin

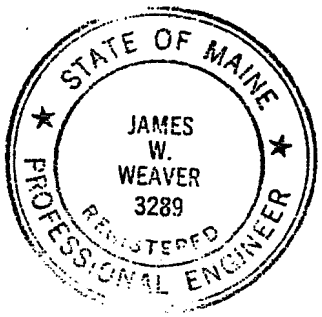
piles will be provided in a subsequent geotechnical engineering report.

CLOSURE

We trust this information is suitable for your present needs. Please do not hesitate to contact us if you have any questions about this geotechnical data report. We will complete our geotechnical engineering evaluations and analyses when more information is available regarding the proposed land-based structures and the mooring dolphins.

It has been our pleasure to assist you on this phase of the project and look forward to our continued association with you and the rest of the design team on this project.

Sincerely yours,
HALEY & ALDRICH, INC.



James W. Weaver, P.E.
Vice President

Enclosures:

Figure 1 – Site and Exploration Location Plan
Appendix A – Test Boring Logs
Appendix B – Laboratory Soil Test Results

G:\PROJECTS\26354\003\geotdataReport.doc

APPENDIX A

Test Boring Logs

HALEY & ALDRICH

TEST BORING REPORT

Boring No. LB1-03

Project OCEAN GATE PORTLAND, MAINE
Client WOODARD & CURRAN, INC.
Contractor MAINE TEST BORINGS, INC.

File No. 26354-003
Sheet No. 1 of 2
Start 8 July 2003
Finish 8 July 2003
Driller G. Rudnicki
H&A Rep. B. Estes
Elevation 9.5
Datum MLLW
Location

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	S		Rig Make & Model: CME 45
Inside Diameter (in.)	2.5	1 3/8		Bit Type: Cutting Head
Hammer Weight (lb.)	-	140	-	Drill Mud: None
Hammer Fall (in.)	-	30	-	Casing:
				Hoist/Hammer: Cat-Head/Doughnut Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				NO WELL INSTALLED	9.3												
	2 3 4 3	S1 15	0.5 2.5		0.2	SW	-Bituminous Concrete- Loose, brown to dark brown well-graded SAND with gravel with ash, brick and slag fragments, dry, mps=1.0in. -FILL-	10	10	20	30	25	5				
	1 4 2 2	S2 9	2.5 4.5			SW	Loose, dark brown well-graded SAND with gravel, trace ash, and slag fragments, dry, mps=1.5in.	10	10	20	30	25	5				
5	1 2 5 6	S3 5	4.5 6.5			SW	Loose, dark brown well-graded SAND with gravel, trace ash, and slag fragments, dry, mps=1.25in. Cobble at 5.0 ft.	10	10	20	30	25	5				
	1 29 3 3	S4 7	6.5 8.5			SW	Loose, dark brown well-graded SAND with gravel, trace brick, ash and slag fragments, moist to wet, mps=1.0in. Wet at 8.0 ft.	10	10	20	30	25	5				
					0.5 9.0												
10	1 1 0 1	S5 19	10.0 12.0			SW-SM	Very loose, brown well-graded SAND interbedded with gray-brown silty SAND, wet, mps=0.5in., with brick and glass fragments and pieces -FILL- 12.5-14.5 ft.-trace wood		10	20	25	35	10				
15	1 2 1 2	S6 14	15.0 17.0		-6.0 15.5	SW-SM	Very loose, brown well-graded SAND interbedded with gray-brown silty SAND, wet, mps=0.5in., with brick and glass fragments and pieces -FILL- Very loose, gray silty SAND with trace organics and wood, wet, mps=5mm. -MARINE DEPOSIT-			10	20	50	20				
					-9.5 19.0												
20																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water
7/8/03	14:50	-	OPEN	10.0	9.8

Sample Identification
O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary
Overburden (lin. ft.) 23.9
Rock Cored (lin. ft.) -
Samples 8S

Boring No. LB1-03

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler size (in millimeters).

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH

TEST BORING REPORT

Boring No. LB1-03
File No. 26354-003
Sheet No. 2 of 2

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	1 1 2 3	S7 15	20.0 22.0			CL	Soft, olive-brown to gray lean CLAY with occasional well-graded SAND with gravel layers, moist to wet, mps=1.0 in. -MARINE DEPOSIT-	5	10	20	30	5 30	95 5	N	L	M	M
					-14.0												
	50/0.4	S8 5	23.5 23.9		23.5 -14.4 23.9		Wood-probable wood pile BOTTOM OF EXPLORATION 23.9 FT. Auger refusal on wood (probable wood pile)										

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

TEST BORING REPORT

Boring No. LB2-03

Project OCEAN GATE PORTLAND, MAINE
Client WOODARD & CURRAN, INC.
Contractor MAINE TEST BORINGS, INC.

File No. 26354-003
Sheet No. 1 of 2
Start 8 July 2003
Finish 8 July 2003
Driller G. Rudnicki
H&A Rep. B. Estes
Elevation 9.5
Datum MLLW
Location

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	S		Rig Make & Model: CME 45
Inside Diameter (in.)	2.5	1 3/8		Bit Type: Cutting Head
Hammer Weight (lb.)	-	140	-	Drill Mud: None
Hammer Fall (in.)	-	30	-	Casing:
				Hoist/Hammer: Cat-Head/Doughnut Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test: Dilatancy	Field Test: Toughness	Field Test: Plasticity	Field Test: Strength
0				NO WELL INSTALLED	9.3		-Bituminous Concrete-	10	10	15	25	40					
	4 13 9 9	S1 16	0.5 2.5		0.2	SW	Medium dense, dark brown to black well-graded SAND with gravel, ash, brick and slag fragments, dry, mps=1.5in. -FILL-										
	4 7 5 5	S2 11	2.5 4.5			SW	Medium dense, dark brown to black well-graded SAND with gravel, ash, brick and slag fragments, dry, mps=1.5in.	10	10	15	25	40					
5	2 2 3 2	S3 2	4.5 6.5			SW	Loose, dark brown to black well-graded SAND with gravel, brick pieces, dry, mps=1.5in. -FILL-	10	10	15	25	40					
	1 1 1 2	S4 10	6.5 8.5			SW	Very loose, dark brown to black well-graded SAND with gravel, ash, brick and slag fragments, dry, mps=0.75in.	10	10	15	25	40					
					1.5												
	WOH 1 1 2	S5 16	8.5 10.5		8.0 0.5	SM	Very loose, gray silty SAND, moist to wet, mps=0.75in.		5	5	20	50	20				
					9.0	SM	-FILL-	5	5	10	20	40	20				
10							Very loose, gray silty SAND with occasional silt layers, trace organics and wood fragments -REWORKED MARINE DEPOSIT-(possible dredge spoils)										
							Drilling action indicates cobble or gravel at 13.0 ft.										
15	WOH 1 1 20	S6 20	15.0 17.0		-6.5												
					16.0	SW	Very loose, gray-brown to black, well graded SAND with gravel, trace organics and wood fragments, wet, mps=1.0 in.	10	10	25	30	25					
					-7.0 16.5		Wood-vertical wood pile										
							Washed out wood from HSA and drilled ahead with roller bit to 30.0 ft. Terminated boring at 30.0 ft. in wood pile										
							Moved rig 2.0 ft. north to drill LB2A-03										
20																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water
7/8/03	10:40	0	-	17.0	13.0

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 30
Rock Cored (lin. ft.) -
Samples 6S

Boring No. LB2-03

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Toughness: L-Low, M-Medium, H-High Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler size (in millimeters).

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH

TEST BORING REPORT

Boring No. LB2-03
File No. 26354-003
Sheet No. 2 of 2

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20																	
25							Vertical Wood Pile										
30					-20.5												
					30.0		BOTTOM OF EXPLORATION 30.0 ft.										

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH

TEST BORING REPORT

Boring No. LB2A-03

Project OCEAN GATE PORTLAND, MAINE
Client WOODARD & CURRAN, INC.
Contractor MAINE TEST BORINGS, INC.

File No. 26354-003
Sheet No. 1 of 2
Start 8 July 2003
Finish 8 July 2003
Driller G. Rudnicki
H&A Rep. B. Estes
Elevation 9.5
Datum MLLW
Location

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	S		Rig Make & Model: CME 45
Inside Diameter (in.)	2.5	1 3/8		Bit Type: Cutting Head
Hammer Weight (lb.)	-	140	-	Drill Mud: None
Hammer Fall (in.)	-	30	-	Casing:
				Hoist/Hammer: Cat-Head/Doughnut Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				NO WELL INSTALLED			See LB2-03 Test Boring Log for overburden descriptions 0-20.0 ft. Auger to 20.0 ft. and begin sampling Note: Occasional cobbles encountered at 4.0 ft.										
5																	
10																	
15																	
20																	

Water Level Data					
Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification	
O	Open End Rod
T	Thin Wall Tube
U	Undisturbed Sample
S	Split Spoon
G	Geoprobe

Well Diagram: Riser Pipe, Screen, Filter Sand, Cuttings, Grout, Concrete, Bentonite Seal

Summary	
Overburden (lin. ft.)	27.0
Rock Cored (lin. ft.)	-
Samples	2S

Boring No. LB2A-03

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler size (in millimeters).

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH

TEST BORING REPORT

Boring No. LB2A-03
File No. 26354-003
Sheet No. 2 of 2

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	4 5 5 4	S1 17	20.0 22.0			SW SP	Loose, gray well-graded SAND interbedded with poorly graded SAND, with occasional silt layers, wet, mps=0.5in.		5	25 5	35 10	30 65	5 20				
							-MARINE DEPOSIT-										
25	1 4 8 14	S2 19	25.0 27.0			SP	Medium dense, gray-brown to gray poorly graded SAND with occasional silt layers, wet, mps 4mm.			5	30	60	5				
					-17.5		-MARINE DEPOSIT-										
					27.0		No refusal BOTTOM OF EXPLORATION 27.0 FT.										

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. LB2A-03

TEST BORING REPORT

Boring No. LB3-03

Project OCEAN GATE PORTLAND, MAINE
Client WOODARD & CURRAN, INC.
Contractor MAINE TEST BORINGS, INC.

File No. 26354-003
Sheet No. 1 of 2
Start 7 July 2003
Finish 7 July 2003
Driller G. Rudnicki
H&A Rep. B. Estes
Elevation 9.5
Datum MLLW
Location

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	S		Rig Make & Model: CME 45
Inside Diameter (in.)	2.5	1 3/8		Bit Type: Cutting Head
Hammer Weight (lb.)	-	140	-	Drill Mud: None
Hammer Fall (in.)	-	30	-	Casing:
				Hoist/Hammer: Cat-Head/Doughnut Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test: Dilatancy	Field Test: Toughness	Field Test: Plasticity	Field Test: Strength
0				NO WELL INSTALLED	9.3		-Bituminous Concrete-										
	3	S1	0.5		0.2	SW	Medium dense, brown well-graded SAND with gravel, dry, mps=0.75in.		10	20	25	40	5				
	7	11	2.5		8.8	SW			10	20	25	40	5				
	9				0.7		-FILL-										
	6						Medium dense, black well-graded SAND with ash and slag fragmnets, dry, mps= 0.75in.										
							-FILL-										
5	3	S2	5.0			SW	Loose, black well-graded SAND with ash and slag fragments, dry, mps=0.5in.		10	20	25	40	5				
	4	3	7.0														
	3				3.0		-FILL-										
	3				6.5	SP	Loose, brown poorly-graded SAND, moist, mps= 1mm.				10	85	5				
					1.0		Wet at 8.0 ft.										
					8.5												
10	1	S3	10.0			SW	Very loose, black well-graded SAND with gravel with ash and slag fragments, wet, mps=1.0 in.	15	20	25	20	15	5				
	1	5	12.0				-FILL-										
	1																
	1				-3.0												
					12.5												
15	WOH	S4	15.0			SP	Loose, gray poorly-graded SAND with silt and gravel, wet, mps=1.0in. -MARINE DEPOSIT-	10	10	10	10	50	10				
	1	23	16.9														
	4				-7.0												
	50/0.4				16.5	SW	Loose to medium dense, gray well-graded SAND with gravel, occasional cobbles, wet, mps=1.5in. -MARINE DEPOSIT-	15	10	20	20	30	5				
20																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water
7/7/03	13:30	0	20.0	22.0	10.2
7/7/03	13:40	10MIN.	OPEN	11.4	10.8

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 22
Rock Cored (lin. ft.) -
Samples 5S

Boring No. LB3-03

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler size (in millimeters).

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH

TEST BORING REPORT

Boring No. LB3-03
File No. 26354-003
Sheet No. 2 of 2

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	WOR 1 15 12	S5 11	20.0 22.0			SW SM	Loose to medium dense, gray silty SAND interbedded with well-graded SAND, wet, mps=1.5in.	5	5	15	25	35	15				
							-MARINE DEPOSIT-										
					-12.5 22.0		BOTTOM OF EXPLORATION 22.0 FT. No refusal										

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. LB3-03

HALEY & ALDRICH

TEST BORING REPORT

Boring No. WB1-03

Project OCEAN GATE PORTLAND, MAINE
Client WOODARD & CURRAN, INC.
Contractor MAINE TEST BORINGS, INC.

File No. 26354-003
Sheet No. 1 of 6
Start 9 July 2003
Finish 17 July 2003
Driller G. Rudnicki
H&A Rep. B. Estes
Elevation -57.5
Datum MLLW
Location

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S		Rig Make & Model: CME 45 skid on barge
Inside Diameter (in.)	3.0	1 3/8		Bit Type: Roller Bit
Hammer Weight (lb.)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing:
				Hoist/Hammer: Cat-Head/Doughnut Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				NO WELL INSTALLED		OL/OH	Very soft, black, ORGANIC SOIL, strong organic odor, wet, mps < .075 mm						100				
	WOR WOR WOR WOR	S1 18	1.0 3.0		-60.0		-HARBOR BOTTOM DEPOSIT-										
					2.5	ML	Very loose, gray SILT with occasional shell fragments and black organic streaks, uniform, wet, mps < .075 mm						100				
5							-MARINE DEPOSIT-										
	WOR WOR WOR WOH	S2 16	5.0 7.0			ML	Very loose, gray SILT with occasional black organic streaks, uniform, wet, mps < .075 mm						100	S	L	N	L
10					-67.5												
	WOR WOH WOH WOH	S3 24	10.0 12.0		10.0	CL	Very soft, gray lean CLAY with occasional black organic streaks, wet, mps < .075 mm						100	N	M	M	M
15																	
	WOR WOH WOH 2	S4 24	15.0 17.0			CL	Very soft, gray lean CLAY, uniform, wet, mps < .075 mm						100	N	L	M	M
							-MARINE DEPOSIT-										
20																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 163.8
Rock Cored (lin. ft.) -
Samples 29S

Boring No. WB1-03

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler size (in millimeters).

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH

TEST BORING REPORT

Boring No. WB1-03
File No. 26354-003
Sheet No. 2 of 6

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	WOR WOR WOH 2	S5 24	20.0 22.0			CL	Very soft, gray lean CLAY, uniform, wet, mpe < .075 mm -MARINE DEPOSIT-						100	N	M	M	M
25	WOR WOR WOR WOR	S6 24	25.0 27.0			CL	Very soft, gray lean CLAY, uniform, wet, mpe < .075 mm Note: Occasional black organic streaks at ~28.0 ft.						100	N	M	M	M
30	WOR WOR WOR WOR	S7 24	30.0 32.0			CL	Soft, gray lean CLAY with black organic streaks -MARINE DEPOSIT-						100	N	M	M	M
35																	
40	WOR WOR WOR WOR	S8 24	40.0 42.0			CL	Soft, gray lean CLAY with black organic streaks -MARINE DEPOSIT-						100	N	M	M	M
45																	

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. WB1-03

HALEY & ALDRICH

TEST BORING REPORT

Boring No. WB1-03
File No. 26354-003
Sheet No. 3 of 6

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
50	WOR WOR WOR WOR	S9 6	50.0 52.0			CL	Soft, gray lean CLAY with black organic streaks, trace fine sand and shell fragments -MARINE DEPOSIT-						100	N	M	M	M
					111.7 54.2	SP	Loose, gray poorly graded SAND, uniform, wet, mps=1mm				40	55	5				
55	WOR WOR WOH 1	S10 24	55.0 57.0			CL	Soft, gray lean CLAY with occasional black organic streaks and occasional fine sand seams, uniform, wet, mps=1mm					5	95	N	M	M	M
60																	
	WOR WOR WOR WOR	S11 24	61.0 63.0			CL	Soft, gray lean CLAY with frequent black organic streaks, trace sand, uniform, wet, mps=0.25 in. -MARINE DEPOSIT-					5	95	N	M	M	M
65																	
70					128.5 71.0												
	2 3 4 4	S12 24	72.0 74.0			SP	Loose, gray poorly graded SAND interbedded with layers of medium stiff, gray SILT, wet, mps=0.75 in. -MARINE DEPOSIT-				15	80	5				
75																	

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH

TEST BORING REPORT

Boring No. WB1-03
File No. 26354-003
Sheet No. 4 of 6

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
80	5 3 1 6	S13 24	80.0 82.0			SP	Loose, gray poorly graded SAND with occasional gray silt layers, uniform, wet, mps=2mm -MARINE DEPOSIT-				15	80	5				
85	WOR 1 2 4	S14 17	86.0 88.0			SP	Loose, gray poorly graded SAND with occasional gray silt layers, uniform, wet, mps=3mm			5	15	75	5				
90					147.5 90.0												
	1 9 11 18	S15 24	92.0 94.0			SP	Medium dense, gray, poorly graded SAND (stratified medium to fine sand layers) with occasional silty fine sand seams, wet, mps=0.5 in.			5	20	70	5				
95	4 8 13 29	S16 13	97.0 99.0			SP	Medium dense, gray, poorly graded SAND with occasional silty fine sand seams and layers, wet, mps=0.75 in. -MARINE DEPOSIT-			5	30	60	5				
100	12 10 11 25	S17 11	102.0 104.0			SP	Medium dense, gray, poorly graded SAND with occasional silty fine sand seams and layers, wet, mps=0.25 in.			5	20	70	5				
105	8 11 12 17	S18 5	106.0 108.0			SP	Medium dense, gray, poorly graded SAND with silt			5	85	10					

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. WB1-03

HALEY & ALDRICH

TEST BORING REPORT

Boring No. WB1-03
File No. 26354-003
Sheet No. 5 of 6

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
110																	
	6 8 10 17	S19 12	112.0 114.0			SP	Medium dense, gray, poorly graded SAND with occasional silty fine sand layers, wet, mps=0.75 in.			5	20	70	5				
							-MARINE DEPOSIT-										
115					173.5												
					116.0		Note: Casing blows indicate gravelly layer										
	17 27 40 57	S20 5	117.0 119.0			SP	Very dense, gray, poorly graded SAND with silt, wet, mps=0.5 in.		5	5	5	75	10				
							-GLACIAL DEPOSIT-										
120																	
	40 77 102	S21 17	122.0 123.5			SP	Very dense, gray, poorly graded SAND with occasional silty fine sand layer and occasional well graded sand with gravel layers, wet, mps=1.5 in.	10	5	10	20	50	5				
125					183.5												
					126.0		Note: Casing blows=400/0.5 in.										
	62 96 100/.2	S22 15	127.0 128.5			SW	Very dense, gray, well graded SAND with silt and gravel, wet, mps=1.25 in.	15	15	15	20	25	10				
							-GLACIAL DEPOSIT-										
130																	
	35 55 82 100/.3	S23 9	132.0 133.8			SW	Very dense, gray well graded SAND with silt, wet, mps=0.5 in., slightly bonded		5	20	30	35	10				
							-GLACIAL DEPOSIT-										
135																	
	36 50 63	S24 13	137.0 139.0			SW	Very dense, gray well graded SAND with silt, wet, mps=1.0 in., slightly bonded		5	20	30	35	10				

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. WB1-03

HALEY & ALDRICH

TEST BORING REPORT

Boring No. WB1-03
File No. 26354-003
Sheet No. 6 of 6

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
	59																
140																	
	5 26 62 100/.4	S25 22	142.0 143.9			SW	Very dense, gray, well graded SAND with gravel, wet, mps=1.5 in. -GLACIAL DEPOSIT-	15	5	15	35	25	5				
145																	
	22 80 74 69	S26 0	147.0 149.0			SW	Note: wash sample indicates similar material										
150																	
	73 75 72 71	S27 0	152.0 154.0			SW	Note: wash sample indicates similar material to S25										
155																	
	46 120 100/.2	S28 9	157.0 158.2			SM	Very dense, gray silty SAND, wet, mps=1mm. 158.2ft.- some gravel				5	80	15				
160					217.5 160.0		161.2-161.7 ft. cobble										
	130 210/.1	S29 17	163.2 163.7		221.3 163.8		Very dense, gray, well graded SAND with gravel, wet, mps=1.25in. -GLACIAL DEPOSIT- Split spoon refusal BOTTOM OF EXPLORATION 163.8 FT.	15	10	20	25	25	5				

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH

TEST BORING REPORT

Boring No. WB2-03

Project OCEAN GATE PORTLAND, MAINE
Client WOODARD & CURRAN, INC.
Contractor MAINE TEST BORINGS, INC.

File No. 26354-003
Sheet No. 1 of 6
Start 18 July 2003
Finish 24 July 2003
Driller G. Rudnicki
H&A Rep. B. Estes
Elevation -59.3
Datum MLLW
Location

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S		Rig Make & Model: CME 45 skid on barge
Inside Diameter (in.)	3.0	1 3/8		Bit Type: Roller Bit
Hammer Weight (lb.)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing:
				Hoist/Hammer: Cat-Head/Doughnut Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	WOR WOR WOR 2	S1 20	0.0 2.0	NO WELL INSTALLED		OL/OH	Very soft, black ORGANIC SOIL, with occasional shell fragments, strong organic odor, wet, mps=3mm. -HARBOR BOTTOM DEPOSIT-						100				
					-61.8 2.5												
5	WOR WOR WOR WOR	S2 22	5.0 7.0			ML	Very loose, gray SILT with frequent black organic streaks and occasional shell fragments, wet, mps=3mm. -MARINE DEPOSIT-						100	N	L	L	L
10	WOR WOR WOR WOR	S3 18	10.0 12.0			ML	Very loose, gray SILT with frequent black organic streaks, uniform, wet, mps<1mm.						100	N	L	L	L
					-74.3 15.0												
15	WOR WOR WOR WOH	S4 24	15.0 17.0			CL	Soft, gray lean CLAY with occasional black organic streaks, wet, mps=1.0 in. -MARINE DEPOSIT-						100	N	M	M	M
20																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 148.7
Rock Cored (lin. ft.) -
Samples 30S

Boring No. WB2-03

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler size (in millimeters).

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH

TEST BORING REPORT

Boring No. WB2-03
File No. 26354-003
Sheet No. 2 of 6

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	WOR WOR WOR WOR	S5 24	20.0 22.0			CL	Soft, gray lean CLAY with occasional black organic streaks, wet, mps < 1.0 mm. -MARINE DEPOSIT-						100	N	M	M	M
25	WOR WOR WOR WOR	S6 24	25.0 27.0			CL	Soft, gray lean CLAY with occasional silty fine sand seams and occasional black organic streaks, wet, mps < 1 mm.					5	95	N	M	M	M
30					-90.3 31.0												
	Dropped rods	S7 18	32.0 34.0			SP	Loose, gray poorly graded SAND interbedded with layers of SILT and silty SAND with gravel, wet, mps = 1.25 in. -MARINE DEPOSIT-	10	10	15	20	30	15				
35	18 22 25 56	S8 0	37.0 39.0		-97.8 38.5		No Recovery										
40	10 13 10 12	S9 6	42.0 44.0			SW	Medium dense, gray well graded SAND with silt and gravel, wet, mps = 1.0 in., slightly bonded -GLACIAL DEPOSIT-	20	15	15	20	20	10				
45	11 15 13 14	S10 2	47.0 49.0			SW	Medium dense, gray well graded SAND with silt and gravel, wet, mps = 1.5 in.	20	15	15	20	20	10				

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. WB2-03

HALEY & ALDRICH

TEST BORING REPORT

Boring No. WB2-03
File No. 26354-003
Sheet No. 3 of 6

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
50																	
	14 22 18 23	S11 5	52.0 54.0			SW	Medium dense, gray well graded SAND with silt and gravel, wet, mps=1.25 in.	20	15	15	20	20	10				
55					115.3 56.0												
	7 14	S12 11	57.0 58.0			ML	Medium dense, dark gray SILT with occasional brown silty sand layers, moist, mps=1.0 in.				5	5	90				
							-MARINE DEPOSIT-										
60																	
	4 6 14 19	S13 22	62.0 64.0			ML	Medium dense, dark gray SILT with black organic streaks, moist, mps= 1.0 in.						100	N	L	L	L
65																	
	10 39 50 99	S14 14	67.0 69.0		127.3 68.0	ML	Very dense, gray SILT with frequent fine sand layers and seams						100	N	L	L	L
						SP	Very dense, gray poorly graded SAND with frequent silt seams, moist, mps< 1mm.					95	5				
70																	
	4 14 24 41	S15 24	72.0 74.0			SP	Very dense, to dense gray poorly graded SAND with frequent silt seams, wet, mps=0.75 in.					90	10				
							-MARINE DEPOSIT-										
75																	
	19 67 100/0.4	S16 15	77.0 78.4			SP	Very dense, gray poorly graded SAND with silt, wet, mps= 0.25 in.			10	80	10					

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. WB2-03

HALEY & ALDRICH

TEST BORING REPORT

Boring No. WB2-03
File No. 26354-003
Sheet No. 4 of 6

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
80																	
	1 20 62 100/0.4	S17 18	82.0 83.9			SP	Very dense, gray poorly graded SAND with occasional silt seams, wet, mps= 0.5 in.				10	30	50	10				
85																	
	21 94 100/0.2	S18 14	87.0 88.2			SP	Very dense, gray poorly graded SAND with occasional silt seam, wet, mps= 0.25 in. -MARINE DEPOSIT-										
90																	
	69 162	S19 6	92.0 93.0			SP	Very dense, gray poorly graded SAND, wet, mps = 0.75 in.	5		5	10	70	10				
95																	
	1 13 32 47	S20 5	97.0 99.0			SP	Very dense, gray poorly graded SAND, wet, mps= 0.75 in. -MARINE DEPOSIT-		5	5	10	75	5				
100																	
	8 18 60 99	S21 10	102.0 104.0			SP	Very dense, gray poorly graded SAND, wet, mps= 1.25 in.		5	5	10	75	5				
105																	
	13 43 77 136	S22 0	107.0 109.0			SP	No recovery										

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. WB2-03

HALEY & ALDRICH

TEST BORING REPORT

Boring No. WB2-03
File No. 26354-003
Sheet No. 5 of 6

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
110																	
	82 200/0.2	S23 5	112.0 ~~112.7~~			SP	Very dense, gray poorly graded SAND(very fine), uniform, wet, mps < 1 mm.					95	5				
					172.8 113.5												
115	62 141	S24 12	117.0 118.0			SW	Very dense, gray well graded SAND with gravel, wet, mps= 2.0 in. -GLACIAL DEPOSIT-	15	10	25	25	20	5				
120																	
	140 200/0.4	S25 7	122.0 122.9			SW	Very dense, gray brown well graded SAND with gravel, wet, mps= 1.5 in.	15	15	25	20	20	5				
125																	
	185 200/0.4	S26 13	128.0 128.9			SP	Very dense, gray poorly graded SAND with silt with occasional layer of well graded SAND with silt and gravel, wet, mps= 1.5 in.	5	5	15	20	45	10				
130					190.3 131.0												
	15 57 111 100/0.3	S27 15	133.0 134.8			SW	Very dense, gray well graded SAND with gravel interbedded with poorly graded SAND with occasional silt seams, wet, mps= 1.25 in. -GLACIAL DEPOSIT-	5	10	30	30	25					
135																	
	230	S28	138.0			SP	Very dense, gray poorly graded SAND with silt, wet, mps= 0.75 in.	5	5	10	20	50	10				

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. WB2-03

HALEY & ALDRICH

TEST BORING REPORT

Boring No. WB2-03
File No. 26354-003
Sheet No. 6 of 6

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
		6	138.5														
140																	
	68 84 127	S29 17	143.0 144.5			SW	Very dense, gray well graded SAND with silt and gravel, wet, mps= 1.25 in.	10	5	20	25	30	10				
							-GLACIAL DEPOSIT-										
145																	
	144 133 100/0.2	S30 13	147.5 148.7		208.0 148.7	SW	Very dense, gray well graded SAND with silt, wet, mps= 1.25 in. BOTTOM OF EXPLORATION 148.7 FT. No Refusal	5	5	20	25	35	10				

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. WB2-03

HALEY & ALDRICH

TEST BORING REPORT

Boring No. WB3-03

Project OCEAN GATE PORTLAND, MAINE
Client WOODARD & CURRAN, INC.
Contractor MAINE TEST BORINGS, INC.

File No. 26354-003
Sheet No. 1 of 6
Start 31 July 2003
Finish 7 August 2003
Driller J. Rudnicki
H&A Rep. B. Estes
Elevation -33.5
Datum MLLW
Location

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW/NW	S		Rig Make & Model: CME 45 skid on barge
Inside Diameter (in.)	4.0/3.0	1 3/8		Bit Type: Roller Bit
Hammer Weight (lb.)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing:
				Hoist/Hammer: Cat-Head/Doughnut Hammer

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	WOR WOR WOR WOR	S1 21	0.0 2.0	NO WELL INSTALLED		OL/ OH	Very soft, black ORGANIC SOIL with occasional shell fragments, wet, mps < 1mm. -HARBOR BOTTOM DEPOSIT-					5	95				
					-36.5 3.0	OL/ OH	Very soft, black ORGANIC SOIL with occasional shell fragments, mixed with some well-graded sand, wet, mps < 1mm. -HARBOR BOTTOM DEPOSIT-										
5	WOH 1 2 WOH	S2 11	5.0 7.0		-38.0 4.5	SW	Very loose, gray well-graded SAND with black ORGANIC SILT, occasional shell fragments and wood, wet, mps = 3mm. -MARINE DEPOSIT-			20	40	30	10				
10	12 6 3 4	S3 15	10.0 12.0		-45.2 11.7	SW SP	Loose, interbedded gray well-graded and poorly-graded SAND with silt, occasional shell fragments, wet, mps = 5mm.										
							Loose, gray silty SAND with occasional gray silt seams, wet, mps < 1mm. -MARINE DEPOSIT-					60	40				
15	1 4 3 2	S4 21	15.0 17.0			SP- SM	Loose, gray silty SAND with occasional poorly graded sand layers, wet, mps = 3mm.			5	30	50	15				
					-51.5 18.0												
20																	

Water Level Data					
Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification	
O	Open End Rod
T	Thin Wall Tube
U	Undisturbed Sample
S	Split Spoon
G	Geoprobe

Well Diagram: Riser Pipe, Screen, Filter Sand, Cuttings, Grout, Concrete, Bentonite Seal

Summary	
Overburden (lin. ft.)	166
Rock Cored (lin. ft.)	-
Samples	32S

Boring No. WB3-03

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler size (in millimeters).

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH

TEST BORING REPORT

Boring No. WB3-03
File No. 26354-003
Sheet No. 2 of 6

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	WOR WOR WOR WOH	S5 24	20.0 22.0			CL	Very soft, gray lean CLAY with frequent black organic streaks, wet, uniform, mps < 1mm. -MARINE DEPOSIT-					5	95	N	M	M	M
25	WOR WOR WOR WOH	S6 24	25.0 27.0			CL	Soft, gray lean CLAY with frequent black organic streaks, wet, mps < 1mm. FV1=25.0-26.5ft. Su=480/190psf.						100	N	M	M	M
30	WOR WOR WOR WOH	S7 24	30.0 32.0			CL	Medium stiff, gray lean CLAY with frequent black organic streaks, wet, mps=2 mm, FV2=30.0-30.6 ft. Su=560/150 psf					5	95	N	L	M	M
35	WOR WOR WOR WOR	S8 24	35.0 37.0			CL	Medium stiff, gray lean CLAY with frequent black organic streaks, wet, mps=0.25 in., FV3=35.0-35.6 ft. Su=670/150 psf -MARINE DEPOSIT-					5	95	N	M	M	M
40	WOR WOR WOR WOH	S9 24	40.0 42.0			CL	Medium stiff, gray lean CLAY with frequent black organic streaks, wet, mps=4 mm, FV4=40.0-40.6 ft., Su=890/190 psf					5	95	N	M	M	M
45	WOR WOR WOR WOH	S10 24	45.0 47.0			CL	Medium stiff, gray lean CLAY with frequent black organic streaks, wet, mps=3 mm, FV5=45.0-45.6 ft., Su=700/260 psf					5	95	N	M	M	M

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH

TEST BORING REPORT

Boring No. WB3-03
File No. 26354-003
Sheet No. 3 of 6

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
50	WOR WOR WOR WOH	S11 24	50.0 52.0			CL	Medium stiff, gray lean CLAY with occasional black organic streaks, wet, mps=4 mm, FV6=50.0-50.6 ft., Su=780/220 psf -MARINE DEPOSIT-						100	N	M	M	M
55							Encountered occasional sand layers at 54.0 ft. Vane penetrated sand layer 44/16 ft./lbs.										
60	WOR WOR 1 2	S12 24	60.0 62.0			CL SM	Medium stiff to stiff, gray lean CLAY interbedded with silty SAND layers, wet, mps=2 mm, FV7=60.0-60.6 ft., Su=1630/590 psf				5	80	100 15	N	M	M	M
					-96.5 63.0												
65	WOR 2 3 4	S13 17	65.0 67.0			SP- SM MH	Loose, gray, poorly-graded SAND with silt interbedded with silty SAND layers with occasional silt seams, wet, mps=2 -MARINE DEPOSIT-				10 75	80 25	10				
					-100.5 67.0												
70	33 23 21 22	S14 0	70.0 72.0			SW	No recovery										
75	17 14 15 69	S15 10	75.0 77.0			SW	Medium dense to dense, gray well-graded SAND with silt and gravel, wet, mps=1.25 in., slightly bonded -GLACIAL DEPOSIT- Drilling indicates occasional cobbles	15	10	20	20	25	10				

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. WB3-03

HALEY & ALDRICH

TEST BORING REPORT

Boring No. WB3-03
File No. 26354-003
Sheet No. 4 of 6

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
80							Cobble-Wash to 80.7 ft.										
	36 16 22 37	S16 6	80.7 82.7			SW	Dense to very dense, gray, well-graded SAND with silt and gravel, with occasional cobbles, wet, mps=1.5 in., slightly bonded	15	10	20	20	25	10				
85	90 130	S17 12	85.0 86.2			SW	Very dense, gray, well-graded SAND with silt and gravel, with occasional cobbles, wet, mps=1.0 in., slightly bonded -GLACIAL DEPOSIT-	15	10	20	20	25	10				
90	90 130	S18 10	90.0 91.0			SW	Very dense, gray, well-graded SAND with silt and gravel, with occasional cobbles, wet, mps=1.25 in., slightly bonded	15	10	20	20	25	10				
95	58 135	S19 11	95.0 96.0		130.5 97.0	SW	Very dense, gray, well-graded SAND with silt and gravel, with occasional cobbles, wet, mps=1.5 in., slightly bonded	15	10	20	20	25	10				
100	18 25 28 35	S20 24	100.0 102.0			ML	Very dense, gray SILT with frequent very fine sand seams, moist, mps=3 mm, FV8=100.0-100.6 ft., Su=?/? psf, 2 x 7 in. -MARINE DEPOSIT-				5	10	85	N	L	L	L
					136.0 102.5	SW	Well-graded SAND with gravel layer										
					137.5 104.0												
105	25 39 50 92	S21 22	105.0 107.0			SP MH	Interbedded layers of very dense, gray poorly-graded SAND with silt and Very dense, gray SILT, wet to moist, mps=5 mm -MARINE DEPOSIT-	5	10	75 5	10 95	N	L	L	L		

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH

TEST BORING REPORT

Boring No. WB3-03
File No. 26354-003
Sheet No. 5 of 6

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
110	DROPROD 94 107/0.2	S22 24	110.0 111.2			SP	Very dense, gray poorly-graded SAND with occasional silt layers, wet, mps=1.0 in. Note: running sands - up into casing		5	80	15						
115	82 100/0.2	S23 7	115.0 115.7			SM	Very dense, gray, silty SAND, wet, mps=1 mm -MARINE DEPOSIT-				5	75	20				
					151.5 118.0												
120	107 100/0.3	S24 6	120.0 120.8			SW	Very dense, gray-brown to gray well-graded SAND with silt and gravel, wet, mps=1.5 in. -GLACIAL DEPOSIT-	15	5	15	25	30	10				
125	76 97 100/0.3	S25 15	125.0 126.3			SW	Very dense, gray well-graded SAND with silt and gravel, wet, mps=1.0 in. Less course gravel at 128.0 ft.	10	10	20	25	25	10				
130	9 75 100/0.3	S26 15	130.0 131.3			SW	Very dense, gray-brown to gray well-graded SAND with gravel, wet, mps=1.0 in. -GLACIAL DEPOSIT-	5	20	20	25	25	5				
135	72 100/0.2	S27 8	135.0 135.7		169.0 135.5	SW	Very dense, gray-brown to gray well-graded SAND with gravel, wet, mps=0.5 in.		15	25	25	30	5				

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. WB3-03

HALEY & ALDRICH

TEST BORING REPORT

Boring No. WB3-03
File No. 26354-003
Sheet No. 6 of 6

Depth (ft.)	SPT[1]	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size[2], structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
140	55 100/0.2	S28 5	140.0 140.7			SP	Very dense, gray poorly-graded SAND, wet, mps=5 mm -GLACIAL DEPOSIT-			5	15	75	5				
145	19 88 100/0.3	S29 9	145.0 146.3			SP	Very dense, gray poorly-graded SAND, wet, mps=5 mm			5	15	75	5				
150	22 64 100/0.3	S30 0	150.0 151.3			SP	No recovery										
					193.0 159.5												
160	37 250	S31 12	160.0 161.0			SM	Very dense, gray silty SAND with occasional gravelly layers, wet, mps=1.25 in. -GLACIAL DEPOSIT-	5	5	5	5	60	20				
					195.5 162.0												
165	105 300	S32 12	165.0 166.0		199.5 166.0	SP SW	Very dense, gray poorly-graded SAND with frequent layers of well-graded SAND with gravel, wet, mps=1.5 in. -GLACIAL DEPOSIT- BOTTOM OF EXPLORATION 166.0 FT. End of Boring	10	15	20	15 25	80 25	5 5				

[1]SPT = Sampler blows per 6 in. [2]Maximum particle size (mm) is determined by direct observation within the limitations of sampler size.

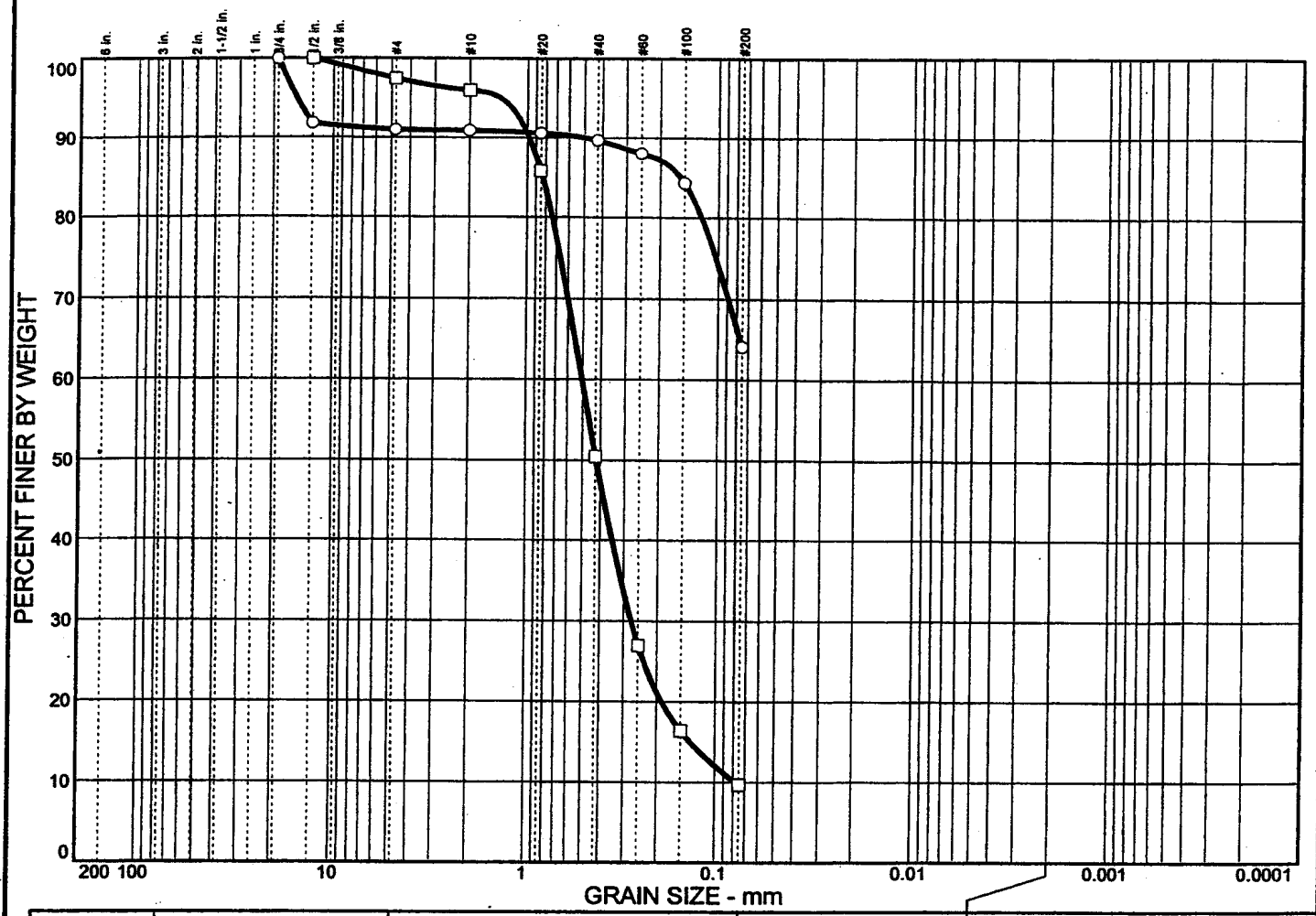
NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. WB3-03

APPENDIX B

Laboratory Soil Test Results

U.S. STANDARD SIEVE SIZE



	% + 3"	% GRAVEL	% SAND	% SILT	% CLAY
○	0.0	9.0	26.9	64.1	
□	0.0	2.5	87.8	9.7	

	Expl. No.	Sample No.	Depth (ft)	Atterberg Limits % w_L	w_P	I_P	Water Content (%)	C_u	C_c	USCS
○	WB1-03	S12	72.0-74.0				20.4			ML
□	WB1-03	S16	97.0-99.0				16.7	6.47	1.90	SW-SM

	Sample Description
○	Gray Clayey Sand
□	Gray Well-graded sand with silt

Remarks:

○

□

HALEY & ALDRICH

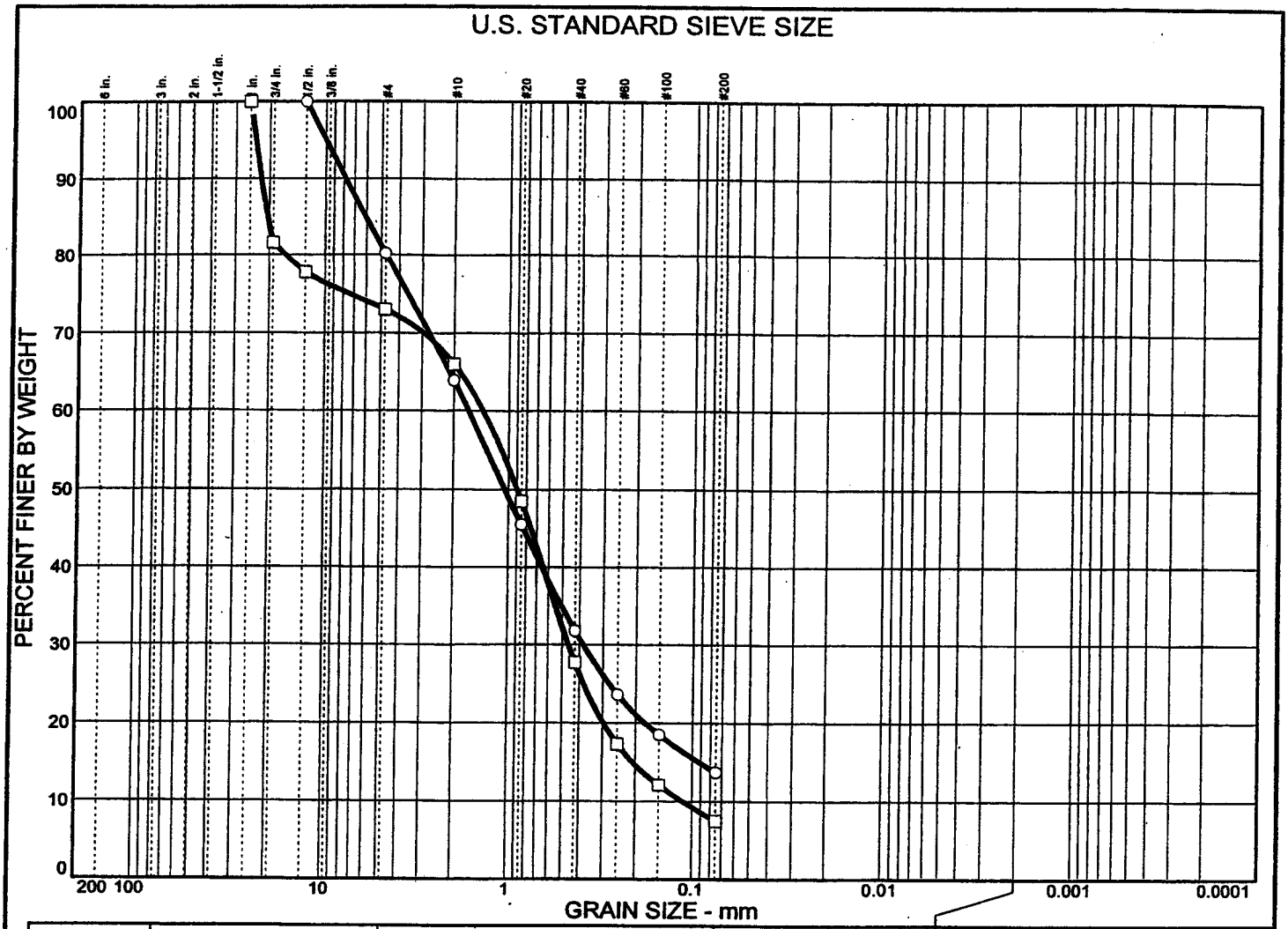
UNDERGROUND ENGINEERING & ENVIRONMENTAL SOLUTIONS

Proposed Ocean Gateway Project
Portland, Maine

GRAIN SIZE DISTRIBUTION

DATE: 9/8/2003

FILE NO: 26354-003



	% + 3"	% GRAVEL	% SAND	% SILT	% CLAY
○	0.0	19.8	66.5	13.7	
□	0.0	27.0	65.5	7.5	

	Expl. No.	Sample No.	Depth (ft)	Atterberg Limits % W_L	W_P	I_P	Water Content (%)	C_u	C_c	USCS
○	WB1-03	S22	127.0-125.2				6.8			SM
□	WB1-03	S25	142.0-143.9				9.0	12.34	1.39	SW-SM

	Sample Description
○	Gray Silty sand with gravel
□	Gray Well-graded sand with silt and gravel

Remarks:

○

□

HALEY & ALDRICH

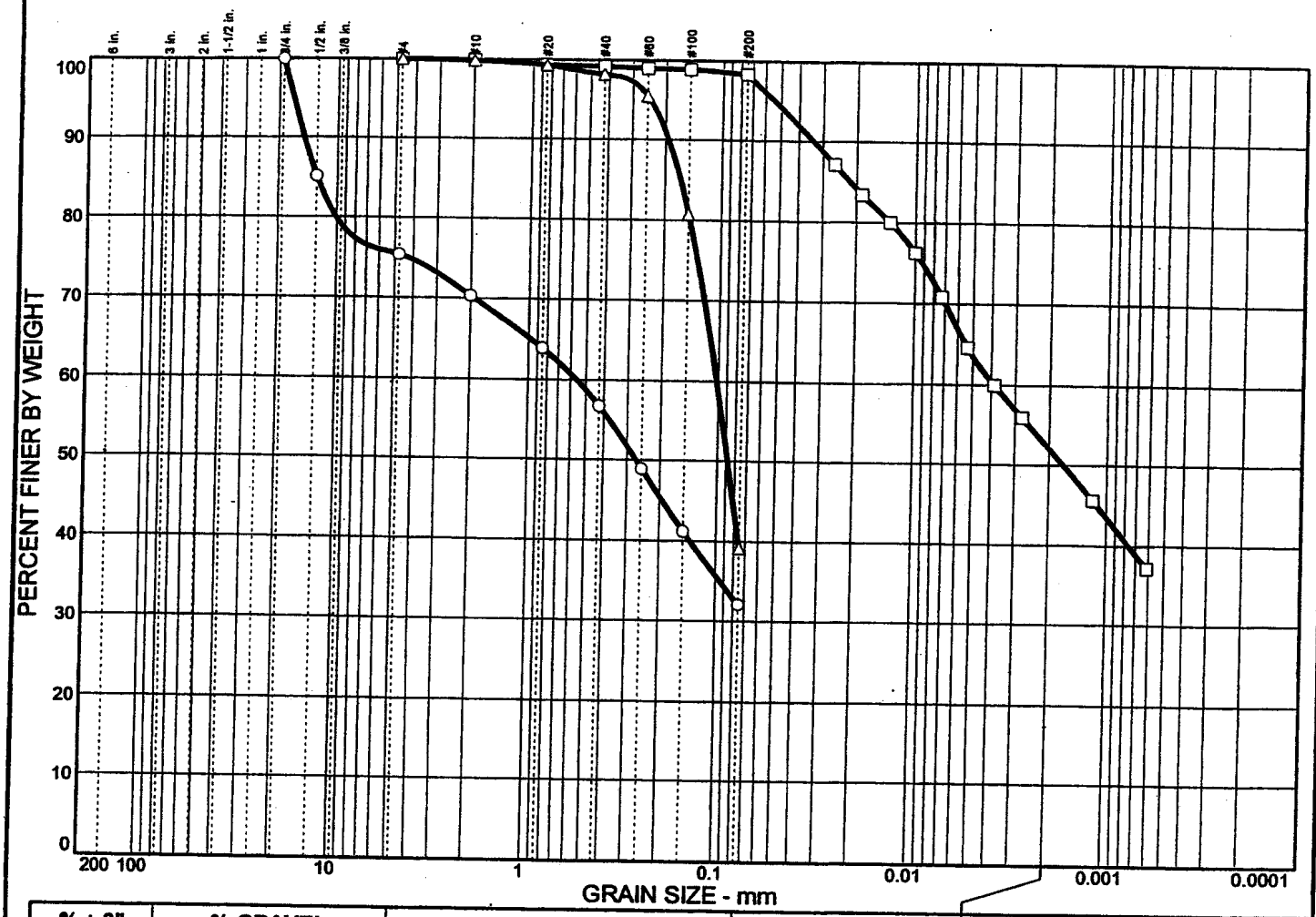
UNDERGROUND ENGINEERING & ENVIRONMENTAL SOLUTIONS

Proposed Ocean Gateway Project
Portland, Maine

GRAIN SIZE DISTRIBUTION

DATE: 9/8/2003 FILE NO: 26354-003

U.S. STANDARD SIEVE SIZE



	% + 3"	% GRAVEL	% SAND	% SILT	% CLAY
○	0.0	24.6	43.3	32.1	
□	0.0	0.0	1.7	46.2	52.1
△	0.0	0.0	60.8	39.2	

	Expl. No.	Sample No.	Depth (ft)	Atterberg Limits % W_L	W_P	I_P	Water Content (%)	C_u	C_c	USCS
○	WB2-03	S09	42.0-44.0				9.1			SM
□	WB2-03	S13	62.0-64.0				23.1			CL
△	WB2-03	S15	72.0-74.0				18.3			SM

	Sample Description
○	Gray Silty sand with gravel
□	Gray lean clay
△	Gray Silty sand

Remarks:

○

□

△

HALEY & ALDRICH

UNDERGROUND ENGINEERING & ENVIRONMENTAL SOLUTIONS

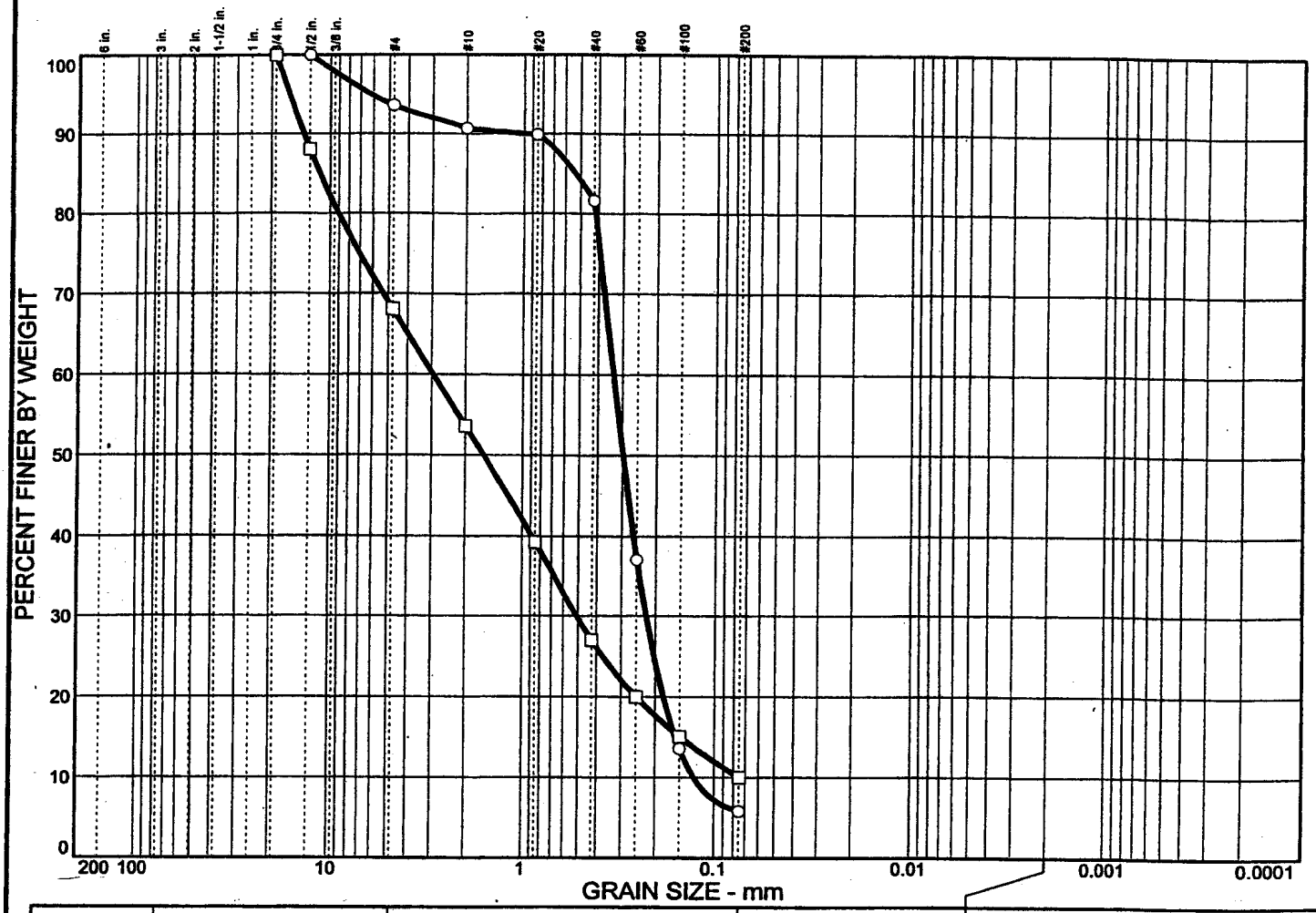
Proposed Ocean Gateway Project
Portland, Maine

GRAIN SIZE DISTRIBUTION

DATE: 9/8/2003

FILE NO: 26354-003

U.S. STANDARD SIEVE SIZE



	% + 3"	% GRAVEL	% SAND	% SILT	% CLAY
○	0.0	6.4	87.8	5.8	
□	0.0	31.9	58.1	10.0	

	Expl. No.	Sample No.	Depth (ft)	Atterberg Limits % W_L	W_P	I_P	Water Content (%)	C_u	C_c	USCS
○	WB2-03	S21	102.0-104.0				17.3	2.63	1.18	SP-SM
□	WB2-03	S24	117.0-118.0				6.0	39.24	1.17	SW-SM

	Sample Description
○	Gray Poorly graded sand with silt
□	Gray Well-graded sand with silt and gravel

Remarks:

○

□

HALEY & ALDRICH

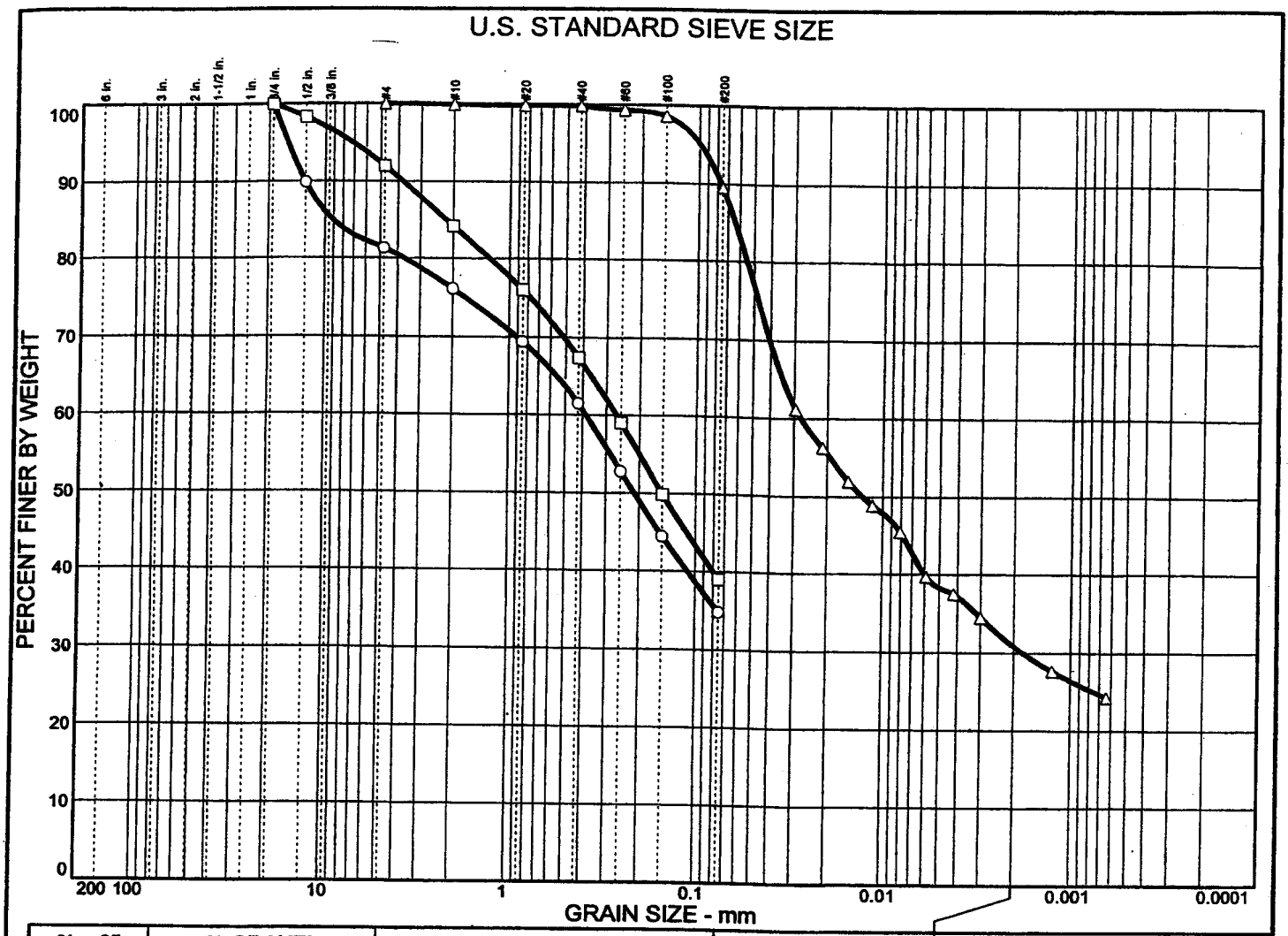
UNDERGROUND ENGINEERING & ENVIRONMENTAL SOLUTIONS

Proposed Ocean Gateway Project
Portland, Maine

GRAIN SIZE DISTRIBUTION

DATE: 9/8/2003

FILE NO: 26354-003



	% + 3"	% GRAVEL	% SAND	% SILT	% CLAY
○	0.0	18.7	46.5	34.8	
□	0.0	8.0	53.0	39.0	
△	0.0	0.0	10.4	58.7	30.9

	Expl. No.	Sample No.	Depth (ft)	Atterberg Limits % W_L	W_P	I_P	Water Content (%)	C_u	C_c	USCS
○	WB3-03	S15	75.0-77.0				9.6			SM
□	WB3-03	S18	90.0-91.0				9.7			SM
△	WB3-03	S20	100.0-102.0				17.4			CL

	Sample Description
○	Gray Silty sand with gravel
□	Gray Silty sand
△	Gray lean clay

Remarks:

○

□

△

HALEY & ALDRICH

UNDERGROUND ENGINEERING & ENVIRONMENTAL SOLUTIONS

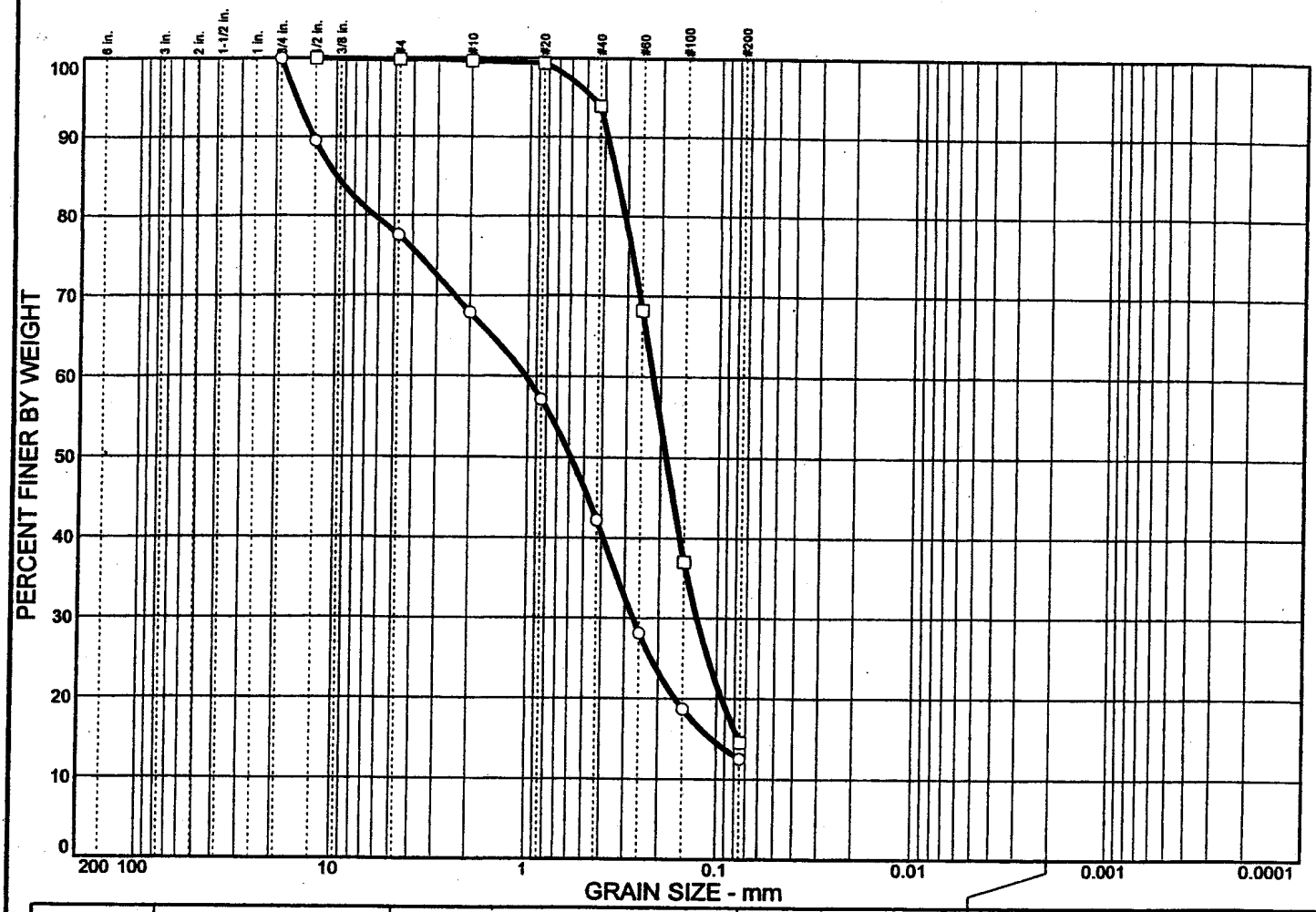
Proposed Ocean Gateway Project
Portland, Maine

GRAIN SIZE DISTRIBUTION

DATE: 9/8/2003

FILE NO: 26354-003

U.S. STANDARD SIEVE SIZE



	% + 3"	% GRAVEL	% SAND	% SILT	% CLAY
○	0.0	22.5	65.0	12.5	
□	0.0	0.2	85.2	14.6	

	Expl. No.	Sample No.	Depth (ft)	Atterberg Limits % w_L	w_P	I_P	Water Content (%)	C_u	C_c	USCS
○	WB3-03	S25	125.0-126.3				10.4			SM
□	WB3-03	S29	145.0-146.3				18.9			SM

	Sample Description
○	Gray Silty sand with gravel
□	Gray Silty sand

Remarks:

○

□

HALEY & ALDRICH

UNDERGROUND ENGINEERING & ENVIRONMENTAL SOLUTIONS

Proposed Ocean Gateway Project
Portland, Maine

GRAIN SIZE DISTRIBUTION

DATE: 9/8/2003

FILE NO: 26354-003

APPENDIX 2
PIN 017832.00

PILE DRIVING INFORMATION

(Previous Work)

Page 2 of 2

24 " PIPE-PILE DRIVING LOG

PILE NO.

Column-Location A3.1

PROJECT & PIN	Ocean Gateway Project #00915.50
LOCATION	Portland, Maine
FOUNDATION I.D.	Pier A 24-inch pipe piles with open shoes & spin fins
GEN. CONTRACTOR	Reed & Reed Construction Company
PILE CONTRACTOR	Reed & Reed Construction Company
RESIDENT ENGR	Aurele Gorneau, II
TEAM GEOTECH	Haley & Aldrich
INSPECTOR	Bruce Brown Ken Page

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	
				MIDDLE	
				TOP	
				Total length	
				Length deducted	
				Length deducted	
				Total deducted	
				Net length	

Approx. Grnd Surf. El. ____ ft
Initial Top El. ____ ft
Length Of Pile ____ ft
Tip El. ____ ft
Cut-off El. ____ ft
Initial Pay Length ____ ft
Net Change In Tip El. ____ ft
Final Tip El. ____ ft
Final Pay Length ____ ft

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Necessary to redrive: ☐ Yes ☐ No
Redrive Blows Per Inch: 11 11 11 ___ ___ ___

Deviation from design location: N ____ S ____ E ____ W ____

Final Inspection: Date ____ ☐ **Pile Accepted** ☐ **Pile Rejected**

Approx. Depth Preaugered: ____

Time Finish: Bottom ____ Middle ____ Top ____

Time Start: Bottom ____ Middle ____ Top ____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
101		126		151		176	11/12/14
102		127		152		177	22-1
103	21	128		153	19	178	REFUSAL
104		129		154		179	
105		130		155		180	
106		131	10	156		181	
107		132		157		182	
108	11	133		158	17	183	
109		134		159		184	
110		135		160		185	
111		136		161	16	186	
112	12	137		162	26	187	
113		138	9	163	6-1"	188	
114		139		164	8-1"	189	
115		140		165	8-1"	190	
116		141		166	10-1"	191	
117		142		167	7-1"	192	
118	10	143	13	168	5-1"	193	
119		144		169	8-1"	194	
120		145		170	5-1"	195	
121		146		171	4-1"	196	
122		147		172	4-1"	197	
123		148	19	173	3-1"	198	
124		149		4 174	TEST	199	
125		150		175	4-1	200	

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
	1			1			1	
	2			2			2	
	3			3			3	
	4			4			4	
	5			5			5	
	6			6			6	
	7			7			7	
	8			8			8	
	9			9			9	
	10			10			10	
	11			11			11	
	12			12			12	
	1							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							

Remarks:

- ☐ Rejected
- ☐ Added due to mislocated pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ stopped driving to splice at 95' ft
- ☐ stopped driving at ____ ft
- ☐

PILE:
Type ☐ End Bearing ☑ Friction
Size 24X180 open shoe steel w/spin fins
Design Capacity 800 kips tons

HAMMER:
Type DelMagD46-32 sinactDiesel 8' stroke
Rated Energy 122,000 ft-lbs
Measured Energy ____ ft-lbs

Field Representative Signature

Blows for final ____ in.: 11 11 11 2935 REFUSAL Blows/in. Avg.: ____ Req. Avg.: ____

PILE NO. A3,1

Form 4013 (Regular)

Page 2 of 2

24 " PIPE-PILE DRIVING LOG

PILE NO.

Column-Location A4.5

PROJECT & PIN	Ocean Gateway Project #00915.50	RESIDENT ENGR	Aurele Gorneau, II
LOCATION	Portland, Maine	TEAM GEOTECH	Haley & Aldrich
FOUNDATION I.D.	**Pier A 24-inch pipe piles with open shoes**	INSPECTOR	Bruce Brown Ken Page
GEN. CONTRACTOR	Reed & Reed Construction Company		
PILE CONTRACTOR	Reed & Reed Construction Company		

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	
				MIDDLE	
				TOP	

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Total length	
Length deducted	
Length deducted	
Total deducted	
Net length	

Approx. Grnd Surf. El.	ft
Initial Top El.	ft
Length Of Pile	ft
Tip El.	ft
Cut-off El.	ft
Initial Pay Length	ft
Net Change In Tip El.	ft
Final Tip El.	ft
Final Pay Length	ft

Necessary to redrive: ☐ Yes ☐ No

Redrive Blows Per Inch: 11 11 11 ___ ___ ___

Deviation from design location:

N ___ S ___ E ___ W ___

Final Inspection: **Date** ___ ☐ **Pile Accepted** ☐ **Pile Rejected**

Time Start: Top ___ Middle ___ Bottom ___ Time Finish: Top ___ Middle ___ Bottom ___ Approx. Depth Preaugered: ___

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
101		126		151		176	
102		127		152		177	
103		128		153	X	178	
104		129		154	m	179	
105		130		155	TEST	180	
106		131		156	16	181	
107		132		157	23	182	
108	1	133	2	158	23	183	
109		134	2	159	21	184	
110		135	2	160	21	185	
111	1	136	2	161	18	186	
112		137	2	162	17	187	
113	1	138	m	163	16	188	
114		139		164	15	189	
115		140		165	14	190	
116		141		166	15	191	
117		142		167	16	192	
118		143		168	18	193	
119		144		169	19	194	
120		145		170	21	195	
121		146		171	20	196	
122		147		172	30	197	
123	X	148		173	10X	198	
124	X	149		174	XXX	199	
125		150		175	25X1	200	

4 BLOWS PER INCH = 700 KIPS

25=4000

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
	1			1			1	
	2			2			2	
	3			3			3	
	4			4			4	
	5			5			5	
	6			6			6	
	7			7			7	
	8			8			8	
	9			9			9	
	10			10			10	
	11			11			11	
	12			12			12	
	1							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							

Remarks:

- ☐ Rejected
- ☐ Added due to mislocated pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ stopped driving to splice at 95' ft
- ☐ stopped driving at ___ ft
- ☐

PILE:

Type ☐ End Bearing ☑ Friction

Size 24X200 open shoe steel

Design Capacity 700 kips tons

HAMMER:

Type DelMagD46-32 sinactDiesel 8' stroke

Rated Energy 122,000 ft-lbs

Measured Energy ___ ft-lbs

Field Representative Signature

ACTUAL 19 16 = 950

Blows for final ___ **in.:** 11 11 11 **Blows/in. Avg.:** ___ **Req. Avg.:** ___

PILE NO. A4.5

Form 4013 (Regular)

128 TO 155 FOR TEST 2-13-06

Page 2 of 2

24 " PIPE-PILE DRIVING LOG

PILE NO.

Column-Location A7.0

PROJECT & PIN	Ocean Gateway Project #00915.50
LOCATION	Portland, Maine
FOUNDATION I.D.	Pier A 24-inch pipe piles with open shoes
GEN. CONTRACTOR	Reed & Reed Construction Company
PILE CONTRACTOR	Reed & Reed Construction Company
RESIDENT ENGR	Aurele Gorneau, II
TEAM GEOTECH	Haley & Aldrich
INSPECTOR	Bruce Brown Ken Page

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	
				MIDDLE	
				TOP	
				Total length	
				Length deducted	
				Length deducted	
				Total deducted	
				Net length	

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Approx. Grnd Surf. El. _____ ft
Initial Top El. _____ ft
Length Of Pile _____ ft
Tip El. _____ ft
Cut-off El. _____ ft
Initial Pay Length _____ ft
Net Change In Tip El. _____ ft
Final Tip El. _____ ft
Final Pay Length _____ ft

Necessary to redrive: ☐ Yes ☐ No
Redrive Blows Per Inch: 11 11 11 ___ ___ ___

Deviation from design location:
N ___ S ___ E ___ W ___

Final Inspection: Date _____ ☐ Pile Accepted ☐ Pile Rejected

Approx. Depth Preaugered: _____
Time Finish: Bottom _____ Middle _____ Top _____
Time Start: Bottom _____ Middle _____ Top _____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
101	1	126		151	1	176	
102	1	127		152	1	177	
103	1	128		153	TEST	178	
104	1	129		154	11	179	
105	1	130		155	10	180	
106	1	131		156	9	181	
107	1	132		157	10	182	
108	1	133		158	17	183	
109	1	134		159	22	184	
110	1	135		160	21	185	TEST
111	1	136		161	20	186	
112	1	137		162	21	187	
113	1	138		163	19	188	
114	1	139		164	17	189	
115	1	140		165	16	190	
116	1	141		166	15	191	
117	1	142		167	13	192	
118	1	143		168	15	193	
119	X	144		169	19	194	
120		145		170	17	195	
121		146		171	21	196	
122		147		172	28	197	
123		148		173	4X1	198	
124		149		174	8X1	199	
125		150		175	XXX	200	

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
	1			1			1	
	2			2			2	
	3			3			3	
	4			4			4	
	5			5			5	
	6			6			6	
	7			7			7	
	8			8			8	
	9			9			9	
	10			10			10	
	11			11			11	
	12			12			12	
	1							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							

Remarks:
- ☐ Rejected
- ☐ Added due to mislocated pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ stopped driving to splice at 120' ft
- ☐ stopped driving at ___ ft
- ☐

PILE:
Type ☐ End Bearing ☑ Friction
Size 24X200 open shoe steel
Design Capacity 700 kips tons

HAMMER:
Type DelMagD46-32 sinactDiesel 8' stroke
Rated Energy 122,000 ft-lbs
Measured Energy ___ ft-lbs

Field Representative Signature

ACTUAL
Blows for final ___ in.: 11 11 11 11 11 11 Blows/in. Avg.: ___ Req. Avg.: ___

PILE NO. A7.0

DYNAMIC TEST 2-13-06

Form 4013 (Regular)

Page 2 of 2

24 " PIPE-PILE DRIVING LOG

PILE NO.

Column-Location A9.1

PROJECT & PIN	Ocean Gateway Project #00915.50
LOCATION	Portland, Maine
FOUNDATION I.D.	**Pier A 24-inch pipe piles with open shoes**
GEN. CONTRACTOR	Reed & Reed Construction Company
PILE CONTRACTOR	Reed & Reed Construction Company
RESIDENT ENGR	Aurele Gorneau, II
TEAM GEOTECH	Haley & Aldrich
INSPECTOR	Bruce Brown Ken Page

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	
				MIDDLE	
				TOP	
				Total length	
				Length deducted	
				Length deducted	
				Total deducted	
				Net length	

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Approx. Grnd Surf. El. ____ ft
Initial Top El. ____ ft
Length Of Pile ____ ft
Tip El. ____ ft
Cut-off El. ____ ft
Initial Pay Length ____ ft
Net Change In Tip El. ____ ft
Final Tip El. ____ ft
Final Pay Length ____ ft

Necessary to redrive: ☐ Yes ☐ No
Redrive Blows Per Inch: 11 11 11 ___ ___ ___

Deviation from design location:
N ____ S ____ E ____ W ____

Final Inspection: Date ____ ☐ **Pile Accepted** ☐ **Pile Rejected**

Approx. Depth Preaugered: ____
Time Start: Top ____ Middle ____ Bottom ____
Time Finish: Top ____ Middle ____ Bottom ____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
101		126		151		176	
102		127		152		177	
103		128		153		178	
104		129		154		179	
105		130		155		180	
106		131		156		181	
107		132		157	6	182	
108		133		158	8	183	
109		134		159	10	184	
110		135		160	12	185	
111		136		161	4X INCH	186	
112		137		162	4X INCH	187	
113		138	X	163	2X INCH	188	
114		139	M	164	2X INCH	189	
115		140		165	1X INCH	190	
116		141		166	12	191	
117	V	142		167	12	192	
118	X	143		168	12	193	
119		144		169	16	194	
120		145		170	16	195	
121		146		171	21	196	
122		147		172	27	197	
123	VX	148		173	21	198	
124		149		174	TEST	199	
125		150		175	1600K	200	

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
	1			1			1	
	2			2			2	
	3			3			3	
	4			4			4	
	5			5			5	
	6			6			6	
	7			7			7	
	8			8			8	
	9			9			9	
	10			10			10	
	11			11			11	
	12			12			12	
	1							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							

Remarks:
- ☐ Rejected
- ☐ Added due to mislocated pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ – stopped driving to splice at 118 ft
- ☐ – stopped driving at ____ ft
- ☐

PILE:
Type ☐ End Bearing ☑ Friction
Size 24X200 open shoe steel
Design Capacity 600 kips tons

HAMMER:
Type DelMagD46-32 sinactDiesel 8' stroke
Rated Energy 122,000 ft-lbs
Measured Energy ____ ft-lbs

Field Representative Signature

Blows for final ____ in.: 11 11 11 ACTUAL 17 18 16 Blows/in. Avg.: ____ Req. Avg.: ____

PILE NO. A9.1

Form 4013 (Regular)

15-

Page 2 of 2

24 " PIPE-PILE DRIVING LOG

PILE NO.

Column-Location A 12.3

PROJECT & PIN	Ocean Gateway Project #00915.50
LOCATION	Portland, Maine
FOUNDATION I.D.	**Pier A 24-inch pipe piles with open shoes**
GEN. CONTRACTOR	Reed & Reed Construction Company
PILE CONTRACTOR	Reed & Reed Construction Company
RESIDENT ENGR	Aurele Gorneau, II
TEAM GEOTECH	Haley & Aldrich
INSPECTOR	Bruce Brown Ken Page

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
		A12.3	2-7-06	BOTTOM	130'-0"
				MIDDLE	
				TOP	70'-0"
				Total length	
				Length deducted	
				Length deducted	
				Total deducted	
				Net length	

Approx. Grnd Surf. El. _____ ft
Initial Top El. _____ ft
Length Of Pile _____ ft
Tip El. _____ ft
Cut-off El. _____ ft
Initial Pay Length _____ ft
Net Change In Tip El. _____ ft
Final Tip El. _____ ft
Final Pay Length _____ ft

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Necessary to redrive: ☐ Yes ☐ No
Redrive Blows Per Inch: 11 11 11 ___ ___ ___

Deviation from design location:
N ____ S ____ E ____ W ____

Final Inspection: Date _____ ☐ **Pile Accepted** ☐ **Pile Rejected**

Approx. Depth Preaugered: _____
Time Finish: Bottom 12:30 PM Middle _____ Top _____
Time Start: Bottom 11:45AM Middle _____ Top _____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
101	21	126		151		176	4X INCH
102	2	127		152		177	4X INCH
103	3	128		153		178	7X INCH
104	3	129		154		179	X7X
105	2	130		155		180	
106	1	131		156		181	
107	1	132		157	↓	182	
108	1	133		158	5	183	
109	1	134		159	5	184	
110	2	135		160	10	185	
111	3	136		161	12	186	
112	1	137		162	12	187	
113	2	138		163	14	188	
114	3	139		164	16	189	
115	9	140	X	165	15	190	
116	4	141	37	166	20	191	
117	3	142		167	20	192	
118	2	143		168	20	193	
119	1	144		169	35	194	
120	1 ↓	145		170	6X INCH	195	
121	1 ↑	146		171	6X INCH	196	
122	1 X	147		172	7 X INCH	197	
123	/	148		173	8X INCH	198	
124	1	149		174	5X INCH	199	
125		150	↓	175	4X INCH	200	

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
	1			1			1	
	2			2			2	
	3			3			3	
	4			4			4	
	5			5			5	
	6			6			6	
	7			7			7	
	8			8			8	
	9			9			9	
	10			10			10	
	11			11			11	
	12			12			12	
	1							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							

Remarks:

- ☐ Rejected
- ☐ Added due to mislocated pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ stopped driving to splice at 124' ft
- ☐ stopped driving at ____ ft
- ☐

PILE:
Type ☐ End Bearing ☑ Friction
Size 24X200 open shoe steel
Design Capacity 400 kips tons

HAMMER:
Type DelMagD46-32 sinactDiesel 8' stroke
Rated Energy 122,000 ft-lbs
Measured Energy _____ ft-lbs
ACTUAL

_____
Field Representative Signature

Blows for final ____ **in.:** 11 11 11 11 13 16 **Blows/in. Avg.:** _____ **Req. Avg.:** _____

PILE NO.

Form 4013 (Regular)

Page 2 of 3

24 " PIPE-PILE DRIVING LOG

PILE NO.

Column-Location C 12.3

PROJECT & PIN	Ocean Gateway Project #00915.50	RESIDENT ENGR	Aurele Gorneau, II
LOCATION	Portland, Maine	TEAM GEOTECH	Haley & Aldrich
FOUNDATION I.D.	**Pier A 24-inch pipe piles with open shoes**	INSPECTOR	Bruce Brown Ken Page
GEN. CONTRACTOR	Reed & Reed Construction Company		
PILE CONTRACTOR	Reed & Reed Construction Company		

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	115
				MIDDLE	
				TOP	70
Heave				Total length	
Measurement	Date shot	Elevation (ft)	Movement (ft)	Length deducted	
End of Driving			0.00	Length deducted	
				Total deducted	
Final Check				Net length	

Approx. Grnd Surf. El. _____ ft
Initial Top El. _____ ft
Length Of Pile _____ ft
Tip El. _____ ft
Cut-off El. _____ ft
Initial Pay Length _____ ft
Net Change In Tip El. _____ ft
Final Tip El. _____ ft
Final Pay Length _____ ft

Necessary to redrive: ☐ Yes ☐ No
Redrive Blows Per Inch: 11 11 11 ___ ___ ___

Deviation from design location:
N ____ S ____ E ____ W ____

Final Inspection: Date _____ ☐ **Pile Accepted** ☐ **Pile Rejected**

Time Start: Top / Middle / Bottom — Time Finish: Top / Middle / Bottom — Approx. Depth Preaugered: _____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
101		126		151	15	176	
102		127		152	14	177	
103		128		153	12	178	
104		129		154	15	179	
105	↓	130	1 PER FT	155	15	180	
106	↓	131		156	12	181	
107		132		157	11	182	
108		133		158	12	183	
109		134	5 PER FT	159	14	184	
110		135	↓	160	16	185	
111		136		161	16	186	
112	10	137	↓	162	18	187	
113	9	138	↓	163	20	188	
114	1	139		164	14	189	
115	2	140	5 PER FOOT	165	16	190	
116		141		166	18	191	
117		142		167	5	192	
118		143		168		193	
119		144		169		194	
120	2 PER FT	145		170		195	
121	2	146		171		196	
122		147		172		197	
123		148		173		198	
124		149		174		199	
125		150		175		200	

COATED -3' MUDLINE

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
16	1	8		1			1	
	2	11		2			2	
	3	13		3			3	
	4	17		4			4	
	5	24		5			5	
	6	21		6			6	
	7			7			7	
	8			8			8	
	9			9			9	
	10			10			10	
	11			11			11	
	12			12			12	
	1							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							

Remarks:
- ☐ Rejected
- ☐ Added due to mislocated pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ stopped driving to splice at ____ ft
- ☐ stopped driving at ____ ft
- ☐

PILE:
Type ☐ End Bearing ☑ Friction
Size 24X200 open shoe steel
Design Capacity 600 kips tons

HAMMER:
Type DelMagD46-32 sinactDiesel 8' stroke
Rated Energy 122,000 ft-lbs
Measured Energy _____ ft-lbs

Field Representative Signature

Blows for final ____ **in.:** 11 11 11 17 21 21 **Blows/in. Avg.:** _____ **Req. Avg.:** _____

PILE NO. C 12.3

Form 4013 (Regular)

PAG 2

Page 3 of 3

16" PIPE-PILE DRIVING LOG

PILE NO.

Column-Location
C 3.1b

PROJECT & PIN	Ocean Gateway Project #00915.50	**RESIDENT ENGR**	Aurele Gorneau, II
LOCATION	Portland, Maine	**TEAM GEOTECH**	Haley & Aldrich
FOUNDATION I.D.	**Pier A 16-inch pipe piles with open shoes**	**INSPECTOR**	Bruce Brown Ken Page
GEN. CONTRACTOR	Reed & Reed Construction Company		
PILE CONTRACTOR	Reed & Reed Construction Company		

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	
				MIDDLE	
				TOP	

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Total length	
Length deducted	
Length deducted	
Total deducted	
Net length	

Approx. Grnd Surf. El.	ft
Initial Top El.	ft
Length Of Pile	ft
Tip El.	ft
Cut-off El.	ft
Initial Pay Length	ft
Net Change In Tip El.	ft
Final Tip El.	ft
Final Pay Length	ft

Necessary to redrive: ☐ Yes ☐ No

Redrive Blows Per Inch: 11 11 11 ___ ___ ___

Deviation from design location:

N ___ S ___ E ___ W ___

Final Inspection: **Date** ___ ☐ **Pile Accepted** ☐ **Pile Rejected**

Approx. Depth Preaugered: ___ Time Finish: Bottom ___ Middle ___ Top ___

Depth	Blows Per Inch	Depth	Blows Per Inch	Depth	Blows Per inch	Depth	Blows Per inch
168							
1	10	1	170	1	172	1	
2	9	2		2		2	
3	11	3		3		3	
4	10	4		4		4	
5	11	5		5		5	
6	10	6		6		6	
7	10	7		7		7	
8	10	8		8		8	
9	10	9		9		9	
10	7	10		10		10	
11	9	11		11		11	
12	10	12		12		12	
	169		171		173		175

Time Start: Bottom ___ Middle ___ Top ___

Depth	Blows Per Inch	Depth	Blows Per Inch	Depth	Blows Per inch	Depth	Blows Per inch
1	9	1		1		1	
2	9	2		2		2	
3	9	3		3		3	
4	9	4		4		4	
5	9	5		5		5	
6	10	6		6		6	
7	11	7		7		7	
8	11	8		8		8	
9	14	9		9		9	
10		10		10		10	
11		11		11		11	
12		12		12		12	

174

175

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
176	1			1			1	
	2			2			2	
	3			3			3	
	4			4			4	
	5			5			5	
	6			6			6	
	7			7			7	
	8			8			8	
	9			9			9	
	10			10			10	
	11			11			11	
	12			12			12	
177	1							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							

Remarks:

- ☐ Rejected
- ☐ Added due to mislocated pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ stopped driving to splice at ___ ft
- ☐ stopped driving at ___ ft
- ☐

PILE:

Type ☐ End Bearing ☑ Friction

Size 16x200 open shoe w/spin fins

Design Capacity 200 kip tons

HAMMER:

Type DelMagD16-32 sinactDiesel10'stroke

Rated Energy 40,250 ft-lbs

Measured Energy ___ ft-lbs

Field Representative Signature

Blows for final ___ **in.:** 11 11 11 ___ ___ ___ **Blows/in. Avg.:** ___ **Req. Avg.:** ___

PILE NO.
C3.1b

Form 4013 (Regular)

Pg 3

Page 2 of 3

24 " PIPE-PILE DRIVING LOG

PILE NO.

Column-Location C 4.5

PROJECT & PIN	Ocean Gateway Project #00915.50	RESIDENT ENGR	Aurele Gorneau, II
LOCATION	Portland, Maine	TEAM GEOTECH	Haley & Aldrich
FOUNDATION I.D.	**Pier A 24-inch pipe piles with open shoes**	INSPECTOR	Bruce Brown Ken Page
GEN. CONTRACTOR	Reed & Reed Construction Company		
PILE CONTRACTOR	Reed & Reed Construction Company		

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	
				MIDDLE	
				TOP	

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Total length
Length deducted
Length deducted
Total deducted
Net length

Approx. Grnd Surf. El. ____ ft
Initial Top El. ____ ft
Length Of Pile ____ ft
Tip El. ____ ft
Cut-off El. ____ ft
Initial Pay Length ____ ft
Net Change In Tip El. ____ ft
Final Tip El. ____ ft
Final Pay Length ____ ft

Necessary to redrive: ☐ Yes ☐ No
Redrive Blows Per Inch: 11 11 11

Deviation from design location: N ____ S ____ E ____ W ____

Final Inspection: Date ____ ☐ Pile Accepted ☐ Pile Rejected

Approx. Depth Preaugered: ____ Time Start: ____ Bottom ____ Middle ____ Top ____ Time Finish: ____ Bottom ____ Middle ____ Top ____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
101		126	2	151	16	176	
102		127	↓	152	22	177	
103	↓	128		153	20	178	
104		129		154	18	179	
105	X	130	↓	155	16	180	
106	X	131	3	156	16	181	
107		132		157	16	182	
108		133		158	17	183	
109	2	134		159	19	184	
110	2	135		160	22	185	
111	2 6	136		161	23	186	
112	0	137		162	25	187	
113	-	138		163	30	188	
114	2 2	139		164		189	
115	2	140		165		190	
116	-	141		166		191	
117	2	142		167		192	
118		143		168		193	
119		144		169		194	
120		145	↓	170		195	
121		146	5	171		196	
122		147	8	172		197	
123		148	10	173		198	
124		149	8 19	174		199	
125		150	10 15	175		200	

CRIPPLED TOP OF PILE - LEAD OUT OF PLUMB
163' CUT OFF 11"

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
164	1	6		1			1	
	2	15		2			2	
	3	12		3			3	
	4	12		4			4	
	5	16		5			5	
	6	17		6			6	
	7	16		7			7	
	8	17		8			8	
	9	18		9			9	
	10	18		10			10	
	11	20		11			11	
	12	23		12			12	
	1	22						
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							

Remarks:

- ☐ Rejected
- ☐ Added due to mislocated pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ – stopped driving to splice at ____ ft
- ☐ – stopped driving at ____ ft
- ☐

PILE:
Type ☐ End Bearing ☑ Friction
Size 24X200 open shoe steel
Design Capacity 1100 kips tons

HAMMER:
Type DelMagD46-32 sinactDiesel 8' stroke
Rated Energy 122,000 ft-lbs
Measured Energy ____ ft-lbs

Field Representative Signature

Blows for final ____ **in.:** 11 11 11 **Blows/in. Avg.:** ____ **Req. Avg.:** ____

PILE NO. C4.5

Form 4013 (Regular)

2.83

Page 1 of 3

24" PIPE-PILE DRIVING LOG

PILE NO.

Column-Location C 7.0

PROJECT & PIN	Ocean Gateway Project #00915.50
LOCATION	Portland, Maine
FOUNDATION I.D.	Pier A 24-inch pipe piles with open shoes
GEN. CONTRACTOR	Reed & Reed Construction Company
PILE CONTRACTOR	Reed & Reed Construction Company
RESIDENT ENGR	Aurele Gorneau, II
TEAM GEOTECH	Haley & Aldrich
INSPECTOR	Bruce Brown Ken Page

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	112.17
				MIDDLE	
				TOP	69.42
				Total length	181.59
				Length deducted	2.83
				Length deducted	13.92
				Total deducted	16.75
				Net length	

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Approx. Grnd Surf. El.	ft
Initial Top El.	ft
Length Of Pile	ft
Tip El.	-153.15 ft
Cut-off El.	11.69 ft
Initial Pay Length	ft
Net Change In Tip El.	ft
Final Tip El.	ft
Final Pay Length	164.84 ft

Necessary to redrive: ☐ Yes ☐ No

Redrive Blows Per Inch: ___ ___ ___ ___ ___ ___

Deviation from design location: N ___ S ___ E ___ W ___

Final Inspection: Date ___ ☐ Pile Accepted ☐ Pile Rejected

Approx. Depth Preaugered: ___

Time Finish: ___ Bottom ___ Middle ___ Top

Time Start: ___ Bottom ___ Middle ___ Top

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
1		26		51		76	
2		27		52		77	
3		28		53		78	
4		29		54	DRIVEN	79	
5		30		55		80	
6		31		56		81	
7		32		57		82	
8		33		58		83	*
9		34		59	DRIVEN	84	
10	WATER	35		60		85	
11		36		61		86	
12		37	WATER	62	1/6	87	
13		38		63		88	1X
14		39		64	1	89	
15		40		65	2	90	
16		41	WATER	66		91	
17		42		67	*	92	HAMMER BLOWS
18		43		68		93	
19		44		69		94	
20		45		70	HAMMER	95	
21		46		71		96	
22		47		72	WT	97	
23		48		73		98	HAMMER
24		49		74		99	
25		50 MUD		75	HAMMER	100	

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
	1			1			1	
	2			2			2	
	3			3			3	
	4			4			4	
	5			5			5	
	6			6			6	
	7			7			7	
	8			8			8	
	9			9			9	
	10			10			10	
	11			11			11	
	12			12			12	
	1							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							

Remarks:

- ☐ Rejected
- ☐ Added due to misplaced pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ – stopped driving to splice at ___ ft
- ☐ – stopped driving at ___ ft
- ☐

PILE:

Type ☐ End Bearing ☒ Friction

Size 24X200 open shoe steel

Design Capacity 1000 kip tons

HAMMER:

Type DelMagD46-32 singactDiesel 8' stroke

Rated Energy 122,000 ft-lbs

Measured Energy ___ ft-lbs

Bruce Brown

Field Representative Signature

Blows for final ___ in.: ___ ___ ___ ___ ___ ___ Blows/in. Avg.: ___ Req. Avg.: ___

PILE NO. C 7.0

Form 4013 (Regular)

PG 1

Page 2 of 3

24 " PIPE-PILE DRIVING LOG

PILE NO.

Column-Location C 7.0

PROJECT & PIN: Ocean Gateway Project #00915.50
LOCATION: Portland, Maine
FOUNDATION I.D.: Pier A 24-inch pipe piles with open shoes
GEN. CONTRACTOR: Reed & Reed Construction Company
PILE CONTRACTOR: Reed & Reed Construction Company

RESIDENT ENGR: Aurele Gorneau, II
TEAM GEOTECH: Haley & Aldrich
INSPECTOR: Bruce Brown Ken Page

	Bent No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	
				MIDDLE	
				TOP	
				Total length	
				Length deducted	
				Length deducted	
				Total deducted	
				Net length	

Approx. Grnd Surf. El. ____ ft
Initial Top El. ____ ft
Length Of Pile ____ ft
Tip El. ____ ft
Cut-off El. ____ ft
Initial Pay Length ____ ft
Net Change In Tip El. ____ ft
Final Tip El. ____ ft
Final Pay Length ____ ft

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Necessary to redrive: ☐ Yes ☐ No
Redrive Blows Per Inch: ____ ____ ____ ____ ____ ____

Deviation from design location: N ____ S ____ E ____ W ____

Final Inspection: Date ____ ☐ Pile Accepted ☐ Pile Rejected

Approx. Depth Preaugered: ____
Time Finish: Bottom ____ Middle ____ Top ____
Time Start: Bottom ____ Middle ____ Top ____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
101		126	3	151	11	176	
102		127		152	12	177	
103		128		153	10	178	
104		129		154	9	179	
105	*	130		155	12	180	
106	*	131		156	16	181	
107		132		157	17	182	
108	3	133		158	14	183	
109	3	134		159	13	184	
110	3	135		160	14	185	
111	3 6	136		161	14	186	
112	0	137		162	20	187	
113	1	138		163	26	188	
114	2	139		164	36	189	
115	2	140		165	50	190	
116	1	141		166		191	
117	2	142		167		192	
118	3	143		168		193	
119	2	144		169		194	
120	2	145	↓	170		195	
121	2	146	6	171		196	
122	2	147	7	172		197	
123	3	148	9	173		198	
124	3	149	11	174		199	
125	3	150	10	175		200	

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
166	1	9		1			1	
	2	8		2			2	
	3	9		3			3	
	4	9		4			4	
	5	9		5			5	
	6	9		6			6	
	7	10		7			7	
	8	10		8			8	
	9	13		9			9	
	10	21		10			10	
	11	23		11			11	
	12	20		12			12	
	1							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							

Remarks:
- ☐ Rejected
- ☐ Added due to mislocated pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ - stopped driving to splice at ____ ft
- ☐ - stopped driving at ____ ft
- ☐

PILE:
Type ☐ End Bearing ☑ Friction
Size 24X200 open shoe steel
Design Capacity 1000 kips tons

HAMMER:
Type DelMagD46-32 sinnetDiesel 8' stroke
Rated Energy 122,000 ft-lbs
Measured Energy ____ ft-lbs

Bruce Brown
Field Representative Signature

Blows for final ____ in.: ____ ____ ____ ____ ____ ____ Blows/in. Avg.: ____ Req. Avg.: ____

PILE NO. C 7.0

Form #013 (Regular)

PG 2

Page 2 of 3

24 " PIPE-PILE DRIVING LOG

PILE NO.

Column-Location C 9.1

PROJECT & PIN	Ocean Gateway Project #00915.50	RESIDENT ENGR	Aurele Gorneau, II
LOCATION	Portland, Maine	TEAM GEOTECH	Haley & Aldrich
FOUNDATION I.D.	Pier A 24-inch pipe piles with open shoes	INSPECTOR	Bruce Brown Ken Page
GEN. CONTRACTOR	Reed & Reed Construction Company		
PILE CONTRACTOR	Reed & Reed Construction Company		

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	115
				MIDDLE	
				TOP	70

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Total length	
Length deducted	
Length deducted	
Total deducted	
Net length	

Approx. Grnd Surf. El.	ft
Initial Top El.	ft
Length Of Pile	ft
Tip El.	ft
Cut-off El.	ft
Initial Pay Length	ft
Net Change In Tip El.	ft
Final Tip El.	ft
Final Pay Length	ft

Necessary to redrive: ☐ Yes ☐ No

Redrive Blows Per Inch: 11 11 11

Deviation from design location: N ____ S ____ E ____ W ____

Final Inspection: Date ____ ☐ Pile Accepted ☐ Pile Rejected

Approx. Depth Preaugered: ____ Time Bottom: ____ Finish: Middle: ____ Top: ____

Time Bottom: ____ Start: Middle: ____ Top: ____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
101	1	126		151	8	176	
102	1	127		152	11	177	
103	1	128		153	12	178	
104	1	129	12	154	18	179	
105	1	130	14	155	25	180	
106		131	12	156	22	181	
107		132		157	18	182	
108		133	7	158	16	183	
109		134		159	15	184	
110		135		160	15	185	
111		136		161	17	186	
112		137		162	16	187	
113		138		163	16	188	
114		139		164	16	189	
115		140		165	16	190	
116		141		166	21	191	
117		142		167	23	192	
118		143		168	27	193	
119	3	144		169	38	194	
120		145		170		195	
121		146		171		196	
122		147		172		197	
123		148		173		198	
124		149		174		199	
125		150		175		200	

COATED 1 -6 MUDLINE

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
170	1	10		1			1	
	2	6		2			2	
	3	6		3			3	
	4	6		4			4	
	5	5		5			5	
	6	8		6			6	
	7	8		7			7	
	8	11		8			8	
	9	12		9			9	
	10	10		10			10	
	11	11		11			11	
	12	10		12			12	
171	1	11						
	2	12						
	3	16						
	4	16						
	5	23						
	6	23						
	7	21						
	8	27						
	9	30						
	10							
	11							
	12							

Remarks:

- ☐ Rejected
- ☐ Added due to mislocated pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ stopped driving to splice at ____ ft
- ☐ stopped driving at ____ ft
- ☐

PILE:

Type ☐ End Bearing ☑ Friction

Size 24X200 open shoe steel

Design Capacity 1000 kips tons

HAMMER:

Type DelMagD46-32 sinactDiesel 8' stroke

Rated Energy 122,000 ft-lbs

Measured Energy ____ ft-lbs

Field Representative Signature

Blows for final ____ in.: 11 11 11 Blows/in. Avg.: ____ Req. Avg.: ____

PILE NO. C 9.1

Form 4013 (Regular)

PG 2

"D LINE

Page 1 of 2

24" PIPE-PILE DRIVING LOG

PILE NO.

Column-Location D 3.1

PROJECT & PIN	Ocean Gateway Project #00915.50
LOCATION	Portland, Maine
FOUNDATION I.D.	Pier A 24-inch pipe piles with open shoes & spin fins
GEN. CONTRACTOR	Reed & Reed Construction Company
PILE CONTRACTOR	Reed & Reed Construction Company
RESIDENT ENGR	Aurele Gomeau, II
TEAM GEOTECH	Haley & Aldrich
INSPECTOR	Bruce Brown Ken Page

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	93'-7"
				MIDDLE	19'-10"
				TOP	50'-0"
				Total length	163'-5"
				Length deducted	4"
				Length deducted	
				Total deducted	
				Net length	159'-1"

19'-10" SPLICE

16" CUT - 2½" WELD

Approx. Grnd Surf. El. ____ ft
Initial Top El. ____ ft
Length Of Pile ____ ft
Tip El. ____ ft
Cut-off El. ____ ft
Initial Pay Length ____ ft
Net Change In Tip El ____ ft
Final Tip El. ____ ft
Final Pay Length ____ ft

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Necessary to redrive: ☐ Yes ☐ No

Redrive Blows Per Inch: 25 25 25

Deviation from design location: (20FF)

N ____ S ____ E ____ W ____

Final Inspection: Date ____ ☐ Pile Accepted ☐ Pile Rejected

Approx. Depth Preaugered: ____

Time Finish: Bottom ____ Middle ____ Top ____

Time Start: Bottom ____ Middle ____ Top ____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
1		26		51		76	
2		27		52		77	
3		28		53		78	
4		29		54		79	
5		30		55		80	
6		31		56		81	
7		32		57		82	
8		33		58		83	
9		34		59		84	
10		35	VIBRO	60	VIBRO	85	VIBRO
11	VIBRO	36		61		86	
12		37		62		87	
13		38		63		88	
14		39		64		89	
15		40		65		90	
16		41		66		91	
17		42		67		92	
18		43		68		93	
19		44		69		94	
20		45		70		95	
21		46		71		96	
22		47	MUD	72		97	
23		48		73		98	
24		49		74		99	
25		50		75		100	

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
	1			1			1	
	2			2			2	
	3			3			3	
	4			4			4	
	5			5			5	
	6			6			6	
	7			7			7	
	8			8			8	
	9			9			9	
	10			10			10	
	11			11			11	
	12			12			12	
	1							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							

Remarks:

- ☐ Rejected
- ☐ Added due to misfeented pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ ← stopped driving to splice at ____ ft
- ☐ ← stopped driving at ____ ft
- ☐

PILE:

Type ☐ End Bearing ☑ Friction

Size 24X180 open shoe steel w/spin fins

Design Capacity 1300 kip tons

HAMMER:

Type DelMagD46-32 sinactDiesel 8' stroke

Rated Energy 122,000 ft-lbs

Measured Energy ____ ft-lbs

Ken Page

Field Representative Signature

Blows for final ____ in.: 25 25 25 Blows/in. Avg.: ____ Req. Avg.: ____

PILE NO. D 3.1 page 1

Form 4013 (Regular)

Page 2 of 2

24 " PIPE-PILE DRIVING LOG

PILE NO.

Column-Location D 3.1

PROJECT & PIN	Ocean Gateway Project #00915.50	RESIDENT ENGR	Aurele Gorneau, II
LOCATION	Portland, Maine	TEAM GEOTECH	Haley & Aldrich
FOUNDATION I.D.	Pier A 24-inch pipe piles with open shoes & spin fins	INSPECTOR	Bruce Brown Ken Page
GEN. CONTRACTOR	Reed & Reed Construction Company		
PILE CONTRACTOR	Reed & Reed Construction Company		

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	93'-7"
				MIDDLE	19'-10"
				TOP	50'-0"
				Total length	163'-5"
				Length deducted	4'-4"
				Length deducted	
				Total deducted	
				Net length	159'-1"

Approx. Grnd Surf. El. ____ ft
Initial Top El. ____ ft
Length Of Pile 163'-5" ft
Tip El. ____ ft
Cut-off El. ____ ft
Initial Pay Length ____ ft
Net Change In Tip El. ____ ft
Final Tip El. ____ ft
Final Pay Length ____ ft

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Necessary to redrive: ☐ Yes ☐ No
Redrive Blows Per Inch: 25 25 25

Deviation from design location: N ____ S ____ E ____ W ____

Final Inspection: Date ____ ☐ Pile Accepted ☐ Pile Rejected

Approx. Depth Preaugered: ____
Time Start: Top ____ Middle ____ Bottom ____
Time Finish: Top ____ Middle ____ Bottom ____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
101		126		151	18	176	
102		127		152	25	177	
103		128		153	27	178	
104		129		154	29	179	
105		130		155	29	180	
106		131	BO	156	26	181	
107		132	BR	157	22	182	
108		133	D	158	27	183	
109		134	1	159	26	184	
110		135	V	160		185	
111		136		161		186	
112		137		162		187	
113	BRO	138	↓	163		188	
114	BR	139	8	164		189	
115	B	140	9	165		190	
116	V1	141	R 14	166		191	
117	V	142	E 16	167		192	
118		143	M 16	168		193	
119		144	E 15	169		194	
120		145	R 17	170		195	
121		146	HAM 19	171		196	
122		147	20	172		197	
123		148	20	173		198	
124		149	15	174		199	
125	↓	150	10	175		200	

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
	1	9		1			1	
	2	9		2			2	
	3	10		3			3	
	4	10		4			4	
	5	11		5			5	
	6	14		6			6	
	7	13		7			7	
	8	13		8			8	
	9	14		9			9	
	10	19		10			10	
	11	19		11			11	
	12	21		12			12	
1		21						
2		30						
3		39						
4								
5								
6								
7								
8								
9								
10								
11								
12								

Remarks:
- ☐ Rejected
- ☐ Added due to mislocated pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ stopped driving to splice at ____ ft
- ☐ stopped driving at ____ ft
- ☐

PILE:
Type ☐ End Bearing, ☑ Friction
Size 24X180 open shoe steel w/spin fins
Design Capacity 1300 kips tons

HAMMER:
Type DelMagD46-32 singactDiesel 8' stroke
Rated Energy 122,000 ft-lbs
Measured Energy ____ ft-lbs

Ken Page
Field Representative Signature

Blows for final ____ in.: 25 25 25 Blows/in. Avg.: ____ Req. Avg.: ____

PILE NO. D 3.1 page 2

Form 4013 (Regular)

(E3 1 2½") E4.5 2½" 8'-2" - 14'-11E7.0

Page 1 of 2

16" PIPE-PILE DRIVING LOG

PILE NO.

Column-Location **D 3.1b**

PROJECT & PIN	Ocean Gateway Project #00915.50
LOCATION	Portland, Maine
FOUNDATION I.D.	Pier A 16-inch pipe piles with open shoes & spin fins
GEN. CONTRACTOR	Reed & Reed Construction Company
PILE CONTRACTOR	Reed & Reed Construction Company
RESIDENT ENGR	Aurele Gorneau, II
TEAM GEOTECH	Haley & Aldrich
INSPECTOR	Bruce Brown Ken Page

	Hent No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	99'-10"
				MIDDLE	30'-10
				TOP	50'-2"
				Total length	175'-10"
				Length deducted	14'-8"
				Length deducted	
				Total deducted	
				Net length	161'-2"

Heave Measurement

	Data shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Approx. Grnd Surf. El. ____ ft
Initial Top El. ____ ft
Length Of Pile ____ ft
Tip El. ____ ft
Cut-off El. ____ ft
Initial Pay Length ____ ft
Net Change In Tip El. ____ ft
Final Tip El. ____ ft
Final Pay Length ____ ft

Necessary to redrive: ☐ Yes ☐ No
Redrive Blows Per Inch: 11 11 11 ___ ___ ___

Deviation from design location:
N ____ S ____ E ____ W ____

Final Inspection: Date ____ ☐ Pile Accepted ☐ Pile Rejected

Approx. Depth Preaugered: ____
Time Finish: Bottom ____ Middle ____ Top ____
Time Start: Bottom ____ Middle ____ Top ____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
1		26		51		76	
2		27		52		77	
3		28		53		78	
4		29		54		79	
5		30		55		80	
6		31		56		81	
7		32		57		82	
8		33		58		83	
9		34		59		84	
10	11	35	11	60	11	85	11
11	11	36	11	61	11	86	11
12	11	37	11	62	11	87	11
13		38		63		88	
14		39		64		89	
15		40		65		90	
16		41		66		91	
17		42		67		92	
18		43		68		93	
19		44		69		94	
20		45		70		95	
21		46		71		96	
22		47		72		97	
23		48		73		98	
24		49		74		99	
25		50		75		100	

99'-10" SPLICE

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
	1		1			1		
	2		2			2		
	3		3			3		
	4		4			4		
	5		5			5		
	6		6			6		
	7		7			7		
	8		8			8		
	9		9			9		
	10		10			10		
	11		11			11		
	12		12			12		
	1							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							

Remarks:

- ☐ Rejected
- ☐ Added due to misfeasted pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ ⊤ stopped driving to splice at ____ ft
- ☐ ⊥ stopped driving at ____ 0
- ☐

PILE:
Type ☐ End Bearing ☑ Friction
Size 16X180 open shoe steel w/spin fins
Design Capacity 200 kip tons

HAMMER:
Type DelMagD16-32 sinactDiesel10' stroke
Rated Energy 40,250 ft-lbs
Measured Energy ____ ft-lbs

Field Representative Signature

Blows for final ____ in.: 11 11 11 ___ ___ ___ Blows/in. Avg.: ____ Req. Avg.: ____

PILE NO. **D 3.1b page 1**

Form 4013 (Regular)

Page 2 of 2

16 " PIPE-PILE DRIVING LOG

PILE NO.

Column-Location **D 3.1b**

PROJECT & PIN	Ocean Gateway Project #00915.50
LOCATION	Portland, Maine
FOUNDATION I.D.	Pier A 16-inch pipe piles with open shoes & spin fins
GEN. CONTRACTOR	Reed & Reed Construction Company
PILE CONTRACTOR	Reed & Reed Construction Company
RESIDENT ENGR	Aurele Gorneau, II
TEAM GEOTECH	Haley & Aldrich
INSPECTOR	Bruce Brown Ken Page

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	94'-10"
				MIDDLE	30'-10
				TOP	50'-2
				Total length	175'-10
				Length deducted	14'-8"
				Length deducted	
				Total deducted	
				Net length	161'-2"

Approx. Grnd Surf. El. ____ ft
Initial Top El. ____ ft
Length Of Pile ____ ft
Tip El. ____ ft
Cut-off El. ____ ft
Initial Pay Length ____ ft
Net Change In Tip El. ____ ft
Final Tip El. ____ ft
Final Pay Length ____ ft

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Necessary to redrive: ☐ Yes ☐ No

Redrive Blows Per Inch: 11 11 11 ___ ___ ___

Deviation from design location:

N ____ S ____ E ____ W ____

Final Inspection: Date ____ ☐ Pile Accepted ☐ Pile Rejected

Time Start: Top / Middle / Bottom ____ / ____ / ____

Time Finish: Top / Middle / Bottom ____ / ____ / ____

Approx. Depth Preaugered: ____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
101		126		151	16	176	
102		127		152	14	177	
103		128		153	14	178	
104		129		154	20	179	
105		130		155	46	180	
106		131		156		181	
107		132		157		182	
108		133	9	158		183	
109		134	8	159		184	
110	8	135	8	160		185	
111	8	136	10	161		186	
112	15	137	10	162		187	
113	11	138		163		188	
114	11	139		164		189	
115		140		165		190	
116		141		166		191	
117		142		167		192	
118		143		168		193	
119		144	11	169		194	
120		145	19	170		195	
121		146	17	171		196	
122		147	16	172		197	
123		148	15	173		198	
124		149	15	174		199	
125	11	150	15	175		200	

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
156	1	5	158	1	3	159	1	3
	2	4		2	4		2	4
	3	5		3	4		3	5
	4	4		4	4		4	4
	5	5		5	4		5	4
	6	5		6	4		6	5
	7	4		7	4		7	4
	8	4		8	4		8	5
	9	7		9	4		9	4
	10	8		10	4		10	4
	11	6		11	3		11	5
	12	5		12	4		12	6
157	1	6						
	2	6						
	3	7						
	4	7						
	5	5						
	6	7						
	7	4						
	8	4						
	9	5						
	10	4						
	11	4						
	12	4						

Remarks:

- ☐ Rejected
- ☐ Added due to misaligned pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ stopped driving to splice at ____ ft
- ☐ stopped driving at ____ ft
- ☐

PILE:

Type ☐ End Bearing ☒ Friction

Size 16X180 open shoe steel w/spin fins

Design Capacity 200 kip tons

HAMMER:

Type DelMagD16-32 sinactDiesel 10' stroke

Rated Energy 40,250 ft-lbs

Measured Energy ____ ft-lbs

Bruce Brown
Field Representative Signature

Blows for final ____ in.: 11 11 11 ___ ___ ___ Blows/in. Avg.: ____ Req. Avg.: ____

PILE NO.
D 3.1b page 2

Form 4013 (Regular)

Page 1 of 2

24" PIPE-PILE DRIVING LOG

PILE NO.

Column-Location **D 4.5**

PROJECT & PIN	Ocean Gateway Project #00915.50	RESIDENT ENGR	Aurele Gormeau, II
LOCATION	Portland, Maine	TEAM GEOTECH	Haley & Aldrich
FOUNDATION I.D.	**Pier A 24-inch pipe piles with open shoes**	INSPECTOR	Bruce Brown Ken Page
GEN. CONTRACTOR	Reed & Reed Construction Company		
PILE CONTRACTOR	Reed & Reed Construction Company		

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	95'-0"
				MIDDLE	22'-0"
				TOP	50'-0"
				Total length	167'-0"
				Length deducted	7'-2½"
				Length deducted	
				Total deducted	
				Net length	159'-9½"

23'-0" splice

Approx. Grnd Surf. El. _____ ft
Initial Top El. _____ ft
Length Of Pile _____ ft
Tip El. _____ ft
Cut-off El. _____ ft
Initial Pay Length _____ ft
Net Change In Tip El. _____ ft
Final Tip El. _____ ft
Final Pay Length _____ ft

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Necessary to redrive: ☐ Yes ☐ No

Redrive Blows Per Inch: 25 25 25 ___ ___ ___

Deviation from design location:

N ____ S ____ E ____ W ____

Final Inspection: Date _____ ☐ Pile Accepted ☐ Pile Rejected

Approx. Depth Preaugered: _____

Time Start: Top _____ Middle _____ Bottom _____

Time Finish: Top _____ Middle _____ Bottom _____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
1		26		51		76	
2		27		52		77	
3		28		53		78	
4		29		54		79	
5		30		55		80	
6		31		56		81	
7		32		57		82	
8		33		58		83	
9		34		59		84	
10		35		60		85	
11		36		61		86	
12		37		62		87	
13		38		63		88	
14		39		64		89	
15		40		65		90	
16		41		66		91	
17		42		67		92	
18		43		68		93	
19		44		69		94	
20		45		70		95	
21		46		71		96	
22		47		72		97	
23		48		73		98	
24		49		74		99	
25		50		75		100	

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
	1			1			1	
	2			2			2	
	3			3			3	
	4			4			4	
	5			5			5	
	6			6			6	
	7			7			7	
	8			8			8	
	9			9			9	
	10			10			10	
	11			11			11	
	12			12			12	
	1							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							

Remarks:

- ☐ Rejected
- ☐ Added due to miscounted pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ ← stopped driving to splice at _____ ft
- ☐ ← stopped driving at _____ ft
- ☐

PILE:

Type ☐ End Bearing ☑ Friction

Size 24X180 open shoe steel

Design Capacity 1000 kip tons

HAMMER:

Type DelMagD46-32 sinactDiesel 8' stroke

Rated Energy 122,000 ft-lbs

Measured Energy _____ ft-lbs

Ken Page
Field Representative Signature

Blows for final ____ in.: 25 25 25 ___ ___ ___ Blows/in. Avg.: _____ Req. Avg.: _____

PILE NO. **D 4.5 page 1**

Form 4013 (Regulm)

Page 2 of 2

24 " PIPE-PILE DRIVING LOG

PILE NO.

Column-Location D 4.5

PROJECT & PIN	Ocean Gateway Project #009915.50
LOCATION	Portland, Maine
FOUNDATION I.D.	Pier A 24-inch pipe piles with open shoes
GEN. CONTRACTOR	Reed & Reed Construction Company
PILE CONTRACTOR	Reed & Reed Construction Company
RESIDENT ENGR	Aurele Gorneau, II
TEAM GEOTECH	Haley & Aldrich
INSPECTOR	Bruce Brown Ken Page

	Item No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	95'-0"
				MIDDLE	22'-0"
				TOP	50'-0"
				Total length	167'-0"
				Length deducted	7'-2½"
				Length deducted	
				Total deducted	
				Net length	159'-9½"

Approx. Grnd Surf. El. ____ ft
Initial Top El. ____ ft
Length Of Pile ____ ft
Tip El. ____ ft
Cut-off El. ____ ft
Initial Pay Length ____ ft
Net Change In Tip El. ____ ft
Final Tip El. ____ ft
Final Pay Length ____ ft

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Necessary to redrive: ☐ Yes ☐ No

Redrive Blows Per Inch: 25 25 25 ___ ___ ___

Deviation from design location: N ____ S ____ E ____ W ____

Final Inspection: Date ____ ☐ Pile Accepted ☐ Pile Rejected

Time Start: Bottom / Middle / Top
Time Finish: Bottom / Middle / Top
Approx. Depth Preaugered: ____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
101		126		151	23	176	
102		127		152	26	177	
103		128	10	153		178	
104		129	8	154		179	
105		130	6	155		180	
106		131	5	156		181	
107		132	5	157		182	
108		133	4	158		183	
109		134	7	159		184	
110		135	9	160		185	
111	10	136	10	161		186	
112	8	137	10	162		187	
113	6	138	11	163		188	
114	5	139	12	164		189	
115	5	140	12	165		190	
116		141	11	166		191	
117		142	10	167		192	
118		143	9	168		193	
119		144	9	169		194	
120		145	12	170		195	
121		146	11	171		196	
122		147	9	172		197	
123		148	14	173		198	
124		149	16	174		199	
125		150	19	175		200	

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
152	1		154	1	11		1	18
	2			2	9		2	15
	3			3	9		3	15
	4			4	11		4	13
	5			5	11		5	11
	6			6	11		6	12
	7	9		7	11		7	9
	8	8		8	10		8	9
	9	9		9	14		9	11
	10	10		10	17		10	12
	11	11		11	15		11	10
	12	12		12	13		12	12
153	1	14						14
	2	13						16
	3	12						19
	4	12						10
	5	13						7
	6	12						7
	7	12						7
	8	12						8
	9	10						8
	10	9						10
	11	8						11
	12	10						10

14 12 24 20 14 8 10 17 27 29 40 NO MOVE

Remarks:
- ☐ Rejected
- ☐ Added due to mislocated pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ + stopped driving to splice at ____ ft
- ☐ + stopped driving at ____ ft
- ☐

PILE:
Type ☐ End Bearing ☑ Friction
Size 24X180 open shoe steel
Design Capacity 1000 kips tons

HAMMER:
Type DelMag D46-32 sinactDiesel 8' stroke
Rated Energy 122,000 ft-lbs
Measured Energy ____ ft-lbs

Ken Page
Field Representative Signature

Blows for final ____ in.: 25 25 25 ___ ___ ___ Blows/ft. Avg.: ____ Req. Avg.: ____

PILE NO. D 4.5 page 2

Form 4013 (Regular)

Page 1 of 2

24" PIPE-PILE DRIVING LOG

PILE NO.

Column-Location **D 7.0**

PROJECT & PIN	Ocean Gateway Project #00915.50	RESIDENT ENGR	Aurele Gorneau, II
LOCATION	Portland, Maine	TEAM GEOTECH	Haley & Aldrich
FOUNDATION I.D.	**Pier A 24-inch pipe piles with open shoes**	INSPECTOR	Bruce Brown Ken Page
GEN. CONTRACTOR	Reed & Reed Construction Company		
PILE CONTRACTOR	Reed & Reed Construction Company		

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	98'-0"
				MIDDLE	26'-0"
				TOP	50'-1"
				Total length	174'-1"
				Length deducted	23'-10"
				Length deducted	
				Total deducted	
				Net length	150'-3"

24'-0" SPLICE
10' CUT

Approx. Grnd Surf. El. _____ ft
Initial Top El. _____ ft
Length Of Pile _____ ft
Tip El. _____ ft
Cut-off El. _____ ft
Initial Pay Length _____ ft
Net Change in Tip El. _____ ft
Final Tip El. _____ ft
Final Pay Length _____ ft

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Necessary to redrive: ☐ Yes ☐ No

Redrive Blows Per Inch: 25 25 25 ___ ___ ___

Deviation from design location:

N ____ S ____ E ____ W ____

Final Inspection: Date _____ ☐ Pile Accepted ☐ Pile Rejected

Approx. Depth Preaugered: _____

Time Finish: Bottom _____ Middle _____ Top _____

Time Start: Bottom _____ Middle _____ Top _____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
1		26		51		76	
2		27		52		77	
3		28		53		78	
4		29		54		79	
5		30		55		80	
6		31		56		81	
7		32		57		82	
8		33		58		83	
9		34		59		84	
10		35		60		85	
11		36		61		86	
12		37		62		87	
13	VIBED	38		63		88	
14		39		64		89	
15	VIBED	40		65	VIBED	90	
16		41	VIBED	66		91	
17		42		67	VIBED	92	VIBED
18		43		68		93	
19		44		69		94	VIBED
20		45		70		95	
21		46		71		96	
22		47		72		97	
23		48		73		98	
24		49		74		99	
25		50		75		100	

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
	1			1			1	
	2			2			2	
	3			3			3	
	4			4			4	
	5			5			5	
	6			6			6	
	7			7			7	
	8			8			8	
	9			9			9	
	10			10			10	
	11			11			11	
	12			12			12	
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

Remarks:

- ☐ Rejected
- ☐ Added due to misplaced pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ = stopped driving to splice at _____ ft
- ☐ = stopped driving at _____ ft
- ☐

PILE:

Type ☐ End Bearing ☑ Friction

Size 24X180 open shoe steel

Design Capacity 1000 kip tons

HAMMER:

Type DelMagD46-32 singactDiesel 8' stroke

Rated Energy 122,000 ft-lbs

Measured Energy _____ ft-lbs

Ken Page
Field Representative Signature

Blows for final ____ in.: 25 25 25 ___ ___ ___ Blows/in. Avg.: _____ Req. Avg.: _____

PILE NO. **D 7.0 page 1**

Form 4013 (Regular)

Page 2 of 2

24 " PIPE-PILE DRIVING LOG

PILE NO.

Column-Location **D 7.0**

PROJECT & PIN	Ocean Gateway Project #00915.50
LOCATION	Portland, Maine
FOUNDATION I.D.	Pier A 24-inch pipe piles with open shoes
GEN. CONTRACTOR	Reed & Reed Construction Company
PILE CONTRACTOR	Reed & Reed Construction Company
RESIDENT ENGR	Aurele Gorneau, II
TEAM GEOTECH	Haley & Aldrich
INSPECTOR	Bruce Brown Ken Page

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	98'-0"
				MIDDLE	26'-0"
				TOP	50'-1"
				Total length	174'-1
				Length deducted	23'-10"
				Length deducted	
				Total deducted	
				Net length	150'-3"

Approx. Grnd Surf. El. _____ ft
Initial Top El. _____ ft
Length Of Pile _____ ft
Tip El. _____ ft
Cut-off El. _____ ft
Initial Pay Length _____ ft
Net Change in Tip El. _____ ft
Final Tip El. _____ ft
Final Pay Length _____ ft

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Necessary to redrive: ☐ Yes ☐ No
Redrive Blows Per Inch: 25 25 25 _ _ _

Deviation from design location:
N _____ S _____ E _____ W _____

Final Inspection: Date _____ ☐ Pile Accepted ☐ Pile Rejected

Approx. Depth Preaugered: _____ Bottom _____ Middle _____ Top

Time Finish: _____ Time Start: _____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
101		126	2	151	6"	176	
102		127	2	152		177	
103		128	2	153		178	
104		129	2	154		179	
105		130	2	155		180	
106		131	2	156		181	
107	10	132	2	157		182	
108	10	133	2	158		183	
109	10	134	2	159		184	
110	1'-10"	135	2	160		185	
111	1'	136	2	161		186	
112		137	2	162		187	
113		138	2	163		188	
114	V	139	2	164		189	
115	2	140	3	165		190	
116	2	141	4	166		191	
117	2	142	7	167		192	
118	2	143	9	168		193	
119	2	144	12	169		194	
120	2	145	10	170		195	
121	2	146	10	171		196	
122	2	147	10	172		197	
123	2	148	9	173		198	
124	2	149	9	174		199	
125	2	150	11	175		200	

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
150'-6"		4		1	25		1	
	2	12		2	18		2	
	3	12		3	32		3	
	4	13		4	29		4	
	5	13		5	28		5	
	6	13		6			6	
	7	13		7			7	
	8	14		8			8	
	9	14		9			9	
	10	19		10			10	
	11	21		11			11	
	12	25		12			12	
1		21						
2		12						
3		11						
4		17						
5		17						
6		20						
7		18						
8		27						
9		22						
10		20						
11		34						
12		26						
		21						

Remarks:
- ☐ Rejected
- ☐ Added due to mislocated pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ ** stopped driving to splice at _____ ft
- ☐ * stopped driving at _____ ft
- ☐

PILE:
Type ☐ End Bearing ☑ Friction
Size 24X180 open shoe steel
Design Capacity 1000 kips tons

HAMMER:
Type DelMagD46-32 sinnetDiesel 8' stroke
Rated Energy 122,000 ft-lbs
Measured Energy _____ ft-lbs

Field Representative Signature

Blows for final _____ in.: 25 25 25 _ _ _ Blows/in. Avg.: _____ Req. Avg.: _____

PILE NO. **D 7.0 page 2**

Form 4013 (Regular)

Page 1 of 2

24" PIPE-PILE DRIVING LOG

PILE NO.

Column-Location **D 9.1**

PROJECT & PIN	Ocean Gateway Project #00915.50	RESIDENT ENGR	Aurele Gorneau, II
LOCATION	Portland, Maine	TEAM GEOTECH	Haley & Aldrich
FOUNDATION I.D.	Pier A 24-inch pipe piles with open shoes	INSPECTOR	Bruce Brown Ken Page
GEN. CONTRACTOR	Reed & Reed Construction Company		
PILE CONTRACTOR	Reed & Reed Construction Company		

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	98'-0"
				MIDDLE	17'-6"
				TOP	50'-6"
				Total length	166'-0"
				Length deducted	17'-2"
				Length deducted	
				Total deducted	
				Net length	148'-10"

Heave

Measurement	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Approx. Grnd Surf. El. _____ ft
Initial Top El. _____ ft
Length Of Pile _____ ft
Tip El. _____ ft
Cut-off El. _____ ft
Initial Pay Length _____ ft
Net Change in Tip El. _____ ft
Final Tip El. _____ ft
Final Pay Length _____ ft

Necessary to redrive: ☐ Yes ☐ No
Redrive Blows Per Inch: 25 25 25 ___ ___ ___

Deviation from design location:
N ____ S ____ E ____ W ____

Final Inspection: Date _____ ☐ Pile Accepted ☐ Pile Rejected

Approx. Depth Preaugered: _____

Time Finish: Bottom _____ Middle _____ Top _____

Time Start: Bottom _____ Middle _____ Top _____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
1		26		51		76	
2		27		52		77	
3		28		53		78	
4		29		54		79	
5		30		55		80	
6		31		56		81	
7		32		57		82	
8		33		58		83	
9		34		59		84	
10		35		60		85	
11		36	VIBRO	61	VIBRO	86	VIBRO
12		37	VIBRO	62	VIBRO	87	VIBRO
13	VIBRO	38	VIBRO	63	VIBRO	88	VIBRO
14	VIBRO	39	VIBRO	64	VIBRO	89	VIBRO
15	VIBRO	40	VIBRO	65	VIBRO	90	VIBRO
16	VIBRO	41	VIBRO	66	VIBRO	91	VIBRO
17	VIBRO	42	VIBRO	67	VIBRO	92	VIBRO
18	VIBRO	43	VIBRO	68	VIBRO	93	VIBRO
19	VIBRO	44	VIBRO	69	VIBRO	94	VIBRO
20	VIBRO	45	VIBRO	70	VIBRO	95	VIBRO
21	VIBRO	46	VIBRO	71	VIBRO	96	VIBRO
22	VIBRO	47	VIBRO	72	VIBRO	97	VIBRO
23	VIBRO	48	VIBRO	73	VIBRO	98	VIBRO
24	VIBRO	49	VIBRO	74	VIBRO	99	VIBRO
25	VIBRO	50	VIBRO	75	VIBRO	100	VIBRO

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
	1		1	1		1	1	
	2		2	2		2	2	
	3		3	3		3	3	
	4		4	4		4	4	
	5		5	5		5	5	
	6		6	6		6	6	
	7		7	7		7	7	
	8		8	8		8	8	
	9		9	9		9	9	
	10		10	10		10	10	
	11		11	11		11	11	
	12		12	12		12	12	
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

Remarks:

- ☐ Rejected
- ☐ Added due to misplanted pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ – stopped driving to splice at _____ ft
- ☐ – stopped driving at _____ ft
- ☐

PILE:
Type ☐ End Bearing ☑ Friction
Size 24X180 open shoe steel
Design Capacity 1000 kip tons

HAMMER:
Type DelMagD46-32 singacDiesel 8' stroke
Rated Energy 122,000 ft-lbs
Measured Energy _____ ft-lbs

_____
Field Representative Signature

Blows for final ____ in.: 25 25 25 ___ ___ ___ Blows/in. Avg.: _____ Req. Avg.: _____

PILE NO.
D 9.1 page 1

Form 4013 (Regular)

Page 2 of 2

24 " PIPE-PILE DRIVING LOG

PILE NO.

Column-Location D 9.1

PROJECT & PIN	Ocean Gateway Project #00915.50
LOCATION	Portland, Maine
FOUNDATION I.D.	Pier A 24-inch pipe piles with open shoes
GEN. CONTRACTOR	Reed & Reed Construction Company
PILE CONTRACTOR	Reed & Reed Construction Company
RESIDENT ENGR	Aurele Gorneau, II
TEAM GEOTECH	Haley & Aldrich
INSPECTOR	Bruce Brown Ken Page

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	98'-0"
				MIDDLE	12'-6"
				TOP	50'-6"
				Total length	166'-0"
				Length deducted	17' 2"
				Length deducted	
				Total deducted	
				Net length	148'-10"

Approx. Grnd Surf. El. ____ ft
Initial Top El. ____ ft
Length Of Pile ____ ft
Tip El. ____ ft
Cut-off El. ____ ft
Initial Pay Length ____ ft
Net Change In Tip El. ____ ft
Final Tip El. ____ ft
Final Pay Length ____ ft

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Necessary to redrive: ☐ Yes ☐ No
Redrive Blows Per Inch: 25 25 25

Deviation from design location:
N ____ S ____ E ____ W ____

Final Inspection: Date ____ ☐ Pile Accepted ☐ Pile Rejected

Approx. Depth Preaugered: ____
Time Finish: Bottom ____ Middle ____ Top ____
Time Start: Bottom ____ Middle ____ Top ____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
101		126	3	151		176	
102		127	3	152		177	
103	VIBRO	128	3	153		178	
104		129	3	154		179	
105		130	3	155		180	
106		131	3	156		181	
107		132	3	157		182	
108	2	133	3	158		183	
109	2	134	5	159		184	
110	2	135	7	160		185	
111	2	136	8	161		186	
112	2	137	10	162		187	
113	2	138	12	163		188	
114	2	139	11	164		189	
115	2	140	16	165		190	
116	2	141		166		191	
117	2	142		167		192	
118	2	143		168		193	
119	2	144		169		194	
120	2	145		170		195	
121	2	146		171		196	
122	2	147		172		197	
123	2	148		173		198	
124	2	149		174		199	
125	2	150		175		200	

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
	1	8		1	21		1	
	2	10		2	21		2	
	3	10		3	37		3	
	4	20		4	40		4	
	5	15		5			5	
	6	17		6			6	
	7	10		7			7	
	8	14		8			8	
	9	14		9			9	
	10	16		10			10	
	11	16		11			11	
	12	19		12			12	
1		17						
	2	14						
	3	12						
	4	13						
	5	21						
	6	25						
	7	25						
	8	26						
	9	25						
	10	28						
	11	27						
	12	25						

Remarks:
- ☐ Rejected
- ☐ Added due to misfounted pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ ☆ stopped driving to splice at ____ ft
- ☐ – stopped driving at ____ ft
- ☐

PILE:
Type ☐ End Bearing ☑ Friction
Size 24X180 open shoe steel
Design Capacity 1000 kips tons

HAMMER:
Type DelMagD46-32 singactDiesel 8' stroke
Rated Energy 122,000 ft-lbs
Measured Energy ____ ft-lbs

Field Representative Signature

Blows for final ____ in.: 25 25 25 Blows/in. Avg.: ____ Req. Avg.: ____

PILE NO. D 9.1 page 2

Form 4013 (Regular)

Page 1 of 2

24" PIPE-PILE DRIVING LOG

PILE NO.

Column-Location **D 12.3**

PROJECT & PIN	Ocean Gateway Project #00915.50	RESIDENT ENGR	Aurele Gorneau, II
LOCATION	Portland, Maine	TEAM GEOTECH	Haley & Aldrich
FOUNDATION I.D.	Pier A 24-inch pipe piles with open shoes	INSPECTOR	Bruce Brown Ken Page
GEN. CONTRACTOR	Reed & Reed Construction Company		
PILE CONTRACTOR	Reed & Reed Construction Company		

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	99'-6"
				MIDDLE	21'-6"
				TOP	51'-0"
				Total length	172'-0"
				Length deducted	21'-7"
				Length deducted	
				Total deducted	
				Net length	150'-5"

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Approx. Grnd Surf. El. _____ ft
Initial Top El. _____ ft
Length Of Pile _____ ft
Tip El. _____ ft
Cut-off El. _____ ft
Initial Pay Length _____ ft
Net Change In Tip El. _____ ft
Final Tip El. _____ ft
Final Pay Length _____ ft

Necessary to redrive: ☐ Yes ☐ No
Redrive Blows Per Inch: 25 25 25 _ _ _

Deviation from design location: N _____ S _____ E _____ W _____

Final Inspection: Date _____ ☐ Pile Accepted ☐ Pile Rejected

Approx. Depth Preaugered: _____
Time Finish: Bottom _____ Middle _____ Top _____
Time Start: Bottom _____ Middle _____ Top _____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
1		26		51		76	
2		27		52		77	
3		28		53		78	
4		29		54		79	
5		30		55		80	
6		31		56		81	
7		32		57		82	
8		33		58		83	
9		34		59		84	
10	1 BRO	35	1 BRO	60		85	
11	1 BRO	36	1 BRO	61	1 BRO	86	1 BRO
12	1 BRO	37	1 BRO	62	1 BRO	87	1 BRO
13	1	38	1	63	1 BRO	88	1 BRO
14	1	39	1	64	1	89	1
15		40		65	1	90	1
16		41		66		91	
17		42		67		92	
18		43		68		93	
19		44		69		94	
20		45		70		95	
21		46		71		96	
22		47		72		97	
23		48		73		98	
24		49		74		99	
25		50		75		100	

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
	1			1			1	
	2			2			2	
	3			3			3	
	4			4			4	
	5			5			5	
	6			6			6	
	7			7			7	
	8			8			8	
	9			9			9	
	10			10			10	
	11			11			11	
	12			12			12	
	1							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							

Remarks:

- ☐ Rejected
- ☐ Added due to misplaced pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ " stopped driving to splice at _____ ft
- ☐ " stopped driving at _____ ft
- ☐

PILE:
Type ☐ End Bearing ☑ Friction
Size 24X180 open shoe steel
Design Capacity 1000 kip tons

HAMMER:
Type DelMagD46-32 singactDiesel 8' stroke
Rated Energy 122,000 ft-lbs
Measured Energy _____ ft-lbs

_____
Field Representative Signature

Blows for final _____ in.: 25 25 25 _ _ _ Blows/in. Avg.: _____ Req. Avg.: _____

PILE NO. **D 12.3 page 1**

Form 4013 (Reprint)

Page 2 of 2

24 " PIPE-PILE DRIVING LOG

PILE NO.

Column-Location **D 12.3**

PROJECT & PIN	Ocean Gateway Project #00915.50
LOCATION	Portland, Maine
FOUNDATION I.D.	**Pier A 24-inch pipe piles with open shoes**
GEN. CONTRACTOR	Reed & Reed Construction Company
PILE CONTRACTOR	Reed & Reed Construction Company
RESIDENT ENGR	Aurele Gomem, II
TEAM GEOTECH	Haley & Aldrich
INSPECTOR	Bruce Brown Ken Page

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	99'-0"
				MIDDLE	21'-6"
				TOP	5'-0"
				Total length	122'-0
				Length deducted	21'-7"
				Length deducted	
				Total deducted	
				Net length	130'-5"

Approx. Grnd Surf. El. ____ ft
Initial Top El. ____ ft
Length Of Pile ____ ft
Tip El. ____ ft
Cut-off El. ____ ft
Initial Pay Length ____ ft
Net Change In Tip El. ____ ft
Final Tip El. ____ ft
Final Pay Length ____ ft

Reuse Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Necessary to redrive: ☐ Yes ☐ No
Redrive Blows Per Inch: 25 25 25

Deviation from design location: N ____ S ____ E ____ W ____

Final Inspection: Date ____ ☐ Pile Accepted ☐ Pile Rejected

Approx. Depth Preaugered: ____
Time Finish: Bottom ____ Middle ____ Top ____
Time Start: Bottom ____ Middle ____ Top ____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
101		126	2	151	-	176	
102		127	2	152		177	
103		128	2	153	2	178	
104		129	3	154		179	
105		130	3	155		180	
106		131	3	156		181	
107		132	3	157		182	
108		133	2	158		183	
109		134	2	159		184	
110		135	2	160		185	
111	V	136	3	161		186	
112	2	137	3	162		187	
113	2	138	3	163		188	
114	2	139	5	164		189	
115	2	140	5	165		190	
116	2	141	5	166		191	
117	2	142	10	167		192	
118	3	143	17	168		193	
119	2	144	25	169		194	
120	2	145	18	170		195	
121	2	146	20	171		196	
122	2	147	19	172		197	
123	2½	148		173		198	
124	2½	149		174		199	
125	2½	150		175		200	

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
	1	8		1	23		1	16
	2	21		2	22		2	19
	3	20		3	29		3	25
	4	28		4	25		4	17
	5	16		5	16		5	26
	6	13		6	16		6	27
	7	12		7	18		7	24
	8	12		8	20		8	26
	9	13		9	20		9	27
	10	15		10	20		10	
	11	17		11	20		11	
	12	20		12	18		12	
	1	20						
	2	14						
	3	16						
	4	16						
	5	16						
	6	20						
	7	16						
	8	16						
	9	10						
	10	16						
	11	15						
	12	16						

Remarks:

- ☐ Rejected
- ☐ Added due to misplaced pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ ~~stopped driving to splice at~~ ____ ft
- ☐ ~~stopped driving at~~ ____ ft
- ☐

PILE:
Type ☐ End Bearing ☑ Friction
Size 24X180 open shoe steel
Design Capacity 1000 kips tons

HAMMER:
Type DelMagD46-32 sinactDiesel 8' stroke
Rated Energy 122,000 ft-lbs
Measured Energy ____ ft-lbs

Field Representative Signature

Blows for final ____ in.: 25 25 25 Blows/in. Avg.: ____ Req. Avg.: ____

PILE NO. **D 12.3 page 2**

Form 4013 (Regular)

Page 1 of 2

24" PIPE-PILE DRIVING LOG

PILE NO.

Column-Location E 3.1

PROJECT & PIN	Ocean Gateway Project #00915.50
LOCATION	Portland, Maine
FOUNDATION I.D.	Pier A 24-inch pipe piles with open shoes & spin fins
GEN. CONTRACTOR	Reed & Reed Construction Company
PILE CONTRACTOR	Reed & Reed Construction Company
RESIDENT ENGR	Aurele Gorneau, II
TEAM GEOTECH	Haley & Aldrich
INSPECTOR	Bruce Brown, Ken Page

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	91'-0"
				MIDDLE	20'-1"
				TOP	40'-8"
				Total length	151'-9"
				Length deducted	
				Length deducted	
				Total deducted	
				Net length	

Approx. Grnd Surf. El. ____ ft
Initial Top El. ____ ft
Length Of Pile ____ ft
Tip El. ____ ft
Cut-off El. ____ ft
Initial Pay Length ____ ft
Net Change in Tip El. ____ ft
Final Tip El. ____ ft
Final Pay Length ____ ft

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Necessary to redrive: ☐ Yes ☐ No
Redrive Blows Per Inch: 25 25 25 ___ ___ ___

Deviation from design location:
N ____ S ____ E ____ W ____

Final Inspection: Date ____ ☐ Pile Accepted ☐ Pile Rejected

Approx. Depth Preaugered: ____
Time Finish: Bottom ____ Middle ____ Top ____
Time Start: Bottom ____ Middle ____ Top ____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
1		26		51		76	
2		27		52		77	
3		28		53		78	
4		29		54		79	
5		30		55		80	
6		31		56		81	
7		32		57		82	
8		33		58		83	
9		34		59		84	
10		35		60		85	VIBRO
11		36		61	VIBRO	86	VIBRO
12		37		62	VIBRO	87	VIBRO
13		38		63	VIBRO	88	VIBRO
14		39		64	VIBRO	89	VIBRO
15		40	MUD	65	VIBRO	90	
16		41		66		91	
17		42		67		92	
18		43		68		93	
19		44	VIBRO	69		94	
20		45	VIBRO	70		95	
21		46	VIBRO	71		96	
22		47	VIBRO	72		97	
23		48	VIBRO	73		98	
24		49		74		99	
25		50		75		100	

VIBRO 4/6/06
DRIVEN 4/7/06

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
	1		1			1		
	2		2			2		
	3		3			3		
	4		4			4		
	5		5			5		
	6		6			6		
	7		7			7		
	8		8			8		
	9		9			9		
	10		10			10		
	11		11			11		
	12		12			12		
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

Remarks:
- ☐ Rejected
- ☐ Added due to misplaced pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ ** stopped driving to splice at ____ ft
- ☐ ** stopped driving at ____ ft
- ☐

PILE:
Type ☐ End Bearing ☑ Friction
Size 24X160 open shoe steel w/spin fins
Design Capacity 1300 kip tons

HAMMER:
Type DelMagD46-32 singactDiesel 8' stroke
Rated Energy 122,000 ft-lbs
Measured Energy ____ ft-lbs

Bruce Brown
Field Representative Signature

Blows for final ____ in.: 25 25 25 ___ ___ ___ Blows/in. Avg.: ____ Req. Avg.: ____

PILE NO. E 3.1 page 1

Form 4813 (Regulm)

Page 2 of 2

24 " PIPE-PILE DRIVING LOG

PILE NO.

Column-Location
E 3.1

PROJECT & PIN	Ocean Gateway Project #00915.50
LOCATION	Portland, Maine
FOUNDATION I.D.	Pier A 24-inch pipe piles with open shoes & spin fins
GEN. CONTRACTOR	Reed & Reed Construction Company
PILE CONTRACTOR	Reed & Reed Construction Company
RESIDENT ENGR	Aurele Gorneau, II
TEAM GEOTECH	Haley & Aldrich
INSPECTOR	Bruce Brown Ken Page

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	91'-0"
				MIDDLE	20'-1"
				TOP	10'-8"
				Total length	151'-9"
				Length deducted	
				Length deducted	
				Total deducted	
				Net length	

Approx. Grnd Surf. El. ____ ft
Initial Top El. ____ ft
Length Of Pile ____ ft
Tip El. ____ ft
Cut-off El. ____ ft
Initial Pay Length ____ ft
Net Change in Tip El. ____ ft
Final Tip El. ____ ft
Final Pay Length ____ ft

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Necessary to redrive: ☐ Yes ☐ No
Redrive Blows Per Inch: 25 25 25 ___ ___ ___

Deviation from design location:
N ____ S ____ E ____ W ____

Final Inspection: Date ____ ☐ Pile Accepted ☐ Pile Rejected

Approx. Depth Preaugered: ____ Bottom ____ Middle ____ Top

Time Finish: ____ Bottom ____ Middle ____ Top

Time Start: ____ Bottom ____ Middle ____ Top

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
101		126	8	151		176	
102		127	9	152		177	
103		128	9	153		178	
104		129	7	154		179	
105		130	9	155		180	
106	20	131	11	156		181	
107	20	132	12	157		182	
108	18	133	12	158		183	
109	11	134	11	159		184	
110	V	135	11	160		185	
111		136	18	161		186	
112		137	19	162		187	
113		138	22	163		188	
114	V	139	20	164		189	
115	4	140	18	165		190	
116	3	141	24	166		191	
117	3	142		167		192	
118	33	143		168		193	
119	3	144		169		194	
120	2	145		170		195	
121	3	146		171		196	
122	2	147		172		197	
123	3	148		173		198	
124	5	149		174		199	
125	5	150		175		200	

VIBRO 4/6/06

DRIVEN 4/7/06

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
142	1	3	144	1	3	145	1	3
	2	2		2	3		2	4
	3	2		3	3		3	3
	4	2		4	2		4	3
	5	2		5	3		5	3
	6	2		6	3		6	4
	7	2		7	2		7	5
	8	2		8	4		8	4
	9	2		9	2		9	4
	10	2		10	3		10	3
	11	2		11	3		11	3
	12	2		12	3		12	4
143	1	2						
	2	3						
	3	2						
	4	2						
	5	2						
	6	1						
	7	1						
	8	2						
	9	3						
	10	2						
	11	2						
	12	2						

Remarks:
- ☐ Rejected
- ☐ Added due to misdirected pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ stopped driving to splice at ____ ft
- ☐ stopped driving at ____ ft
- ☐

PILE:
Type ☐ End Bearing ☑ Friction
Size 24X160 open shoe steel w/spin fins
Design Capacity 1300 kips tons

HAMMER:
Type DelMagD46-32 sinactDiesel 8' stroke
Rated Energy 122,000 ft-lbs
Measured Energy ____ ft-lbs

Bruce Brown
Field Representative Signature

Blows for final ____ in.: 25 25 25 ___ ___ ___ Blows/in. Avg.: ____ Req. Avg.: ____

PILE NO.
E 3.1 page 2

146
4
3
4
4
3
3
5
4
4
5
4
4
5
5
5
7
7
11
12
12
14
18
21
25
26
40

Form 4013 (Regular)

Page 1 of 2

16" PIPE-PILE DRIVING LOG

PILE NO.

Column-Location E 3.1b

PROJECT & PIN	Ocean Gateway Project #00915.50
LOCATION	Portland, Maine
FOUNDATION I.D.	Pier A 16-inch pipe piles with open shoes & spin fins
GEN. CONTRACTOR	Reed & Reed Construction Company
PILE CONTRACTOR	Reed & Reed Construction Company
RESIDENT ENGR	Aurele Gorneau, II
TEAM GEOTECH	Haley & Aldrich
INSPECTOR	Bruce Brown Ken Page

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	99'7"
				MIDDLE	29'-10
				TOP	50'-2"
				Total length	165'-7"
				Length deducted	10'-0"
				Length deducted	
				Total deducted	
				Net length	155'-7"

Approx. Grnd Surf. El. _____ ft
Initial Top El. _____ ft
Length Of Pile _____ ft
Tip El. _____ ft
Cut-off El. _____ ft
Initial Pay Length _____ ft
Net Change In Tip El. _____ ft
Final Tip El. _____ ft
Final Pay Length _____ ft

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Necessary to redrive: ☐ Yes ☐ No
Redrive Blows Per Inch: 11 11 11 ___ ___ ___

Deviation from design location:
N ____ S ____ E ____ W ____

Final Inspection: Date _____ ☐ Pile Accepted ☐ Pile Rejected

Approx. Depth Preaugered: _____
Time Finish: Bottom _____ Middle _____ Top _____
Time Start: Bottom _____ Middle _____ Top _____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
1		26		51		76	
2		27		52		77	
3		28		53		78	
4		29		54		79	
5		30		55		80	
6		31		56		81	
7		32		57		82	
8		33		58		83	
9	WIRED	34	WIRED	59		84	
10		35		60	WIRED	85	
11		36		61		86	WIRED
12		37		62	WIRED	87	
13		38		63		88	WIRED
14		39		64		89	
15		40		65		90	
16		41		66		91	
17		42		67		92	
18		43		68		93	
19		44		69		94	
20		45		70		95	
21		46		71		96	
22		47		72		97	
23		48		73		98	
24		49		74		99	
25		50		75		100	

50'-7" SPLICE

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
	1			1			1	
	2			2			2	
	3			3			3	
	4			4			4	
	5			5			5	
	6			6			6	
	7			7			7	
	8			8			8	
	9			9			9	
	10			10			10	
	11			11			11	
	12			12			12	
	1							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							

Remarks:

- ☐ Rejected
- ☐ Added due to mislocated pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ Contractor stopped driving to splice at _____ ft
- ☐ Contractor stopped driving at _____ ft
- ☐

PILE:
Type ☐ End Bearing ☒ Friction
Size 16X180 open shoe steel w/spin fins
Design Capacity 200 kip tons

HAMMER:
Type DelMagD16-32 sinactDiesel10' stroke
Rated Energy 40,250 ft-lbs
Measured Energy _____ ft-lbs

Bruce Brown
Field Representative Signature

Blows for final ____ in.: 11 11 11 ___ ___ ___ Blows/in. Avg.: _____ Req. Avg.: _____

PILE NO.
E 3.1b page 1

Form 4013 (Regular)

Page 2 of 2

16 " PIPE-PILE DRIVING LOG

PILE NO.

Column-Location **E 3.1b**

PROJECT & PIN	Ocean Gateway Project #00915.50
LOCATION	Portland, Maine
FOUNDATION I.D.	**Pier A 16-inch pipe piles with open shoes & spin fins**
GEN. CONTRACTOR	Reed & Reed Construction Company
PILE CONTRACTOR	Reed & Reed Construction Company
RESIDENT ENGR	Aurele Gorneau, II
TEAM GEOTECH	Haley & Aldrich
INSPECTOR	Bruce Brown Ken Page

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	94'-7"
				MIDDLE	24'-10"
				TOP	50'-2"
				Total length	165'-7"
				Length deducted	10'-0"
				Length deducted	
				Total deducted	
				Net length	155'-7"

Approx. Grnd Surf. El. ____ ft
Initial Top El. ____ ft
Length Of Pile ____ ft
Tip El. ____ ft
Cut-off El. ____ ft
Initial Pay Length ____ ft
Net Change In Tip El. ____ ft
Final Tip El. ____ ft
Final Pay Length ____ ft

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving:			0.00
Final Check			

Necessary to redrive: ☐ Yes ☐ No
Redrive Blows Per Inch: 11 11 11

Deviation from design location:
N ____ S ____ E ____ W ____

Final Inspection: Date ____ ☐ **Pile Accepted** ☐ **Pile Rejected**

Approx. Depth Preaugered: ____
Time Finish: Bottom ____ Middle ____ Top ____
Time Start: Bottom ____ Middle ____ Top ____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
101		126		151		176	
102		127		152		177	
103		128	0	153		178	
104		129	8	154		179	
105		130	8	155		180	
106		131	1	156		181	
107		132	V	157		182	
108		133	✓	158		183	
109		134	20	159		184	
110		135	18	160		185	
111	0	136	20	161		186	
112	8	137	19	162		187	
113	8	138	18	163		188	
114	1	139	18	164		189	
115	V	140	18	165		190	
116		141	17	166		191	
117		142	18	167		192	
118		143	18	168		193	
119		144	17	169		194	
120		145	17	170		195	
121		146	22	171		196	
122		147	28	172		197	
123		148		173		198	
124		149		174		199	
125	✓	150		175		200	

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
148	1	4	150	1	6	151	1	8
	2	3		2	6		2	8
	3	3		3	6		3	8
	4	3		4	6		4	8
	5	4		5	5		5	9
	6	5		6	7		6	8
	7	4		7	8		7	9
	8	4		8	7		8	8
	9	3		9	7		9	6
	10	4		10	7		10	8
	11	4		11	7		11	7
	12	5		12	9		12	7
149	1	5						
	2	5						
	3	6						
	4	6						
	5	7						
	6	5						
	7	5						
	8	5						
	9	5						
	10	5						
	11	5						
	12	5						

Remarks:
- ☐ Rejected
- ☐ Added due to misplaced pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ – stopped driving to splice at ____ ft
- ☐ – stopped driving at ____ ft
- ☐

PILE:
Type ☐ End Bearing ☑ Friction
Size 16X180 open shoe steel w/spin fins
Design Capacity 200 kip tons

HAMMER:
Type DelMagD16-32 singactDiesel10' stroke
Rated Energy 40,250 ft-lbs
Measured Energy ____ ft-lbs

Bruce Brown
Field Representative Signature

Blows for final ____ in.: 11 11 11 Blows/in. Avg.: ____ Req. Avg.: ____

PILE NO.
E 3.1b page 2

Form 4013 (Regular)

Page 1 of 2

24" PIPE-PILE DRIVING LOG

PILE NO.

Column-Location **E 4.5**

PROJECT & PIN	Ocean Gateway Project #00915.50
LOCATION	Portland, Maine
FOUNDATION I.D.	Pier A 24-inch pipe piles with open shoes
GEN. CONTRACTOR	Reed & Reed Construction Company
PILE CONTRACTOR	Reed & Reed Construction Company
RESIDENT ENGR	Anrele Gorneau, II
TEAM GEOTECH	Haley & Aldrich
INSPECTOR	Bruce Brown Ken Page

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	92'0"
				MIDDLE	21'10"
				TOP	40'-3"
				Total length	154'1"
				Length deducted	
				Length deducted	
				Total deducted	
				Net length	

Approx. Grnd Surf. El. ____ ft
Initial Top El. ____ ft
Length Of Pile ____ ft
Tip El. ____ ft
Cut-off El. ____ ft
Initial Pay Length ____ ft
Net Change in Tip El. ____ ft
Final Tip El. ____ ft
Final Pay Length ____ ft

Heave

Measurement	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Necessary to redrive: ☐ Yes ☐ No
Redrive Blows Per Inch: 25 25 25 ___ ___ ___

Deviation from design location:
N ____ S ____ E ____ W ____

Final Inspection: **Date** ____ ☐ **Pile Accepted** ☐ **Pile Rejected**

Approx. Depth Preaugered: ____

Time Finish: Bottom ____ Middle ____ Top ____

Time Start: Bottom ____ Middle ____ Top ____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
1		26		51		76	
2		27		52		77	
3		28		53		78	
4		29		54		79	
5		30		55		80	
6		31		56		81	
7		32		57		82	
8		33		58		83	
9		34		59		84	
10		35		60		85	
11		36		61	1 BRO	86	0
12		37		62		87	8
13		38		63	1 BRO	88	8
14		39		64	1	89	1
15		40 MUD		65	1	90	1
16		41		66		91	
17		42		67		92	
18		43		68		93	
19		44		69		94	
20		45		70		95	
21		46		71		96	
22		47		72		97	
23		48		73		98	
24		49		74		99	
25		50		75		100	

VIBRO 4/6/06
DR1080 4/7/06

Depth (ft)	(in)	Blows (per in.)
	1	
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
	11	
	12	
	1	
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
	11	
	12	

Depth (ft)	(in)	Blows (per in.)
	1	
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
	11	
	12	

Depth (ft)	(in)	Blows (per in.)
	1	
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
	11	
	12	

Remarks:
- ☐ Rejected
- ☐ Added due to misloeated pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ ↑ stopped driving to splice at ____ ft
- ☐ ↓ stopped driving at ____ ft
- ☐

PILE:
Type ☐ End Bearing ☑ Friction
Size 24X180 open shoe steel
Design Capacity 1100 kip tons

HAMMER:
Type DelMag D46-32 singeDiesel 8' stroke
Rated Energy 122,000 ft-lbs
Measured Energy ____ ft-lbs

Bruce Brown
Field Representative Signature

Blows for final ____ in.: 25 25 25 ___ ___ ___ Blows/in. Avg.: ____ Req. Avg.: ____

PILE NO. **E 4.5 page 1**

Form 4013 (Regular)

Page 2 of 2

24 " PIPE-PILE DRIVING LOG

PILE NO.

Column-Location **E 4.5**

PROJECT & PIN	Ocean Gateway Project #00915.50	**RESIDENT ENGR**	Aurele Gorneau, II
LOCATION	Portland, Maine	**TEAM GEOTECH**	Haley & Aldrich
FOUNDATION I.D.	**Pier A 24-inch pipe piles with open shoes**	**INSPECTOR**	Bruce Brown Ken Page
GEN. CONTRACTOR	Reed & Reed Construction Company		
PILE CONTRACTOR	Reed & Reed Construction Company		

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	92'0"
				MIDDLE	21'10"
				TOP	40'3
				Total length	154'1"
				Length deducted	
				Length deducted	
				Total deducted	
				Net length	

Approx. Grnd Surf. El. _____ ft
Initial Top El. _____ ft
Length Of Pile _____ ft
Tip El _____ ft
Cut-off El. _____ ft
Initial Pay Length _____ ft
Net Change in Tip El. _____ ft
Final Tip El. _____ ft
Final Pay Length _____ ft

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Necessary to redrive: ☐ Yes ☐ No
Redrive Blows Per Inch: 25 25 25 ___ ___ ___

Deviation from design location:
N ____ S ____ E ____ W ____

Final Inspection: Date _____ ☐ **Pile Accepted** ☐ **Pile Rejected**

Approx. Depth Preaugered: _____ Time Start: _____ Bottom _____ Middle _____ Top _____ Time Finish: _____ Bottom _____ Middle _____ Top _____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
101	VIBRO	126	5	151		176	
102	↓	127	6	152		177	
103	2	128	7	153		178	
104	2	129	8	154		179	
105	3	130	7	155		180	
106	3	131	8	156		181	
107	3	132	9	157		182	
108	3	133	11	158		183	
109	3	134	12	159		184	
110	2	135	12	160		185	
111	2	136	12	161		186	
112	2	137	11	162		187	
113	2	138	11	163		188	
114	2	139	12	164		189	
115	2	140	14	165		190	
116	3	141	24	166		191	
117	2	142		167		192	
118	2	143		168		193	
119	2	144		169		194	
120	2	145		170		195	
121	2	146		171		196	
122	2	147		172		197	
123	2	148		173		198	
124	2	149		174		199	
125	2	150		175		200	

VIBRO 4/6/06
DRIVEN 4/9/06

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
142	1	2	144	1	40+	7	1	
	2	2		2		LESS THAN 1"	2	
	3	3		3			3	
	4	3		4			4	
	5	8		5			5	
	6	11		6			6	
	7	16		7			7	
	8	6		8			8	
	9	8		9			9	
	10	8		10			10	
	11	11		11			11	
	12	11		12			12	
143	1	18						
	2	27						
	3	13						
	4	7						
	5	10						
	6	14						
	7	15						
	8	18						
	9	20						
	10	12						
	11	27						
	12	25						

Remarks:
- ☐ Rejected
- ☐ Added due to mislocated pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ ☆ stopped driving to splice at ____ ft
- ☐ ~ stopped driving at ____ ft
- ☐

PILE:
Type ☐ End Bearing ☑ Friction
Size 24X180 open shoe steel
Design Capacity 1100 kips tons

HAMMER:
Type DelMagD46-32 sinactDiesel 8' stroke
Rated Energy 122,000 ft-lbs
Measured Energy _____ ft-lbs

Bruce Brown
Field Representative Signature

Blows for final ____ in.: 25 25 25 ___ ___ ___ Blows/in. Avg.: _____ Req. Avg.: _____

PILE NO.
E 4.5 page 2

Form 4013 (Regular)

Page 1 of 2

24" PIPE-PILE DRIVING LOG

PILE NO.

Column-Location **E 7.0**

PROJECT & PIN	Ocean Gateway Project #00915.50
LOCATION	Portland, Maine
FOUNDATION I.D.	**Pier A 24-inch pipe piles with open shoes**
GEN. CONTRACTOR	Reed & Reed Construction Company
PILE CONTRACTOR	Reed & Reed Construction Company
RESIDENT ENGR	Aurele Gorneau, II
TEAM GEOTECH	Haley & Aldrich
INSPECTOR	Bruce Brown Ken Page

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	94'-0"
				MIDDLE	22'-4"
				TOP	39'-10"
				Total length	156'-2"
				Length deducted	
				Length deducted	
				Total deducted	
				Net length	

Approx. Grnd Surf. El. _____ ft
Initial Top El. _____ ft
Length Of Pile _____ ft
Tip El. _____ ft
Cut-off El. _____ ft
Initial Pay Length _____ ft
Net Change in Tip El. _____ ft
Final Tip El. _____ ft
Final Pay Length _____ ft

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Necessary to redrive: ☐ Yes ☐ No
Redrive Blows Per Inch: 25 25 25 ___ ___ ___

Deviation from design location:
N ____ S ____ E ____ W ____

Final Inspection: **Date** _____ ☐ **Pile Accepted** ☐ **Pile Rejected**

Approx. Depth Preaugered: _____

Time Finish: Bottom _____ Middle _____ Top _____

Time Start: Bottom _____ Middle _____ Top _____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
1		26		51		76	
2		27		52		77	
3		28		53		78	
4		29		54		79	
5		30		55		80	
6		31		56		81	
7		32		57		82	
8		33		58		83	
9		34		59		84	
10		35		60		85	
11		36		61		86	
12		37		62	VIBRO	87	VIBRO
13		38		63		88	
14		39		64		89	
15		40	MUD	65		90	
16		41		66	VIBRO	91	VIBRO
17		42		67		92	
18		43		68		93	
19		44	VIBRO	69		94	
20		45		70		95	
21		46	VIBRO	71		96	
22		47		72		97	
23		48	VIBRO	73		98	
24		49		74		99	
25	✓	50	✓	75	✓	100	✓

VIBRO 4/6/06

DRIVEN 4/7/06

Depth (ft)	(in)	Blows (per in.)
	1	
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
	11	
	12	
	1	
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
	11	
	12	

Depth (ft)	(in)	Blows (per in.)
	1	
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
	11	
	12	

Remarks:

- ☐ Rejected
- ☐ Added due to misoriented pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ stopped driving to splice at ____ ft
- ☐ stopped driving at ____ ft
- ☐

PILE:
Type ☐ End Bearing ☑ Friction
Size 24X180 open shoe steel
Design Capacity 1000 kip tons

HAMMER:
Type DelMagD46-32 sinactDiesel 8' stroke
Rated Energy 122,000 ft-lbs
Measured Energy _____ ft-lbs

Bruce Brown
Field Representative Signature

Blows for final ____ **in.:** 25 25 25 ___ ___ ___ **Blows/in. Avg.:** _____ **Req. Avg.:** _____

PILE NO.
E 7.0 page 1

Form 4013 (Regoinc)

Page 2 of 2

24 " PIPE-PILE DRIVING LOG

PILE NO.

Column-Location **E 7.0**

PROJECT & PIN	Ocean Gateway Project #00915.50	RESIDENT ENGR	Aurele Gorneau, II
LOCATION	Portland, Maine	TEAM GEOTECH	Haley & Aldrich
FOUNDATION I.D.	Pier A 24-inch pipe piles with open shoes	INSPECTOR	Bruce Brown Ken Page
GEN. CONTRACTOR	Reed & Reed Construction Company		
PILE CONTRACTOR	Reed & Reed Construction Company		

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	94'-0"
				MIDDLE	22-9
				TOP	39'-10"
				Total length	156'-2"
				Length deducted	
				Length deducted	
				Total deducted	
				Net length	

Approx. Grnd Surf. El. _____ ft
Initial Top El. _____ ft
SPLICE Length Of Pile _____ ft
Tip El. _____ ft
Cut-off El. _____ ft
Initial Pay Length _____ ft
Net Change In Tip El. _____ ft
Final Tip El. _____ ft
Final Pay Length _____ ft

Heave Measurement

	Data shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Necessary to redrive: ☐ Yes ☐ No

Redrive Blows Per Inch: 25 25 25 ___ ___ ___

Deviation from design location:

N ____ S ____ E ____ W ____

Final Inspection: Date _____ ☐ Pile Accepted ☐ Pile Rejected

Approx. Depth Preaugered: _____

Time Finish: Bottom _____ Middle _____ Top _____

Time Start: Bottom _____ Middle _____ Top _____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
101	0	126	5	151		176	
102	2	127	5	152		177	
103	3	128	7	153		178	
104		129	8	154		179	
105	2	130	7	155		180	
106	3	131	7	156		181	
107	3	132	6	157		182	
108	3	133	8	158		183	
109	2	134	9	159		184	
110	2	135	12	160		185	
111	3	136	12	161		186	
112	3	137	14	162		187	
113	2	138	21	163		188	
114	3	139	23	164		189	
115	3	140		165		190	
116	3	141		166		191	
117	3	142		167		192	
118	3	143		168		193	
119	2	144		169		194	
120	2	145		170		195	
121	3	146		171		196	
122	3	147		172		197	
123	3	148		173		198	
124	3	149		174		199	
125	4	150		175		200	

VIBRO 4/6/06

DRIVEN 4/7/06

LESS THAN 1"

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
139			1			1		
	2		2			2		
	3	1	3			3		
	4		4			4		
	5		5			5		
	6		6			6		
	7		7			7		
	8	6	8			8		
	9	6	9			9		
	10	10	10			10		
	11	12	11			11		
	12	12	12			12		
140	1	21						
	2	26						
	3	27						
	4	18						
	5	18						
	6	30						
	7	45						
	8							
	9							
	10							
	11							
	12							

Remarks:

- ☐ Rejected
- ☐ Added due to misplaced pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ * stopped driving to splice at _____ ft
- ☐ + stopped driving at _____ ft
- ☐

PILE:

Type ☐ End Bearing ☑ Friction

Size 24X180 open shoe steel

Design Capacity 1000 kips tons

HAMMER:

Type DelMagD46-32 sinactDiesel 8' stroke

Rated Energy 122,000 ft-lbs

Measured Energy _____ ft-lbs

Bruce Brown
Field Representative Signature

Blows for final ____ in.: 25 25 25 ___ ___ ___ Blows/in. Avg.: _____ Req. Avg.: _____

PILE NO. **E 7.0 page 2**

Form 4013 (Regular)

Page 1 of 2

24" PIPE-PILE DRIVING LOG

PILE NO.

Column-Location **E 9.1**

PROJECT & PIN	Ocean Gateway Project #00915.50
LOCATION	Portland, Maine
FOUNDATION I.D.	**Pier A 24-inch pipe piles with open shoes**
GEN. CONTRACTOR	Reed & Reed Construction Company
PILE CONTRACTOR	Reed & Reed Construction Company
RESIDENT ENGR	Aurele Gorneau, II
TEAM GEOTECH	Haley & Aldrich
INSPECTOR	Bruce Brown Ken Page

	Bent No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	95'-2"
				MIDDLE	10'-4"
				TOP	50'-1"
				Total length	155'-7"
				Length deducted	14'-3"
				Length deducted	
				Total deducted	
				Net length	141'-4"

Approx. Grnd Surf. El. ____ ft
Initial Top El. ____ ft
Length Of Pile ____ ft
Tip El. ____ ft
Cut-off El. ____ ft
Initial Pay Length ____ ft
Net Change In Tip El. ____ ft
Final Tip El. ____ ft
Final Pay Length ____ ft

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Necessary to redrive: ☐ Yes ☐ No

Redrive Blows Per Inch: 25 25 25

Deviation from design location:

N ____ S ____ E ____ W ____

Final Inspection: Date ____ ☐ Pile Accepted ☐ Pile Rejected

Approx. Depth Preaugered: ____

Time Finish: Bottom ____ Middle ____ Top ____

Time Start: Bottom ____ Middle ____ Top ____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
1		26		51		76	
2		27		52		77	
3		28		53		78	
4		29		54		79	
5		30		55		80	
6		31		56		81	
7		32		57	0	82	0
8		33		58	0	83	0
9		34		59	0	84	0
10		35		60	1	85	1
11		36		61	1	86	1
12		37		62		87	
13		38		63		88	
14		39		64		89	
15		40		65		90	
16		41		66		91	
17		42		67		92	
18		43		68		93	
19		44		69		94	2
20		45		70		95	2
21		46		71		96	2
22		47		72		97	2
23		48		73		98	2
24		49		74		99	2
25		50		75		100	2

WATER COLUMN

MUD

Depth (ft)	(m)	Blows (per in.)	Depth (ft)	(m)	Blows (per in.)	Depth (ft)	(m)	Blows (per in.)
	1			1			1	
	2			2			2	
	3			3			3	
	4			4			4	
	5			5			5	
	6			6			6	
	7			7			7	
	8			8			8	
	9			9			9	
	10			10			10	
	11			11			11	
	12			12			12	
	1							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							

Remarks:

- ☐ Rejected
- ☐ Added due to mislocated pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ ⁺ stopped driving to splice at ____ ft
- ☐ – stopped driving at ____ ft
- ☐

PILE:

Type ☐ End Bearing ☑ Friction

Size 24X180 open shoe steel

Design Capacity 1100 kip tons

HAMMER:

Type DelMagD46-32 sinactDiesel 8' stroke

Rated Energy 122,000 ft-lbs

Measured Energy ____ ft-lbs

Bruce Brown
Field Representative Signature

Blows for final ____ in.: 25 25 25 Blows/in. Avg.: ____ Req. Avg.: ____

PILE NO.
E 9.1 page 1

Form 4013 (Regular)

Page 2 of 2

24 " PIPE-PILE DRIVING LOG

PILE NO.

Column-Location **E 9.1**

PROJECT & PIN	Ocean Gateway Project #00915.50	RESIDENT ENGR	Aurele Gorneau, II
LOCATION	Portland, Maine	TEAM GEOTECH	Haley & Aldrich
FOUNDATION I.D.	Pier A 24-inch pipe piles with open shoes	INSPECTOR	Bruce Brown Ken Page
GEN. CONTRACTOR	Reed & Reed Construction Company		
PILE CONTRACTOR	Reed & Reed Construction Company		

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	95'-2"
				MIDDLE	10'-4"
				TOP	50'-1
				Total length	155'-7"
				Length deducted	14'-3
				Length deducted	
				Total deducted	
				Net length	141'-4"

Heave

Measurement	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Approx. Grnd Surf. El. _____ ft
Initial Top El. _____ ft
Length Of Pile _____ ft
Tip El. _____ ft
Cut-off El. _____ ft
Initial Pay Length _____ ft
Net Change in Tip El. _____ ft
Final Tip El. _____ ft
Final Pay Length _____ ft

Necessary to redrive: ☐ Yes ☐ No
Redrive Blows Per Inch: 25 25 25 ___ ___ ___

Deviation from design location:
N ____ S ____ E ____ W ____

Final Inspection: Date _____ ☐ Pile Accepted ☐ Pile Rejected

Approx. Depth Preaugered: _____
Time Finish: Bottom _____ Middle _____ Top _____
Time Start: Bottom _____ Middle _____ Top _____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
101	3	126	3	151		176	
102	3	127	3	152		177	
103	3	128	5	153		178	
104	3	129	6	154		179	
105	3	130	8	155		180	
106	3	131	9	156		181	
107	3	132	11	157		182	
108	3	133	10	158		183	
109	3	134	10	159		184	
110	3	135	10	160		185	
111	3	136	10	161		186	
112	3	137	9	162		187	
113	3	138	12	163		188	
114	3	139	32	164		189	
115	3	140		165		190	
116	3	141		166		191	
117	3	142		167		192	
118	3	143		168		193	
119	3	144		169		194	
120	3	145		170		195	
121	3	146		171		196	
122	3	147		172		197	
123	3	148		173		198	
124	4	149		174		199	
125	4	150		175		200	

Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)	Depth (ft)	(in)	Blows (per in.)
140	1	4		1			1	
	2	8		2			2	
	3	9		3			3	
	4	9		4			4	
	5	10		5			5	
	6	10		6			6	
	7	14		7			7	
	8	14		8			8	
	9	18		9			9	
	10	17		10			10	
	11	14		11			11	
	12	18		12			12	
141	1	16						
	2	18						
	3	20						
	4	24						
	5	28						
	6	32						
	7	33						
	8							
	9							
	10							
	11							
	12							

Remarks:

- ☐ Rejected
- ☐ Added due to misfeonted pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ ½ stopped driving to splice at _____ ft
- ☐ + stopped driving at _____ ft
- ☐

PILE:
Type ☐ End Bearing ☒ Friction
Size 24X180 open shoe steel
Design Capacity 1100 kips tons

HAMMER:
Type DelMagD46-32 singactDiesel 8' stroke
Rated Energy 122,000 ft-lbs
Measured Energy _____ ft-lbs

Bruce Brown
Field Representative Signature

Blows for final ____ in.: 25 25 25 ___ ___ ___ Blows/in. Avg.: _____ Req. Avg.: _____

PILE NO.
E 9.1 page 2

Form 4013 (Regular)

Page 1 of 2

24" PIPE-PILE DRIVING LOG

PILE NO.

Column-Location **E 12.3**

PROJECT & PIN	Ocean Gateway Project #00915.50
LOCATION	Portland, Maine
FOUNDATION I.D.	**Pier A 24-inch pipe piles with open shoes**
GEN. CONTRACTOR	Reed & Reed Construction Company
PILE CONTRACTOR	Reed & Reed Construction Company
RESIDENT ENGR	Aurele Gorneau, II
TEAM GEOTECH	Haley & Aldrich
INSPECTOR	Bruce Brown Ken Page

	Reel No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	95'-1"
				MIDDLE	10'-5"
				TOP	49'-11"
				Total length	155'-5"
				Length deducted	14'-8½"
				Length deducted	
				Total deducted	
				Net length	140'-8½"

Approx. Grnd Surf. El. ____ ft
Initial Top El. ____ ft
Length Of Pile ____ ft
Tip El. ____ ft
Cut-off El. ____ ft
Initial Pay Length ____ ft
Net Change In Tip El ____ ft
Final Tip El. ____ ft
Final Pay Length ____ ft

Heave Measurement

	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Necessary to redrive: ☐ Yes ☐ No
Redrive Blows Per Inch: 25 25 25

Deviation from design location:
N ____ S ____ E ____ W ____

Final Inspection: Date ____ ☐ Pile Accepted ☐ Pile Rejected

Approx. Depth Preaugered: ____
Time Finish: Bottom ____ Middle ____ Top ____
Time Start: Bottom ____ Middle ____ Top ____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
1		26	4	51		76	
2		27	4	52		77	
3		28	4	53		78	
4		29	4	54		79	
5		30	5	55		80	
6		31	5	56		81	
7		32		57		82	
8	LAND	33	WATER	58		83	
9	LAND	34	WATER	59		84	
10	LAND	35	WATER	60		85	
11	LAND	36	WATER	61	0	86	0
12	LAND	37	WATER	62	R	87	R
13	LAND	38	WATER	63	B	88	B
14		39		64	L	89	L
15		40		65	L	90	L
16	WATER	41		66		91	
17	WATER	42	MUD	67		92	
18	WATER	43	1	68		93	3
19	WATER	44	1	69		94	3
20	WATER	45	0	70		95	2
21		46	R	71		96	3
22		47	B	72		97	3
23		48	L	73		98	3
24		49	L	74		99	2
25		50	L	75	L	100	3

Depth (ft) (in)	Blows (per in.)	Depth (ft) (in)	Blows (per in.)	Depth (ft) (in)	Blows (per in.)
1		1		1	
2		2		2	
3		3		3	
4		4		4	
5		5		5	
6		6		6	
7		7		7	
8		8		8	
9		9		9	
10		10		10	
11		11		11	
12		12		12	
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Remarks:

- ☐ Rejected
- ☐ Added due to misoriented pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ ← stopped driving to splice at ____ ft
- ☐ ← stopped driving at ____ ft
- ☐

PILE:
Type ☐ End Bearing ☑ Friction
Size 24X180 open shoe steel
Design Capacity 700 kip tons

RAMMER:
Type DelMagD46-32 sinactDiesel 8' stroke
Rated Energy 122,000 ft-lbs
Measured Energy ____ ft-lbs

Bruce Brown
Field Representative Signature

Blows for final ____ in.: 25 25 25 Blows/in. Avg.: ____ Req. Avg.: ____

PILE NO. **E 12.3 page 1**

Form 4013 (Regular)

Page 2 of 2

24 " PIPE-PILE DRIVING LOG

PILE NO.

Column-Location **E 12.3**

PROJECT & PIN	Ocean Gateway Project #00915.50	RESIDENT ENGR	Aurele Gorneau, II
LOCATION	Portland, Maine	TEAM GEOTECH	Haley & Aldrich
FOUNDATION I.D.	**Pier A 24-inch pipe piles with open shoes**	INSPECTOR	Bruce Brown Ken Page
GEN. CONTRACTOR	Reed & Reed Construction Company		
PILE CONTRACTOR	Reed & Reed Construction Company		

	Heat No.	Pile ID No.	Date Driven	Section	Measured Lengths (ft)
				BOTTOM	95'-1"
				MIDDLE	10'-5"
				TOP	49'-11"
				Total length	155'-5"
				Length deducted	14'-8½"
				Length deducted	
				Total deducted	
				Net length	140'-8½"

Approx. Grnd Surf. El. _____ ft
Initial Top El. _____ ft
Length Of Pile _____ ft
Tip El. _____ ft
Cut-off El. _____ ft
Initial Pay Length _____ ft
Net Change In Tip El. _____ ft
Final Tip El. _____ ft
Final Pay Length _____ ft

Heave

Measurement	Date shot	Elevation (ft)	Movement (ft)
End of Driving			0.00
Final Check			

Necessary to redrive: ☐ Yes ☐ No

Redrive Blows Per Inch: 25 25 25 ___ ___ ___

Deviation from design location:

N ____ S ____ E ____ W ____

Final Inspection: **Date** _____ ☐ **Pile Accepted** ☐ **Pile Rejected**

Approx. Depth Preaugered: _____

Time Bottom _____ Finish: Middle _____ Top _____

Time Bottom _____ Start: Middle _____ Top _____

Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)	Depth (ft)	Blows (per ft.)
101	3	126	3	151		176	
102	3	127	3	152		177	
103	3	128	3	153		178	
104	3	129	3	154		179	
105	3	130	3	155		180	
106	3	131	4	156		181	
107	3	132	4	157		182	
108	3	133	3	158		183	
109	3	134	3	159		184	
110	3	135	4	160		185	
111	3	136	5	161		186	
112	3	137	11	162		187	
113	3	138	32	163		188	
114	3	139		164		189	
115	3	140		165		190	
116	3	141		166		191	
117	4	142		167		192	
118	3	143		168		193	
119	3	144		169		194	
120	3	145		170		195	
121	3	146		171		196	
122	3	147		172		197	
123	3	148		173		198	
124	3	149		174		199	
125	4	150		175		200	

Depth (ft)	(in)	Blows (per in.)
138	1	
	2	
	3	
	4	
	5	
	6	
	7	6
	8	7
	9	8
	10	7
	11	8
	12	7
139	1	10
	2	10
	3	9
	4	8
	5	9
	6	11
	7	10
	8	10
	9	8
	10	9
	11	12
	12	11

Depth (ft)	(in)	Blows (per in.)
140	1	11
	2	10
	3	9
	4	9
	5	8
	6	11
	7	14
	8	13
	9	15
	10	16
	11	14
	12	14

Depth (ft)	(in)	Blows (per in.)
141	1	16
	2	13
	3	14
	4	16
	5	16
	6	19
	7	17
	8	15
	9	20
	10	29
	11	35
	12	28

Remarks:

- ☐ Rejected
- ☐ Added due to mislocated pile
- ☐ Added due to broken pile
- ☐ Added due to design change
- ☐ Deleted due to design change
- ☐ Possibly broken
- ☐ Completed with follower
- ☐ V stopped driving to splice at _____ ft
- ☐ + stopped driving at _____ ft
- ☐

PILE:

Type ☐ End Bearing ☒ Friction

Size 24X180 open shoe steel

Design Capacity 700 kips tons

HAMMER:

Type DelMagD46-32 sinactDiesel 8' stroke

Rated Energy 122,000 ft-lbs

Measured Energy _____ ft-lbs

Bruce Brown

Field Representative Signature

Blows for final ____ **in.:** 25 25 25 ___ ___ ___ **Blows/in. Avg.:** _____ **Req. Avg.:** _____

PILE NO.

E 12.3 page 2

Form 4013 (Regular)

APPENDIX 3
PIN 017832.00

PERMIT DOCUMENTS

David Senus

From: Hallowell, Dawn [Dawn.Hallowell@maine.gov]
Sent: Wednesday, January 07, 2009 11:48 AM
To: Barry Sheff
Cc: Joe Gray (Portland); Pottle, Paul; pfinnigan@portlandmaine.gov
Subject: RE: Ocean Gateway Permit-Pier 2 Berth 2

The project is ok to proceed following previously approved plans for Pier 2 Berth 2. Any variation from those plans will require a modification to the Site permit.

If you have any questions, please call me at 822-6324.

Dawn Hallowell
Maine DEP
312 Canco Rd
Portland ME 04103
822-6324
Dawn.Hallowell@maine.gov

-----Original Message-----
From: Barry Sheff [mailto:bsheff@woodardcurran.com]
Sent: Tuesday, January 06, 2009 6:36 PM
To: Hallowell, Dawn
Cc: Joe Gray (Portland); Pottle, Paul; pfinnigan@portlandmaine.gov
Subject: Ocean Gateway Permit-Pier 2 Berth 2

Dawn,
Thanks for talking with me earlier today about Ocean Gateway; I am certainly glad we had the chance to discuss the project and the permits. In an effort to memorialize our discussion, I offer the following on behalf of the City of Portland and MaineDOT.

As you know, on August 20, 2004 the Maine Department of Environmental Protection approved and issued a Department Order to Maine Department of Transportation (MaineDOT) and City of Portland to construct Ocean Gateway, Phase 1, a multi-modal transportation facility on Portland's eastern waterfront.

Construction of the project began in August 2005 and continued through May 2008. During construction and to resolve field conditions, on April 10, 2006 the Maine Department of Environmental Protection approved and issued a Minor Revision/Modification for Coastal Wetland Alteration as Department Order L-7866-26-I-M & L-7866-4E-J-M to MaineDOT and the City. At this point, all components of the project are substantially complete, excluding the addition to the existing Pier 2 commonly referred to as Pier 2 Berth 2. Regrettably, available funding and construction cost increases did not allow for Pier 2 Berth 2 to be constructed concurrent with other portions of the project. That said, MaineDOT and the City are currently anticipating funds may be available with the forthcoming Federal Stimulus Package that is anticipated to be signed in the end of January 2009. These funds will enable the completion of Pier 2 Berth 2.

Consistent with this plan to move forward with construction of Pier 2 Berth 2, we are also requesting a time extension to our Department of the Army Permit from the Corps of Engineers, and Permit from Board of Harbor Commissioners Harbor of Portland.

I understand from our discussion and given the standard conditions of the Order, that a formal permit extension is not required from Maine Department of Environmental Protection. With that understanding and excepting a response indicating otherwise from the Maine Department of Environmental Protection, the City and MaineDOT will be proceeding with

construction of Pier 2 Berth 2 as designed and permitted, potentially as early as the Spring of 2009.

We look forward to your response and any clarification you may offer regarding the Order, or this email. Should you have any questions, please do not hesitate to contact me.
Best
Barry

Barry Sheff, P.E.
Senior Vice President/Senior Project Manager
(207) 774-2112 ext. 3266 (office)
(207) 774-6635 (fax)
(207) 749-4171 (cell)
bsheff@woodardcurran.com

Woodard & Curran
www.woodardcurran.com
Commitment & Integrity Drive Results

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE HOUSE STATION 17 AUGUSTA, MAINE 04333

DEPARTMENT ORDER

IN THE MATTER OF

MAINE DEPARTMENT OF TRANSPORTATION	) SITE LOCATION OF DEVELOPMENT
& CITY OF PORTLAND	) NATURAL RESOURCES PROTECTION
Portland, Cumberland County	) WATER QUALITY CERTIFICATION
OCEAN GATEWAY, PHASE 1	)
L-7866-26-E-N & L-7866-4E-F-N (approval)	) FINDINGS OF FACT AND ORDER

Pursuant to the provisions of 38 M.R.S.A. Sections 481 et seq. and 480-A et seq., and Section 401 of the Federal Water Pollution Control Act, the Department of Environmental Protection has considered the application of the MAINE DEPARTMENT OF TRANSPORTATION & CITY OF PORTLAND with the supportive data, agency review comments, and other related materials on file and FINDS THE FOLLOWING FACTS:

1. PROJECT DESCRIPTION:

A. History of Project: In Board Order #03/44-7866-05170, dated June 9, 1982, the Board approved the development of a ship repair and overhaul facility for Bath Iron Works (BIW), pursuant to the Site Location of Development Law (Site Law). The facility is located along Commercial Street in Portland. The Department subsequently issued several modifications and new permits for the project site under both the Site Law and the Natural Resources Protection Act (NRPA). On December 20, 2001, the Department transferred all active existing Department permits for the property, including those issued under the Site Law and NRPA, to the City of Portland, the property's owner.

The Ocean Gateway project includes improvements on the BIW site (Phase 1) and improvements to the Casco Bay Island Transit District (CBITD) facility located on the Maine State Pier. The CBITD is located on land owned by the City of Portland and is included in this application. Improvements to the CBITD facility have not yet been quantified and will be permitted separately as a future phase of this project. The City of Portland is also pursuing funding opportunities to support in-fill development on and around the Ocean Gateway site. The City of Portland acknowledges that it may need to modify or amend this permit in the future for those activities.

B. Summary: The applicants propose to redevelop the former BIW shipyard repair facility and adjacent city-owned land into a facility focusing on marine related uses. Phase 1 involves the expansion of marine transportation services and will be located primarily on the former BIW site. The Phase 1 project will provide berths for cruise

ships and passenger ferry services, and will maintain marine commercial operations. The applicants propose to redevelop two ship berths, construct an addition on the existing pier (Pier 2), construct a new roll on/off bridge in the existing seawall, install two new stormwater outfalls, construct three new buildings (terminal building on Pier 2, receiving station and vehicle inspection station), construct surface parking and vehicle cueing lanes, and extend the existing street network (Commercial Street and Hancock Street connect to Fore Street). Pier 2 improvements will include constructing a 12,640 square foot pier addition that will hold a 7,600 square foot terminal building, constructing a pedestrian gangway leading to a float, a catwalk suspended by dolphins, and adding a fendering system to the existing pier. The proposed project is shown on a set of plans, the first of which is entitled "City of Portland Ocean Gateway Phase 1," prepared by Woodard & Curran and BEA International in association with Gorrill-Palmer Consulting Engineers. The last revision date on any of plan sheets is March 19, 2004. The project site is located on the southeast side of Commercial Street in the City of Portland.

Portions of the proposed project will be located within the coastal wetland and within 75 feet of the edge of the coastal wetland. The applicants filed a Natural Resources Protection Act permit application for the filling and alteration of the coastal wetland and for construction adjacent to the protected natural resource.

C. Current Use of Site: The site of the proposed project is currently developed with pavement and buildings. It is located on Casco Bay, adjacent to the Narrow Gauge Railroad track and the Eastern Prom Trail. It includes the former BIW site that is currently leased out for commercial marine uses.

2. TITLE, RIGHT OR INTEREST:

The applicants provided documentation indicating that they had adequate title, right or interest in the parcel. The Department of Conservation, Bureau of Parks and Lands issued a submerged lands lease #0337-L-33 on August 12, 2004.

3. FINANCIAL CAPACITY:

The total cost of the project is estimated to be between $10.2 and $14.7 million dollars. The applicants submitted a breakdown of the funding sources for this project. They include a mix of bonds, grants and budget allocations from federal agencies, state agencies and local government.

The Department finds that the applicants have demonstrated adequate financial capacity to comply with Department standards.

4. TECHNICAL ABILITY:

The applicants provided resume information for key persons involved with the project and a list of projects successfully constructed by the applicant. The applicant also retained the services of Woodard & Curran, a professional engineering firm, to assist in the design and engineering of the project.

The Department finds that the applicants have demonstrated adequate technical ability to comply with Department standards.

5. NOISE:

The Department finds that no regulated sources of noise have been identified.

6. SCENIC CHARACTER:

The project site is presently being used for industrial marine purposes and related parking. These uses are well established. There is an existing mural (Whales off the Gulf of Maine by Wyland) painted on the west side of the transit shed. The applicants do not propose to alter the mural. The applicants propose to demolish some of the existing buildings and construct two new buildings that have been designed by an architect. The architecture and scale of the two proposed buildings will reflect the scenic character of the surrounding area. The project will be landscaped and lighted to comply with the City of Portland's Land Use Ordinance. The existing streets and abutting properties will be shielded from the new lights.

Based on the project's location and design, the Department finds that the proposed project will not have an unreasonable adverse effect on the scenic character of the surrounding area.

7. WILDLIFE AND FISHERIES:

The Maine Department of Inland Fisheries & Wildlife (MDIFW) reviewed the proposed project. In its comments, MDIFW stated that it found no records of any essential or significant wildlife habitats, or other wildlife habitats of special concern associated with this site. No inland fisheries concerns were identified.

The Department of Marine Resources (DMR) also reviewed the proposed project. DMR stated that the project should not cause any significant adverse impact to marine resources, navigation or recreation. DMR personnel visited the project site on March 2, 2004. The site of the proposed project is a moderate energy unconsolidated shore. The upland is developed with buildings, equipment yards and parking lots. The intertidal zone is variable in width and slope. The supratidal is the base of either granite block or

timber bulkhead. The intertidal is predominately sand, gravel and cobble with some stones and many relic piles. The near subtidal is similar. There is moderate to heavy seaweed cover. Barnacles, periwinkles and mussels are present. Subtidal diver video and intertidal transects (conducted in March 2001) found the bottom to be generally homogenous mud covering either clay or clay/gravel mix, with the exception of the dry dock area which has been previously dredged. Some subtidal and intertidal areas are littered with old pilings and debris. The applicant conducted lobster densities in March 2001 and again in August 2001. The average density over the entire area was less than 0.1 per square meter. Winter flounder were also observed in this area. DMR stated that it would be preferable to drive piles at this site during mid-November to mid-March in order to avoid lobsters and winter flounder, but it also stated that it is likely these species will move out of the area upon commencement of the project.

The Department finds that the applicants have made adequate provision for the protection of wildlife and fisheries.

8. HISTORIC SITES AND UNUSUAL NATURAL AREAS:

The Maine Historic Preservation Commission reviewed the proposed project and stated that it will have no effect upon any structure or site of historic, architectural, or archaeological significance as defined by the National Historic Preservation Act of 1966.

The Maine Natural Areas Program database does not contain any records documenting the existence of rare or unique botanical features on the project site and, as discussed in Finding 6, MDIFW did not identify any unusual wildlife habitats located on the project site.

The Department finds that the proposed development will not have an adverse effect on the preservation of any historic sites or unusual natural areas either on or near the development site.

9. BUFFER STRIPS:

The applicants do not propose any formal buffer strips. The property is already fully developed with parking areas or structures. The surrounding area is Portland's working waterfront. The applicants propose to landscape the property to better enhance the visual quality of the project. The Department finds that buffer strips are not required for this project.

10. SURFACE WATER QUALITY:

The proposed project is not located within the watershed of a lake or great pond. No discharges to surface waters are proposed other than stormwater.

The proposed project includes 0.85 acres of new impervious area added to an already developed site for a total of 16.8 acres of impervious area and will discharge directly into the Atlantic Ocean. Stormwater runoff from the project site will be treated to meet the sliding scale total suspended solids (TSS) standard outlined in Chapter 500 of the Department Rules. The applicant proposes to remove 40.3 per cent of TSS from the project's stormwater runoff through the use of two-manufactured stormwater treatment units. The location of these units can be found on Figure 12.2 entitled "Post Development Stormwater Plan," prepared by Woodard & Curran and last revised March 19, 2004. The applicants propose to install either Vortechs Model 11000 and 16000 manufactured by Vortechnics Inc., or the Downstream Defender 8-foot diameter and 10-foot diameter units manufactured by Hydro International.

As discussed in Finding 11, the applicants' proposed stormwater management system was reviewed by, and revised in response to, comments from the Division of Watershed Management of the Bureau of Land and Water Quality (DWM). Specific aspects of the system, including measures to protect water quality, are further discussed in Finding 11.

Based on the stormwater management system's design and DWM's review, the Department finds that the applicants have made adequate provision to ensure that the proposed project will not have an unreasonable adverse impact on surface water quality.

11. SOILS:

The applicants submitted a soil survey map and a geotechnical report based on the soils found at the project site. This report was prepared by a registered professional engineer and reviewed by staff from the Division of Environmental Assessment of the Bureau of Land and Water Quality (DEA).

The Department finds that, based on this report and DEA's review, the soils on the project site present no limitations to the proposed project that cannot be overcome through standard engineering practices.

12. STORMWATER MANAGEMENT:

The property is developed and has a history of commercial uses. There are no streams or freshwater wetlands on this property. The property abuts the working Portland waterfront.

The applicants are not proposing a formal stormwater management system to detain stormwater from 24-hour storms of 2-, 10-, and 25-year frequency. Instead, since the project site is located adjacent to the Atlantic Ocean, the applicants requested a variance from the peak flow standard pursuant to Department Rules, Chapter 500(3)(A)(1).

The stormwater management system proposed by the applicants, consisting of a stormdrain system, was reviewed by, and revised in response to, comments from the Division of Watershed Management of the Bureau of Land and Water Quality (DWM). In its comments, DWM stated that the proposed system complies with Department standards for stormwater management.

Based on the system's design and DWM's review, the Department finds that the applicants have made adequate provision to ensure that the proposed project will meet the stormwater quantity standards for: (1) peak flow from the site and peak flow of the receiving waters; (2) grading or other construction activity; (3) channel limits and runoff areas; (4) maintenance; and (5) discharge to freshwater or coastal wetlands.

13. MAINTENANCE OF COMMON FACILITIES:

The applicants will be responsible for insuring the proper use of erosion and sedimentation control measures during project construction. Upon project completion, the City of Portland will be responsible for the maintenance of all common facilities including the road and stormwater management system, which maintenance will include, but not be limited to the long-term maintenance of the stormwater management system as outlined in Section 13 of the application. The responsibility for maintenance will be split between the City's Public Works Department and the City's Department of Ports and Transportation. The applicants submitted letters from both City Department's stating their commitment to maintaining the project. The City's Department of Ports and Transportation will be responsible for the on-going maintenance of the water quality units according to the manufacturer specifications.

14. EROSION AND SEDIMENTATION CONTROL:

The applicants submitted an Erosion and Sedimentation Control Plan as Section 14 of the application. This plan and plan sheets containing erosion control details were reviewed by, and revised in response to the comments of DWM. Erosion control details will be included on the final construction plans and the erosion control narrative will be included in the project specifications to be provided to the construction contractor.

The Department finds that the applicants have made adequate provision to control erosion and sedimentation.

15. GROUNDWATER:

There is a shorezone containment area at the project site that was closed under the Voluntary Response Action Program. It contains dredge spoils from a dredging project done in the 1980's. The Bureau of Remediation and Waste Management issued a Certification of Completion of Remedial Actions on July 25, 2000. Condition #1 on this certification prohibits the installation of drinking water wells on the property.

The project site is not located over a mapped sand and gravel aquifer. The proposed project does not propose any withdrawal from, or discharge to, the groundwater.

The Department finds that the proposed project will not have an unreasonable adverse effect on ground water quality.

16. WATER SUPPLY:

When completed, the proposed project is anticipated to use an average of 6,300 gallons of water per day. Visiting cruise ships may take on water while docked at this facility. The applicants estimate the maximum demand of water to be 540,000 gallons of water per day. Water will be supplied by the Portland Water District. The applicants submitted a letter from the District, dated November 17, 2003, indicating that it will be capable of servicing this project.

The Portland Water district requested that the applicants extend the 12-inch water main on Commercial Street easterly from India Street and tie through the Hancock Street extension to the intersection of Hancock and Newbury Streets with an 8-inch main. This would draw water from a larger area and minimize water pressure fluctuations. It also suggested the use of multiple service points and meters on the project site, to minimize water pressure fluctuations and disruptions to its existing customers due to demands made on the project site. The applicants propose to extend the public water service as recommended by the Portland Water District.

The Department finds that the applicants have made adequate provision for securing and maintaining a sufficient and healthful water supply.

17. WASTEWATER DISPOSAL:

When completed, the proposed project is anticipated to discharge 6,300 gallons of wastewater per day to the Portland East End wastewater treatment facility. The project site is already served by the wastewater treatment facility. The applicants do not propose to upgrade the existing sanitary sewer lines. At this time, the applicants do not propose to accept wastewater from cruise ships and therefore the wastewater treatment plant will not be subjected to the large peaks that the water supply system may experience. The applicants submitted a letter from the Portland Water District, which operates the Portland East End wastewater treatment facility, stating that it will accept these flows. This project was reviewed by the Division of Engineering, Compliance and Technical Assistance of the Bureau of Land and Water Quality (DECTA), which commented that the Portland East End wastewater treatment facility has the capacity to treat these flows and is operating in compliance with the water quality laws of the State of Maine. DECTA also stated that this project should have little impact on existing Combined

Sewer Overflows in the area and that the City of Portland is actively pursuing Combined Sewer Overflow Abatement plans.

Based on DECTA's comments, the Department finds that the applicants have made adequate provision for wastewater disposal at a facility that has the capacity to ensure satisfactory treatment.

18. SOLID WASTE:

When completed, the proposed project is anticipated to generate 134 cubic yards of cruise ship, warehouse and general office solid waste per week. All general solid wastes from the proposed project will be disposed of at Regional Waste Systems, which is currently in substantial compliance with the Solid Waste Management Regulations of the State of Maine.

The proposed project will generate approximately 29 tons of construction debris and demolition debris. All construction and demolition debris generated will be disposed of at Waste Management's Cross Roads landfill in Norridgewock, which is currently in substantial compliance with the Solid Waste Management Regulations of the State of Maine.

The applicants submitted the results of asbestos and lead-based paint inspections conducted by Air Quality Management Services, a licensed asbestos consultant and lead inspection company. The Department's Lead and Asbestos Hazard Prevention Program (LAHPP) reviewed the results of these inspections. LAHPP stated in review comments that the inspections were conducted in accordance with Department Rules, Chapter 425. Asbestos was found in gasket material and its removal is not regulated provided the gasket itself is encased by a facility component that will not be disturbed or impacted during removal. LAHPP also stated that the Department does not regulate the removal of lead-based paint in commercial or industrial facilities.

Excavated soil will be tested to check for the presence of hazardous materials in accordance with the Solid Waste Management Regulations. The applicants propose to dispose of contaminated soils at Commercial Recycling Systems, which is an acceptable disposal site.

Based on the above information, the Department finds that the applicants have made adequate provision for solid waste disposal.

19. FLOODING:

Portions of the property are located within an A2 zone with an elevation of 10 feet National Geodetic Vertical Datum (NGVD), a V2 zone with an elevation of 13 feet NGVD, and a V3 zone with an elevation of 12 feet NGVD. Pier 2 and portions of the

shorezone containment area are located with in the V2 zone. The top deck of Pier 2 will be subject to wave velocity hazards during a 100-year flood. The applicants propose to construct Pier 2 and the structures located on top of Pier 2 in accordance with building codes and the Federal Emergency Management Agency's Coastal Construction Manual. Approximately half of the shorezone containment area is subject to twice daily flooding as a result of tidal fluctuations. The applicants do not propose to develop the shorezone containment area.

The Department finds that the proposed project is unlikely to cause or increase flooding or cause an unreasonable flood hazard to any structure.

20. WETLAND IMPACTS:

The applicants propose to fill 210 square feet of coastal wetland to in order to install riprap around two new stormwater outfall pipes. They also propose to alter an additional 29,000 square feet of coastal wetland for the construction of over-water structures including, pile supported piers, the roll on/off bridge, catwalks and dolphins. The applicants propose to construct a 7,600 square foot, two-story terminal building with an additional 1,400 square foot mezzanine, on Pier 2. The piles necessary to support the over-water structures will occupy approximately 298 square feet of coastal wetland.

The Department's Wetlands and Waterbodies Protection Rules, Chapter 310, require that the applicants to meet the following standards:

a. Avoidance. No activity may be permitted if there is a practicable alternative to the project that would be less damaging to the environment. Every permit application to alter a coastal wetland must provide an analysis of alternatives in order to demonstrate that a practicable alternative does not exist. The applicants submitted an alternative analysis for the proposed project completed by Woodard & Curran and dated January 2004. The applicants considered four alternatives: no build, an alternative site location within the City of Portland, a new project site within the vicinity of the City of Portland, and downsizing the proposed project. The no build alternative does not resolve escalating conflicts between passenger ferry service and cargo operations at the International Marine Terminal. There is no other alternate site along the Portland waterfront that is available for purchase or could accommodate this project without greater environmental impacts. There are no other available sites that could accommodate this project within the vicinity of the City of Portland without greater environmental impacts. The applicants have analyzed the size of the proposed project and believe that it is appropriately sized to meet the project purpose. The applicants designed the proposed project to have the least amount of environmental impact. There are no other practicable alternatives to the project that would be less damaging to the environment.

b. Minimal Alteration. The amount of wetland to be altered must be kept to the minimum amount necessary for meeting the overall purpose of the project. The

applicants explored several design alternatives that would meet the project purpose. The proposed project will alter the least amount of coastal wetland.

c. Compensation. The applicants submitted functional assessments completed for the intertidal and subtidal areas, prepared by MER Assessment Corporation and dated April 16, 2001 and December 9, 2001. The assessments were conducted according to the Department's guideline for determining the functions and values of Maine's coastal wetlands. This property has a history of commercial and industrial uses. The upland is almost completely developed, only a narrow band of vegetation existing along the top of the seawall. The near shore intertidal areas are littered with large amounts of pilings, remnants of wood wharves, bricks and other debris not of marine origin. Some subtidal areas have been dredged and now provide deep water. The flora and fauna found in the intertidal and subtidal areas on this site are common and ubiquitous within Portland Harbor and elsewhere along the Maine coast. No unusual, threatened or endangered species were found during the surveys.

Based on the results of the functional assessment, the fact that the fill in the intertidal area will be less than 500 square feet, and that there will not be an adverse impact on marine resources or wildlife habitat as determined by DMR or DIF&W, compensation is not required.

The Department finds that the applicants have avoided and minimized wetland impacts to the greatest extent practicable, and that the proposed project represents the least environmentally damaging alternative that meets the overall purpose of the project.

21. AIR QUALITY:

The existing air emissions license Department #A-50-71-I-R was transferred from Bath Iron Works to the City of Portland. During the redevelopment of this site, the applicants propose to reduce air emissions to only heating boilers and vehicular traffic.

The Department finds that no significant source of air emissions have been identified with this project.

BASED on the above findings of fact, and subject to the conditions listed below, the Department makes the following conclusions pursuant to 38 M.R.S.A. Sections 480-A et seq. and Section 401 of the Federal Water Pollution Control Act:

A. The proposed activity will not unreasonably interfere with existing scenic, aesthetic, recreational, or navigational uses.

B. The proposed activity will not cause unreasonable erosion of soil or sediment.

C. The proposed activity will not unreasonably inhibit the natural transfer of soil from the terrestrial to the marine or freshwater environment.

D. The proposed activity will not unreasonably harm any significant wildlife habitat, freshwater wetland plant habitat, threatened or endangered plant habitat, aquatic habitat, travel corridor, freshwater, estuarine, or marine fisheries or other aquatic life.

E. The proposed activity will not unreasonably interfere with the natural flow of any surface or subsurface waters.

F. The proposed activity will not violate any state water quality law including those governing the classifications of the State's waters.

G. The proposed activity will not unreasonably cause or increase the flooding of the alteration area or adjacent properties.

H. The proposed activity is not on or adjacent to a sand dune.

I. The proposed activity is not on an outstanding river segment as noted in 38 M.R.S.A. Section 480-P.

BASED on the above findings of fact, and subject to the conditions listed below, the Department makes the following conclusions pursuant to 38 M.R.S.A. Sections 481 et seq.:

A. The applicants have provided adequate evidence of financial capacity and technical ability to develop the project in a manner consistent with state environmental standards.

B. The applicants have made adequate provision for fitting the development harmoniously into the existing natural environment and the development will not adversely affect existing uses, scenic character, air quality, water quality or other natural resources in the municipality or in neighboring municipalities.

C. The proposed development will be built on soil types that are suitable to the nature of the undertaking and will not cause unreasonable erosion of soil or sediment nor inhibit the natural transfer of soil.

D. The proposed development meets the standards for storm water management in Section 420-D and the standard for erosion and sedimentation control in Section 420-C.

E. The proposed development will not pose an unreasonable risk that a discharge to a significant groundwater aquifer will occur.

F. The applicants have made adequate provision of utilities, including water supplies, sewerage facilities, solid waste disposal and roadways required for the development and the development will not have an unreasonable adverse effect on the existing or proposed utilities and roadways in the municipality or area served by those services.

G. The activity will not unreasonably cause or increase the flooding of the alteration area or adjacent properties nor create an unreasonable flood hazard to any structure.

THEREFORE, the Department APPROVES the application of the MAINE DEPARTMENT OF TRANSPORTATION AND CITY OF PORTLAND to construct Phase 1 of Ocean Gateway, SUBJECT TO THE FOLLOWING CONDITIONS and all applicable standards and regulations:

1. The Standard Conditions of Approval, a copy attached.

2. In addition to any specific erosion control measures described in this or previous orders, the applicants shall take all necessary actions to ensure that their activities or those of their agents do not result in noticeable erosion of soils or fugitive dust emissions on the site during the construction and operation of the project covered by this approval.

THIS APPROVAL DOES NOT CONSTITUTE OR SUBSTITUTE FOR ANY OTHER REQUIRED STATE, FEDERAL OR LOCAL APPROVALS NOR DOES IT VERIFY COMPLIANCE WITH ANY APPLICABLE SHORELAND ZONING ORDINANCES.

DONE AND DATED AT AUGUSTA, MAINE, THIS 20TH DAY OF AUGUST, 2004.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

By: _____
DAWN R. GALLAGHER, COMMISSIONER

PLEASE NOTE THE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application January 26, 2004
Date of application acceptance February 5, 2004

Date filed with Board of Environmental Protection
DEH/ATS51538&51539/L7866EN&FN

FILED
AUG 23 2004
BOARD OF ENVIRONMENTAL PROT.
STATE OF MAINE

NATURAL RESOURCE PROTECTION ACT (NRPA)
STANDARD CONDITIONS

THE FOLLOWING STANDARD CONDITIONS SHALL APPLY TO ALL PERMITS GRANTED UNDER THE NATURAL RESOURCE PROTECTION ACT, TITLE 38, M.R.S.A. SECTION 480-A ET.SEQ. UNLESS OTHERWISE SPECIFICALLY STATED IN THE PERMIT.

A. **Approval of Variations From Plans.** The granting of this permit is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed to by the applicant. Any variation form these plans, proposals, and supporting documents is subject to review and approval prior to implementation.

B. **Compliance With All Applicable Laws.** The applicant shall secure and comply with all applicable federal, state, and local licenses, permits, authorizations, conditions, agreements, and orders prior to or during construction and operation, as appropriate.

C. **Erosion Control.** The applicant shall take all necessary measures to ensure that his activities or those of his agents do not result in measurable erosion of soils on the site during the construction and operation of the project covered by this Approval.

D. **Compliance With Conditions.** Should the project be found, at any time, not to be in compliance with any of the Conditions of this Approval, or should the applicant construct or operate this development in any way other the specified in the Application or Supporting Documents, as modified by the Conditions of this Approval, then the terms of this Approval shall be considered to have been violated.

E. **Initiation of Activity Within Two Years.** If construction or operation of the activity is not begun within two years, this permit shall lapse and the applicant shall reapply to the Board for a new permit. The applicant may not begin construction or operation of the activity until a new permit is granted. Reapplications for permits shall state the reasons why the applicant will be able to begin the activity within two years form the granting of a new permit, if so granted. Reapplications for permits may include information submitted in the initial application by reference.

F. **Reexamination After Five Years.** If the approved activity is not completed within five years from the date of the granting of a permit, the Board may reexamine its permit approval and impose additional terms or conditions to respond to significant changes in circumstances which may have occurred during the five-year period.

G. **No Construction Equipment Below High Water.** No construction equipment used in the undertaking of an approved activity is allowed below the mean high water line unless otherwise specified by this permit.

H. **Permit Included In Contract Bids.** A copy of this permit must be included in or attached to all contract bid specifications for the approved activity.

I. **Permit Shown To Contractor.** Work done by a contractor pursuant to this permit shall not begin before the contractor has been shown by the applicant a copy of this permit.

Revised (4/92)

DEP LW0428

SITE LOCATION OF DEVELOPMENT (SITE)
STANDARD CONDITIONS

STRICT CONFORMANCE WITH THE STANDARD AND SPECIAL CONDITIONS OF THIS APPROVAL IS NECESSARY FOR THE PROJECT TO MEET THE STATUTORY CRITERIA FOR APPROVAL.

1. This approval is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed to by the applicant. Any variation from the plans, proposals and supporting documents is subject to the review and approval of the Board prior to implementation. Further subdivision of proposed lots by the applicant or future owners is specifically prohibited, without prior approval by the Board of Environmental Protection, and the applicant shall include deed restrictions to this effect.

2. The applicant shall secure and comply with all applicable Federal, State and local licenses, permits, authorizations, conditions, agreements, and orders, prior to or during construction and operation as appropriate.

3. The applicant shall submit all reports and information requested by the Board or Department demonstrating that the applicant has complied or will comply with all conditions of this approval. All preconstruction terms and conditions must be met before construction begins.

4. Advertising relating to matters included in this application shall refer to this approval only if it notes that the approval has been granted WITH CONDITIONS, and indicates where copies of those conditions may be obtained.

5. Unless otherwise provided in this approval, the applicant shall not sell, lease, assign or otherwise transfer the development or any portion thereof without prior written approval of the Board where the purpose or consequence of the transfer is to transfer any of the obligations of the developer as incorporated in this approval. Such approval shall be granted only if the applicant or transferee demonstrates to the Board that the transferee has the technical capacity and financial ability to comply with conditions of this approval and the proposals and plans contained in the application and supporting documents submitted by the applicant.

6. If the construction or operation of the activity is not begun within two years, this approval shall lapse and the applicant shall reapply to the Board for a new approval. The applicant may not begin construction or operation of the development until a new approval is granted. Reapplications for approval shall state the reasons why the development was not begun within two years from the granting of the initial approval and the reasons why the applicant will be able to begin the activity within two years from the granting of a new approval, if granted. Reapplications for approval may include information submitted in the initial application by reference.

7. If the approved development is not completed within five years from the date of the granting of approval, the Board may reexamine its approval and impose additional terms or conditions or prescribe other necessary corrective action to respond to significant changes in circumstances which may have occurred during the five-year period.

8. A copy of this approval must be included in or attached to all contract bid specifications for the development.

9. Work done by a contractor pursuant to this approval shall not begin before the contractor has been shown by the developer a copy of this approval.

(2/81)/Revised November 1, 1979

DEPLW 148

Erosion Control

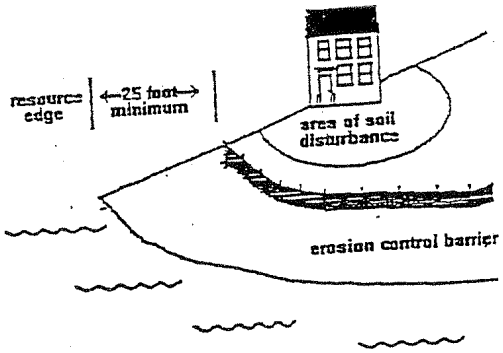
Before Construction

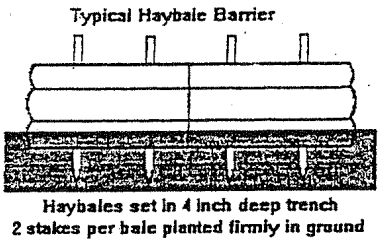
1. If you have hired a contractor, make sure you have discussed your permit with them. Talk about what measures they plan to take to control erosion. Everybody involved should understand what the resource is and where it is located. Most people could identify the edge of a lake or a river. The edges of wetlands, however, are often not obvious. Your contractor may be the person actually pushing dirt around but you are both responsible for complying with the permit.

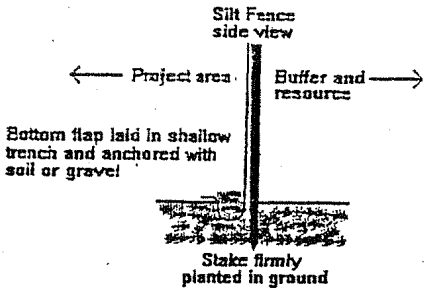
2. Call around and find sources for your erosion controls. You will probably need silt fence, hay bales and grass seed or conservation mix. Some good places to check are feed stores, hardware stores, landscapers and contractor supply houses. It is not always easy to find hay or straw during late winter and early spring. It may also be more expensive during those times of year. Plan ahead. Purchase a supply early and keep it under a tarp.

3. Before any soil is disturbed, make sure an erosion control barrier has been installed. The barrier can be either a silt fence, a row of staked hay bales, or both. Use the drawings below as a guide for correct installation and placement. The barrier should be placed as close as possible to the activity.

4. If a contractor is installing the barrier, double check it as a precaution. Erosion control barriers should be installed "on the contour", meaning at the same level along the land slope, whenever possible. This keeps stormwater from flowing to the lowest point of the barrier where it builds up and overflows or destroys it.







During Construction

1. Use lots of hay or straw mulch on disturbed soil. The idea behind mulch is to prevent rain from striking the soil directly. It is the force of raindrops striking the soil that causes a lot of erosion. More than 90% of erosion is prevented by keeping the soil covered.

2. Inspect your erosion control barriers frequently. This is especially important after a rainfall. If there is muddy water leaving the project site, then your erosion controls are not working as intended. In that situation, stop work and figure out what can be done to prevent more soil from getting past the barrier.

After Construction

1. After the project is complete, replant the area. All ground covers are not equal. For instance, a mix of creeping red fescue and Kentucky bluegrass is a good choice for lawns and other high maintenance areas. The same mix would not be a good choice for stabilizing a road shoulder or a cut bank that you don't intend to mow.

2. If you finish your project after September 15, then do not spread grass seed. There is a very good chance that the seed will germinate and be killed by a frost before it has a chance to become established. Instead, mulch the site with a thick layer of hay or straw. In the spring, rake off the mulch and seed the area. Don't forget to mulch again to hold in moisture and prevent the seed from washing away.

3. Keep your erosion control barrier up and maintained until the area is permanently stabilized.

US Army Corps
of Engineers ®
New England District

(Minimum Notice: Permittee must sign and return notification within one month of the completion of work.)

COMPLIANCE CERTIFICATION FORM

USACE Project Number: _____

Name of Permittee: _____

Permit Issuance Date: _____

Please sign this certification and return it to the following address upon completion of the activity and any mitigation required by the permit. You must submit this after the mitigation is complete, but not the mitigation monitoring, which requires separate submittals.

****
* MAIL TO: U.S. Army Corps of Engineers, New England District *
* Policy Analysis/Technical Support Branch, ATTN: Marie Farese *
* Regulatory Division *
* 696 Virginia Road *
* Concord, Massachusetts 01742-2751 *
****

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit was completed in accordance with the terms and conditions of the above referenced permit, and any required mitigation was completed in accordance with the permit conditions.

_____ _____
Signature of Permittee Date

_____ _____
Printed Name Date of Work Completion

(____) _____ (____) _____
Telephone Number Telephone Number

US Army Corps
of Engineers®
New England District

PGP WORK START NOTIFICATION FORM
(Minimum Advance Notice: Two Weeks)

MAIL TO: U.S. Army Corps of Engineers, New England District
Regulatory Branch
Policy Analysis/Technical Support Section
696 Virginia Road
Concord, Massachusetts 01742-2751

A Corps of Engineers Permit (No _____) was issued to _____. The permit authorized the permittee(s) to _____

_____

_____

_____

The people (e.g., contractor) listed below will do the work, and they understand the permit's conditions and limitations.

PLEASE PRINT OR TYPE

Name of Person/Firm: _____

_____

_____

Business Address: _____

_____

_____

Telephone: (____) _____ (____) _____

Proposed Work Dates: Start: _____

Finish: _____

PERMITTEE'S SIGNATURE: _____ DATE: _____

PRINTED NAME: _____ TITLE: _____

FOR USE BY THE CORPS OF ENGINEERS

PM_____ Submittals Required: _____

Inspection Recommendation: _____

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO:
ATTENTION OF:

Regulatory Division
CENAE-R-51

JAN 30, 2009

Barry Sheff, PE
Woodard & Curran
41 Hutchins Drive
Portland, Maine 04102

Dear Mr. Sheff:

This refers to Department of the Army permit number NAE-2004-00322 dated September 30, 2004, which authorized your client to perform work in Portland Harbor at Portland, Maine in order to develop "Ocean Gateway", a multi-use marine terminal facility.

In accordance with your recent request, the time limit in which to complete the work authorized by the permit is hereby extended to September 30, 2011. Please note however, that all other conditions of the permit remain in full force and effect.

BY AUTHORITY OF THE SECRETARY OF THE ARMY:

Jay L. Clement

For Philip T. Feir
Colonel, Corps of Engineers
District Engineer

DEPARTMENT OF THE ARMY PERMIT

Permittee Maine Dept. of Transportation, 16 State House Station, Augusta, ME 04333
& City of Portland, 389 Congress St., Portland, ME 04101

Permit No. NAE-2004-322

Issuing Office New England District

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description:

Develop a multi-modal transportation facility described as follows:

Regulated work includes the reconstruction and expansion of Pier 2 and the reconstruction of the existing deteriorated granite block retaining wall along the shore. Reconstruction of the wall will include the installation of stormwater outfalls and the associated filling of approximately 210 square feet of stone riprap below the high tide line in order to provide erosion control.

The authorized work is described on the attached plans entitled "CITY OF PORTLAND AND MAINE DEPARTMENT OF TRANSPORTATION, OCEAN GATEWAY" on twenty-one (21) sheets and dated "January 2004".

Project Location:

In the Fore River (Portland Harbor) at Portland, Maine.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on 30 September 2009. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

1. The permittee shall assure that a copy of this permit is at the work site whenever work is being performed and that all personnel performing work at the site of the work authorized by this permit are fully aware of the terms and conditions of the permit. This permit, including its drawings and any appendices and other attachments, shall be made a part of any and all

Special Conditions Continued on Page 4

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

(XX) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

John E. Dority Chief Eng — Oct 26, 2004
(PERMITTEE) *(DATE)*

Joseph E. Dority — 11-05-04
(CO-PERMITTEE) (DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

[signature] — 9/30/04
(DISTRICT ENGINEER) *(DATE)*

for THOMAS L. KONING
COLONEL, CORPS OF ENGINEERS

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE) *(DATE)*

☆U.S. GOVERNMENT PRINTING OFFICE: 1986 — 717-425

Special Conditions Continued from Page 2

contracts and sub–contracts for work which affects areas of Corps of Engineers' jurisdiction at the site of the work authorized by this permit. This shall be done by including the entire permit in the specifications for the work. If the permit is issued after construction specifications but before receipt of bids or quotes, the entire permit shall be included as an addendum to the specifications. The term "entire permit" includes permit amendments. Although the permittee may assign various aspects of the work to different contractors or sub–contractors, all contractors and sub–contractors shall be obligated by contract to comply with all environmental protection provisions of the entire permit, and no contract or sub–contract shall require or allow unauthorized work in areas of Corps of Engineers jurisdiction.

2. The permittee shall locate structures far enough outside the Federal project limits so neither the structures, nor any vessels tied to these structures, encroach into the Federal project.

3. The permittee shall remove these structures, if necessary, to allow performance of periodic hydrographic surveys and maintenance dredging.

4. The permittee shall not hold the Government, or its contractor, responsible for damage(s) to these structures, or any vessels tied to them, during surveying or dredging operations.

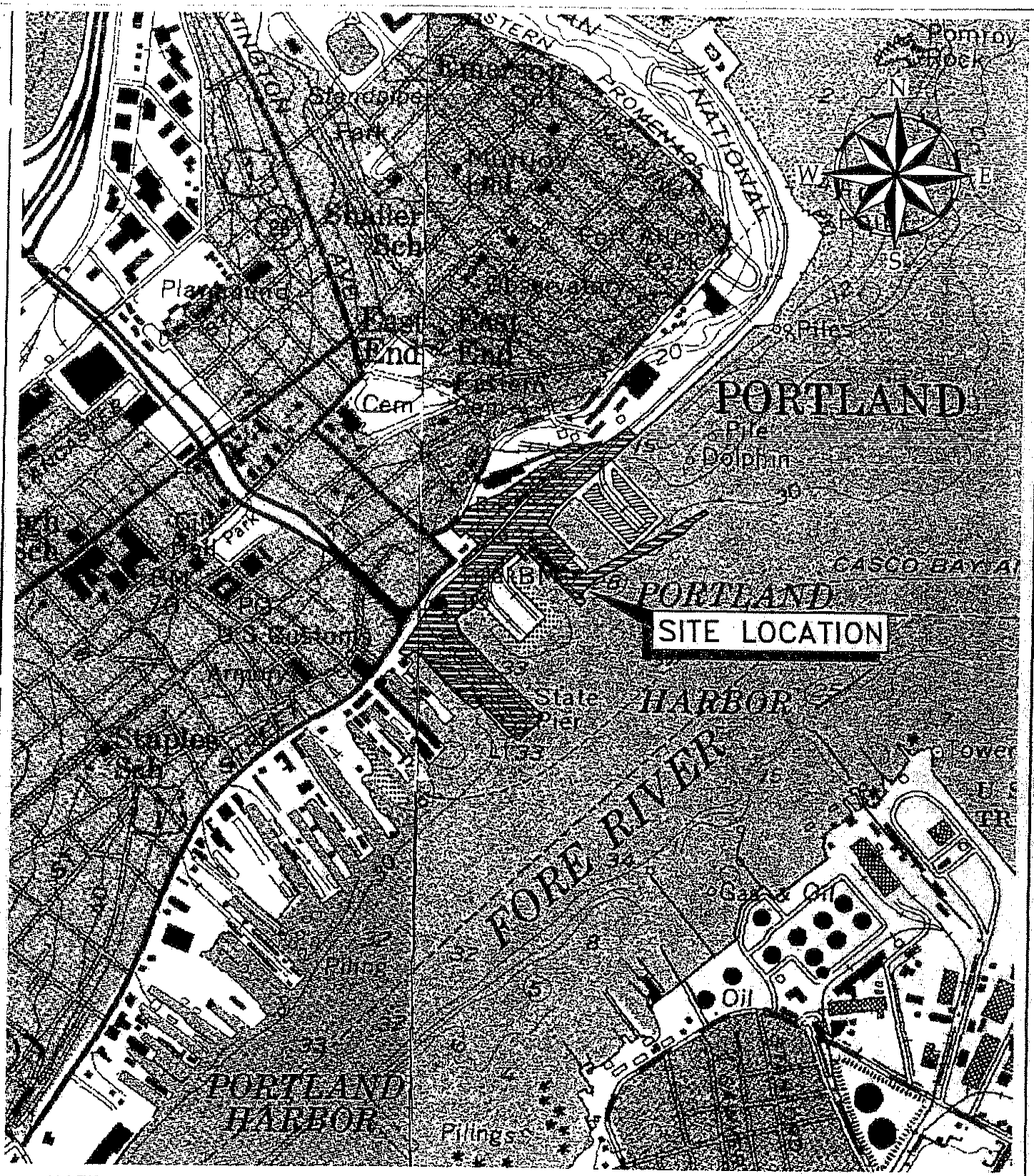
5. The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

6. Removal of existing timber piling remains shall be performed between November 15 and March 15 of any year to minimize potential turbidity and associated impact to fisheries and benthic habitat. Pile remains shall be removed in their entirety where practicable or cut off below the mudline.

Special Conditions Continued on Page 5

7. The permittee shall implement all terms and conditions contained in the attached water quality certification from the Maine Dept. of Environmental Protection dated "July 16, 2004". Copies of all required submittals shall also be provided to the Corps.

8. The permittee shall take all reasonable and prudent measures to minimize the risk of accidental spills of petroleum or other hazardous contaminants from vehicles on the pier or from the application of protective coating materials for existing and new steel piles. These shall include both spill prevention and containment measures and on site equipment.



NOTE:

SOURCE: UNITED STATES GEOLOGICAL SURVEY, 1:24,000 QUADRANGLE, 7.5 MINUTE SERIES – PORTLAND EAST AND WEST

1000± 0 1000± 2000±
scale feet

43.659095; 70.245676

WOODARD & CURRAN
Engineering · Science · Operations
PORTLAND, MAINE 800-426-4262

LOCATION MAP

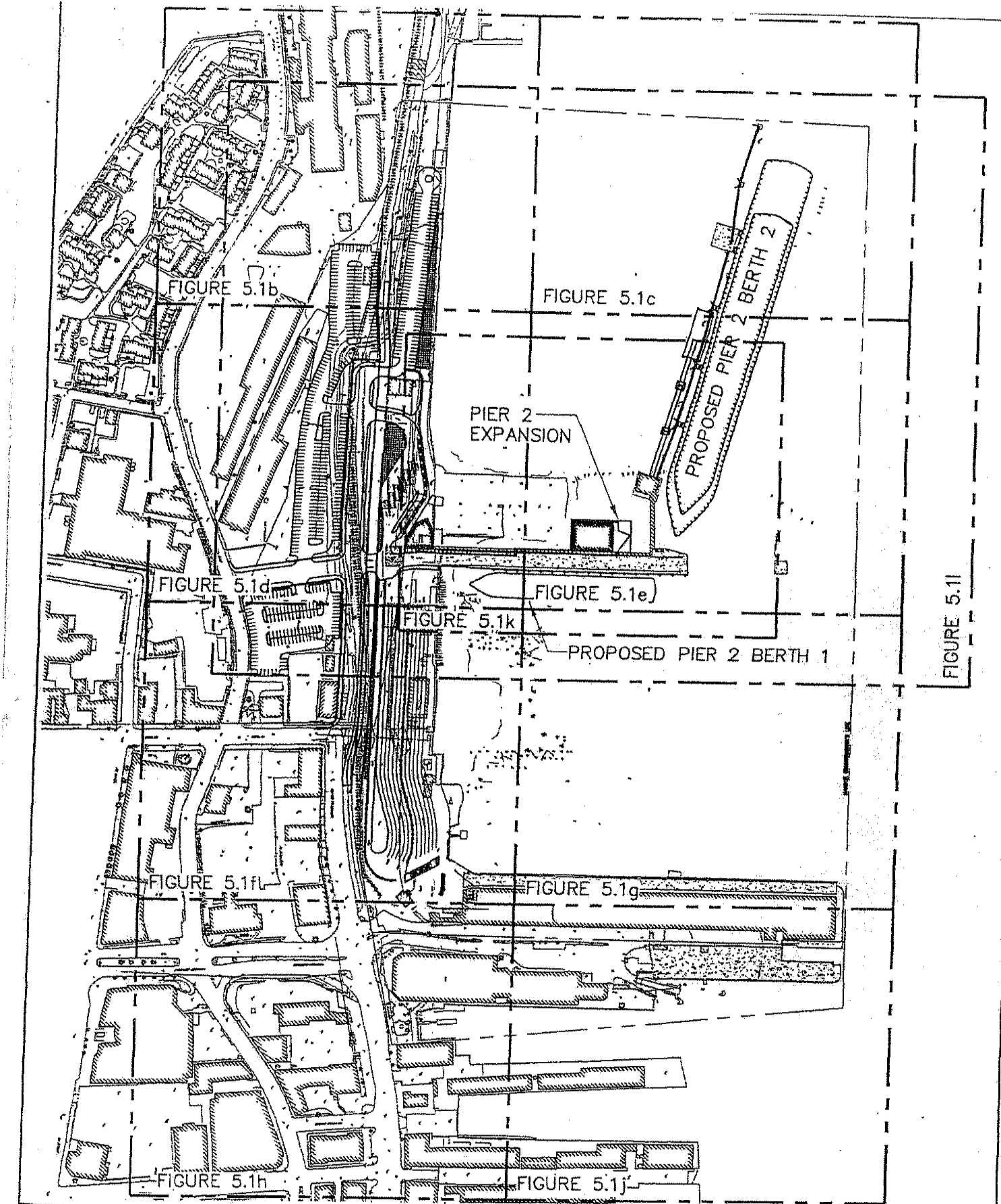
DESIGNED BY: JBC CHECKED BY: BSS
DRAWN BY: JBC 20343802-U003-NRPA.dwg

CITY OF PORTLAND AND MAINE
DEPARTMENT OF TRANSPORTATION

OCEAN GATEWAY

JOB NO: 20343802
DATE: JANUARY 2004
SCALE: 1" = 1000'±

Exhibit 3



WOODARD & CURRAN
Engineering · Science · Operations
PORTLAND, MAINE 800-426-4262

KEY PLAN

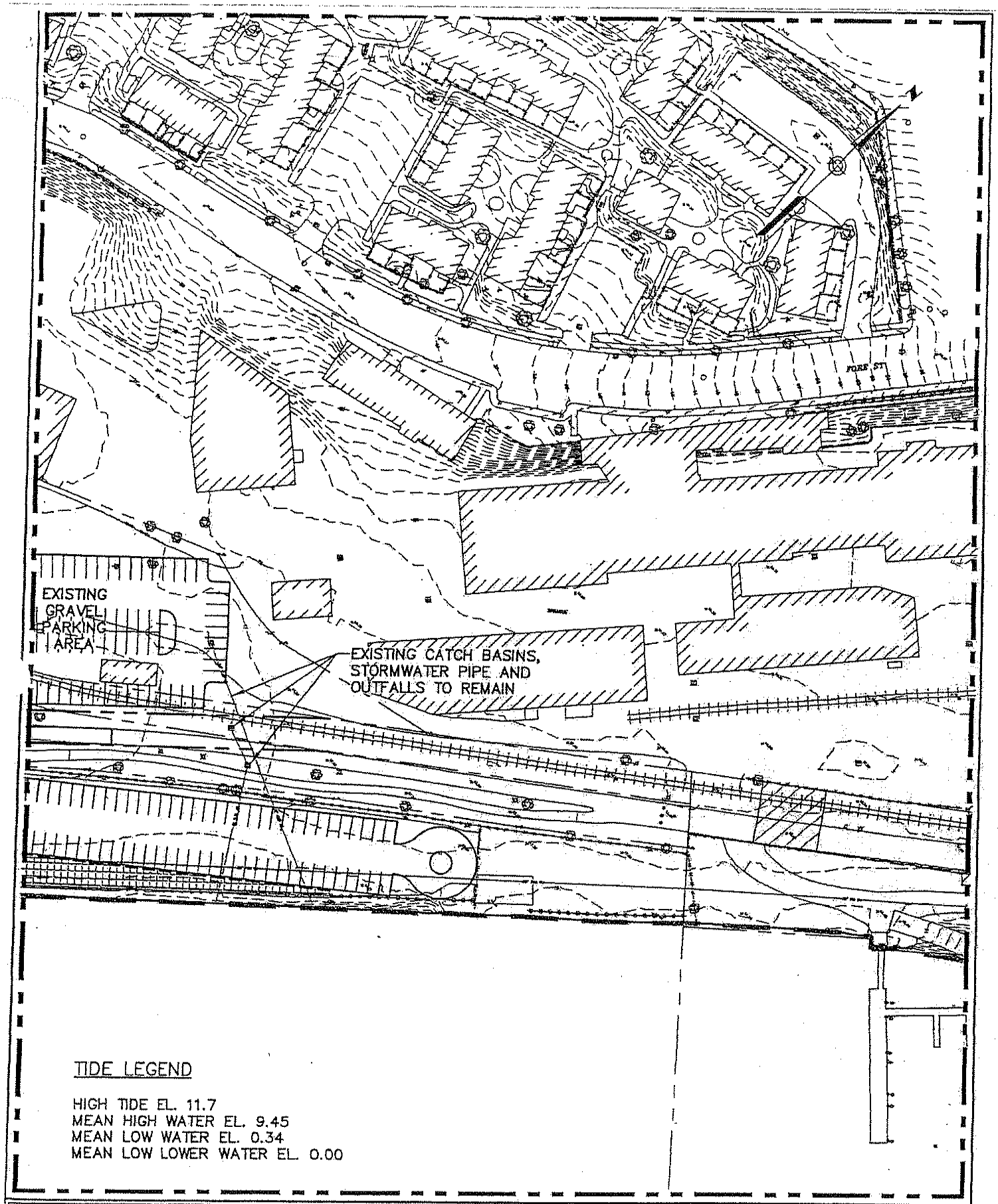
DESIGNED BY: JBC | CHECKED BY: PP
DRAWN BY: JBC | 20343802-U005.1-NRPA.dwg

CITY OF PORTLAND AND MAINE
DEPARTMENT OF TRANSPORTATION

OCEAN GATEWAY

JOB NO: 20343B.02
DATE: JANUARY 2004
SCALE: AS NOTED

Figure 5.1a



WOODARD & CURRAN
Engineering · Science · Operations
PORTLAND, MAINE 800-426-4262

PROPOSED SITE PLAN

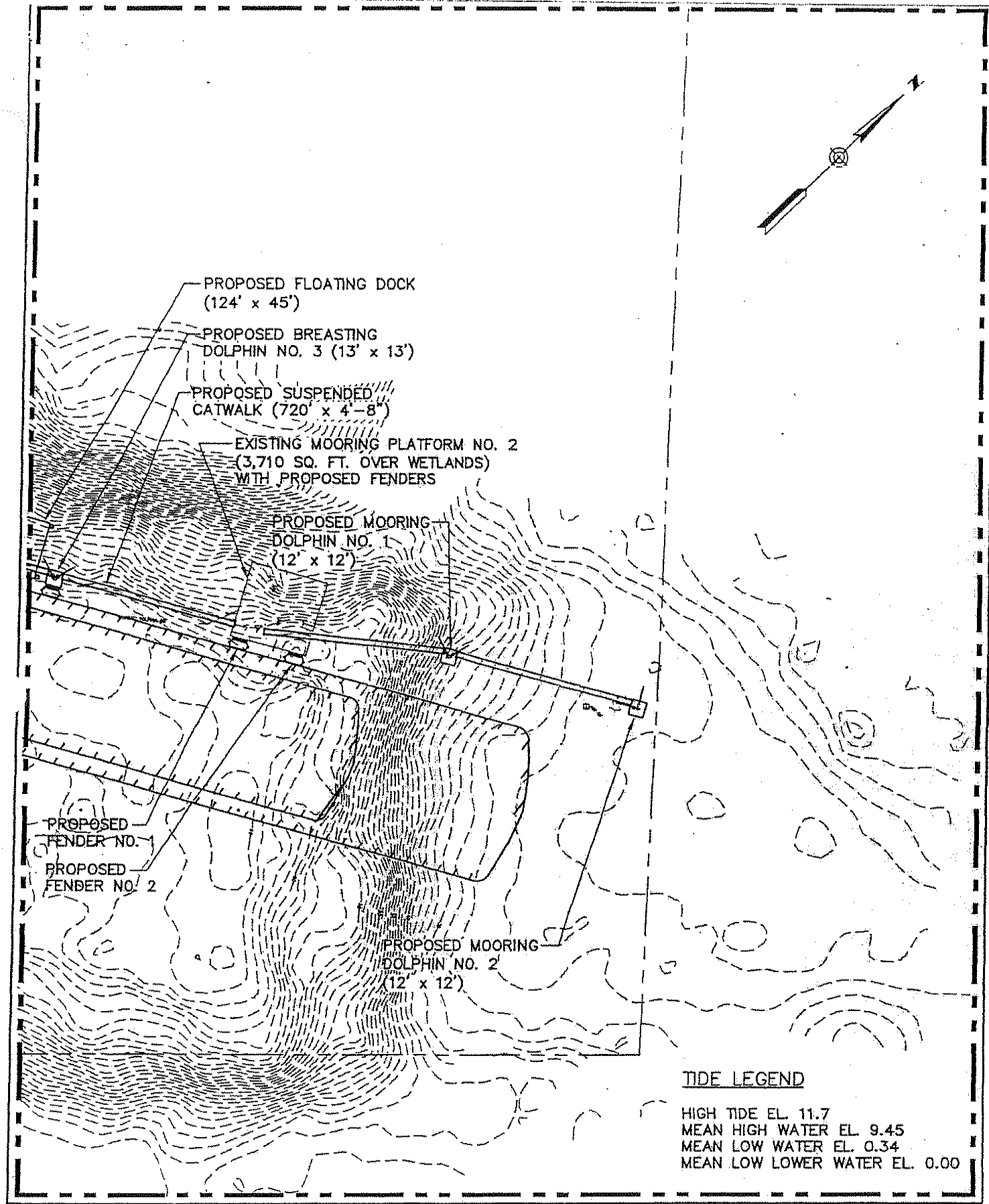
DESIGNED BY: JBC | CHECKED BY: PP
DRAWN BY: JBC | 20343802-U005.1-NRPA.dwg

CITY OF PORTLAND AND MAINE
DEPARTMENT OF TRANSPORTATION

OCEAN GATEWAY

JOB NO: 20343B.02
DATE: JANUARY 2004
SCALE: 1" = 100'

Figure 5.1b



WOODARD & CURRAN
Engineering · Science · Operations
PORTLAND, MAINE 600-426-4262

PROPOSED SITE PLAN

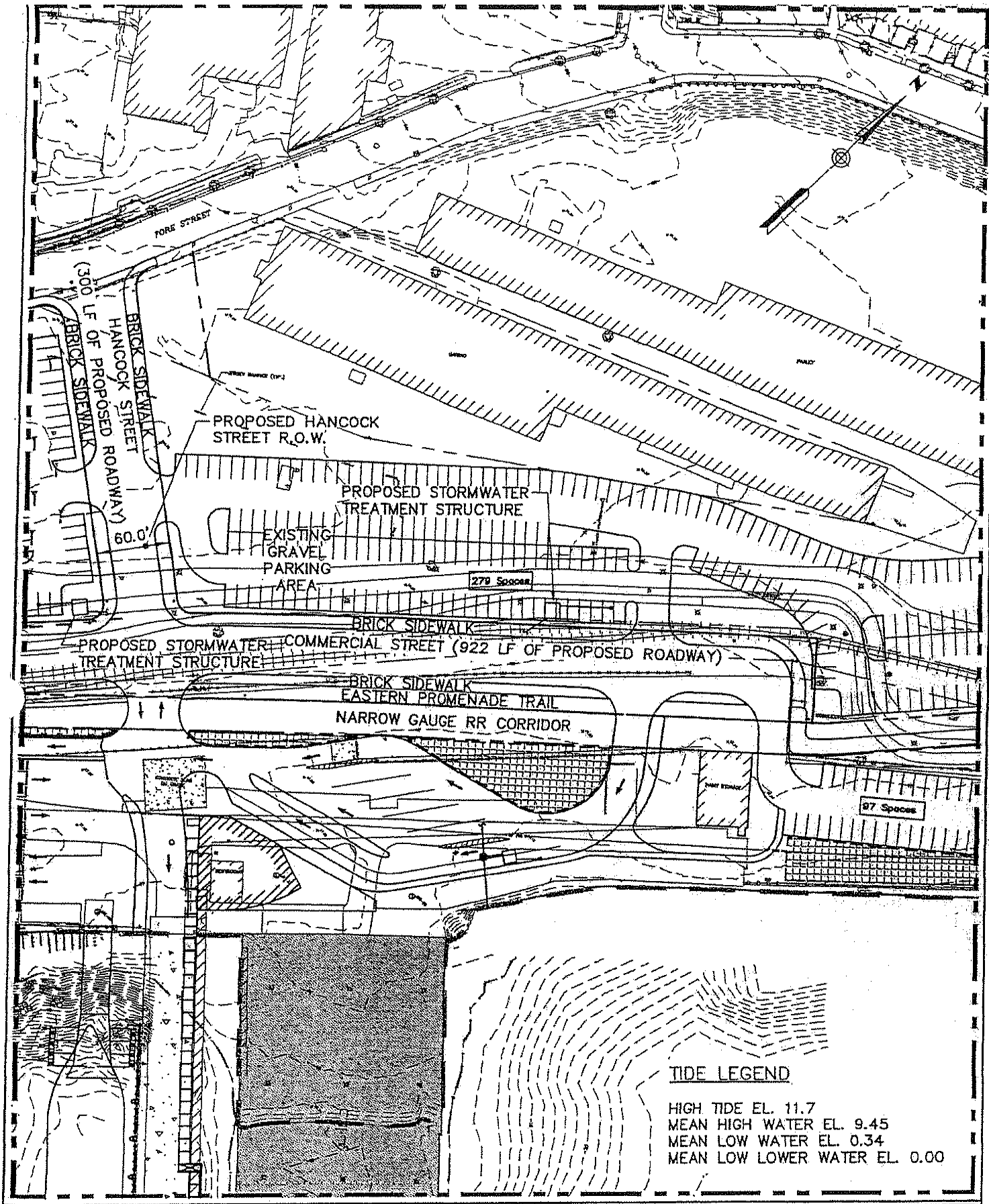
DESIGNED BY: JSC | CHECKED BY: PP
DRAWN BY: JSC | I:\20343802-U005.1--NRPA.dwg

CITY OF PORTLAND AND MAINE
DEPARTMENT OF TRANSPORTATION

OCEAN GATEWAY

JOB NO: 20343802
DATE: JANUARY 2004
SCALE: 1" = 100'

Figure 5.1c



WOODARD & CURRAN
Engineering · Science · Operations
PORTLAND, MAINE 800-426-4262

PROPOSED SITE PLAN

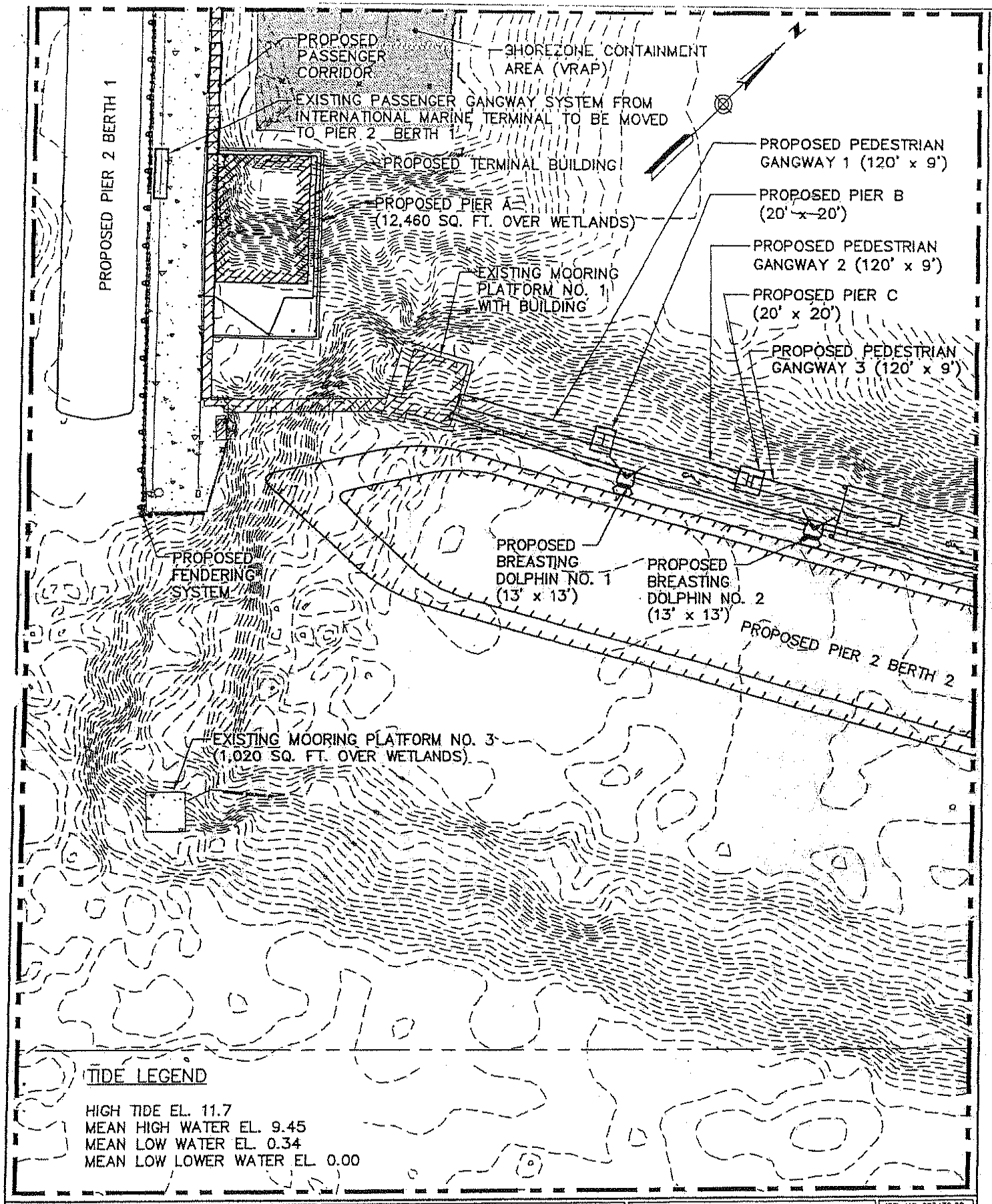
DESIGNED BY: JBC | CHECKED BY: PP
DRAWN BY: JBC | 20343802-UC05.1-NRPA.dwg

CITY OF PORTLAND AND MAINE
DEPARTMENT OF TRANSPORTATION

OCEAN GATEWAY

JOB NO: 20343802
DATE: JANUARY 2004
SCALE: 1" = 100'

Figure 5.1d



WOODARD & CURRAN
Engineering · Science · Operations
PORTLAND, MAINE 800-426-4262

PROPOSED SITE PLAN

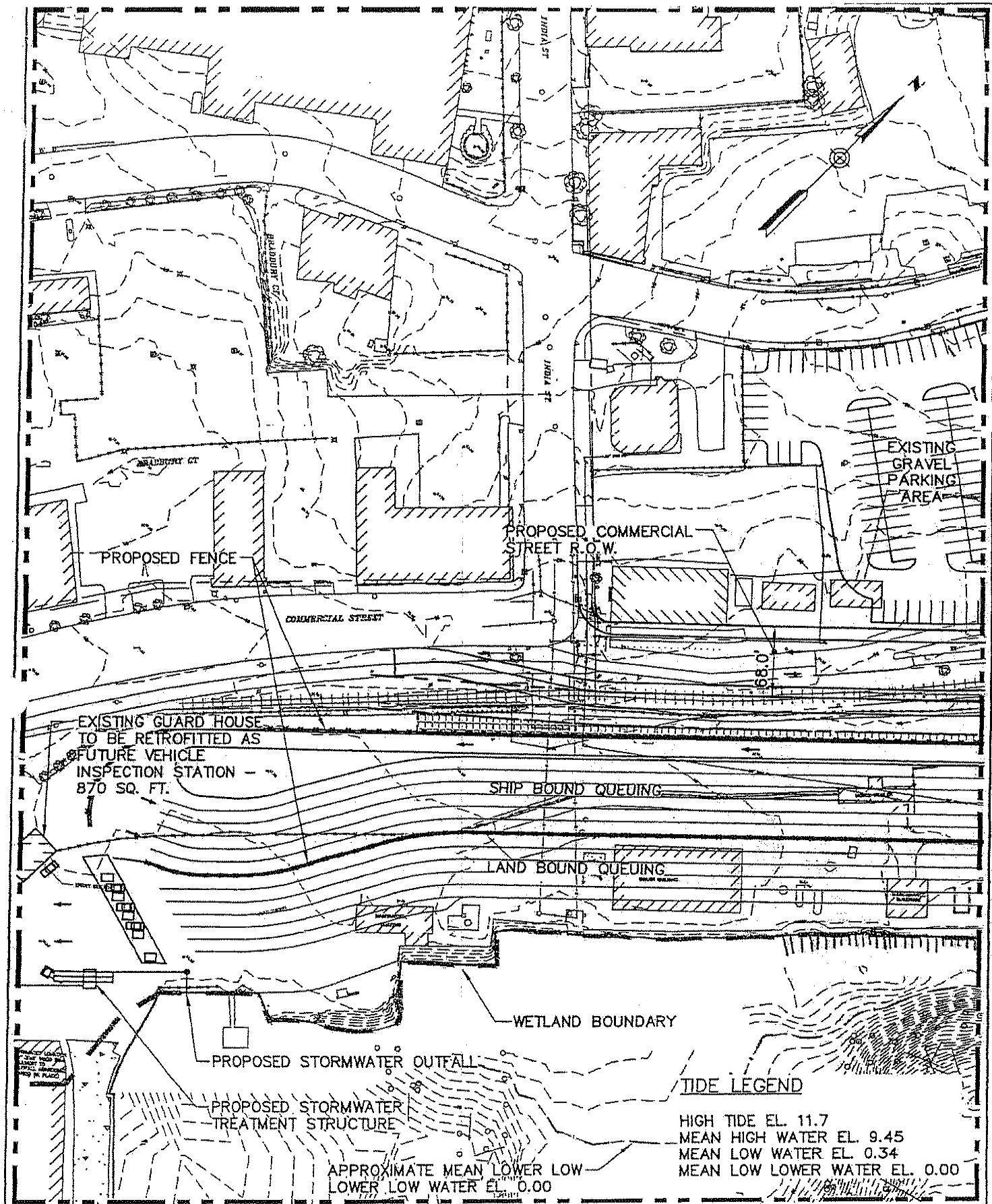
DESIGNED BY: JBC CHECKED BY: PP
DRAWN BY: JBC 203438G3-11005_-NRPA.dwg

CITY OF PORTLAND AND MAINE
DEPARTMENT OF TRANSPORTATION

OCEAN GATEWAY

JOB NO: 203438.02
DATE: JANUARY 2004
SCALE: 1" = 100'

Figure 5.1e



WOODARD & CURRAN
Engineering · Science · Operations
PORTLAND, MAINE 800-426-4262

PROPOSED SITE PLAN

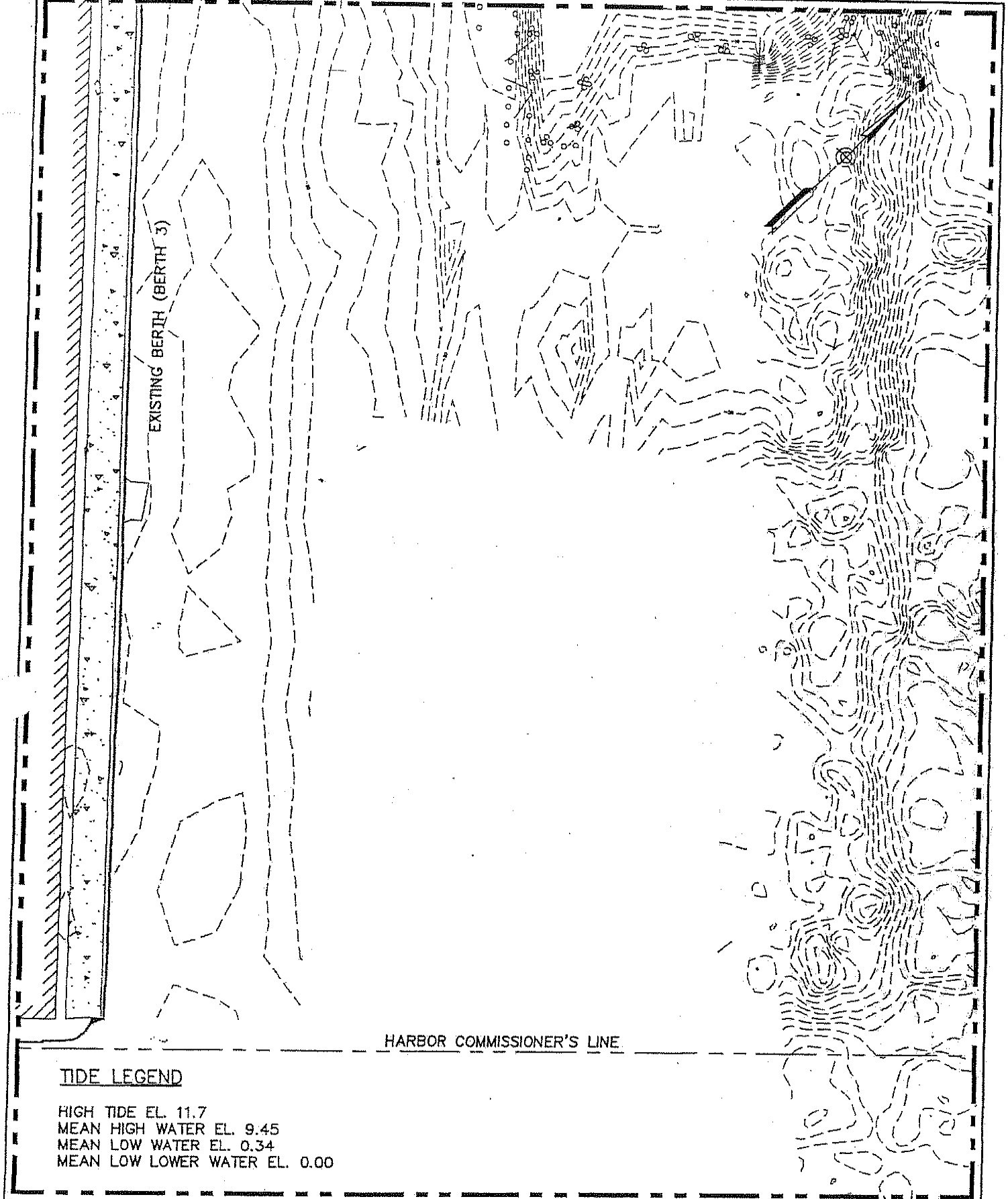
DESIGNED BY: JBC | CHECKED BY: PP
DRAWN BY: JSC | I:\0343803-UG05.1-NRPA.dwg

CITY OF PORTLAND AND MAINE
DEPARTMENT OF TRANSPORTATION

OCEAN GATEWAY

JOB NO: 203438.02
DATE: JANUARY 2004
SCALE: 1" = 180'

Figure 5.1f



TIDE LEGEND

HIGH TIDE EL. 11.7
MEAN HIGH WATER EL. 9.45
MEAN LOW WATER EL. 0.34
MEAN LOW LOWER WATER EL. 0.00

WOODARD & CURRAN
Engineering · Science · Operations
PORTLAND, MAINE 800-426-4262

PROPOSED SITE PLAN

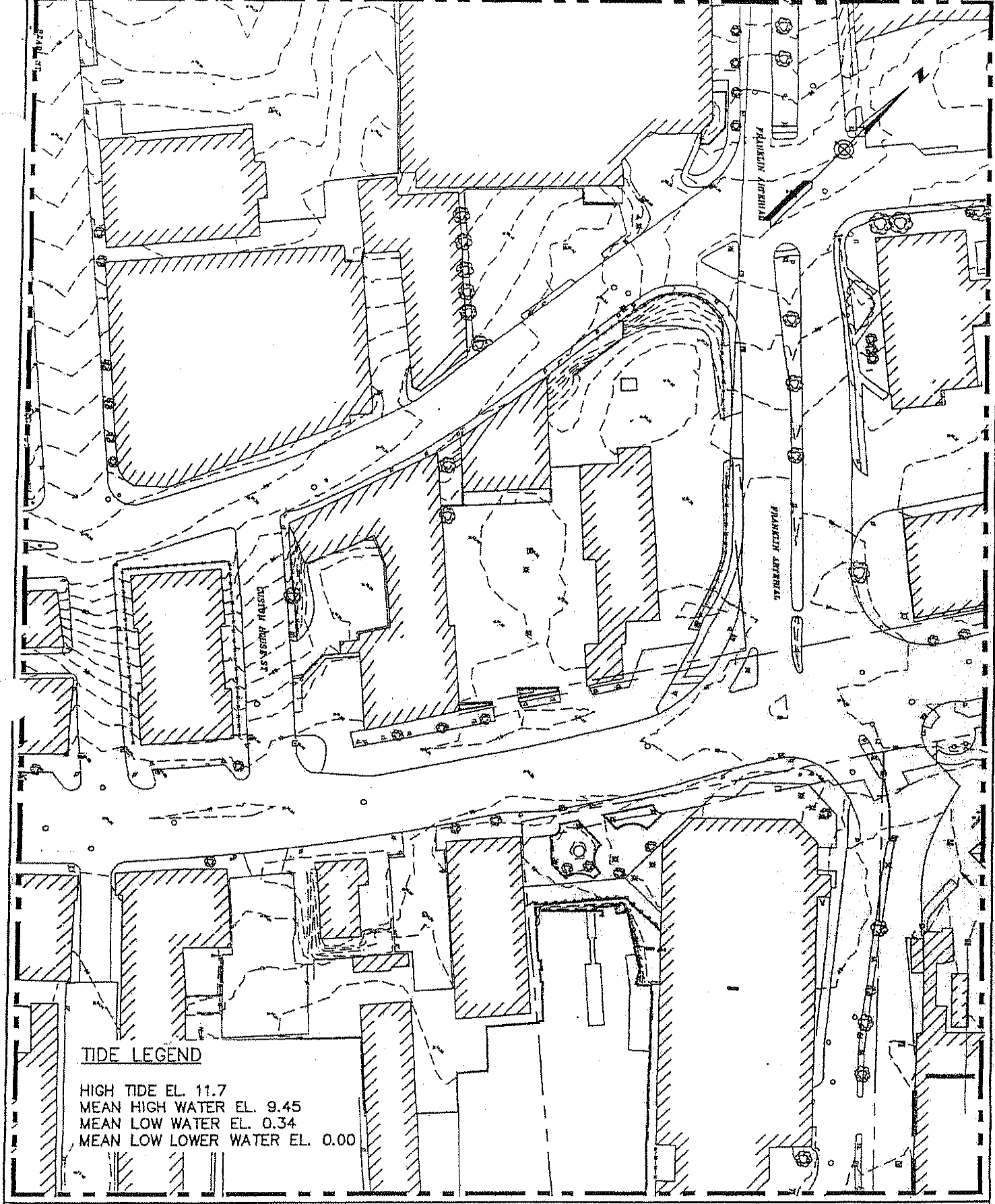
DESIGNED BY: JBC | CHECKED BY: PP
DRAWN BY: JBC | 20543902-J005.1-NPPA.dwg

CITY OF PORTLAND AND MAINE
DEPARTMENT OF TRANSPORTATION

OCEAN GATEWAY

JOB NO: 20343B.02
DATE: JANUARY 2004
SCALE: 1" = 100'

Figure 5.1g



WOODARD & CURRAN
Engineering · Science · Operations
PORTLAND, MAINE 800-426-4262

PROPOSED SITE PLAN

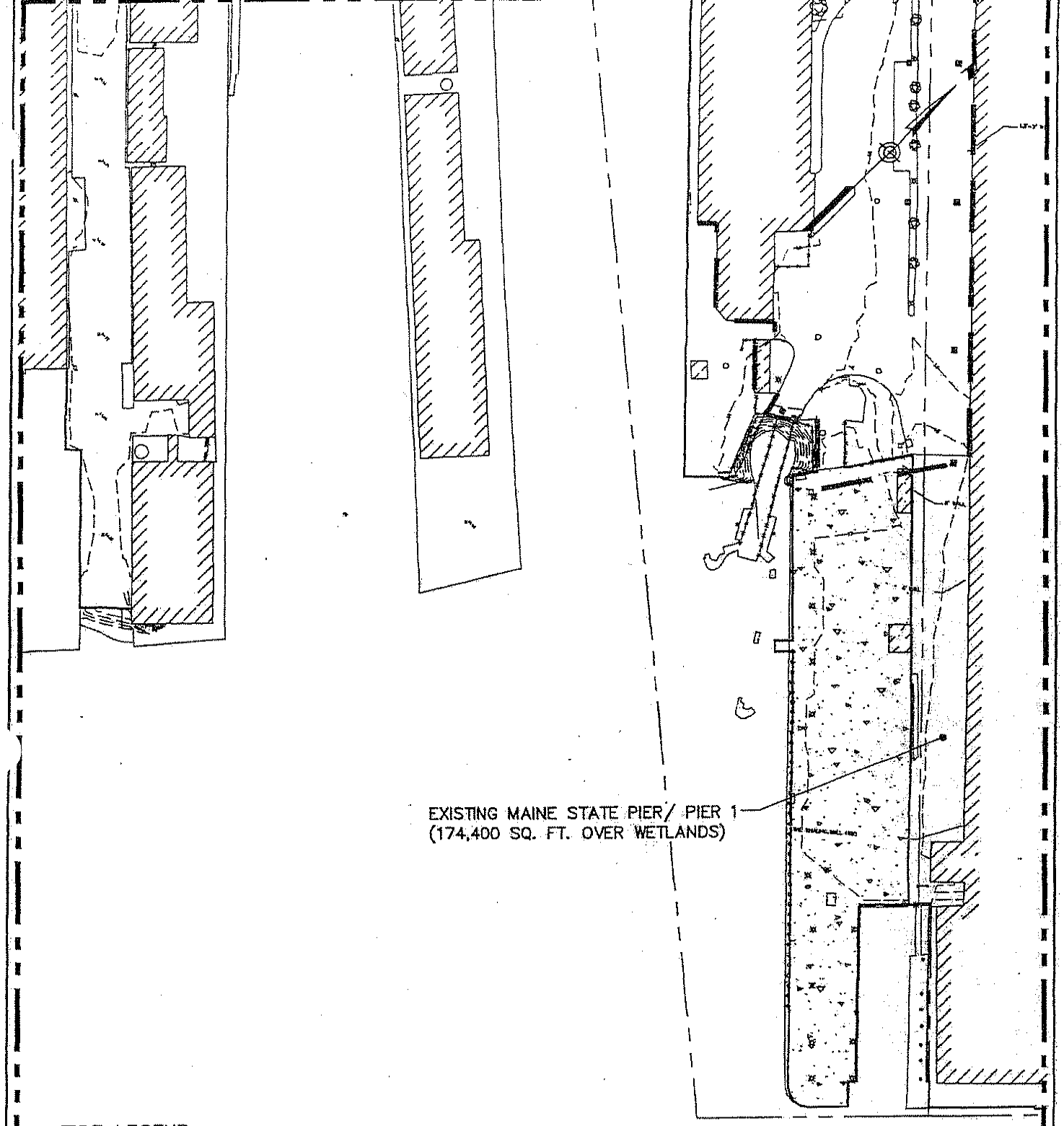
DESIGNED BY: JBC | CHECKED BY: PP
DRAWN BY: JBC | J:\2034\3802-U005.1-NRPA.dwg

CITY OF PORTLAND AND MAINE
DEPARTMENT OF TRANSPORTATION

OCEAN GATEWAY

JOB NO: 203438.02
DATE: JANUARY 2004
SCALE: 1" = 100'

Figure 5.1h



TIDE LEGEND

HIGH TIDE EL. 11.7
MEAN HIGH WATER EL. 9.45
MEAN LOW WATER EL. 0.34
MEAN LOW LOWER WATER EL. 0.00

WOODARD & CURRAN
Engineering · Science · Operations
PORTLAND, MAINE 800-426-4262

PROPOSED SITE PLAN

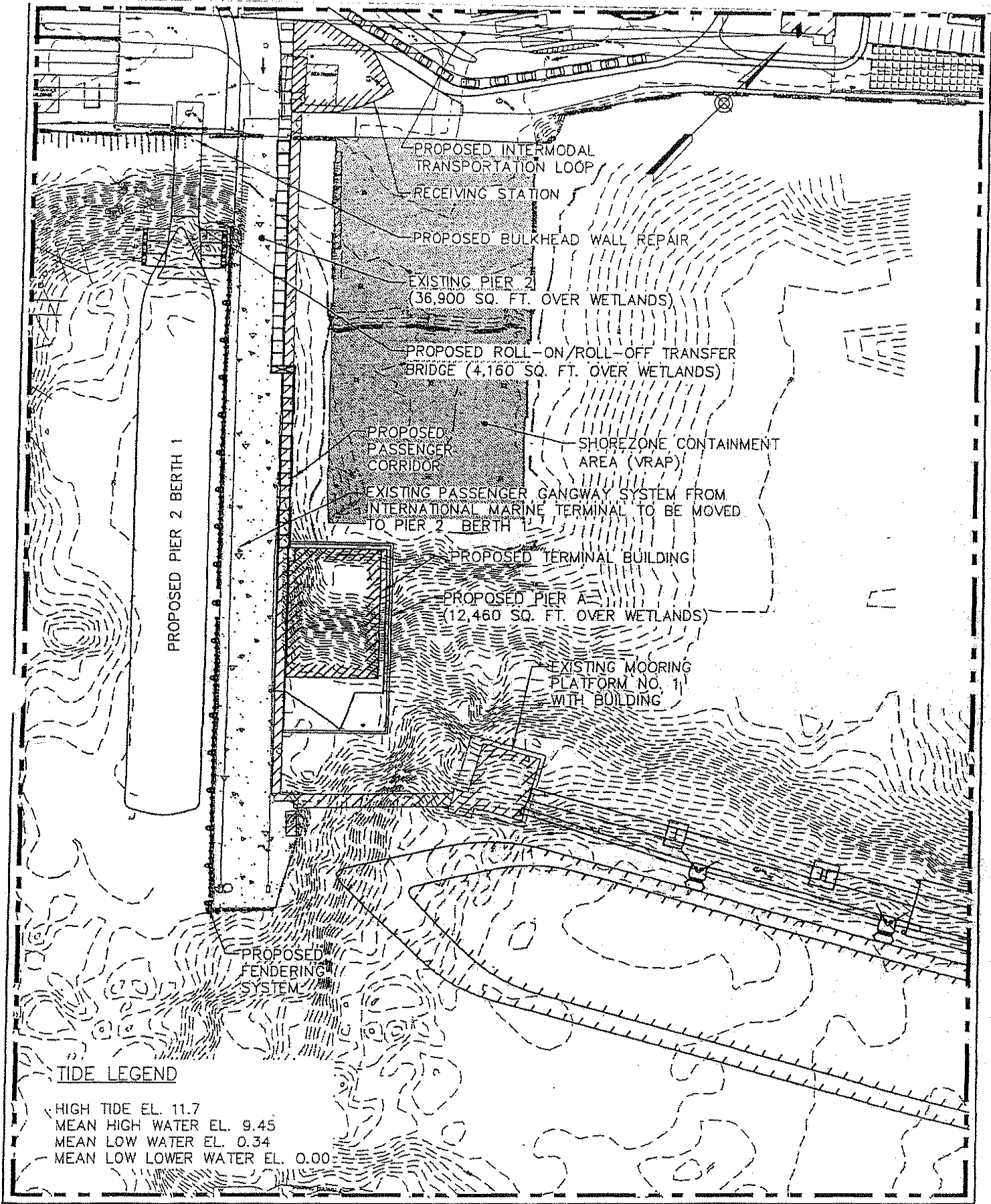
DESIGNED BY: JBC | CHECKED BY: PP
DRAWN BY: JBC | 20343802-U005-3-NRPA.dwg

CITY OF PORTLAND AND MAINE
DEPARTMENT OF TRANSPORTATION

OCEAN GATEWAY

JOB NO: 20343B.02
DATE: JANUARY 2004
SCALE: 1" = 100'

Figure 5.1j



WOODARD & CURRAN
Engineering · Science · Operations
PORTLAND, MAINE 800-426-4262

PIER 2 BERTH 1

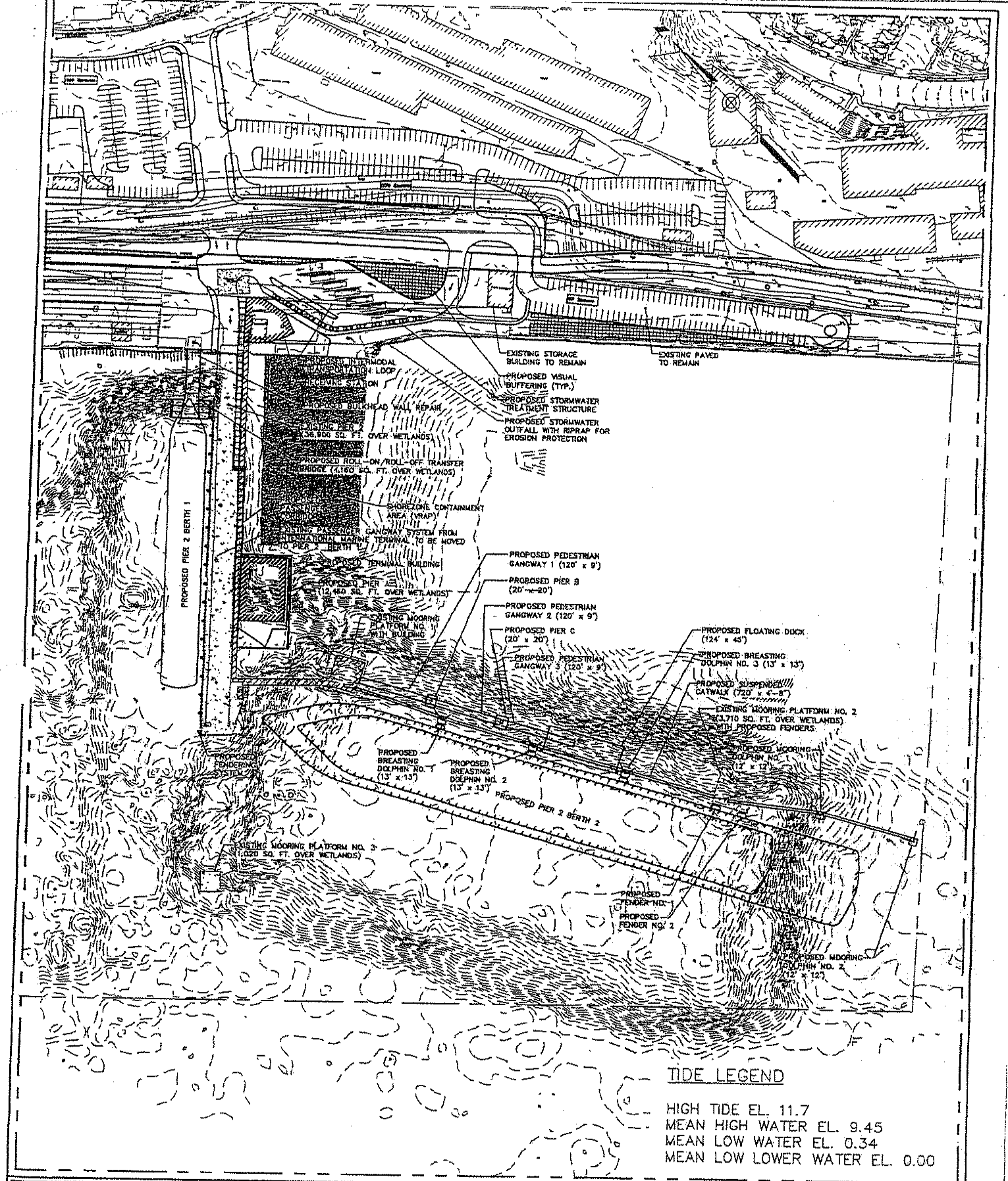
CITY OF PORTLAND AND MAINE
DEPARTMENT OF TRANSPORTATION

OCEAN GATEWAY

DESIGNED BY: JBC	CHECKED BY: PP
DRAWN BY: JBC	20343862-U005.1-NRPA.dwg

JOB NO: 203438.02
DATE: JANUARY 2004
SCALE: 1" = 100'

Figure 5.1k



WOODARD & CURRAN
Engineering · Science · Operations
PORTLAND, MAINE 800-426-4262

PIER 2 BERTH 1 & 2

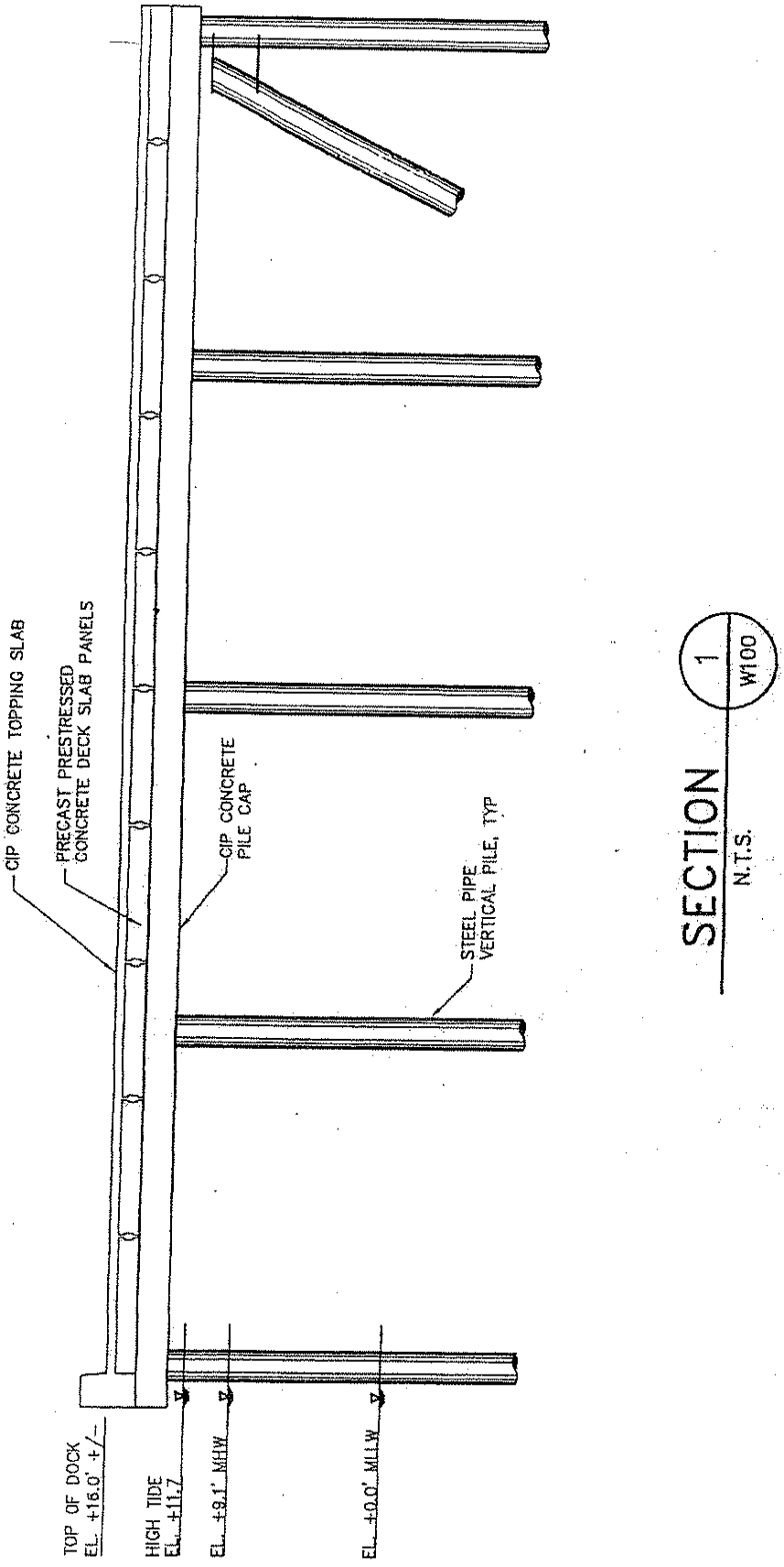
CITY OF PORTLAND AND MAINE
DEPARTMENT OF TRANSPORTATION

OCEAN GATEWAY

DESIGNED BY: JBC	CHECKED BY: PP
DRAWN BY: JBC	2034362-U005.1-NRPA.dwg

JOB NO: 2034362.02
DATE: JANUARY 2004
SCALE: 1" = 100'

Figure 5.1I



SECTION 1/W100
N.T.S.

WOODARD & CURRAN
Engineering · Science · Operations
PORTLAND, MAINE 800-426-4262

PIER 2 EXPANSION SECTION

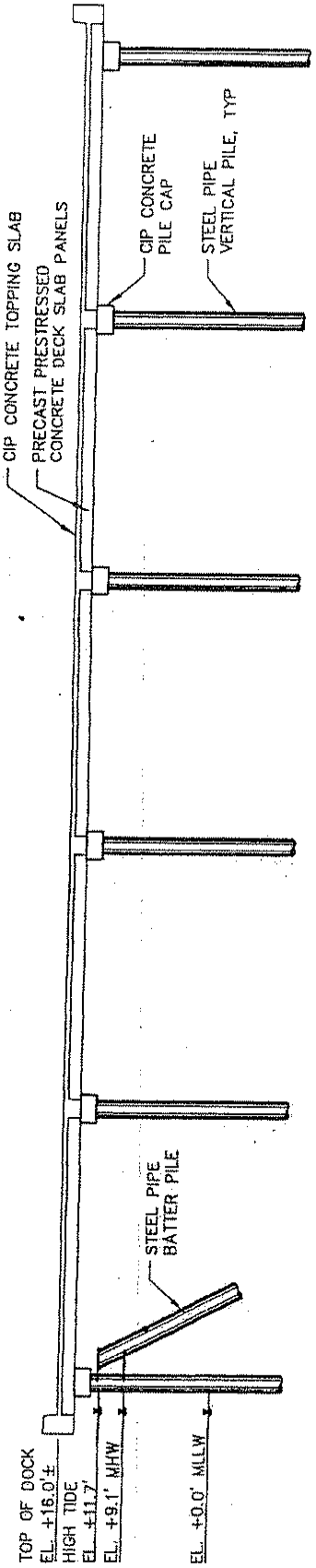
DESIGNED BY: JBC | CHECKED BY: PP
DRAWN BY: JBC | 203438802-W20A-NRP4.dwg

CITY OF PORTLAND AND MAINE
DEPARTMENT OF TRANSPORTATION

OCEAN GATEWAY

JOB NO: 203438.02
DATE: JANUARY 2004
SCALE: N.T.S.

W200a



SECTION 2 / W100

N.T.S.

WOODARD & CURRAN
Engineering · Science · Operations
PORTLAND, MAINE 800-426-4262

PIER 2 EXPANSION SECTION

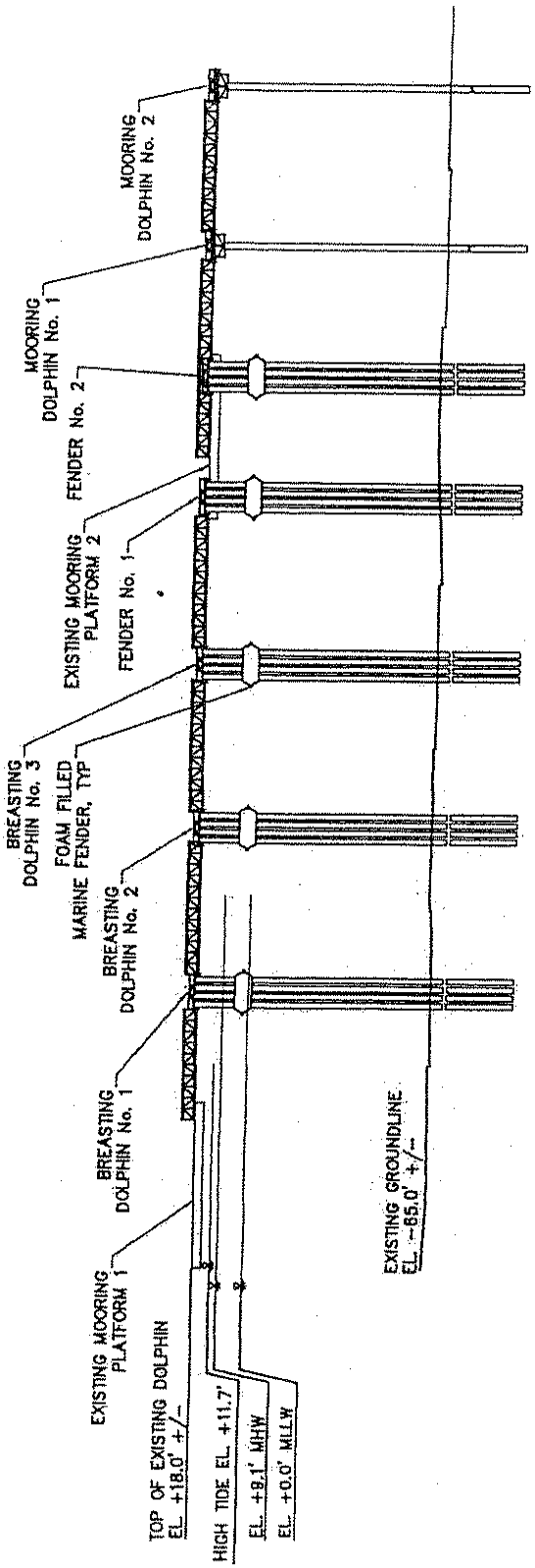
DESIGNED BY: JBC | CHECKED BY: PP
DRAWN BY: JBC | 20343802-W20A-NRPA.dwg

CITY OF PORTLAND AND MAINE
DEPARTMENT OF TRANSPORTATION

OCEAN GATEWAY

JOB NO: 203438.02
DATE: JANUARY 2004
SCALE: N.T.S.

W200b



PIER 2 BERTH 2 PHASE 1 ELEVATION

N.T.S.

WOODARD & CURRAN
Engineering · Science · Operations
PORTLAND, MAINE 500-426-4252

PIER 2 BERTH 2
PHASE 1 ELEVATION

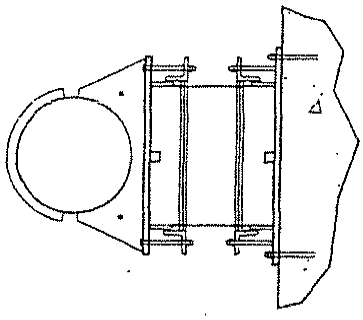
DESIGNED BY: JBC | CHECKED BY: PP
DRAWN BY: JBC | 20343802-W20A-NRPA.dwg

CITY OF PORTLAND AND MAINE
DEPARTMENT OF TRANSPORTATION

OCEAN GATEWAY

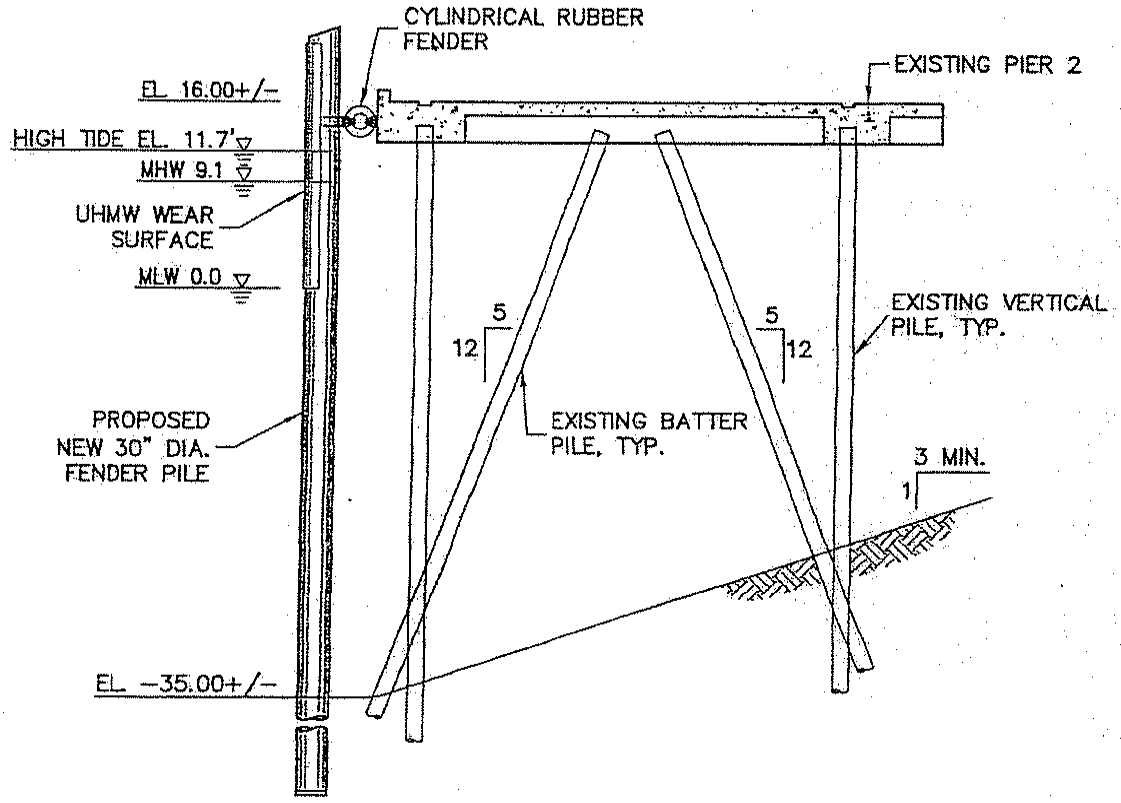
JOB NO: 203438.02
DATE: JANUARY 2004
SCALE: N.T.S.

W201a



PIER 2 FENDER – PLAN

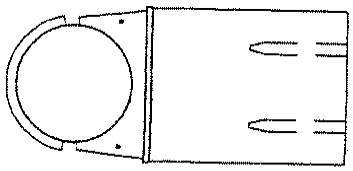
SCALE: 1/4" = 1'–0"



PIER 2 FENDER OPTION 1

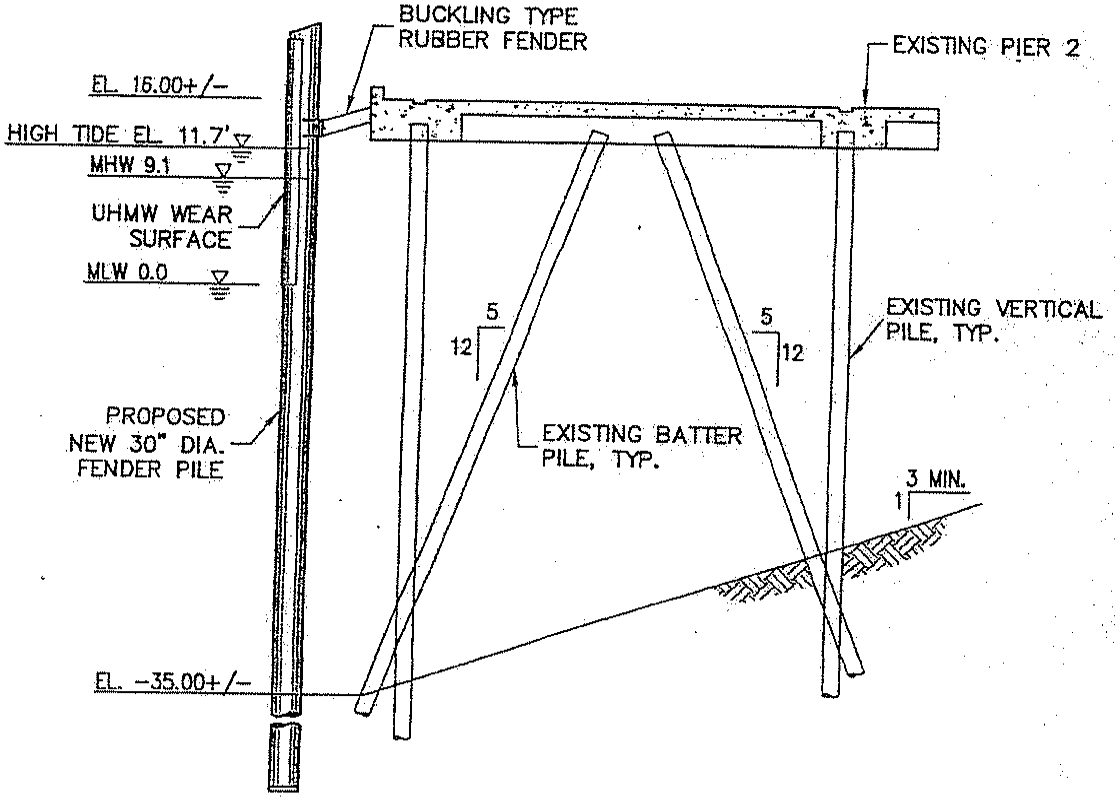
SCALE: 1/16" = 1'–0"

WOODARD & CURRAN Engineering · Science · Operations PORTLAND, MAINE 800-426-4262	PIER 2 FENDER OPTION 1 DESIGNED BY: JBC CHECKED BY: PP DRAWN BY: JBC 203438G2-W201b-NRP1.dwg	CITY OF PORTLAND AND MAINE DEPARTMENT OF TRANSPORTATION OCEAN GATEWAY	JOB NO: 203438.02 DATE: JANUARY 2004 SCALE: AS NOTED W201b



PIER 2 FENDER – PLAN

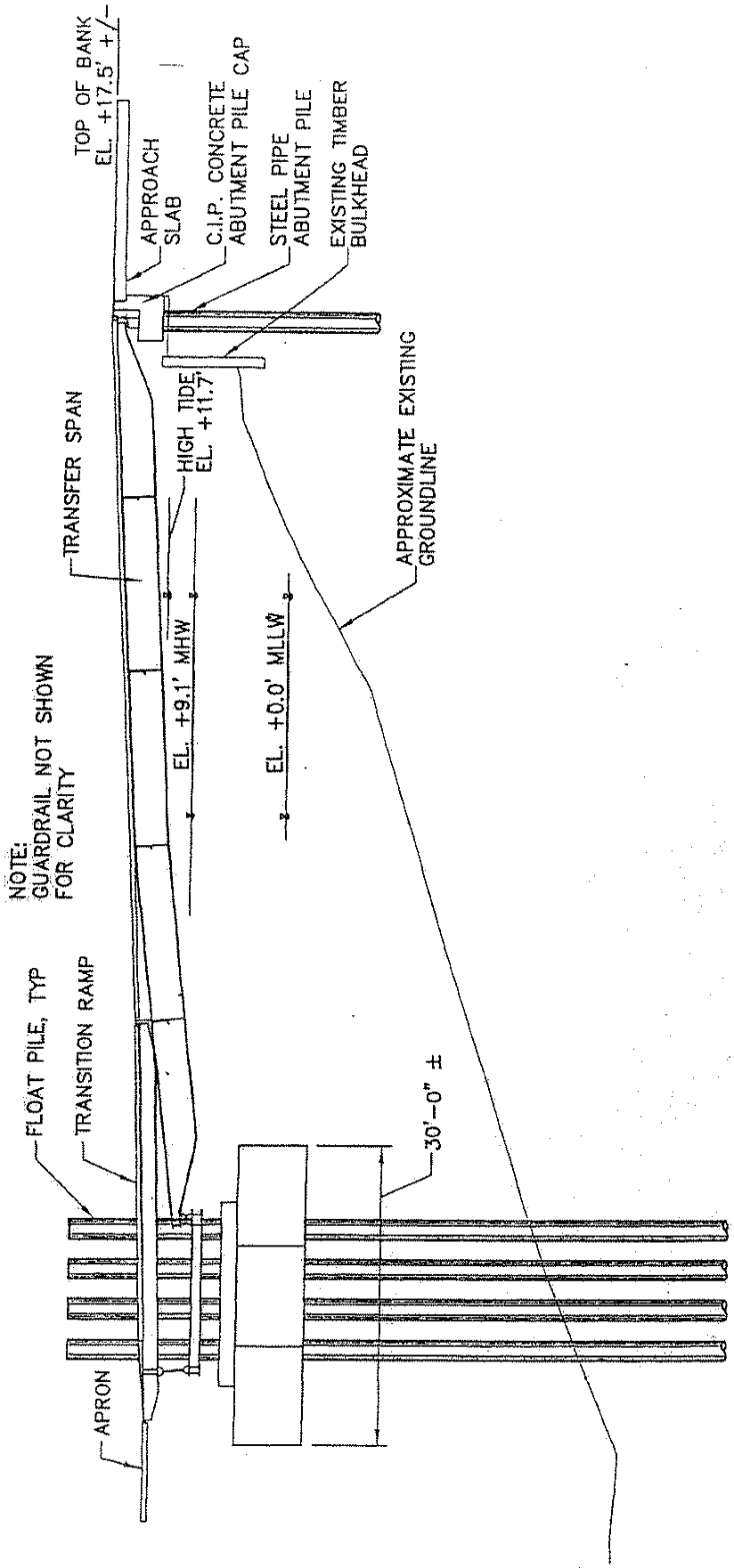
SCALE: 1/4" = 1'–0"



PIER 2 FENDER OPTION 2

SCALE: 1/16" = 1'–0"

WOODARD & CURRAN Engineering · Science · Operations PORTLAND, MAINE 800-426-4262	PIER 2 FENDER OPTION 2 DESIGNED BY: JBC CHECKED BY: PP DRAWN BY: JBC 20343802-W20A—NRPA.dwg	CITY OF PORTLAND AND MAINE DEPARTMENT OF TRANSPORTATION OCEAN GATEWAY	JOB NO: 203438.02 DATE: JANUARY 2004 SCALE: AS NOTED W201c



WOODARD & CURRAN
Engineering · Science · Operations
PORTLAND, MAINE 800-426-4262

ROLL-ON ROLL-OFF
RAMP SECTION

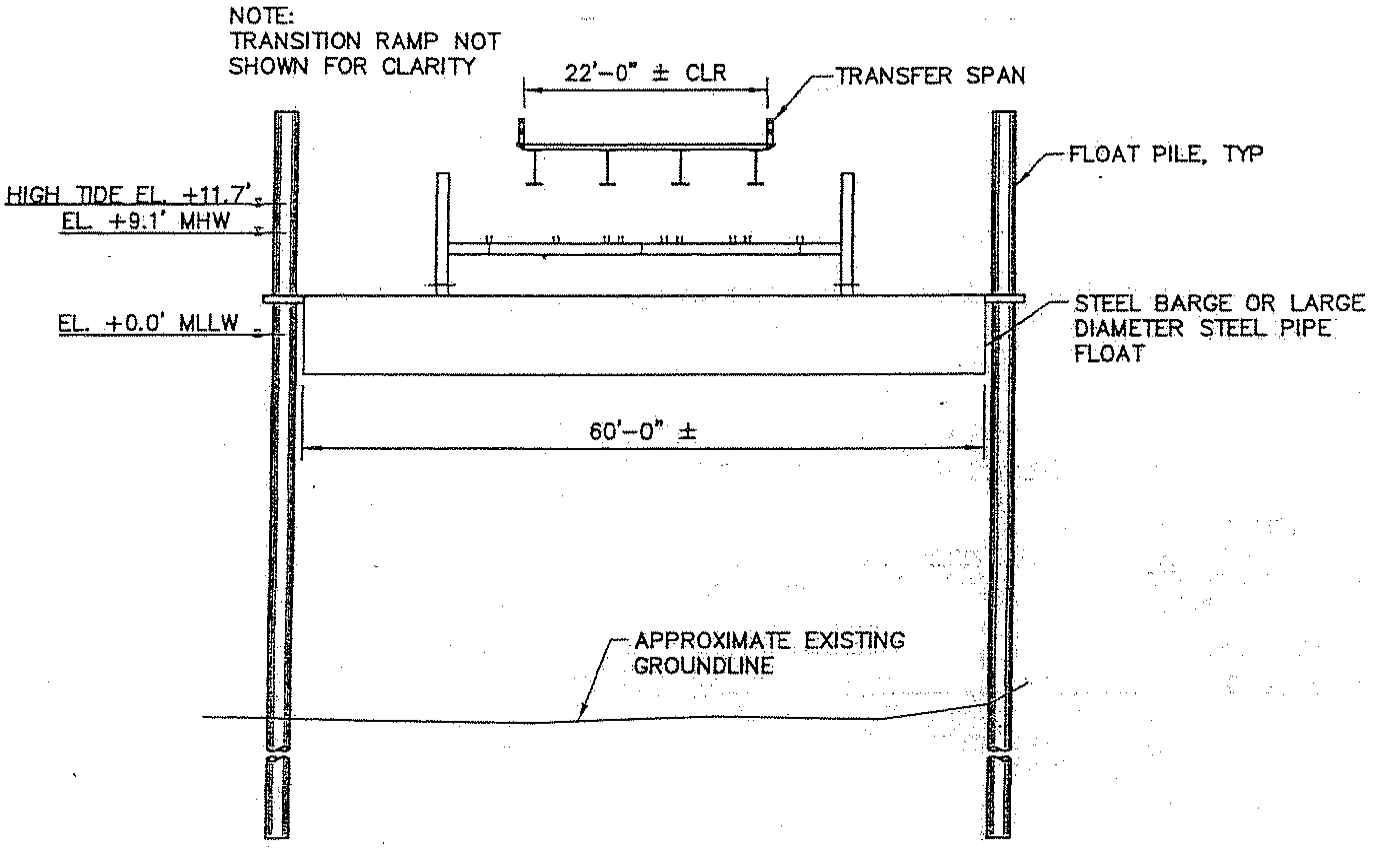
DESIGNED BY: JBC | CHECKED BY: PP
DRAWN BY: JBC | 203438G2-W2DA-NRPA.dwg

CITY OF PORTLAND AND MAINE
DEPARTMENT OF TRANSPORTATION

OCEAN GATEWAY

JOB NO: 203438.02
DATE: JANUARY 2004
SCALE: AS NOTED

W202a



WOODARD & CURRAN
Engineering · Science · Operations
PORTLAND, MAINE 800-426-4262

ROLL-ON ROLL-OFF
RAMP SECTION

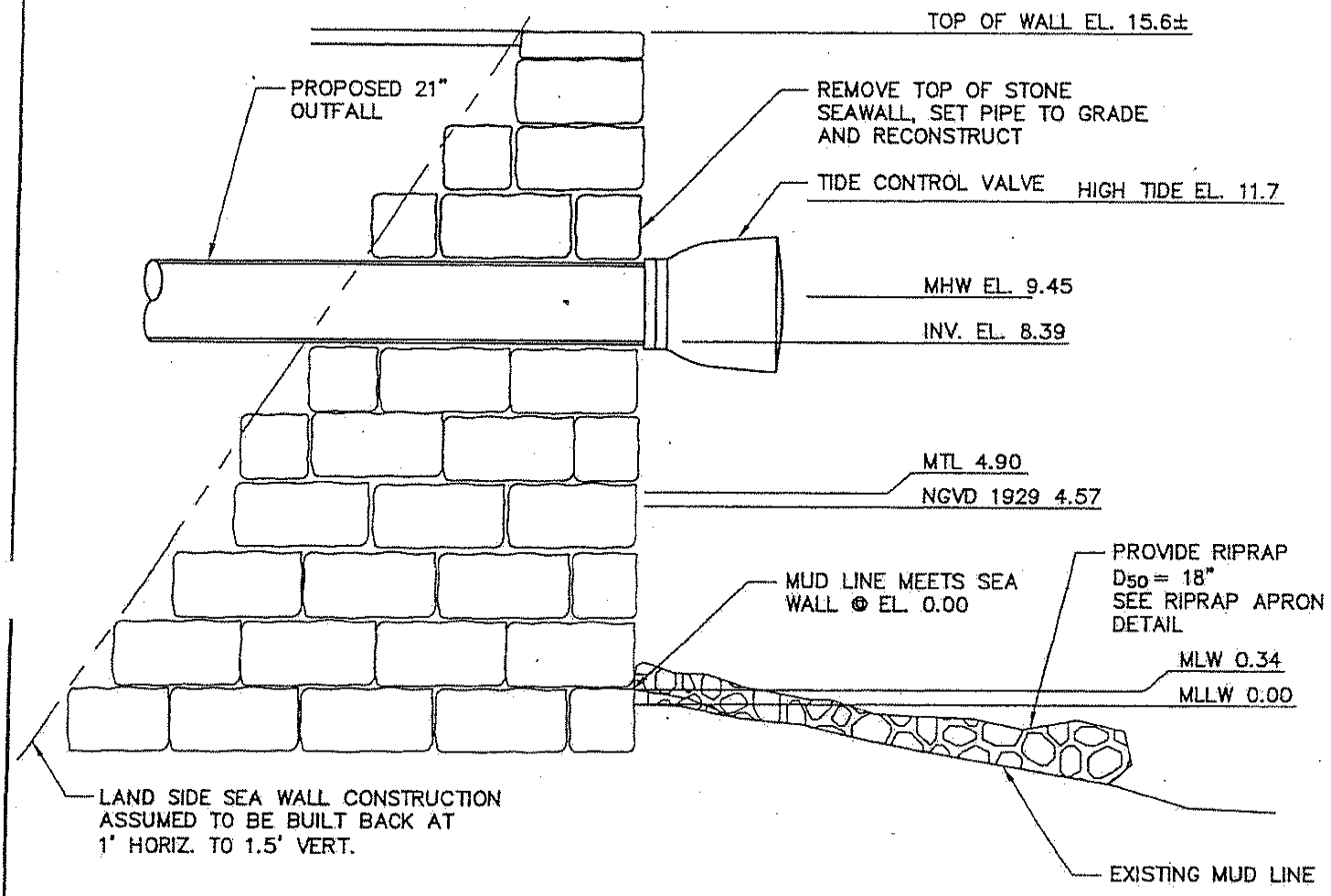
DESIGNED BY: JBC | CHECKED BY: PP
DRAWN BY: JBC | 20343802-W20A-NRPA.dwg

CITY OF PORTLAND AND MAINE
DEPARTMENT OF TRANSPORTATION

OCEAN GATEWAY

JOB NO: 20343B.02
DATE: JANUARY 2004
SCALE: AS NOTED

W202b



WOODARD & CURRAN
Engineering · Science · Operations
PORTLAND, MAINE 800-426-4262

PROPOSED 21" OUTFALL

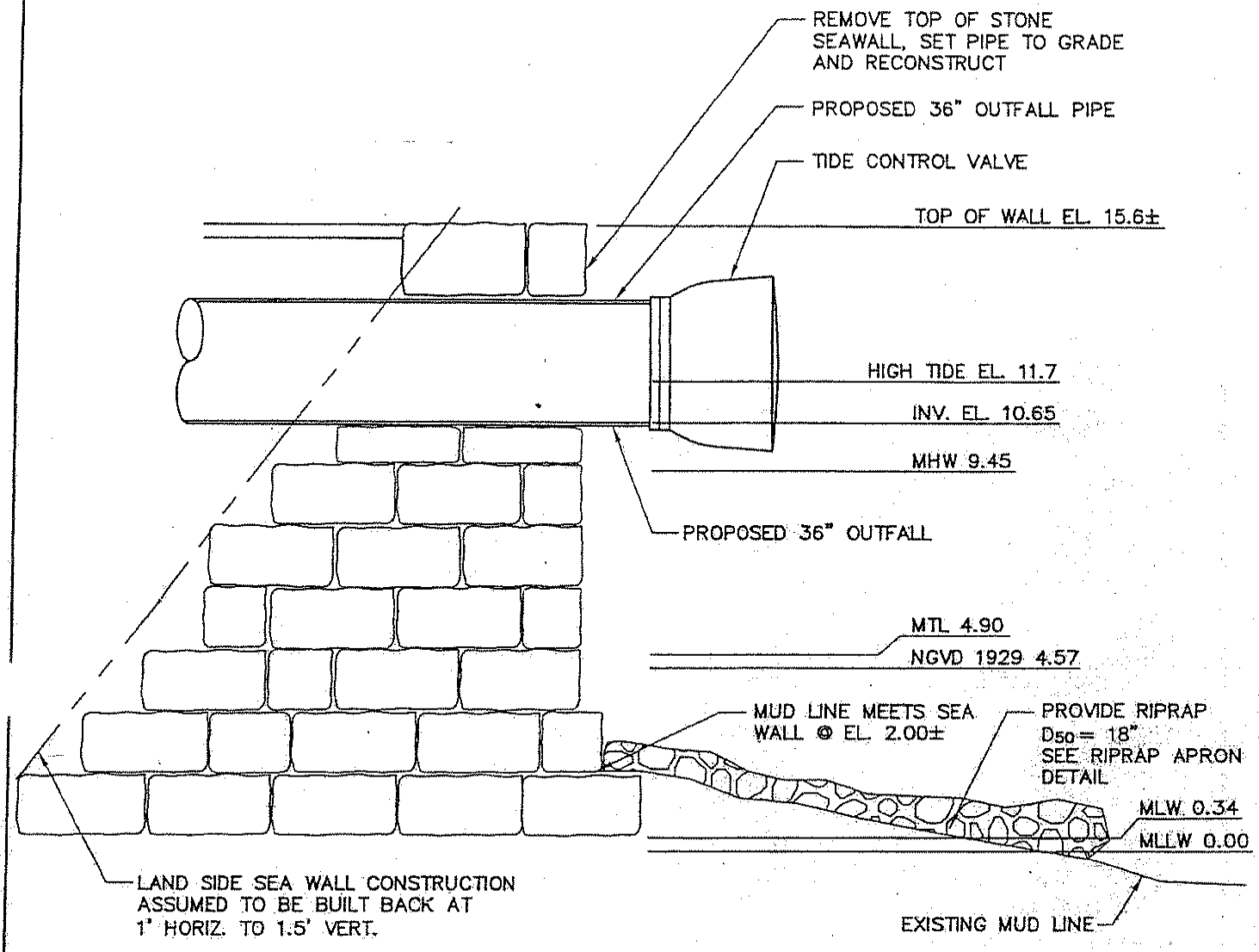
DESIGNED BY: JSC/DAS | CHECKED BY: BSS
DRAWN BY: JSC/DAS | I:203438D2-W20A-NRP.A.dwg

CITY OF PORTLAND AND MAINE
DEPARTMENT OF TRANSPORTATION

OCEAN GATEWAY

JOB NO: 203438.02
DATE: JANUARY 2004
SCALE: N.T.S.

W203



WOODARD & CURRAN Engineering · Science · Operations PORTLAND, MAINE 800-426-4262	PROPOSED 36" OUTFALL DESIGNED BY: JBC/DAS CHECKED BY: BSS DRAWN BY: JBC/DAS 2034302-W20A-NRPA.dwg	CITY OF PORTLAND AND MAINE DEPARTMENT OF TRANSPORTATION OCEAN GATEWAY	JOB NO: 2034302 DATE: JANUARY 2004 SCALE: N.T.S. W204

BOARD OF HARBOR COMMISSIONERS
PORT OF PORTLAND
PERMIT-A

EXTENSION

TO BE POSTED IN A CONSPICUOUS PLACE AT THE CONSTRUCTION SITE

To……The City of Portland, 389 Congress Street, Portland, ME 04101……
The undersigned, Board of Harbor Commissioners for the Harbor of Portland, has carefully considered your application, Dated the 10th day of April 2009, for a permit authorizing
…… the construction of Pier 2 Berth 2 is a deep water berth extending from Pier 2 at the recently constructed Ocean Gateway Marine Passenger Terminal……
Having given public notice of this pending application, as required by law, and therein designated the 14th day Of May 2009, at 5:00 o'clock in the afternoon prevailing time as the time when they would meet At the Portland City Hall, City Council Chambers to examine this issue and here all interested parties, and having met at the time and place mentioned and examined the location of this proposed construction project……..
And having heard all interested parties, the Board of Harbor Commissioners for the Port of Portland hereby issues this permit which authorizes you to proceed under all applicable local and federal regulations hereinafter stated, and to maintain within the limits mentioned in the permit application. ……

In addition, the construction project described above must be surrounded by a containment boom unless the Board of Harbor Commissioners for the Port of Portland has waived this requirement in writing, either as part of the above-listed conditions, or in a separate statement.

This permit is limited authorization, which contains a stated set of conditions with which the permit holder must comply. If a contractor performs the work for you, both you and the contractor are responsible for assuring that the work is done in conformance with the conditions and limitations of this authorization. Please be sure that the person who will be performing the work has read and understands these conditions.

Performing any work not specifically authorized by this permit, or that fails to comply with its conditions, may subject your to the enforcement provisions of Harbor Commission regulations. If any change in plans or construction methods is found necessary, please contact the Harbor Commission immediately to discuss modifications to your authorization. Any change must be approved by the Harbor Commission before it is undertaken.

Nothing in this permit shall be construed to justify or authorize any invasion to the private rights of others. Moreover, nothing in this permit shall limit or modify the authority of the Board of Harbor Commissioners for the Harbor of Portland with its applicable statute. Attested copies will be submitted to the U. S. Army Corps of Engineers, the Department of Environmental protection, the City of Portland, and the City of South Portland.

The request for a 16.5' variant is hereby authorized.

The request for an extension for permit number 2009-08 as described above is hereby granted on this 14th day of May 2010. The work authorized to this permit must be completed on or before the 14th day of November 2010.

……
Jeff C. Liick, Harbor Master
Port of Portland

Planning & Urban Development Department
Penny St. Louis Littell, Director

April 14, 2010

Barry Sheff, P.E.
Woodard and Curran Engineers
41 Hutchins Drive
Portland, Maine 04102

RE: Ocean Gateway, Pier 2, Berth 2 (Mega-berth) Site Plan Approval Extension

CBL: 444 A005001
Application ID: 2009-0022

Dear Mr. Sheff,

The Planning Division is in receipt of a letter from Barry Sheff, Woodard and Curran Engineers, dated March 9, 2010 requesting an extension to minor site plan approval of the Pier 2, Berth 2 (mega-berth) at the Ocean Gateway Marine Terminal on Thames Street in Portland, Maine. Pier 2, Berth 2 approval was originally dated March 20, 2009 based on plans prepared by Woodard and Curran Engineers on behalf of the City of Portland and the Maine Department of Transportation. It is understood that the request is necessitated to allow additional time to secure additional funding for the project.

In my capacity as Planning and Urban Development Director for the City of Portland, I am granting the request to extend the project's approval to March 20, 2011. If you have any questions, please contact Bill Needelman, Senior Planner at 874-8722.

Sincerely,

Penny St. Louis Littell, Planning and Urban Development Director

Electronic Distribution:
Joe Gray, City Manager
Alexander Jaegerman, Planning Division Director
Barbara Barhydt, Development Review Services Manager
Bill Needelman, Senior Planner
Philip DiPierro, Development Review Coordinator
Marge Schmuckal, Zoning Administrator
Tammy Munson, Inspections Division Director

Gayle Guertin, Inspections Division
Lisa Danforth, Inspections Division
Lannie Dobson, Inspections Division
Michael Bobinsky, Public Services Director
Kathi Earley, Public Services
Bill Clark, Public Services
David Margolis-Pineo, Deputy City Engineer
Todd Merkle, Public Services
Greg Vining, Public Services
John Low, Public Services
Jane Ward, Public Services
Keith Gautreau, Fire
Jeff Tarling, City Arborist
Tom Errico, Wilbur Smith Consulting Engineers
Dan Goyette, Woodard & Curran
Assessor's Office
Approval Letter File
Paul Pottle, MDOT
David Senus, Woodard and Curran Engineers
Hard Copy: Project File

CITY OF PORTLAND, MAINE
PLANNING BOARD

June 8, 2004

Capt. Jeffrey Monroe, Director
City of Portland Department of Ports and Transportation
Portland Ocean Terminal
40 Commercial Street
Portland, Maine 04101

RE: Ocean Gateway Approval

CBL: 444 A005001

Dear Capt. Monroe,

On May 25, 2004, the Portland Planning Board voted unanimously to approve the following motions regarding the Ocean Gateway Marine Passenger Terminal:

Subdivision

1. That the plan is in conformance with the subdivision standards of the land use code, subject to the following conditions of approval:

   a) That a final subdivision recording plat with all appropriate easements and rights of way be provided for review and approval of the City Planning Authority, Public Works and Legal staff and for signature by the Planning Board prior to issuance of a building permit.

   b) That the applicant receives written permission from the owners of One India Street for the construction of public infrastructure on the 12 foot strip of land running southerly along the One India Street building.

   c) That the State of Maine Department of Transportation provides an executed deed for the change of railroad right of way, as shown on the approved subdivision plans.

Flood Plain

2. That the plan is in conformance with the Flood Plain Management standards of the land use code, subject to the following conditions of approval:

   a) That the terminal building be designed with a finished floor elevation of not less than 12.3 feet NGVD.

b) That an elevation certificate (FEMA form 81-31) be provided by a registered professional engineer or architect to the Zoning Administrator prior to issuance of a Building Permit.

c) That proof of approval of all other applicable Local, State and Federal permits be provided prior to issuance of a Building Permit

Shoreland

3. That the plan is in conformance with the Shoreland Management standards of the land use code.

Waiver of Site Lighting Standards

4. That the proposed lighting plan **(will not)** produce unacceptable levels of glare and/or light trespass and therefore the Site Lighting Standards for this application **(are)** waived, subject to the following condition of approval:

a) That all flood type fixtures used in the Ocean Gateway vehicle queuing area be turned off except during active operations, or as required by regulatory authorities or for security.

Site Plan

5. That the plan is in conformance with the Site Plan standards of the land use code, subject to the following conditions of approval:

a) That any proposed additional scheduled ferry or cruise ship operations to the Ocean Gateway facility (such as international or coastal ferry service, or permanent home port cruise operations) that results in significant vehicular circulation changes, additional on-site parking demands over 25 spaces, or major facility infrastructure expansion, over that proposed with this application, shall come to the Planning Board for review and approval consistent with City ordinances. Said services, as appropriate, shall be reviewed as amendments to the site plan and shall need to demonstrate adequate parking and traffic management to satisfy all applicable site plan standards.

b) That final construction drawings for the Ocean Gateway site plan be provided for the review and approval of the Planning Authority staff prior to issuance of a building permit.

c) In the event that a parking garage, with spaces available for use by the Ocean Gateway facility, is not constructed prior to commencement of ferry operations, then a park and ride shuttle service will be implemented as needed to ensure the functional viability of industrial uses at the Maine State Pier.

d) That any dumpster locations proposed for the site be shown on the final site plan with fully screened dumpster enclosure details added to the Site Details for Planning staff review and approval.

e) That a signage plan be submitted for review and approval of the Planning Staff.

f) That any revisions to the containment area landscape treatment incorporating a percent for art project shall be submitted to the Planning Authority for review and approval.

g) At such time as a parking garage, located in the Franklin Arterial/Fore Street/Commercial Street/Portland Yacht Services block is constructed, then the 97-space easterly parking lot shall be removed and re-vegetated in accordance with a plan to be approved by the Planning Board. If no such garage structure is constructed within five years of the issuance of a building permit (for Ocean Gateway), then the applicant shall prepare and submit a plan for the review and approval of the Planning Board for the replacement of the 97 parking spaces, and for the elimination of such existing 97-space easterly lot and for re-vegetation of such area.

The approval is based on the submitted plan and the findings related to the applicable review standards as contained in Planning Board #19-04, which is attached.

Please note the following provisions and requirements for all site plan and subdivision approvals:

1. Mylar copies of the construction drawing for the subdivision must be submitted to the Public Works Department prior to the release of the plat. Where submission drawings are available in electronic form, the applicant shall submit any available electronic CADD.DXF files with the final plans."

2. A performance guarantee covering the site improvements as well as an inspection fee payment of 2.0% of the guarantee amount must be submitted to and approved by the Planning Division and Public works prior to the recording of the subdivision plat. The subdivision approval is valid for three (3) years.

3. A defect guarantee, consisting of 10% of the performance guarantee, must be posted before the performance guarantee will be released.

4. Prior to construction, a preconstruction meeting shall be held at the project site with the contractor, development review coordinator, Public Work's representative and owner to review the construction schedule and critical aspects of the site work. At that time, the site/building contractor shall provide three (3) copies of a detailed construction schedule to the attending City representatives. It shall be the contractor's responsibility to arrange a mutually agreeable time for the preconstruction meeting.

6. If work will occur within the public right-of-way such as utilities, curb, sidewalk and driveway construction, a street opening permit(s) is required for your site. Please contact Carol Merritt at 874-8300, ext. 8828. (Only excavators licensed by the City of Portland are eligible.)

7. The Development Review Coordinator must be notified five (5) working days prior to date required for final site inspection. The Development Review Coordinator can be reached at the Planning Department at 874-8632. Please make allowances for completion of site plan requirements determined to be incomplete or defective during the inspection. This is essential as all site plan requirements must be completed and approved by the Development Review Coordinator prior to issuance of a Certificate of Occupancy. Please schedule any property closing with these requirements in mind.

If there are any questions regarding the Board's actions, please contact Bill Needelman, Senior Planner at 874-8722.

Sincerely,

Orlando Delogu, Chair
Portland Planning Board

cc: Lee D. Urban, Planning and Development Department Director
Alexander Jaegerman, Planning Division Director
Sarah Hopkins, Development Review Services Manager
Bill Needelman, Senior Planner
Jay Reynolds, Development Review Coordinator
Marge Schmuckal, Zoning Administrator
Inspections
Michael Bobinsky, Public Works Director
Traffic Division
Eric Labelle, City Engineer
Jeff Tarling, City Arborist
Penny Littell, Associate Corporation Counsel
Lt. Gaylen McDougall, Fire Prevention
Rick Blackburn, City Assessor
Approval Letter File
Paul Pottle, PE, Project Manager, MDOT
Barry Sheff, PE, Project Manager Woodard and Curran Engineers

FEDERAL EMERGENCY MANAGEMENT AGENCY
NATIONAL FLOOD INSURANCE PROGRAM

O.M.B. No. 3067-0077
Expires December 31, 2005

ELEVATION CERTIFICATE

Important: Read the instructions on pages 1 - 7.

SECTION A - PROPERTY OWNER INFORMATION

For Insurance Company Use:

BUILDING OWNER'S NAME
City of Portland

Policy Number

BUILDING STREET ADDRESS (Including Apt., Unit, Suite, and/or Bldg. No.) OR P.O. ROUTE AND BOX NO.
Terminal Building - Ocean Gateway

Company NAIC Number

CITY	STATE	ZIP CODE
Portland	ME	04101

PROPERTY DESCRIPTION (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.)
Parcel ID - 445 A002

BUILDING USE (e.g., Residential, Non-residential, Addition, Accessory, etc. Use a Comments area, if necessary.)
Non-residential. Ferry Terminal building, City of Portland.

LATITUDE/LONGITUDE (OPTIONAL) (##° - ##' - ##.##" or ##.######°)
HORIZONTAL DATUM: ☐ NAD 1927 ☒ NAD 1983
SOURCE: ☐ GPS (Type):____ ☐ USGS Quad Map ☒ Other: Survey

SECTION B - FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

B1. NFIP COMMUNITY NAME & COMMUNITY NUMBER	B2. COUNTY NAME	B3. STATE
City of Portland	Cumberland County	Maine

B4. MAP AND PANEL NUMBER	B5. SUFFIX	B6. FIRM INDEX DATE	B7. FIRM PANEL EFFECTIVE/REVISED DATE	B8. FLOOD ZONE(S)	B9. BASE FLOOD ELEVATION(S) (Zone AO, use depth of flooding)
230051 0014	B	7/17/1976	7/17/1976	A	-

B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in B9.
☐ FIS Profile ☐ FIRM ☐ Community Determined ☒ Other (Describe): City Approved Water Level Analysis

B11. Indicate the elevation datum used for the BFE in B9: ☐ NGVD 1929 ☐ NAVD 1988 ☒ Other (Describe): 0.0 MLLW

B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)? ☐ Yes ☒ No Designation Date____

SECTION C - BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)

C1. Building elevations are based on: ☒ Construction Drawings* ☐ Building Under Construction* ☐ Finished Construction

*A new Elevation Certificate will be required when construction of the building is complete.

C2. Building Diagram Number 5 (Select the building diagram most similar to the building for which this certificate is being completed - see pages 6 and 7. If no diagram accurately represents the building, provide a sketch or photograph.)

C3. Elevations – Zones A1-A30, AE, AH, A (with BFE), VE, V1-V30, V (with BFE), AR, AR/A, AR/AE, AR/A1-A30, AR/AH, AR/AO

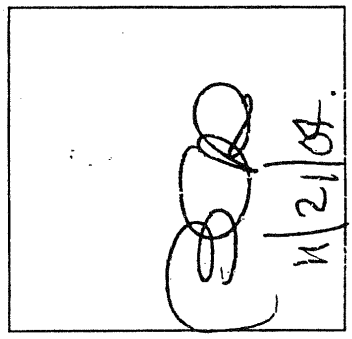
Complete Items C3.-a-i below according to the building diagram specified in Item C2. State the datum used. If the datum is different from the datum used for the BFE in Section B, convert the datum to that used for the BFE. Show field measurements and datum conversion calculation. Use the space provided or the Comments area of Section D or Section G, as appropriate, to document the datum conversion.

Datum 0.00 MLLW Conversion/Comments 0.00 MLLW = -4.57 NGVD 1929

Elevation reference mark used BM #3 1971 Does the elevation reference mark used appear on the FIRM? ☐ Yes ☒ No

☐ a) Top of bottom floor (including basement or enclosure)	16. 87 ft.(m)
☐ b) Top of next higher floor	32. 87 ft.(m)
☐ c) Bottom of lowest horizontal structural member (V zones only)	N/A. __ ft.(m)
☐ d) Attached garage (top of slab)	N/A. __ ft.(m)
☐ e) Lowest elevation of machinery and/or equipment servicing the building (Describe in a Comments area)	16. 87 ft.(m)
☐ f) Lowest adjacent (finished) grade (LAG)	16. 34 ft.(m)
☐ g) Highest adjacent (finished) grade (HAG)	16. 34 ft.(m)
☐ h) No. of permanent openings (flood vents) within 1 ft. above adjacent grade 0	
☐ i) Total area of all permanent openings (flood vents) in C3.h 0.00 sq. in. (sq. cm)	

License Number, Embossed Seal, Signature, and Date



SECTION D - SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION

This certification is to be signed and sealed by a land surveyor, engineer, or architect authorized by law to certify elevation information.
I certify that the information in Sections A, B, and C on this certificate represents my best efforts to interpret the data available.
I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001.

CERTIFIER'S NAME Bruno Elias Ramos
LICENSE NUMBER ARC 2644

TITLE Licensed Architect
COMPANY NAME BEA International

ADDRESS	CITY	STATE	ZIP CODE
4111 Le Jeune Road	Miami	FL	33146

SIGNATURE	DATE	TELEPHONE
	10-19-04	305 4612053

IMPORTANT: In these spaces, copy the corresponding information from Section A.			For Insurance Company Use:
BUILDING STREET ADDRESS (Including Apt., Unit, Suite, and/or Bldg. No.) OR P.O. ROUTE AND BOX NO. Terminal Building - Ocean Gateway			Policy Number
CITY Portland	STATE ME	ZIP CODE 04101	Company NAIC Number

SECTION D - SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION (CONTINUED)

Copy both sides of this Elevation Certificate for (1) community official, (2) insurance agent/company, and (3) building owner.

COMMENTS

City Approved Water Level Analysis conducted in May 2004 determined a finish floor elevation of 16.87 (0.00 MLLW)

Top of floor, first floor: +16.87' MLLW

Top of mech. mezzanine floor = 46.37'. Elevator machine room +16.87' MLLW ☒ Check here if attachments

SECTION E - BUILDING ELEVATION INFORMATION (SURVEY NOT REQUIRED) FOR ZONE AO AND ZONE A (WITHOUT BFE)

For Zone AO and Zone A (without BFE), complete Items E1 through E4. If the Elevation Certificate is intended for use as supporting information for a LOMA or LOMR-F, Section C must be completed.

E1. Building Diagram Number 5 (Select the building diagram most similar to the building for which this certificate is being completed – see pages 6 and 7. If no diagram accurately represents the building, provide a sketch or photograph.)

E2. The top of the bottom floor (including basement or enclosure) of the building is 0 ft.(m) 6 in.(cm) ☒ above or ☐ below (check one) the highest adjacent grade. (Use natural grade, if available).

E3. For Building Diagrams 6-8 with openings (see page 7), the next higher floor or elevated floor (elevation b) of the building is __ ft.(m) __ in.(cm) above the highest adjacent grade. Complete items C3.h and C3.i on front of form.

E4. The top of the platform of machinery and/or equipment servicing the building is 0 ft.(m) 6 in.(cm) ☒ above or ☐ below (check one) the highest adjacent grade. (Use natural grade, if available).

E5. For Zone AO only: If no flood depth number is available, is the top of the bottom floor elevated in accordance with the community's floodplain management ordinance?
☐ Yes ☐ No ☐ Unknown. The local official must certify this information in Section G.

SECTION F - PROPERTY OWNER (OR OWNER'S REPRESENTATIVE) CERTIFICATION

The property owner or owner's authorized representative who completes Sections A, B, C (Items C3.h and C3.i only), and E for Zone A (without a FEMA-issued or community-issued BFE) or Zone AO must sign here. *The statements in Sections A, B, C, and E are correct to the best of my knowledge.*

PROPERTY OWNER'S OR OWNER'S AUTHORIZED REPRESENTATIVE'S NAME
A International

ADDRESS	CITY	STATE	ZIP CODE
4111 Le Jeune Road	Miami	FL	33146
SIGNATURE	DATE 10/19/04	TELEPHONE 305 4612053	

COMMENTS Bottom floor elevation for Terminal Building determined by City Approved Water Level Analysis.

☐ Check here if attachments

SECTION G - COMMUNITY INFORMATION (OPTIONAL)

The local official who is authorized by law or ordinance to administer the community's floodplain management ordinance can complete Sections A, B, C (or E), and G of this Elevation Certificate. Complete the applicable item(s) and sign below.

G1. ☐ The information in Section C was taken from other documentation that has been signed and embossed by a licensed surveyor, engineer, or architect who is authorized by state or local law to certify elevation information. (Indicate the source and date of the elevation data in the Comments area below.)

G2. ☐ A community official completed Section E for a building located in Zone A (without a FEMA-issued or community-issued BFE) or Zone AO.

G3. ☐ The following information (Items G4-G9) is provided for community floodplain management purposes.

G4. PERMIT NUMBER	G5. DATE PERMIT ISSUED	G6. DATE CERTIFICATE OF COMPLIANCE/OCCUPANCY ISSUED

G7. This permit has been issued for: ☒ New Construction ☐ Substantial Improvement

G8. Elevation of as-built lowest floor (including basement) of the building is: ____.__ ft.(m) Datum: ____

G9. BFE or (in Zone AO) depth of flooding at the building site is: ____.__ ft.(m) Datum: ____

LOCAL OFFICIAL'S NAME	TITLE
COMMUNITY NAME	TELEPHONE
SIGNATURE	DATE

COMMENTS

☐ Check here if attachments

P | N | D
Incorporated

CONSULTING
ENGINEERS

PND No. 00439.22

May 21, 2004

Attn: Barry Sheff
Woodard & Curran
41 Hutchins Drive
Portland, ME 04102

RE: Pier 2 and Pier 2 Expansion, Recommended Finish Floor Elevation.

Dear Barry:

This letter summarizes our findings for our work effort to determine a recommended finish floor elevation for Pier 2 Terminal Building and Pier 2 Expansion Project. Our work included review of the existing FIRM report for the site and conducting an independent analysis by obtaining additional information in the area. As you know, the FIRM map did not include Pier 2. Additional requests to obtain the supporting analysis yielded no information to help validate the previous work by FEMA. We therefore relied on the existing tide gage information at the Maine State Pier and wind data from a buoy off the adjacent coast to conduct our analysis and provide our recommendation. (See final reports previously sent.) This recommendation was reviewed by STRATEX, a peer review consultant hired by the City of Portland, which concurred with our recommendation. In conclusion, our recommendation is that the minimum finish floor elevation for the project should be 12.3 feet NGVD29. This was in recognition of the project structures assessed to be in an A-Zone along with the Maine State Pier as shown on the FIRM map. The recommended finish floor elevation was determined as follows:

$$SWL + \tfrac{1}{2} H_m + H_t = \text{Finish Floor Elevation}$$

$$9.6 + (1/2)(3.6) + .9 = 12.3 \text{ feet NGVD29}$$

SWL	= Still water level for 100 year tide at the Maine State Pier (FIRM)
H_m	= Mean Wave Height as determined by PND using site specific information (PND)
H_t	= .9 ft, an agreed upon correction accounting for tide effects (.63) and uncertainties (.27) in global climates for a 100 year future consideration. (PND & STRATEX)

If you have any additional questions, please contact me at any time.

Sincerely,
PND Incorporated | Seattle Office

David Pierce, P.E., S.E.
Vice President

811 FIRST AVENUE, SUITE 570 · SEATTLE, WASHINGTON 98104 · Phone 206.624.1387 · Fax 206.624.1388