Technical Specifications



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Technical Specifications

Port of South Whidbey
Floating Dock Replacement

100% DD

Project Manual

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SECTION 01 11 00
SUMMARY

PART 1 GENERAL

1.1 CONTRACT DESCRIPTION

A. Summary

1. Generally, the Port of South Whidbey Project includes, but is not limited to, demolition of structures; installation of gangway; installation of floats; installation of pile hoops; modify existing concrete abutment and install concrete Sonotubes. The estimated extent of work under this Contract is shown on the Drawings.

B. General Scope of Work

1. The following provides a general summary of the primary elements of the project. The specific details and construction requirements for the Work under this Contract are specified in the Technical Specifications, Drawings, and other parts of the Contract Documents.

   a. Mobilization/demobilization and work area preparation.

   b. Demolition of existing floats as mitigation.

   c. Fabrication and installation of floats and gangway.

   d. Concrete abutment modification and installation of CIP concrete Sonotubes.

1.2 RELATED SECTIONS

A. All specifications are related to this Section.

1.3 REFERENCES

A. American Society of Safety Engineers (ANSI/ASSE)
ANSI/ASSE A10.6 Safety Requirements for Demolition for Construction and Demolition Operations, most current edition

B. International Code Council (ICC)
International Building Code, most current edition

C. United States Federal Highway Administration (FHWA)
Manual on Uniform Traffic Control Devices, most current edition

D. Washington State Department of Transportation (WSDOT)
Standard Specifications for Road, Bridge and Municipal Construction, most current edition

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1.4 SUBMITTALS

A. See individual specification sections for submittal requirements.

1. Sequencing plan.

1.5 EXISTING SITE FEATURES AND CONDITIONS

A. Existing site features near the Work areas are shown on the existing conditions plans prepared by FACET, Inc. (Engineer).

B. Groundwater at the site is expected to be hydraulically connected to and reflective of the water level in the harbor.

1.6 CONTRACTOR'S WORK HOURS

A. Contractor's work hours shall be limited to the hours between 7:00 AM and 7:00 PM, Monday through Friday. Working Weekends and Holidays will be subject to approval in writing by the Engineer.

B. Due to the nature of this work as being tidally dependent; if work must be conducted outside of Clinton and Island County work hours, a noise variance must be acquired. Nose variances require a 30-day public notice process.

1.7 WORK TO BE PERFORMED BY OTHERS

A. The Owner shall perform certain work and oversight activities at the site during this Contract, including but not limited to the following:

1. Administer the Contract; monitor, observe, approve, and accept the Work; coordinate with Department of Ecology and other regulatory agencies; provide required direction for the Work when Contractor requests clarification of the intent of the Contract Documents; and generally, ensure that the execution and completion of the Work meets design, construction, and other requirements of the Contract Documents.

1.8 PROTECTION OF SITE FEATURES AND ADJACENT PROPERTY USES

A. Contractor shall take such precautions and develop a construction approach for the project that limits adverse impacts to the Owner's tenants, the existing facilities and utilities, the existing access streets and parking areas, and the ongoing site preparation and infrastructure work.

1.9 CONFLICTS BETWEEN DRAWINGS, CODES, AND REFERENCES

A. In the event that there is a conflict between references, the order of precedence to be used is outlined in the supplemental condition SC 3.03.

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1.10 SEQUENCING

A. The Contractor's submitted and approved sequencing plan shall describe the order, means, methods and schedule anticipated for various elements of the Work.

1.11 OWNER SUPPLIED PRODUCTS

A. Items furnished by Owner for installation by Contractor:

1. None.

1.12 SPECIFICATION CONVENTIONS

A. These specifications are written in imperative mood and streamlined form. This imperative language is directed to the Contractor, unless specifically noted otherwise. The words "shall be" are included by inference where a colon (:) is used within sentences or phrases.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

*** * * END OF SECTION * * ***

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SECTION 01 12 13
PLAN OF OPERATION

PART 1 GENERAL

1.1 PRECONSTRUCTION WORK PHASE

A. This section specifies planning and work included within the Preconstruction Work Phase that takes place during the period after Notice to Proceed and prior to the start of the work authorized by the Notice to Proceed with Construction. The planning effort includes identifying and organizing the Contractor's work team, planning the construction activities with the Port of South Whidbey (Owner), the Construction Manager, and Design Engineer, establishing the initial survey control, preparing and delivering priority submittals for equipment, and other activities related to planning activities identified herein.

B. To accomplish the preconstruction activities, the Contractor shall provide staff to meet on the project site as needed and shall establish and maintain an office in the immediate region to accomplish the work. Satisfactory completion of the Preconstruction Work Phase activities will be a prerequisite to the Notice to Proceed with Construction for the Construction Work Phase.

C. Submittal information shall be provided in sufficient detail to verify compliance with the specifications during the Preconstruction Work Phase and shall be provided prior to Notice to Proceed with Construction for the Construction Work Phase. The Contractor shall make arrangements with subcontractors and suppliers for the preparation and submittal of required documentation. Consideration for preparation and submittal of information is included within the any lump sum value potentially established for Mobilization and Demobilization.

D. Activities: The following is a list of the activities to be included in the Preconstruction Work Phase. Each of the activities and required work products are defined either within this specification or in specification sections in the Special Provisions.

1. Contractor's Management and Work Plan.
2. Project Safety and Accident Prevention Program.
3. Onsite Investigations.
4. Preconstruction Photographs.
5. Submittals:
    a. Submittal Plan and Schedule.
    b. Priority or Long Lead Time Material Submittals.
    c. Technical Submittals:

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6. Apply for and Obtain Contractor Furnished Permits.

7. Spill Prevention, Control, and Countermeasures Plan.

8. Schedules:

   a. Contractor's Scheduler Qualifications.

   b. Schedule of Values for Lump Sum Bid Items.

   c. Contractor's Construction Schedule.

9. Traffic Control Plan(s).

10. Environmental Mitigation Plan.

E. Contractor's Management and Work Plan: Contractor shall prepare and submit a plan describing in detail the approach and methods for prosecuting the work in accordance with the contract. The Management Plan shall include the following:

1. An organizational chart describing:

   a. The hierarchy and relationship of the Contractor's project staff;

   b. The hierarchy of subcontractors and suppliers including the trade(s) or portion(s) for which each is responsible; and

   c. A resume for the proposed Project Manager and/or site superintendent.

2. An address and phone directory of the Contractor, Subcontractor, and priority equipment suppliers.

3. A narrative describing how the Contractor intends to staff, equip, and supply the job by trade in order to meet the contract work sequence and schedule constraints. Include the size of the work crew, description of on-site equipment, working hours, and requirements for material and equipment procurement, laydown, and storage.

4. Provide rates for craft labor likely to be used to complete the Work in accordance with Section 1-07.9(1). At a minimum, provide basic wage and benefits cost, worker's insurance costs, federal insurance costs, safety costs, and travel allowance costs, if applicable. Craft labor cost for the Contractor and all his subcontractors shall be provided.

5. Provide rates for equipment likely to be used to complete the Work. At a minimum, provide complete equipment description, hourly cost, operating cost per hour, and operated cost per hour. Equipment cost for the Contractor and all his subcontractors shall be provided.

F. Project Safety and Accident Prevention Program:

1. Contractor shall prepare and submit a Safety and Accident Prevention Program. This program shall outline the anticipated hazards and safety

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controls necessary to safeguard Contractor's employees, the public, Owner staff and Owner representatives. It shall be specific to the job and site and meet federal, state, and local jurisdictional requirements. The program will be reviewed for compliance with this section prior to the start of work. Refer to Section 01 35 29, Health and Safety.

G. Onsite Investigations: The Contractor shall perform on-site investigations in support of technical submittal preparation.

1. Survey Control: The Contractor shall establish sufficient survey control to identify vertical and horizontal location of features identified during these on-site investigations. A minimum of two vertical control, temporary benchmarks (TBMs) shall be established for the entire duration of the project. Maintain and place TBMs to prevent disturbance. A registered surveyor employed by the Contractor shall be responsible for setting the TBMs.

2. Utility Locations: Perform utility excavations to support collection of the as-built location of existing utilities that may impact or be impacted by the Work under this Contract. Locations of excavations shall be coordinated and identified jointly by the Contractor and the Construction Manager. Proper equipment, labor, trench support methods, backfill, and asphalt patching materials shall be made available to support the operations. The Contractor shall be prepared to repair any damage caused during exploratory activities. Prior to any utility excavations, provide the Construction Manager advance notice of at least four (4) working days. All information from exploratory excavations shall be submitted to the Construction Manager within two working days after completion of said excavation.

H. Submittals: Prepare and submit the Submittal Control Document in accordance with Section 00 60 11, EJCDC General Conditions. Contractor shall provide submittals for all materials that may take more than six (6) weeks to be obtained. Prior to submission of these priority or long lead time material submittals, Contractor shall attend pre-submittal meetings with the Construction Manager and Design Engineer as deemed appropriate for particular submittals.

1. Priority Technical Submittals: Priority technical submittals have been identified which have an impact on work activities starting immediately following Limited Notice to Proceed for construction. This will be coordinated with the Owner during submittal phase.

I. Contractor Furnished Permits: The Contractor shall apply for and obtain the Contractor Furnished Permits per Section 01 41 26, Permits. Contractor shall maintain a list of all applicable permits and provide the permit status and expected date of issuance which shall be incorporated into the schedule.

J. Schedules: The Contractor shall submit schedules per Section 01 32 13, Scheduling of Work. If any discrepancies are found in submittal times regarding scheduling, the more stringent applies.

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K. Traffic Control Plan(s): Contractor shall provide traffic control plan(s) in accordance with Section 01 55 26, Temporary Traffic Control.

1.2 RELATED SECTIONS

A. Section 01 32 13 – Scheduling of Work

B. Section 00 60 11 – EJCDC General Conditions

C. Section 01 35 29 – Health and Safety

D. Section 01 55 26 – Temporary Traffic Control

E. Section 01 57 13 - Temporary Erosion and Sedimentation Control

1.3 TEMPORARY SHUTDOWNS

A. Utility Systems or individual equipment items shall be isolated, dewatered, decommissioned, de-energized or de-pressurized in accordance with the detailed outage plan and schedule. The Engineer shall be notified in writing at least four (4) weeks in advance of any planned outage in any area, unless a shorter schedule is acceptable to the Engineer and Owner operators.

B. Each Notice of Request for Approval of a Temporary Shutdown or loss of access submitted to the Owner shall include the following:

1. Dates, time, and duration of proposed shutdown.

2. Work activities to be performed during the shutdown.

3. Assistance required of Owner's personnel before, during, and after shutdown.

4. Contractor's personnel to be on site during shutdown.

5. Contingency plan if work during shutdown is not completed during allotted time or critical equipment fails.

C. Upon receipt of such request, the Owner will decide what action he needs to take and if the requested shutdown or loss of access is acceptable at the time requested. The request from the Contractor will be returned to him with the Owner's decision noted. If the Owner deems that the requested shutdown is unacceptable, the Owner will state such reasons, and the Contractor shall reschedule the shutdown as required.

D. It is hereby agreed between the Contractor and Owner that disapproval by the owner of the Contractor's shutdown request does not entitle the Contractor to any time extension unless the Contractor can demonstrate to the satisfaction of the Owner, through an updated DPM schedule, that the overall project completion date will not be met as a result of this disapproval.

E. The Owner may postpone a planned and approved shutdown at any time for pumping capacity or safety reasons.

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1.4 KEY MILESTONES

a. This section identifies all key milestones and actions in chronological order from bid opening to completion. The 2-year certification/warranty expires 2 years after substantial completion. Each key milestone or action includes a target date for completion of that milestone or action. Adherence to the targeted dates of this section will ensure timely completion of the project. Working days are not counted on this contract as all construction must be completed within the designated construction window. Additional days are not available due to weather.

Milestone or Action		Target Date
0	Advertise Bid	October 1, 2026
1	Pre-Bid Walkthrough	October 15, 2026
2	Bid Opening	October 31, 2026
3	Bid Award	November 15, 2026
4	Submit Bonds/Insurance Requirements	November 30, 2026
5	Signed Contract	December 7, 2026
6	Execute Contract and Issue Limited NTP	December 7, 2026
7	Start of Construction – Full NTP	December 15, 2026
8	Complete In-water Work	February 28, 2027
9	Substantial Completion	March 31, 2027
10	Physical Completion	April 7, 2027

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

*** * * END OF SECTION * * ***

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SECTION 01 12 16
WORK SEQUENCE

PART 1 GENERAL

1.1 SUMMARY

A. This section specifies completion time, milestones, work sequence, constraints, hours of work, and liquidated damages.

B. Schedule and conduct all work in a manner consistent with the Contract, and comply with the construction schedule, the specific work sequence, Contract milestones and constraints of the work as specified.

C. Plan the sequence of construction to accommodate all Contract requirements.

1.2 COMPLETION TIMES

A. Contract work shall be substantially complete within 150 working days and physically complete within 180 working days from the Owner's Notice to Proceed date. Definitions for completion times are contained in Paragraph SC-1.02 and Section 01 77 00.

1.3 CONSTRAINTS

A. All work shall be completed as outlined in these Specifications, as shown on the Drawings and as required by the project permits.

1. All requests for modifications to these documents shall be given in writing to the Engineer.

2. Abide by the most restrictive requirements of either these Specifications or the individual permits.

1.4 HOURS OF WORK

A. Unless otherwise specified, conform to applicable jurisdictions and other pertinent ordinances regarding limitations on work hours for specific parts of the work. Limit the hours of work to occur within the following schedule:

1. Weekdays: 7:00 a.m. to 7:00 p.m., unless noted otherwise or as specifically approved in writing by the Engineer.

2. Weekends: Subject to approval in writing by the Engineer.

3. Holidays: Subject to approval in writing by the Engineer.

B. Request work hour variations in writing and obtain written approval from the Engineer prior to initiating work hours outside of the hours allowed by this Contract. Exceptions may be granted in emergency situations where it is clear and agreed to by all parties that project progress would be significantly

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threatened by a holiday/weekend delay or to allow the contractor to affect repairs on his equipment in order to ensure continued project progress on the next regular workday.

C. Submit a schedule of working hours in accordance with the Contract Documents. Reimburse the costs of Owner and other regulatory agencies for all overtime inspection in accordance with the Contract Documents.

1.5 LIQUIDATED DAMAGES

A. Liquidated damages for failure to achieve Physical Completion within the days as provided in the Contract Documents will be calculated by the formula below:

Formula: LD=0.15C/T
LD=Liquidated damages per calendar day (rounded to the nearest dollar)
C= Original Contract amount
T= Original time for Physical Completion

B. In addition to the specified liquidated damages, the Contractor shall be responsible for all other damages, fines, penalties, added engineering/consultant fees or cleanup costs associated with his work.

1.6 CONTRACTOR'S SCHEDULE

A. Scheduling of the work shall be in accordance with the provisions of Section 01 32 13 of these Specifications.

1.7 PROJECT CONSTRUCTION COORDINATION

A. The Contractor shall designate a representative to be on the site at all times during the construction. This representative shall have the authority to fully act on behalf of the Contractor and shall be capable of giving direct field orders for direction of the work as the need arises. Official project communication shall be conducted between the Contractor's designated representative and the Engineer.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

*** * * END OF SECTION * * ***

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SECTION 01 33 00
SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 DESCRIPTION

A. This section specifies procedures for Contractor submittals. The Contractor shall submit descriptive information which will enable the Owner to determine whether the proposed materials, equipment, testing and schedule for fabrication are in general conformance to the design concept and in compliance with the Contract Documents. The information to be submitted shall consist of drawings, specifications, descriptive data, certificates, test procedures, test results and such other information, all as specifically required in the Contract Documents.

B. Related Sections:

1. Section 01 32 13 - Scheduling of Work.

1.2 CONTRACTOR RESPONSIBILITIES

A. The Contractor shall be responsible for the accuracy and completeness of the information contained in each submittal and shall ensure that the material, equipment, testing, and schedule for fabrication shall be as described in the submittal. The Contractor shall verify that the material and equipment described in each submittal conforms to the requirements of the Contract Documents. If the information shows deviations from the Contract Documents, the Contractor shall, by statement in writing accompanying the submittal, identify the deviations and state the reason and notify the Engineer in each case for approval. The Contractor shall ensure that there is no conflict with other submittals and notify the Engineer in each case where such submittal may affect the Work. The Contractor shall ensure coordination of submittals among related crafts.

B. Contractor shall submit two (2) copies of all submittals to be retained by the Engineer plus the number of copies the Contractor wants returned.

1.3 APPROVED EQUAL

A. Definition: An item of material or equipment proposed by the Contractor that has the same function, quality, durability, appearance, strength, and design characteristics equal to that named, that meets the requirements of the Specification, and is sufficiently similar so that no change in related work is required. The item of material or equipment shall reliably perform at least equally well for the function imposed by the design concept of the completed work as a functioning whole. In general, approved equal applies to manufactured items.

B. Clearly mark on the Submittal Transmittal Form under DEVIATIONS.

C. Acceptance is at the Engineer's sole discretion and the decision regarding acceptance or rejection shall be final. Contractor shall not assume acceptance at

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any time prior to the rendering of decision by the Engineer. The decision cannot be appealed within the provisions of the Contract Documents.

1.4 SUBSTITUTION

A. Definition: an item of material, equipment, means, method, technique, sequence, or procedure which meets the Contract requirements in function, quality, operation and maintenance, but does not exactly meet the Specification and is equal to or better than the specified item.

B. Submit a request for substitution with the Submittal Transmittal Form. The request shall include complete specifications or means and methods for the item including all descriptive quality, performance, and cost data.

C. Substitutions shall be authorized only by written approval by engineer or Change Order to the Contract.

D. Acceptance is at the Engineer's sole discretion and the decision regarding acceptance or rejection shall be final. Contractor shall not assume acceptance at any time prior to the rendering of decision by the Engineer. The decision cannot be appealed within the provisions of the Contract Documents.

E. The Contractor shall pay for all costs associated with engineering review of items or systems requested for substitution. Costs will be based on the Engineer's normal billing rates with costs deducted from monthly progress payments for direct payment to the Engineer.

1.5 DEVIATIONS

A. Definition: related to changes to a specified procedure, material, or product proposed by the Contractor that does not fully conform to the requirements specified, but can be shown to accomplish the intent and functional requirements of the end product.

B. Annotate in the submittal all deviations from stated requirements in the Contract. Failure to identify any deviation and subsequent acceptance of the submittal by the Engineer shall not relieve the Contractor from complying with the Contract.

C. Acceptance is at the Engineer's sole discretion and the decision regarding acceptance or rejection shall be final. Contractor shall not assume acceptance at any time prior to the rendering of decision by the Engineer. The decision cannot be appealed within the provisions of the Contract Documents. A change order may be required by the Engineer for an accepted deviation.

PART 2 PRODUCTS

2.1 INITIAL SUBMITTALS

A. Construction Schedule, as required in Section 01 32 13 - Scheduling of Work shall be submitted in accordance with requirements in that Section.

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2.2 SUBMITTALS:

A. All submittals, shop drawings, catalog cuts, etc., unless otherwise specifically noted, shall be approved and certified by the Contractor as conforming to the drawings and specifications. Copies of all shop drawings, catalog cuts or other submittals, with the Contractor's approval indicated thereon, should be sent to the Engineer within one (1) working day of the Contractor's approval. All required shop drawings, catalog data, manufacturer's data and descriptive literature shall be submitted to the Engineer by not later than the expiration of fifty (50) percent of this Contract's time period for performance. Each submittal shall be stamped with the Contractor's approval stamp. Data submitted in bound volume or on one (1) sheet printed on two (2) sides may be stamped on the front of the first sheet only. The approval stamp shall have blanks to indicate whether Engineer's approval or Contractor approval is required.

B. Submittal Identification and Status: Each item of submittal to be incorporated into the project shall be cross-referenced to the Contract Drawings and specifications so as to identify clearly the use for which it is intended. The Contractor shall maintain at the jobsite an up-to-date Submittal Status Log showing the status of all submittals required by the Contract. A listing of items required to be submitted for each technical section is to be developed by the Contractor and submitted to the Engineer for approval.

C. Submittal Reviews: All submittals shall be reviewed, approved, and certified by the Contractor, prior to submittal to the Engineer.

D. Variations: Variations from Contract requirements are discouraged. If submittals show variations from the Contract requirements, the Contractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the Engineer approves any such variation, the Engineer shall issue an appropriate Contract modification, except that, if the variation is minor or does not involve a change in price or in time or performance, a modification need not be issued.

E. Warrants for Variations: When requesting a variation, the Contractor shall warrant:

1. That they have reviewed the entire Contract in order to establish that the variation, when incorporated, will be compatible with all other elements of construction.

2. That they shall take any action and bear any additional expense which may arise by reason of incorporation and that it will be compatible with all other elements of construction.

3. That they shall take any action and bear any additional expense which may arise by reason of incorporating the proposed variation, including but not limited to change in its or other elements of construction resulting from the incompatibility of the proposed variation with any other element of construction.

F. Manufacturer's Certificates of Conformance or Compliance: Pre-printed certifications will not be acceptable. The original of all manufacturer's certifications

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shall name the appropriate item of equipment and/or material, specification, standard or other document specified as controlling the quality of that item and shall have attached thereto certified copies of test reports upon which the certifications are based. All certificates shall be signed by the manufacturer's official authorized to sign certificates of conformance or compliance.

G. Certified Factory Test Reports: Before delivery of materials and equipment, certified copies of the reports of all tests listed in the technical sections (and referenced publications) shall be submitted and approved. The testing shall have been performed in a laboratory meeting the requirements specified herein. The test shall have been performed within one (1) year of submittal of the reports for approval. Test reports shall be accompanied by notarized certificates from the manufacturer certifying that the material and equipment proposed to be supplied is of the same type, quality, manufacture and make as that tested. If test results are required to be witnessed by an independent testing laboratory, that laboratory shall certify the Test Report. Unless specified otherwise or requested by the Engineer, factory tests shall be non-witnessed tests.

H. Complete Submittals: All submittals for each specification section are to be presented as a complete bound volume. To the maximum extent possible, this requirement is to be followed. Contractor advance coordination and communication with Engineer is encouraged related to all partial submittals.

2.3 SHOP DRAWINGS

A. Drawings: Unless otherwise specifically directed by the Engineer, Contractor shall identify each copy of the Shop Drawings with the contract drawing number in the lower right hand corner, shall make all shop drawings accurately to a scale sufficiently large enough to show all pertinent features of the item and its method of connection to the work, and shall make all Shop Drawing prints in blue or black on white background. All drawings should be 11 by 17 inches or 22 by 34 inches. Each item listed in Paragraph 2.3.B shall be included and be appropriately identified.

B. Contractor shall submit the following minimum information with their Shop Drawings for each model or type of unit supplied by the Contractor (does not include equipment provided as Owner Furnished Equipment):

1. Manufacturer's catalog information, physical and operational description, and specifications.

2. List of all variances from Technical Specifications.

   a. Failure to specifically list and fully explain all variance will be cause for rejection of submittal.

3. Any other required information to clearly and readily demonstrate compliance with all parts of the Technical Specifications.

4. Installation instructions.

5. Design calculations.

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6. Manufacturer's Certification of Factory Applied Coating System and coating system technical data sheets, including MSDS.

7. Manufacturer's guarantee as specified.

8. Any additional information listed elsewhere in the Technical Specifications and required to be submitted with the Shop Drawings.

C. When revised for resubmission, Contractor shall clearly identify changes made since previous submission.

D. The Contractor shall not order any materials prior to receipt of the Engineer's approval of Shop Drawings. Work performed before acceptance of Shop Drawings shall be at the Contractor's own risk. In the event of termination for convenience, the Owner will not be responsible for any materials ordered prior to submittal approval.

E. Substitutions: Any substitutions proposed by the Contractor shall require submittals to fully enable the Engineer to evaluate the proposed substitution. All submittals shall clearly note and explicitly describe all details of any proposed and/or Engineer approved substitutions or deviations from the Contract Documents. The Engineer's approval of any Shop Drawing shall not release the Contractor from responsibility for deviations from the Contract Documents. The approval of any Shop Drawing that substantially deviates from the requirement of the Contract Documents shall be evidenced by a change order.

2.4 DEFERRED SUBMITTAL FOR PERMITTING

A. For all performance specified items the Contractor will be required to submit engineered drawings and calculations to the owner for building department review and approval.

B. Contractor shall follow all the submittal procedures within this section 01 33 00 for the deferred submittal for permitting items.

C. Contractor shall meet all the requirements of a building department permit submittal for the deferred submittal for permitting items.

2.5 FINAL SUBMITTALS

A. The Contractor, prior to requesting final payment, shall obtain and submit the following items to the Engineer for transmittal to the Owner:

1. Written guarantees, where required.

2. Completed record drawings.

3. Certificates of inspection and acceptance by local governing agencies having jurisdiction.

4. Releases from all parties who are entitled to claims against the subject project, property, or improvement pursuant to the provisions of law.

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PART 3 EXECUTION

3.1 TRANSMITTAL PROCEDURE

A. General:

1. Submittals shall be accompanied by Submittal Transmittal Form included in this section, or an approved substitute form. Submittals for various items shall be made with a single form when the items taken together constitute a manufacturer's package or are so functionally related that expediency indicates checking or review of the group or package as a whole.

2. A unique number, sequentially assigned, shall be noted on the transmittal form accompanying each item submitted. Original submittal numbers shall have the following format: "XX"; where "XX" is the sequential number assigned by the Contractor. Resubmittals shall have the following format: “XX-Y”; where "XX" is the originally assigned submittal number and "Y" is a sequential letter assigned for resubmittals, i.e., A, B, or C being the 1st, 2nd and 3rd resubmittals, respectively. Submittal 02-B, for example, is the second resubmittal of Submittal 2.

B. Submittal Completeness: Submittals which do not have all the information required to be submitted are not acceptable and will be returned without review.

C. Contractor Review: Contractor shall review all submittals for completeness and conformance to the contract documents prior to submittal to the Engineer for review. Contractor shall mark the submittals as being accepted by the Contractor. Any submittals which are not marked by the Contractor as accepted may be rejected and returned by the Engineer without review.

D. Submittal Priority: When multiple submittals have been sent to the Engineer for review, Contractor shall indicate priority for receipt of reviewed submittals. Engineer will attempt to review and reply to the highest priority submittals in the timeliest manner when Contractor indicates that there is a priority.

3.2 REVIEW PROCEDURE

A. Unless otherwise agreed, within ten (10) days after receipt of the submittal, Engineer will review and return the submittal indicating one of the following actions on the Submittal Transmittal Form.

1. If the review indicates that the material, equipment, test or work method is in general conformance with the design concept and complies with the Contract Documents, submittal copies will be marked "NO EXCEPTION TAKEN" and given Review Action 1 on the Submittal Transmittal Form. In this event the Contractor may begin to incorporate the material or equipment covered by the submittal.

2. If the review indicates that the submittal is insufficient or that limited corrections are required, copies will be marked "MAKE CORRECTIONS NOTED" and be given Review Action 2 on the Submittal Transmittal Form.

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The Contractor may begin incorporating the material and equipment covered by the submittal in accordance with the noted corrections.

3. If the review indicates that the material, equipment, test or work method is not in general conformance with the design concept or in compliance with the Contract Documents, copies of the submittal will be marked "REVISE AND RESUBMIT" or “SUBMIT SPECIFIED ITEM” and given Review Action 3 or 4 on the Submittal Transmittal Form. Except at its own risk, the Contractor shall not undertake work covered by such submittals until a new submittal is made and returned marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED."

4. If the review reveals that the submittal is insufficient or contains incorrect data, copies will be marked "REJECTED" and given Review Action 5. If the comments are of a nature that can be addressed with submittal of specified items without a resubmittal, copies will be further marked "SUBMIT SPECIFIED ITEM" and given Review Action 4 on the Submittal Transmittal Form. If the comments require a revision and resubmittal, copies will be further marked "REVISE AND RESUBMIT" and given a Review Action 3 on the Submittal Transmittal Form. Except at its own risk, the Contractor shall not undertake work covered by such a submittal until the attached comments have been either confirmed by a separate written communication or the submittal has been revised, resubmitted and returned marked either "NO EXCEPTION TAKEN" or "MAKE CORRECTIONS NOTED."

3.3 EFFECT OF REVIEW OF CONTRACTOR'S SUBMITTALS

A. Review of drawings, tests, methods of work or information regarding materials or equipment the Contractor proposes to provide, shall not relieve the Contractor of its responsibility for errors therein and shall not be regarded as an assumption of risks or liability by the Owner or by any officer or employee of the Owner, and the Contractor shall have no claim under the Contract on account of the failure, or partial failure, of the method of work and test, material, or equipment so reviewed. A mark of "NO EXCEPTION TAKEN" or "MAKE CORRECTIONS NOTED" shall mean that the Owner, or any officer or employee of the Owner, has no objection to the Contractor, upon the Contractor's own responsibility, providing the materials or equipment proposed.

*** * * END OF SECTION * * ***

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SUBMITTAL TRANSMITTAL

TO: Transmittal No.: _____

Date: _____

ATTN: _____

Project: Floating Dock Replacement Project No. _____

Owner: Port of South Whidbey Previous Transmittal No. (if resubmitted) _____

USE ONE FORM PER ITEM SUBMITTED

Item #	Spec. Para. #	Dwg #	Item Description	# Copies Submitted	Approval Status (by Engineer)

By this submittal, the Contractor represents that he has determined and verified all field measurements, field construction criteria, materials, catalog numbers, and similar data, or will do so, and that he has checked and coordinated each Submittal (Shop Drawing, Product Data, Literature, or Material) with the project requirements and the Contract Documents. Deviations from the Contract Documents are noted below.

DEVIATIONS: Yes ☐ No ☐ SUBSTITUTION: Yes ☐ No ☐

_____

_____

Contractor Representative _____ Signature _____

(THIS SPACE COMPLETED BY REVIEWER)

Reviewer:	Comments Attached	
_____	☐	Date: _____
_____	☐	Date: _____
_____	☐	Date: _____

Enclosed are _____ copies of the above item. Approval status as noted above is in accordance with the legend at the bottom of this page:

Remarks: _____

_____

Approval Status*

1. No Exception Taken
2. Make Corrections Noted
3. Revise and Resubmit
4. Submit Specified Item
5. Rejected

By: _____

* Only submittals with Status 3, 4 or 5 require resubmittal

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SECTION 01 40 00
QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Quality control and control of installation.

B. Tolerances.

C. References.

D. Labeling.

E. Examination.

F. Preparation.

1.2 QUALITY CONTROL AND CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions and workmanship to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. When manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.

D. Comply with specified standards as minimum quality for the Work, except where more stringent tolerances, codes or specified requirements indicate higher standards or more precise workmanship.

E. Perform Work by persons qualified to produce required and specified quality.

F. Verify field measurements are as indicated on Shop Drawings or as instructed by manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

1.3 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. When manufacturers' tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.

C. Adjust products to appropriate dimensions and position before securing products in place.

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1.4 REFERENCES

A. For products or workmanship specified by association, trade or other consensus standards, comply with requirements of standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue current on date of Contract Documents, except where specific date is established by code.

C. Obtain copies of standards where required by product specification sections.

D. When specified reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.

E. Neither contractual relationships, duties, nor responsibilities of parties in Contract nor those of Engineer shall be altered from Contract Documents by mention or inference otherwise in reference documents.

1.5 LABELING

A. Attach label from agency approved by authority having jurisdiction for products, assemblies, and systems required to be labeled by applicable code.

B. Label Information: Include manufacturer's or fabricator's identification, approved agency identification, and the following information as applicable on each label.

1. Model number.

2. Serial number.

3. Performance characteristics.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance by the Contractor of existing conditions.

B. Verify existing substrate is capable of structural support or attachment of new Work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

3.2 PREPARATION

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A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer or conditioner prior to applying new material or substance in contact or bond.

*** * * END OF SECTION * * ***

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SECTION 01 45 16
QUALITY CONTROL

PART 1 GENERAL

1.1 DEFINITION

A. Specific quality control requirements for the Work are indicated throughout the Contract Documents. The requirements of this Section are primarily related to performance of the Work beyond furnishing of manufactured products. The term "Quality Control" includes inspection, sampling and testing, and associated requirements.

1.2 INSPECTION AT PLACE OF MANUFACTURE

A. Unless otherwise indicated, all products, materials, and equipment shall be subject to inspection by the Engineer at the place of manufacture. Inspection shall be at the Owner and Engineer's discretion.

B. The presence of the Engineer at the place of manufacturer, however, shall not relieve the Contractor of the responsibility for furnishing products, materials, and equipment that comply with all requirements of the Contract Documents. Compliance is a duty of the Contractor and said duty shall not be avoided by any act or omission on the part of the Engineer.

1.3 SAMPLING AND TESTING

A. All Contractor inspection sampling and testing where specified shall be paid for by Contractor and performed in accordance with the methods prescribed in the current standards and/or the ASTM, as applicable to the class and nature of the article or materials considered. The Owner will where specified perform independent or other inspection, sampling, and testing which, in the opinion of the Engineer, will ensure the Owner that the quality of the workmanship is in full accord with the Contract Documents.

B. Any waiver by the Owner of any specific testing or other quality assurance measures, whether or not such waiver is accompanied by a guarantee of substantial performance as a relief from the specified testing or other quality assurance requirements as originally specified, and whether or not such guarantee is accompanied by a performance bond to assure execution of any necessary corrective or remedial Work, shall not be construed as a waiver of any requirements of the Contract Documents.

1.4 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

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American Society for Testing and Materials (ASTM)

D3666-83 Evaluation of Inspections and Testing agencies for Bituminous Paving Materials.

D3740-80 Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.

E329-77 Inspection and Testing agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.

E543-83 Determining the Qualifications of Non-destructive Testing Agencies.

E548-84 Generic Criteria for Use in Evaluations of Testing and Inspections Agencies.

1.5 QUALITY CONTROL REQUIREMENTS:

A. The Contractor shall provide an organization and system to perform quality control for all phases of the work, such as approvals of submittals, procurement, storage and handling of material and equipment, monitoring of Subcontractors' activities and inspection and tests required to assure that the materials and installation are in accordance with contract requirements. Additionally, the Contractor shall provide and maintain acceptable quality control records and make such records available to the Engineer as they are developed and on-demand. Quality control will be established for all work under the contract including on-site and off-site fabrication.

B. Contractor Quality Control: The quality inspection and control system established and carried out by the Contractor is to assure compliance with the contract plans and specifications.

C. Definitions:

1. Approval: When the words "approval" and approved" are used in this section, they shall mean approval by the Contractor unless specifically stated otherwise in the various sections of the specification for the particular approval involved.

2. Factory Tests: Tests made on various products and component parts prior to shipment to the job site, including but not limited to such items as transformers, boilers, air conditioning equipment, electrical equipment, pre-cast concrete, etc.

3. Field Tests: Tests or analysis made at or in the vicinity of the job site in connection with the actual construction, including but not limited to concrete and asphalt batch plants, pre-cast concrete plants and similar establishments directly involved in the construction process.

4. Product: The term "product" includes the plural thereof and means a type or a category of manufactured goods, constructions, installations and

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natural and processed materials and those associated services whose characterization, classification or functional performance is specified by standards.

5. Person: The term "person" means associations, companies, corporations, educational institutions, forms, government agencies at the Federal, State and local level, partnerships and societies, as well as divisions thereof and individuals.

6. Testing Laboratory: The term "testing laboratory" means any "person", as defined above, whose functions include testing, analyzing or inspecting "products", as defined above, and/or evaluating the designs or specifications of such "products" according to the requirements of applicable standards.

7. Certified Test Reports: Certified test reports are reports of tests signed by qualified authorized personnel attesting that the test results reported are accurate and that items tested either meet or fail to meet the stated minimum requirements. These test reports include those performed by Factory Mutual, Underwriters Laboratories, Inc., independent Testing Laboratories and others.

8. Certified Inspection Reports: Certified inspection reports are those signed by approved inspectors attesting that the items inspected meet the specification requirements other than any exceptions included in the report.

9. Manufacturer's Certificate of Conformance or Compliance: A certificate signed by an authorized manufacturer's official attesting that the material or equipment delivered and installed meets the specification requirements.

1.6 INSPECTIONS

A. The Contractor shall inspect all work under the contract and document the inspection in the Contractor's Daily Report, and shall be responsible for coordinating building official's inspections in accordance with the International Building Code.

B. Inspection Procedures: Inspection procedures shall include, as a minimum:

1. Measurements: The Contractor shall verify measurements and dimensions of the Work, as an integral step of starting each installation.

2. Preparatory Inspection: Preparatory inspection shall be performed before beginning work and, in addition, before beginning each segment of work. Preparatory inspection shall include a review of the contract requirements, the review of shop drawings and other submittal data, a check to assure that required control testing will be provided, a physical examination to assure that all materials and equipment conform to approved shop drawings and submittal data, and a check to assure all required preliminary work has been completed.

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3. Initial Inspection: Initial inspection shall be performed as soon as a representative segment of the particular item of work has been accomplished. Initial inspection shall include performance or scheduled tests, examination of the quality of workmanship, a review for omissions or dimensional errors, and approval or rejection of the initial segment of the work.

4. Follow-up Inspections: Follow-up inspections shall be performed daily and more frequently as necessary and shall include continued testing and examination to assure continued compliance with the contract documents.

5. Delivery Inspection: The Contractor shall inspect materials or equipment upon arrival on the job site and immediately prior to installation and reject damaged and defective items.

6. Special Inspection and Documentation: In addition to the above three phase inspection requirements, certain Special Inspection and Documentation requirements are contained in the technical specifications. Each Special Inspection and Documentation shall be performed and a record showing the results of these shall be submitted on an "as occurred" basis unless otherwise indicated.

C. Formwork, Falsework and Erection Procedures Certification: When the Contractor is required to submit a design and/or certification for formwork, falsework or erection procedures, inspection reports must indicate the work has been inspected by a registered Professional Engineer for conformance to the design and/or certification. A specific statement for these items rather than a general statement is required.

D. Factory Inspection by The Contractor: The Contractor shall arrange and perform all factory inspections specifically required in the technical sections of the specifications. These inspections shall be reported on the Contractor's Quality Daily report and Special Documentation form.

E. Non-Compliance Check-Off List: The Contractor shall maintain a check-off list of work that does not comply with the contract, stating specifically what is non-complying, the date the faulty work was originally discovered and the date the work was corrected. There is no requirement to report a deficiency which was corrected the same day it is discovered. The Contractor shall maintain a historical record of all non-compliance items and shall submit a copy of this record of all non-compliance items and shall submit a copy of this record to the Engineer on a monthly basis.

F. Certification of Payment Request: For each payment request, the Contractor shall submit a certification, signed be the Contractor to the Engineer that all work for which payment is requested, including stored materials, is in compliance with contract requirements.

G. Completion and Inspection of Work: Prior to final Engineer's inspection and acceptance, the Contractor shall submit a certification, signed by the Contractor's

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Representative, to the Engineer that all work has been inspected and that all work except as specifically noted is complete and in compliance with the contract plans and specifications.

1.7 SPECIAL INSPECTIONS

A. In addition to the above three phase inspection requirements, certain Special Inspection and Documentation requirements are contained in the technical specifications. Each Special Inspection and Documentation shall be performed and a record showing the results of these shall be submitted on an "as occurred" basis unless otherwise indicated.

B. The Owner shall employ one or more special inspectors to provide inspections during construction. The special inspector shall be a qualified person who shall demonstrate competence, to the satisfaction of the building official, for the inspection of the particular type of construction or operation requiring special inspection.

C. Special inspections are not required where the work is done on the premises of a fabricator registered and approved to perform such work without special inspection. Approved fabricators must submit a certificate of compliance for offsite fabrications such as structural steel, precast concrete, glued laminated timber, etc.

D. All inspections shall be performed by independent special inspectors. Job site visits by the structural engineer or building official do not constitute and are not a substitute for inspections by a special inspector.

E. All inspection reports shall be submitted to the building official and E.O.R. The final reports by the special inspector(s) must certify that the entire structural system complies with the approved plans and specifications.

F. It is solely the contractor's responsibility to see that these inspections are performed.

G. Work requiring special inspection shall be inspected by the special inspector who is present in the area where the work is performed and at the completion of work. Continuous inspection consists of full-time inspection; periodic inspection consists of part-time or intermittent inspection.

H. The following special inspections are in addition to the inspection by the building official. This list is not intended to be all inclusive.

1.8 STRUCTURAL OBSERVATIONS

A. Visual observations will be performed at the discretion of the Owner, architect, E.O.R., and as required by the building official in accordance with the building code. Visual observations shall not be considered as a substitute for the special inspection requirements.

B. It is the responsibility of the general contractor to notify the E.O.R as to when each major phase of construction is ready for observation a minimum of five (5) working days in advance.

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C. The following major phases of construction require a site visit and structural observation report from the S.E.O.R:

1. Float and gangway fabrication before completion of shop welding
2. At completion of demolition
3. Completion of welding
4. Completion of utility installation
5. Inspection of completed project including mitigation

D. The contractor shall be responsible for ensuring that nailing, reinforcement, welds, connections, etc. Are visible for observation when the S.E.O.R is on site and for any scheduling delays due to noncompliant items found during observation.

E. At the conclusion of work included in the permit, the structural observer shall submit to the building official a written statement that the site visits have been made and identify any reported deficiencies that, to the best of the structural observers' knowledge, have not been resolved.

1.9 TESTING

A. Except for the Engineer's inspection or if Contract Documents specifically state otherwise in the specifications, the Owner shall pay for and the Contractor shall be responsible for coordinating with Resident Project Representative for all field sampling and in-place testing required under the Contract.

B. Independent Testing Laboratory: The Owner will retain and provide an independent, commercial testing laboratory, accepted by the Engineer, to perform all sampling and testing services required. Test results tabulation(s) shall be certified as complete and signed by a testing laboratory representative authorized to sign certified test reports and shall be delivered each day to the Engineer's Project Representative. A summary report of all field tests containing both "required" and "actual" results plus "passed" or "failed" for conforming, nonconforming and repeated test results will be made available to the Contractor at the end of each month. Any non-conforming test results will be made known to Contractor within 48 hours following their receipt from Testing Laboratory.

C. Engineers Acceptance of Laboratories: Except for factory tests, all field sampling and testing normally performed by commercial laboratories, including but not limited to earthwork, asphalt, concrete, masonry, welding and all laboratory work under this contract, shall be performed by an independent commercial laboratory employed by the Owner and acceptable to the Engineer. The basis of acceptance included the following:

1. Testing laboratories performing work in connection with concrete, steel, and bituminous materials shall comply with ASTM E329 and ASTM D3666, respectively.

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2. Testing laboratories engaged in the testing and inspection of soils and rock or performing non-destructive testing shall comply with ASTM D3740 and ASTM E543, respectively.

3. Testing laboratories performing work not in connection with concrete, steel, bituminous materials, soils and non-destructive testing shall comply with ASTM E548.

4. Submittals: Prior to consideration for acceptance, the laboratory shall submit:

   a. Evidence of license to operate as a commercial testing laboratory.

   b. Name, registration number and engineering discipline of the Registered Professional Engineer in charge of the laboratory.

   c. Affidavit of compliance with ASTM E329 and ASTM D3740 and certification that the laboratory performs work in accordance with technical requirements as required by the contract specifications.

   d. A list of testing equipment proposed for each test procedure including latest calibration data.

   e. A copy of the latest Laboratory Inspection Report by an independent agency with laboratory certification that deficiencies (if any) have been corrected.

   f. Names and qualifications of persons actually performing testing and sampling. Changes in personnel shall be approved by the Engineer prior to performance of work under this contract.

D. Affidavits: Affidavits of compliance from the testing laboratory employed by the Contractor shall be submitted for all specialty inspections. These affidavits shall be signed in ink and delivered to the Engineer before progress payment for the work completed will be approved.

E. Factory Tests: Unless otherwise specified, the Contractor shall arrange for factory test when they are required under the contract. Certified copies of test reports on materials to be incorporated into the work will be acceptable, provided they are performed by the manufacturer or by the agencies or laboratories acceptable to the Engineer showing that the materials conform to the specification and the tests and certifications meet the requirements of the paragraph entitled “Manufacturer’s Certificates of Conformance or Compliance” of this section.

F. Test Results: Test results provided shall cite the contract requirements, the test or analytical procedures used, the actual results, and include a statement that the item tested or analyzed conforms or fails to conform to the specification requirements. The cover sheet for each report shall be conspicuously stamped in large red letters “CONFORMS” or “DOES NOT CONFORM” to the specification requirements, as the case may be. All test reports shall be signed by a testing laboratory representative authorized to sign certified test reports. The Contractor

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shall arrange for immediate and direct delivery of the signed reports, certifications and other documentation to the Engineer.

1.10 TWO-YEAR CERTIFICATION

A. Twenty-Three Month Inspection: The Owner and Engineer will complete a twenty-three month inspection that will result in a two-year certification as to proper operation and performance of the completed construction project. The Contractor will be invited to take part in this inspection.

B. Testing: The twenty-three month inspection will include inspection, operation, and testing of all major items of equipment that were furnished and installed as a part of the construction project.

C. Correction: All items found to be in non-conformance with the design operation and performance requirements of these Contract Documents shall be corrected immediately by the Contractor at the Contractor's sole expense. Any operation and performance problems found to be a result of improper use or operation by the Owner will be corrected by the Owner at the Owner's sole expense.

D. Certification: Upon completion of all work required of the Contractor, a two-year certification of proper operation and performance will be prepared by the Engineer.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

*** * * END OF SECTION * * ***

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SECTION 01 55 26
TEMPORARY TRAFFIC CONTROL

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. The Contractor, utilizing contractor labor and contractor-provided equipment and materials, shall plan, manage, supervise and perform all temporary traffic control activities needed to support the Work of the Contract.

B. The Contractor shall provide flaggers, spotters and all other personnel required for labor for traffic control activities.

C. The Contractor shall perform all procedures necessary and following the requirements of the MUTCD to support the Contract Work.

D. The Contractor shall provide signs and other traffic control devices. The Contractor shall erect and maintain all construction signs, warning signs, detour signs, and other traffic control devices necessary to warn and protect the public at all times from injury or damage as a result of the Contractor's operations which may occur on or adjacent to Highways, roads, or streets. No Work shall be done on or adjacent to the Roadway until all necessary signs and traffic control devices are in place.

E. The traffic control resources and activities described shall be used for the safety of the public, of the Contractor's employees, and of the port personnel and to facilitate the movement of the traveling public. Traffic control resources and activities may be used for the separation or merging of public and construction traffic when such use is in accordance with a specific approved Traffic Control Plan (TCP).

F. Upon failure of the Contractor to immediately provide flaggers; erect, maintain, and remove signs; or provide, erect, maintain, and remove other traffic control devices when ordered to do so by the Engineer, the port may, without further notice to the Contractor or the Surety, perform any of the above and deduct all of the costs from the Contractor's payments.

G. The Contractor shall be responsible for providing adequate labor, sufficient signs, and other traffic control devices, and for performing traffic control procedures needed for the protection of the Work and the public at all times.

H. The Contractor shall be responsible for providing all signs and other traffic control devices required to establish a pedestrian detour.

I. Wherever possible when performing Contract Work, the Contractor's equipment shall follow normal and legal traffic movements. The Contractor's ingress and egress of the Work area shall be accomplished with as little disruption to traffic as possible. Traffic control devices shall be removed by picking up the devices in a reverse sequence to that used for installation. This may require moving backwards through the work zone. When located behind barrier or at other

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locations shown on approved TCPs, equipment may operate in a direction opposite to adjacent traffic.

J. The Contractor is advised that the port may have entered into operating agreements with one or more law enforcement organizations for cooperative activities. Under such agreements, at the sole discretion of the City, law enforcement personnel may enter the work zone for enforcement purposes and may participate in the Contractor's traffic control activities. The responsibility under the contract for all traffic control resides with the Contractor and any such participation by law enforcement personnel in Contractor traffic control activities will be referenced in the Special Provisions or will be preceded by an agreement and, if appropriate, a cost adjustment. Nothing in this Contract is intended to create an entitlement, on the part of the Contractor, to the services or participation of the law enforcement organization.

1.2 RELATED SECTIONS

A. Section 01 55 29 – Staging Areas.

1.3 REFERENCES

A. Washington State Department of Transportation (WSDOT)

Standard Specifications for Road, Bridge and Municipal Construction, most current version.

B. United States Federal Highway Administration (FHWA):

Manual on Uniform Traffic Control Devices (MUTCD), most current version.

1.4 SUBMITTALS

A. Traffic control plans

B. Pedestrian detour plan

PART 2 PRODUCTS

2.1 PRODUCTS AND MATERIALS

A. All materials used for temporary traffic control measures shall conform to WSDOT Standard Sections Section 9-35 as well as the MUTCD and meet the requirements of the Plans unless otherwise approved by the Engineer and/or the port.

PART 3 EXECUTION

3.1 TRAFFIC CONTROL MANAGEMENT

A. General Requirements:

1. It is the Contractor's responsibility to plan, conduct and safely perform the Work

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2. The Contractor, while planning and performing temporary traffic control, shall do so in accordance with the Manual on Uniform Traffic Control Devices.

3. The Contractor shall manage temporary traffic control with his or her own staff.

4. Traffic control management responsibilities shall be formally assigned to one or more company supervisors who are actively involved in the planning and management of field Contract activities. The Contractor shall provide the Engineer with a copy of the formal assignment. The duties of traffic control management may not be subcontracted.

5. The Contractor shall designate an individual or individuals to perform the duties of the primary Traffic Control Supervisor (TCS). The designation shall also identify an alternate TCS who can assume the duties of the primary TCS in the event of that person's inability to perform. The TCS shall be responsible for safe implementation of approved TCPs provided by the Contractor.

6. The primary and alternate TCS shall be certified as worksite traffic control supervisors by one of the organizations listed in the Special Provisions. Possession of a current flagging card by the TCS is mandatory. A traffic control management assignment and a TCS designation are required on all projects that will utilize traffic control.

7. The Contractor shall maintain 24-hour telephone numbers at which the Contractor's assigned traffic control management personnel and the TCS can be contacted and be available upon the Engineer's request at other than normal working hours. These persons shall have the resources, ability and authority to expeditiously correct any deficiency in the traffic control system.

B. Responsibilities

1. Responsibilities

i. Overseeing and approving the actions of the Traffic Control Supervisor (TCS) to ensure that proper safety and traffic control measures are implemented and consistent with the specific requirements created by the Contractor's work zones and the Contract. Some form of oversight shall be in place and effective even when the traffic control management personnel are not present at the jobsite.

ii. Providing the Contractor's designated TCS with approved TCPs which are compatible with the Work operations and traffic control for which they will be implemented. Having the latest adopted edition of the MUTCD, including the Washington State Modifications to the MUTCD and applicable standards and Specifications available at all times on the project.

iii. Discussing proposed traffic control measures and coordinating implementation of the Contractor-adopted TCP(s) with the Engineer.

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iv. Coordinating all traffic control operations, including those of Subcontractors and suppliers, with each other and with any adjacent construction or maintenance operations.

v. Coordinating the project's activities (such as ramp closures, road closures, and lane closures) with appropriate police, fire control agencies, city or county engineering, medical emergency agencies, school districts, and transit companies.

vi. Overseeing all requirements of the Contract that contribute to the convenience, safety, and orderly movement of vehicular and pedestrian traffic.

vii. Reviewing the TCS's diaries daily and being aware of field traffic control operations.

viii. Being present on-site a sufficient amount of time to adequately satisfy the above-listed responsibilities.

C. Traffic Control Supervisor

1. Traffic Control Supervisor (TCS) shall be present on the project whenever flagging or spotting or other traffic control labor is being utilized or less frequently, as authorized by the Engineer.

2. The TCS shall personally perform all the duties of the TCS. During non-work periods, the TCS shall be available to the job site within a 45-minute time period after notification by the Engineer.

3. The TCS's duties shall include:

i. Having a current set of approved TCPs, applicable Contract Provisions as provided by the Contractor, the latest adopted edition of the MUTCD, including the Washington State Modifications to the MUTCD, the book Quality Guidelines for Work Zone Traffic Control Devices, and applicable Standards and Specifications.

ii. Inspecting traffic control devices and nighttime lighting for proper location, installation, message, cleanliness, and effect on the traveling public. Traffic control devices shall be inspected at least once per hour during working hours except that Class A signs and nighttime lighting need to be checked only once a week. Traffic control devices left in place for 24-hours or more shall also be inspected once during the nonworking hours when they are initially set up (during daylight or darkness, whichever is opposite of the working hours). The TCS shall correct, or arrange to have corrected, any deficiencies noted during these inspections.

iii. Preparing a daily traffic control diary on each day that traffic control is performed using DOT Forms 421-040A and 421-040B, and filing them at the end of the next working day for Port review upon request. The Contractor may

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use alternate forms if approved by the Engineer. Diary entries shall include, but not be limited to:

(i) Time of day when signs and traffic control devices are installed and removed,

(ii) Location and condition of signs and traffic control devices,

(iii) Revisions to the TCP, and

(iv) Lighting utilized at night.

iv. Observations of traffic conditions. Making minor revisions to the TCP to accommodate site conditions provided that the original intent of the traffic control plan is maintained and the revision has the concurrence of both the Contractor and the Engineer.

v. Attending traffic control coordinating meetings or coordination activities as necessary for full understanding and effective performance.

vi. Ensuring that all needed traffic control devices and equipment are available and in good working condition prior to the need to install or utilize them. The TCS may perform the Work described in Subsection Flaggers and Spotters or in Subsection Other Traffic Control Labor and be compensated under those Bid items, provided that the duties of the TCS are accomplished.

D. Traffic Control Plans

1. Contractor shall prepare a method of handling traffic during the single lane closure on Harborview Drive. All construction signs, flaggers, spotters and other traffic control devices shall be shown on the TCP(s) except for emergency situations. Where mainline Contract TCPs are developed with the intent of operating without the use of flaggers or spotters, the plans shall contain a note that states, “NO FLAGGERS OR SPOTTERS”. The use of flaggers or spotters to supplement these TCPs will not be allowed except in a case where no other means of traffic control can be used or in the event of an emergency. If the Contractor proposes the use of flaggers or spotters with one of these plans, this will require approval by the Engineer. The modified plans shall show locations for all the required advance warning signs and a safe, protected location for the flagging station. If flagging is to be performed during hours of darkness, the plan shall include appropriate illumination for the flagging station.

2. When the Contractor’s chosen method of performing the Work in the Contract requires some form of temporary traffic control, the Contractor shall either: (1) designate and adopt, in writing, the TCP or plans from the Contract documents that support that method; or (2) submit a Contractor’s plan that modifies, supplements or replaces a plan from the Contract documents. Any Contractor-proposed modification, supplement or replacement shall show the necessary construction signs, flaggers, spotters and other traffic control devices required to support the Work. Any Contractor-proposed TCP shall

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conform to the established standards for plan development as shown in the MUTCD, Part VI. The Contractor's submittal, either designating and adopting a TCP from the Contract documents or proposing a Contractor developed plan, shall be provided to the Engineer for approval at least 10-calendar days in advance of the time the signs and other traffic control devices are scheduled to be installed and utilized. The Contractor shall be solely responsible for submitting any proposed TCP or modification, obtaining the Engineer's approval and providing copies of the approved TCPs to the Traffic Control Supervisor.

3. The Contractor shall prepare a designated detour route for the displaced traffic on Harborview Drive. All detour signs and associated traffic control devices shall be shown on the TCP.

4. The Contractor shall prepare a method of handling pedestrian traffic. All construction signs and other pedestrian traffic control devices shall be shown on the TCP in addition to the requirements previously listed.

E. Conformance to Established Standards

1. Flagging, signs, and all other traffic control devices and procedures furnished or provided shall conform to the standards established in the latest WSDOT adopted edition of the MUTCD, published by the U.S. Department of Transportation and the Washington State Modifications to the MUTCD. Judgment of the quality of devices furnished will be based upon Quality Guidelines for Temporary Traffic Control Devices, published by the American Traffic Safety Services Association. Copies of the MUTCD and Quality Guidelines for Temporary Control Devices may be purchased from the American Traffic Safety Services Association, 15 Riverside Parkway, Suite 100, Fredericksburg, Virginia 22406-1022. The Washington State Modifications to the MUTCD may be obtained from the Washington State Department of Transportation.

2. The condition of signs and traffic control devices shall be acceptable or marginal as defined in the book Quality Guidelines for Temporary Traffic Control Devices, and will be accepted based on a visual inspection by the Engineer. The Engineer's decision on the condition of a sign or traffic control device shall be final. A sign or traffic control device determined to be unacceptable shall be removed from the project and replaced within 12-hours of notification.

3.2 TRAFFIC CONTROL LABOR, PROCEDURES, AND DEVICES

A. Traffic Control Labor

1. The Contractor shall furnish all personnel for flagging, spotting, for the execution of all procedures related to temporary traffic control and for the

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setup, maintenance and removal of all temporary traffic control devices and construction signs necessary to control traffic during construction operations.

2. Workers engaged as flaggers or spotters shall wear reflective vests and hard hats. During hours of darkness, white coveralls or white or yellow rain gear shall also be worn.

3. The Contractor shall require all personnel at the work site under their control (including Subcontractors and lower tier subcontractors) to comply with the following:

i. To wear reflective vests, except that during daylight hours, clothing of orange, yellow, strong yellow green or fluorescent versions of these colors may be worn in lieu of vests. Flaggers must wear reflective vests and hard hats at all times;

ii. During hours of darkness, to wear vests, white coveralls or either high visibility reflective fluorescent lime yellow pants with fluorescent orange strip or reflective fluorescent orange pants with fluorescent lime yellow strip;

iii. When rain gear is worn during hours of darkness, it shall be white or yellow; and

iv. The reflective vests shall always be the outermost garments.

4. Exceptions to these requirements are: 1) When personnel are out of view of, or not exposed to traffic, 2) When personnel are inside a vehicle, or 3) Where it is obvious that such apparel is not needed for the employee's safety from traffic.

5. Reflective vests shall be high visibility lime-yellow in base color with orange-red trim and 3M silver Scotchlite reflective material (or equivalent) or orange-red base color with lime-yellow reflective stripe. Vests shall have 230 or more square inches of reflective trim as measured on a medium vest. The 3M type 6187 (or equivalent) 2-inch-wide lime-yellow reflective stripe can be used as the lime-yellow trim on a red-orange vest. All components to these garments must be visible in 360-degrees, from all angles and the reflective material visible at a minimum of 1,000 feet.

6. Reflective vests, hard hats, white coveralls, rain gear, and other apparel shall be furnished and maintained in a neat, clean, and presentable condition at no expense to the port.

B. Flaggers and Spotters

1. Flaggers and Spotters shall be posted where shown on approved TCPs or where directed by the Engineer. All flaggers and spotters shall possess a current flagging card issued by the State of Washington, Oregon, Montana, or Idaho. The flagging card shall be immediately available and shown to the port upon request.

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2. Flagging stations shall be shown on TCPs at locations where construction operations require stopping or diverting public traffic. Flagging stations shall be staffed only when flagging is required. This staffing may be continuous or intermittent, depending on the nature of the construction activity. Whenever a flagger is not required to stop or divert traffic, the flagger shall move away from the flagging station to a safer location. During hours of darkness, flagging stations shall be illuminated in a manner that ensures that flaggers can easily be seen but that does not cause glare to the traveling public. Flaggers shall be equipped with portable two-way radios, with a range suitable for the project. The radios shall be capable of having direct contact with project management (foremen, superintendents, etc.).

3. The Contractor shall furnish Stop/Slow paddles approved by the Engineer for all flagging operations.

4. Spotting stations shall be shown on TCPs at locations where a spotter can detect errant drivers or other hazards and provide an effective warning to other workers. Spotting stations will not be allowed at locations where the spotter will be in unnecessary danger. The Contractor shall furnish noisemakers or other effective warning devices for spotting operations. The duties of a spotter shall not include flagging.

C. Other Traffic Control Labor

1. In addition to flagging or spotting duties, the Contractor shall provide personnel for all other traffic control procedures required by the construction operations and for the labor to install, maintain and remove any traffic control devices shown on TCPs.

3.3 TRAFFIC CONTROL PROCEDURES

A. One-Way Traffic Control

1. The project Work may require that traffic be maintained on a portion of the Roadway during the progress of the Work using one-way traffic control. If this is the case, the Contractor's operation shall be confined to one-half the Roadway, permitting traffic on the other half. If shown on an approved TCP or directed by the Engineer, one-way traffic control, in accordance with the MUTCD, shall be provided and shall also conform to the following requirements:

i. In any one-way traffic control configuration, side roads and approaches will be closed or controlled by a flagger or by appropriate approved signing. A side road flagger will coordinate with end flaggers where there is line of sight and with the pilot car where the end flaggers cannot be seen.

ii. Queues of vehicles will be allowed to take turns passing through the work zone in the single open lane. When one-way traffic control is in effect, Contractor vehicles shall not use the open traffic lane except while following the same rules and routes required of the public traffic.

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B. Work Area Conditions

1. As conditions permit, the Contractor shall, at the end of each day, leave the Work area in such condition that it can be traveled without damage to the Work, without danger to traffic, and without one-way traffic control. If, in the opinion of the Engineer, one-way traffic control cannot be dispensed with after working hours, then the operation will be continued throughout the non-working hours.

C. Lane Closure Setup/Takedown

1. Where allowed by the Contract and where shown on approved TCPs or directed by the Engineer, the Contractor shall set up traffic control measures to close one or more lanes of a multi-lane facility. When this is to occur, the following sequence shall be followed:

i. Advance warning signs are set up on the Shoulder of the Roadway opposite the lane to be closed,

ii. Advance warning signs are set up on the same Shoulder as the lane to be closed,

iii. A truck-mounted attenuator, with arrow board, is moved into place at the beginning of the closure taper,

iv. Channelization devices are placed to mark the taper and the length of the closure as shown on the TCP. Once the lane is closed, the TMA/arrow board combination may be replaced with an arrow board without attenuator.

v. If additional lanes are to be closed, this shall be done in sequence with previous lane closures using the same sequence of activities. A truck-mounted attenuator with arrow board is required during the process of closing each additional lane and may be replaced with an arrow board without attenuator after the lane is closed. Each closed lane shall be marked with a separate arrow board at all times.

vi. Traffic control for lane closures shall be removed in the reverse order of its installation.

D. Patrol and Maintain Traffic Control Measures

1. At all times, when temporary traffic control measures are in place, the Contractor shall provide for patrolling and maintaining these measures. The Work shall consist of resetting mislocated devices, assuring visibility of all devices, cleaning and repairing where necessary, providing maintenance for all equipment, including replacing batteries and light bulbs as well as keeping motorized and electronic items functioning, and adjusting the location of devices to respond to actual conditions, such as queue length, unanticipated traffic conflicts and other areas where planned traffic control has proven ineffective.

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2. This Work shall be performed by the Contractor, either by or under the direction of the Traffic Control Supervisor. Personnel, with vehicles if necessary, shall be dispatched so that all traffic control can be reviewed at least once per hour during working hours and at least once during each non-working day.

3.4 TRAFFIC CONTROL DEVICES

A. Construction Signs

1. All construction signs required by approved TCPs, as well as any other appropriate signs directed by the Engineer shall be furnished by the Contractor. The Contractor shall provide the posts or supports and erect and maintain the signs in a clean, neat, and presentable condition until the need for them has ended. Post mounted signs shall be installed as shown in Standard Plans. When the need for construction signs has ended, the Contractor, upon approval of the Engineer, shall remove all signs, posts, and supports from the project and they shall remain the property of the Contractor.

2. All existing signs, new permanent signs installed under this Contract, and construction signs installed under this Contract that are inappropriate for the traffic configuration at a given time shall be removed or completely covered with metal, plywood, or an Engineer approved product specifically manufactured for sign covering during periods when they are not needed.

3. Construction signs will be divided into two classes. Class A construction signs are those signs that remain in service throughout the construction or during a major phase of the Work. They are mounted on posts, existing fixed Structures, or substantial supports of a semi-permanent nature. Class A signs will be designated as such on the approved TCP. Sign and support installation for Class A signs shall be in accordance with the Contract Plans. Class B construction signs are those signs that are placed and removed daily or are used for short durations which may extend for one or more days. They are mounted on portable or temporary mountings.

4. Where it is necessary to add weight to signs for stability, the only allowed method will be a bag of sand that will rupture on impact. The bag of sand shall have a maximum weight of 40-pounds and shall be suspended no more than 1 foot from the ground. Signs, posts, or supports that are lost, stolen, damaged, destroyed, or which the Engineer deems to be unacceptable while their use is required on the project shall be replaced by the Contractor.

B. Sequential Arrow Signs

1. Where shown on an approved TCP or where ordered by the Engineer, the Contractor shall provide, operate and maintain sequential arrow signs. In some locations, the sign will be shown as a unit with an attenuator. In other locations, the plan will indicate a stand-alone unit.

C. Portable Changeable Message Sign

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1. Where shown on an approved TCP or where ordered by the Engineer, the Contractor shall provide, operate and maintain portable changeable message signs. These signs shall be available, on-site, for the entire duration of their projected use.

D. Barricades

1. Where shown on an approved TCP or where ordered by the Engineer, the Contractor shall provide, install and maintain barricades. Barricades shall be kept in good repair and shall be removed immediately when, in the opinion of the Engineer, they are no longer functioning as designed.

2. Where it is necessary to add weight to barricades for stability, the only allowed method will be a bag of sand that will rupture on impact. The bag of sand shall have a maximum weight of 40 pounds, and shall be suspended no more than 1-foot from the ground.

E. Traffic Safety Drums

1. Where shown on an approved TCP, or where ordered by the Engineer, the Contractor shall provide, install and maintain traffic safety drums. Used drums may be utilized, provided all drums used on the project are of essentially the same configuration.

2. The drums shall be designed to resist overturning by means of a weighted lower unit that will separate from the drum when impacted by a vehicle.

3. Drums shall be regularly maintained to ensure that they are clean and that the drum and reflective material are in good condition. If the Engineer determines that a drum has been damaged beyond usefulness, or provides inadequate reflectivity, a replacement drum shall be furnished.

4. When the Engineer determines that the drums are no longer required, they shall be removed from the project and shall remain the property of the Contractor.

F. Traffic Cones

1. Where shown on an approved TCP or where ordered by the Engineer, the Contractor shall provide, install and maintain traffic cones. Cones shall be kept in good repair and shall be removed immediately when directed by the Engineer. Where wind or moving traffic frequently displace cones, an effective method of stabilizing cones, such as stacking two together at each location, shall be employed.

G. Tubular Markers

1. Where shown on an approved TCP or where ordered by the Engineer, the Contractor shall provide, install and maintain tubular markers. Tubular markers shall be kept in good repair and shall be removed immediately when directed by the Engineer.

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2. Tubular markers are secondary devices and are not to be used as substitutes for cones or other delineation devices without an approved TCP.

3. Where the TCP shows pavement-mounted tubular markers, the adhesive used to fasten the base to the pavement shall be suitable for the purpose, as approved by the Engineer. During the removal of pavement-mounted tubular markers, care shall be taken to avoid damage to the existing pavement. Any such damage shall be repaired by the Contractor at no cost to the port.

H. Warning Lights and Flashers

1. Where shown attached to traffic control devices on an approved TCP or where ordered by the Engineer, the Contractor shall provide and maintain flashing warning lights. Lights attached to advance warning signs shall be Type B, high intensity.

2. Lights attached to traffic safety drums, barricades or other signs shall be Type C, steady burning low intensity or, where attention is to be directed to a specific device, Type A, flashing low-intensity units.

END OF SECTION

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SECTION 01 55 29
STAGING AREAS

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. The Contractor shall be responsible for cordoning off the work site with temporary fencing and erecting temporary traffic controls as shown on the Plans and described herein.

B. These facilities and controls shall be in place to the Owner's satisfaction prior to commencement of demolition activities.

C. During the construction, the Contractor shall maintain access for tenants, facilities personnel, and pedestrians through and across all work areas.

D. The Contractor shall assist in traffic control and coordination as described herein during the entire period of activities under this contract.

E. The Contractor shall be responsible for locating and obtaining any required off-site storage and staging areas. No staging or storage areas shall be provided by Port of South Whidbey (Owner).

1.2 RELATED SECTIONS

A. Section 01 55 26 – Temporary Traffic Control

B. Section 01 56 26 – Temporary Fencing

1.3 REFERENCES

Not used.

1.4 SUBMITTALS

Not used.

PART 2 PRODUCTS

2.1 PRODUCTS

A. The contractor is responsible for identifying and procuring all materials, products, equipment, etc. necessary to complete all of the Work described herein.

PART 3 EXECUTION

3.1 CONTROLS

A. Temporary Traffic Controls

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1. The Contractor is to provide traffic control elements, with Owner's approval, to ensure the safety of workers and others to facilitate better traffic flow into and out of the construction area per Section 01 55 26 – Temporary Traffic Control.

B. Construction Traffic

1. The Contractor shall minimize interference with the activities of the Owner and Owner's tenants as described below, and by other means identified and agreed upon during the course of the project:

   a. The Contractor shall minimize vehicular traffic into and out of the site.

   b. A Contractor's employee shall oversee any vehicle's entrance to or exit from the site and direct the construction vehicle and any non-construction traffic as-needed to prevent accidents and ensure smooth traffic flow around the site.

C. Work Completion

1. The temporary fencing, traffic controls and traffic coordination responsibilities are to remain in place for the duration of the project. The fencing and barriers are to be removed only after completion of the work and final inspection of the site as described in the Bid Documents.

D. Staging

1. Store all salvaged materials and construction equipment within the project site or alternative staging areas as directed by the Owner.

*** * * END OF SECTION * * ***

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SECTION 01 56 26
TEMPORARY FENCING

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. The Contractor shall be responsible for cordoning off the work site with temporary fencing and erecting temporary traffic controls as shown on the Plans and described herein.

B. These facilities and controls shall be in place to the Owner's satisfaction prior to commencement of demolition activities.

C. During the construction, the Contractor shall maintain access for tenants, facilities personnel and pedestrians through and across all work areas.

D. The Contractor shall assist in traffic control and coordination as described herein during the entire period of activities under this contract.

1.2 RELATED SECTIONS

A. Section 01 55 29 – Staging Areas

1.3 REFERENCES

Not used.

1.4 SUBMITTALS

Not used.

PART 2 PRODUCTS

2.1 PRODUCTS

A. The contractor is responsible for identifying and procuring all materials, products, equipment, etc. necessary to complete all of the Work described herein.

PART 3 EXECUTION

3.1 CONTROLS

A. Temporary Fencing

1. The Contractor shall erect temporary construction fencing around all the construction area to protect and restrict access to the site.

2. The Contractor shall be responsible for ensuring that no unauthorized personnel enter the worksite. Authorized persons shall be limited to those employed by the Contractor specifically for this work, and designated Owner's representative(s).

3. The temporary fencing shall be erected and maintained such that it will remain intact and effective in the Contractor's absence during weather

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which can reasonably be expected during the period of the project.

4. The Contractor shall provide the Owner's representative with a means of contacting a Contractor's representative during off hours.

B. Work Completion

1. The temporary fencing, traffic controls and traffic coordination responsibilities are to remain in place for the duration of the project. The fencing and barriers are to be removed only after completion of the work and final inspection of the site as described in the Bid Documents.

*** * * END OF SECTION * * ***

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SECTION 01 57 13
TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 – GENERAL

1.01 SUMMARY

A. Work described in this Section includes beach nourishment, Floating Turbidity Curtain, and Geogrid as required for the completion of work.

1.02 SUBMITTALS

A. Product Submittals

1. Product catalog cuts for products in this section; Floating Turbidity Curtain and Beach Nourishment.
2. Aggregate Materials

B. Quarry spalls for construction entrance.

C. Construction Storm Water Pollution Protection Plan (SWPPP) in accordance with state and local standards prior to construction.

D. Inlet Sediment Trap Materials

E. Turbidity Curtain

1.03 EXISTING SITE FEATURES AND CONDITIONS

A. Comply with Island County and City of Clinton standards.

B. Comply with state of Washington Department of Ecology NPDES General Permit for Construction.

C. Contractor is responsible for preparing the Storm Water Pollution Protection Plan (SWPPP). Contractor to have the SWPPP on-site at all times.

PART 2 – PRODUCTS

2.01 BEACH NOURISHMENT

A. Beach nourishment shall be detailed in Section 35 42 00- Shoreline Protection.

2.02 FLOATING TURBIDITY CURTAIN

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A. Turbidity curtain material shall minimize the migration of silt out into Oyster Bay.

B. Curtain height shall be sufficient to rest on the mudline during highest observed water level. Curtain toe shall be weighted to ensure that the toe rests on the floor during all water levels. It shall be anchored on each end and allowed sufficient space to expand and contract as the water level rises and falls.

C. Curtain shall have a floating absorbent oil boom along the entire length of the boom to absorb any floating contamination coming from the project site.

2.03 SILT FENCE

A. Silt Fence shall be installed as required.

B. Provide Silt Fence per WSDOT standard detail.

PART 3 – EXECUTION

3.01 CONSTRUCTION ENTRANCES

A. The Contractor shall be fully responsible to install and maintain temporary construction entrances at the locations and manner shown on the Drawings.

B. The construction entrance shall be installed at the beginning of construction and maintained for the duration of the project.

C. The construction entrance shall be installed to ensure that all paved areas are kept clean for the duration of the project. Additional measures, such as wash pads, may be required.

3.02 TREATMENT

A. The Contractor shall be required to provide equipment including but not limited to transfer pumps, piping, storage tanks, sediment tanks, and treatment equipment as required for the handling and disposing of silt laden stormwater and trench dewatering to the waters of the State of Washington.

B. Operate in accordance with manufacturer's recommendations.

C. Provide onsite testing for turbidity, oils, and grease.

D. Discharge to the waters of the State per permitting requirements.

3.03 INLET SEDIMENT TRAPS

A. Inlet Sediment Traps shall be installed on all storm drains and inlets adjacent to the project site. Additional inlet sediment traps shall be kept on-site in the event that sediment is observed to pass over furthest trap installed. In this case, install additional sediment traps

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on downstream inlets until no sediment is observed to pass over inlet.

B. Inlet Sediment traps shall be inspected daily.

C. When the depth of accumulated sediment reaches half the height of the internal device, deposits shall be removed and stabilized on-site in accordance with WSDOT Standard Specification Section 8-01.3(16).

3.04 CONTROL OF WATER

A. Install filter fabric inserts on drains.

B. Do not allow silty water to enter storm drain system or adjacent waterway.

C. Dispose of water in accordance with the SWPPP and as described on the Plans.

D. Contractor is responsible for maintaining control of water.

E. If water is found to be contaminated, the Owner and the Owner's representative may require that water be pumped and disposed of off-site.

3.05 TURBIDITY CURTAIN

A. Prior to the start of any earthwork, a turbidity curtain with oil boom will be installed in the water surrounding the project limits to contain turbidity during earthwork and rock removal and subsequent installation of the new structures.

B. Daily inspection of the turbidity curtain shall be accomplished during construction and shall be accomplished following storm events.

C. Repairs to the curtain shall be made immediately and shall be done in accordance with manufacturer's recommendations. Oil boom shall be replaced at the Engineer's discretion and the Contractor's expense.

D. When curtain is removed, it shall be done in accordance with manufacturer's recommendations and in such a manner as to minimize turbidity. Remaining soil particles shall be sufficiently settled before removing the curtain.

3.06 SILT FENCE

A. Silt Fence shall be installed as required.

B. Install Silt Fence per WSDOT standard detail and manufacturer's requirements.

*** * * END OF SECTION * * ***

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SECTION 01 74 19
CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Construction waste management plan.

2. Construction waste recycling.

3. Construction waste adaptive reuse.

1.2 CONSTRUCTION WASTE RECYCLING

A. Use source separation method or co-mingling method suitable to sorting and processing method of selected recycling center. Dispose non-recyclable trash separately into landfill.

B. Source Separation Method: Recyclable materials separated from trash and sorted into separate bins or containers, identified by waste type, prior to transportation to recycling center.

C. Comingling Method: Recyclable materials separated from trash and placed in unsorted bins or container for sorting at recycling center.

D. Materials suggested for recycling include:

1. Packing materials including paper, cardboard, foam plastic and sheeting.

2. Recyclable plastics.

3. Organic plant debris.

4. Earth materials.

5. Native stone and granular fill.

6. Wood with and without embedded nails and staples.

7. Glass.

8. Metals.

9. Equipment oil.

1.3 CONSTRUCTION WASTE ADAPTIVE REUSE

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A. Arrange with processing facility for salvage of construction material and processing for reuse. Do not reuse construction materials on site except as approved in writing by the Engineer.

B. Materials suggested for adaptive reuse include:

1. Lumber suitable for resawing or refinishing.

2. Hardware.

3. Equipment and appliances.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 CONSTRUCTION WASTE COLLECTION

A. Collect construction waste materials in marked bins or containers and arrange for transportation to recycling centers or adaptive salvage and reuse processing facilities.

B. Maintain recycling and adaptive reuse storage and collection area in orderly arrangement with materials separated to eliminate comingling of materials required to be delivered separately to waste processing facility.

C. Store construction waste materials to prevent environmental pollution, fire hazards, hazards to persons and property, and contamination of stored materials.

D. Cover construction waste materials subject to disintegration, evaporation, settling or runoff to prevent polluting air, water and soil.

3.2 CONSTRUCTION WASTE DISPOSAL

A. Deliver construction waste to waste processing facilities. Obtain receipt for deliveries.

B. Dispose construction waste not capable of being recycled or adaptively reused by delivery to landfill, incinerator, or other legal disposal facility. Obtain receipt for deliveries.

*** * * END OF SECTION * * ***

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SECTION 01 74 23
FINAL CLEANING

PART 1 GENERAL

1.1 SUMMARY

This section specifies the final cleaning on the site work performed or affected by the work prior to completion of punch list items. This section also applies to construction site work at offsite facilities and materials storage and fabrication areas.

1.2 PURPOSE

A. The purpose of the cleaning is to clean up from the construction that occurred during the work of this Contract.

B. The site shall be maintained at the highest level of readiness and cleanliness. Take due care that materials purchased under this contract remain undamaged and free of dust and dirt at all times.

1.3 CLEANING REQUIREMENTS

A. Cleaning consists of performing cleaning to remove all foreign material dirt.

B. Replace damaged, defaced, or marred items.

C. Clean site of construction debris to place in original or better condition.

PART 2 PRODUCTS

2.1 CLEANING MATERIALS

Use cleaning materials and processes recommended by the manufacturers of the surfaces to be cleaned.

PART 3 EXECUTION

3.1 DURING CONSTRUCTION and fabrication

A. Clean up waste materials, rubbish, and debris resulting from the operations daily and in a manner such that the waste materials, rubbish, and debris does not come in contact with water or soil.

B. Place waste materials, rubbish, and debris in approved upland disposal site.

C. Oversee cleaning and ensure that grounds are maintained free from accumulations of waste and rubbish.

D. Remove debris from site. Dispose of offsite in an approved, legal disposal site.

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3.2 CLEANING IN ORDER TO achieve SUBSTANTIAL COMPLETION

A. In order for the Engineer to issue Substantial Completion the Contractor shall clean and stabilize the site to allow the Owner to have complete access and use of the site.

3.3 FINAL CLEANING

A. Ensure that no materials have been left at or adjacent to any offsite facilities utilized by Contractor's employees during the course of the work.

B. Remove all equipment from the work area.

C. Ensure that all fabrication and materials storage areas are cleaned, and debris and unused materials are removed.

*** * * END OF SECTION * * ***

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SECTION 01 77 00
CLOSEOUT PROCEDURES

PART 1 GENERAL

1.1 SUBSTANTIAL COMPLETION

A. The Contractor shall submit to the Engineer a written notice when the Contractor believes the work is substantially complete.

B. If the Engineer, Inspector and Consultant concur that work is substantially complete:

1. The Engineer may request of and the Contractor shall prepare and submit to Engineer, a list of items to be completed or corrected as determined by the inspection.
2. The Engineer will issue a Substantial Completion letter, with appropriate conditions, accompanied by a list of the work items to be completed and corrected. Omission of any item from the list shall not relieve the Contractor from responsibility to complete all the work in accordance with the Contract.
3. Owner occupancy of Project or designated portion of Project:
   a. Contractor shall perform final cleaning in accordance with Section 01 74 23.
4. Contractor shall complete all the work listed within the time designated in the letter, or if not so designated within a reasonable time acceptable to the owner.

C. Should the Engineer consider that work is not substantially complete:

1. The Engineer shall notify the Contractor, in writing stating reasons.
2. Contractor shall complete work and send second written notice to the Engineer certifying that Project or designated portion of Project is substantially complete.
3. Work must be substantially complete, as accepted by the Owner.

1.2 PHYSICAL COMPLETION

A. The Contractor shall notify the Engineer when all physical work described in the Project Manual and listed in the Substantial Completion letter is complete.

B. If the Engineer and the Owner concur that work is physically complete:

1. The Engineer will issue a Physical Completion letter, with appropriate conditions, accompanied by a list of the documentation items to be completed and corrected. Omission of any item from the list shall not relieve the Contractor from responsibility to complete all the work in accordance with the Contract.

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1.3 FINAL INSPECTION

A. The Contractor shall submit written certification that:

1. Contract Documents have been reviewed.
2. Work has been completed in accordance with Contract Documents.
3. Equipment and systems have been tested in presence of the Engineer and are operational.
4. Project is completed, and ready for final inspection.

B. The Engineer/ Inspector will make final inspection within a reasonable time after receipt of certification.

C. Should the Engineer/ Inspector consider that work is complete in accordance with requirements of Contract Documents, the Engineer shall request Contractor to make project closeout submittals.

D. Should the Engineer consider that work is not complete:

1. Engineer shall notify Contractor, in writing, stating reasons.
2. Contractor shall take immediate steps to remedy the stated deficiencies and send second written notice to Engineer certifying that work is complete.
3. Engineer/ Inspector will re-inspect work.

1.4 CLOSEOUT SUBMITTALS

A. Guarantees and bonds required by these specifications.

B. Final Testing Report for Protective Lining System

C. At the close of the Contract the Contractor shall:

1. Remove all electrical, sanitary, telephone, water, offices and any other temporary service equipment that may remain.

1.5 FINAL APPLICATION FOR PAYMENT

A. Contractor shall submit final application in accordance with requirements of General Conditions.

1.6 FINAL CERTIFICATE FOR PAYMENT

A. Engineer will issue a Final Certificate of Completion in accordance with provisions of General Conditions.

B. Should final completion be materially delayed through no fault of Contractor, Engineer may issue a Final Certificate for Payment, in accordance with provisions of General Conditions and existing laws.

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1.7 POST-CONSTRUCTION INSPECTION

A. Prior to expiration of the Maintenance Bond, Engineer may make visual inspection of Project in company with Contractor to determine whether correction of work is required, in accordance with provisions of General Conditions.

B. For guarantees beyond one year, Engineer will make inspections at request of Owner, after notification to Contractor.

C. Engineer will promptly notify Contractor, in writing, of any observed deficiencies.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

*** * * END OF SECTION * * ***

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SECTION 01 78 00
CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Substantial completion.
2. Final inspection and reinspection.
3. Closeout submittals.
4. Final payment.

B. Related Sections:

1. Section C-800 - Supplementary Conditions.

1.2 SUBSTANTIAL COMPLETION

A. Contractor:

1. Submit written certification to Engineer that Project or designated portion of Project is substantially complete.
2. Submit list of items to be completed or corrected.

B. Engineer will make an inspection after receipt of Contractor's certification, together with Owner's representative.

C. If it appears to the Engineer that Work is substantially complete:

1. The Owner, with the assistance of the Engineer, shall compile a list of items that remain to be completed or corrected as determined during the inspection. The Owner shall provide this list of corrective items as a 'punch list' to the Contractor on an Owner prepared form.
2. If the Owner and Engineer then consider the Work to be substantially complete, the Owner may issue a Certificate of Substantial Completion letter, with appropriate conditions, accompanied by the 'punch list' of items to be completed and corrected. Omission of any item from the list shall not relieve the Contractor from responsibility to complete all the work in accordance with the Contract.
3. Owner occupancy of Project or designated portion of Project:
   a. Contractor shall perform final cleaning of the site or designated portion of the site.
   b. Owner may use all or part of the Work within the time designated in

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the Certificate of Substantial Completion, upon notice to the insurance company or companies as provided in Article 14.04 of the Standard General and Section C-800 - Supplementary Conditions.

4. Contractor shall complete all the Work within the time designated in the Certificate, or if not so designated within a reasonable time.

D. Should the Engineer consider that Work is not substantially complete:

1. They shall notify the Contractor, in writing, stating reasons.

2. Contractor shall complete Work and send second written notice to Engineer certifying that Project or designated portion of Project is substantially complete.

E. Warranties: Under Article 6.19 of the Standard General and Section C-800 - Supplementary Conditions in connection with any specific portion of Work certified by the Engineer as completed and its use or operation thereof for its intended purpose is assumed by the Owner, the warranty period for such portion of Work shall begin at the date of Substantial Completion for that portion of Work.

1.3 FINAL INSPECTION

A. The Contractor shall submit written certification that:

1. Contract Documents have been reviewed.

2. Work has been completed in accordance with Contract Documents.

3. Equipment and systems have been tested in presence of Owner's representative and are operational.

4. Project is completed and ready for final inspection.

B. Engineer will make final inspection within a reasonable time after receipt of certification.

C. Should Engineer consider that work is complete in accordance with requirements of Contract Documents, he shall request Contractor to make project closeout submittals.

D. Should Engineer consider that Work is not complete:

1. They shall notify Contractor, in writing, stating reasons.

2. Contractor shall take immediate steps to remedy the stated deficiencies, and send second written notice to Engineer certifying that Work is complete.

3. Engineer will re-inspect Work.

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1.4 REINSPECTION COSTS

A. In addition to any overtime inspection due under the Standard General Conditions and Section C-800 - Supplementary Conditions, should Engineer be required to perform second inspections because of failure of Work to comply with original certifications of Contractor, Owner will compensate Engineer for additional services as stated in said article and charge the Contractor for such fees at the Engineer's currently established billing rate.

1.5 CLOSEOUT SUBMITTALS

A. Project Record Documents: As per requirements of the Standard General Conditions and Section C-800 - Supplementary Conditions.

B. Guarantees, Warranties, and Bonds required by these specifications: See Standard General Conditions and Section C-800 - Supplementary Conditions.

C. At the close of the Contract, the Contractor shall remove all electrical, sanitary, telephone, water, offices and any other temporary service equipment that may remain.

D. Deliver evidence of compliance with requirements of governing authorities.

E. Annoted Final Testing, Startup and Operation Plan with all manufacturers' Certificates of Proper Installation.

1.6 FINAL ADJUSTMENT OF ACCOUNTS

A. Submit final statement of accounting to Engineer.

B. Statement shall reflect all uncompleted adjustments:

1. Additions and deductions resulting from:

a. Previous Change Orders.

b. Other Adjustments.

c. Deductions for Uncorrected Work.

d. Penalties and Bonuses.

e. Deductions for Liquidated Damages.

f. Deductions for re-inspections following Final Inspection first request.

2. Unadjusted sum remaining due.

1.7 FINAL APPLICATION FOR PAYMENT

A. Contractor shall submit final application in accordance with requirements of

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Standard General Conditions and Section C-800 - Supplementary Conditions.

1.8 FINAL CERTIFICATE FOR PAYMENT

A. Engineer will issue Final Certificate in accordance with provisions of Standard General Conditions and C-800 - Supplementary Conditions.

B. Should final completion be materially delayed through no fault of Contractor, Engineer may issue a Final Certificate for Payment, in accordance with provisions of Standard General Conditions and Section C-800 - Supplementary Conditions and existing laws.

1.9 POST CONSTRUCTION INSPECTION

A. Owner will promptly notify Contractor in writing of any observed deficiencies.

B. Contractor shall promptly correct any deficiencies noted prior to the end of the warranty period. Maintenance Bond will not be released until such deficiencies are corrected to the satisfaction of the Engineer.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

*** * * END OF SECTION * * ***

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SECTION 01 78 39
RECORD DRAWINGS AND INFORMATION

PART 1 GENERAL

1.1 MAINTENANCE OF DOCUMENTS

A. Maintain at job site, one copy of:

1. Contract Drawings.
2. Project Manual.
3. Addenda.
4. Reviewed Shop Drawings.
5. Change Orders.
6. Other Modifications to Contract.
7. Field Test Records.
8. Maintenance Data Delivered with Equipment.

B. Store documents in field office, apart from documents used for construction:

1. Provide files and racks for storage of documents.
2. Maintain documents in clean, dry, legible condition.
3. Do not use record documents for construction purposes.
4. Make documents available at all times for inspection by Engineer and Owner.

1.2 RECORDING

A. Do not permanently conceal any work until required information has been recorded.

B. Keep documents current with changes recorded in legible red ink.

C. Contract Drawing: Legibly mark to record actual construction:

1. Depths of various elements of foundation in relation to variances from plan.
2. Horizontal and vertical location of underground utilities and appurtenances and references to permanent surface improvements.
3. Field changes of dimension and detail.
4. Changes made by Change Order or Field Order.
5. Details not on original Contract Drawings.

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6. Piling installation depths and final impact energy

7. Piling cutoff elevation

8. As-built survey

D. Specifications and Addenda: Legibly mark up each section to record:

1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.

2. Changes made by Change Order or Field Order.

3. Other matters not originally specified.

E. Shop Drawings: Maintain as record documents; legibly annotate drawings to record changes made after review.

1.3 SUBMITTAL

A. At completion of project, deliver record documents to Engineer.

B. Accompany record documents submittal with transmittal letter, in duplicate, signed by the Contractor, or his authorized representative.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

*** * * END OF SECTION * * ***

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SECTION 02 41 00
SITE DEMOLITION

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. This section includes Work related to the following:

1. Demolition of timber piers and pavement.

1.2 RELATED SECTIONS

A. Section 31 20 00 – Earthwork

1.3 REFERENCES

A. City of Clinton

Public Works Standards, most current version

B. Washington Department of Transportation (WSDOT)

Standard Specifications – Standard Specifications for Road, Bridge, and Municipal Construction, most current version

1.4 SUBMITTALS

A. Record Drawings

1. Contractor shall accurately record actual as-built locations of pipe runs, connections, and invert elevations. Identify and accurately locate capped utilities and other subsurface structural, electrical, or mechanical conditions.

2. Contractor shall identify and describe unexpected variations to subsoil conditions or discovery or uncharted utilities.

3. Record drawings shall be prepared by the Contractor per City of Clinton and Island County requirements.

1.5 DEFINITIONS

A. Remove

1. Remove and legally dispose items except those indicated to be reinstalled, salvaged, or to remain the ports property.

1.6 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with City of Clinton and Island County requirements.

1.7 PRODUCTION CONDITIONS

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A. The port assumes no responsibility for actual condition of utility structures, site improvements and pavements to be demolished.

1.8 MATERIAL OWNERSHIP

A. All demolished materials shall become the property of the Contractor and shall be removed from the site and disposed of legally.

PART 2 PRODUCTS

2.1 PRODUCTS

A. Select on-site material: Per Section 31 20 00 – Earthwork.

PART 3 EXECUTION

3.1 EXAMINATION

A. Contractor shall verify erosion control is in place and operating properly.

B. Contractor shall survey the condition of utilities, site improvements and pavements to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of adjacent structures during demolition.

C. Contractor shall perform surveys as the Work progresses to detect hazards resulting from demolition activities prior to starting any work.

3.2 PREPARATION

A. Elements surrounding Work of this section shall be protected from damage or disfiguration.

B. Existing utilities shall be protected from damage and disturbance. Provide shoring to support existing utilities and their support prism or remove and replace utilities where shoring is not practical. Removing and replacing to be performed per utility the port standards.

C. Existing to Remain

1. Elements to remain shall be protected by the Contractor against damage and soiling during demolition. When permitted by the port, items may be removed to suitable, protected storage location during demolition then cleaned and reinstalled in original locations.

D. Barriers and barricades shall be erected by the Contractor to direct and protect adjacent traffic.

E. Existing utilities shall be located to avoid damage or disturbance. For aid in utility location, Contractor shall call 811 or 1-800-424-5555, 48 hours (two working days) prior to beginning construction. Employ and pay for a locator service to locate and mark utilities in addition to the “Dial Dig” service.

F. Contractor shall advise City Fire Marshal, Water Department and the City of Clinton proposed water shut off that will affect hydrants, fire sprinkler systems,

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alarm systems, and other services. All fire hydrants shall be marked “not in service” by covering with burlap sack.

G. Utility entities that remove and disconnect utilities with their own workforce (gas, power, telephone) shall be contacted by the Contractor to perform utility disconnections.

3.3 DEMOLITION

A. Contractor shall demolish improvements designated on the plans.

B. Contractor shall conduct demolition operations and remove debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities. Streets, walks, or other adjacent occupied or used facilities shall not be obstructed without permission from the port. Provide alternate routes around closed or obstructed traffic way if required.

C. Contractor shall conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain. Ensure safe passage of people around demolition area.

D. Use of explosives shall not be permitted.

E. Contractor shall promptly repair damages to adjacent facilities caused by demolition operations. Repair of damaged property shall be completed to bring the damaged item to equal or better condition than existing condition, at Contractor’s

3.4 EXCAVATION

A. Any excavation done by the Contractor will be observed by the port and its representatives.

B. Extent of excavation to be performed shall be determined by:

1. As needed per the Drawings
2. As needed per the Contractor’s Construction Plan.

C. Utilities – Contractor shall:

1. Locate, identify, disconnect, and seal or cap off utilities to be demolished.
2. Remove all utilities noted. No utilities shall be abandoned in place.
3. Demolish all structures and backfill with structural fill.
4. Remove and dispose of demolition debris to a Contractor-provided, off-site disposal location.

D. Pavement Demolition – Contractor shall:

1. Break up pavements and dispose of demolition debris to Contractor provided off-site disposal location.
2. Contractor shall not reuse demolished pavement on site.

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E. Filling Depressions and Grading:

1. Contractor shall fill depressions and holes caused by the demolition of utilities and structures. Use structural fill. Compact material to 90-percent maximum dry density as described in Section 31 20 00 – Earthwork.

2. Contractor shall grade and shape area within limits of Work indicated on Drawings to provide positive drainage and avoid ponding as indicated per Section 31 20 00 – Earthwork.

3.5 FIELD QUALITY CONTROL

A. Contractor shall comply with City of Clinton and Island County requirements.

B. Tests – The port shall provide for compaction testing:

1. Sub-grade, prior to filling.

2. Filling and grading as work progresses.

C. Inspection – The port shall observe the Work at the following milestones:

1. After utility disconnect and before demolition.

2. After completion of demolition, and before grading.

3.6 CLEANING

A. Contractor shall dispose of surplus or unsuitable material.

B. Waste, surplus, and unsuitable materials shall be disposed of by the Contractor according to laws, regulations, and ordinances off-site at a site obtained by Contractor.

3.7 IN-WATER DEMOLITION

A. All in-water demolition work shall be conducted during low tides when water levels are 3 less than 3 feet to limit impact to water quality and to avoid underwater noise impacts as mandated by the permit.

B. Any piles that break on removal shall be cut off at or below the mudline.

C. Creosote piles will be cut up into sections and disposed of at an appropriate facility.

D. Piles will be removed using a vibratory hammer.

E. As piles are pulled from the sediments, they will be quickly placed upland to minimize potential releases of creosote, petroleum sheens, and turbidity to the waterways.

3.8 DISPOSAL

A. All materials shall be disposed of offsite unless otherwise noted on the plans. The Contractor shall provide the port with the locations of all disposal sites to be used and copies of applicable permits and approvals for each site.

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B. Prior to disposal of soils, the Contractor shall provide the port with the locations of all disposal sites to be used and copies of applicable permits and approvals for each site.

C. Burning shall not be allowed at the designated disposal site.

*** * *END OF SECTION* * ***

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SECTION 03 30 00
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. Work in this section includes the following:

1. The Work under this Section includes providing all labor, materials, tools and equipment necessary for furnishing and installing cast-in-place concrete for concrete abutment modification and Sonotube placement.

1.2 RELATED SECTIONS

A. Section 01 57 13 – Temporary Erosion and Sedimentation Control

B. Section 31 20 00 – Earthwork

1.3 REFERENCES

A. ACI (American Concrete Institute) Manual of Concrete Practice, most current edition

B. ACI 347 Recommended Practice for Concrete Formwork, most current edition

C. AASHTO (American Association of State Highway and Transportation Officials), most current edition

D. AASHTO M251 Standard Specification for Plain and Laminated Elastomeric Bridge Bearings, most current edition

E. ASTM International (ASTM)

F. ASTM A615 Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement, most current edition

ASTM A706 Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement, most current edition

ASTM A767 Standard Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement, most current edition

ASTM A1064 Standard Specification for Steel Wire, Plain, For Concrete Reinforcement, most current edition

ASTM C31 Standard Practice for Making and Curing Concrete Test Specimens in the Field, most current edition

ASTM C33 Standard Specification for Concrete Aggregates, most current edition

ASTM C94 Standard Specification for Ready-Mixed Concrete, most current edition

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ASTM C143 Standard Test Method for Slump of Hydraulic-Cement Concrete, most current edition

ASTM C150 Standard Specification for Portland Cement, most current edition

ASTM C260 Standard Specification for Air-Entraining Admixtures for Concrete, most current edition

ASTM C494 Standard Specification for Chemical Admixtures for Concrete, most current edition

ASTM C719 Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle) , most current edition

ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers – Tension, most current edition

ASTM D994 Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type), most current edition

ASTM D1752 Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction, most current edition

ASTM D2240 Standard Test Method for Rubber Property – Durometer Hardness, most current edition

G. Island County Municipal Code

H. Washington State Department of Transportation (WSDOT)

Standard Specification for Road, Bridge, and Municipal Construction; and Amendments, most current version.

Standard Plans for Road, Bridge, Municipal Construction; and Amendments, most current version.

1.4 SUBMITTALS

A. Delivery tickets for all concrete delivered to the site

B. Concrete Mix Design. Mix design shall include manufacturer's data stating material properties, installation instructions for all materials included in the concrete mix design. Manufacturer's data shall demonstrate that is in conformance to all specifications and standards outlined in these specifications and referenced standards.

C. Material certificates certifying conformance to ASTM C150.

D. Material certificates and sieve analysis for aggregates.

E. Slump Test results for each load of concrete delivered to the project site in conformance with ASTM C143

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F. Air Entrainment test results for each load of concrete delivered to the project site in conformance with ASTM C260

G. Material certificates for any other admixtures used.

H. Material test reports consisting of one set of test cylinders for every 50 cubic yards of concrete delivered to the site, with the creation of the cylinders as directed in ASTM C31.

I. Manufacture's product data for waterstops, bonding agents, vapor retardants, joint filler, curing materials, anti-graffiti coatings, and floor treatments.

J. Shop drawings for proposed locations of additional construction or control joints not shown on the structural joints.

K. Minutes from pre-installation conference

PART 2 PRODUCTS

2.1 COMPOSITION OF CONCRETE

A. All Portland cement concrete shall be ready mix, provided by an approved plant regularly engaged in the production of concrete, unless otherwise authorized in writing by the Engineer. Ready mix concrete shall conform to the requirements of ASTM C94.

B. The Contractor shall furnish the mix design to the Engineer for approval. The mix design shall be suitable for its intended use. Concrete shall be designed using an absolute volume analysis. The Contractor shall be responsible for having each mix laboratory tested. Prior to the start of production of any mix design, the Contractor shall submit test results and certifications for all materials, detailed mix design data and results of laboratory tests to the Engineer for approval. Approval by the Engineer will be based on apparent conformity to these specifications. It shall remain the Contractor's responsibility during production to produce concrete conforming to the mix design and the minimum acceptance criteria in the contract. When requested by the Engineer, the Contractor shall submit samples of all materials for verification testing. Production shall not commence until the mix design is approved by the Engineer.

C. Do not use concrete containing chlorides

2.2 MIX CRITERIA

A. Concrete mix design and testing shall meet the requirements of the building, code, and specifications. All concrete mixes shall be designed by a recognized testing lab stamped and sealed by a licensed civil engineer in the state where the work is being performed and submitted to the Engineer of Record for review prior to concrete placement. Structural concrete mixes shall consist of 5 sack minimum, unless notified otherwise.

B. Cast in Place (C.I.P.)

1. All cast-in-place concrete for bulkhead cap, slabs, signposts, bollards,

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and fence posts shall be standard weight, Portland cement concrete appropriately proportioned to meet or exceed the following minimum requirements for strength and serviceability.

2. Minimum 28-day compressive strength f'c= 4,500 psi

3. Maximum water cement ratio = 0.45

4. Air Entrainment = 4% to 8%

5. Slump:

i. Foundation and Slab on Grade = 4" Max

ii. All other concrete = 6" max.

6. Maximum dry unit weight of lightweight concrete shall be 115 PCF, unless approved by the E.O.R.

7. Lean concrete where specifically indicated, shall contain 2 sacks of cement per cubic yard of concrete.

C. Cast-In-Place Grout

1. Drypack of non-shrink grout shall have a minimum 28 day compressive strength of 500 psi, and consist of Masterflow 713, Five Star grout, Sika Grout 212, or approved equal. For thick grout layers follow manufacturer's guidelines to attain the required strength, which may include the addition of pea gravel.

D. Mixture Substitutions

1. Fly ash or other pozzolans conforming to ASTM C618 class N or F may be used as a partial substitution for Portland cement up to a maximum of 25% total cementitious materials by weight if the mix design is proportioned by method B or C.

2.3 AGGREGATES

A. Aggregates shall conform to ASTM C33 (hardrock), with maximum aggregate size as follows:

Location	**Max. Aggregate Size**
Foundations	1.5"
Slab on Grade	1.0"
All Other Structural Concrete	1.0"

B. Aggregates in light weight concrete shall conform to ASTM C-330.

C. Aggregates shall be stored so as to prevent deterioration, segregation and intrusion of foreign material.

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2.4 ADMIXTURES

A. Any additives must have prior approval of the Engineer before being used.

B. Admixtures, if used, including water reducers, retarders, and accelerators, shall conform to ASTM C494. Calcium chloride shall not be used. All admixtures used shall be submitted for approval with the Concrete Mix Design.

2.5 AIR ENTRAINING AGENTS

A. Air entraining mixtures shall conform to ASTM C260.

2.6 PORTLAND CEMENT

A. Portland cement shall be ASTM C150 Type II.

2.7 MIXING WATER

A. Water used for the mixing of concrete shall be potable and be free of foreign materials. Water containing 2 percent or more salt shall not be used.

2.8 SHIPPING AND STORAGE OF CEMENT

A. Cement may be shipped from pretested approved bins. The cement shall be well protected from rain and moisture, and any cement damaged by moisture or which fails to meet any of the specified requirements shall be rejected and removed from the work.

B. Cement stored by the Contractor for a period longer than sixty (60) days in other than sealed bins or silos shall be retested before being used. Cement of different brands, types, or from different mills shall be stored separately.

2.9 EXPANSION JOINT MATERIAL

A. Pre-formed expansion joint material for driveways, sidewalks, etc. shall be asphalt impregnated fiber, conforming to ASTM D994, full depth of joint, ½-inch-thick. A.P.S Fiber Board or Engineer approved equal.

2.10 EXPANSION JOINT SEALANT

A. Sealant shall be one part cold applied non-sagging silicone. Movement shall be +100% / 50% per ASTM C719. Dow Corning NS Parking Structure Sealant or Engineer approved equal. Depth of sealant shall be half (1/2) the joint width, utilizing closed-cell foam rod under the sealant.

2.11 FORMS

A. Forms shall be so designed and constructed that they may be removed without injuring the concrete.

B. Unless otherwise specified, forms for exposed surfaces shall be made of plywood, hard pressed fiberboard, sized and dressed tongue and groove lumber, or metal in which all bolt and rivet holes are countersunk, so that a plane, smooth surface of the desired contour is obtained. Rough lumber may be used for

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surfaces that will not be exposed in the finished structure. All lumber shall be free from knotholes, loose knots, cracks, splits, warps, or other defects affecting the strength or appearance of the finished structure. All forms shall be mortar tight, free of bulge and warp, and shall be cleaned thoroughly before reuse.

C. In designing forms and falsework, the Contractor shall design formwork to resist the applied concrete loading based on the equations and procedures outlined in ACI 347.

D. The Contractor shall state the placement rate and minimum concrete temperature on the working drawings for concrete form work. Deflection of plywood, studs, and walers shall not exceed 1/360 of the span between supports.

E. Forms shall be so designed that placement and finishing of the concrete will not impose loads on the structure resulting in adverse deflections or distortions.

F. The forms shall be so designed that portions covering concrete that is required to be finished may be removed without disturbing other portions that are to be removed later. As far as practicable, form marks shall conform to the general lines of the structure.

G. When possible, forms shall be daylighted at intervals not greater than 10 feet vertically, the openings being sufficient to permit free access to the forms for the purpose of inspecting, and working.

H. Metal ties or anchorages within the forms shall be so constructed as to permit their removal to a depth of at least 1-inch from the face without injury to the concrete. All fittings for metal ties shall be of such design that, upon their removal, the cavities which are left will be of the smallest possible size.

I. All exposed edges 90 degrees Fahrenheit or sharper shall be chamfered 3/4-inch unless otherwise noted. Chamfering of forms for reentrant angles shall be required only when specifically indicated on the Plans.

J. Forms shall be inspected immediately prior to the placing of concrete. Dimensions shall be checked carefully and any bulging or warping shall be remedied and all debris and standing water within the forms shall be removed. Special attention shall be paid to ties and bracing and where forms appear to be braced insufficiently or built unsatisfactorily, either before or during placing of the concrete, the Engineer shall order the work stopped until the defects have been corrected.

K. Forms shall be constructed true to line and grade. Clean out ports shall be provided at construction joints.

L. The construction of concrete slabs with permanent steel forms shall conform to the requirements of this specification and as shown on the plans. Removable forms may be substituted for permanent metal forms with no adjustment in prices.

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M. All forms shall be installed in accordance with approved fabrication and erection plans.

N. All porous forms shall be treated with non-staining form oil or saturated with water immediately before placing concrete.

O. Forms shall not be removed without the consent of the Engineer. The Engineer's consent shall not relieve the Contractor of responsibility for the safety of the work. Blocks and bracing shall be removed at the time the forms are removed and in no case shall any portion of the wood forms be left in the concrete.

PART 3 EXECUTION

3.1 GENERAL

A. Concrete shall be mixed, placed and cured in accordance with ACI 318 latest edition and these specifications.

B. Concrete mixing operations shall conform to ASTM C94.

C. All concrete shall be placed before it has taken its initial set and, in any case, within 90 minutes after mixing. Concrete shall be placed in such manner as to avoid segregation of coarse or fine portions of the mixture, and shall be spread in horizontal layers when practicable. Special care shall be exercised in the bottom of slabs and girders to assure the working of the concrete around nests of reinforcing steel, so as to eliminate rock pockets or air bubbles. Enough rods, spades, tampers and vibrators shall be provided to compact each batch before the succeeding one is dumped and to prevent the formation of joints between batches.

D. No concrete which has developed an initial set shall be used. Partially hardened concrete shall not be retempered or remixed.

E. Placement of concrete shall only occur after reinforcement placement has been inspected and approved by the Engineer or their representative.

F. The Engineer shall be notified of any concrete casting no later than 48 hours before any concrete pour.

G. The forms shall be free of all ice and debris. No standing water shall be permitted inside of the forms.

H. Vibrating shall be done along all faces to obtain smooth surfaces. Care shall be taken to prevent mortar from splattering on forms and reinforcing steel and from drying ahead of the final covering with concrete.

I. Concrete shall not be placed in slabs or other sections requiring finishing on the top surface when precipitation is occurring or when in the opinion of the Engineer precipitation is likely before completion of the finishing, unless the Contractor shall have ready on the job all materials and equipment necessary to protect the concrete and allow finishing operations to be completed.

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J. Troughs, pipes, or short chutes used as aids in placing concrete shall be arranged and used in such a manner that the ingredients of the concrete do not become separated. Where steep slopes are required, troughs and chutes shall be equipped with baffle boards or shall be in short lengths that reverse the direction of movement. All chutes, troughs, and pipe shall be kept clean and free of hardened concrete by flushing thoroughly with water after each run. Water used for flushing shall be discharged clear of the concrete in place. Troughs and chutes shall be of steel or plastic or shall be lined with steel or plastic and shall extend as nearly as possible to the point of deposit. The use of aluminum for pipes, chutes or tremies is prohibited. When discharge must be intermittent, a hopper or other device for regulating the discharge shall be provided.

K. Dropping the concrete a distance of more than 5 feet or depositing a large quantity at any point and running or working it along the forms will not be permitted. The placing of concrete shall be so regulated that the pressures caused by wet concrete shall not exceed those used in the design of the forms. Concrete shall not be dropped through reinforcing steel (as in Sonotube) so as to cause segregation of aggregates. In such cases, hoppers and vertical chutes or trunks shall be used. Chutes or trunks shall of variable lengths so that free unconfined fall of concrete shall not exceed six feet. A sufficient number of chutes or trunks shall be used to ensure the concrete is kept level at all times.

L. High frequency internal vibrators of either the pneumatic, electrical, or hydraulic type shall be used for compacting concrete in all structures. The number of vibrators used shall be ample to consolidate the fresh concrete within fifteen (15) minutes of placing in the forms. In all cases, the Contractor shall provide at least two concrete vibrators for each individual placement operation (one may be a standby), which shall conform to the requirements of these specifications. Prior to the placement of any concrete, the Contractor shall demonstrate that the two vibrators are in good working order and repair and ready for use.

M. The vibrators shall be an approved type, with a minimum frequency of 5,000 cycles per minute and shall be capable of visibly affecting a properly designed mixture with a 1-inch slump for a distance of at least 18 inches from the vibrator.

N. Vibrators shall not be held against forms or reinforcing steel nor shall they be used for flowing the concrete or spreading it into place. Vibrators shall be so manipulated as to produce concrete that is free of voids, is of proper texture on exposed faces, and of maximum consolidation. Vibrators shall not be held so long in one place as to result in segregation of concrete or formation of laitance on the surface.

O. Concrete shall be placed continuously throughout each section of the structure or between indicated joints. If, in an emergency, it is necessary to stop placing concrete before a section is completed, bulkheads shall be placed as the Engineer may direct and the resulting joint shall be treated as a construction joint.

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P. The presence of areas of excessive honeycomb may be considered sufficient cause for rejection of a structure. Upon written notice that a given structure has been rejected, the rejected work shall be removed and rebuilt, in part or wholly as specified, at the Contractor's expense.

Q. See structural plans for locations of slab slopes and other embedded items.

3.2 SAMPLING AND TESTING

A. Third Party field tests of all concrete shall be performed by the port. Minimum testing shall consist of a unit weight test, slump test, and air-entrainment test for each delivery of concrete to the site, and three concrete cylinder compressive tests, two 28-day and one 7-day, for every 50 cubic yards or every 3 deliveries to the site, whichever will result in the least testing. The same test shall be require for prestressed concrete except that four compressive test cylinders shall be required, two release strength cylinders and two 28-day cylinders. All testing shall be performed under the provisions of ACI and ASTM. Compressive strength reports shall be submitted to the building department and Engineer of Record.

B. Additional cylinders may be required, if an error in batching is suspected.

C. Materials that fail to meet contract requirements, as indicated by laboratory tests, shall not be used in the Work. The Contractor shall remove all defective materials from the site.

D. Types and sizes of concrete specimens shall be in accordance with ASTM C 31. Additional slump tests and/or test cylinders may be required at the discretion of the Engineer. Should the analysis of any test cylinder not meet the preceding requirements of Article 2.10, Composition of Concrete, its representative concrete shall be removed and replaced at the Contractor's expense.

E. One hard copy, and one electronic copy via email, of all test reports shall be furnished to the Engineer.

F. Measure slump prior to the addition of superplasticizers, where applicable.

3.3 PUMPING CONCRETE

A. Concrete may be placed by pumping if the Contractor demonstrates that the pumping equipment to be used will effectively handle the particular class of concrete with the slump and air content specified and that it is so arranged that no vibrations result that might damage freshly placed concrete. The operation of the pump shall be such that a continuous stream of concrete without air pockets is produced.

B. When pumping is completed, the concrete remaining in the pipeline, if it is to be used, shall be ejected in such a manner that there will be no contamination of the concrete or separation of the ingredients. After this operation, the entire equipment shall be thoroughly cleaned. Slump tests shall be taken at the discharge end of the pipe.

3.4 PLACING GROUT

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A. Deck panel keyways shall have a sandblasted surface, and be clean and dust-free, leaving a non-carbonated substrate. Mix grout with manufacturer's recommended water quantity. Do not add additional water. Grout may be extended by adding up to 30 pounds of clean pea gravel per 50-pound bag of grout. Sample pea gravel shall be sent to grout manufacturer's lab for inspection and approval prior to use on the project.

B. Keyways shall be aggressively sandblasted prior to deck panel delivery to the job. Prior to installing grout, clean sandblasted surface free of dust and dirt using high-pressure potable water. Check adequacy of preparation with H2SO4 indicator to assure complete removal of carbonated substrate prior to grouting.

C. Avoid allowing air pockets to form while placing grout. Clean all spilled grout from deck surface immediately. Always flow grout in one direction while filling the keyways. Vacuum remove standing water encountered while grouting. Final surfaces shall be of uniform texture with surrounding concrete.

3.5 CONSTRUCTION JOINTS

A. Construction joints shall be located where shown on the plans or as permitted by the Engineer. Construction joints shall be perpendicular to the principal lines of stress and in general shall be located at points of minimum shear.

B. Construction joints shall have formed pour stops.

C. Construction joints in slab need not occur at the same location.

D. At horizontal construction joints, gage strips 1-1/2 inches thick shall be placed inside the forms along all exposed faces to give the joints straight lines. Before placing fresh concrete, the surfaces of construction joints shall be washed and scrubbed with a wire broom, drenched with water until saturated, and kept saturated until the new concrete is placed.

E. Immediately prior to placing new concrete the forms shall be drawn tight against the concrete already in place. Concrete in substructures shall be placed in such manner that all horizontal construction joints will be truly horizontal and, if possible, in locations such that they will not be exposed to view in the finished structure. Where vertical construction joints are necessary, reinforcing bars shall extend across the joint in such a manner as to make the structure monolithic. Special care shall be taken to avoid construction joints through large surfaces which are to be treated architecturally.

F. All construction joints shall be provided with concrete shear keys at least 1-1/2 inches deep and 1/3 of the concrete thickness in width, unless otherwise shown on the plans.

3.6 CRACK CONTROL JOINTS

A. Crack Control Joints shall be installed as shown on the Drawings or where designated by the Engineer.

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B. Crack control joints shall be spaced at 5 feet on center, between expansion joints.

C. Crack Control Joints shall be straight and true. Crack Control Joints shall have a formed crack a minimum of ¼ of the concrete thickness and may be formed using a plastic strip anchored to the form or other method approved by the Engineer. Slabs may be saw cut ¼ of the concrete thickness before curing.

D. Construction joints shall be cleaned and roughened by removing the entire surface to expose clean aggregate solidly embedded in the mortar matrix. Slush with a coat of neat cement before placing concrete. See plans and details for location and type of construction joint. Locations of additional construction joints not shown on these plans shall be submitted for approval by the e.o.r prior to placing any concrete.

3.7 EXPANSION JOINTS

A. Full depth expansion joints shall be spaced at a minimum interval of 30 feet on center, with a half depth expansion joint at 15 feet intervals between full depth expansion joints.

B. Open Joints. Open joints shall be placed in the location shown on the plans and shall be formed. The form shall be removed without chipping or breaking the corners of the concrete. Reinforcement shall not extend across an open joint, unless so specified on the plans.

C. Filled Joints. Unless otherwise shown on the plans, expansion joints shall be constructed with pre-molded expansion joint filler with a thickness equal to the width of the joint.

D. The joint filler shall be cut to the same shape and size as the adjoining surfaces. It shall be fixed firmly against the surface of the concrete already in place in such manner that it will not be displaced when concrete is deposited against it.

E. Immediately after the forms are removed, the expansion joints shall be inspected carefully. Any concrete or mortar that has sealed across the joint shall be removed.

F. Joint sealer for use in deck joints shall be of the type shown on the plans conforming to the requirements of Article 2.4 – Joint Fillers, of this Section. The faces of all joints to be sealed shall be free of foreign matter, paint, curing compound, oils, greases, dirt, free water, and laitance.

G. Steel Joints

1. The plates, angles, or other structural shapes shall be accurately shaped at the shop to conform to the section of the concrete slab. The fabrication and painting shall conform to the requirements of the specifications covering those items. Care shall be taken to insure that the surface in the finished plane is true and free of warping. Positive methods shall be employed in placing the joints to keep them in correct position during the

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placing of the concrete. The opening at expansion joints shall be that designated on the plans at normal temperature.

3.8 FINISHING CONCRETE SURFACES

A. All Joints shall be edged with a quarter inch (1/4") radius edger, and sidewalk edges with a half-inch (1/2") radius edger as directed by the Project Engineer in the field.

B. All concrete surfaces, with the exception of those described below, exposed in the completed Work shall receive a finish as described in the Concrete Finishing Schedule (Table 03 30 00 – 3.09A), unless otherwise noted on the plans or in other Specification sections.

C. An Ordinary Finish is defined as the finish left on a surface after the removal of the forms, the filling of all holes left by form ties, and the repairing of all defects. The surface shall be true and even, free from stone pockets and depressions or projections. All surfaces that cannot be satisfactorily repaired shall be given a Rubbed Finish.

D. After striking off and consolidating concrete, smooth surface by screening and floating. Use hand methods only where mechanical floating is not possible. Adjust floating to compact surface irregularities, and refloat repaired area to provide a continuous smooth finish.

E. After completion of floating and trowelling when excess moisture or surface sheen has disappeared, complete a medium broom finish as follows:

1. After completion of floating and when excess moisture of surface sheen has disappeared, complete surface finishing.

2. Draw a fiber or wire broom across concrete surface, perpendicular to the line of traffic or as noted on the Drawings. Broom out trowel edges. The Project Engineer's decision will be final on acceptance of joint finishing details and surface finishes. The concrete in abutment modification shall be struck off with a straightedge and floated to true grade. The use of mortar topping for concrete surfaces shall in no case be permitted.

F. As soon as the forms are removed, metal devices that have been used for holding the forms in place, and which pass through the body of the concrete, shall be removed or cut back at least 1-inch beneath the surface of the concrete. Fins of mortar and all irregularities caused by form joints shall be removed.

G. All small holes, depressions, and voids that show upon the removal of forms shall be filled with cement mortar mixed in the same proportions as that used in the body of the work. In patching larger holes and honeycombs, all coarse or broken material shall be chipped away until a dense uniform surface of concrete exposing solid coarse aggregate is obtained. Feathered edges shall be cut away to form faces perpendicular to the surface. All surfaces of the cavity shall be saturated thoroughly with water, after which a thin layer of neat cement mortar shall be applied. The cavity shall then be filled with stiff mortar composed of one

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part of Portland cement to two parts of sand, which shall be thoroughly tamped into place. The mortar shall be pre-shrunk by mixing it approximately 20 minutes before using. The length of time may be varied in accordance with brand of cement used, temperature, humidity, and other local conditions. The surface of this mortar shall be floated with a wooden float before initial set takes place and shall be neat in appearance. The patch shall be kept wet for a period of five days.

H. For patching large or deep areas, coarse aggregate shall be added to the patching material. All mortar for patching on surfaces which will be exposed to view in the completed structure shall be color matched to the concrete. Test patches for color matching shall be conducted on concrete that will be hidden from view in the completed work and shall be subject to approval.

3.9 COLD WEATHER CONCRETE AND CONCRETE CURING

A. Maintain concrete above 50 degrees Fahrenheit and in a moist condition for a minimum of 7 days after placement unless otherwise accepter by the ENGINEER.

B. Concrete shall not be placed when the descending air temperature in the shade, away from artificial heat, falls below 40 degrees Fahrenheit nor resumed before the ascending air temperature reaches 35 degrees Fahrenheit, without specific written authorization. When the air temperature falls below 40 degrees Fahrenheit, or is, in the opinion of the Engineer, likely to do so within a 24-hour period after placing concrete, the Contractor shall have ready on the job materials and equipment required to heat mixing water and aggregate and to protect freshly placed concrete from freezing.

C. Concrete placed at air temperatures below 40 degrees Fahrenheit shall have a temperature not less than 50 degrees Fahrenheit nor greater than 70 degrees Fahrenheit when placed in the forms. These temperatures shall be obtained by heating the mixing water and/or aggregate. Mixing water shall not be heated to more than 160 degrees Fahrenheit.

D. Binned aggregates containing ice or in a frozen condition will not be permitted nor will aggregates which have been heated directly by gas or oil flame or heated on sheet metal over an open fire. When aggregates are heated in bins, only steam coil or water coil heating will be permitted, except that other methods, when approved, may be used. If live steam is used to thaw frozen aggregate piles, drainage times comparable to those applicable for washed aggregates shall apply.

E. When the temperature of either the water or aggregate exceeds 100 degrees Fahrenheit, they shall be mixed together so that the temperature of the mix does not exceed 80 degrees Fahrenheit at the time the cement is added.

F. When placing concrete in cold weather, the following precautions shall be taken in addition to the above requirements:

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1. Heat shall be applied to forms and reinforcing steel before placing concrete as required to remove all frost, ice, and snow from all surfaces which will be in contact with fresh concrete.

2. When fresh concrete is to be placed in contact with hardened concrete, the surface of the previous pour shall be warmed to at least 35 degrees Fahrenheit, thoroughly wet, and free water removed before fresh concrete is placed.

3. Freshly placed concrete shall be maintained at a temperature of not less than 70 degrees Fahrenheit for three (3) days or not less than 50 degrees Fahrenheit for five (5) days, when Type I or II cement is used, and not less than 70 degrees Fahrenheit for two (2) days or not less than 50 degrees Fahrenheit for three (3) days, when Type III cement is used. The above requirements are not intended to apply during the normal summer construction season when air temperatures of 40 degrees Fahrenheit or higher can reasonably be anticipated during the two week period immediately following concrete placement, or until the concrete is no longer in danger from freezing.

G. When temperatures below 20 degrees Fahrenheit are not expected during the curing period and, in the opinion of the Engineer, no other adverse conditions, such as high winds, are expected, concrete temperatures may be maintained in thick concrete sections by retention of heat of hydration by means of adequately insulated forms.

H. When, in the opinion of the Engineer, greater protection is required to maintain the specified temperature, the fresh concrete shall be completely enclosed and an adequate heat source provided. Such enclosure and heat source shall be so designed that evaporation of moisture from the concrete during curing is prevented. Precautions shall be taken to protect the structure from overheating and fire.

I. At the end of the required curing period protection may be removed, but in such a manner that the drop in temperature of any portion of the concrete will be gradual and not exceed 30 degrees Fahrenheit in the first 24 hours.

J. For concrete placed within cofferdams and cured by flooding with water, the above conditions may be waived provided that the water in contact with the concrete is not permitted to freeze. Dewatering shall not be carried out until the Engineer determines that the concrete has cured sufficiently to withstand freezing temperatures and hydrostatic pressure.

K. The Contractor shall be wholly responsible for the protection of the concrete during cold weather operations. Any concrete injured by frost action or overheating shall be removed and replaced at the Contractor's expense.

3.10 CURING COMPOUND

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A. Curing compound used on concrete that is to receive finishes shall be compatible with tile and adhesives or grouts in accordance with manufactures data and be approved for use.

3.11 BACKFILLING AND PROTECTION AGAINST LOADS

A. Prior to erecting any elements that load the foundation, concrete must reach an unconfined compression strength of 2000 psi minimum as determined by testing or previously documented data for the mix design used under similar conditions, and must be allowed to cure for a minimum of 3 days.

3.12 CLEANUP

A. Upon completion of the structure and before final acceptance, the Contractor shall remove all falsework.

3.13 CORE DRILLING

A. Coring is not permitted without prior approval by the Engineer of Record.

B. Core drills required shall not cut any reinforcing. The contractor is to coordinate work of all trades to ensure compliance. All core drills are to be presented to the Engineer of Record for verification. The Engineer of Record is to document cores examined indicating an absence of reinforcing.

3.14 SPECIAL INSPECTIONS

A. Continuous

1. Inspect bolts to be installed in concrete prior to and during placement of concrete
2. Sampling fresh concrete and performing slump and air content tests and determining the temperature of fresh concrete at the time of making specimens for strength tests.
3. Inspection of concrete placement for proper application techniques.

B. Periodic

1. Verify use of required mix design.
2. Inspection for maintenance of specified curing temperature and technique.
3. Verification of in-situ concrete strength, prior to removal of shores and forms from beams and structural slabs.
4. Inspect post-installed and adhesive anchors.

END OF SECTION

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SECTION 05 09 10
WELDING

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. Providing the welding materials and methods for shop and field welding.

B. Providing Qualification testing of personnel and procedures.

C. Providing welding inspection and NDT.

D. Providing coordination, access, and material handling for the welding inspector.

1.2 RELATED SECTIONS

A. Section 01 45 16 – Quality Control

B. Section 05 50 00 – Metal Fabrication and Erection

1.3 REFERENCES

A. American National Standards Institute (ANSI)

ANSI/AWS Z49.1 Safety in Electric and Gas Welding, and Cutting Operations, most current edition

B. American Welding Society (AWS)

AWS A5.1 Procurement Guidelines for Consumables— Welding and Allied Processes—Flux and Gas Shielded Electrical Welding Processes, most current edition

AWS D1.1 Structural Welding Code, most current edition

AWS D1.3 Structural Welding Code - Sheet Steel, most current edition

AWS D1.4 Structural Welding Code - Reinforced Steel, most current edition

AWS D1.8 Structural Welding Code - Seismic Supplement, most current edition

AWS D19.0 Welding Zinc-Coated Steel, most current edition

C. American Institute of Steel Construction (AISC)

AISC 341.05 Seismic Provisions for Structural Steel Buildings, most current edition

D. ASTM INTERNATIONAL (ASTM)

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ASTM A53 Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless, most current edition

ASTM A706 Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement, most current edition

E. US Army Corps of Engineers 404 Permit

1.4 SUBMITTALS

A. Submittals

1. The following shall be submitted:

a. Welder qualifications/certifications.

b. Welding Procedure Specifications (WPSs) and Procedure.

c. Electrode manufacturer's certifications and data sheets.

d. Certificate of Compliance.

e. Welding inspection and test reports.

f. Prequalified welds.

g. Test reports for shop and field welded and bolted connections.

1.5 PRODUCT HANDLING

A. Welding electrodes shall be packaged, stored, and used in a manner consistent with AWS D1.1 and the electrode manufacturer's specifications.

PART 2 PRODUCTS

2.1 GENERAL

A. Welding procedures, electrodes and welder qualifications shall conform to the "Code for Welding in Building Construction", American Welding Society (AWS), D1.1 and the AISC "specifications for the design, fabrication and erection of structural steel for buildings".

2.2 MATERIALS

A. Electrodes

1. Welding of structural steel shall be performed per AWS D1.1 using E70XX electrodes unless otherwise noted.

2. Welding of reinforcing bars shall be performed per AWS D1.4 using E90XX electrodes.

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3. All electrodes, fluxes, and shielding gases shall meet the requirements of the applicable sections of ANSI/AWS A5. Only low hydrogen electrodes shall be used. Low hydrogen electrodes shall be defined as giving a diffusible hydrogen content of less than 10 ml/100g of deposited weld metal when measured in accordance with ISO 3690-1976, or a moisture content of electrode covering of 0.4% maximum in accordance with AWS A5.1.

4. Toughness, Strength, and Elongation: Weld filler metal shall meet the following minimum mechanical property requirements:

   a. Charpy V-Notch (CVN) toughness of 20 feet-pounds at 0 degrees Fahrenheit or below using AWS A5 Classification test methods.

   b. Yield Strength: 58 ksi minimum.

   c. Tensile Strength: 70 ksi minimum.

   d. Elongation: 22 percent minimum.

PART 3 EXECUTION

3.1 PREPARATION

A. Fabrication and joint preparation shall be in accordance with AWS D1.1.

B. Hold back or remove all galvanizing a sufficient distance from the joint to prevent inclusion of the material into the weld. Galvanizing shall be removed from the joint in accordance with AWS D19.0.

C. Protection

1. Work shall comply with all municipal, state, and federal regulations regarding safety, including all applicable portions of OSHA and State safety standards for construction work.

2. Conform to ANSI Z49.1, "Safety in Welding, Cutting, and Allied Processes," published by the American Welding Society.

3. Follow "Safe Practices" recommended in Annex J of AWS D1.1.

3.2 WELDING PROCEDURES

A. Project welding shall be performed only in accordance with the Welding Procedure Specifications (WPS) submitted by the contractor and reviewed by the E.O.R. and project welding inspector. The WPS shall be in accordance with AWS D1.1-D1.4 current edition.

B. Where welds are designated as demand critical, deposited filler metal shall meet Charpy requirements of 20 ft-lbs. at -20 degrees Fahrenheit and 40 ft-lbs. at 70 degrees Fahrenheit. Filler metal shall have a chemistry similar to the base metal as approved by the Engineer. Filler metals shall only be used

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in welding positions recommended by the manufacturer. Welding consumables shall be stored and the condition shall be maintained per AWS. See AISC 341-05 Section 7.3b for additional requirements.

C. Pre-heat shall be based on material grade and thickness shown in the contract drawings, per AWS tables. Uniformity of pre-heat shall conform to AWS stipulations.

D. Welding personnel shall be qualified per AWS to weld procedures and weld positions necessary for the joint details specified in the contract drawings. All steel fabrication shop drawings shall reference the weld procedure specification for each weld detailed. Weld procedure specifications shall be submitted with the shop drawings. Submittals verifying welder qualifications must be transmitted to the Engineer for approval prior to any welding.

E. Welding through coating shall not be performed. Coating within two inches of the weld shall be removed prior to welding and repaired as discussed in Article 3.06 of this specification.

F. All welds shall be visually inspected to comply with the visual inspection criteria, for statically loaded non-tubular and tubular connections, per AWS.

G. All full penetration welds shall be UT tested per AWS D1.1.

H. All groove or butt welds shall be complete penetration welds. All exposed butt welds shall be ground smooth.

I. All exposed welds on Architecturally Exposed Structural Steel (AESS) shall comply with AISC code of standard practice, section 10.

J. Field welds have been indicated where they are expected to occur. The contractor shall determine the actual field welding necessary to complete the project and include all associated costs within the base bid.

K. Non-Destructively test welds using UT, RT, MT methods, per AWS may be performed. Acceptance criteria shall be for cyclic loading.

L. All welds within members designated as part of the Lateral Force Resisting System (LFRS) shall conform to the detailing, materials, workmanship, testing, and inspection requirements per AWS D1.8.

M. Perform 25% ultrasonic testing per API L section E5, AWS D1.1 Section 6 o ASTM A53 section 9 on all coil welds and splices. Perform UT on any repaired portions of weld. Perform additional UT on untested areas on each end of the repaired portion of weld. The length on each side of the repaired portion must equal 10% of the pipes outside circumference. After the additional 20% of UT is performed, and if additional repairs are required, determine and record the total cumulative repair lengths from all UT. If the cumulative weld repair length is equal to or more than 10% of the pipe's outside circumference, then perform UT on the entire weld.

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N. Skelp Splices - Skelp splices or coil butt splices shall be removed unless the fabricator develops a quality control plan which specifically addresses these splices. The quality control plan shall include ultrasonic testing with a final 100% pass rate on tested welds, unless otherwise approved by the Engineer.

O. Radial Offset - The radial offset of welded seams shall not exceed the limitations of AWS weld nor a maximum of 10% of the pipe wall thickness, nor 3/32 of an inch. The offset shall be transitioned with a taper weld and the slope shall be a 4 to 1 transition per AWS D1.1 Section 5.22.3.1.

P. Welding of metal deck and light cage steel shall be in accordance with AWS D1.3.

3.3 FIELD QUALITY CONTROL

A. Field and shop welding shall meet the requirements of AWS D1.1.

B. In general, field quality control inspections should occur at the following time:

1. After fit-up but before production welding.

2. After production welding but before metal coating repair.

C. Welds will be spot tested by the Engineer by VT, MT, or UT and any welds which fail shall be repaired at the Contractor's expense, which will also include all costs for retesting.

3.4 SCHEDULING

A. The Contractor shall coordinate the work with the welding Inspector. The Contractor shall provide the port with a proposed work schedule and shall coordinate the work to meet the contract delivery schedule.

3.5 CLEANING

A. Clean in accordance with AWS D1.1 requirements.

3.6 REPAIR

A. Making weld repairs or replacements shall be the responsibility of the Contractor and shall be at no additional cost to the port.

B. Weld repairs or replacements on butt splice welds shall be performed in accordance with AWS D1.1 requirements for cyclically loaded tubular connections in tension.

C. Repair all galvanizing removed or damaged during welding in accordance with Section 05 50 00 – Metal Fabrication and Erection, of these specifications and as directed by the port, or replace damaged items at no additional cost to port.

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3.7 SPECIAL INSPECTIONS

A. The following elements are to be special inspected. See Section 01 45 16 – Quality Control for additional special inspection requirements.

B. Continuous

1. Complete and partial penetration groove welds.

2. Fillet welds > 5/16” and multipass fillet welds.

3. Welding of reinforcement steel resisting seismic forces, indicated on plans and details as LRFS elements and connections.

4. Welding of stirrups, hoops or ties.

C. Periodic

1. Fillet welds < 5/16”.

2. Metal deck welds.

3. Light gauge metal welds.

4. Weld filler material identification markings to conform to AWS standards specified in the approved construction documents, manufacture’s certification or compliance requirement.

5. Verification of weldability of reinforcing steel other that ASTM A706.

6. All other reinforcement welds unless notified otherwise.

*** * *END OF SECTION* * ***

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SECTION 05 50 00
METAL FABRICATION AND ERECTION

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. The extent and location of the "Metal Fabrication and Erection" work is indicated on the Drawings and supports work related to float framing. The Work includes the requirements for furnishing, installing, and erecting all iron, steel, aluminum, or other non-ferrous metals as shown or described in the drawings.

1.2 RELATED SECTIONS

A. Section 05 09 10 – Welding

B. Section 09 96 26 – Coatings

C. Section 01 45 16 – Quality Control

1.3 REFERENCES

A. American Institute of Steel Construction (AISC)

AISC 303 Code of Standard Practice for Steel Buildings and Bridges, most current edition

AISC 360 Specification for Structural Steel Buildings, most current edition

B. American Welding Society (AWS)

AWS D1.1 Structural Welding Code- Steel, most current edition

C. ASTM International (ASTM)

ASTM A36 Standard Specification for Carbon Structural Steel, most current edition

ASTM A53 Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless, most current edition

ASTM A108 Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished, most current edition

ASTM A123 Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products, most current edition

ASTM A252 Standard Specification for Welded and Seamless Steel Pipe Piles, most current edition

ASTM A307 Carbon Steel Bolts, Studs, and Threaded Rod 60000 PSI Tensile Strength, most current edition

ASTM A325 Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum

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Tensile Strength, most current edition

ASTM 490 Standard Test Method for Qualifying Coatings for Use on A490 Structural Bolts Relative to Environmental Hydrogen Embrittlement, most current edition

ASTM 500 Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes, most current edition

ASTM 563 Standard Specification for Carbon and Alloy Steel Nuts, most current edition

ASTM A572 High-Strength Low-Alloy Columbium-Vanadium Steels of Structural Quality, most current edition

ASTM A780 Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings, most current edition

ASTM A992 Standard Specification for Structural Steel Shapes, most current edition

ASTM C1107 Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink) , most current edition

ASTM F436 Standard Specification for Hardened Steel Washers Inch and Metric Dimensions, most current edition

ASTM 1554 Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength, most current edition

1.4 SUBMITTALS

A. Shop Drawings

1. Shop drawings shall show all locations, materials, markings, quantities, materials, sizes and shapes and indicate all methods of connecting, anchoring, fastening, bracing and attaching to the work of other trades.

B. Manufactures mill certificates and test reports.

C. Grating connection details.

D. Erection plan sequence and procedures.

E. 30 days' notice of the beginning of work at the mill or in the shop.

1.5 QUALITY ASSURANCE

A. Qualification of Fabricator

1. The fabricator of the metals specified in this section shall be licensed and experienced in the fabrication and working of metals, including cutting, bending, forming and finishing.

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i. Qualified fabricator shall be one that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category STD.

B. Qualification of Welders

1. Welders shall be currently certified by the American Welding Society (AWS) or Washington Association of Building Officials (WABO) for structural welding and shall submit qualification test reports, bearing witness certification of independent laboratory and inspection service approved by the port. If the welder has not been engaged in the welding process for three or more months, requalify the welder before permitting him to do structural welding work.

C. Comply with the applicable provisions of the following specifications and documents:

1. AISC 303 "Code of Standard Practice for Steel Buildings and Bridges."

2. AISC 360 "Specification for Structural Steel Buildings".

3. RCSC's "Specification for Structural Joints Using ASTM A325 or A490 Bolts."

1.6 PRODUCT HANDLING

A. Protection

1. Use all means necessary to protect miscellaneous metal materials before, during and after installation and to protect the installed work of other trades. Make no marks on exposed metals during fabrication or erection.

B. Replacements

1. In the event of damage, immediately make all repairs and replacements necessary to the approval of the port and at no additional cost to the port.

PART 2 PRODUCTS

2.1 GENERAL

A. Unless otherwise noted or specified, all products shall be new, free from oxidation or corrosion and the best quality for the intended use.

2.2 STEEL MATERIALS AND FABRICATION

A. All steel fabrications shall be in accordance with:

1. Wide flange shapes shall conform to ASTM A992.

2. HP Shapes shall conform to A572 Grade 50, unless otherwise noted.

3. Plate shall conform to ASTM A572 Grade 50, unless otherwise noted.

i. All plate thicker than 1.5" shall be 100% straight beam UT tested for laminations per ASTM A435.

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4. Rectangular, round and square HSS shall conform to ASTM A500 Grade B.

   i. Rectangular HSS shall have a minimum Fy = 46 ksi.

   ii. Round HSS shall have a minimum Fy = 42 ksi.

5. Pipe sections with 12 inches outside diameter or less shall conform to ASTM A53, Grade B, Type E or S. Minimum yield strength of 50 KSI.

   i. The outside diameter shall not vary more than .75% from the outside diameter shown on the plans.

   ii. The straightness of the pipe shall not vary more than 1% over the length of pipe.

6. Angles, channels, flat bars and tees shall conform to ASTM A36 at a minimum.

B. Pile greater than 12-inch-outside diameter shall be ASTM A252 Grade 3 steel, with minimum yield strength of 50 ksi.

C. Welded head studs shall be ASTM A108, Grades 1015 through 1020, cold-finished carbon steel.

D. All welded headed studs, threaded studs, and deformed bars shall be nelson, or equivalent, and welded (in accordance with the manufacturer's recommendations by certified welders) so as to fully develop the tensile capacity of the connector.

E. See architectural drawings for nailer holes, welded studs or other items not shown in the plans. Where steel is embedded in concrete, provide holes as required for passage of continuous reinforcing bars where indicated on drawings. Do not cut holes in structural steel without prior approval of E.O.R.

F. All steel to be welded shall have carbon equivalency less than 0.45 as defined by the equation below:

$$CE = C+(Mn+Si)/6 + (Cr+Mo+V)/5 + (Ni+Cu)/15$$

G. Steel Fabrication Coatings:

1. Exterior, General

   i. All exterior steel fabrications and components shall be hot-dipped galvanized after fabrication in accordance with ASTM A123, unless otherwise noted on the plans. Touch up galvanizing shall be in accordance with ASTM A780, hot stick repair using zinc-based alloys. All miscellaneous metal shall be fabricated in accordance with the approved shop drawings.

2. Exterior, Float

   i. See Specification 09 96 26 “Coatings” for coatings on exterior structural steel at the Port.

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3. Interior

i. Primer

(i) Fabricator's standard lead- and chromate-free, nonasphaltic, rust-inhibiting primer complying with MPI #79 and compatible with topcoat.

H. Insofar as practicable, shop-prefabricate all items complete and ready for installation.

I. Unless otherwise indicated on the drawings, weld all shop connections. All joints shall be tightly fitting, securely fastened, square, plumb, straight and true.

J. Drill or punch all holes required for the attachment of work of other trades and for bolted connections. Burned holes are not acceptable.

K. All connections not shown shall conform to the "AISC manual of steel construction" and shall be submitted on shop drawings for review by E.O.R. prior to fabrication.

L. Provide natural camber up, unless noted otherwise, except at cantilevers. At cantilevers provide camber such that tip of cantilever is above final elevation.

M. Splice members only where indicated.

2.3 FASTENINGS & ACCESSORIES

A. General: Same basic metal and finish as materials to which applied.

B. Handrail cable shall be 3/16" diameter stainless steel.

2.4 BOLTS, NUTS AND WASHERS

A. All connecting bolts for steel to steel shall be ASTM A325X, Type 1 or ASTM A490X, Type 1, High Strength Bolts with threads excluded from the shear plane.

B. For use with high strength bolts, use the following:

1. A325

i. Nuts – ASTM A563, Grade C, heavy-hex carbon steel.

ii. Washers – ASTM F436, Type 1 hardened carbon steel washers with plain finish.

2. A490

i. Nuts – ASTM A563, Grade DH heavy-hex carbon steel.

ii. Washers – ASTM F436, Type 1 hardened carbon steel washers with plan finish.

C. All steel to concrete headed anchor bolts or threaded rods shall be ASTM F1554, Grade 55, or as specified on the drawings and shall be weldable.

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D. All other machined bolts shall be ASTM A307 with heavy hex nuts or as otherwise shown on the drawings.

E. All bolts shall be hot dip galvanized after fabrication according to ASTM A123, unless otherwise noted.

1. A325 and A490 bolts shall not be hot dip galvanized.

F. For bolts in treated wood, swab field-drilled bolt holes with preservative before installing bolts.

G. Bolts with upset threads are not allowed.

H. Use the appropriate nut and washer type for the specified bolt.

I. All stainless-steel bolts, screws, nuts, washers and miscellaneous hardware called out as stainless steel (s.s.) shall be Type 316.

J. Washers are required under both head and nut of all bolts unless otherwise noted. Cut washers shall be 1/4-inch-thick plate with diameter to match equivalent malleable iron washer. Cut washers or economy heads are required wherever bolt heads or nuts bear against wood.

K. Threaded sleeves shall have compatible threads to the fastener being attached. Sleeves shall be able to develop the full strength of the fasteners being attached.

L. All post installed threaded epoxy anchors shall conform to ASTM A36 if not specified otherwise on the plans.

2.5 WELDING AND WORKMANSHIP

A. Prevent warping in finished product; use jigs if necessary. Grind welds smooth on exterior exposed surfaces. All work shall comply with standard tolerances.

2.6 ADHESIVE ANCHORS

A. All adhesive anchors shall be Hilti Hit-Hy 200 max adhesive and installed per manufacturer recommendations, unless otherwise noted.

2.7 ADA HAND RAILS

A. ADA handrail wall brackets shall be EZ Handrail EZA200 or approved equal.

2.8 ALUMINUM

A. A. Aluminum shall conform to 6061-T6 unless otherwise noted.

2.9 UHMW

A. All Ultra High Molecular Weight (UHMW) Polyethylene shall be equivalent to Tivar(R) Ultraviolet Resistant or approved equal, and be suitable for the marine environment.

B. UHMW components shall be black in color, unless otherwise noted.

C. Pressure fit bushings shall be manufactured from UHMW.

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2.10 FIBER REINFORCED PLASTIC GRATING

A. Grating shall be Fibergrate 1” Deep SI60, Light Gray color. The contractor shall confirm type and color match that of the adjacent paddler’s dock gangway and float.

B. Grating shall be installed such that bearing span perpendicular to the normal direction of traffic flow.

C. Attach grating using "T" clips. Grating shall be attached per manufacturer's recommendations.

2.11 FIBER REINFORCED PLASTIC PLATE

A. FRP plate shall be Fiberplate(R) floor plate as manufactured by Fibergrate composite structures or Engineer approved equal.

B. FRP plate shall have a non-slip gritted surface, integrally molded into the plate during the manufacturing process.

2.12 ARCHITECTURALLY EXPOSED STRUCTURAL STEEL

A. Structural steel and connections exposed to view in the completed building are designated Architecturally Exposed Structural Steel (AESS).

B. All AESS shall comply with AISC Code of Standard Practice, section 10.

2.13 GROUT

A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C1107, factory-packaged, nonmetallic aggregate grout, noncorrosive and nonstaining, mixed with water to consistency suitable for applications and a 30-minute working time.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify, with certified steel erector present, elevations of concrete-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 STEEL WELDING

A. All welding shall be in accordance with Section 05 09 10 – Welding.

3.3 SHOP PRIMING

A. Shop prime steel surfaces except the following:

1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches.

2. Surfaces to be filed welded.

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3. Surfaces of high strength bolted connections.

4. Surfaces to receive sprayed fire-resistive materials (applied fireproofing).

5. Galvanized surfaces.

6. Surfaces enclosed in interior construction.

B. Surface Preparation: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces according to the following specifications and standards:

1. SSPC-SP2, “Hand Tool Cleaning”.

2. SSPC-SP3, “Power Tool Cleaning”.

3. SSPC-SP7, “Brush-Off Blast Cleaning”.

C. Priming: Immediately after surface preparation, apply primer according to manufacturer’s written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of 1.5 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.

3.4 METAL FABRICATION

A. Shop Inspection

1. The Contractor shall furnish the Engineer with 30 days’ notice of the beginning of Work at the mill or in the shop so that special fabrication inspections may be scheduled by the Engineer.

B. Fabricate and assemble components in a shop, to greatest extent possible. Workmanship and finish shall be equal to the best industry standards and in accordance with the requirements of AWS, AISC, and The Aluminum Association, as applicable.

1. Mark and match-mark materials for field assembly.

2. Fabricate for delivery in a sequence that will expedite erection and minimize field handling.

3. Thermal Cutting

i. Perform thermal cutting by machine to greatest extent possible.

4. Holes

i. Drill holes perpendicular to metal surfaces; do not flame-cut holes or enlarge holes by burning.

5. Fabrication Standards: Edges shall be cut true, smooth and free of burrs. Flame cutting is not permitted. Corner edges shall be ground smooth. Holes shall be drilled or punched. Weld spatter, burrs and flash marks shall be removed and ground smooth. Mill stamps and markings shall be removed from all exposed surfaces.

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2. Fabricate float frame structural steel according to AISC 303, "Code of Standard Practice for Steel Buildings and Bridges," and to AISC 360.

3. Shear Connectors: Prepare steel surface as recommended by manufacturer of shear connectors. Use automatic end welding of headed-stud shear connectors according to AWS D1.1 and manufacturer's written instructions.

C. Structural material, either plain or fabricated, shall be stored at the fabricating shop above ground, on platforms, skids or other supports. It shall be kept free of dirt, grease, or other foreign matter, and shall be protected, as far as practical, from corrosion.

D. All holes required for steel galvanizing shall be fully repaired per AWS D1.1.

3.5 METAL ERECTION

A. General

1. The Contractor shall provide and later remove all falsework, temporary shoring, and bracing necessary for erection and to complete assembly. All such devices shall be properly designed and constructed by the Contractor to meet anticipated construction and handling loads.

B. Handling and Storing of Materials

1. Material to be stored shall be placed on skids above the ground. It shall be kept clean and properly drained. Girders and beams shall be placed upright and shored. Handling and erection procedures shall be conducted in a manner to avoid over stressing any structural element. Stress and deflection calculations shall be provided by the Contractor, as deemed necessary by the Engineer, for any erection procedure.

C. Method and Equipment

1. Before starting the work of erection, the Contractor shall inform the Engineer fully as to the method of erection proposed, and the amount and character of equipment proposed to be used. Approval by the Engineer shall not be considered as relieving the Contractor of the responsibility for the safety of his method and equipment, or from carrying out the Work in full accordance with the plans and Specifications.

D. Assembling, General

1. Metal parts shall be accurately assembled as shown on the plans, following applicable Industry Standards, Codes, erection drawings and fabricators' match-marks. Excessive force or manipulation of parts shall not be allowed as determined by the Engineer. The material shall be carefully handled so that no parts will be bent, broken, or otherwise damaged. Hammering, which will injure or distort the members will not be permitted. Bearing surfaces shall be cleaned before the members are assembled.

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E. Structural Steel Assembling – Float Framing

1. Set structural steel accurately in locations and to elevations indicated and according to AISC 303 and AISC 360.

2. Baseplates: Clean concrete-bearing surfaces of bond-reducing materials and roughen surfaces prior to setting plates. Clean bottom surface of plates.

   i. Set plates for structural members on wedges, shims or setting nuts as required.

   ii. Weld plate washers to top of baseplate.

   iii. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.

   iv. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Nearly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.

3. Maintain erection tolerances of structural steel within AISC 303.

F. Bolt Holes and Bolting

1. High strength bolts shall be installed in accordance with the current edition of the "AISC Specification for Structural Joints Using ASTM A325 or A490 Bolts" for type of bolt and type of snug tightened joint specified.

2. High strength bolts shall be installed and brought up to snug-tight condition, such as can be produced by a few blows of an impact wrench, or by an ordinary spud wrench.

3. High strength bolts shall then be tightened by turn-of-nut method, progressing from the most rigid part of the joint toward the free edges.

4. Paint shall not be permitted on contact surfaces unless noted otherwise. Contact surfaces of bolted parts shall be descaled and free of dirt, oil, burrs, pits, and other defects which prevent solid seating of parts.

5. Bolt holes and bolting shall follow the requirements as stated on the Plans and as indicated by applicable Industry Standards and Codes.

   i. Do not weld to high strength bolts

   ii. Bolts used to pull steel into position (mentioned above) shall then be removed, replaced with high strength bolts, and tightened as described above.

   iii. The impact wrench used for bolt tightening shall be of adequate

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capacity so as to provide the required tightening in approximately 10 seconds.

iv. Bolt lengths shall be such that bolts extend past its respective nut after tightening, but by no more than ¼ inch

G. All welding shall be in accordance with 05 09 10 - Welding.

1. Field Weld Connections – Float Framing

i. Comply with AISC 303 and AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.

ii. Remove backing bars or runoff tabs where indicated, back gouge, and grind steel smooth.

iii. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in AISC 303 for mill material.

H. Galvanized coatings damaged due to fabrication, welding, material handling or occurring during installation shall be repaired by using the following hot-applied repair stick method:

1. Repair sticks shall be zinc-cadmium alloys (melting point 518° - 527°F) such as “Rev-Galv”, or zinc-tin-lead alloys (melting point 446° - 500°F) such as “Galv-Weld”, “Zilt”, and “Galv-over”. The zinc-tin -lead alloys shall comply with U.S. Federal Specification O-G-93 or most current version and shall contain fluxing agents.

2. Remove welding slag by chipping hammer and clean weld or damaged area by vigorous wire brushing.

3. Preheat the region to be repaired by means of an oxyacetylene torch or other convenient method to between 600 degrees Fahrenheit and 750 degrees Fahrenheit. The alloys do not spread well at temperatures lower than 600 degrees Fahrenheit. Also as temperatures rise above 600 degrees Fahrenheit increasing amounts of dross form.

4. Wire brush surface again.

5. Apply coating by rubbing bar of the alloy over the heated surface while it is hot enough to melt the alloy.

6. Spread the molten alloy by briskly wire brushing or rubbing with a flat edge strip of steel or palette knife to achieve a 6 millimeter minimum coating thickness.

7. Remove flux residues by wiping with a damp cloth or rinsing with water.

8. Brush apply two coats zinc rich paint, (ZRC) or equal (cold galvanize repair).

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I. Install and inspect headed studs and shear connectors according to Chapter 7 of AWS D1.1 "structural welding code-steel".

3.6 GRATING INSTALLATION

A. Grating shall be fastened to grating attachment angles with Type “G” clips or as otherwise approved by the Engineer.

3.7 SPECIAL INSPECTION

A. The following elements are to be special inspected. See Section 01 45 16 – Quality Control for additional special inspection requirements.

B. Periodic

1. All high strength bolts installed by the Contractor shall be inspected by a Special Inspector. The Contractor shall coordinate with the City of Clinton and Island County to schedule a “turn-of-nut” test.

2. High-strength bolts, nuts and washers identification markings to conform to ASTM standards specified in the approved construction documents, manufacture’s certificate of compliance required.

3. Steel identification markings to conform to ASTM standards specified in the approved construction documents.

4. Structural steel manufacture’s certified mill test reports required.

5. Inspection of steel frame bracing and stiffener details for compliance with approved construction documents.

6. Applications of joint details at each connection.

7. Cold-Formed steel framing screw attachments, bolting, and anchoring straps, holddowns, braces, drag struts, on all roofs, walls, and floors.

*** * *END OF SECTION* * ***

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SECTION 09 96 26
COATINGS

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. The Work in this section shall include all labor, materials, tools, and equipment necessary for handling, transport, surface preparation and application of all metal coatings, and all other miscellaneous associated work, in accordance with the requirements of the Contract Documents and as shown on the Plans.

1.2 RELATED SECTIONS

A. Section 05 09 10 - Welding

1.3 REFERENCES

A. ASTM International (ASTM)

ASTM A123 Zinc (Hot Dipped Galvanized) Coatings on Iron and Steel Products, most current edition

ASTM A153 Zinc Coating (Hot Dip) on Iron and Steel Hardware, most current edition

B. American Welding Society (AWS)

AWS D1.1 Structural Welding Code, most current edition

C. Steel Structures Painting Council (SSPC)

SSPC Guide No. 23 for Thermal Spray Metallic Coating

1.4 SUBMITTALS

A. Product Data

1. Provide product data and/or technical specifications including manufacturer's instructions for surface preparation, required environmental conditions, etc., for all metal coating products.

B. Samples

1. Submit two (2) samples demonstrating color and texture for each proposed metal coating product.

C. Coating Repair Methods and Materials

1. Contractor's proposed repair methods, procedures and materials for all metal coatings damaged as a result of shipping, handling, welding or by other means.

D. Quality Plan

1. Contractor shall submit a Quality Plan for preparation and application of all metal coatings. Quality Plan shall address solvent cleaning, blasting, surface profile standards, stripe coat and primer coat application, finish

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coat applications, coating thickness measurement and documentation, adhesion pull test procedures, independent inspection and documentation, as well as handling and transport methods.

E. Submit color palettes for all elements to be painted for final owner selection.

1.5 QUALIFICATIONS

A. Thermal sprayed and painted coatings shall be applied by an experienced firm that has knowledge, procedures and equipment necessary to provide surface preparation and application of complex protective coating systems. Thermal sprayed and painted coatings shall be applied by a firm possessing AISC certification for Shop Application of Complex Protective Coating Systems (SPE) P1 and/or SSPC-QP 3.

PART 2 PRODUCTS

2.1 GALVANIZING

A. Hot-dipped galvanizing shall be per ASTM A123 or A153, as appropriate.

2.2 PAINT

A. All paint products shall be Sherwin Williams or approved equal.

2.3 ELEMENTS TO BE COATED

A. All other steel bolts, rebar, and fasteners shall be galvanized unless an alternative coating is called for on the plans.

B. Transition plates shall be spray metalized.

C. Exposed bolts fasteners, nuts and accessories comprising exposed site features shall match the coating of the associated assembly. For example, handrail bolts nuts and hardware shall be coated the same as the handrail.

PART 3 EXECUTION

3.1 PREPARATION AND APPLICATION

A. Galvanizing shall be performed after fabrication, and all holes required for galvanizing shall be repaired per AWS D1.1, and in accordance with Sub-Section 3.2, unless otherwise approved by the Engineer.

3.2 CURING

A. Surface preparation will be monitored and dry film thickness testing will be performed by a port representative to ensure adequate coating application. If coating thickness is insufficient, the Fabricator is responsible for and shall be prepared to apply more layers as necessary to obtain the required minimum thickness specified in the Contract Documents.

3.3 COATING REPAIRS

A. Paint Coatings damaged due to fabrication, welding, material handling or occurring during installation shall be repaired per manufacturer's recommendations. Contractor shall have sufficient amount product, as specified in part 2, available on site for coating repairs prior to installation of steel

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structures.

B. Contractor shall submit metal coating repair methods and procedures for review and approval by the Engineer, prior to fabrication or mobilization of any equipment and materials. Galvanized coatings damaged due to fabrication, welding, material handling or occurring during installation shall be repaired per Section 05 09 10 – Welding.

C. Galvanizing and Thermal Spray Metalizing Repairs - For small areas damaged due to fabrication, welding, material handling or occurring during installation which are less than or equal to (1) one square foot per (20) twenty square foot area, it is permitted to repair galvanized coatings by using the following hot-applied repair stick method (reference ASTM A780):

1. Repair sticks shall be zinc-cadmium alloys (melting point 518 - 527F) such as “Rev-Galv”, or zinc-tin-lead alloys (melting point 446 - 500F) such as “Galv-Weld”, “Zilt”, and “Galv-over”. The zinc-tin -lead alloys shall comply with U.S. Federal Specification O-G-93 and contain fluxing agents.

2. Remove welding slag by chipping hammer and clean weld or damaged area by vigorous wire brushing.

3. Preheat the region to be repaired by means of an oxyacetylene torch or other convenient method to between 600 degrees Fahrenheit and 750 degrees Fahrenheit. The alloys do not spread well at temperatures lower than 600 degrees Fahrenheit. Also as temperatures rise above 600 degrees Fahrenheit increasing amounts of dross form.

4. Wire brush surface again. Apply coating by rubbing bar of the alloy over the heated surface while it is hot enough to melt the alloy.

5. Spread the molten alloy by briskly wire brushing or rubbing with a flat edge strip of steel or palette knife. Minimum thickness of applied zinc stick material shall be 12 mils.

6. Remove flux residues by wiping with a damp cloth or rinsing with water.

7. Brush apply two top coats of zinc rich paint, ZRC or equal (cold galvanize repair).

3.4 COATING APPLICATION (H PAINT)

A. Shop Preparation/ Application of handrail paint

1. Surface preparation:

i. Step one: SSPC SP-1 Solvent Cleaning.

ii. Step Two: SSPC SP-7 or equivalent Brush-off Blast Cleaning.

iii. Primer: three (3) to four (4) mils DFT.

iv. Paint Finish: four (4) to five (5) mils DFT.

B. Final review should be performed by those listed in Preconstruction meeting when nearing final completion. Finish Warranty: Finish shop- labor for one-year

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warranty. Manufacturer- Five-year material warranty.

3.5 THERMAL SPRAY METALIZED COATING

A. Prior to coating structural steel members, Contractor shall coordinate with Engineer on verifying heat numbers to submitted material certifications.

B. Contractor shall mask off all areas that will be field welded.

C. Thermal Spray Metallic Coating shall conform to SSPC Guide No. 23.

D. Thermal Spray Metallic Coating shall be applied to a minimum dry coating thickness of 8 mils, and shall be top coated with a clear sealer, PRO-LINE 4800/4801 PROTHANE as manufactured by Sherwin-Williams, or approved equal, to a dry film thickness (DFT) of 2-3 mils.

E. Any fully sealed hollow box type member's interior is not required to be spray metalized.

*** * *END OF SECTION* * ***

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SECTION 31 20 00
EARTHWORK

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. Work in this section consists of excavation, backfilling, and compacting.

1.2 RELATED SECTIONS

A. Section 01 57 13 – Temporary Erosion and Sedimentation Control

B. Section 02 41 00 – Site Demolition

C. Section 03 30 00 – Cast-in-Place Concrete

1.3 REFERENCES

A. American National Standards Institute /American Society of Safety Engineers (ANSI/ASSE)

ANSI/ASSE A10.6 Safety and Health Program Requirements for Demolition Operations, most current edition

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

AASHTO T 96 Standard Method of Test for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine, most current edition

AASHTO T 85 Standard Method of Test for Specific Gravity and Absorption of Coarse Aggregate, most current edition

C. ASTM International (ASTM)

ASTM C136 Standard Test Methods for Sieve Analysis for Fine and Course Aggregates, most current edition

ASTM D1557 Standard Test Methods for Laboratory Compaction Characteristics for Soil Using Modified Effort, most current edition

D. National Fire Protection Association (NFPA)

NFPA 241 Standard for Safeguarding Construction, Alternation, and Demolition Operations, most current edition

E. Island County

Public Works Standards, most current version

F. Washington Department of Transportation (WSDOT)

(Standard Specifications – Standard Specifications for Road, Bridge, and Municipal Construction, most current version

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1.4 SUBMITTALS

A. Submit the following documents as PDF's via e-mail for all imported fill material described in Part 2 and on-site material to be incorporated into the Work:

1. Sieve analysis.

2. Certified test results of moisture content and chemical constituents for the imported fill materials, either through documentation of existing chemical analyses or by project-specific testing and analysis, as directed by the port. At minimum, materials obtained from commercial quarries shall have a total arsenic level less than 20 mg/kg for diesel and oil range hydrocarbons and below laboratory reporting limits for gasoline. Borrow from sources other than commercial quarries may be subject to additional testing depending on the source and as directed by the port.

3. Modified proctor results for materials to be compacted.

4. WSDOT pit certifications for each pit.

5. Disposal site operator certification that disposal complies with all Local, State and Federal regulations

1.5 JOBSITE

A. Earthwork operations shall not be performed if the weather conditions, in the opinion of the Engineer, are inappropriate. Work in muddy or frozen ground will not be allowed.

B. Maintain proper drainage at all times.

C. Stockpiles:

1. All stockpile locations shall be approved by the Engineer and shall be located so as not to interfere with other work or disturb adjoining property owners.

2. Stockpiles shall not exceed 10 feet in height.

D. Contractor shall maintain stormwater and erosion controls at all times.

1.6 SAFETY AND PROTECTION

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

C. Pre-demolition Conference: Conduct conference at Project site.

1.7 PROJECT CONDITIONS

A. Engineer on record shall observe all Sonotube excavations prior to placing concrete.

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B. The design of all Sonotubes indicated on these drawings is based on drained soils.

C. Contractor shall barricade open excavations occurring as part of this Work and post warning lights. Operate warning lights during hours from dusk to dawn each day and as otherwise required by applicable safety regulations.

D. Contractor shall protect all existing piles, concrete ramp, abutment, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining washout, and other hazards created by all earthwork related operations.

E. Contractor shall be responsible for contacting utility companies to locate service lines prior to any excavation.

F. Contractor shall proceed with caution in the excavation so that damage to underground structures, both known and unknown, may be avoided.

G. Contractor shall take extreme precautions for the protection of utility lines and other subsurface improvements. Any improvements damaged by construction operations shall be repaired at the Contractor's expense in compliance with the requirements of the utility owner and to the Engineer's satisfaction.

H. Trenches and excavations shall be sheeted, shored, and braced where required in a manner consistent with established safe practices and in accordance with all applicable safety regulations.

I. Contractor shall comply with Chapter 49.17 RCW, the Washington State Industrial Safety and Health Act, if trench excavation exceeds 4 feet in depth. Contractor shall also include cost of required safety systems in all bid schedules as incidental to the related earthwork pay item.

J. Contractor shall provide all materials, equipment, and labor necessary to provide support to Sonotube installation during excavation and backfilling at all locations.

PART 2 PRODUCTS

2.1 EXCAVATION MATERIALS

A. All excavated material shall be removed from the project site and disposed in a legal disposal site.

2.2 FILL MATERIALS

A. Native Materials: No native materials excavated from the site will be allowed to be reused as fill materials. All fill materials shall be imported.

B. Gravel Borrow Fill: Free-draining soil, free from organic matter, frozen or lumpy materials, vegetation, roots, debris, and any other deleterious matter. Gravel Borrow Fill shall meet the following requirements when tested in accordance with ASTM C136 and WSDOT Standard Specification Section 9-03.14(1).

C. Crushed Surfacing Base Course: Crushed surfacing base course shall comply with WSDOT Standard Specification Section 9-03.9(3), Base Course.

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D. Crushed Surfacing Top Course: Crushed surfacing top course shall comply with WSDOT Standard Specification Section 9-03.9(3), Top Course.

E. Control Density Fill (CDF): Control density fill shall meet the requirements in SECTION 31 62 00

PART 3 EXECUTION

3.1 EXCAVATION

A. Excavation shall consist of the removal of material required to establish the proposed subgrade surface elevations. Excavations shall be conducted in such a manner as to avoid disturbance to all materials located outside the limits of the work area, unless specifically identified by the Engineer as an acceptable borrow source. Methods of excavation will be the Contractor's option, but Contractor shall exercise care when approaching final grade. If final grade is disturbed, it shall be replaced with gravel borrow and compacted at Contractor's expense.

B. Large rocks, which size qualifies them as common excavation, encountered during excavation or trenching may be partially removed as required to reach subgrade elevations. With Engineer's approval, Contractor shall have the option to remove these rocks by excavation and subsequent backfilling the over-excavated portions. No extras will be paid for such over-excavations.

C. Contractor shall protect bottoms of all excavations from freestanding water and frost. Protect excavations from caving, flooding, or other source of damages. Damage to excavation shall be repaired at the Contractor' expense.

D. Any excess excavation performed by the Contractor for his convenience shall be at the expense of the Contractor.

E. Contractor shall dispose of all excavated materials at a permitted offsite location. Prior to disposal, Contractor shall provide the Engineer with a letter authorizing disposal at selected locations.

F. Excavated materials of any nature in excess of quantities needed for fill or backfill for construction of this project shall be disposed of by Contractor. This disposal will not be considered a change in Work, and no extra payment will be made.

G. Any excavation and replacement of unsuitable materials below subgrade shall be as directed by the Engineer. "Unsuitable material" is any type of soil (particularly clays and silts) or organic materials that will not compact to specified compaction percentage or does not meet the specification for its intended use.

H. All trenches shall apply with applicable OSHA requirements.

I. All excavations shall be properly backfilled but not behind retaining walls before concrete or masonry attains its full design strength.

3.2 BURIED ROCK REMOVAL

A. Large rocks, encountered during excavation, greater than 1-cubic-yard and extending below defined excavation limits may be partially or entirely removed;

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however, the subsequent backfill for such over-excavation shall be done at the Contractor's expense.

B. No blasting will be allowed on this project.

3.3 BACKFILL AND COMPACTION

A. The Contractor shall place no backfill materials until the foundation has been suitably dewatered and prepared as specified herein.

B. When backfilling, the Contractor shall take extra care so that no damage will occur to foundations or related structures. Where backfill is to be placed against both sides of concrete walls, the backfill shall be brought up evenly on both sides of the wall.

C. The Contractor shall spread each lift of fill material uniformly in horizontal layers and compact in accordance with the following table:

TABLE 31 20 00 - 3.03A

Type of Material	WSDOT Spec Section	Project Spec Section	Max. Loose Lift Placed (inches)	Percent Compaction*	Application
Gravel Borrow Fill	--	31 20 00 – 2.02A	6	95	Fill under structures and backfill for walls**
Trench backfill	--	31 20 00 – 2.02A	6	95	Fill above pipe bedding
Crushed surfacing base course	9-03.9(3), Base Course	--	4	95	Subgrade for crushed rock or asphalt pavement surface
Crushed surfacing top course	9-03.9(3), Top Course	--	4	95	Finished crushed rock surface such as parking lots, driven areas

* Percent compaction is maximum dry density by modified proctor as determined in accordance with ASTM D1557.

** All fill and backfill under concrete Sonotubes (interior and exterior) and all fill and backfill within 5 feet of Sonotubes shall be considered as structural fill.

D. Compaction shall be accomplished with power-operated tampers, rollers, idlers, or vibratory equipment.

E. Any application of water or any working of fill material required to bring it within acceptable moisture content and density limits during compaction operations shall be done at the Contractor's expense.

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F. Backfill materials shall not be placed, spread, or compacted at unsuitably high moisture content during adverse weather conditions. When Work is interrupted by heavy rain, backfill operations shall not be resumed until field tests indicate the moisture content density of the backfill areas are within specified limits.

G. Base course and top course shall each be placed in maximum 8" loose lifts on top of prepared and compacted subgrade.

H. Contractor shall provide the water and equipment necessary for adequately distributing moisture on the material. Apply water lightly and frequently to avoid having free water running out of the material and building up on the subgrade.

I. Contractor shall place no materials when snow is falling or blowing or when the weather is such that, in the Engineer's opinion, satisfactory results cannot be obtained.

J. Sonotube elevations are noted on the plans and details and shall be used for bidding. In any case, Sonotubes shall bear on firm undisturbed soil or engineered fill, in accordance with the embedment elevation and details shown.

3.4 SPECIAL INSPECTIONS

A. Continuous

1. Verify use of proper materials, densities and lift thicknesses during placement and compaction of controlled fills

B. Periodic

1. Perform classification and testing of controlled fill materials.

2. Verify excavations are extended to proper depth and have reached proper material.

3. Verify materials below Sonotubes are adequate to achieve design bearing capacity.

4. Prior to placement of controlled fill, inspect subgrade and verify that site has been prepared properly.

END OF SECTION

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SECTION 35 51 13
FLOATING PIERS

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. This Section shall include all materials, delivery, submittals, equipment, and labor necessary for fabricating, installing, and finishing the Float Dock as shown on the Contract Drawings.

1.2 RELATED SECTIONS

A. SECTION 05 50 00 – Metal Fabrication and Erection

1.3 REFERENCES

A. American Welding Society (AWS)

AWS D1.2 Structural Welding Code – Aluminum

B. Contract Drawings

1.4 SUBMITTALS

A. Shop Drawings – Contractor shall submit shop drawings that include a layout plan, profile, and cross sections. The plan shall show the dimensions of the framing and member sizes; welds, foam material and deck grating, and pile hoops.

B. Product Data Sheets- for all off the shelf products to be used

1.5 QUALIFICATIONS

A. The float dock shall be fabricated by a manufacturer that has a minimum of five consecutive years of float fabrication experience in Washington State.

B. Welders of the floats shall be certified in accordance with AWS for the material required, and current qualifications shall be submitted for each welder.

C. Calculations by WA PE

PART 2 PRODUCTS

2.1 MATERIALS

A. All materials for float components shall be new and conform to all requirements of the Project Manual including project permits, specifications, and design drawings. Purchase orders shall contain all necessary information to ensure that materials purchased will comply with the fore-mentioned documents. The Contractor shall inspect all materials, upon arrival, for conformance with the purchase orders, and the Contractor shall confirm that mill certificates and test reports are provided and

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that they correctly identify the materials delivered. Like items of materials shall be the products of one manufacturer in order to achieve standard appearance, maintenance, and replacement. If a supplier proposes a substitute for any material, the proposed substitution shall be submitted to the Engineer for approval prior to commencing any work involving use of the proposed substitute material. Supplier must be prepared to supply materials as identified on the design documents if the proposal for a substitution is not approved by the Engineer.

2.2 BOLTS AND OTHER HARDWARE

A. All steel bolts shall be isolated from aluminum members.

2.3 CLEATS

A. Minimum size requirement to allow 2- 1" lines per Cleat.

2.4 GRATING

A. Float grating shall be Fibergrate Pultruded Grating Type I6010 or approved equal allowing 60% minimum light penetration per permit requirements. All grating shall be grey with the exception of the low freeboard and transition float which shall be selected by the Owner during Submittal Review.

2.5 EXPANDED POLYSTYRENE (EPS) FLOATATION

A. Flotation tubs (Polytubs) shall be Premier Materials Technology (Manufactured by ACE Roto-Mold) (800-262-2275) or Engineer-approved equivalent. Units shall be secured to the structural frame as shown in these Drawings. Each unit shall have a minimum of six molded mounting slots with 1.50-inch-thick mounting flanges. The Polytub manufacturer shall furnish test results for each size furnished showing wall thickness, water absorption, falling dart test, and certified buoyancy rating. The manufacturer shall provide a minimum of 15-year warranty with the first 10 years non-prorated.

1. Polytub encasement shall provide 100% protection to all surfaces of the flotation material and allow zero water to enter the unit and shall be 100% virgin grade linear low density polyethylene, black in color, with a nominal wall thickness of 0.150 inches and a minimum wall thickness of 0.125 inches. The encasement shall meet the ASTM 1998D-04 Falling Dart Test to assure the material quality and molding process. The encasement shall have the following minimum characteristics:

    a. Density per ASTM D-1505: 0.937 g/cc

    b. Tensile strength per ASTM D-638: 2750 psi

    c. Flexural modulus per ASTM D-790: 109,000 psi

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2.6 NON-SKID COATING

A. All steel walking surfaces on the dock including top surfaces of all connection assemblies shall be coated with a non-skid surface. A non-skid surface shall consist of patterned steel floor plate that has a rough spray metalized surface or approved equivalent.

2.7 RUBBER

A. Rubber components shall be SBR, styrene-butadiene rubber with tensile strength of 2,500 psi minimum and durometer hardness of 70. SBR shall be temperature rated to -20 degrees F, ultraviolet resistant and suitable for the marine environment.

2.8 U.H.M.W POLYETHYLENE

A. All ultra-high molecular weight (U.H.M.W.) polyethylene components shall be manufactured from virgin polyethylene material and shall be U.V. stabilized and shall be partially or fully cross linked. UHMW components shall be black in color, unless otherwise noted, suitable for marine environments.

2.9 OTHER MATERIALS

A. Other materials not specifically described but required for a complete and proper installation of work of this section, shall be as selected by Contractor subject to approval by the Engineer.

2.10 ALUMINUM

A. Aluminum alloy shall be to 6061-T6, unless otherwise noted. Aluminum pipe and round bar shall be 6063-T6.

2.11 ZINC ANODES

A. Zinc Anodes shall be Galvotech or approved equal and conform to Mil-Spec MIL-18001 and ASTM-B-418. Anodes shall be located at the locations shown on the plans.

PART 3 EXECUTION

3.1 FLOAT FABRICATION AND INSTALLATION

A. Comply with metal fabrication and erection section.

B. Shop Inspection: The Contractor shall furnish the Engineer with 30 days' notice of the beginning of Work at the mill or in the shop so that special fabrication inspections may be scheduled by the Engineer.

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C. The Contractor shall coordinate the fabrication of the float so that the float system operates as intended. The contractor shall then confirm pile hoop locations relative to piles and modify as necessary at no additional cost to the port.

D. The Contractor shall take care in handling of floats to avoid damage during transport, storage, assembly, and installation. Storage of flotation units shall be on level surfaces and shall not be stacked. The supplier shall use the appropriate dunnage to protect the floats while stored on site. Floats shall be protected against damage from any cause. Any damaged units shall be rejected and removed from the site and replaced at no additional cost.

E. Floats shall be assembled so that a smooth and aligned mooring face is provided.

F. Contractor shall provide the Engineer with a picking plan for the floats. The picking points are to be approved by the Engineer prior to float installation.

PART 4 CALCULATIONS

4.1 FLOAT DESIGN

A. The floats shall be fabricated per the dimensions and notes on plans. Dimensions and sizes not indicated on the drawings shall be determined by the float manufacturer.

B. Floats shall be designed for a 30 year minimum life.

C. Floats shall be designed by a State of Washington professional engineer to perform under the following criteria:

1. Environmental Loads

   a. Wind – 110 MPH, 2-minute sustained average

   b. Waves – 10.3-foot significant wave height, 4.17-sec period

   c. Current – 1.5 knots

2. Structural

   a. Dead Loads including all – self weight.

   b. Live Load – Uniform 50 psf load with single concentrated load of 400 lb. at critical locations to check freeboard.

3. Design vessels shall conform to the following criteria:

Overall length	Beam	Avg. Sail Height	Weight
30 ft	12 ft	5.2 ft	20,000 lbs

4. Impact load: 20,000 lb vessel, traveling at the speed of the current but not less than a 1 knot speed, striking float at 10-degree angle from float edge.

5. No mooring analysis is required.

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6. Freeboard minimums shall conform to the dimensions shown on the plans. Freeboard dimensions given are without the applied live loads.

7. All Float design and fabrication shall include accommodation of the utility chases shown on the plans.

8. Boarding float design and fabrication shall include the cylindrical electrical pipe chases shown on the plans.

D. Load Cases

1. Load cases shall include, but are not limited to:

   a. Case 1 Dead Load + Uniform Live Load

   b. Case 2 Dead Load + Point Live Load

   c. Case 3 Dead Load + Wind Live Load

   d. Case 4 Dead Load + 0.75Wind Live Load + Wave Load + Current Load

   e. Case 5 Dead Load + Berthing Impact

2. The above load cases shall be applied at a minimum plus any others as determined by the float design engineer of record.

*** * * END OF SECTION * * ***

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