

030A001

PROJECT MANUAL  
FOR

MARINE USE FACILITY  
47 CUSTOM HOUSE WHARF  
PORTLAND, MAINE 04101

FOR  
PROPRIETORS OF CUSTOM HOUSE WHARF  
5 EASTERN PROM  
PORTLAND, MAINE 04103

DAVID D. LEASURE  
ARCHITECTURAL ASSOCIATES INC.

REVISED JULY 26, 2001  
RELEASED FOR CONSTRUCTION

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**INVITATION TO BID:**

The **Proprietors of Custom House Wharf** are presently seeking bids from General Contractors and Sub-Contractors for the construction of a **Marine Use Facility located at 47 Custom House Wharf, Portland, Maine**. See the Instructions to Bidders included in these initial pages of the specifications.

Bids shall be submitted in sealed envelopes on the bidders letterhead plainly marked: **"Proposal for Marine Use Facility, Custom House Wharf, Portland, Maine."**

Bids shall be addressed to:

Mr. Kenneth N. MacGowan  
Proprietors of Custom House Wharf  
5 Eastern Prom  
Portland, Maine 04103

No public bid opening will be held. All bids shall be received by     TBA    .

All General Contractors proposals must be accompanied by a certified or cashiers check for 5% of the total amount of the proposal, or a bid bond in an equal amount. The owner reserves the right to waive all formalities, and reject any and all bid proposals, or to accept any bid proposal.

The successful bidder will be required to furnish a 100% Contract Performance Bond and a 100% Contract Payment Bond to cover the execution of the work which shall be in conformity with all forms, bonds and requirements contained in this Project Manual.

Any Proposal that contains and escalation clause will be invalid.

A Pre-Bid conference will be held on     TBA     at 9:00 A.M. at the project site. Attendance is not mandatory, however all perspective contractors and sub-contractors are urged to attend. The Owner and the Architect will be present to answer any questions regarding the proposed project.

Plans and Specifications may be obtained at a cost of \$125.00 per full set which is non refundable. Bid documents may be obtained at the office of the Architect, **1344 Washington Avenue - Portland, Maine**. Tel No. (207)-797-8661. Plans and specifications may be viewed at the office of the Owner from 9:00 a.m. to 5:00 p.m., Monday thru Friday except on National Holidays.

**BID DOCUMENTS:**

The bid documents consist of the Instruction to Bidders, these Supplementary Instructions, the accompanying Bid Proposal Documents, the Form of Agreement, Bid Bond Forms, the General Conditions of the Contract, the Supplementary General Conditions, the Specifications, all Addenda, and the Construction Documents entitled, **"Marine Use Facility, Custom House Wharf, Portland, Maine" dated July 26, 2001**.

The bid documents may be seen at the office of the Architect, David D. Leasure -Architectural Assoc. Inc., 14 Sunset Road, Falmouth, Maine. The Bid Documents including plans, specifications, and addenda, if any, may be obtained from the Architect at a cost of \$ 125.00 per set which is not refundable. Addenda, if issued will be sent directly to the General Contractors but it is the sole responsibility of the Sub-contractors to obtain addenda from the Architect or their bidding General Contractor. Individual sheet drawings can be purchased at \$2.50 per sheet and specifications are available at 15 cents per sheet.

**EXAMINATION AND SITE VISITS:**

Each bidder shall thoroughly examine all the bid documents and he/she shall visit the site in order to adequately inform himself/herself of the existing site conditions, the work to be performed and the conditions under which the work will be performed. It is mandatory

Invitation to Bid

written bid. Any substitution shall be submitted with the appropriate product data to the Architect prior to the bid opening for approval. An alternate price reflecting the substitution must be submitted in addition to submitting the bid for the product or work as specified in the construction documents.

**ALTERNATES:**

The General Contractors shall include in his/her bid proposal, but separate from the base bid, all costs for respective alternates as specified below. The Scope of work or product alternate is specified below as follows:

Alternate #1: Metal Roof Panels

Alternate #2: Vinyl Siding

**AWARD:**

The Proprietors of Custom House Wharf intends to award a contract to the successful bidder as soon as possible after the bid opening, provided that the bid has been submitted in accordance with the Contract Documents, is judged reasonable, that the amount does not exceed the funds available, and that the date of substantial completion indicated is acceptable. This intention not withstanding, the Owner has the right to accept or reject any and all bids, including any bid that is deemed incomplete or irregular.

The low Bid will be determined from the total of the amounts of the Base Bid plus any Alternates that the Owner may elect to accept. Therefore, it is possible that the apparent low Base bidder may not be awarded the contract.

**LIQUIDATING DAMAGES**

This contract will not include a stipulation for liquidating damages.

**TAX EXEMPT STATUS**

The proprietors of Custom House Wharf are not a TAX EXEMPT corporation in the State of Maine.

**4. UNIT PRICES**

Contractor shall carry the following unit prices for removal of ledge found during excavation of building and utility lines, etc.  
For ledge blasting and removal from site:

Open Blasting \_\_\_\_\_ per cu. ft.  
fill in amount

Trench Blasting \_\_\_\_\_ per cu. ft.  
fill in amount

**5. CONTRACT**

If selected as the successful bidder, the undersigned will enter into a Contract with the Owner by executing the Form of Agreement promptly. In any case, he/she will not withdraw or modify his/her bid within thirty (30) days of the time of the bid opening.

\_\_\_\_\_  
Name of the General Contractor

By: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Business Address

\_\_\_\_\_  
Date

If the bidder is a Corporation, indicate state of corporation, and affix corporate seal; if Partnership, give full names and addresses of all Partners.

Proposals must be accompanied by certified or Cashiers check for five percent (5%) of the Proposal amount, or a satisfactory Bid Bond in a similar amount. The Owner reserves the right to waive all formalities, and reject any and all Proposals, or to accept any Proposal.

**AGREEMENT**

This Agreement is made this \_\_\_\_\_ day of \_\_\_\_\_,  
20\_\_\_\_, by and between the \_\_\_\_\_,  
a municipal Corporation existing under the laws of the State of Maine and located in the County of Cumberland, State of Maine  
(Hereinafter "OWNER") AND (Hereinafter "CONTRACTOR").

W I T N E S S E T H

In consideration of the mutual covenants and conditions contained herein, the OWNER and the CONTRACTOR agree as follows:

the latter's employees, unless such employees are covered by the protection afforded by the CONTRACTOR. In case any class of employees engaged in hazardous work under this Agreement at the site of the project is not protected under the Workers' Compensation Act, the CONTRACTOR shall provide for the protection of his employees not otherwise protected.

(b) **PUBLIC LIABILITY AND PROPERTY DAMAGE INSURANCE** - The CONTRACTOR shall obtain and maintain during the life of this Agreement such Public Liability and Property Damage Insurance as shall protect it, any subcontractor performing work covered by this agreement, and the OWNER, from claims and damages which may arise from operations under this Agreement, whether such operations be by itself or by any subcontractor or by anyone directly employed by them.

#### **INDEMNIFICATION**

8. The CONTRACTOR shall defend, indemnify and hold harmless the OWNER, its officers, agents and employees against all claims from personal injuries (including death), property loss or damage, arising out of the performance of this contract.

#### **LIENS**

9. Neither the final payment nor any part of the retained percentage shall become due until the CONTRACTOR, if required, shall deliver to the OWNER a complete release of all liens arising out of this Agreement, or receipts in full in lieu thereof and, if required in either case, an affidavit that so far as it has knowledge or information the releases and receipts include all the labor and material for which a lien could be filed, but the CONTRACTOR may, if any subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the OWNER to indemnify it against any lien. If any lien remains unsatisfied after all payments are made, the CONTRACTOR shall refund to the OWNER all monies that the latter may be compelled to pay in discharging such a lien, including all legal and other costs and all attorney's fees.

#### **ASSIGNMENT**

10. Neither party to the Agreement shall assign the Agreement or sublet it as a whole without the written consent of the other, nor shall the CONTRACTOR assign any monies due or to become due to it hereunder, without the previous written consent of the OWNER.

#### **SUBCONTRACTS**

11. The CONTRACTOR shall not sublet any part of this Agreement without the written permission of the OWNER. The CONTRACTOR agrees that it is fully responsible to the OWNER for the acts and omissions of its subcontractors and of persons either directly or indirectly employed by them, as it is for the acts and omissions of persons directly employed by it.

#### **USE OF PREMISES**

12. The CONTRACTOR shall confine its apparatus, the storage of materials and the operations of its workers to limits indicated by law, ordinances and permits and shall not otherwise reasonably encumber the premises with its materials. If any part of the project is completed and ready for use, the OWNER may, by written and mutual consent, without prejudice to any of its rights or the rights of the CONTRACTOR, enter in and make use of such completed parts of the project. Such use or occupancy shall in no case be construed as an acceptance of any work or materials.

#### **CLEANING UP**

13. The CONTRACTOR shall at all times keep the premises free from accumulation of waste materials or rubbish caused by its employees or work, and at the completion of the work it shall remove all its rubbish from and about the project, and all its tools, scaffolding and surplus materials and shall leave its work "broom-clean" or its equivalent, unless more exactly specified in any section of the specifications. In case of dispute, the OWNER may remove the rubbish and charge the costs to the CONTRACTOR.

## SUPPLEMENTARY GENERAL CONDITIONS

Article 15 - Modifications to the General Conditions of the Contract for Construction AIA Document A201

15.1 The Date of Substantial completion of the work or designated portion thereof as certified by the Architect in accordance with paragraph 8.1.3 of the General Conditions of the Contract shall be the time when work is completed to the point where only minor adjustments may be required to the work, except for portions of the work which cannot be performed properly at the time for reason of seasonal hardship, but which in aggregate value do not exceed ten percent (10%) of the Contract Sum.

15.2 The Contractor shall provide and maintain insurance coverage as indicated in Article 11 of the General Conditions of the Contract, with minimum limits as indicated below or required by governing State Law, whichever is greater:

- A. Workmen's Compensation Insurance
  - Employer's Liability \$ 300,000.00
  - Applicable Federal, State and Statutory Limits
- B. Comprehensive General Liability
  - 1. Bodily Injury and Property Damage (Including Completed Operations Broad Form) \$ 300,000.00
  - 2. Personal Injury
    - Each Occurrence \$ 300,000.00
    - General Aggregate \$ 300,000.00
  - 3. Automobile Liability
    - Owned, Non-owned and Hired \$ 100,000.00 Single Limit
- C. The Contractor shall carry insurance in addition to that specifically named by the General Contractor as follows:
  - 1. XCU Coverage - Remove exclusion
  - 2. Builders Risk - Standard All-Risk Insurance for amount of Contract with \$500.00 Deductible.

D. The Contractor shall effect and maintain "Builder's Risk Insurance" naming \_\_\_\_\_ and the subcontractor as their interest may appear, as insureds for the perils of Fire, Extended Coverage, Vandalism and Malicious Mischief upon entire structure on which the work of this contract is to be done, to one hundred percent of the contract amount upon the standard extended coverage and standard vandalism and malicious mischief forms as promulgated by the Insurance Office of Maine.

E. Renovations and or Additions Within Existing Buildings Coverage will be provided by \_\_\_\_\_ by means of a rider to existing insurance schedule, and shall include the increased cost of construction endorsement. The Owner, Proprietors of Custom House Wharf shall notify the Insurance Agent of the Project and transmit the value and the General Contractor's name. Coverage shall include the Contractor's interest. A Certificate of Insurance will be furnished to the General Contractor, if requested. It is understood that if additional insurance coverages are required by the Owner, the respective Contractor, Subcontractor or material Supplier shall purchase it at his own expense.

#### F. Certificate of Insurance

The General Contractor shall furnish the Architect with four (4) copies of a Certificate or Certificates of Insurance as provided in the paragraph above. Said Certificates of Insurance, in addition to the amount of coverage, shall carry a statement worded as follows: "In the event of cancellation or expiration of any of the fore-going policies, ten (10) days written notice by the insurance company shall

## Supplementary General Conditions



SECTION 01011

SUMMARY OF PROJECT

1PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Project Work covered by Contract Documents.
- B. Contracts.
- C. Administrative and procedural Sections applicable to all Contracts.
- D. Temporary facilities and services Sections applicable to all Contracts.
- E. Example Article titles.

1.2 RELATED SECTIONS

- A. Section 01039 - Coordination and Meetings: Owner provided coordination of Work of separate contracts.

1.3 PROJECT - WORK COVERED BY CONTRACT DOCUMENTS

- A. Work of the several prime contracts comprise the Project. A separate contract will be awarded for construction of the pile supported concrete deck and the building superstructure respectively. This project manual only addresses construction of the building superstructure. The pile supported concrete deck shall be designed and constructed by others.

1.4 CONTRACTS

- A. Perform Work of each Prime Contract under a separate stipulated sum contract with the Owner.
- B. Work on the building superstructure only (not including the pile supported concrete deck) is identified in the following Articles and on the Drawings prepared by David D. Leasure - Architectural Associates Inc.

1.5 ADMINISTRATIVE AND PROCEDURAL SECTIONS APPLICABLE TO THE CONTRACT

- A. Section 01019 - Contract Considerations: Cash allowances, Inspection and testing allowances and Contingency allowance.
- B. Section 01019 - Contract Considerations: Applications for payment
- C. Section 01019 - Contract Considerations: Procedures for changes to the Work.
- D. Section 01019 - Contract Considerations: Product alternates.
- E. Section 01039 - Contract Considerations - Project Coordination.
- F. Section 01019 - Contract Considerations: Surveying and layout of the Work.

SECTION 01019

CONTRACT CONSIDERATIONS

1PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Cash allowances.
- B. Contingency allowance.
- C. Inspection and testing allowances.
- D. Schedule of Values.
- E. Application for Payment
- F. Change procedures.
- G. Measurement and Payment - Unit Prices
- H. Alternates.

1.2 RELATED SECTIONS

- A. Section 01019 - Measurement and Payment
- B. Section 01019 - Application For Payment
- C. Section 01039 - Change Order Procedures.
- D. Section 01300 - Submittals: Schedule of Values.
- E. Section 01600 - Material and Equipment Product substitutions and alternates.

1.3 CASH ALLOWANCES

- A. Costs Included in Allowances: Cost of Product to Contractor or Subcontractor, less applicable trade discounts and applicable taxes.
- B. Costs Not Included in the Allowance: Product delivery and handling at the site, including unloading, uncrating, and storage; protection of Products from elements and from damage.
- C. Architect/Engineer Responsibilities:
  - 1. Consult with Contractor in consideration and selection of Products, suppliers and installers.
  - 2. Select Products in consultation with Owner and transmit decision to Contractor.
  - 3. Prepare Change Order.
- D. Contractor Responsibilities:
  - 1. Assist Architect/Engineer in selection of Products, suppliers and installers.
  - 2. Obtain proposals from suppliers and installers and offer recommendations.

- C. Format Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the major specification Section. Identify general requirements including site mobilization, bonds and insurance, etc.
- D. Include in each line item, the amount of Allowances specified in this section. For unit cost Allowances, identify quantities taken from Contract Documents multiplied by the unit cost to achieve the total for the item.
- E. Include on a separate line item, a direct proportional amount of Contractor's overhead and profit.
- F. Revise schedule to list approved Change Orders, with each Application For Payment

#### 1.7 APPLICATIONS FOR PAYMENT

- A. Submit three copies of each application on AIA Form G702 - Application and Certificate for Payment
- B. Content and Format Utilize Schedule of Values for listing items in Application for Payment
- C. Payment Period: Monthly.
- D. Include lien waiver forms required by Owner.

#### 1.8 CHANGE PROCEDURES

- A. The Architect/Engineer will advise of minor changes in the Work not involving an adjustment to Contract Sum/Price or Contract Time as authorized by AIA A201, 1987 Edition, Article 7.4 by issuing supplemental instructions on AIA Form G710.
- B. The Architect/Engineer may issue a Proposal Request which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor will prepare and submit an estimate within 3 days.
- C. The Contractor may propose changes by submitting a request for change to the Architect/Engineer, describing the proposed change and its full effect on the Work. Include a statement describing the reason for the change, and the effect on the Contract Sum/Price and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 01600.
- D. Stipulated Sum/Price Change Order: Based on Proposal Request and Contractor's maximum price quotation or Contractor's request for a Change Order as approved by Architect/Engineer.
- E. Unit Price Change Order: For pre-determined unit prices and quantities, the Change Order will be executed on a fixed unit price basis. For unit costs or quantities of units of work which are not pre-determined, execute Work under a Construction Change Authorization. Changes in Contract Sum/Price or Contract Time will be computed as specified for Time and Material Change Order.
- F. Construction Change Authorization: Architect/Engineer may issue a directive, on AIA Form G713 Construction Change Directive signed by the Owner, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work, and designate method of determining any change in Contract Sum/Price or Contract Time. Promptly execute the change.
- G. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract. Architect/Engineer will determine the change allowable in

SECTION 01039

COORDINATION AND MEETINGS

1PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Coordination.
- B. Field engineering.
- C. Alteration project procedures.
- D. Cutting and patching.
- E. Preconstruction conference.
- F. Site mobilization conference.
- G. Progress meetings.
- H. Preinstallation conferences.

1.2 COORDINATION

- A. Coordinate scheduling, submittals, and Work of the various Sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
  - B. Verify that utility requirement characteristics of operating equipment are compatible with building utilities. Coordinate work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
  - C. Coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with line of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
  - D. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
  - E. Coordinate completion and clean up of Work of separate Sections in preparation for Substantial Completion.
  - F. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.
- 1.3 FIELD ENGINEERING
- A. Employ a Land Surveyor registered in the State of Maine and acceptable to the Architect/Engineer.

5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.
- D. Execute work by methods which will avoid damage to other Work, and provide proper surfaces to receive patching and finishing.
- E. Cut rigid materials using masonry saw or core drill.
- F. Restore Work with new products in accordance with requirements of Contract Documents.
- G. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- H. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.
- I. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.
- J. Identify any hazardous substance or condition exposed during the Work to the Architect/Engineer for decision or remedy.

#### 1.6 PRECONSTRUCTION CONFERENCE

- A. Owner will schedule a conference after Notice of Award.
- B. Attendance Required: Owner, Architect/Engineer and Contractor.
- C. Agenda:
  1. Execution of Owner-Contractor Agreement
  2. Submission of executed bonds and Insurance certificates.
  3. Distribution of Contract Documents.
  4. Submission of list of Subcontractors, list of products, Schedule of Values, and progress schedule.
  5. Designation of personnel representing the parties in Contract, General Contractor, and the Architect/Engineer.
  6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders and Contract closeout procedures.
  7. Scheduling.
  8. Scheduling activities of geotechnical Engineer.

#### 1.7 SITE MOBILIZATION CONFERENCE

- A. Owner will schedule a conference at the Project site prior to Contractor occupancy.
- B. Attendance Required: Owner, Contractor, Contractor's Superintendent, and major Subcontractors.
- C. Agenda:
  1. Use of premises by Owner and Contractor.
  2. Owner's requirements.
  3. Construction facilities and controls provided by Owner.
  4. Temporary utilities provided by Owner.
  5. Survey and building layout
  6. Security and housekeeping procedures.
  7. Schedules.
  8. Procedures for testing.

SECTION 01300

SUBMITTALS

1PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Submittal procedures.
- B. Construction progress schedules.
- C. Proposed products list.
- D. Shop drawings.
- E. Product data.
- F. Samples.
- G. Manufacturers' instructions.
- H. Manufacturers' certificates.
- I. Construction photographs.

1.2 RELATED SECTIONS

- A. Section 01019 - Contract Considerations: Schedule of Values.
- B. Section 01400 - Quality Control: Manufacturers' field services and reports.
- C. Section 01700 - Contract Closeout: Contract warranty, manufacturer's certificates, and closeout submittals.

1.3 SUBMITTAL PROCEDURES

- A. Transmit each submittal with AIA Document A810.
- B. Sequentially number the transmittal forms. Resubmittals to have original number with an alphabetic suffix.
- C. Identify Project, Contractor, Subcontractor or supplier, pertinent Drawing sheet and detail number(s), and specification Section number, as appropriate.
- D. Apply Contractor's stamp, signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.
- E. Schedule submittals to expedite the Project, and deliver to Architect/Engineer at Road #5 - Mast Road, Falmouth, Maine 04105. Coordinate submission of related items.
- F. Identify variations from Contract Documents and Product or system limitations which may be detrimental to

described in Section 01700 - Contract Closeout.

#### 1.8 SAMPLES

- A. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- B. Submit samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for Architect/Engineer's selection.
- C. Include identification on each sample, with full Project information.
- D. Submit the number or samples specified in individual specification Sections; one of which will be retained by Architect/Engineer.
- E. Reviewed samples which may be used in the Work are indicated in individual specification Sections.

#### 1.9 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification Sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.
- B. Identify conflicts between manufacturers' instructions and Contract Documents.

#### 1.10 MANUFACTURER'S CERTIFICATES

- A. When specified in individual specification Sections, submit manufacturers' certificate to Architect/Engineer for review, in quantities specified for Product Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference date, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Architect/Engineer.

#### 1.11 CONSTRUCTION PHOTOGRAPHS

- A. Each month submit photographs to Architect/Engineer with Application for Payment.
- B. Identify photographs with date, time, orientation and project identification.

#### 2 PART 2 PRODUCTS

Not Used

#### 3 PART 3 EXECUTION

Not used

END OF SECTION

- B. Obtain copies of standards when required by Contract Documents.
- C. Should specified reference standards conflict with Contract Documents, request clarification for Architect/Engineer before proceeding.
- D. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

#### 1.5 FIELD SAMPLES

- A. Install field samples at the site as required by individual specifications Sections for review.
- B. Acceptable samples represent a quality level for the Work.
- C. Where field sample is specified in individual Sections to be removed, clear area after field sample has been accepted by Architect/Engineer.

#### 1.6 MOCK-UP

- A. Assemble and erect specified items, with specified attachment and anchorage devices, flashings, seals, and finishes.
- B. Where mock-up is specified in individual Sections to be removed, clear area after mock-up has been accepted by Architect/Engineer.

#### 1.7 INSPECTION AND TESTING LABORATORY SERVICES

- A. Owner will appoint and employ services of an independent firm to perform inspection and testing. Contractor shall pay for services from an Allowance specified in Section 01019.
- B. The independent firm will perform inspections, tests, and other services specified in individual specification Sections and as required by the Architect/Engineer.
- C. Reports will be submitted by the independent firm to the Architect/Engineer, in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
- D. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
  - 1. Notify Architect/Engineer and independent firm 24 hours prior to expected time for operations requiring services.
  - 2. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
- E. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the Architect/Engineer. Payment for retesting will be charged to the Contractor by deducting inspection or testing charges from the Contract Price.

#### 1.8 MANUFACTURERS' FIELD SERVICES AND REPORTS

- A. Submit qualifications of observer to Architect/Engineer 30 days in advance of required observations. Observer subject to approval of Architect/Engineer.



SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

1PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Temporary Utilities: Electricity, lighting, heat, telephone service, water, and sanitary facilities.
- B. Temporary Controls: Barriers, enclosures and fencing, protection of the Work, and water control.
- C. Construction Facilities: Parking, progress cleaning, project signage.

1.2 RELATED SECTIONS

- A. Section 01540 - Security.
- B. Section 01700 - Contract Closeout: Final cleaning.

1.3 TEMPORARY ELECTRICITY

- A. Provide and pay for power service required from Utility supplier.
- B. Provide temporary electric feeder from new electrical service.
- C. Provide separate metering and reimburse Owner for cost of energy used.
- D. Power Service Characteristics: 208/277 volt, 200 ampere, three phase, four wire.
- E. Provide power outlets for construction operations, with branch wiring and distribution boxes located at each floor. Provide flexible power cords as required.
- F. Provide main service disconnect and overcurrent protection at convenient location.
- G. Permanent convenience receptacles may not be utilized during construction.
- H. Provide adequate distribution equipment, wiring, and outlets to provide single phase branch circuits for power and lighting.
  - 1. Provide 20 ampere duplex outlets, single phase circuits for power tools for every 3000 sq ft of active work area.
  - 2. Provide 20 ampere, single phase branch circuits for lighting.

1.4 TEMPORARY LIGHTING

- A. Provide and maintain incandescent lighting for construction operations to achieve a minimum lighting level of 2 watt/sq ft.
- B. Provide and maintain 1 watt/sq ft lighting to exterior staging and storage areas after dark for security purposes.
- C. Provide and maintain 0.25 watt/sq ft H.I.D. lighting to interior work areas after dark for security purposes.

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- A. Provide 6 foot high standard chain link fence around construction site; equip with vehicular gates with locks.
- 1.12 WATER CONTROL
- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment. Pump excavation water to City storm sewer.
  - B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion. See Soil Erosion and Control Plan.
- 1.13 EXTERIOR ENCLOSURES
- A. Provide temporary insulated weather-tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification Sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.
- 1.14 INTERIOR ENCLOSURES
- A. Provide temporary partitions as required to separate work areas from Owner occupied areas, to prevent penetration of dust and moisture into Owner occupied areas, and to prevent damage to existing materials and equipment.
  - B. Construction: Framing and plywood sheet materials with closed joints and sealed edges at intersections with existing surfaces; insulated to R-19 in accordance with ASTM E90 and maximum Flame Spread Rating of 75 in accordance with ASTM E84.
- 1.15 PROTECTION OF INSTALLED WORK
- A. Protect installed Work and provide special protection where specified in individual specification Sections.
  - B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to minimize damage.
  - C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
  - D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
  - E. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
  - F. Prohibit traffic from landscaped areas.
- 1.16 ACCESS ROADS
- A. Construct and maintain temporary roads accessing public thoroughfares to serve construction area.
  - B. Extend and relocate as Work progress requires. Provide detours necessary for unimpeded traffic flow.
  - C. Provide and maintain access to fire hydrants, free of obstructions.

C. Clean and repair damage caused by installation or use of temporary work.

D. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

2 PART 2 PRODUCTS

Not Used

3 PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01600

MATERIAL AND EQUIPMENT

1PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Products.
- B. Transportation and handling.
- C. Storage and protection.
- D. Product options.
- E. Substitutions.

1.2 RELATED SECTIONS

- A. Document - Instructions to Bidders: Product options and substitution procedures.
- B. Section 01400 - Quality Control: Product quality monitoring.

1.3 PRODUCTS

- A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.
- B. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.
- C. Provide interchangeable components of the same manufacturer, for similar components.

1.4 TRANSPORTATION AND HANDLING

- A. Transport and handle products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

1.5 STORAGE AND PROTECTION

- A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate controlled enclosures.
- B. For exterior storage of fabricated products, place on sloped supports, above ground.

3 PART 3 EXECUTION

Not used

END OF SECTION

- E. Clean debris from roofs, gutters, downspouts, and drainage systems.
- F. Clean site; sweep paved areas, rake clean landscaped surfaces.
- G. Remove waste and surplus materials, rubbish, and construction facilities from the site.

#### 1.5 ADJUSTING

- A. Adjust operating Products and equipment to ensure smooth and unhindered operation.

#### 1.6 PROJECT RECORD DOCUMENTS

- A. Maintain on site, one set of the following record documents; record actual revisions to the Work:
  - 1. Contract Drawings.
  - 2. Specifications.
  - 3. Addenda.
  - 4. Change Orders and other Modifications to the Contract
  - 5. Reviewed shop drawings, product data, and samples.
- B. Store Record Documents separate from documents used for construction.
- C. Record information concurrent with construction progress.
- D. Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:
  - 1. Manufacturer's name and product model and number.
  - 2. Product substitutions or alternates utilized.
  - 3. Changes made by Addenda and Modifications.
- E. Record Documents and Shop Drawings: Legibly mark each item to record actual construction including:
  - 1. Measured depths of foundations in relation to finish main floor datum.
  - 2. Measured horizontal and vertical locations of underground utilities and appurtenances; referenced to permanent surface improvements.
  - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
  - 4. Field changes of dimension and detail.
  - 5. Details not on original Contract Drawings.
- F. Delete Architect/Engineer title block from all documents.
- G. Submit documents to Architect/Engineer with claim for final Application for Payment.

#### 1.7 OPERATION AND MAINTENANCE DATA

- A. Submit two sets prior to final inspection, bound in 8-1/2 x 11 inch text page binders with durable plastic covers.
- B. Prepare binder covers with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project.
- C. Internally subdivide the binder contents with permanent page dividers, logically organized as described below, with tab titling clearly printed under reinforced laminated plastic tabs.
- D. Contents: Prepare a Table of Contents for each volume, with each Product or system description identified, type on

Not used

**3 PART 3 EXECUTION**

Not used

**END OF SECTION**

**Custom House Wharf - Marine Use Facility**

SECTION 02222

EXCAVATION

1 PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Excavation for concrete paving and landscaping.

1.2 RELATED SECTIONS

- A. Section 01400 - Quality Control: Inspection of bearing surfaces.
- B. Section 01500 - Construction Facilities and Temporary Controls: Dewatering excavations and water control.
- C. Section 02211 - Rough Grading: Topsoil and subsoil removal from site surface.
- D. Section 02223 - Backfilling.

1.3 FIELD MEASUREMENTS

- A. Verify that survey benchmark and intended elevations for the Work are as indicated.

2 PART 2 PRODUCTS

Not Used.

3 PART 3 EXECUTION

3.1 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Identify known underground, above ground, and aerial utilities. Stake and flag locations.
- C. Notify utility company to remove and relocate utilities.
- D. Protect above and below grade utilities which are to remain.
- E. Protect plant life, and existing lawns to the greatest degree possible during construction procedures. Return damaged areas to same condition prior to commencement of construction procedures.
- F. Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from excavation equipment and vehicular traffic.

3.2 EXCAVATION

- A. Underpin adjacent structures which may be damaged by excavation work, including utilities and pipe chases.
- B. Excavate subsoil required to accommodate building foundations, slabs-on-grade, paving, walkways, patios,

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SECTION 02223

BACKFILLING

1PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Building perimeter and site structure backfilling to subgrade elevations.
- B. Site filling and backfilling.
- C. Fill under slabs-on-grade and paving.
- D. Consolidation and compaction.
- E. Fill for over-excavation.

1.2 RELATED SECTIONS

- A. Section 01400 - Quality Control: Testing Fill compaction.
- B. Section 02222 - Excavation.
- C. Section 02710 - Subdrainage Systems: Filter aggregate and filter fabric over building perimeter pipe drainage.

1.3 REFERENCES

- A. ANSII/ASTM C136 - Method for Sieve Analysis of Fine and Coarse Aggregates.
- B. ANSII/ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 lb Rammer and 12 inch Drop.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Samples: Submit 10 lb. sample of each type of fill to testing laboratory, in air-tight containers.

2PART 2 PRODUCTS

2.1 FILL MATERIALS

- A. Type A - Crushed Gravel: MedDOT Spec. 703.06 Type "A" - Pit run, washed natural stone; free of shale, clay, friable material, sand, debris; graded in accordance with ANSII/ASTM C136 within the following limits:

<u>Sieve Size</u>	<u>Percent Passing</u>
2 inches	100
One inch	95
3/4 inch	95
5/8 inch	75

- A. Verify fill materials to be reused are acceptable.
- B. Verify foundation perimeter drainage installation has been inspected.

### 3.2 PREPARATION

- A. Generally, compact subgrade to density requirements for subsequent backfill materials.
- B. Cut out soft areas of subgrade not capable of in situ compaction. Backfill with Type C fill and compact to density equal to or greater than requirements for subsequent backfill material.
- C. Prior to placement of aggregate base course material at paved and proposed walkway areas, compact subsoil to 95 percent of its maximum dry density in accordance with ANSI/ASTM D698.

### 3.3 BACKFILLING

- A. Backfill areas to contours and elevations with unfrozen materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.
- C. Granular Fill: Place and compact materials in continuous layers not exceeding 6 inches compacted depth.
- D. Soil Fill: Place and compact material in continuous layers not exceeding 8 inches compacted depth.
- E. Employ a placement method that does not disturb or damage foundation perimeter drainage, foundation dampproofing, and utilities in trenches.
- F. Maintain optimum moisture content of backfill materials to attain required compaction density.
- G. Do not backfill against unsupported foundation walls.
- H. Backfill simultaneously on each side of unsupported foundation walls until slab is in place.
- I. Slope grade away from building minimum 3 inches in 10 ft but not less than that shown on the drawings.
- J. Make grade changes gradual. Blend slope into level areas.
- K. Remove surplus backfill materials from site.
- L. Leave fill material stockpile areas completely free of excess fill materials.

### 3.4 TOLERANCES

- A. Top Surface of Backfilling Under Paved Areas of proposed walkways: Plus or minus one half inch from required subgrade elevations.

### 3.5 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 01400.
- B. Tests and analysis of fill material will be performed in accordance with ANSI/ASTM D698 and with Section 01400.

SECTION 02510

ASPHALTIC CONCRETE PAVING

1PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Asphaltic concrete paving and surface sealer, wearing binder or base course.
- B. Aggregate base course.

1.2 PRODUCTS INSTALLED BUT NOT FURNISHED UNDER THIS SECTION

1.3 RELATED SECTIONS

- A. Section 02211 - Rough Grading: Preparation of site for paving and base.
- B. Section 02223 - Backfilling: Compacted subbase for paving.

1.4 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Asphalt Pavement Mix (Binder Course):
  - 1. Basis of Measurement: By the ton.
  - 2. Basis of Payment: Includes mix design, supplying to site, testing.
- B. Asphalt Pavement Mix (Wearing Course):
  - 1. Basis of Measurement: By the ton.
  - 2. Basis of Payment: Includes mix design, supplying to site, testing.
- C. Asphalt Pavement Placed:
  - 1. Basis of Measurement: By the square yard per inch thickness.
  - 2. Basis of Payment: Includes preparing base, tack coating surfaces, placing, compacting and rolling, testing.
- D. Seal Coat
  - 1. Basis of Measurement: By the square yard.
  - 2. Basis of Payment: Includes preparing surfaces and applying.

1.5 REFERENCES

- A. ASTM D946 - Penetration-Graded Asphalt Cement for Use in Pavement Construction.

1.6 PERFORMANCE REQUIREMENTS

- A. Paving: Designed for parking and light duty commercial vehicles.

1.7 QUALITY ASSURANCE

- A. Perform Work in accordance with Municipality of Augusta standard.
- B. Mixing Plant: Conform to Municipality of Portland standard.

### 3.1 EXAMINATION

- A. Verify base conditions under provisions of Section 01041.
- B. Verify that compacted granular base is dry and ready to support paving and imposed loads.
- C. Verify gradients and elevations of base are correct.

### 3.2 SUBBASE

- A. Section 02211 - Rough Grading forms the base construction for work of this Section.

### 3.3 PREPARATION - PRIMER

- A. Apply primer on base or subbase over subgrade surface at uniform rate of ½ gal/sq yd.
- B. Apply primer to contact surfaces of curbs.
- C. Use clean sand to blot excess primer.

### 3.4 PREPARATION - TACK COAT

- A. Apply tack coat on asphalt or concrete surfaces over subgrade surface at uniform rate of ½ gal/sq yd.
- B. Apply tack coat to contact surfaces of curbs.

### 3.5 PLACING ASPHALT PAVEMENT - DOUBLE COURSE

- A. Place asphalt binder course within 24 hours of applying primer or tack coat.
- B. Place binder course to 2 inch compacted thickness identified in schedule at end of Section.
- C. Place wearing course within two hours of placing and compacting binder course.
- D. Place wearing course to 1.5 inch compacted thickness identified in schedule at end of Section.
- E. Compact pavement by rolling. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment.
- F. Develop rolling with consecutive passes to achieve even and smooth finish, without roller marks.

### 3.6 SEAL COAT

- A. Apply seal coat to surface course, asphalt curbs, and walkways in accordance with Municipality of Augusta standards.

### 3.7 TOLERANCES

- A. Flatness: Maximum variation of 1/4 inch measured with 10 foot straight edge.
- B. Scheduled Compacted Thickness: Within 1/4 inch.

SECTION 02722

SITE STORM SEWERAGE SYSTEMS

1PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Site storm sewerage drainage piping, fittings and accessories, and bedding.
- B. Catch basins.

1.2 RELATED SECTIONS

- A. Section 02222 - Excavating: Excavating for sewer system piping.
- B. Section 02223 - Backfilling: Backfilling over piping up to subgrade elevation under paving.

1.3 UNIT PRICE - BASIS OF MEASUREMENT

- A. Pipe and Fittings:
  - 1. Basis of Measurement: By the linear foot.
  - 2. Basis of Payment: Includes hand trimming, excavating, bedding, pipe and fittings, and granular cover.
- B. Catch Basin and Cleanout:
  - 1. Basis of Measurement: By the unit for a nominal depth of 6 feet.
  - 2. Basis of Payment: Includes hand trimming, excavation, bedding, foundation pad, unit installation with accessories, connection to sewer piping.

1.4 REFERENCES

- A. ANSI/ASTM D2321 - Recommended Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe.
- B. ANSI/ASTM D2751 - Acrylonitrile-Butadiene-Styrene (ABS) Sewer Pipe and Fittings.

1.5 DEFINITIONS

- A. Bedding: Fill placed under, beside and directly over pipe, prior to subsequent backfill operations.

1.6 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Provide data indicating pipe, pipe accessories, and manufacturer's recommended connection details.
- C. Manufacturer's Installation Instructions: Indicate special procedures required to install Products specified.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.7 PROJECT RECORD DOCUMENTS

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- A. Bedding: Fill Type A as specified in Section 02223.

### 3 PART 3 EXECUTION

#### 3.1 EXAMINATION

- A. Verify that trench cut and excavation is ready to receive work and excavations, dimensions, and elevations are as indicated on drawings.

#### 3.2 PREPARATION

- A. Hand trim excavations to required elevations. Correct over excavation with fine aggregate.
- B. Remove large stones or other hard matter which could damage piping or impede consistent backfilling or compaction.

#### 3.3 BEDDING

- A. Excavate pipe trench in accordance with Section 02222 for work of this section. Hand trim excavation for accurate placement of pipe to elevations indicated.
- B. Place bedding material at trench bottom, level materials in continuous layer not exceeding 6 inches compacted depth.
- C. Maintain optimum moisture content of bedding material to attain required compaction density.

#### 3.4 INSTALLATION - PIPE

- A. Install pipe, fittings, and accessories in accordance with ASTM D2321 and manufacturer's written instructions. Seal joints watertight.
- B. Place pipe on minimum 12 inch deep bed of Type D filter aggregate.
- C. Lay pipe to slope gradients noted on drawings; with maximum variation from true slope of 1/8 inch in 10 feet.
- D. Install aggregate at sides and over top of pipe. Provide top cover to minimum compacted thickness of 12 inches, compact to 95 percent.
- E. Refer to Section 02222 for trenching requirements. Do not displace or damage pipe when compacting.
- F. Install trace wire continuous over top of pipe, buried 6 inches below finish grade, above pipe line; coordinate with Section 02223.

#### 3.5 INSTALLATION - CATCH BASINS AND CLEANOUTS

- A. Form bottom of excavation clean and smooth to correct elevation.
- B. Form and place cast-in-place concrete base pad, with provision for storm sewer pipe end sections.
- C. Level top surface of base pad to receive concrete shaft sections, sleeved to receive storm sewer pipe sections.
- D. Establish elevations and pipe inverts for inlets and outlets as indicated.

SECTION 02723

PRECAST CONCRETE OIL & GRIT TRAP

PART 1.00 GENERAL

1.01 DESCRIPTION

A. Work included:

The Contractor, and/or a manufacturer selected by the Contractor and approved by the Engineer, shall furnish all labor, materials, equipment and incidentals required and install all precast concrete storm water treatment systems and appurtenances in accordance with the Drawings and these specifications.

B. Related work described elsewhere:

1. Unit Masonry
2. Miscellaneous Metals
3. Waterproofing

1.02 QUALITY CONTROL INSPECTION

A. The quality of materials, the process of manufacture, and the finished sections shall be subject to inspection by the Engineer. Such inspection may be made at the place of manufacture, or on the work site after delivery, or at both places, and the sections shall be subject to rejection at any time if material conditions fail to meet any of the specification requirements, even though sample sections may have been accepted as satisfactory at the place of manufacture. Sections rejected after delivery to the site shall be marked for identification and shall be removed from the site at once. All sections which have been damaged beyond repair during delivery will be rejected and, if already installed, shall be repaired to the Engineer's acceptance level, if permitted, or removed and replaced, entirely at the Contractor's expense.

B. All sections shall be inspected for general appearance, dimensions, soundness, etc. The surface shall be dense, close textured and free of blisters, cracks, roughness and exposure of reinforcement.

C. Imperfections may be repaired, subject to the acceptance of the Engineer, after demonstration by the manufacturer that strong and permanent repairs result. Repairs shall be carefully inspected before final acceptance. Cement mortar used for repairs shall have a minimum compressive strength of 4,000 psi at the end of 7 days and 5,000 psi at the end of 28 days when tested in 3 inch diameter by 6 inch long cylinders stored in the standard manner. Epoxy mortar may be utilized for repairs.

1.03 SUBMITTALS

A. Shop Drawings

The Contractor shall be provided with dimensional drawings and, when specified, utilize these drawings as the basis for preparation of shop drawings showing details for construction, reinforcing, joints and any cast-in-place appurtenances. Shop drawings shall be annotated to indicate all materials to be used and all applicable standards for materials, required tests of materials and design assumptions for structural analysis. Design calculations and shop drawings shall be certified by a Professional Engineer retained by the system manufacturer or contractor and licensed in the state where the system is to be installed. Shop drawings shall be prepared at a scale of not less than 1/4" per foot. Six (6) hard copies of said shop drawings shall be submitted to the Engineer for review and approval.

The storm water treatment system shall be capable of removing 80% of the Total Suspended Solids (TSS). The stormwater treatment system shall have the design treatment capacity of 2.8 cfs, and shall not resuspend trapped sediments or re-entrain floating contaminants at flow rates up to and including the specified "Design Treatment Capacity".

The storm water treatment system shall have usable sediment storage capacity of not less than 1.25 cubic yards. The system shall be designed such that the pump-out volume is less than 1/2 of the total system volume. The system shall be designed to not allow surcharge of the upstream piping network during dry weather conditions.

A water-lock feature shall be incorporated into the design of the storm water treatment system to prevent the introduction of trapped oil and floatable contaminants to the downstream piping during routine maintenance and to ensure that no oil escapes the system during the ensuing rain event. Direct access shall be provided to the sediment and floatable contaminant storage chambers to facilitate maintenance. There shall be no appurtenances or restrictions within these chambers.

The storm water treatment system manufacturer shall furnish documentation which supports all product performance claims and features, storage capacities and maintenance requirements.

Storm water treatment systems shall be completely housed within one structure.

## 2.03 MANUFACTURER

Each storm water treatment system shall be of a type that has been installed and used successfully for a minimum of 5 years. The manufacturer of said system shall have been regularly engaged in the engineering design and production of systems for the physical treatment of storm water runoff.

The stormwater treatment system shall be a Model 2000 Vortechs System as manufactured by Vortechics, Inc., 41 Evergreen Drive, Portland, Maine 04103, phone: 207-878-3662, fax: 207-878-8507, as protected under U.S. Patent #5,759,415.

## PART 3.00 EXECUTION

### 3.01 INSTALLATION

- A. Each Storm water Treatment System shall be constructed according to the sizes shown on the Drawings and as specified herein. Install at elevations and locations shown on the Drawings or as otherwise directed by the Engineer.

Place the precast base unit on a granular subbase of minimum thickness of six inches after compaction or of greater thickness and compaction if specified elsewhere. The granular subbase shall be checked for level prior to setting and the precast base section of the trap shall be checked for level at all four corners after it is set. If the slope from any corner to any other corner exceeds 0.5% the base section shall be removed and the granular subbase material re-levelled.

Prior to setting subsequent sections place bitumen sealant in conformance with ASTM C990 along the construction joint in the section that is already in place.

- D. After setting the base and wall or riser sections install the circular swirl chamber wall by bolting the swirl chamber to the side walls at the three (3) tangent points and at the 3-inch wide inlet tab using HILL TI brand concrete anchors or equivalent 1/2-inch diameter by 2-3/4" minimum length at heights of approximately three inches (3") off the floor and at the mid-height of the completed trap (at locations of pre-drilled holes in aluminum components). Seal the bottom edge of the swirl chamber to the trap floor with the supplied aluminum angle flange. Adhere 1/2" thick by 1" wide neoprene sponge material to the flange with half of it's width on the horizontal leg of the flange and half of it's width on the vertical leg. The aluminum angle flange shall be affixed to the floor with a minimum 3/8" diameter by 2-3/4" drop in wedge anchor at the location of the predrilled holes. Affix the swirl chamber to the flange with hex head 1/2" x 1-1/2" zinc coated self-tapping screws at the location of the predrilled holes. Seal the vault sidewalls to the outside of the swirl chamber from the floor to the same height as the inlet pipe invert using butyl mastic or approved equal.



SECTION 02732

SITE SANITARY SEWERAGE SYSTEM

1PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Sanitary sewerage drainage piping, fittings, accessories and bedding.
- B. Connection of building sanitary drainage system to municipal sewers.
- C. Cleanout access.

1.2 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

- A. Section 03300: Placement of pipe sleeves in concrete.

1.3 RELATED SECTIONS

- A. Section 02222 - Excavating: Excavating subsoil for sewer system piping.
- B. Section 02223 - Backfilling: Backfilling over piping up to underside of fill under paving.
- C. Section 02722 - Storm Sewerage System.

1.4 REFERENCES

- A. ANS/ASTM D2729 - Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.

1.5 DEFINITIONS

- A. Bedding: Fill placed under, beside and directly over pipe, prior to subsequent backfill operations.

1.6 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Provide data indicating pipe and pipe accessories.
- C. Manufacturer's Installation Instructions: Indicate special procedures required to install Products specified.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.7 PROJECT RECORD DOCUMENTS

- A. Submit documents under provisions of Section 01700.
- B. Record location of pipe runs, connections, cleanouts and invert elevations.
- C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

- A. Excavate pipe trench in accordance with Section 02222 for work of this Section. Hand trim excavation for accurate placement of pipe to elevations indicated.
- B. Place bedding material at trench bottom, level materials in continuous layer not exceeding 6 inches compacted depth, compact to 95 percent

- C. Maintain optimum moisture content of bedding material to attain required compaction density.

### 3.4 INSTALLATION - PIPE

- A. Install pipe, fittings, and accessories in accordance with ASTM D2321 and the manufacturer's written instructions. Seal joints watertight
- B. Lay pipe to slope gradients noted on layout drawings; with maximum variation from true slope of 1/8 inch in 10 feet
- C. Install bedding at sides and over top of pipe to minimum compacted thickness of 12 inches; compacted to 95 percent
- D. Connect to building sanitary sewer outlet and municipal sewer system, through installed sleeves.
- E. Install trace wire continuous over top of pipe, buried 6 inches below finish grade, above pipe line; coordinate with Section 02223.

### 3.5 INSTALLATION - CLEANOUTS

- A. Form bottom of excavation clean and smooth to correct elevation.
- B. Form and place cast-in-place concrete base pad, with provision for sanitary sewer pipe end sections.
- C. Establish elevations and pipe inverts for inlets and outlets as indicated.
- D. Mount lid and frame level in grout, secured to top cone section to elevation indicated.

### 3.6 FIELD QUALITY CONTROL

- A. Field inspection will be performed under provisions of Section 01400.
- B. Request inspection prior to and immediately after placing bedding.
- C. Compaction testing will be performed in accordance with ANSII/ASTM D1557.
- D. If tests indicate Work does not meet specified requirements, remove Work, replace and retest at no cost to Owner.

### 3.7 PROTECTION

- A. Protect finished installation under provisions of Section 01500.
- B. Protect pipe and aggregate cover from damage or displacement until backfilling operation is in progress.

END OF SECTION