

**PORT OF TACOMA  
TACOMA, WASHINGTON  
SIM YARD CHARGING STATIONS PROJECT**

**PROJECT NO. 201119.01  
CONTRACT NO. 071514**


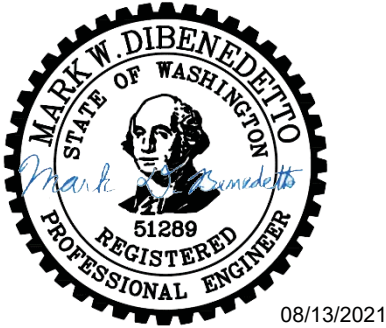
**Thais Howard, PE  
Director, Engineering**

**Hughes Wike, PE  
Project Manager**

**END OF SECTION**

The undersigned Engineer of Record hereby certifies that the Technical Specifications for the following portions of this project were written by me, or under my direct supervision, and that I am duly registered under the laws of the State of Washington, and hereby affix my Professional Seal and signature.

Those Sections prepared under my direct supervision and being certified by my seal and signature below are as follows:

| <u>SEAL &amp; SIGNATURE</u>  | <u>SECTION(S)</u>                          |
|--|--|
|   | Structural Divisions 1, 2, 3, 5, 9, 31, 32 |
|  | Electrical Division 26                     |

**END OF SECTION**

## **PROCUREMENT AND CONTRACTING REQUIREMENTS**

### **DIVISION 00 -- PROCUREMENT AND CONTRACTING REQUIREMENTS**

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- 00 21 00 - Instructions to Bidders
- 00 26 00 - Substitution Procedures
- 00 31 00 - Available Project Information
- 00 31 26 - Existing Hazardous Material Information
- 00 41 00 - Bid Form
- 00 43 13 - Bid Security Form
- 00 45 13 - Responsibility Detail Form
- 00 52 00 - Agreement Form
- 00 61 13.13 - Performance Bond
- 00 61 13.16 - Payment Bond
- 00 61 23 - Retainage Bond
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- 00 73 16 - Insurance Requirements
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## **SPECIFICATIONS**

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- 01 31 23 - Web-based Construction Management
- 01 32 16 - Construction Progress Schedule
- 01 33 00 - Submittal Procedures
- 01 35 29 - Health, Safety, and Emergency Response Procedures

|   |
|---|
| 01 35 43.13 - Hazardous Materials Handling Procedure          |
| 01 35 47 - Air and Noise Control Procedures                   |
| 01 41 00 - Regulatory Requirements                            |
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| 01 45 00 - Quality Control                                    |
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| DIVISION 02 -- EXISTING CONDITIONS                            |
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| 26 01 26 - Maintenance Testing of Electrical Systems          |
| 26 05 00 - Common Work Results for Electrical                 |
| 26 05 19 - Low-Voltage Electrical Power Conductors and Cables |
| 26 05 29 - Hangers and Supports for Electrical Systems        |
| 26 05 33 - Raceways and Boxes for Electrical Systems          |
| 26 05 43 - Underground Ducts and Manholes                     |

26 05 53 - Identification for Electrical Systems

26 24 16 - Panelboards

26 27 16 - Cabinets and Enclosures

26 27 26 - Wiring Devices

26 28 16 - Enclosed Switches and Circuit Breakers

26 71 19 - Electrical Underground Ducts and Manholes

26 79 00 - Site Grounding

DIVISION 31 -- EARTHWORK

31 00 00 - Earthwork

31 23 33 - Trenching and Backfilling

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32 15 40 - Crushed Stone Surfacing

APPENDICES

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**END OF SECTION**

## **PART 1 - GENERAL**

### **1.01 SUMMARY**

A. Contract Drawings: The following drawings are a part of the Contract Documents:

| Sheet No. | Drawing Title                            |
|-----------|--|
| G0.0      | Cover Sheet                              |
| D2.0      | Civil Site Plan - Demolition             |
| C1.0      | General Civil and Structural Notes       |
| C2.0      | Civil Site Plan                          |
| C2.1      | Structural Details                       |
| C2.2      | Structural Details                       |
| C2.3      | Structural Details                       |
| C2.4      | Structural Details                       |
| D3.0      | Electrical Site Plan - Demolition        |
| E1.0      | Electrical General Notes and Symbols     |
| E2.0      | Electrical Site Plan                     |
| E3.0      | One Line Diagram Electrical Distribution |
| E4.0      | Electrical Details                       |
| E4.1      | Electrical Nameplate Schedule            |

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

**END OF SECTION**

## **SIM YARD CHARGING STATIONS PROJECT**

### **PROJECT NO. 201119.01 | CONTRACT NO. 071514**

- Scope of Work:** The Work required for this Project includes:  
Installation of six (6) electric truck charging stations including concrete foundations; modification of existing electrical system infrastructure on the South Intermodal (SIM) Yard; roller-compacted concrete demolition and repair; trenching and restoration by asphalt paving; and miscellaneous metal work.
- The Port has been awarded an Environmental Protection Agency (EPA) Grant for the work. Pursuant to 40 CFR, Section 33.301, the prime contractor shall make good faith efforts to award subcontracts to the fullest extent practicable to Disadvantaged Business Enterprises (DBEs). The winning contractor shall maintain all records documenting good faith efforts and provide to the Port when requested. See Section 00 72 00, Article 5.02 for additional detail.
- Bid Estimate:** Estimated cost range is \$223,000 to \$258,000, plus Washington State Sales Tax (WSST).
- Sealed Bid Date/Time/Location:** Bids will be received at the Front Reception Desk, Port Administration Office, One Sitcum Plaza, Tacoma, Washington 98421 until **11:00 A.M. on September 21, 2021**, at which time they will be publicly opened and read aloud and the apparent low bid will be determined.
- Pre-Bid Conference and Site Tour:** A pre-Bid conference and site visit have been set for 9/01/2021 at 9:00am. The site visit will convene at the Port's Administrative building, located at One Sitcum Plaza and will travel to the site after a brief meeting. The following Personal Protective Equipment is required for the site visit: sturdy shoes, reflective vest, and hardhat.
- Due to the current COVID-19 concerns, there will be no carpooling personnel in Port vehicles during the site visit. Contractors will be escorted in their own vehicles on the facility. Everyone attending must bring identification.
- Attendees will be required to sign a Release and Acceptance of Responsibility and Acknowledgement of Risks Form prior to entering the site and shall provide their own Personal Protection Equipment (PPE) as required above.
- Bid Security:** Each Bid must be accompanied by a Bid security in an amount equal to five (5) percent of the Base Bid in a form allowed by the Instructions to Bidders.

- Contact Information:** Any questions to the Port may be emailed to [procurement@portoftacoma.com](mailto:procurement@portoftacoma.com). No oral responses will be binding by the Port.
- Questions will not be accepted after close of business (COB) on September 8, 2021.
- Bidding Documents:** Plans, Specifications, Addenda, and Plan Holders List for this Project are available on-line through The Port of Tacoma's Website [portoftacoma.com](http://portoftacoma.com). Click on "Contracts," "Procurement," and then the Procurement Number 071514. Bidders must subscribe to the Holder's List on the right hand side of the screen in order to receive automatic email notification of future addenda and to be placed on the Holder's List.
- Contact [procurement@portoftacoma.com](mailto:procurement@portoftacoma.com) with questions. Holder's Lists will be updated regularly. Additional Instructions available in Section 00 21 00 - Instructions to Bidders.
- Public Works Training Requirements:** Effective July 1, 2019, all businesses are required to have training before bidding on public works projects and prevailing wage under RCW 39.04.359 and RCW 39.12, or is on the list of exempt businesses maintained by the Department of Labor and Industries. The bidder must designate a person or persons to be trained on these requirements. The training will be provided by the Department of Labor and Industries or by a training provider whose curriculum is approved by the Department of Labor and Industries.
- Please refer to Labor and Industries' web site ([https://www.lni.wa.gov/TradesLicensing/PrevWage/Contractors/Training.asp?utm\\_medium=email&utm\\_source=govdelivery](https://www.lni.wa.gov/TradesLicensing/PrevWage/Contractors/Training.asp?utm_medium=email&utm_source=govdelivery)) for more information and training dates, requirements, and exemptions. Failure to attend this training could result in a determination of "not responsible" and the bidder not being awarded a public works contract.

**END OF SECTION**



## **PART 1 - SUMMARY**

### **1.01 DEFINITIONS**

All definitions set forth in the Agreement, the General Conditions of the Contract for Construction, and in other Contract Documents are applicable to the Bidding Documents.

- A. "Addenda" are written or graphic instruments issued prior to the execution of the Contract which modify or interpret the Bidding Documents by additions, deletions, clarifications, or corrections. The contents of an Addendum are issued in no particular order and therefore should be carefully and completely reviewed.
- B. An "Additive Bid" (or "Additive") is an amount stated in the Bid to add specified features of the Work.
- C. An "Alternate Bid" (or "Alternate") is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.
- D. An "Apprentice" is a worker for whom an apprenticeship agreement has been registered and approved by the Washington State Apprenticeship and Training Council (RCW 49.04 and WAC 296-05).
- E. "Award" means the formal decision by the Port of Tacoma ("Port") notifying a Responsible Bidder with the lowest responsive Bid of the Port's acceptance of their Bid and intent to enter into a Contract with the Bidder.
- F. The "Award Requirements" include the statutory requirements as a condition precedent to Award.
- G. The "Base Bid" is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base to which Work may be added or from which Work may be deleted for sums stated in Alternate Bids.
- H. A "Bid" is a complete and properly signed proposal to do the Work, submitted in accordance with the Bidding Documents, for the sums therein stipulated and supported by any data called for by the Bidding Documents.
- I. The "Bid Date" is the day and hour specified in the Bidding Documents, as may be changed through an Addendum, by which Bidders are required to submit Bids to the Port.
- J. The "Bid Form" is the form(s) included with the Bidding Documents, with Specification Section 00 41 00, through which a Bidder submits a Bid.
- K. A "Bidder" is a person or entity who submits a Bid.
- L. The "Bidding Documents" include the Advertisement or Invitation to Bid, Instructions to Bidders, the Bid Form, any other sample bidding and contract forms, including those provided by reference, the Bid security, and the proposed Contract Documents, including any Addenda issued prior to the Bid Date.
- M. The "Contract Documents" proposed for the Work consist of the Agreement, the General Conditions of the Contract (as well as any Supplemental, Special, or other conditions included in the Project Manual), the Drawings, the Specifications, and all Addenda issued prior to, and all modifications issued after, execution of the Contract.
- N. A "Sub-Bidder" is a person or entity of any tier who submits a bid or proposal to or through the Bidder for materials, equipment or labor for a portion of the Work.

## 1.02 BIDDER'S REPRESENTATIONS

By making its Bid, each Bidder represents that:

- A. **BIDDING DOCUMENTS.** The Bidder has read and understands the Bidding Documents, and its Bid is made in accordance with them.
- B. **PRE-BID MEETING.** The Bidder has attended pre-Bid meeting(s) required by the Bidding Documents. Attendance at a mandatory meeting or training session means that, in the sole opinion of the Port, a Project representative of a Bidder has attended all or substantially all of such meeting or session.
- C. **BASIS.** Its Bid is based upon the materials, systems, services, and equipment required by the Bidding Documents, and is made without exception.
- D. **EXAMINATION.** The Bidder has carefully examined and understands the Bidding Documents, the Contract Documents including, but not limited to, any liquidated damages, insurance provisions, and the Project site, including any existing buildings, it has familiarized itself with the local conditions under which the Work is to be performed, has correlated its observations with the requirements of the proposed Contract Documents, and it has satisfied itself as to the nature, location, character, quality, and quantity of the Work, the labor, materials, equipment, goods, supplies, work, services, and other items to be furnished, and all other requirements of the Contract Documents. The Bidder has also satisfied itself as to the conditions and other matters that may be encountered at the Project site or that may affect performance of the Work or the cost or difficulty thereof, including, but not limited to, those conditions and matters affecting transportation, access, disposal, handling and storage of materials, equipment and other items; availability and quality of labor, water, electric power, and utilities; availability and condition of roads; climatic conditions and seasons; physical conditions at the Project site and the surrounding locality; topography and ground surface conditions; and equipment and facilities needed preliminary to, and at all times during, the performance of the Work. The failure of the Bidder to fully acquaint itself with any applicable condition or matter shall not in any way relieve the Bidder from the responsibility for performing the Work in accordance with, and for the Contract Sum and within the Contract Time provided for in, the Contract Documents.
- E. **PROJECT MANUAL.** The Bidder has checked its copies of the Project Manual (if any) with the table of contents bound therein to ensure the Project Manual is complete.
- F. **SEPARATE WORK.** The Bidder has examined and coordinated all Drawings, Contract Documents, and Specifications with any other contracts to be awarded separately from, but in connection with, the Work being Bid upon, so that the Bidder is fully informed as to conditions affecting the Work under the Contract being Bid upon.
- G. **LICENSE REQUIREMENTS.** The Bidders and Sub-Bidders are registered and hold all licenses required by the laws of Washington, including a certificate of registration in compliance with RCW 18.27, for the performance of the Work specified in the Contract Documents.
- H. **CERTIFICATION.** The Bidder verifies under penalty of perjury that the Bidder has not have been determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries or through a civil judgment entered by a court of limited or general jurisdiction to have willfully violated, as defined in RCW 49.48.082, any provision of Chapters 49.46, 49.48, or 49.52 RCW within the three (3) year period immediately preceding the Bid Date.
- I. **NO EXCEPTIONS.** Bids must be based upon the materials, systems, and equipment described and required by the Bidding Documents, without exception.

### 1.03 BIDDING DOCUMENTS

#### A. COPIES

1. Bidders may obtain complete sets of the Bidding Documents from The Port of Tacoma's Website [www.portoftacoma.com](http://www.portoftacoma.com). Click on "Contracts" then "Procurement."
2. Complete Sets. Bidders shall use complete sets of Bidding Documents in preparing Bids and are solely responsible for obtaining updated information. The Port does not assume any responsibility for errors or misinterpretations resulting from the use of incomplete and/or superseded sets of Bidding Documents.
3. Conditions. The Port makes copies of the Bidding Documents available only for the purpose of obtaining Bids on the Work and does not confer a license or grant permission for any other use.
4. Legible Documents. To the extent any Drawings, Specifications, or other Bidding Documents are not legible, it is the Bidder's responsibility to obtain legible documents.

#### B. INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

1. Format. The Contract Documents are divided into parts, divisions, and sections for convenient organization and reference. Generally, there has been no attempt to divide the Specification sections into Work performed by the various building trades, any Work by separate contractors, or any Work required for separate facilities in, or phases of the Project.
2. Duty to Notify. Bidders shall promptly notify the Port in writing of any ambiguity, inconsistency, or error that they may discover upon examination of the Bidding Documents or of the site and local conditions.
3. Products and Installation. All Bidders shall thoroughly familiarize themselves with specified products and installation procedures and submit to the Port any objections (in writing) no later than seven (7) days prior to the Bid Date. The submittal of the Bid constitutes acceptance of products and procedures specified as sufficient, adequate, and satisfactory for completion of the Contract.
4. Written Request. Bidders requiring clarification or interpretation of the Bidding Documents shall make a written email request to [procurement@portoftacoma.com](mailto:procurement@portoftacoma.com) at least seven (7) days prior to the Bid Date.
5. Request to Modify Responsibility Criteria. No later than seven (7) days prior to the Bid Date, a potential Bidder may request in writing that the Port modify the Responsibility Criteria. The Port will evaluate the information submitted by the potential Bidder and respond before the Bid Date. If the evaluation results in a change of the Criteria, the Port will issue an Addendum identifying the new Criteria.
6. Addenda. The Bidder shall not rely on oral information provided at any pre-Bid meetings or during site visits. Verbal statements made by representatives of the Port are for informational purposes only. Any interpretation, correction, or change of the Bidding Documents will be made solely by written Addendum. Interpretations, corrections, or changes of the Bidding Documents made in any manner other than by written Addendum, including but not limited to, oral statements will not be binding, and Bidders shall not rely upon such statements, interpretations, corrections, or changes. The Port is not responsible for explanations or interpretations of the Bidding Documents other than in a written Addendum.

7. Site Visits. Any site visits are provided as a courtesy to potential Bidders to assist them in becoming familiar with the Project site conditions. However, only the Bidding Documents, including any issued Addenda, may be relied upon by Bidders.
8. Singular References. Reference in the singular to an article, device, or piece of equipment shall include as many of such articles, devices, or pieces as are indicated in the Contract Documents or as are required to complete the installation.
9. Utilities and Runs. The Bidder should assume that the exact locations of any underground or hidden utilities, underground fuel tanks, and plumbing and electrical runs may be somewhat different from any location indicated in the surveys or Contract Documents.

C. SUBSTITUTIONS

1. For substitutions during bidding, refer to Section 00 26 00 – Substitution Procedures.

D. ADDENDA

1. Distribution. All Addenda will be written and will be made available on the Port's website or any other source specified by the Port for the Project.
2. Copies. Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.
3. Verification and Acknowledgment of Receipt. Prior to submitting a Bid, each Bidder shall ascertain that it has received all Addenda issued. Each Bidder shall acknowledge its receipt and consideration of all Addenda in its Bid.

1.04 BIDDING PROCEDURE

A. FORM AND STYLE OF BIDS

1. Form. Bids (including required attachments) shall be submitted on forms identical to the Bid Form included with the Bidding Documents. No oral, email, or telephonic responses or modifications will be considered.
2. Entries on the Bid Form. All blanks on the Bid Form shall be filled in by typewriter, printer, or manually in ink.
3. Figures. All sums shall be expressed in figures, not words. Portions of the Bid Form may require the addition or multiplication of component bids to a total or the identification of component amounts within a total. In case of discrepancy between unit prices listed and their sum(s), the unit prices listed shall govern (rather than the sum).
4. Initial Changes. Any interlineation, alteration, or erasure shall be initialed by an authorized representative of the Bidder.
5. Bid Breakdown. The Bid Form may contain, for the Port's accounting purposes only, a breakdown of some or all of the components included in the Base Bid.
  - a. For lump-sum Bids, the total Contract Sum shall be submitted.
  - b. For unit-price Bids, a price shall be submitted for each item of the Work, an extension thereof, and, if requested, the total Contract Sum.
6. Alternates. All Alternates should be Bid. The Port reserves the right, but is not obligated, to reject any Bid on which all requested Alternates are not Bid. If no change in the Base Bid is required for an Alternate, enter "Zero" or "0." If there is no entry, the Bidder will be presumed to have made no offer to perform the Alternate. If it is not otherwise clear from the Bid or the nature of the Alternate, it will be presumed that the amount listed for an

Alternate is additive rather than deductive.

7. No Conditions. The Bidder shall make no conditions or stipulations on the Bid Form, nor qualify its Bid in any manner.
8. Identity of Bidder. The Bidder shall include in the specified location on the Bid Form, the legal name of the Bidder and, if requested, a description of the Bidder as a sole proprietor, a partnership, a joint venture, a corporation, or another described form of legal entity. The Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract. The Port verifies signature authority on the Labor and Industries website <https://fortress.wa.gov/lni/bbip/Search.aspx> under the contractor registration business owner information. If the business owner information is not current, the Bidder shall show proof of authority to sign at the request of the Port. A Bid submitted by an agent shall have a current power of attorney attached certifying the agent's authority to bind the Bidder
9. Bid Amounts Do Not Include Sales Tax. The Work to be performed constitutes a "retail sale" as this term is defined in RCW 82.04.050. Thus, the Base Bid amount shall include in the sum stated all taxes imposed by law, EXCEPT WASHINGTON STATE AND LOCAL SALES TAX due on the Base Bid. The engaged Contractor will pay retail sales tax on all consumables used during the performance of the Work and on all items that are not incorporated into the final Work; this tax shall be included in the Base Bid price and in any other prices set forth on the Bid Form. The Port will pay state and local retail sales tax due on each progress payment and final payment to the engaged Contractor for transmittal by the Contractor to the Washington State Department of Revenue or to the applicable local government.

#### B. BID SECURITY

1. Purpose and Procedure. Each Bid shall be accompanied by Bid security payable to the Port in the form required by the Bidding Documents and equal to five (5) percent of the Base Bid only (i.e., not including any Alternates or Unit Prices). The Bid security constitutes a pledge by the Bidder to the Port that the Bidder will enter into the Contract with the Port in the form provided, in a timely manner, and on the terms stated in its Bid, and will furnish in a timely manner, the payment and performance bonds, certificates of insurance, and all other documents required in the Contract Documents. Should the Bidder fail or refuse to enter into the Contract or fail to furnish such documents, the amount of the Bid security shall be forfeited to the Port as liquidated damages, not as a penalty. By submitting a Bid, each Bidder represents and agrees that the Bid security, if forfeited, is a reasonable prediction on the Bid Date of future damages to the Port. Failure of the Bidder to provide Bid Security as required shall render the bid non-responsive.
2. Form. The Bid security shall be in the form of a certified or bank cashier's check payable to the Port or a Bid bond executed by a bonding company reasonably acceptable to the Port, licensed in the State of Washington, registered with the Washington State Insurance Commissioner, possess an A.M. Best rating of "A-," Fiscal Size Category (FSC) six (6) or better, and be authorized by the U.S. Department of the Treasury. The Bid security shall be signed by the person or persons legally authorized to bind the Bidder. Bid bonds shall be submitted using the form included with the Bidding Documents.
3. Retaining Bid Security. The Port will have the right to retain the Bid security of Bidders to whom an Award is being considered until the earliest of either: (a) mutual execution of the Contract, and the Port's receipt of payment and performance bonds, (b) the specified time has elapsed so that Bids may be withdrawn, or (c) when all Bids have been rejected.
4. Return of Bid Security. Within sixty (60) days after the Bid Date, the Port will release or return Bid securities to Bidders whose Bids are not to be further considered in awarding

the Contract. Bid securities of the three apparent low Bidders will be held until the Contract has been finally executed, after which all un-forfeited Bid securities will be returned. Bid security may be returned in the form provided or by separate payment.

#### C. SUBMISSION OF BIDS

1. Procedure. The Bid, the Bid security, and other documents required to be submitted with the Bid, shall be enclosed in a sealed envelope identified with the Project name and number and the Bidder's name and address. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face of the mailing envelope.
  - a. If a Bid is mailed, it shall be addressed to the Port of Tacoma, Contracts Department, 1 Sitcum Plaza, Tacoma, WA 98421.
  - b. If a Bid is delivered, it shall be delivered to the Front Reception Desk, Port of Tacoma, 1 Sitcum Plaza, Tacoma, WA 98421.
  - c. The time stamp clock at the Front Reception Desk at 1 Sitcum Plaza is the Port's official clock.
2. Deposit. Bids shall be deposited at the designated location prior to the Bid Date indicated in the Advertisement or Invitation to Bid, or any extension thereof made by Addendum. Bids received after the Bid Date and time specified shall be returned without consideration at the discretion of the Port, or rejected at the time of receipt.
3. Delivery. The Bidder assumes full responsibility for timely delivery at the location designated for receipt of Bids.
4. Form. Oral, facsimile, telephonic, electronic, or email Bids are invalid and will not be considered.

#### D. MODIFICATION OR WITHDRAWAL OF BID

1. After the Bid Date. A Bid may not be modified, withdrawn, or canceled by the Bidder during a ninety (90) day period following the Bid Date, and each Bidder so agrees by virtue of submitting its Bid.
2. Before the Bid Date. Prior to the Bid Date, any Bid submitted may be modified or withdrawn only by notice to the party receiving Bids at the place designated for receipt of Bids. The notice shall be in writing, with the signature of the Bidder, and shall be worded so as not to reveal the amount of the original Bid. Email notice will not be accepted. It shall be the Bidder's sole responsibility to verify that the notice has been received by the Port in time to be withdrawn before the Bid opening.
3. Resubmittal. Withdrawn Bids may be resubmitted up to the time designated for the receipt of Bids, provided that they are then fully in conformance with these Instructions to Bidders.
4. Bid Security with Resubmission. Bid security shall be in an amount sufficient for the Bid as modified or resubmitted.

#### E. COMMUNICATIONS

1. Communications from a Bidder related to these Instructions to Bidders must be in writing to [procurement@portoftacoma.com](mailto:procurement@portoftacoma.com). Communications, including but not limited to, notices and requests by Sub-Bidders shall be made through the Bidder and not directly by a Sub-Bidder to the Port.

## 1.05 CONSIDERATION OF BIDS

- A. **OPENING OF BIDS.** Unless stated otherwise in the Advertisement or Invitation to Bid or an Addendum, the properly identified Bids received on time will be opened publicly and will be read aloud. An abstract of the Base Bids and any Alternate Bids will promptly (and generally within twenty-four (24) hours) be made available to Bidders and other interested parties.
- B. **REJECTION OF BIDS.** The Port shall have the right, but not the obligation, to reject any or all Bids for any reason, or for no reason, to reject a Bid not accompanied by the required Bid security, or to reject a Bid which is in any way incomplete or irregular.
- C. **BIDDING MISTAKES.** The Port will not be obligated to consider notice of claimed Bid mistakes received more than twenty-four (24) hours after the Bid Date. In accordance with Washington law, a low Bidder that claims error and fails to enter into the Contract is prohibited from Bidding on the Project if a subsequent call for Bids is made for the Project.
- D. **ACCEPTANCE OF BID (AWARD)**
  - 1. **Intent to Accept.** The Port intends, but is not bound, to Award a Contract to the Responsible Bidder with the lowest responsive Bid, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. The Port has the right to waive any informality or irregularity in any Bid(s) received and to accept the Bid which, in its judgment, is in its own best interests.
  - 2. **Alternates.** The Port shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Contract or Bidding Documents, and to determine the low Bidder on the basis of the sum of the Base Bid and the Alternates (if any) accepted. Failure to submit Bids on all Alternates may be cause for rejecting the Bidder's entire Bid. The Port retains the right to accept Alternate Bid items at the price Bid within ninety (90) days after the Contract is executed.
  - 3. **Requirements for Award.** Before the Award, the lowest responsive Bidder must be deemed Responsible by the Port and must satisfy all Award Requirements.
- E. **BID PROTEST PROCEDURES**
  - 1. **Procedure.** A Bidder protesting, for any reason, the Bidding Documents, a Bidding procedure, the Port's objection to a Bidder or a person or entity proposed by the Bidder, including but not limited to, a finding of non-Responsibility, the Award of the Contract or any other aspect arising from, or relating in any way to, the Bidding, shall cause a written protest to be filed with the Port within two (2) business days of the event giving rise to the protest. (Intermediate Saturdays, Sundays, and legal holidays are not counted as business days.) The written protest shall include the name of the protesting Bidder, the bid solicitation number and title under which the protest is submitted, a detailed description of the specific factual and legal grounds for the protest, copies of all supporting documents, evidence that the apparent low bidder has been given notice of the protest, and the specific relief requested. The written protest shall be sent by email to [procurement@portoftacoma.com](mailto:procurement@portoftacoma.com).
  - 2. **Consideration.** Upon receipt of the written protest, the Port will consider the protest. The Port may, within three (3) business days of the Port's receipt of the protest, provide any other affected Bidder(s) the opportunity to respond in writing to the protest. If the protest is not resolved by mutual agreement of the protesting Bidder and the Port, the Contracts Director of the Port, or his or her designee, will review the issues and promptly furnish a final and binding written decision to the protesting Bidder, and any other affected Bidder(s), within six (6) business days of the Port's receipt of the protest. (If more than one (1) protest

is filed, the Port's decision will be provided within six (6) business days of the Port's receipt of the last protest.) If no reply is received from the Port during the six (6) business-day period, the protest will be deemed rejected.

3. Waiver. Failure to comply with these protest procedures will render a protest waived.
4. Condition Precedent. Timely and proper compliance with, and exhaustion of, these protest procedures shall be a condition precedent to any otherwise permissible judicial consideration of a protest.

#### 1.06 POST BID INFORMATION

##### A. THE LOWEST RESPONSIVE BIDDER SHALL:

1. Responsibility Detail Form. Within 24 hours of the Low Responsive Bidder Selection Notification, the apparent low Bidder shall submit to the Port the Responsibility Detail Form and other required documents (Section 00 45 13) executed by an authorized company officer. As requested from the Port, the low responsive Bidder shall provide written confirmation that the person signing the Bid on behalf of the Bidder was duly authorized at the time of bid, a detailed breakdown of the Bid in a form acceptable to the Port, and other information required by the Port.
2. The apparent low Bidder shall submit to the Port upon request:
  - a. Additional information regarding the use of the Bidder's own forces and the use of subcontractors and suppliers;
  - b. The names of the persons or entities (including a designation of the Work to be performed with the Bidder's own forces, and the names of those who are to furnish materials or equipment fabricated to a special design) proposed for each of the principal portions of the Work (i.e., either a listed Sub-Bidder or a Sub-Bidder performing Work valued at least ten (10) percent of the Base Bid), consistent with the listing required with the Bid; and
  - c. The proprietary names and the suppliers of the principal items or systems of materials and equipment proposed for the Work.
3. Failure to provide any of the above information in a timely manner will constitute an event of breach permitting forfeiture of the Bid security.
4. Bidder Responsibility. The Bidder will be required to establish, to the satisfaction of the Port, the reliability and responsibility of itself and the persons or entities proposed to furnish and perform the Work described in the Bidding Documents. If requested, the Bidder shall meet with the Port to discuss the Bid, including any pricing, the Bid components, and any assumptions made by the Bidder.
5. Objection. Prior to an Award of the Contract, the Port will notify the Bidder in writing if the Port, after due investigation, has reasonable objection to the Bidder or a person or entity proposed by the Bidder. Upon receiving such objection, the Bidder may, at Bidder's option: (a) withdraw their Bid, (b) submit an acceptable substitute person or entity with no change in the Contract Time and no adjustment in the Base Bid or any Alternate Bid, even if there is a cost to the Bidder occasioned by such substitution, or (c) file a protest in accordance with the Bidding Documents.
6. Change. Persons and entities proposed by the Bidder to whom the Port has made no reasonable objection must be used on the Work for which they were proposed and shall not be changed, except with the written consent of the Port.



7. Right to Terminate. The Bidder's representations concerning its qualifications will be construed as a covenant under the Contract. If a Bidder makes a material misrepresentation on a Qualification Statement, the Port has the right to terminate the Contract for cause and may then pursue any remedies that exist under the Contract or that are otherwise available.

- B. INFORMATION FROM OTHER BIDDERS: All other Bidders designated by the Port as under consideration for Award of a Contract shall also provide a properly executed Qualification Statement, if so requested by the Port.

#### 1.07 PERFORMANCE BOND, LABOR AND MATERIAL PAYMENT BOND, AND INSURANCE

- A. BOND REQUIREMENTS. Within fifteen (15) days after the Port's Notice of Award of the Contract, the successful Bidder shall obtain and furnish statutory bonds pursuant to RCW 39.08 covering the faithful performance of the Contract and the payment of all obligations arising thereunder in the form and amount prescribed in the Contract Documents. Bonds shall be written for one hundred (100) percent of the contract award amount, plus Washington State Sales Tax and Change Orders. The cost of such bonds shall be included in the Base Bid.
  1. On contracts of one hundred fifty thousand dollars (\$150,000) or less, at the option of the Contractor or the General Contractor/Construction Manager as defined in RCW 39.10.210, the Port may, in lieu of the bond, retain ten (10) percent of the contract amount for a period of thirty days after date of final acceptance, or until receipt of all necessary releases from the department of revenue, the employment security department, and the department of labor and industries and settlement of any liens filed under RCW 60.28, whichever is later. The recovery of unpaid wages and benefits must be the first priority for any actions filed against retainage held by a state agency or authorized local government.
  2. On contracts of one hundred fifty thousand dollars (\$150,000) or less, the Port may accept a full payment and performance bond from an individual surety or sureties.
- B. TIME OF DELIVERY AND FORM OF BONDS. The successful Bidder shall deliver an original copy of the required bonds to the Port, 1 Sitcum Plaza, Tacoma, WA 98421, within the time specified in the Contract Documents.
- C. INSURANCE. The successful Bidder shall deliver a certificate of insurance from the Bidder's insurance company that meets or exceeds all requirements of the Contract Documents.
- D. GOVERNMENTAL REQUIREMENTS. Notwithstanding anything in the Bidding or Contract Documents to the contrary, the Bidder shall provide all bonding, insurance, and permit documentation as required by governmental authorities having jurisdiction for any portions of the Project.

#### 1.08 FORM OF AGREEMENT

- A. FORM TO BE USED. The Contract for the Work will be written on the form(s) contained in the Bidding Documents, including any General, Supplemental, or Special Conditions, and the other Contract Documents included with the project manual.
- B. CONFLICTS. In case of conflict between the provisions of these Instructions and any other Bidding Document, these Instructions shall govern. In case of conflict between the provisions of the Bidding Documents and the Contract Documents, the Contract Documents shall govern.
- C. CONTRACT DELIVERY. Within fifteen (15) days after Notice of Award, the Bidder shall submit a signed Contract to the Port in the form tendered to the Bidder and without modification.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. This Section includes administrative and procedural requirements for substitutions.

### **1.02 DEFINITIONS/CLARIFICATIONS**

- A. Substitutions. Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- B. The Contract Documents include performance specifications for products and equipment which meet Project requirements. In those cases where a representative item or manufacturer is named in the specification, it is provided for the sole purpose of identifying a product meeting the required functional performance, and where the words "or equal" are used, a substitution request as further described, is not required.
- C. Where non-competitive or sole source products or manufacturers are explicitly specified with the words "or approved equal," or "Engineer approved equal," or "as approved by the Engineer" are used, they shall be taken to mean "or approved equal." In these cases a substitution request as further described in this Section, is required.

### **1.03 SUBMITTALS**

- A. Substitution Request Form. Use copy of form located at the end of this Section.
- B. Pre-Bid Substitution Requests. Submit one (1) PDF of the Substitution Request Form along with all supporting documentation for consideration of each request. Identify product, fabrication, or installation method to be replaced. Include Drawing numbers and titles. Substitution requests prior to the Bid Date may originate directly from a prime Bidder, or from a prospective Sub-Bidder.
  - 1. Documentation. Show compliance with requirements for substitutions with the following, as applicable:
    - a. Statement indicating why specified product, fabrication, or installation cannot be provided.
    - b. Coordination information, including a list of changes or modifications needed to other parts of the Work that will be necessary to accommodate proposed substitution.
    - c. Product Data, including drawings and descriptions of products, fabrication, and installation procedures.
    - d. Samples, where applicable or requested.
    - e. Certificates and qualification data, where applicable or requested.
    - f. Research reports evidencing compliance with building code in effect for the Project.
  - 2. Engineer's Action. Engineer will review substitution requests if received electronically to [procurement@portoftacoma.com](mailto:procurement@portoftacoma.com) at least seven (7) days prior to the Bid Date. Substitution requests received after this time will not be reviewed.
    - a. Forms of Acceptance. Substitution requests will be formally accepted via written addendum prior to the Bid Date. Bidders shall not rely upon approvals made in any other manner.
    - b. Use product originally specified if Engineer does not issue a decision on use of a proposed substitution within time allocated.

- c. The Port's decision of approval or disapproval of a proposed substitution shall be final.
- C. Post-Award Substitution Requests must be submitted by the Contractor and not a Subcontractor nor Supplier.
- 1. Documentation. Show compliance with requirements for substitutions with the following, as applicable:
    - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
    - b. Coordination information, including a list of changes or modifications needed to other parts of the Work that will be necessary to accommodate proposed substitution.
    - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable specification Section. Significant qualities may include, but are not limited to, attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
    - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
    - e. Samples, where applicable or requested.
    - f. Certificates and qualification data, where applicable or requested.
    - g. List of similar installations for completed projects with project names and addresses. Also provide names and addresses of the applicable architect, engineer, and owner.
    - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
    - i. Research reports evidencing compliance with building code in effect for the Project.
    - j. Comparison of the approved Baseline Project Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
    - k. Cost information, including a proposal of change, if any, in the Contract Sum.
    - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
    - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
  - 2. Engineer's Action. If necessary, Engineer will request additional information or documentation for evaluation within seven (7) calendar days of receipt of a request for substitution. Engineer will notify Contractor through Port of acceptance or rejection of proposed substitution within fifteen (15) calendar days of receipt of request, or seven (7) calendar days of receipt of additional information or documentation, whichever is later.
    - a. Forms of Acceptance. Change Order or Minor Change in Work.

- b. Use product originally specified if Engineer does not issue a decision on use of a proposed substitution within time allocated.
- 3. Substitutions for Cause. Submit requests for substitution immediately upon discovery of need for change, but not later than fourteen (14) days prior to date required for preparation and review of related submittals.
  - a. Conditions. Engineer will consider Contractor's request for substitution when the following conditions are satisfied:
    - 1) Requested substitution is consistent with the Contract Documents and will produce indicated results.
    - 2) Requested substitution will not adversely affect the Baseline Project Schedule.
    - 3) Requested substitution has received necessary approvals of authorities having jurisdiction.
    - 4) Requested substitution is compatible with other portions of the Work.
    - 5) Requested substitution has been coordinated with other portions of the Work.
    - 6) Requested substitution provides specified warranty.
    - 7) If requested substitution involves more than one (1) contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- 4. Substitutions for Convenience. Engineer will consider Contractor's requests for substitution if received within fourteen (14) days after the Notice of Award.
  - a. Conditions. Engineer will consider Contractor's request for substitution when the following conditions are satisfied:
    - 1) Requested substitution offers Port a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Port must assume. Port's additional responsibilities may include compensation to Engineer for redesign and evaluation services, increased cost of other construction by Port, and similar considerations.
    - 2) Requested substitution does not require extensive revisions to the Contract Documents.
    - 3) Requested substitution is consistent with the Contract Documents and will produce indicated results.
    - 4) Requested substitution will not adversely affect the Baseline Project Schedule.
    - 5) Requested substitution has received necessary approvals of authorities having jurisdiction.
    - 6) Requested substitution is compatible with other portions of the Work.
    - 7) Requested substitution has been coordinated with other portions of the Work.
    - 8) Requested substitution provides specified warranty.
    - 9) If requested substitution involves more than one (1) contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors

involved.

D. Substitutions will not be considered when:

1. Indicated or implied on shop drawings or product data submittals without formal request submitted in accordance with this Section.
2. Acceptance will require substantial revision of Contract Documents or other items of the Work.
3. Submittal for substitution request does not include point-by-point comparison of proposed substitution with specified product.

1.04 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

**PROJECT TITLE: SIM Yard Charging Stations Project**      **PROJECT NO.: 201119.01**

SUBMITTED BY: \_\_\_\_\_ CONTRACT NO.: 071514

PRIME/SUB/SUPPLIER: \_\_\_\_\_ DATE: \_\_\_\_\_

-----  
Specification Title: \_\_\_\_\_ Section No.: \_\_\_\_\_

Description: \_\_\_\_\_ Paragraph: \_\_\_\_\_

Page No.: \_\_\_\_\_

-----  
Proposed Substitution: \_\_\_\_\_

Trade Name: \_\_\_\_\_ Model No.: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Address: \_\_\_\_\_ Phone No.: \_\_\_\_\_

Installer: \_\_\_\_\_

Address: \_\_\_\_\_ Phone No.: \_\_\_\_\_

Differences between proposed substitution and specified product: \_\_\_\_\_

-----  
☐ Point-by-Point comparative data attached - REQUIRED

-----  
Reason for not providing specified item: \_\_\_\_\_

-----  
Similar Installation:

Project: \_\_\_\_\_ A/E: \_\_\_\_\_

Address: \_\_\_\_\_

Owner: \_\_\_\_\_ Date Installed: \_\_\_\_\_

Proposed substitution affects other parts of Work: ☐ No ☐ Yes; explain \_\_\_\_\_

-----  
Supporting Data Attached:

☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ Other: \_\_\_\_\_

-----  
Applicable to Substitution Requests During Construction:

Proposed to Port for accepting substitution: \$ \_\_\_\_\_

Proposed substitution changes Contract Time: ☐ No ☐ Yes [Add] [Deduct] \_\_\_\_\_ # days.

-----  
The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.

- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay Baseline Project Schedule.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

-----  
Submitted By: \_\_\_\_\_  
Signed By: \_\_\_\_\_ Firm: \_\_\_\_\_  
Address: \_\_\_\_\_  
Telephone: \_\_\_\_\_ Email: \_\_\_\_\_  
Attachments: \_\_\_\_\_  
-----

#### A/E's REVIEW AND RECOMMENDATION

- ☐ Approved Substitution
- ☐ Approved Substitution as Noted
- ☐ Reject Substitution - Use specified materials.
- ☐ Substitution Request received too late - Use specified materials.

Signed by: \_\_\_\_\_ Date: \_\_\_\_\_  
-----

#### ENGINEER'S REVIEW AND ACTION

- ☐ Substitution Approved - Make submittals in accordance with this Specification Section. If during construction, prepare Change Order.
- ☐ Substitution Approved as Noted - Make submittals in accordance with this Specification Section. If during construction, prepare Change Order.
- ☐ Substitution Rejected - Use specified materials.
- ☐ Substitution Request received too late - Use specified materials.

Signed by: \_\_\_\_\_ Date: \_\_\_\_\_

**END OF SECTION**



## **PART 1 - GENERAL**

### **1.01 EXISTING CONDITIONS**

- A. Certain information relating to existing surface and subsurface conditions and structures is available to Bidders online at [www.portoftacoma.com](http://www.portoftacoma.com), but will not be part of the Contract Documents, as follows:
  - 1. Phase I ESA for the South Intermodal Yard, PIONEER Technologies Corporation, November 2019.
    - a. This environmental site assessment (ESA) identifies and evaluates recognized environmental conditions (RECs) at the SIM Yard.

### **1.02 AVAILABILITY**

- A. Reference Documents are available online through the Port of Tacoma's Website [www.portoftacoma.com](http://www.portoftacoma.com). Click on "Contracts," "Procurement," and then the Procurement Number.

## **PART 2 - PRODUCTS - NOT USED**

## **PART 3 - EXECUTION - NOT USED**

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. This Section provides the notification required for disclosure of asbestos, lead-containing or other hazardous materials.

### **1.02 HAZARDOUS MATERIALS NOTICE**

- A. The Port is reasonably certain that asbestos and lead will not be disturbed by the project. If the Contractor encounters material suspected of containing lead or asbestos which will interfere with the execution of the work, the Contractor shall stop work and notify the Engineer.
- B. Contractor is notified that the Port has conducted a Phase I Environmental Site Assessment (ESA) for the South Intermodal (SIM) Yard, dated November 2019. As detailed in the assessment findings, certain portions of the Work area may be subject to soil and groundwater contamination. ESA is available upon request.

## **PART 2 - PRODUCTS - NOT USED**

## **PART 3 - EXECUTION - NOT USED**

**END OF SECTION**

**BIDDER'S NAME:** \_\_\_\_\_

**PROJECT TITLE:** SIM YARD CHARGING STATIONS PROJECT

The undersigned Bidder declares that it has read the Contract Documents (including documents provided by reference), understands the conditions under which the Work will be performed, has examined the Project site, and has determined for itself all situations affecting the Work herein Bid upon. Bidder proposes and agrees, if this Bid is accepted, to provide at Bidder's own expense, all labor, machinery, tools, materials, etc., including all Work incidental to, or described or implied as incidental to such items, according to the Contract Documents, and that the Bidder will complete the Work within the time stated, and that Bidder will accept in full the lump sum or unit price(s) set forth below:

| ITEM NO. | DESCRIPTION OF ITEM             | QTY | UOM | UNIT PRICE | EXTENDED PRICE (QTY. x UNIT PRICE) |
|----------|---------------------------------|-----|-----|------------|------------------------------------|
| 1        | Mobilization and Demobilization | 1   | LS  |            |                                    |
| 2        | Project Administration          | 1   | LS  |            |                                    |
| 3        | SIM Yard Charging Stations      | 1   | LS  |            |                                    |

|  |  |
|--|--|
| TOTAL BID AMOUNT   |  |
| 10.3% WASHINGTON STATE SALES TAX (WSST) ON BASE BID SUBTOTAL |  |
| BID TOTAL (WITH WSST)  |  |

Note: Show prices in figures only.

Evaluation of Bids. In accordance with the provisions of the Contract Documents, Bids will be evaluated to determine the lowest Base Bid Subtotal offered by a responsible Bidder submitting a responsive Bid.

Non-Collusion Representation. The Bidder declares under penalty of perjury that the Bid submitted is genuine and not a sham or collusive bid, or made in the interest or on behalf of any person or firm not therein named; and further represents that the Bidder has not directly or indirectly induced or solicited any other bidder to submit a sham bid, or encouraged any other person or corporation to refrain from bidding; and that the Bidder has not in any manner sought by collusion to secure to the Bidder an advantage over any other bidder or bidders.

RCW 39.04.350 Certification. The Bidder represents and certifies, under penalty of perjury, that within the three- (3-) year period immediately preceding the Bid Date, the Bidder has not been determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries, nor through a civil judgment entered by a court of limited or general jurisdiction, to have willfully violated, as defined in RCW 49.48.082, any provision of Chapters 49.46, 49.48, nor 49.52 RCW.

Addenda. Bidder acknowledges receipt and acceptance of all Addenda through No. \_\_\_\_ (Identify Last Addenda By Number)

Bid Security. A certified check, cashier's check, or other obligation of a bank, or a bid bond in substantially the form set forth in Section 00 43 13, Bid Security Form for at least five (5) percent of the Base Bid Subtotal, shall be submitted with this Bid.

|                                   |                                    |
|-----------------------------------|------------------------------------|
| <hr/>                             | <hr/>                              |
| Name of Firm                      | Date                               |
| <hr/>                             | <hr/>                              |
| Signature                         | By Title                           |
| <hr/>                             | <hr/>                              |
| Mailing Address                   | City, State Zip Code               |
| <hr/>                             | <hr/>                              |
| Telephone Number                  | Email Address                      |
| <hr/>                             | <hr/>                              |
| WA State Contractor's License No. | Employment Security Department No. |
| <hr/>                             | <hr/>                              |

Identification of Bidder as a sole proprietor, a partnership, a joint venture, a corporation, or another described form of legal entity

**END OF SECTION**

KNOW ALL MEN BY THESE PRESENTS:

That we, \_\_\_\_\_, as Principal, and  
\_\_\_\_\_, as Surety, are held and firmly bound unto  
the PORT OF TACOMA as Obligee, in the penal sum of \_\_\_\_\_  
Dollars, for the payment of which the Principal and Surety bind themselves, their heirs, executors,  
administrators, successors and assigned, jointly and severally, by these present.

The condition of this obligation is such that if the Obligee shall make any award to the Principal for  
\_\_\_\_\_, according to the terms of the proposal or bid  
made by the Principal therefor, and the Principal shall duly make and enter into a contract with the  
Obligee in accordance with the terms of said proposal or bid and award and shall give bond for the  
faithful performance thereof, with Surety or Sureties approved by the Obligee; or, if the principal shall, in  
case of failure to do so, pay and forfeit to the Obligee the penal amount of the deposit specified in the  
call for bids, then this obligation shall be null and void; otherwise it shall be and remain in full force and  
effect and the Surety shall forthwith pay and forfeit to the Obligee, as penalty and liquidated damages,  
the amount of this bond.

SIGNED, SEALED AND DATED THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_

BY \_\_\_\_\_  
PRINCIPAL

BY \_\_\_\_\_  
SURETY

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

AGENT AND ADDRESS

Note: Bidder may submit Surety's bid bond form, provided it is similar in substance, made out in the  
name of the Port of Tacoma, and that the agent's name and address appear as specified. Bonds  
containing riders limiting responsibility for toxic waste or limiting the term of responsibility will be rejected.

**END OF SECTION**

**THIS IS NOT TO BE SUBMITTED WITH A BID.**

THE LOW RESPONSIVE BIDDER SHALL BE REQUIRED TO COMPLETE THIS RESPONSIBILITY DETAIL FORM AS SPECIFIED IN SECTION 00 21 00 - INSTRUCTIONS TO BIDDERS. **THIS COMPLETED RESPONSIBILITY DETAIL FORM SHALL BE SUBMITTED ELECTRONICALLY (PDF) VIA EMAIL TO THE CONTACT(S) IDENTIFIED IN THE LOW RESPONSIVE BIDDER SELECTION NOTIFICATION.**

**BIDDER'S COMPANY NAME:** \_\_\_\_\_

|   |
|---|
| For the below Mandatory Bidder Responsibility Criteria, please mark the appropriate choice. |
|---|

**1.01 MANDATORY BIDDER RESPONSIBILITY CRITERIA**

- A. The Bidder shall meet the following mandatory responsibility criteria as described in RCW 39.04.350(1). The Bidder shall be rejected as not responsible if any answer to questions 1 through 5 is "No" or any answer to questions 6 through 8 is "Yes."
1. Does the Bidder have a Certificate of Registration in compliance with RCW 18.27?  
☐ Yes                      ☐ No
  2. Does the Bidder have a current Washington State Unified Business Identifier number?  
☐ Yes                      ☐ No
  3. Does the Bidder have Industrial Insurance Coverage for the Bidder's employees working in Washington State as required in RCW 51?  
☐ Yes                      ☐ No
  4. Does the Bidder have an Employment Security Department number as required in RCW 50?  
  
*\*Attach letter dated within six (6) months of Bid Date.*  
*\*Request a letter electronically by clicking on the following link*  
*<https://fortress.wa.gov/esd/twt/pwcinternet/> or by emailing a request to*  
*[publicworks@esd.wa.gov](mailto:publicworks@esd.wa.gov).*  
☐ Yes                      ☐ No
  5. Does the Bidder have a Washington State Excise Tax Registration number as required in RCW 82?  
☐ Yes                      ☐ No
  6. Has the Bidder been disqualified from bidding on any public works project under RCW 39.06.010 or 39.12.065(3)?  
☐ Yes                      ☐ No
  7. Has the Bidder violated RCW 39.04.370 more than one (1) time as determined by the Washington State Department of Labor and Industries?  
☐ Yes                      ☐ No

8. Has the Bidder ever been found to be out of compliance with Apprenticeship Utilization requirements of RCW 39.04.320?
- ☐ Yes      ☐ No
9. Has the Bidder ever been found to have willfully violated, as defined in RCW 49.48.082, any provision of Chapters 49.46, 49.48, or 49.52 RCW within the three- (3-) year period immediately preceding the date of this bid solicitation?
- ☐ Yes      ☐ No
10. Has the Bidder completed the training required by RCW 39.04.350, or is the Bidder on the list of exempt businesses maintained by the Department of Labor and Industries?
- ☐ Yes      ☐ No

If any answer to questions 1 through 5 is "No" or any answer to questions 6 through 8 is "Yes" - **STOP HERE** and contact the Contract Administrator. The Bidder is not responsible for this Work. Otherwise proceed to 1.02. **Provide attached to this completed form documentation to confirm responsibility criteria.**

For remaining criteria below, check or fill-out the appropriate item. Based upon the answer provided by the Bidder, the Port may request additional information or seek further explanation. As needed, provide backup documentation for any explanations listed below.

#### 1.02 CONTRACT AND REGULATORY HISTORY

- A. The Port will evaluate whether the Bidder's contract and regulatory history demonstrates an acceptable record of past project performance and consistent responsibility. The Bidder shall answer the following questions. The Bidder may be rejected as not responsible if any answer to questions 1 through 5 below is "Yes."

1. Has the Bidder had a contract terminated for cause or default in the last five (5) years?
- ☐ Yes, **If YES, explain below.**      ☐ No
- 
2. Has the Bidder required a Surety to take over all, or a portion of, a project to cure or respond to an asserted default or material breach of contract on the part of the Bidder on any public works project in the last five (5) years?
- ☐ Yes, **If YES, explain below.**      ☐ No
- 
3. Have the Bidder and major Sub-Bidders been in bankruptcy, reorganization, and/or receivership on any public works project in the last five (5) years?
- ☐ Yes, **If YES, explain below.**      ☐ No
-

4. Have the Bidder and major Sub-Bidders been disqualified by any state or local agency from being awarded and/or participating on any public works project in the last five (5) years?

☐ Yes, **If YES, explain below.** ☐ No

---

5. Are the Bidder and major Sub-Bidders currently a party to a formal dispute resolution process with the Port (i.e., a pending mediation, arbitration, or litigation)?

☐ Yes, **If YES, explain below.** ☐ No

---

#### 1.03 ACCIDENT/INJURY EXPERIENCE

- A. The Port will evaluate the Bidder's accident/injury Experience Modification Factor ("EMF") from the Washington State Department of Labor and Industries to assess whether the Bidder has an acceptable safety record preventing personal injuries on projects.
- B. List the Bidder's accident/injury EMF for the last five (5) years. An experience factor is calculated annually by the Washington State Department of Labor and Industries.

| Year | Effective Year | Experience Factor |
|------|----------------|-------------------|
| 1    |                |                   |
| 2    |                |                   |
| 3    |                |                   |
| 4    |                |                   |
| 5    |                |                   |

If the Bidder has received an EMF of greater than 1.0 for any year, explain the cause(s) of the designation and what remedial steps were taken to correct the EMF. The Bidder may be rejected as not responsible if the Bidder's EMF is greater than 1.0 and sufficient remedial steps have not been implemented.

---

#### 1.04 WORK PERFORMED BY BIDDER

- A. The Bidder shall state the amount of the Work, as an equivalent to the Base Bid, excluding taxes, insurance, and bonding, the Bidder will execute with its own forces.

\_\_\_\_\_ %

#### 1.05 ADDITIONAL CONTRACTOR INFORMATION

- A. As part of completing this Responsibility Detail Form, **submit the following information with the completed Responsibility Detail Form:**
- Bidder's recent job resume, including a list of similar projects performed and contact information for the similar project owner(s), a brief description of work, start and end dates, and contract amount.
  - Resumes of Bidder's proposed project manager and job superintendent.
- B. The Bidder's failure to provide the required project information may result in a determination of the Bidder being declared non-responsible by the Port.
-



- C. The Bidder shall submit this completed, **SIGNED** Responsibility Detail Form electronically (PDF), with all requested backup documentation, via email to the contact(s) noted on the Low Responsive Bidder Selection Notification.
- D. The Bidder and its subcontractors to verify that its subcontractors at each tier meet the responsibility criteria as required by RCW 39.06.020 and 39.04.350.
  - 1. Bidder shall verify major subcontractors meet the responsibility criteria required. Fill out one Port of Tacoma Public Works Project Bidder Evaluation Checklist for Subcontractors for each major subcontractor and submit to the Port with this form. Backup documentation is not required to be submitted.

**PROJECT: SIM Yard Charging Stations Project**

**PROJECT NO.: 201119.01**

**CONTRACT NO.: 071514**

**Responsibility Certification Form**

The Low responsive Bidder shall complete the Responsibility Detail Form, attach all documentation, and submit to the Port within twenty-four (24) hours following receipt of the Low Responsive Bidder Selection Notification. All forms shall be submitted electronically (PDF) via email to the contact(s) listed on the Selection Notice. Note, the same project may be used to demonstrate experience across multiple categories if applicable.

By completing and signing this Responsibility Detail Form, the Bidder is certifying that the information contained within the Form, the backup documentation, and any additional information requested by the Port is true and complete. The Bidder's failure to disclose the required information or the submittal of false or misleading information may result in the rejection of the Bidder's Bid, revocation of award, or contract termination.

The information provided herein is true and complete.

\_\_\_\_\_  
Signature of Authorized Representative

\_\_\_\_\_  
Date

\_\_\_\_\_  
Print Name and Title

**PORT OF TACOMA PUBLIC WORKS PROJECT BIDDER EVALUATION CHECKLIST FOR  
SUBCONTRACTORS**

**PROJECT TITLE:** SIM Yard Charging Stations Project

**BIDDER:** \_\_\_\_\_

**CONTRACT AND PROJECT NUMBER:** 071514/ 201119.01

This checklist shall be completed by the Bidder and its subcontractors to verify that its subcontractors at each tier meet the responsibility criteria as required by RCW 39.06.020 and RCW 39.04.350.

This checklist should be submitted to the Port of Tacoma Contracts Administrator within twenty-four (24) hours of request.

**Document verification information or backup data is not to be submitted to the Port, this information should remain on file with the Contractor and be presented to the Port if requested at a later date.**

| Item No. | Item   | Initials/Comments |
|----------|--|-------------------|
| 1.       | At the time of Bid submittal, have a certificate of registration in compliance with RCW 18.27: Check the L&I site <a href="https://fortress.wa.gov/lni/bbip/">https://fortress.wa.gov/lni/bbip/</a> .<br><br>Verify that a subcontractor has an electrical contractor license, if required by RCW 19.28, or an elevator contractor license, if required by RCW 70.87.  |                   |
| 2.       | While reviewing registration information above, also check contractor's <b>Employer Liability Certificate</b> to verify workers' comp (industrial insurance) premium status – current account.<br><br>Complete a "Submit Contractor Tracking Request" to be notified if the contractor fails to pay workers' comp premiums or renew their contractor registration or if their electrical contractor license is suspended or revoked within one year.   |                   |
| 3.       | State excise tax registration number (Department of Revenue). (contractor's Washington State Unified Business Identifier and tax registration number)<br><a href="http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/">http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/</a> .   |                   |
| 4.       | Not disqualified from bidding on any public works contract under RCW 39.06.010 or RCW 39.12.065(3).<br><br>Check the Department of Labor and Industries<br><a href="http://www.lni.wa.gov/TradesLicensing/PrevWage/AwardingAgencies/DebarredContractors/">http://www.lni.wa.gov/TradesLicensing/PrevWage/AwardingAgencies/DebarredContractors/</a> .   |                   |
| 5.       | Verify subcontractors are registered with the Washington State Employment Security Department (ESD) and have an account number. Request a letter to be sent from the subcontractor electronically by clicking on the following link <a href="https://fortress.wa.gov/esd/twt/pwcinternet/">https://fortress.wa.gov/esd/twt/pwcinternet/</a> or by emailing a request to <a href="mailto:publicworks@esd.wa.gov">publicworks@esd.wa.gov</a> . Include ESD#, UBI#, and business name in the email. Certificate of Coverage letter issued/dated within the last six (6) months. |                   |

| Item<br>No. | Item   | Initials/<br>Comments |
|-------------|--|-----------------------|
|             | Document if subcontractor confirms in writing, under penalty of perjury, that it has no employees and this requirement does not apply. |                       |

**END OF SECTION**

THIS AGREEMENT is made and entered into by and between the PORT OF TACOMA, a State of Washington municipal corporation, hereinafter designated as the "Port," and:

The "Contractor" is: \_\_\_\_\_ (Legal Name)

\_\_\_\_\_ (Address)

\_\_\_\_\_ (Address 2)

\_\_\_\_\_ (Phone No.)

The "Project" is: SIM Yard Charging Stations Project (Title)

201119.01 | 071514 (Project/Contract No.)

1821 Milwaukee Way (Project Address)

Tacoma, WA 98421 (Project Address 2)

The "Engineer" is: Thais Howard, PE (Engineer)

Director of Engineering (Title)

thoward@portoftacoma.com (Email)

(253) 888-4718 (Phone No.)

The "Contractor's Representative" is: \_\_\_\_\_ (Representative)

\_\_\_\_\_ (Title)

\_\_\_\_\_ (Email)

\_\_\_\_\_ (Phone No.)

#### BACKGROUND AND REPRESENTATIONS:

The Port publicly solicited bids on the Contract Documents. The Contractor submitted a Bid to the Port on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ to perform the Work.

The Contractor represents that it has the personnel, experience, qualifications, capabilities, and means to accomplish the Work in strict accordance with the Contract Documents, within the Contract Time and for the Contract Price, and that it and its Subcontractors satisfy the responsibility criteria set forth in the

Contract Documents, including any supplemental responsibility criteria.

The Contractor further represents that it has carefully examined, and is fully familiar with, all provisions of the Contract Documents, including any Addenda, that it has fully satisfied itself as to the nature, location, difficulty, character, quality, and quantity of the Work required by the Contract Documents and the conditions and other matters that may be encountered at or near the Project site(s), or that may affect performance of the Work or the cost or difficulty thereof, including all applicable safety and site responsibilities, and that it understands and can satisfy all scheduling and coordination requirements and interim milestones.

#### **AGREEMENT:**

The Port and the Contractor agree as follows:

##### **1.0 CONTRACTOR TO FULLY PERFORM THE WORK**

The Contractor shall fully execute and complete the entire Work for the Project described in the Contract Documents, except to the extent specifically indicated in the Agreement, the General Conditions of the Contract (as well as any Supplemental, Special, or other conditions included in the Project Manual), the Drawings, the Specifications, and all Addenda issued prior to, and all modifications issued after, execution of the Contract.

##### **2.0 DATE OF COMMENCEMENT**

The date of commencement of the Work, which is the date from which the Contract Time is measured, shall be fixed as the date of execution of the Contract.

##### **3.0 CONTRACT TIME AND LIQUIDATED DAMAGES**

The Contractor shall achieve all interim milestones as set forth in the Contract Documents and Substantial Completion of the entire Work not later than 75 calendar days from execution of the Contract, subject to adjustments of this Contract Time as provided in the Contract Documents. The Contractor shall achieve Final Completion of the entire Work within 30 calendar days of the date on which Substantial Completion is achieved.

Provisions for liquidated damages as a reasonable estimate of future loss, as of the date of this Agreement, are included in the Contract Documents. The parties agree that the stated liquidated damages are reasonable and not penalties individually nor cumulatively.

The liquidated damages for failure to achieve Substantial Completion by the required date shall be \$425 per calendar day. After the required Final Completion date, the liquidated damages for failure to achieve Final Completion shall be \$150 per calendar day.

Liquidated damages assessed by the Port will be deducted from monies due to the Contractor, or from monies that will become due to the Contractor. The liquidated damages, as specified and calculated herein, shall be levied, cumulatively if applicable, for each and every calendar day that Substantial Completion and/or Final Completion of the Work is delayed beyond the required completion dates, or the completion dates modified by the Port for extensions of the Contract Time.

##### **4.0 CONTRACT PRICE**

In accordance with the Contractor's Bid dated \_\_\_\_\_, the Port shall pay the Contractor in current funds for the Contractor's performance of the Contract, the Contract Price of

\_\_\_\_\_ Dollars (\$\_\_\_\_\_), subject to additions and deductions as provided in the Contract Documents. State and local sales tax is not included in the Contract Price, but will be due and paid by the Port with each progress payment.

5.0 ALTERNATES

6.0 INSURANCE AND BONDS

The Contractor shall purchase and maintain insurance and provide bonds as set forth in the Contract Documents.

This Agreement is entered into as of the day and year first written above:

CONTRACTOR

PORT OF TACOMA

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

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

Title: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Execution \_\_\_\_\_  
Date: \_\_\_\_\_

**END OF SECTION**

**PERFORMANCE BOND # \_\_\_\_\_**

**CONTRACTOR (NAME AND ADDRESS)**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**SURETY (NAME AND PRINCIPLE PLACE OF BUSINESS)**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**OWNER (NAME AND ADDRESS)**

PORT OF TACOMA  
P.O. BOX 1837  
TACOMA, WA 98401-1837

**AGENT OR BROKER (FOR INFORMATION ONLY)**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**KNOW ALL MEN BY THESE PRESENTS:**

That \_\_\_\_\_ as Principal, hereinafter called Contractor, and \_\_\_\_\_ as Surety, hereinafter called Surety, are held and firmly bound unto the Port of Tacoma as Obligee, hereinafter called the Port, in the amount of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) for the payment whereof Contractor and Surety bind themselves, their executors, administrators, legal representatives, successors, and assigns, jointly and severally, firmly by these presents.

**WHEREAS:**

Contractor shall execute an agreement with the Port for SIM Yard Charging Stations Project, Project No. 201119.01/Contract No. 071514, a copy of which Contract is by reference made a part hereof (the term "Contract" as used herein to include the aforesaid agreement together with all the Contract Documents, addenda, modifications, all alterations, additions thereto, deletions therefrom, and any other document or provision incorporated into the Contract) and is hereinafter referred to as the Contract.

This bond is executed and issued pursuant to the provisions of RCW 39.08.

**NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION** is such that if Contractor shall promptly and faithfully perform said Contract, then this obligation shall be null and void; otherwise, it shall remain in full force and effect.

**FURTHER:**

- A. Surety hereby waives notice of any alterations, change orders, modifications, or extensions of time made by the Port.
- B. Surety recognizes that the Contract includes provisions for additions, deletions, and modifications to the Work and/or Contract Time and the amounts payable to the Contractor. Subject to the limitations contained in (A) above, Surety agrees that no such addition, deletion, or modification, or any combination thereof, shall avoid or impair Surety's obligation hereunder.
- C. Whenever Contractor has been declared by the Port to be in default, and the Port has given Surety notice of the Port's determination of such default, Surety shall promptly (in no event more than fifteen (15) days following receipt of such notice) advise the Port of its intended action to:
  1. Remedy the default within fifteen (15) days following its advice to the Port as set forth above, or
  2. Assume within fifteen (15) days, following its advice to the Port as set forth above, completion of the Contract in accordance with the Contract Documents and become entitled to payment of the balance of the Contract Sum, or

3. Pay the Port upon completion of the Contract, in cash, the cost of completion together with all other reasonable costs and expenses incurred by the Port as a result of the Contractor's default, including but not limited to, those reasonable costs and expenses incurred by the Port in its efforts to mitigate its losses, which may include, but are not limited to, attorney's fees and efforts to complete the Work prior to the Surety exercising the options available to it as set forth herein.
- D. If the Port shall commence suit and obtain judgment against the Surety for recovery hereunder, then the Surety, in addition to such judgment, shall pay all costs and attorney's fees incurred by the Port in enforcement of its rights hereunder. Venue for any action arising out of, or in connection with, this bond shall be in Pierce County, Washington.
- E. No right or action shall accrue on this bond to, or for the use of, any person or corporation other than the Port of Tacoma.

Signed and Sealed the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

**IMPORTANT:** Surety companies executing bonds must have an A.M. Best Rating of "A-, FSC (6)" or higher, have an underwriting limitation of not less than the Contract Sum, and be authorized to transact business in the State of Washington.

**SURETY**

**CONTRACTOR**

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed Name and Title

\_\_\_\_\_  
Printed Name and Title

Power of Attorney attached.

**END OF SECTION**



**LABOR AND MATERIAL PAYMENT BOND # \_\_\_\_\_**

**CONTRACTOR (NAME AND ADDRESS)**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**SURETY (NAME AND PRINCIPLE PLACE OF BUSINESS)**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**OWNER (NAME AND ADDRESS)**

PORT OF TACOMA  
P.O. BOX 1837  
TACOMA, WA 98401-1837

**AGENT OR BROKER (FOR INFORMATION ONLY)**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**KNOW ALL MEN BY THESE PRESENTS:**

That \_\_\_\_\_ as Principal, hereinafter called Contractor, and \_\_\_\_\_ as Surety, hereinafter called Surety, are held and firmly bound unto the Port of Tacoma as Oblige, hereinafter called the Port, and all others entitled to recovery hereunder, in the amount of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) for the payment whereof Contractor and Surety bind themselves, their executors, administrators, legal representatives, successors, and assigns, jointly and severally, firmly by these presents.

**WHEREAS:**

Contractor shall execute an agreement with the Port for SIM Yard Charging Stations Project, Project No. 201119.01/Contract No. 071514, a copy of which Contract is by reference made a part hereof (the term "Contract" as used herein to include the aforesaid agreement together with all the Contract Documents, addenda, modifications, alterations, additions thereto, deletions therefrom, and any other document or provision incorporated into the Contract) and is hereinafter referred to as the Contract.

This bond is executed pursuant to the provisions of RCW 39.08.

**NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION** is such that if Contractor shall promptly make payment to all claimants, as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract and shall indemnify and save the Port harmless from all cost and damage by reason of Contractor's default, then this obligation shall be null and void; otherwise, it shall remain in full force and effect, subject to the following conditions.

- A. Surety hereby waives notice of any alterations, change orders, modifications, or extensions of time made by the Port.
- B. Surety recognizes that the Contract includes provisions for additions, deletions, and modifications to the Work and/or Contract Time and the amounts payable to the Contractor. Subject to the limitations contained in (A) above, Surety agrees that no such addition, deletion, or modification, or any combination thereof, shall avoid or impair Surety's obligation hereunder.
- C. Surety hereby agrees that every person protected under the provisions of RCW 39.08.010 who has not been paid as provided under the Contract, and pursuant to RCW 39.08.010, less any amounts withheld pursuant to statute, and less retainage withheld pursuant to RCW 60.28, after the expiration of a period of thirty (30) days after the date on which the completion of the Contract in accordance with RCW 39.08, may sue on this bond, prosecute the suit to final judgment as may be due claimant, and have execution thereon including recovery of reasonable costs and attorney's fees as provided by RCW 39.08. The Port shall not be liable for the payment of any costs or expenses of any such suit.

- D. No suit or action shall be commenced hereunder by any claimant unless claimant shall have given the written notices to the Port, and where required, the Contractor, in accordance with RCW 39.08.030.
- E. The amount of this bond shall be reduced by, and to the extent of, any payment or payments made in good faith hereunder, inclusive of the payment by Surety of claims which may be properly filed in accordance with RCW 39.08 whether or not suit is commenced under and against this bond.
- F. If any Claimant shall commence suit and obtain judgment against the Surety for recovery hereunder, then the Surety, in addition to such judgment and attorney fees as provided by RCW 39.08.030, shall also pay such costs and attorney fees as may be incurred by the Port as a result of such suit. Venue for any action arising out of, or in connection with, this bond shall be in Pierce County, Washington.

Signed and Sealed the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

**IMPORTANT:** Surety companies executing bonds must have an A.M. Best Rating of "A-, FSC (6)" or higher, have an underwriting limitation of not less than the Contract Sum, and be authorized to transact business in the State of Washington.

**SURETY**

**CONTRACTOR**

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed Name and Title

\_\_\_\_\_  
Printed Name and Title

Power of Attorney attached.

**END OF SECTION**

BOND NO.: \_\_\_\_\_

PROJECT TITLE: SIM Yard Charging Stations Project

PROJECT NO.: 201119.01

CONTRACT NO.: 071514

KNOW ALL MEN BY THESE PRESENTS: That we, \_\_\_\_\_  
\_\_\_\_\_ a corporation existing under and by virtue of the laws of the State of Washington and authorized to do business in the State of Washington, as Principal, and \_\_\_\_\_, a corporation organized and existing under the laws of the State of \_\_\_\_\_ and authorized to transact the business of surety in the State of Washington, as Surety, are jointly and severally held and bound unto the PORT OF TACOMA, hereinafter called Port, as Obligee, and are similarly held and bound unto the beneficiaries of the trust fund created by RCW 60.28 as their heirs, executors, administrators, successors, and assigns in the penal sum of \_\_\_\_\_ (\$ \_\_\_\_\_) plus five (5) percent of any increases in the Contract Price that have occurred or may occur, due to change orders, increases in the quantities, or the addition of any new item of work.

WHEREAS, on the \_\_\_\_\_ day of \_\_\_\_\_, the said Principal herein executed Contract No. 071514 with the Port for SIM Yard Charging Stations Project, Project No. 201119.01.

WHEREAS, said Contract and RCW 60.28 require the Port to withhold from the Principal the sum of five (5) percent from monies earned by the Principal on estimates during the progress of the work, hereinafter referred to as earned retained funds.

WHEREAS, the Principal has requested that the Port accept a bond in lieu of earned retained funds as allowed under RCW 60.28.

NOW THEREFORE, this obligation is such that the Surety, its successors, and assigns are held and bound unto the Port and unto all beneficiaries of the trust fund created by RCW 60.28.011(1) in the aforesaid sum. This bond, including any proceeds therefrom, is subject to all claims and liens and in the same manner and priority as set forth for retained percentages in RCW 60.28. The condition of this obligation is also that if the Principal shall satisfy all payment obligations to persons who may lawfully claim under the trust fund created pursuant to RCW 60.28, to the Port, and indemnify and hold the Port harmless from any and all loss, costs, and damages that the Port may sustain by release of said retainage to Principal, then this obligation shall be null and void, provided the Surety is notified by the Port that the requirements of RCW 60.28.021 have been satisfied and the obligation is duly released by the Port.

IT IS HEREBY DECLARED AND AGREED that the Surety shall be liable under this obligation as Principal. The Surety will not be discharged or released from liability for any act, omission, or defenses of any kind or nature that would not also discharge the Principal.

IT IS HEREBY FURTHER DECLARED AND AGREED that this obligation shall be binding upon and inure to the benefit of the Principal, the Surety, the Port, the beneficiaries of the trust fund created by RCW 60.28 and their respective heirs, executors, administrators, successors, and assigns.

IN WITNESS WHEREOF, said Principal and said Surety have caused these presents to be duly signed and sealed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
By: \_\_\_\_\_  
Principal

Address: \_\_\_\_\_

City/ST/Zip: \_\_\_\_\_

Phone: \_\_\_\_\_

\_\_\_\_\_  
Surety Name: \_\_\_\_\_

By: \_\_\_\_\_  
Attorney-In-Fact

Address: \_\_\_\_\_

City/ST/Zip: \_\_\_\_\_

Phone: \_\_\_\_\_

**IMPORTANT:** Surety companies executing bonds must have an A.M. Best Rating of "A-, FSC (6)" or higher, and be authorized to transact business in the State of Washington.

**END OF SECTION**

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## **ARTICLE 1 - THE CONTRACT DOCUMENTS**

### **1.01 GENERAL**

- A. Contract Documents form the Contract. The Contract Documents are enumerated in the Agreement between the Port and Contractor ("Agreement"). Together, the Contract Documents form the Contract. The Contract represents the entire integrated agreement between the parties and supersedes all prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only in writing and only as set forth in the Contract Documents.
- B. Headings only for convenience. The titles or headings of the sections, divisions, parts, articles, paragraphs, and subparagraphs of the Contract Documents are intended only for convenience.

### **1.02 DEFINITIONS**

- A. "Contract Documents" proposed for the Work consist of the Agreement, the General Conditions of the Contract (as well as any Supplemental, Special, or other conditions included in the Project Manual), the Drawings, the Specifications, and all Addenda issued prior to, and all modifications issued after, execution of the Contract.
- B. "Contractor" means the person or entity contracting to perform the Work under these Contract Documents. The term Contractor includes the Contractor's authorized representative for purposes of identifying obligations and responsibilities under the Contract Documents, including the ability to receive notice and direction from the Port.
- C. "Day" means a calendar day unless otherwise specifically designated.
- D. "Drawings" are the graphic and pictorial portions of the Contract Documents showing the design, location, and dimensions of the Work, including plans, elevations, sections, details, and diagrams.
- E. "Engineer" is the Port employee generally tasked with administering the Project on the Port's behalf and the person with overall responsibility for managing, for the Port, the Project scope, budget, and schedule. To the extent empowered, the Engineer may delegate to others at the Port (such as a Project Manager or Inspector) the responsibility for performing delegated responsibilities of the Engineer's under this Contract.
- F. "Port" means the Port of Tacoma. The Port will designate in writing a representative (usually the Engineer) who shall have the authority to act on the Port's behalf related to the Project. The "Port" does not include staff, maintenance, or safety workers, or other Port employees or consultants that may contact the Contractor or be present at the Project site.
- G. "Project" is identified in the Agreement and is the total construction to be performed by or through the Port, of which the Work performed under the Contract Documents may be only a part.
- H. "Specifications" are those portions of the Contract Documents that specify the written requirements for materials, equipment, systems, standards, and workmanship for the Work and for the performance of related services.
- I. "Subcontractor" means a person or entity that contracts directly with the Contractor to perform any Work under the Contract Documents. "Subcontractor of any tier" includes Subcontractors as well as any other person or entity, including suppliers, that contracts with a Subcontractor or a lower-tier Subcontractor (also referred to as "Sub-subcontractors") to perform any of the Work.
- J. "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all labor, tools, equipment, materials, services,

and incidentals necessary to complete all obligations under the Contract Documents. The Work may constitute only a part of the Project, and may interface and need to be coordinated with the work of others.

### 1.03 INTENT OF THE CONTRACT DOCUMENTS

- A. Intent of Contract Documents. The intent of the Contract Documents is to describe the complete Work and to include all items and information necessary for the proper execution and completion of the Work by the Contractor.
- B. Contract Documents are complementary. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor is required to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.
- C. No third party contract rights. The Contract Documents shall not create a contractual relationship of any kind (1) between the Port and a Subcontractor of any tier (although the Port does not waive any third-party beneficiary rights it may otherwise have as to Subcontractors of any tier), (2) between the Contractor and the Engineer or other Port employees or consultants, or (3) between any persons or entities other than the Port and Contractor.

### 1.04 CORRELATION OF THE CONTRACT DOCUMENTS

- A. Precedence. In the event of a conflict or discrepancy between or among the Contract Documents, the conflict or discrepancy will be resolved by the following order of precedence: with an addendum or Change Order having precedence over an earlier document, and computed dimensions having precedence over scaled dimensions, and large scale drawings take precedence over small scale drawings:
  - 1. The signed Agreement
    - a. Supplemental Conditions
    - b. Division 00 General Conditions
    - c. Division 01 General Requirements of Specifications
    - d. All other Specifications, including all remaining divisions, material and system schedules and attachments, and Drawings
    - e. All other sections in Division 00 not specifically identified herein by Section
- B. Inconsistency between or among Contract Documents. If there is any inconsistency between the Drawings, schedules, or Specifications, or any attachments, the Contractor will make an inquiry to the Engineer to determine how to proceed, and, unless otherwise directed, the Contractor will provide the better quality or greater quantity of any work or materials, as reasonably interpreted by the Port, at no change in the Contract Sum or Contract Time. Thus, if Work is shown on Drawings, but not contained in Specifications or schedules, or contained in Specifications or schedules, but not shown on the Drawings, the Work as shown or contained will be provided at no change in the Contract Sum or Contract Time, according to Specifications or Drawings to be issued by the Port.
- C. Inconsistency with law. In the event of a conflict between the Contract Documents and applicable laws, codes, ordinances, regulations, or orders of governmental authorities having jurisdiction over the Work, or in the event of any conflict between such laws, the most stringent requirements govern.
- D. Organization of Contract Documents. The organization of the Specifications and Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the



extent of the Work to be performed. The Port assumes no responsibility for the division and proper coordination of Work between particular Subcontractors.

- E. Bid quantities are estimates only. Any "bid quantities" set forth in the Contract Documents are estimates only. The Port does not warrant that the actual amount of Work will correspond to any estimates. The basis of payment will be the actual quantities performed in accordance with the Contract Documents.

#### 1.05 OWNERSHIP OF THE CONTRACT DOCUMENTS

- A. Port owns all Contract Documents. All Drawings, Specifications, and other Contract Documents furnished to the Contractor are Port property, and the Port retains all intellectual property rights, including copyrights. The Contract Documents are to be used only with respect to the Project.

### ARTICLE 2 - PORT OF TACOMA

#### 2.01 AUTHORITY OF THE ENGINEER

- A. Engineer will be Port's representative. The Engineer or the Engineer's designee will be the Port's representative during the Project and will administer the Project on the Port's behalf.
- B. Engineer may enforce all obligations. The Engineer has the authority to enforce all requirements imposed on the Contractor by the Contract Documents.
- C. Only Engineer is agent of Port. Other than the Engineer, no other Port employee or consultant is an agent of the Port, and none are authorized to agree on behalf of the Port to changes in the Contract Sum or Contract Time, nor to waive provisions of the Contract Documents, nor to direct the Contractor to take actions that change the Contract Sum or Contract Time, nor to accept notice of protests or claims on behalf of the Port.

#### 2.02 ADMINISTRATION OF THE CONTRACT

- A. Port will administer Contract. The Port will provide administration of the Contract through the Engineer or the Engineer's designee. All communications with the Port or its consultants related to the Contract will be through the designated representative.
- B. Port not responsible for means and methods. The Port is not responsible for, and will have no control or charge of, the means, methods, techniques, sequences, or procedures of construction, or for safety precautions or programs incidental thereto, because these are the sole responsibility of the Contractor. If the Port makes any suggestion of means, methods, techniques, sequences, or procedures, the Contractor will exercise its independent judgment in deciding whether to adopt the suggestion, except as otherwise provided in the Contract Documents.
- C. Port not responsible for acts or omissions of Contractor or Subcontractors. The Port is not responsible for, and will have no control or charge of, the acts or omissions of the Contractor, Subcontractors of any tier, suppliers, or any of their agents or employees, or any other persons performing a portion of the Work.
- D. Port not responsible for the Work. The Port is not responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The presence of the Engineer or others at the Project site at any time does not relieve the Contractor from its responsibility for non-conforming Work.
- E. Port will have access to the Work. The Port and its representatives will at all times have access to the Work in progress, and the Contractor will provide proper facilities for such access and for inspection.

### 2.03 INFORMATION PROVIDED BY THE PORT

- A. Port to furnish information with reasonable promptness. The Port shall furnish information and services required of the Port by the Contract Documents with reasonable promptness.
- B. Subsurface investigation. The Port may have undertaken a limited investigation of the soil and other subsurface conditions at the Project site for design purposes only. The results of these investigations will be available for the convenience of the Contractor, but they are not Contract Documents. There is no warranty or guarantee, express or implied, that the conditions indicated are representative of those existing at the site or that unforeseen developments may not occur. The Contractor is solely responsible for interpreting the information.

### 2.04 CONTRACTOR REVIEW OF PROJECT INFORMATION

- A. Contractor to familiarize itself with site and conditions of Work. Prior to executing the Contract, the Contractor shall visit the site, become generally familiar with local conditions under which the Work is to be performed, and correlate personal observations with the requirements of the Contract Documents and all information provided with the Bid Documents. By signing the Contract, the Contractor confirms that the Contract Sum is reasonable compensation for the Work; that the Contract Time is adequate; that it has carefully examined the Contract Documents and the Project site; and that it has satisfied itself as to the nature, location, and character of the Work, the labor, materials, equipment, and other items required and all other requirements of the Contract Documents. The Contractor's failure fully to acquaint itself with any such condition does not relieve the Contractor from the responsibility for performing the Work in accordance with the Contract Documents, within the Contract Time, and for the Contract Sum.
- B. Contractor to review Contract Documents. Because the Contract Documents are complementary, the Contractor will, before starting each portion of the Work, carefully study and compare the various Drawings, Specifications, and other Contract Documents, as well as all information furnished by the Port.
- C. Contractor to confirm field conditions. Before starting each portion of the Work, the Contractor shall take field measurements of and verify any existing conditions, including all Work in place, and all general reference points; shall observe any conditions at the site affecting the Contractor; and shall carefully compare field measurements, conditions and other information known to the Contractor with the Contract Documents.

### 2.05 PORT'S RIGHT TO REJECT, STOP, AND/OR CARRY-OUT THE WORK

- A. Port may reject Work. The Port has the authority, but not the obligation, to reject work, materials, and equipment that is defective or that otherwise does not conform to the Contract Documents, and to decide questions concerning the Contract Documents. However, the failure to so reject, or the presence of the Port at the site, shall not be construed as assurance that the Work is acceptable or being completed in compliance with the Contract Documents.
- B. Port may stop Work. If the Contractor fails to correct Work that does not comply with the requirements of the Contract Documents, or repeatedly or materially fails to properly carry out the Work, the Port may issue an order to stop all or a portion of the Work until the cause for the order has been eliminated. The Port's right to stop the Work shall not impose a duty on the Port to exercise this right for the benefit of the Contractor or any third party.
- C. Port may carry-out Work. If the Contractor fails to perform the Work properly, fails to perform any provision of this Contract, or fails to maintain the Baseline Project Schedule, or if the Port reasonably concludes that the Work will not be completed in the specified manner or within the Contract Time, then the Port may, after three (3) days' written notice to the Contractor and without prejudice to any other remedy the Port may have, perform itself or have performed any

or all of the Work and may deduct the cost thereof from any payment then or later due the Contractor.

## 2.06 SEPARATE CONTRACTORS

- A. Port may engage separate contractors or perform work with its own forces. The Port may contract with other contractors ("Separate Contractor") in connection with the Project or perform work with its own forces. The Contractor shall coordinate and cooperate with any Port forces or Separate Contractors, as applicable. The Contractor shall provide reasonable opportunity for the introduction and storage of materials and the execution of work by others.
- B. Contractor to inspect work of others. If any part of the Contractor's Work depends on the work of the Port or any Separate Contractor, the Contractor shall inspect and promptly report to the Port, in writing, any defects that impact the Contractor. Failure of the Contractor to so inspect and report defects in writing shall constitute an acceptance by Contractor of the work of the Port or Separate Contractor.
- C. Contractor to resolve claims of others. Should the Contractor, or any of its Subcontractors of any tier, cause damage of any kind, including but not limited to delay, to any Separate Contractor, the Contractor shall promptly, and using its best efforts, settle or otherwise resolve the dispute with the Separate Contractor. The Contractor shall also promptly remedy damage caused to completed or partially completed construction.

## 2.07 OFFICERS AND EMPLOYEES OF THE PORT

- A. No personal liability. Officers, employees, and representatives of the Port, including the Commissioners, acting within the scope of their employment, shall not be personally liable to Contractor for any acts or omissions arising out of the Project.

# ARTICLE 3 - CONTRACTOR'S RESPONSIBILITIES

## 3.01 DUTY TO PERFORM THE ENTIRE WORK

- A. Contractor must perform entire Work in accordance with Contract Documents. The Contractor shall perform the entire Work required by the Contract in accordance with the Contract Documents. Unless otherwise specifically provided, the Contractor shall provide and pay for all labor, tools, equipment, materials, electricity, power, water, other utilities, transportation, and other facilities necessary for the execution and completion of the Work.
- B. Contractor shall be independent contractor. The Contractor shall be, and operate as, an independent contractor in the performance of the Work. The Contractor is not authorized to enter into any agreements or undertakings for, or on behalf of, the Port and is not an agent or employee of the Port.

## 3.02 OBSERVED ERRORS, INCONSISTENCIES, OMISSIONS, OR VARIANCES IN THE CONTRACT DOCUMENTS

- A. Contractor to notify Port of any discrepancy. The Contractor's obligations to review and carefully study the Contract Documents and field conditions are for the purpose of facilitating coordination and construction. If the Contractor at any time observes that the Contract Documents, including Drawings and Specifications, vary from the conditions of the Project site, are in error, or omit any necessary detail, the Contractor shall promptly notify the Engineer in writing through a Request for Information. Any Work done after such observation, until authorized by the Engineer, shall be at Contractor's risk. The Contractor shall also promptly report to the Engineer any observed error, inconsistency, omission, or variance with applicable laws through a Request for Information. If the Contractor fails either to carefully study and compare the Contract Documents, or to promptly report any observed error, inconsistency, omission, or variance, the Contractor shall assume full responsibility and shall bear all costs,

liabilities, and damages attributable to the error, inconsistency, omission, or variance.

- B. Requests for Information. The Contractor shall submit Requests for Information concerning the Contract Documents by following the procedure and using such form as the Port may require. The Contractor shall minimize Requests for Information by thoroughly studying the Contract Documents and reviewing all Subcontractor requests. The Contractor shall allow adequate time in its planning and scheduling for a response from the Port to a Request for Information.
- C. Port may provide information to supplement Drawings and Specifications. Minor items of work or detail that are omitted from the Drawings and Specifications, but inferable from the information presented and normally provided by accepted good practice, shall be provided and/or performed by the Contractor as part of the Contract Sum and within the Contract Time. Similarly, the Engineer may furnish to the Contractor additional Drawings and clarifications, consistent with the Contract Documents, as necessary to detail and illustrate the Work. The Contractor shall conform its Work to such additional Drawings and clarifications at no increase in the Contract Sum or Contract Time.

### 3.03 SUPERVISION AND RESPONSIBILITY FOR SUBCONTRACTORS

- A. Contractor responsible for Work and workers. The Contractor shall have complete control of the means, methods, techniques, sequences, or procedures related to the Work, and for all safety precautions or programs. The Contractor shall have complete control over, and responsibility for, all personnel performing the Work. The Contractor is also responsible for the acts and omissions of the Contractor's principals, employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors of any tier.
- B. Contractor to supervise the Work. The Contractor shall continuously supervise and direct the Work using competent and skilled personnel and the Contractor's best skill and attention.
- C. Contractor to enforce discipline and good order. The Contractor shall enforce strict discipline and good order among all workers on the Project, and shall not employ any unfit person or anyone not skilled in the work to which they are assigned. Incompetent, careless, or negligent workers shall immediately be removed from the Work. The Port may, but is not obligated to, require the Contractor to remove from the Work, at no change in the Contract Sum or Contract Time, anyone whom the Port considers objectionable.

### 3.04 MATERIALS AND EQUIPMENT

- A. Material and equipment to be new. All materials and equipment to be incorporated into the Work shall be new, unless specifically provided otherwise in the Contract Documents. The Contractor shall, if required in writing by the Port, furnish satisfactory evidence regarding the kind and quality of any materials, identify the source, and warrant compliance with the Contract Documents. The Contractor shall ensure that all materials and equipment are protected, kept dry, and stored under cover in a manner to protect such materials and equipment.
- B. Material and equipment shall conform to manufacturer instructions. All materials and equipment shall conform, and shall be applied, installed, used, maintained, and conditioned in accordance with the instructions of the applicable manufacturer, fabricator, or processor, unless otherwise specifically provided by the Engineer.

### 3.05 CONTRACTOR WARRANTIES

- A. Work will be of good quality and performed in workmanlike manner. In addition to any specific warranties set forth in the Contract Documents, the Contractor warrants that the Work, including all materials and equipment furnished under the Contract, will be of good quality and new, will be performed in a skillful and workmanlike manner, and will conform to the requirements of the Contract Documents. Any Work not conforming to this warranty, including unapproved or

unauthorized substitutions, shall be considered defective.

- B. Work will be free from defects. The Contractor warrants that the Work will be free from defects for a period of one (1) year from the date of Substantial Completion of the Project.
- C. Contractor to collect and deliver warranties to Port. The Contractor shall collect and deliver to the Port any written warranties required by the Contract Documents. These warranties shall be obtained and enforced by the Contractor for the benefit of the Port without the necessity of separate assignment. These warranties shall extend to the Port all rights, claims, benefits, and interests that the Contractor may have under express or implied warranties or guarantees against a Subcontractor of any tier, supplier, or manufacturer for defective or non-conforming Work. Warranty provisions that purport to limit or alter the Port's rights under the Contract Documents, or the laws of the State of Washington, are null and void.
- D. General requirements. The Contractor is not relieved of its general warranty obligations by the specification of a particular product or procedure in the Contract Documents. Warranties in the Contract Documents shall survive completion, acceptance, and final payment.

### 3.06 REQUIRED WAGES

- A. Contractor will pay required wages. The Contractor shall pay (and shall ensure that all Subcontractors of any tier pay) all prevailing wages and other wages (such as Davis-Bacon Act wages) applicable to the Project. See Specification Section 00 73 46.
- B. The Contractor shall defend (at Contractor's sole cost, with legal counsel approved by Port), indemnify, and hold the Port harmless from all liabilities, obligations, claims, demands, damages, disbursements, lawsuits, losses, fines, penalties, costs, and expenses, whether direct or indirect, and including, but not limited to, attorneys' fees and consultants' fees and other costs and expenses of litigation, from any violation or alleged violation by the Contractor or any Subcontractor of any tier of RCW 39.12 ("Prevailing Wages on Public Works") or Chapter 51 RCW ("Industrial Insurance").

### 3.07 STATE AND LOCAL TAXES

- A. Contractor will pay taxes on consumables. The Contractor will pay the retail sales tax on all consumables used during performance of the Work and on all items that are not incorporated into the final Work; this tax shall be included in the Contract Sum.
- B. Port will pay taxes on the Contract Sum. The Port will pay state and local retail sales tax on the Contract Sum with each progress payment, and on final payment, for transmittal by the Contractor to the Washington State Department of Revenue or to the applicable local taxing authority. Rule 170: WAC 458-20-170.
- C. Direct all tax questions to the Department of Revenue. The Contractor should direct all questions concerning taxes on any portion of the Work to the State of Washington Department of Revenue or to the local taxing authority.
- D. State Sales Tax - Rule 171: WAC 458-20-171. For work performed related to building, repairing, or improving streets, roads, etc., which are owned by a municipal corporation, or political subdivision of the state, or by the United States, and which are used, primarily, for foot or vehicular traffic, the Contractor shall include Washington State Retail Sales Taxes in the various schedule prices, or other contract amounts, including those that the Contractor pays on the purchase of materials, equipment, or supplies used or consumed in doing the Work.
  - 1. The bid form will indicate which bid items are subject to Rule 171. Any such identification by the Port is not binding upon the Department of Revenue.

### 3.08 PERMITS, LICENSES, FEES, AND ROYALTIES

- A. Contractor to provide and pay for permits unless otherwise specified. Unless otherwise specified, the Contractor shall procure and pay for all permits, licenses, and governmental inspection fees necessary or incidental to the performance of the Work. All costs related to these permits, licenses, and inspections shall be included in the Contract Sum. Any action taken by the Port to assist the Contractor in obtaining permits or licenses shall not relieve the Contractor of its sole responsibility to obtain and pay for permits, licenses, and inspections as part of the Contract Sum.
- B. Contractor's obligations when permit must be in Port's name. When applicable law or agency requires a permit to be issued to a public agency, the Port will support the Contractor's request for the permit and accept the permit in the Port's name, if:
  - 1. The Contractor takes all necessary steps required for the permit to be issued;
  - 2. The permit applies to Work performed in connection with the Project; and
  - 3. The Contractor agrees in writing to abide by all requirements of the permit and to defend and hold harmless the Port from any liability in connection with the permit.
- C. Contractor to pay royalties. The Contractor shall pay all royalties and license fees required for the Work unless otherwise specified in the Contract Documents.

### 3.09 SAFETY

- A. Contractor solely responsible for safety. The Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work and the performance of the Contract.
- B. Port not responsible for safety. The Port may identify safety concerns to the Contractor; however, no action or inaction of the Port or any third party relating to safety will: (1) relieve the Contractor of its sole and complete responsibility for safety and sole liability for any consequences, (2) impose any obligation on the Port or a third party to inspect or review the Contractor's safety program or precautions, (3) impose any continuing obligation on the Port or a third party to ensure the Contractor performs the Work safely, or (4) affect the Contractor's responsibility for the protection of property, workers, and the general public.
- C. Contractor to maintain a safe Work site. The Project site may be occupied during performance of the Work. The safety of these site occupants is of paramount importance to the Port. The Contractor shall maintain the Work site and perform the Work in a safe manner and in accordance with the Washington Industrial Safety and Health Act (WISHA) and all other applicable safety laws, rules, and regulations. This requirement shall apply continuously and not be limited to working hours.
- D. Contractor to protect Work site and adjacent property until Final Completion. The Contractor shall continuously protect the Work and adjacent property from damage. At all times until Final Completion, the Contractor shall be responsible for, and protect from damage, weather, deterioration, theft, and vandalism, the Work and all materials, equipment, tools, and other items incorporated or to be incorporated in the Work, and shall repair any damage, injury, or loss.

### 3.10 CORRECTION OF WORK

- A. Contractor to correct defective Work. The Contractor shall, at no cost to the Port, promptly correct Work that is defective or that otherwise fails to conform to the requirements of the Contract Documents. Such Work shall be corrected, whether before or after Substantial Completion, and even if it was previously inspected or observed by the Port.

- B. One-year correction period. The Contractor shall correct all defects in the Work appearing within one (1) year of Substantial Completion or within any longer period prescribed by law or by the Contract Documents. The Contractor shall initiate remedial action within fourteen (14) days of receipt of notice from the Port and shall complete remedial work within a reasonable time. Work corrected by the Contractor shall be subject to the provisions of this Section 3.10 for an additional one-year period following the Port's acceptance of the corrected Work.
- C. Contractor responsible for defects and failures to correct. The Contractor shall be responsible for any expenses incurred by the Port resulting from defects in the Work. If the Contractor refuses or neglects to correct the defects, or does not timely accomplish corrections, the Port may correct the Work and charge the Contractor the cost of the corrections. If damage or loss of service may result from a delay in correction, the corrections may be made by the Port and reimbursed by the Contractor.
- D. Port may accept defective work. The Port may, at its sole option, elect to retain defective or nonconforming Work. In such a case, the Port shall reduce the Contract Sum by a reasonable amount to account for the defect or non-conformance.
- E. No period of limitation established. Nothing contained in this Section 3.10 establishes a period of limitation with respect to any obligations under the Contract Documents or law. The establishment of the one (1) year correction period relates only to the specific obligation of the Contractor to correct defective or non-conforming Work.

### 3.11 UNCOVERING OF WORK

- A. Contractor to uncover work covered prior to inspection. If any portion of the Work is covered prior to inspection and approval, the Contractor shall, at its expense, uncover or remove the Work for inspection by the Port or others, and replace the Work to the standard required by the Contract Documents.
- B. Contractor to uncover work at Port's request. After initial inspection and observation, the Port may order a reexamination of Work, and the Work must be uncovered by the Contractor. If the uncovered Work complies with the Contract Documents, the Port shall pay the cost of reexamination and replacement. If the Work is found not to comply with the Contract Documents, the Contractor shall pay the cost of replacement, unless the Contractor demonstrates that it did not cause the defect in the Work.

### 3.12 RELOCATION OF UTILITIES

- A. Contractor should assume underground utilities are in approximate locations. The Contractor should assume that the locations of any underground or hidden utilities, underground tanks, and plumbing or electrical runs indicated in surveys or the Contract Documents are shown in approximate locations. The accuracy of this information is not guaranteed by the Port and shall be verified by the Contractor. The Contractor shall comply with RCW 19.122.030 and utilize a utility locator service to locate utilities on Port property. The Contractor shall bear the risk of loss if any of its Work directly or indirectly damages or interrupts any utility service or causes or contributes to damages of any nature.
- B. Utility relocation or removal. Where relocation or removal of utilities is necessary or required, it shall be performed at the Contractor's sole expense, unless the Contract Documents specify otherwise. If a utility owner is identified as being responsible for relocating or removing utilities, the work will be accomplished at the utility owner's convenience, either during, or in advance of, construction. Unless otherwise specified, it shall be the Contractor's sole responsibility to coordinate, schedule, and pay for work performed by a utility owner.

- C. Contractor to notify Port of unknown utilities. If the Contractor discovers the presence of any unknown utilities, it shall immediately notify the Engineer in writing.

### 3.13 LABOR

- A. Contractor responsible for labor peace. The Contractor is responsible for labor peace relating to the Work and shall cooperate in maintaining Project-wide labor harmony. The Contractor shall use its best efforts as an experienced contractor to adopt and implement policies and practices designed to avoid work stoppages, slowdowns, disputes, or strikes.
- B. Contractor to minimize impact of labor disputes. The Contractor will take all necessary steps to prevent labor disputes from disrupting or otherwise interfering with access to Port property. If a labor dispute disrupts the progress of the Work or interferes with access, the Contractor shall promptly and expeditiously take all necessary action to eliminate or minimize the disruption or interference.

### 3.14 INDEMNIFICATION

- A. Duty to defend, indemnify, and hold harmless. To the fullest extent permitted by law and subject to this Section 3.14, the Contractor shall defend (at the Contractor's sole cost, with legal counsel approved by Port), indemnify, and hold harmless the Port and the Northwest Seaport Alliance, including their respective Commissions, officers, managers, and employees, the Engineer, any consultants, and the agents and employees, successors and assigns of any of them (the "Indemnified Parties") from and against claims, damages, lawsuits, losses (including loss of use), disbursements, liabilities, obligations, fines, penalties, costs, and expenses, whether direct and indirect or consequential, including but not limited to, consultants' fees, and attorneys' fees incurred on such claims and in proving the right to indemnification ("Claims"), arising out of, or resulting from, the acts or omissions of the Contractor, a Subcontractor of any tier, their agents, and anyone directly or indirectly employed by any of them or anyone for whose acts they may be liable (individually and collectively, the "Indemnitor").
- B. Duty to defend, indemnify, and hold harmless for sole negligence. The Contractor will fully defend, indemnify, and hold harmless the Indemnified Parties for the sole negligence or willful misconduct of the Indemnitor.
- C. Duty to defend, indemnify, and hold harmless for concurrent negligence. Where Claims arise from the concurrent negligence of (1) the Port; and (2) the Indemnitor, the Contractor's obligations to indemnify and defend the Indemnified Parties under this Section 3.14 shall be effective only to the extent of the Indemnitor's negligence.
- D. Duty to indemnify not limited by workers' compensation or similar employee benefit acts. In claims against any of the Indemnified Parties by an employee of the Contractor, a Subcontractor of any tier, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under this Section 3.14 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable under workers' compensation acts, disability benefit acts, or other employee benefit acts. After mutual negotiation of the parties, the Contractor waives immunity as to the Indemnified Parties under Title 51 RCW, "Industrial Insurance."
- E. Intellectual property indemnification. The Contractor will be liable for and shall defend (at the Contractor's sole cost, with legal counsel approved by Port), indemnify, and hold the Indemnified Parties harmless for Claims for infringement by the Contractor of copyrights or patent rights arising out of, or relating to, the Project.
- F. Labor peace indemnification. If the Contractor fails to satisfy its labor peace obligations under the Contract, the Contractor will be liable for and shall defend (at the Contractor's sole cost, with



legal counsel approved by Port), indemnify, and hold harmless the Indemnified Parties for Claims brought against the Port by third parties (including but not limited to lessees, tenants, contractors, customers, licensees, and invitees of the Port) for injunctive relief or monetary loss.

- G. Cyber risk indemnification. Contractor shall defend, indemnify, and hold harmless the Indemnified Parties from and against any liability, expense, fines, penalties, cost, demand, or other obligation, resulting from or out of any cyber-related risk that includes theft, loss or misuse of data, release of private information as result of a network breach, penetration, compromise, or loss of IT systems control.
- H. Joinder. The Contractor agrees to being added by the Port as a party to any arbitration or litigation with third parties in which the Port alleges indemnification or seeks contribution from the Indemnitor. The Contractor shall cause each of its Subcontractors of any tier to similarly stipulate in their subcontracts; in the event any does not, the Contractor shall be liable in place of such Subcontractor(s) of any tier.
- I. Other. To the extent that any portion of this Section 3.14 is stricken by a court or arbitrator for any reason, all remaining provisions shall retain their vitality and effect. The obligations of the Contractor under this Section 3.14 shall not be construed to negate, abridge, or otherwise reduce any other right or obligations of indemnity which would otherwise exist. To the extent the wording of this Section 3.14 would reduce or eliminate an available insurance coverage, it shall be considered modified to the extent necessary so that the insurance coverage is not affected. This Section 3.14 shall survive completion, acceptance, final payment, and termination of the Contract.

### 3.15 WAIVER OF CONSEQUENTIAL DAMAGES

- A. Mutual waiver of consequential damages. The Contractor and Port waive claims against each other for consequential damages arising out of, or relating to, this Contract. This mutual waiver includes, but is not limited to: (1) damages incurred by the Port for rental expenses, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons, and (2) damages incurred by the Contractor for principal and home office overhead and expenses including, but not limited to, the compensation of personnel stationed there, for losses of financing, business, and reputation, for losses on other projects, for loss of profit, and for interest or financing costs. This mutual waiver includes, but is not limited to, all consequential damages due to either party's termination.
- B. Limitation. Nothing contained in this Section 3.15; however, shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents, to preclude damages specified in the Agreement, or to affect the Contractor's obligation to indemnify the Port for direct, indirect, or consequential damages alleged by a third party.

## ARTICLE 4 - SUBCONTRACTORS AND SUPPLIERS

### 4.01 RESPONSIBILITY FOR ACTIONS OF SUBCONTRACTORS AND SUPPLIERS.

- A. Contractor responsible for Subcontractors. The Contractor is fully responsible to the Port for the acts and omissions of its Subcontractors of any tier and all persons either directly or indirectly employed by the Contractor or its Subcontractors.

### 4.02 AWARD OF CONTRACTS TO SUBCONTRACTORS AND SUPPLIERS

- A. Contractor to provide proposed Subcontractor information. The Contractor, within ten (10) days after the Port's notice of award of the Contract, shall provide the Engineer with the names of the persons or entities proposed to perform each of the principal portions of the Work (i.e., either a Subcontractor listed in a bid or proposal or a Subcontractor performing Work valued at least ten

percent (10%) of the Contract Sum) and the proprietary names, and the suppliers of, the principal items or systems of materials and equipment proposed for the Work. No progress payment will become due until after this information has been furnished.

- B. Port to respond promptly with objections. The Port may respond promptly to the Contractor in writing stating: (1) whether the Port has reasonable objection to any proposed person or entity, or (2) whether the Port requires additional time for review. If the Port makes a reasonable objection, the Contractor shall replace the Subcontractor with no increase to the Contract Sum or Contract Time. Such a replacement shall not relieve the Contractor of its responsibility for the performance of the Work and compliance with all of the requirements of the Contract within the Contract Sum and Contract Time.
- C. Reasonable objection defined. "Reasonable objection" as used in this Section 4.02 includes, but is not limited to: (1) a proposed Subcontractor of any tier different from the entity listed with the bid, (2) lack of "responsibility" of the proposed Subcontractor, as defined by Washington law and the Bidding Documents, or lack of qualification or responsibility of the proposed Subcontractor based on the Contract or Bidding Documents, or (3) failure of the Subcontractor to perform satisfactorily in the Port's opinion (such as causing a material delay or submitting a claim that the Port considers inappropriate) on one or more projects for the Port within five (5) years of the bid date.
- D. No substitution allowed without permission. The Contractor shall not substitute a Subcontractor, person, or organization without the Engineer's written consent.

#### 4.03 SUBCONTRACTOR AND SUPPLIER RELATIONS

- A. Contractor to schedule, supervise, and coordinate Subcontractors. The Contractor shall schedule, supervise, and coordinate the operations of all Subcontractors of any tier, including suppliers. The Contractor shall ensure that appropriate Subcontractors coordinate the Work of lower-tier Subcontractors.
- B. Subcontractors to be bound to Contract Documents. By appropriate agreement, the Contractor shall require each Subcontractor and supplier to be bound to the terms of the Contract Documents and to assume toward the Contractor, to the extent of their Work, all of the obligations that the Contractor assumes toward the Port under the Contract Documents. Each subcontract shall preserve and protect the rights of the Port and shall allow to the Subcontractor, unless specifically provided in the subcontract, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Port. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with lower-tier Subcontractors.
- C. Contractor to correct deficiencies in Subcontractor performance. When a portion of the Work subcontracted by the Contractor is not being prosecuted in accordance with the Contract Documents, or if such subcontracted Work is otherwise being performed in an unsatisfactory manner in the Port's opinion, the Contractor shall, on its own initiative or upon the written request of the Port, take immediate steps to correct the deficiency or remove the non-performing party from the Project. The Contractor shall replace inadequately performing Subcontractors upon request of the Port at no change in the Contract Sum or Contract Time.
- D. Contractor to provide subcontracts. Upon request, the Contractor will provide the Port copies of written agreements between the Contractor and any Subcontractor.

## **ARTICLE 5 - WORKFORCE AND NON-DISCRIMINATION REQUIREMENTS**

### **5.01 COMPLIANCE WITH NON-DISCRIMINATION LAWS**

- A. Contractor to comply with non-discrimination laws. The Contractor shall fully comply with all applicable laws, regulations, and ordinances pertaining to non-discrimination.

### **5.02 MWBE, VETERAN-OWNED, AND SMALL BUSINESS ENTERPRISE PARTICIPATION.**

- A. In accordance with the legislative findings and policies set forth in RCW 39.19, the Port encourages participation in all of its contracts by MWBE firms certified by the Office of Minority and Women's Business Enterprises (OMWBE). Participation may be either on a direct basis in response to this invitation or as a subcontractor to a Bidder. However, unless required by federal statutes, regulations, grants, or contract terms referenced in the Contract Documents, no preference will be included in the evaluation of Bids, no minimum level of MWBE participation shall be required as a condition for receiving an award, and Bids will not be rejected or considered non-responsive on that basis. Any affirmative action requirements set forth in federal regulations or statutes included or referenced in the Contract Documents will apply.

The Port encourages participation in all of its contracts by Veteran-owned businesses (defined in RCW 43.60.010) and located at <http://www.dva.wa.gov/program/certified-veteran--and-servicemember-owned-businesses> and Small, Mini, and Micro businesses (defined in RCW 39.26.010)

- B. In accordance with EPA Grant 01J83201 and Utilization of Small, Minority and Women's Business Enterprises 40 CFR, Part 33 the Port requires the Prime Contractor to make the following Good Faith Efforts:
  - 1. Ensure Disadvantaged Business Enterprises (DBEs) are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities. For Indian Tribal, State and Local and Government recipients, this will include placing DBEs on solicitation lists and soliciting them whenever they are potential sources.
  - 2. Make information on forthcoming opportunities available to DBEs and arrange time frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process. This includes, whenever possible, posting solicitations for bids or proposals for a minimum of 30 calendar days before the bid or proposal closing date.
  - 3. Consider in the contracting process whether firms competing for large contracts could subcontract with DBEs. For Indian Tribal, State and local Government recipients, this will include dividing total requirements when economically feasible into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.
  - 4. Encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually.
  - 5. Use the services and assistance of the Small Business Administration (SBA) and the Minority Business Development Agency of the Department of Commerce.

### **5.03 APPRENTICESHIP PARTICIPATION**

- A. In accordance with RCW 39.04.320, fifteen (15) percent Apprenticeship Participation is required for all projects estimated to cost one million (\$1,000,000) dollars or more.
- B. Apprentice participation, under this contract, may be counted towards the required percentage (%) only if the apprentices are from an apprenticeship program registered and approved by the Washington State Apprenticeship and Training Council (RCW 49.04 and WAC 296-05).

- C. Bidders may contact the Department of Labor and Industries, Specialty Compliance Services Division, Apprenticeship Section, P.O. Box 44530, Olympia, WA 98504-4530 by phone at (360) 902-5320, or e-mail at [Apprentice@lni.wa.gov](mailto:Apprentice@lni.wa.gov), to obtain information on available apprenticeship programs.
- D. For each project that has apprentice requirements, the contractor shall submit a "Statement of Apprentice and Journeyman Participation" on forms provided by the Port of Tacoma, with every request for project payment. The Contractor shall submit consolidated and cumulative data collected by the Contractor and collected from all subcontractors by the Contractor. The data to be collected and submitted includes the following:
  - 1. Contractor name and address
  - 2. Contract number
  - 3. Project name
  - 4. Contract value
  - 5. Reporting period "Beginning Date" through "End Date"
  - 6. Name and registration number of each apprentice by contractor
  - 7. Total number of apprentices and labor hours worked by them, categorized by trade or craft.
  - 8. Total number of journeymen and labor hours worked by them, categorized by trade or craft
  - 9. Cumulative combined total of apprentice and journeymen labor hours
  - 10. Total percentage of apprentice hours worked
- E. No changes to the required percentage (%) of apprentice participation shall be allowed without written approval of the Port. In any request for the change, the Contractor shall clearly demonstrate a good faith effort to comply with the requirements for apprentice participation.

## **ARTICLE 6 - CONTRACT TIME AND COMPLETION**

### **6.01 CONTRACT TIME**

- A. Contract Time is measured from Contract execution. Unless otherwise provided in the Agreement, the Contract Time is the period of time, including authorized adjustments, specified in the Contract Documents from the date the Contract is executed to the date Substantial Completion of the Work is achieved.
- B. Commencement of the Work. The Contractor shall begin Work in accordance with the notice of award and the notice to proceed and shall complete all Work within the Contract Time. When the Contractor's signed Agreement, required insurance certificate with endorsements, bonds, and other submittals required by the notice of award have been accepted by the Port, the Port will execute the Contract and, following receipt of other required pre-work submittals, will issue a notice to proceed to allow the Contractor to mobilize and commence physical Work at the Project site, as further described in these contract documents. No Work at the Project site may commence until the Port issues a notice to proceed.
- C. Contractor shall achieve specified completion dates. The Contractor shall achieve Substantial Completion within the Contract Time and shall achieve Final Completion within the time period thereafter stated in the Contract Documents.
- D. Time is of the essence. Time limits stated in the Contract Documents, including any interim milestones, are of the essence of the Contract. By executing the Agreement, the Contractor

confirms that the Contract Time is a reasonable period for performing the Work.

#### 6.02 PROGRESS AND COMPLETION

- A. Contractor to maintain schedule. The Contractor's sequence and method of operations, application of effort, and work force shall at all times be created and implemented to ensure the orderly, expeditious, and timely completion of the Work and performance of the Contract. The Contractor shall furnish sufficient forces and shall work such hours, including extra shifts, overtime operations, and weekend and holiday work as may be necessary to ensure completion of the Work within the Contract Time and the approved Baseline Project Schedule.
- B. Contractor to take necessary steps to meet schedule. If the Contractor fails substantially to perform in a timely manner in accordance with the Contract Documents and, through the fault of the Contractor or Subcontractor(s) of any tier, fails to meet the Baseline Project Schedule, the Contractor shall take such steps as may be necessary to immediately improve its progress by increasing the number of workers, shifts, overtime operations, or days of work, or by other means and methods, all without additional cost to the Port. If the Contractor believes that any action or inaction of the Port constitutes acceleration, the Contractor shall immediately notify the Port in writing and shall not accelerate the Work until the Port either directs the acceleration in writing or denies the constructive acceleration.
- C. Liquidated damages not exclusive. Any provisions in the Contract Documents for liquidated damages shall not preclude other damages due to breaches of Contract of the Contractor.

### 6.03 SUBSTANTIAL COMPLETION

- A. Substantial Completion defined. Substantial Completion is the stage in the progress of the Work, or portion or phase thereof, when the Work or designated portion is sufficiently complete in accordance with the Contract Documents so that the Port can fully occupy or utilize the Work, or the designated portion thereof, for its intended use, all requirements in the Contract Documents for Substantial Completion have been achieved, and all required documentation has been properly submitted to the Port in accordance with the Contract Documents. All Work, other than incidental corrective or punch list Work and final cleaning, must be completed. The fact that the Port may occupy the Work or a designated portion thereof does not indicate that Substantial Completion has occurred or that the Work is acceptable in whole or in part.
- B. Work not Substantially Complete unless Final Completion attainable. The Work is not Substantially Complete unless the Port reasonably judges that the Work can achieve Final Completion within the period of time specified in the Contract Documents.
- C. Notice of Substantial Completion. When the Work or designated portion has achieved Substantial Completion, the Port will provide a notice to establish the date of Substantial Completion. The notice shall establish responsibilities of the Port and Contractor for security, maintenance, heat, utilities, damage to the Work, and insurance, and shall fix the time within which the Contractor shall finish all remaining Work. If the notice of Substantial Completion does not so state, all responsibility for the foregoing items shall remain with the Contractor until Final Completion.

### 6.04 COMPLETION OF PUNCH LIST

- A. Contractor shall complete punch list items prior to Final Completion. The Contractor shall cause punch list items to be completed prior to Final Completion. If, after Substantial Completion, the Contractor does not expeditiously proceed to correct punch list items or if the Port considers that the punch list items, are unlikely to be completed prior to the date established for Final Completion (or such other period of time as is specified in the Contract Documents), the Port may, upon seven (7) days' written notice to the Contractor, take over and perform some or all of the punch list items. The Port may also take over and complete any portion of the Work at any time following Substantial Completion and deduct the actual cost of performing the Work (including direct and indirect costs) from the Contract Sum. The Port's rights under this Section 6.04 are not obligations and shall not relieve the Contractor of its responsibilities under any other provisions of the Contract Documents.

### 6.05 FINAL COMPLETION

- A. Final Completion. Upon receipt of written notice from the Contractor that all punch list items and other Contract requirements are completed, the Contractor will notify the Port, and the Port will perform a final inspection. If the Port determines that some or all of the punch list items have not been addressed, the Contractor shall be responsible to the Port for all costs, including re-inspection fees, for any subsequent reviews to determine completion of the punch list. When the Port determines that all punch list items have been satisfactorily addressed, that the Work is acceptable under the Contract Documents, and that the Work has fully been performed, the Port will promptly notify the Contractor of Final Completion.
- B. Contractor responsible for costs if Final Completion is not timely achieved. In addition to any liquidated damages, the Contractor is liable for, and the Port may deduct from any amounts due the Contractor, all costs incurred by the Port for services performed after the contractual date of Final Completion, whether or not those services would have been performed prior to that date had Final Completion been timely achieved.

- C. Final Completion submittals. The Port is not obligated to accept the Project as complete until the Contractor has submitted all required submittals to the Port.
- D. Contractor responsible for the Work until Final Completion. The Contractor shall assume the sole risk of loss and responsibility for all Work under the Contract, and all materials to be incorporated in the Work, whether in storage or at the Project site, until Final Completion. Damage from any cause to either permanent or temporary Work, utilities, materials, equipment, existing structures, the site, or other property owned by the Port or others, shall be repaired by the Contractor to the reasonable satisfaction of the Port at no change in the Contract Sum.

#### 6.06 FINAL ACCEPTANCE

- A. Final Acceptance. Final Acceptance is the formal action of the Port accepting the Project as complete. Public notification of Final Acceptance will be posted on the Port's external website (<http://www.portoftacoma.com/final-acceptance>).
- B. Final Acceptance not an acceptance of defective Work. Final Acceptance shall not constitute acceptance by the Port of unauthorized or defective Work, and the Port shall not be prevented from requiring the Contractor to remove, replace, repair, or dispose of unauthorized or defective Work or recovering damages due to the same.
- C. Completion of Work under RCW 60.28. Pursuant to RCW 60.28, "Lien for Labor, Materials, Taxes on Public Works," completion of the Contract Work shall occur upon Final Acceptance.

#### 6.07 PORT'S RIGHT TO USE THE PREMISES

- A. Port has right to use and occupy Work. The Port reserves the right to occupy or use any part of the Work before or after Substantial Completion of some or all of the Work without relieving the Contractor of any of its obligations under the Contract. Such occupancy or use shall not constitute acceptance by the Port of any of the Work, and shall not cause any insurance to be canceled or lapse.
- B. No compensation due if Port elects to use and occupy Work. No additional compensation shall be due to the Contractor as a result of the Port's use or occupancy of the Work or a designated portion.

### ARTICLE 7 - PAYMENT

#### 7.01 ALL PAYMENTS SUBJECT TO APPLICABLE LAWS AND SCHEDULE OF VALUES

- A. Payment of the Contract Sum. The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Port to the Contractor for performance of the Work under the Contract Documents. Payments made to the Contractor are subject to all laws applicable to the Port and the Contractor. Payment of the Contract Sum constitutes full compensation to the Contractor for performance of the Work, including all risk, loss, damages, or expense of whatever character arising out of the nature or prosecution of the Work. The Port is not obligated to pay for extra work or materials furnished without prior written approval of the Port.
- B. Schedule of Values. All payments will be based upon an approved Schedule of Values. Prior to submitting its first Application for Payment, the Contractor shall submit a Schedule of Values to the Port allocating the entire Contract Sum to the various portions of the Work. The Schedule of Values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Port may require. This schedule, unless objected to by the Port, shall be used as a basis for reviewing the Contractor's applications for payment.

## 7.02 APPLICATIONS FOR PAYMENT

- A. Applications for Payment. Progress payments will be made monthly for Work duly certified, approved by the Engineer, and performed (based on the Schedule of Values and actual quantities of Work performed) during the calendar month preceding the Application for Payment. These amounts are paid in trust to the Contractor for distribution to Subcontractors to the extent, and in accordance with, the approved Application for Payment.

## 7.03 PROGRESS PAYMENTS

- A. Progress payments. Following receipt of a complete Application for Payment, the Engineer will either authorize payment or indicate in writing to the Contractor the specific reasons why the payment request is being denied, in whole or in part, and the remedial action the Contractor must take to receive the withheld amount. After a complete Application for Payment has been received and approved by the Port, payment will be made within thirty (30) days. Any payments made by, or through, or following receipt of, payment from third parties will be made in accordance with the third party's policies and procedures.
- B. Port may withhold payment. The Port may withhold payment in whole or in part as provided in the Contract Documents or to the extent reasonably necessary to protect the Port from loss or potential loss for which the Contractor is responsible, including loss resulting from the Contractor's acts and omissions.

## 7.04 PAYMENT BY CONTRACTOR TO SUBCONTRACTORS

- A. Payment to Subcontractors. With each Application for Payment, the Contractor shall provide a list of Subcontractors to be paid by the Contractor. No payment request shall include amounts the Contractor does not intend to pay to a Subcontractor because of a dispute or other reason. If, however, after submitting an Application for Payment, but before paying a Subcontractor, the Contractor discovers that part or all of a payment otherwise due to the Subcontractor is subject to withholding from the Subcontractor under the subcontract (such as for unsatisfactory performance or non-payment of lower-tier Subcontractors), the Contractor may withhold the amount as allowed under the subcontract, but it shall give the Subcontractor and the Port written notice of the remedial actions that must be taken and pay the Subcontractor within eight (8) working days after the Subcontractor satisfactorily completes the remedial action identified in the notice.
- B. Payment certification to be provided upon request. The Contractor shall provide, with each Application for Payment, a certification signed by Contractor attesting that all payments by the Contractor to Subcontractors from the last Application for Payment were made within ten (10) days of the Contractor's receipt of payment. The certification will also attest that the Contractor will make payment to Subcontractors for the current Application for Payment within ten (10) days of receipt of payment from the Port.

## 7.05 FINAL PAYMENT

- A. Final payment. Final applications for payment are due within seven (7) days following Final Completion. Final payment of the unpaid balance of the Contract Sum, except retainage, will be made following Final Completion and within thirty (30) days of the Contractor's submission of an approved final Application for Payment.
- B. Releases required for final payment. The final payment shall not become due until the Contractor delivers to the Port a complete release of all liens arising out of the Contract, as well as an affidavit stating that, to the best of Contractor's knowledge, its release includes all labor and materials for which a lien could be filed. If a Subcontractor of any tier refuses to furnish a release or waiver required by the Port, the Port may (a) retain in the fund, account, or escrow funds in such amount as to defray the cost of foreclosing the liens of such claims and to pay



attorneys' fees, the total of which shall be no less than 150% of the claimed amount, or (b) accept a bond from the Contractor, satisfactory to the Port, to indemnify the Port against the lien. If any such lien remains unsatisfied after all payments from the retainage are made, the Contractor shall refund to the Port all moneys that the Port may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

- C. Contractor to hold Port harmless from liens. The Contractor shall defend (at the Contractor's sole cost, with legal counsel approved by Port), indemnify, and hold harmless the Port from any liens, claims, demands, lawsuits, losses, damages, disbursements, liabilities, obligations, fines, penalties, costs, and expenses, whether direct or indirect, including but not limited to, attorneys' fees and consultants' fees and other costs and expenses, except to the extent a lien has been filed because of the failure of the Port to make a contractually required payment.

#### 7.06 RETAINAGE

- A. Retainage to be withheld. In accordance with RCW 60.28, a sum equal to five percent (5%) of each approved Application for Payment shall be retained. Prior to submitting its first Application for Payment, the Contractor shall exercise one of the options listed below:
1. Retained percentages will be retained by the Port in a fund; or
  2. Deposited by the Port in an interest-bearing account or escrow account in a bank, mutual savings bank, or savings and loan association designated by the Contractor, not subject to withdrawal until after the final acceptance of said improvement or work as completed, or until agreed to by both parties; provided that interest on such account shall be paid to the Contractor. Contractor to complete and submit Port provided Retainage Escrow Agreement (Section 00 61 23.13); or
  3. If the Contractor provides a bond in place of retainage, it shall be in an amount equal to 5% of the Contract Sum plus Change Orders. The retainage bond shall be based on the form furnished in Section 00 61 23 or otherwise acceptable to the Port and duly completed and signed by a licensed surety or sureties registered with the Washington State Insurance Commissioner and on the currently authorized insurance list published by the Washington State Insurance Commissioner. The surety or sureties must be rated at least "A-, FSC(6)" or higher by A.M. Best Rating Guide and be authorized by the Federal Department of the Treasury. Attorneys-in-fact who sign the retainage bond must file with each bond a certified and effective Power of Attorney statement.
- B. Contractor may withhold retainage from Subcontractors. The Contractor or a Subcontractor may withhold not more than five percent (5%) retainage from the monies earned by any Subcontractor or lower-tier Subcontractor, provided that the Contractor pays interest to the Subcontractor at the same interest rate it receives from its reserved funds. If requested by the Port, the Contractor shall specify the amount of retainage and interest due a Subcontractor.
- C. Release of retainage. Retainage will be withheld and applied by the Port in a manner required by RCW 60.28 and released in accordance with the Contract Documents and statutory requirements. Release of the retainage will be processed in the ordinary course of business within sixty (60) days following Final Acceptance of the Work by the Port provided that no notice of lien has been given as provided in RCW 60.28, that no claims have been brought to the attention of the Port, that the Port has no claims under this Contract, and that release of retention has been duly authorized by the State. The following items must also be obtained prior to release of retainage: pursuant to RCW 60.28, a certificate from the Department of Revenue; pursuant to RCW 50.24, a certificate from the Department of Employment Security; and appropriate information from the Department of Labor and Industries including approved affidavits of wages paid for the Contractor and each subcontractor.

#### 7.07 DISPUTED AMOUNTS

- A. Disputed amounts. If the Contractor believes it is entitled to payment for Work performed during the prior calendar month in addition to the agreed-upon amount, the Contractor may submit to the Port, along with the approved Application for Payment, a separate written payment request specifying the exact additional amount claimed to be due, the category in the Schedule of Values to which the payment would apply, the specific Work for which additional payment is sought, and an explanation of why the Contractor believes additional payment is due.

#### 7.08 EFFECT OF PAYMENT

- A. Payment does not relieve Contractor of obligations. Payment to the Contractor of progress payments or final payment does not relieve the Contractor from its responsibility for the Work or its responsibility to repair, replace, or otherwise make good defective Work, materials, or equipment. Likewise, the making of a payment does not constitute a waiver of the Port's right to reject defective or non-conforming Work, materials, or equipment (even though they are covered by the payment), nor is it a waiver of any other rights of the Port.
- B. Acceptance of final payment waives claims. Acceptance of final payment by the Contractor, a Subcontractor of any tier, or a supplier shall constitute a waiver of claims except those previously made in writing and identified as unsettled in Contractor's final Application for Payment.
- C. Execution of Change Order waives claims. The execution of a Change Order shall constitute a waiver of claims by the Contractor arising out of the Work to be performed or deleted pursuant to the Change Order, except as specifically described in the Change Order.

#### 7.09 LIENS

- A. Contractor to discharge liens. The Contractor shall promptly pay (and secure the discharge of any liens asserted by) all persons properly furnishing labor, equipment, materials, or other items in connection with the performance of the Work including, but not limited to, any Subcontractors of any tier.

### **ARTICLE 8 - CHANGES IN THE WORK**

#### 8.01 CHANGES IN THE WORK

- A. Changes in the Work authorized. Without invalidating the Contract and without notice to the Contractor's surety, the Port may authorize changes in the Work after execution of the Contract, including changes in the Contract Sum or Contract Time. Changes shall occur solely by Change Order, Unilateral Change Directive, or Minor Change in Work. All changes in the Work are effective immediately, and the Contractor shall proceed promptly to perform the change, unless otherwise provided in the Change Order or Directive.
- B. Changes in the Work Defined.
  - 1. A Change Order is a written instrument signed by the Port and Contractor stating their agreement to a change in the Work and the adjustment, if any, in the Contract Sum and/or Contract Time.
  - 2. A Unilateral Change Directive is a written instrument issued by the Port to transmit new or revised Drawings, issue additions or modifications to the Contract, furnish other direction and documents adjustment, if any, to the Contract Sum and/or Contract Time. A Unilateral Change Directive is signed only by the Port, without requiring the consent or signature of the Contractor.

3. A Minor Change in the Work is a written order from the Port directing a change that does not involve an adjustment to the Contract Sum or the Contract Time.
- C. Request for Proposal: At any time, the Port may issue a Proposal Request directing the Contractor to propose a change to the Contract Sum and/or Contract Time, if any, based on a proposed change in the Work. The Contractor shall submit a responsive Change Order proposal as soon as possible, and no later than fourteen (14) days after receipt, in which the Contractor specifies in good faith the extent to which the Contract Sum and/or Contract Time would change. All cost components shall be limited to the manner described in Section 8.02(B). If the Contractor fails to timely respond to a Proposal Request, the Port may issue the change as a Unilateral Change Directive.
1. Fixed price method is default for Contractor Change Order proposal. When the Port has requested that the Contractor submit a Change Order proposal, the Port may specify the basis on which the Contract Sum will be adjusted by the Contractor. The Engineer's preference, unless otherwise indicated, is for changes in the Work to be priced using Lump Sums or Unit Prices or on a time and material (Force Account) basis if unit pricing or lump sums cannot be negotiated or determined. In all instances, however, proposed changes shall include a not-to-exceed price for the change and shall be itemized for evaluation purposes in accordance with Section 8.02(B), as requested by the Engineer.
  2. The Port may accept or reject the Contractor's Change Order proposal, request further documentation, or negotiate acceptable terms with the Contractor. If The Port and Contractor reach agreement on the terms of any change in the Work, including any adjustment in the Contract Sum or Contract Time, such agreement shall be incorporated in a Change Order.
  3. The Change Order shall constitute full payment and final settlement of all claims for time and for direct, indirect, and consequential costs, including costs of delays, inconvenience, disruption of schedule, or loss of efficiency or productivity, related to any Work either covered or affected by the Change Order, or related to the events giving rise to the request for equitable adjustment. The Port may reject a proposal, in which case the Port may either not effectuate the change or issue a Unilateral Change Directive. The Port will not make payment to the Contractor for any work until that work has been incorporated into an executed Change Order.
- D. Unforeseen Conditions: If the Contractor encounters conditions at the site that are: (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or any soils reports made available by the Port to the Contractor, or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall immediately provide oral notice to the Engineer before conditions are disturbed, followed within 24 hours by an initial written notice. The Contractor shall submit a detailed proposal no later than seven (7) days following discovery of differing site conditions. The Engineer will promptly investigate these conditions and, if the Engineer determines that they differ materially and cause an increase or decrease in the Contractor's cost or time required for performance of any part of the Work, will establish a change in the Contract Sum or Contract Time, or both, consistent with the requirements of the Contract Documents. If the Contractor disputes the Engineer's determination, the Contractor may proceed as provided in the dispute resolution procedure (Article 11). No increase to the Contract Sum or the Contract Time shall be allowed if the Contractor does not comply with the contractual requirements or if the Contractor knew, or reasonably should have known, of the concealed conditions prior to executing the Contract.

- E. Proceed Immediately: Pending agreement on the terms of the Change Order or upon determination of a differing site condition as defined in 8.01(D), the Engineer may direct Contractor to proceed immediately with the change in the Work. Contractor shall not proceed with any change in the Work until it has obtained the Engineer's written approval and documentation of the following:
1. The scope of work
  2. An agreed upon maximum not-to-exceed amount
  3. The method of final cost determination
  4. Estimated time to complete the changed work
  5. As a change in the Work is performed, unless the parties have signed a written Change Order to establish the cost of the change, the Contractor shall maintain an itemized accounting of all costs related to the change based on the categories in Section 8.02(B) and provide such data to the Port upon request. This includes, without limitation, invoices, including freight and express bills, and other support for all material, equipment, Subcontractor, and other charges related to the change and, for material furnished from the Contractor's own inventory, a sworn affidavit certifying the actual cost of such material. Failure to provide data to the Port within seven (7) days of a request constitutes a waiver of any claim. The Port may furnish any material or equipment to the Contractor that it deems advisable, and the Contractor shall have no claim for any costs or fee on such material or equipment.
- F. Procedure for Unilateral Change Directive. Whether or not the Port has rejected a Contractor's proposal, the Port may issue a Unilateral Change Directive and the Contractor shall promptly proceed with the specified Work. If the Contractor disagrees with a Unilateral Change Directive, the Contractor shall advise the Port in writing through a Change Order proposal within seven (7) days of receipt. The Contractor's Change Order proposal shall reasonably specify the reasons for any disagreement and the adjustment it proposes. Without this timely Change Order proposal, the Contractor shall conclusively be deemed to have accepted the Port's proposal.
- G. Payment pending final determination of Force Account work. Pending final determination of the total cost of Force Account Work, and provided that the Work to be performed under Force Account is complete and any reservations of rights have been signed by the Port, the Contractor may request payment for amounts not in dispute in the next Application for Payment accompanied by documentation indicating the parties' agreement. Work done on a Force Account basis must be approved in writing on a daily basis by the Engineer or the Engineer's designee and invoices shall be submitted with an Application for Payment within sixty (60) days of performance of the Work.

## 8.02 CHANGES IN THE CONTRACT SUM

- A. Port to Decide How Changes are Measured. The Port may elect, in its sole discretion, how changes in the Work will be measured for payment. Change in the Work may be priced on a lump sum basis, through Unit Prices, as Force Account, or by another method documented in the executed Change Order, Unilateral Change Directive, or Minor Change in the Work.
- B. Determination of Cost of Change. The total cost of any change in the Work, including a claim under Article 11, shall not exceed the prevailing cost for the Work in the locality of the Project. In all circumstances, the change in the Work shall be limited to the reasonable, actual cost of the following components:
1. Direct labor costs: These are the actual labor costs determined by the number of additional craft hours at their normal hourly rate necessary to perform a change in the Work. The

hourly cost of labor will be based upon the following:

- a. Basic wages and fringe benefits: The hourly wage (without markup or labor burden) and fringe benefits paid by the Contractor as established by the Washington Department of Labor and Industries or contributed to labor trust funds as itemized fringe benefits, whichever is applicable, not to exceed that specified in the applicable "Intent to Pay Prevailing Wage," for the laborers, apprentices, journeymen, and foremen performing or directly supervising the change in the Work on site. These wages do not include the cost of Contractor's project manager or superintendent or above, and the premium portion of overtime wages is not included unless pre-approved in writing by the Port. Costs paid or incurred by the Contractor for vacations, per diem, subsistence, housing, travel, bonuses, stock options, or discretionary payments to employees are not separately reimbursable. The Contractor shall provide to the Port copies of payroll records, including certified payroll statements for itself and Subcontractors of any tier, upon the Port's request.
  - b. Workers' insurance: Direct contributions to the State of Washington as industrial insurance; medical aid; and supplemental pension by class and rates established by the Washington Department of Labor and Industries.
  - c. Federal insurance: Direct contributions required by the Federal Insurance Compensation Act (FICA); Federal Unemployment Tax Act (FUTA); and State Unemployment Compensation Act (SUCA).
2. Direct material costs: This is an itemization, including material invoices, of the quantity and actual cost of additional materials necessary to perform the change in the Work. The cost will be the net cost after all discounts or rebates, freight costs, express charges, or special delivery costs, when applicable. No lump sum costs will be allowed unless approved in advance by the Port.
  3. Construction equipment usage costs: This is an itemization of the actual length of time that construction equipment necessary and appropriate for the Work is used solely on the changed Work times the applicable rental cost as established by the lower of the local prevailing rates published in [www.equipmentwatch.com](http://www.equipmentwatch.com), as modified by the AGC/WSDOT agreement, or the actual rate paid to an unrelated third party. If more than one rate is applicable, the lowest available rate will be utilized. Rates and quantities of equipment rented that exceed the local fair market rental costs shall be subject to the Port's prior written approval. Total rental charges for equipment or tools shall not exceed 75% of the fair market purchase value of the equipment or the tool. Actual, reasonable mobilization costs are permitted if the equipment is brought to the site solely for the change in the Work. Mobilization and standby costs shall not be charged for equipment already present on the site.

The rates in effect at the time of the performance of the changed Work are the maximum rates allowable for equipment of modern design, and in good working condition, and include full compensation for furnishing all fuel, oil, lubrication, repairs, maintenance, and insurance. No gas surcharges are payable. Equipment not of modern design and/or not in good working condition will have lower rates. Hourly, weekly, and/or monthly rates, as appropriate, will be applied to yield the lowest total cost.
  4. Subcontractor costs: These are payments the Contractor makes to Subcontractors for changed Work performed by Subcontractors. The Subcontractors' cost of changed Work shall be determined in the same manner as prescribed in this Section 8.02 and, among other things, shall not include consultant costs, attorneys' fees, or claim preparation expenses.

5. Service provider costs: These are payments the Contractor makes to service providers for changed Work performed by service providers. The service providers' cost of changed Work shall be determined in the same manner as prescribed in this Section 8.02.
6. Markup: This is the maximum total amount for overhead, profit, and other costs, including office, home office and site overhead (including purchasing, project manager, superintendent, project engineer, estimator, and their vehicles and clerical assistants), taxes (except for sales tax on the Contract Sum), warranty, safety costs, printing and copying, layout and control, quality control/assurance, small or hand tools (a tool that costs \$500 or less and is normally furnished by the performing contractor), preparation of as-built drawings, impact on unchanged Work, Change Order and/or claim preparation, and delay and impact costs of any kind (cumulative, ripple, or otherwise), added to the total cost to the Port of any Change Order work. No markup shall be due, however, for direct settlements of Subcontractor claims by the Port after Substantial Completion. The markup shall be limited in all cases to the following schedule:
  - a. Direct labor costs -- 20% markup on the direct cost of labor for the party (Contractor or Subcontractor) providing labor related to the change in the Work;
  - b. Direct material costs -- 20% markup on the direct cost of material for the party (Contractor or Subcontractor) providing material related to the change in the Work;
  - c. Construction equipment usage costs -- 10% markup on the direct cost of equipment for the party (Contractor or Subcontractor) providing equipment related to the change in the Work;
  - d. Contractor markup on Subcontractor costs -- 10% markup for the Contractor on the direct cost (excluding markup) of a change in the Work performed by Subcontractors (and for Subcontractors, for a change in the Work performed by lower-tier Subcontractors); and
  - e. Service provider costs -- 5% markup for the Contractor on the direct cost (excluding markup) of a change in the Work performed by service providers.

The total summed markup of the Contractor and all Subcontractors of any tier shall not exceed 30% of the direct costs of the change in the Work. If the markup would otherwise exceed 30%, the Contractor shall proportionately reduce the markup for the Contractor and all Subcontractors of any tier.
7. Cost of change in insurance or bond premium. This is defined as:
  - a. Contractor's liability insurance: The actual cost (expressed as a percentage submitted with the certificate of insurance provided under the Contract Documents and subject to audit) of the Contractor's liability insurance arising directly from the changed Work; and
  - b. Public works bond: The actual cost (expressed as a percentage submitted under the Contract Documents and subject to audit) of the Contractor's performance and payment bond arising directly from the changed Work.

Upon request, the Contractor shall provide the Port with supporting documentation from its insurer or surety of any associated cost incurred. The cost of the insurance or bond premium together shall not exceed 2.0% of the cost of the changed Work.
8. Unit Prices. If Unit Prices are specified in the Contract Documents or established by agreement of the parties for certain Work, the Port may apply them to the changed Work. Unit Prices shall include pre-agreed rates for material quantities and shall include reimbursement for all direct and indirect costs of the Work, including overhead, profit,

bond, and insurance costs arising out of, or related to, the Unit Priced item. Quantities must be supported by field measurement statements signed by the Port, and the Port shall have access as necessary for quantity measurement. The Port shall not be responsible for not-to-exceed limit(s) without its prior written approval.

### 8.03 CHANGES IN THE CONTRACT TIME

- A. Extension of the Contract Time. If the Contractor is delayed at any time in the commencement or progress of the Work by events for which the Port is responsible, by unanticipated abnormal weather (subject to Section 8.03(E) below), or by other causes not the fault or responsibility of the Contractor that the Port determines may justify a delay in the Contract Time, then the Contract Time shall be extended by Change Order for such reasonable time as the Port may determine. In no event, however, shall the Contractor be entitled to any extension of time absent proof of: (1) delay to an activity on the critical path of the Project, or (2) delay transforming an activity to the critical path, so as to actually delay the anticipated date of Substantial Completion.
- B. Allocation of responsibility for delay not caused by Port or Contractor. If a delay was not caused by the Port, the Contractor, or anyone acting on behalf of any of them, the Contractor is entitled only to an increase in the Contract Time but not an increase in the Contract Sum.
- C. Allocation of responsibility for delay caused by Port. If a delay was caused by the Port or someone acting on behalf of the Port and affected the critical path, the Contractor shall be entitled to a change in the Contract Time and Contract Sum in accordance with Section 8.02. The Contractor shall not recover damages, an equitable adjustment, or an increase in the Contract Sum or Contract Time from the Port; however, where the Contractor could reasonably have avoided the delay. The Port is not obligated directly or indirectly for damages for any delay suffered by a Subcontractor of any tier that does not increase the Contract Time.
- D. Allocation of responsibility for delay caused by Contractor. If a delay was caused by the Contractor, a Subcontractor of any tier, or anyone acting on behalf of any of them, the Contractor is not entitled to an increase in the Contract Time or in the Contract Sum.
- E. Adverse weather. If adverse weather is identified as the basis for a claim for additional time, the claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not reasonably have been anticipated and had an adverse effect on the critical path of construction, and that the Work was on schedule (or not behind schedule through the fault of the Contractor) at the time the adverse weather conditions occurred. Neither the Contract Time nor the Contract Sum will be adjusted for normal inclement weather. For a claim based on adverse weather, the Contractor shall be eligible only for a change in the Contract Time (but not a change in the Contract Sum) if the Contractor can substantiate that there was significantly greater than normal inclement weather considering the full term of the Contract Time.
- F. Damages for delay. In the event the Contractor (including any Subcontractors of any tier) is held to be entitled to damages from the Port for delay beyond the amount permitted in Section 8.02(B), the total combined damages to the Contractor and any Subcontractors of any tier for each day of delay shall be limited to the reasonable, actual costs of the delay for which the Port is wholly responsible. The limitation on damages set forth in this Section does not apply to any damages arising exclusively from delay to which the Contractor is entitled to recover under Section 8.03(F).
- G. Limitation on damages. The Contractor shall not be entitled to damages arising out of loss of efficiency; morale, fatigue, attitude, or labor rhythm; constructive acceleration; home office overhead; expectant under run; trade stacking; reassignment of workers; rescheduling of Work, concurrent operations; dilution of supervision; learning curve; beneficial or joint occupancy;

logistics; ripple; season change; extended or increased overhead or general conditions; profit upon damages for delay; impact damages including cumulative impacts; or similar damages. Any effect that such alleged costs may have upon the Contractor or its Subcontractors of any tier is fully compensated through the markup on Change Orders paid through Section 8.02(B).

#### 8.04 RESERVATION OF RIGHTS

- A. Reservations of rights void unless signed by Port. Reservations of rights will be deemed waived and are void unless any reserved rights are described in detail and are signed by the Contractor and the Port.
- B. Procedure for unsigned reservations of rights. If the Contractor adds a reservation of rights not signed by the Port to any Change Order, Unilateral Change Directive, Change Order proposal, Application for Payment, or any other document, all amounts and all Work therein shall be considered disputed and not payable until costs are re-negotiated or the reservation is withdrawn or changed in a manner satisfactory to, and signed by, the Port. If the Port makes payment based on a document that contains a reservation of rights not signed by the Port, and if the Contractor cashes such payment, then the reservation of rights shall be deemed waived, withdrawn, and of no effect.

#### 8.05 UNIT PRICES

- A. Adjustment to Unit Prices. If Unit Prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed (less than eighty percent (80%) or more than one hundred and twenty percent (120%) of the quantity estimated) so that application of a Unit Price would be substantially unfair, the applicable Unit Price but not the Contract Time, shall be adjusted if the Port prospectively approves a Change Order revising the Unit Price.
- B. Procedure to change Unit Prices. The Contractor or Port may request a Change Order revising a Unit Price by submitting information to support the change. A proposed change to a Unit Price will be evaluated by the Port based on the change in cost resulting solely from the change in quantity, any change in production rate or method as compared to the original plan, and the share, if any, of fixed expenses properly chargeable to the item. If the Port and Contractor agree on the change, a Change Order will be executed. If the parties cannot agree, the Contractor shall comply with the dispute resolution procedures (Article 11).

### **ARTICLE 9 - SUSPENSION AND TERMINATION OF CONTRACT**

#### 9.01 PORT'S RIGHT TO SUSPEND WORK

- A. Port may suspend the Work. The Port may at any time suspend the Work, or any part thereof, by giving notice to the Contractor. The Work shall be resumed by the Contractor as soon as possible, but no later than fourteen (14) days after the date fixed in a notice to resume the Work. The Port shall reimburse the Contractor for appropriate and reasonable expenses consistent with Section 8.02 incurred by the Contractor as a result of the suspension, except where a suspension is the result of the Contractor repeatedly or materially failing to carry out or correct the Work in accordance with the Contract Documents, and the Contractor shall take all necessary steps to minimize expenses.
- B. Contractor obligations. During any suspension of Work, the Contractor shall take every precaution to prevent damage to, or deterioration of, the Work. The Contractor shall be responsible for all damage or deterioration to the Work during the period of suspension and shall, at its sole expense, correct or restore the Work to a condition acceptable to the Port prior to resuming Work.



## 9.02 TERMINATION OF CONTRACT FOR CAUSE BY THE PORT

- A. Port may terminate for cause. If the Contractor is adjudged bankrupt or makes a general assignment for the benefit of the Contractor's creditors, if a receiver is appointed due to the Contractor's insolvency, or if the Contractor, in the opinion of the Port, persistently or materially refuses or fails to supply enough properly skilled workmen or materials for proper completion of the Contract, fails to make prompt payment to Subcontractors or suppliers for material or labor, disregards laws, ordinances, or the instructions of the Port, fails to prosecute the Work continuously with promptness and diligence, or otherwise materially violates any provision of the Contract, then the Port, without prejudice to any other right or remedy, may terminate the Contractor after giving the Contractor seven (7) days' written notice (during which period the Contractor shall have the right to cure).
- B. Procedure following termination for cause. Following a termination for cause, the Port may take possession of the Project site and all materials and equipment, and utilize such materials and equipment to finish the Work. The Port may also exclude the Contractor from the Project site(s). If the Port elects to complete all or a portion of the Work, it may do so as it sees fit. The Port shall not be required to accept the lowest bid for completion of the Work and may choose to complete all or a portion of the Work using its own work force. If the Port elects to complete all or a portion of the Work, the Contractor shall not be entitled to any further payment until the Work is finished. If the expense of finishing the Work, including compensation for additional managerial and administrative services of the Port, exceeds the unpaid balance of the Contract Sum, the excess shall be paid by the Contractor.
- C. Port's remedies following termination for cause. The Port may exercise any rights, claims, or demands that the Contractor may have against third persons in connection with the Contract, and for this purpose the Contractor assigns and transfers to the Port all such rights, claims, and demands.
- D. Inadequate termination for cause converted to termination for convenience. If, after the Contractor has been terminated for cause, it is determined that inadequate "cause" for such termination exists, then the termination shall be considered a termination for convenience pursuant to Section 9.03.

## 9.03 TERMINATION OF CONTRACT FOR CONVENIENCE BY THE PORT

- A. Port may terminate for convenience. The Port may, at any time (without prejudice to any right or remedy of the Port), terminate all, or any portion of, the Contract for the Port's convenience and without cause. The Contractor shall be entitled to receive payment consistent with the Contract Documents only for Work properly executed through the date of termination, and costs necessarily incurred by reason of the termination (such as the cost of settling and paying claims arising out of the termination under subcontracts or orders), along with a fee of one percent (1%) of the Contract Sum not yet earned on the whole or part of the Work. The total amount to be paid to the Contractor shall not exceed the Contract Sum as reduced by the amount of payments otherwise made. The Port shall have title to all Work performed through the date of termination.

## 9.04 TERMINATION OF CONTRACT BY THE CONTRACTOR

- A. Contractor may terminate for cause. The Contractor may terminate the Contract if the Work is stopped for a period of sixty (60) consecutive days through no act or fault of the Contractor or a Subcontractor of any tier, for either of the following reasons:
  - 1. Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped; or

2. An act of government, such as a declaration of national emergency, that requires all Work to be stopped.
- B. Procedure for Contractor termination. If one of the reasons described in Section 9.04A exists, the Contractor may, upon seven (7) days' written notice to the Port (during which period the Port has the opportunity to cure), terminate the Contract and recover from the Port payment for Work executed through the date of termination in accordance with the Contract Documents and for proven loss with respect to materials, equipment, tools, and construction equipment and machinery, including reasonable overhead and profit on Work executed and direct costs incurred by reason of such termination. The total recovery of the Contractor shall not exceed the unpaid balance of the Contract Sum.
- C. Contractor may stop the Work for failure of Port to pay undisputed amounts. The Contractor may stop Work under the Contract if the Port does not pay undisputed amounts due and owing to the Contractor within fifteen (15) days of the date established in the Contract Documents. If the Port fails to pay undisputed amounts, the Contractor may, upon fifteen (15) additional days' written notice to the Port, during which the Port can cure, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately, and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay, and start-up.

#### 9.05 SUBCONTRACT ASSIGNMENT UPON TERMINATION

- A. Subcontracts assigned upon termination. Each subcontract is hereby assigned by the Contractor to the Port provided that:
  1. The Port requests that the subcontract be assigned.
  2. The assignment is effective only after termination by the Port and only for those subcontracts that the Port accepts in writing.
  3. The assignment is subject to the prior rights of the surety, if any, under any bond issued in accordance with the Contract Documents.

When the Port accepts the assignment of a subcontract, the Port assumes the Contractor's rights and obligations under the subcontract, but only for events and payment obligations that arise after the date of the assignment.

### ARTICLE 10 - BONDS

#### 10.01 CONTRACTOR PERFORMANCE AND PAYMENT BONDS

- A. Contractor to furnish performance and payment bonds. Within fifteen (15) days following its receipt of a notice of award, and as part of the Contract Sum, the Contractor shall secure and furnish duly executed performance and payment bonds using the forms furnished by the Port. The bonds shall be executed by a surety (or sureties) reasonably acceptable to the Port, admitted and licensed in the State of Washington, registered with the Washington State Insurance Commissioner, and possessing an A.M. Best rating of "A-, FSC (6)" or better and be authorized by the U.S. Department of the Treasury. Pursuant to RCW 39.08, the bonds shall be in an amount equal to the Contract Sum, and shall be conditioned only upon the faithful performance of the Contract by the Contractor within the Contract Time and upon the payment by the Contractor of all taxes, fees, and penalties to the State of Washington and all laborers, Subcontractors, and suppliers, and others who supply provisions, equipment, or supplies for the performance of the Work covered by this Contract. The bonds shall be signed by the person or persons legally authorized to bind the Contractor.

- B. On contracts of one hundred fifty thousand dollars or less, at the option of the contractor as defined in RCW 39.10.210, the Port may, in lieu of the bond, retain ten percent of the contract amount for a period of thirty days after date of final acceptance, or until receipt of all necessary releases from the department of revenue, the Employment Security Department, and the Department of Labor and Industries and settlement of any liens filed under chapter 60.28 RCW, whichever is later. The recovery of unpaid wages and benefits must be the first priority for any actions filed against retainage held by a state agency or authorized local government.

For contracts of one hundred fifty thousand dollars or less, the Port may accept a full payment and performance bond from an individual surety or sureties.

- C. Port may notify surety. If the Port makes or receives a claim against the Contractor, the Port may, but is not obligated to, notify the Contractor's surety of the nature and amount of the claim. If the claim relates to a possibility of a Contractor's default, the Port may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

## **ARTICLE 11 - DISPUTE RESOLUTION**

### **11.01 NOTICE OF PROTEST AND CLAIM**

- A. Dispute resolution procedure mandatory. All claims, direct or indirect, arising out of, or relating to, the Contract Documents or the breach thereof, shall be decided exclusively by the following alternative dispute resolution procedure, unless the parties mutually agree otherwise. If the Port and Contractor agree to a partnering process to assist in the resolution of disputes, the partnering process shall occur prior to, and not be in place of, the mandatory dispute resolution procedures set forth below.
- B. Notice of protest defined. Except for claims requiring notice before proceeding with the affected Work as otherwise described in the Contract Documents, the Contractor shall provide immediate oral notice of protest to the Engineer prior to performing any disputed Work and shall submit a written notice of protest to the Port within seven (7) days of the occurrence of the event giving rise to the protest that includes a clear description of the event(s). The protest shall identify any point of disagreement, those portions of the Contract Documents believed to be applicable, and an estimate of quantities and costs involved. When a protest relates to cost, the Contractor shall keep full and complete records and shall permit the Port to have access to those records at any time as requested by the Port.
- C. Claim defined. A claim is a demand by one of the parties seeking adjustment or interpretation of the Contract terms, payment of money, extension of time, or other relief with respect to the terms of the Contract Documents. The term "claim" also includes all disputes and matters in question between the Port and Contractor arising out of, or relating to, the Contract Documents. Claims must be initiated in writing and include a detailed factual statement and clear description of the claim providing all necessary dates, locations, and items of Work, the date or dates on which the events occurred that give rise to the claim, the names of employees or representatives knowledgeable about the claim, the specific provisions of the Contract Documents that support the claim, any documents or oral communications that support the claim, any proposed change in the Contract Sum (showing all components and calculations) and/or Contract Time (showing cause and analysis of the resultant delay in the critical path), and all other data supporting the claim. Claims shall also be submitted with a statement certifying, under penalty of perjury, that the claim as submitted is made in good faith, that the supporting cost and pricing data are true and accurate to the best of Contractor's knowledge and belief, that the claim is fully supported, and that the amount requested accurately reflects the adjustment in the Contract Sum or Contract Time for which Contractor believes the Port is liable. A claim shall be deemed to include all changes, direct and indirect, in cost and in time to which the Contractor and Subcontractors of any tier are entitled and may not contain

reservations of rights without the Port's written approval; any unapproved reservations of rights shall be without effect.

- D. Claim procedure. The Contractor shall submit a written claim within thirty (30) days of providing written notice of protest. The Contractor may delay submitting supporting data by an additional thirty (30) days if it notifies the Port in its claim that substantial data must be assembled. Any claim of a Subcontractor of any tier may be brought only through, and after review by and concurrence of, the Contractor.
- E. Failure to comply with notice of protest and claim requirements waives claims. Any notice of protest by the Contractor and any claim of the Contractor, whether under the Contract or otherwise, must be made pursuant to, and in strict accordance with, the applicable provisions of the Contract. Failure to properly and timely submit a notice of protest or to timely submit a claim shall waive the claim. No act, omission, or knowledge, actual or constructive, of the Port shall waive the requirement for timely written notice of protest and a timely written claim, unless the Port and the Contractor sign an explicit, unequivocal written waiver approved by the Port. The Contractor expressly acknowledges and agrees that the Contractor's failure to timely submit required notices of protest and/or timely submit claims has a substantial impact upon, and prejudices, the Port. For the purpose of calculating time periods, an "event giving rise to a claim," among other things, is not a Request for Information, but rather is a response that the Contractor believes would change the Contract Sum and/or Contract Time.
- F. False claims. The Contractor shall not make any fraudulent misrepresentations, concealments, errors, omissions, or inducements to the Port in the formation or performance of the Contract. If the Contractor or a Subcontractor of any tier submits a false or frivolous claim to the Port, which for purposes of this Section 11.01(F) is defined as a claim based in whole or in part on a materially incorrect fact, statement, representation, assertion, or record, the Port shall be entitled to collect from the Contractor by offset or otherwise (without prejudice to any right or remedy of the Port) any and all costs and expenses, including investigation and consultant costs, incurred by the Port in investigating, responding to, and defending against the false or frivolous claim.
- G. Compliance with lien and retainage statutes required. If a claim relates to, or is the subject of, a lien or retainage claim, the party asserting the claim may proceed in accordance with applicable law to comply with the notice and filing deadlines prior to resolution of the claim by mediation or by litigation.
- H. Performance required pending claim resolution. Pending final resolution of a claim, the Contractor shall continue to perform the Contract and maintain the Baseline Project Schedule, and the Port shall continue to make payments of undisputed amounts due in accordance with the Contract Documents.

## 11.02 MEDIATION

- A. Claims must be subject to mediation. At any time following the Port's receipt of a written claim, the Port may require that an officer of the Contractor and the Port's designee (all with authority to settle) meet, confer, and attempt to resolve a claim. If the claim is not resolved during this meeting, the claim shall be subject to mandatory mediation as a condition precedent to the initiation of litigation. This requirement can be waived only by an explicit, written waiver signed by the Port and the Contractor.
- B. Mediation procedure. A request for mediation shall be filed in writing with the other party to the Contract, and the parties shall promptly attempt to agree upon a mediator. If the parties have not reached agreement within thirty (30) days of the request, either party may file the request with the American Arbitration Association, or such other alternative dispute resolution service to which the parties mutually agree, with a copy to the other party, and the mediation shall be

administered by the American Arbitration Association (or other agreed service). The parties to the mediation shall share the mediator's fee and any filing fees equally. The mediation shall be held in Pierce County, Washington, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof. Unless the Port and the Contractor mutually agree in writing otherwise, all claims shall be considered at a mediation session that shall occur prior to Final Completion.

### 11.03 LITIGATION

- A. Claims not resolved by mediation are subject to litigation. Claims not resolved through mediation shall be resolved by litigation, unless the parties mutually agree otherwise. The venue for any litigation shall be Pierce County, Washington. The Contractor may bring no litigation on claims, unless such claims have been properly raised and considered in the procedures of this Article 11. The Contractor must demonstrate in any litigation that it complied with all requirements of this Article.
- B. Litigation must be commenced promptly. All unresolved claims of the Contractor shall be waived and released, unless the Contractor has complied with the requirements of the Contract Documents, and litigation is served and filed within 180 days of the date of Substantial Completion approved in writing by the Port or termination of the Contract. The pendency of mediation (the time period between receipt by the non-requesting party of a written mediation request and the date of mediation) shall toll these deadlines until the earlier of the mediator providing written notice to the parties of impasse, or thirty (30) days after the date of the mediation session.
- C. Port not responsible for attorneys' fees. Neither the Contractor nor a Subcontractor of any tier, whether claiming under a bond or lien statute or otherwise, shall be entitled to attorneys' fees directly or indirectly from the Port (but may recover attorneys' fees from the bond or statutory retainage fund itself to the extent allowable under law).
- D. Port may join Contractor in dispute. The Port may join the Contractor as a party to any litigation or arbitration involving the alleged fault, responsibility, or breach of contract of the Contractor or Subcontractor of any tier.

## ARTICLE 12 - MISCELLANEOUS

### 12.01 GENERAL

- A. Rights and remedies are cumulative. The rights and remedies of the Port set forth in the Contract Documents are cumulative, and in addition to and not in limitation of, any rights and remedies otherwise available to the Port. The pursuit of any remedy by the Port shall not be construed to bar the Port from the pursuit of any other remedy in the event of similar, different, or subsequent breaches of this Contract. All such rights of the Port shall survive completion of the Project or termination of the Contractor.
- B. Reserved rights do not give rise to duty. The rights reserved or possessed by the Port to take any action shall not give rise to a duty for the Port to exercise any such right.

### 12.02 WAIVER

- A. Waiver must be in writing and authorized by Port. Waiver of any provisions of the Contract Documents must be in writing and authorized by the Port. No other waiver is valid on behalf of the Port.
- B. Inaction or delay not a waiver. No action, delay in acting, or failure to act by the Port shall constitute a waiver of any right or remedy of the Port, or constitute an approval or acquiescence of any breach or defect in the Work, nor shall any delay or failure of the Port to act waive or

otherwise prejudice the right of the Port to enforce a right or remedy at any subsequent time.

- C. Claim negotiation not a waiver. The fact that the Port and the Contractor may consider, discuss, or negotiate a claim that has or may have been defective or untimely under the Contract, shall not constitute a waiver of the provisions of the Contract Documents, unless the Port and the Contractor sign an explicit, unequivocal waiver.

#### 12.03 GOVERNING LAW

- A. Washington law governs. This Contract and the rights and duties of the parties hereunder shall be governed by the internal laws of the State of Washington, without regard to its conflict of law principles.

#### 12.04 COMPLIANCE WITH LAW

- A. Contractor to comply with applicable laws. The Contractor shall at all times comply with all applicable Federal, State and local laws, ordinances, and regulations. This compliance shall include, but is not limited to, the payment of all applicable taxes, royalties, license fees, penalties, and duties.
- B. Contractor to provide required notices. The Contractor shall give notices required by all applicable Federal, State and local laws, ordinances, and regulations bearing on the Work.
- C. Contractor to confine operations at site to permitted areas. The Contractor shall confine operations at the Project site to areas permitted by applicable laws, ordinances, permits, rules and regulations, and lawful orders of public authorities and the Contract Documents.

#### 12.05 ASSIGNMENT

- A. Assignment. The Port and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to the other party and to the partners, successors, assigns, and legal representatives of such other party. The Contractor may not assign, transfer, or novate all or any portion of the Contract, including but not limited to, any claim or right to the Contract Sum, without the Port's prior written consent. If the Contractor attempts to make an assignment, transfer, or novation without the Port's consent, the assignment shall be of no effect, and Contractor shall nevertheless remain legally responsible for all obligations under the Contract. The Contractor also shall not assign or transfer, to any third party, any claims it may have against the Port arising under the Contract or otherwise related to the Project.

#### 12.06 TIME LIMIT ON CAUSES OF ACTION

- A. Time limit on causes of action. The Port and Contractor shall commence all causes of action, whether in contract, tort, breach of warranty, or otherwise, against the other arising out of, or related to, the Contract in accordance with the requirements of the dispute resolution procedure set forth in Article 11 of these General Conditions, within the time period specified by applicable law, and within the time limits identified in the Contract Documents. The Contractor waives all claims and causes of action not commenced in accordance with this Section 12.06.

#### 12.07 SERVICE OF NOTICE

- A. Notice. Written notice under the Contract Documents by either the Contractor or Port may be served on the other party by personal service, electronic or facsimile transmission, or delivery service to the last address provided in writing to the other party. For the purpose of measuring time, notice shall be deemed to be received by the other party on the next business day following the sender's electronic or facsimile transmittal or delivery by delivery service.

## 12.08 RECORDS

- A. Contractor and Subcontractors to maintain records and cooperate with Port audit. The Contractor and Subcontractors of any tier shall maintain books, ledgers, records, documents, estimates, bids, correspondence, logs, schedules, emails, and other tangible and electronic data and evidence relating or pertaining to costs and/or performance of the Contract ("records") to such extent, and in such detail, as will properly reflect and fully support compliance with the Contract Documents and with all costs, charges, and other amounts of whatever nature. The Contractor shall preserve these records for a period of six (6) years following the date of Final Acceptance under the Contract. Within seven (7) days of the Port's request, both during the Project and for six (6) years following Final Acceptance, the Contractor and Subcontractors of any tier shall make available, at their office during normal business hours, all records for inspection, audit, and reproduction (including electronic reproduction) by the Port or its representatives; failure to fully comply with this requirement shall constitute a material breach of contract and a waiver of all claims by the Contractor and Subcontractors of any tier.
- B. Rights under RCW 42.56. The Contractor agrees, on behalf of itself and Subcontractors of any tier, that any rights under Chapter 42.56 RCW will commence at Final Acceptance, and that the invocation of such rights at any time by the Contractor or a Subcontractor of any tier, or their respective representatives, shall initiate an equivalent right to disclosures from the Contractor and Subcontractors of any tier for the benefit of the Port.

## 12.09 STATUTES

- A. Contractor to comply with Washington statutes. The Contractor shall abide by the provisions of all applicable statutes, regulations, and other laws. Although a number of statutes are referenced in the Contract Documents, these references are not meant to be, and are not, a complete list.
  - 1. Pursuant to RCW 39.06, "Registration, Licensing of Contractors," the Contractor shall be registered and licensed as required by the laws of the State of Washington, including but not limited to RCW 18.27, "Registration of Contractors," and shall satisfy all State of Washington bonding and insurance requirements. The Contractor shall also have a current state Unified Business Identifier number; have industrial insurance coverage for the Contractor's employees working in Washington as required by Title 51 RCW; have an Employment Security Department number as required by Title 50 RCW; have a state excise tax registration number as required in Title 82 RCW; and not be disqualified from bidding on any public works contract under RCW 39.06.010 (unregistered or unlicensed contractors) or RCW 39.12.065(3) (prevailing wage violations).
  - 2. The Contractor shall comply with all applicable provisions of RCW 49.28, "Hours of Labor."
  - 3. The Contractor shall comply with pertinent statutory provisions relating to public works of RCW 49.60, "Discrimination."
  - 4. The Contractor shall comply with pertinent statutory provisions relating to public works of RCW 70.92, "Provisions in Buildings for Aged and Handicapped Persons," and the Americans with Disabilities Act.
  - 5. Pursuant to RCW 50.24, "Contributions by Employers," in general, and RCW 50.24.130 in particular, the Contractor shall pay contributions for wages for personal services performed under this Contract or arrange for an acceptable bond.
  - 6. The Contractor shall comply with pertinent provisions of RCW 49.17, "Washington Industrial Safety and Health Act," and Chapter 296-155 WAC, "Safety Standards for Construction Work."

7. Pursuant to RCW 49.70, "Worker and Community Right to Know Act," and WAC 296-62-054 et seq., the Contractor shall provide to the Port, and have copies available at the Project site, a workplace survey or material safety data sheets for all "hazardous" chemicals under the control or use of Contractor or any Subcontractor of any tier.
8. All products and materials incorporated into the Project as part of the Work shall be certified as "asbestos-free" and "lead-free" by United States standards, and shall also be free of all hazardous materials or substances. At the completion of the Project, the Contractor shall submit certifications of asbestos-free and of lead-free materials certifying that all materials and products incorporated into the Work meet the requirements of this Section, and shall also certify that materials and products incorporated into the Work are free of hazardous materials and substances.

**END OF SECTION**



## PART 1 - GENERAL

### 1.01 SUMMARY

- A. This Section includes requirements for the Contractor's insurance.

### 1.02 SUBMITTAL REQUIREMENTS

- A. Evidence of the required insurance within fifteen (15) days of the issued Notice of Award to the Contractor.
- B. Updated evidence of insurance as required until final completion.

### 1.03 COMMERCIAL GENERAL LIABILITY (CGL) INSURANCE

- A. The Contractor shall secure and maintain until Final Completion, at its sole cost and expense, the following insurance in carriers reasonably acceptable to the Port, licensed in the State of Washington, registered with the Washington State Insurance Commissioner, and possessing an A.M. Best rating of "A-, FSC six (6)" or better.
- B. The Port of Tacoma (Port) and the Northwest Seaport Alliance (NWSA) will be included as additional insureds for both ongoing and completed operations by endorsement to the policy using ISO Form CG 20 10 11 85 or forms CG 20 10 04 13 and CG 20 37 04 13 (or equivalent coverage endorsements). The inclusion of the Port and the NWSA as additional insureds shall not create premium liability for either the Port nor the NWSA.

Also, by endorsement to the policy, there shall be:

- 1. An express waiver of subrogation in favor of the Port;
  - 2. A cross liabilities clause; and
  - 3. An endorsement stating that the Contractor's policy is primary and not contributory with any insurance carried by the Port.
- C. If the Contractor, Supplier, or Subcontractors will perform any work requiring the use of a licensed professional, per RCW 18, the Contractor shall provide evidence to the Port of professional liability insurance in amounts not less than \$1,000,000.
  - D. This insurance shall cover all of the Contractor's operations, of whatever nature, connected in any way with the Contract, including any operations performed by the Contractor's Subcontractors of any tier. **It is the obligation of the Contractor to ensure that all Subcontractors (at whatever level) carry a similar program that provides the identified types of coverage, limits of liability, inclusion of the Port and the NWSA as additional insured(s), waiver of subrogation and cross liabilities clause.** The Port reserves the right to reject any insurance policy as to company, form, or substance. Contractor's failure to provide, or the Port's acceptance of, the Contractor's certificate of insurance does not waive the Contractor's obligation to comply with the insurance requirements of the Contract as specifically described below:
    - 1. Commercial General Liability Insurance on an Occurrence Form Basis including, but not limited to:
      - a. Bodily Injury Liability;
      - b. Property Damage Liability;
      - c. Contractual Liability;
      - d. Products - Completed Operations Liability;

- e. Personal Injury Liability;
- f. By endorsement to the policy, not exclude work within fifty feet of any railroad track;
- 2. Comprehensive Automobile Liability including, but not limited to:
  - a. Bodily Injury Liability;
  - b. Property Damage Liability;
  - c. Personal Injury Liability;
  - d. Owned and Non-Owned Automobile Liability; and
  - e. Hired and Borrowed Automobile Liability.
- 3. Railroad protective liability insurance naming the Port and Tacoma Rail as Insureds with coverage of at least \$2,000,000 per occurrence and \$6,000,000 in the aggregate. The policy must be issued on a standard ISO form CG 00 35 10 93 and include the following:
  - a. Endorsed to include the Pollution Exclusion Amendment (ISO form CG 28 31 10 93);
  - b. Endorsed to include the Limited Seepage and Pollution Endorsement;
  - c. Endorsed to include Evacuation Expense Coverage Endorsement;
  - d. No other endorsements restricting coverage may be added; and
  - e. The original policy must be provided to the Port prior to execution of the Contract; within fifteen (15) days of Notice of Award.
- 4. Contractor's Pollution Liability (CPL) covering claims for bodily injury, property damage and cleanup costs, and environmental damages from pollution conditions arising from the performance of covered operations.
  - a. If the Work involves remediation or abatement of regulated waste to include, but not limited to asbestos containing materials, lead containing products, mercury, PCB, underground storage tanks, or other hazardous materials or substances, the CPL policy shall not exclude such coverage, or a specific policy covering such exposure shall be required from the Contractor and all Subcontractors performing such Work.
  - b. If the Work involves transporting regulated materials or substances or waste, a separate policy or endorsement to the CPL policy specifically providing coverage for liability and cleanup arising from an upset or collision during transportation of hazardous materials or substances shall be required from the Contractor and all Subcontractors performing such Work.
  - c. It is preferred that CPL insurance shall be on a true occurrence form without a sunset clause. However, if CPL insurance is provided on a Claims Made basis, the policy shall have a retroactive date prior to the start of this project, and this insurance shall be kept in force for at least three years after the final completion of this project. Alternatively, the contractor, at its option, may provide evidence of extended reporting period of not less than three (3) years in its place. The Contractor shall be responsible for providing the Port with certificates of insurance each year evidencing this coverage.
  - d. The Port and the NWSA shall be named as an additional insured(s) on the CPL policy.
- 5. Technology Professional Liability Errors and Omissions Insurance appropriate to the Consultant's profession and work hereunder, with limits not less than \$2,000,000 per occurrence. Coverage shall be sufficiently broad to respond to the duties and obligations as is undertaken by the Vendor in this agreement and shall include, but not be limited to,

claims involving infringement of intellectual property, copyright, trademark, invasion of privacy violations, information theft, release of private information, extortion and network security. The policy shall provide coverage for breach response costs as well as regulatory fines and penalties as well as credit monitoring expenses with limits sufficient to respond to these obligations.

The policy shall include, or be endorsed to include, **property damage liability coverage** for damage to, alteration of, loss of, or destruction of electronic data and/or information "property" of the Agency in the care, custody, or control of the Vendor.

- E. Except where indicated above, the limits of all insurance required to be provided by the Contractor shall be not less than \$2,000,000 for each occurrence. If the coverage is aggregated, the coverage shall be no less than two times the per occurrence or per claim limit. However, coverage in the amounts of these minimum limits shall not be construed as to relieve the Contractor from liability in excess of such limits. Any additional insured endorsement shall NOT be limited to the amounts specified by this Contract, unless expressly waived in writing by the Port.
- F. Contractor shall certify that its operations are covered by the Washington State Worker's Compensation Fund. The Contractor shall provide its Account Number or, if self-insured, its Certificate of Qualification Number. The Contractor shall also provide evidence of Stop-Gap Employers' Liability Insurance.
- G. The Contractor shall furnish, within fifteen (15) days following issuance of the Notice of Award, a certificate of insurance satisfactory to the Port evidencing that insurance in the types and minimum amounts required by the Contract Documents has been secured. The Certificate of Insurance shall be signed by an authorized representative of the insurer together with a copy of the endorsement, which shows that the Port and the NWSA are named as additional insured(s).
- H. Contractor shall provide at least forty-five (45) days prior written notice to the Port of any termination or material change, or ten (10) day's-notice in the case of non-payment of premium(s).
- I. If the Contractor is required to make corrections to the Work after Final Completion, the Contractor shall obtain at its own expense, prior to the commencement of any corrective work, insurance coverage as required by the Contract Documents, which coverage shall be maintained until the corrections to the Work have been completed and accepted by the Port.

#### 1.04 BUILDER'S RISK INSURANCE

- A. Until Final Completion of the Work, the construction Work is at the risk of the Contractor and no partial payment shall constitute acceptance of the Work or relieve the Contractor of responsibility of completing the Work under the Contract.
- B. To the extent the Work provided under this Contract does not include the construction, rehabilitation or repair of any dam, road or bridge, and whenever the estimated cost of the Work is less than \$25,000,000, the Port and Contractor acknowledge that the Port will purchase, or has purchased, from a company or companies lawfully authorized and admitted to do business in Washington, property insurance written on a Builder's Risk "all-risk" (including Earthquake and Flood with applicable sub-limits) or equivalent policy form to cover the course of construction in the amount of the full insurable value thereof. This property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made or until no person or entity other than the Port has an insurable interest in the property, whichever is later. Without further endorsement, the coverage afforded by this insurance includes the interests of the Port, the Contractor, and Subcontractors of any tier on

the Project. Coverage for materials intended to be installed in the facility will be covered by the Builder's Risk policy. Losses up to the deductible amount, and payment of any deductible amount, shall be the responsibility of the Contractor. All tools and equipment not intended as part of the construction or installation (including but not limited to Contractor's equipment and tools) will NOT be covered by the policy.

To the extent the Work provided under this Contract involves any dam, roadway or bridge, the value of which exceeds \$250,000, or whenever the estimated cost of the Work is equal to or greater than \$25,000,000, Contractor will purchase from a company or companies lawfully authorized and admitted to do business in Washington, property insurance written on a Builder's Risk "all-risk" (excluding Earthquake and Flood with applicable sub-limits) or equivalent policy form to cover the course of construction in the amount of the full insurable value thereof. This Builder's Risk insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made or until no person or entity other than the Port has an insurable interest in the property, whichever is later. Contractor shall provide evidence satisfactory to the Port confirming the coverage afforded by this insurance shall include the interests of the Port, the Contractor, and Subcontractors of any tier on the Project. Coverage for materials intended to be installed in the facility will be covered by the Builder's Risk policy purchased by the Contractor. Losses up to the deductible amount, and payment of any deductible amount, shall be the responsibility of the Contractor.

In all instances, the Contractor shall obtain property insurance for all Contractor-owned equipment and tools and, in the event of loss, payment of any deductible amount shall be the responsibility of the Contractor.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - PRODUCTS - NOT USED**

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.01 PREVAILING AND OTHER REQUIRED WAGES**

- A. The Contractor shall pay (and shall ensure that all Subcontractors of any tier pay) all prevailing wages and other wages (such as Davis-Bacon Act wages) applicable to the Project.
- B. Pursuant to RCW 39.12, "Prevailing Wages on Public Works," no worker, laborer, or mechanic employed in the performance of any part of the Work shall be paid less than the "prevailing rate of wage" in effect as of the date that bids are due.

- 1. Based on the Bid Date, the applicable effective date for prevailing wages for this Project is September 21, 2021.

- C. The State of Washington prevailing wage rates applicable for this public works Project, which is located in Pierce County, may be found at the following website address of the Department of Labor and Industries:

<https://fortress.wa.gov/lni/wagelookup/prvWagelookup.aspx>

- D. The schedule of the prevailing wage rates is made a part of the Contract Documents by reference as though fully set forth herein, and a printed copy of the applicable prevailing wage rates are also available for viewing at the Port Administration Building, located at 1 Sitcum Plaza, Tacoma, WA 98421 (253-383-5841). Upon request to the Procurement Department at [procurement@portoftacoma.com](mailto:procurement@portoftacoma.com), the Port will email or mail a hard copy of the applicable Journey Level prevailing wages for this Project.

- E. Questions relating to prevailing wage data should be addressed to the Industrial Statistician.

Mailing Address: Washington State Department of Labor and Industries  
Prevailing Wage Office  
P.O. Box 44540  
Olympia, WA 98504

Telephone: (360) 902-5335

Facsimile: (360) 902-5300

- 1. If there is any discrepancy between the provided schedule of prevailing wage rates and the published rates applicable under WAC 296-127-011, the applicable published rates shall apply with no increase in the Contract Sum. It is the Contractor's responsibility to ensure that the correct prevailing wage rates are paid.

- F. Statement to Pay Prevailing Wages

- 1. Prior to any payment being made by the Port under this Contract, the Contractor, and each Subcontractor of any tier, shall file a Statement of Intent to Pay Prevailing Wages with the Department of Labor and Industries for approval.
  - 2. The statement shall include the hourly wage rate to be paid to each classification of workers entitled to prevailing wages, which shall not be less than the prevailing rate of wage, and the estimated number of workers in each classification employed on the Project by the Contractor or a Subcontractor of any tier, as well as the Contractor's contractor registration number and other information required by the Department of Labor and Industries.
  - 3. The statement, and any supplemental statements, shall be filed in accordance with the requirements of the Department of Labor and Industries. No progress payment shall be made until the Port receives such certified statement.

- G. The Contractor shall post, in a location readily visible to workers, at the Project site: (i) a copy of the Statement of Intent to Pay Prevailing Wages approved by the Industrial Statistician of the Department of Labor and Industries and (ii) the address and telephone number of the Industrial Statistician of the Department of Labor and Industries to whom a complaint or inquiry concerning prevailing wages may be directed.
- H. If a State of Washington prevailing wage rate conflicts with another applicable wage rate (such as Davis-Bacon Act wage rate) for the same labor classification, the higher of the two shall govern.
- I. Pursuant to RCW 39.12.060, if any dispute arises concerning the appropriate prevailing wage rate for work of a similar nature, and the dispute cannot be adjusted by the parties in interest, including labor and management representatives, the matter shall be referred for arbitration to the Director of the Department of Labor and Industries, and his or her decision shall be final and conclusive and binding on all parties involved in the dispute.
- J. Immediately following the end of all Work completed under this Contract, the Contractor and each Subcontractor of any tier, shall file an approved Affidavit of Wages Paid with the Department of Labor and Industries.
- K. The Contractor shall defend (at the Contractor's sole cost, with legal counsel approved by Port), indemnify, and hold the Port harmless from all liabilities, obligations, claims, demands, damages, disbursements, lawsuits, losses, fines, penalties, costs, and expenses, whether direct, indirect, including, but not limited to, attorneys' fees and consultants' fees and other costs and expenses, from any violation or alleged violation by the Contractor or any Subcontractor of any tier of RCW 39.12 ("Prevailing Wages on Public Works") or RCW Title 51 ("Industrial Insurance"), including, but not limited to, RCW 51.12.050.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

**END OF SECTION**

**PART 1 - GENERAL**

**1.01 REQUIREMENTS APPLICABLE PORT-WIDE**

- A. The Contractor shall submit, prior to the start of Work, a list of emergency contact numbers for itself and its Subcontractors, Suppliers, and manufacturer representatives. Each person on the Project site shall have a valid identification card that is tamper proof with laminated photo identification, such as one (1) of the following:
1. State-issued Driver's license (also required if driving a vehicle)
  2. Card issued by a governmental agency
  3. Passport
  4. Pacific Maritime Association card
  5. Labor organization identification card
- B. Identification cards shall be visible while on the Project site or easily displayed when requested.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.01 SCOPE**

- A. The accompanying Drawings and Specifications show and describe the location and type of Work to be performed under this project. Work is more specifically defined on the drawings listed in Section 00 01 15.
  - 1. The Work under this contract is to provide, furnish and install all labor, materials and equipment required to complete the work, installed, tested, and ready for use, and as described in these documents.
  - 2. The SIM Yard Charging Stations Project consists of: Installation of six (6) electric truck charging stations including concrete foundations; modification of existing electrical system infrastructure on the South Intermodal (SIM) Yard; roller-compacted concrete demolition and repair; trenching and restoration by asphalt paving; and miscellaneous metal work.

### **1.02 LOCATION**

- A. The work is located at:
  - 1821 Milwaukee Way
  - Tacoma, WA 98421

### **1.03 PORT PROVIDED MATERIALS**

- A. Port of Tacoma will furnish the Contractor with the following material:
  - 1. Charging Stations
  - 2. Charging Cables
  - 3. Cable Hangars
- B. Reference Section 01 64 00 - Owner Provided Materials for coordination.

## **PART 2 - PRODUCTS - NOT USED**

## **PART 3 - EXECUTION - NOT USED**

**END OF SECTION**



## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. This Section specifies work sequence and constraints.
- B. The purpose of the milestones, sequence and limitations of construction are to ensure that the Contractor understands the requirements and limitations on its work by the specific characteristics of the Contract, schedules and conducts work in a manner consistent with achieving these purposes, and complies with the construction schedule, the specific sequence, constraints, milestones and limitations of work specified.
- C. Sequence of construction. Plan the sequence of construction to accommodate all the requirements of the specifications. The Contract Price shall include all specified requirements as described in this Section.

### **1.02 CONTRACTOR ACCESS AND USE OF PREMISES**

- A. Activity Regulations
  - 1. Ensure Contractor personnel deployed to the project become familiar with and follow all regulations or restrictions established by the Engineer.
- B. Working Facility
  - 1. The SIM yard will remain in operation during the entire construction period. The Contractor shall conduct their work so as to prevent interference with the normal activities of the yard operator outside of any that have been negotiated and pre-approved by the Engineer.
- C. Work Site Regulations
  - 1. Keep within the limits of work and assigned avenues of ingress and egress. Do not enter any areas outside the designated work location unless previously approved by the Engineer. The Contractor must comply with the following conditions:
    - a. Restore all common areas to a clean and useable condition that permits the resumption of SIM yard operations after the Contractor ceases daily work.
    - b. Be responsible for control and security of Contractor-owned equipment and materials at the work site. Report to Port Security (phone (253) 383-9472) any missing/lost/stolen property.
    - c. Contractor staging areas shall be fenced and secured with a locking gate to restrict access when not in use.
    - d. Ensure all materials, tools and equipment will be removed from the site or secured within the designated laydown area at the end of each shift.

### **1.03 CONSTRAINTS - GENERAL**

- A. Work shall be coordinated with the Engineer.
- B. SIM yard operations shall not be impacted by construction activities; yard operated equipment and vehicles shall have right-of-way at all times.
- C. Electrical outages must be pre-planned. Timing of such outages must be approved by the Engineer and coordinated with SIM yard operator.
- D. Refer to Section 01 55 00 Vehicular Access and Parking for construction workers.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. Procedures for preparation and submittal of applications for progress payments.

### **1.02 PAYMENT PROCEDURES**

- A. Monthly pay estimates shall clearly identify the work performed for the given time period based on the approved Schedule of Values.
1. At the Pre-construction meeting, the Engineer and the Contractor shall agree upon a date each month when payment applications shall be submitted.
- B. For each pay estimate the Contractor shall submit the following:
1. Completed Contractor invoice and updated Schedule of Values tracking sheet as required by Division 01 or as established by the Engineer.
  2. Baseline Project Schedule and narrative updated as required by Section 01 32 16 of the Project Manual.
  3. Completed "Amounts Paid to Subcontracts and Suppliers" showing total contract amount, amount paid this estimate, total paid to date, and balance owing.
  4. Completed "Conditional Release and Waiver of Liens and Claims."
  5. An estimated cashflow statement projecting the Contractor's monthly billings on the project shall be submitted with each payment application.
- C. Prior to submitting a payment application, the Contractor and Engineer shall meet each month to review the work accomplished to determine the actual quantities including labor, materials and equipment charges to be billed.
1. Prior to the payment application meeting, the Contractor shall submit to the Engineer all measurement documentation as referenced in these contract documents; to include all measurement by weight, volume or field.
  2. For all change work being done on a force account basis, the Contractor shall submit prior to meeting with Engineer all Force Account back-up documentation as required to process the payment application where Force Account work is being billed. The Engineer and the Contractor shall review the documentation at the payment application meeting to verify quantities and review the work accomplished.
  3. The Contractor shall bring a copy of all documentation to the pay application meeting with the Engineer.
  4. The Contractor shall submit the updated baseline project schedule for review prior to submitting the payment application to ensure the payment processing is not held up due to necessary schedule revisions.
- D. Following the Engineers' review, the Contractor shall submit the agreed upon pay estimate electronically, with complete supporting documentation, using e-Builder®.

### **1.03 PAYMENT PRICING**

- A. Pricing for the various lump sum or unit prices in the Bid Form, as further specified herein, shall include all compensation to be received by the Contractor for furnishing all tools, equipment, supplies, and manufactured articles, and for all labor, operations, and incidentals appurtenant to the items of work being described, as necessary to complete the various items of the work in accordance with the requirements of the Contract Documents.

- B. Pricing also includes all costs of compliance with the regulations of public agencies having jurisdiction, including safety and health requirements of the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA).
- C. No separate payment will be made for any item that is not specifically set forth in the Bid Form, and all costs therefore shall be included in the prices named in the Bid Form for the various appurtenant items of work.
- D. All other work not specifically mentioned in the measurement and payment sections identified below shall be considered incidental to the work performed and merged into the various unit and lump sum prices bid. Payment for work under one item will not be paid for under any other item.
- E. The Port of Tacoma reserves the right to make changes should unforeseen conditions necessitate such changes. Where work is on a unit price basis, the actual quantities occasioned by such changes shall govern the compensation.

#### 1.04 LUMP SUM MEASUREMENT

- A. Lump sum measurement will be for the entire item, unit of Work, structure, or combination thereof, as specified and as indicated in the Contractor's submitted bid.
  - 1. If the Contractor requests progress payments for lump sum items, such progress payments will be made in accordance with an approved Schedule of Values. The quantity for payment for completed work shall be an estimated percentage of the lump sum amount, agreed to between the Engineer and Contractor, payable in monthly progress payments in increments proportional to the work performed in amounts as agreed between the Engineer and the Contractor.

#### 1.05 MEASUREMENT OF QUANTITIES FOR UNIT PRICES

- A. Measurement Standards:
  - 1. All Work to be paid for at a contract price per unit measurement, as indicated in the Contractor's submitted bid, will be measured by the Engineer in accordance with United States Standard Measures.
- B. Measurement by Weight:
  - 1. Reinforcing steel, steel shapes, castings, miscellaneous metal, metal fabrications, and similar items to be paid for by weight shall be measured by scale or by handbook weights for the type and quantity of material actually furnished and incorporated into the Work.
  - 2. Unless shipped by rail, material to be measured and paid for by weight shall be weighed on sealed scales regularly inspected by the Washington State Department of Agriculture's Weights and Measures Section or its designated representative. Measurement shall be furnished by and at the expense of the Contractor. All weighing, measuring, and metering devices shall be suitable for the purpose intended and shall conform to the tolerances and specifications as outlined in Washington State Department of Transportation Standard Specifications, Division 1, General Requirements, Article 1-09.2, Weighing Equipment.
  - 3. Provide or utilize platform scales of sufficient size and capacity to permit the entire vehicle or combination of vehicles to rest on the scale platform while being weighed. Combination vehicles may be weighed as separate units provided they are disconnected while being weighed. Scales shall be inspected and certified as often as the Engineer may deem necessary to ascertain accuracy. Costs incurred as a result of regulating, adjusting, testing, inspecting, and certifying scales shall be borne by the Contractor.

4. A licensed weighmaster shall weigh all Contractor-furnished materials. The Engineer may be present to witness the weighing and to check and compile the daily record of such scale weights. However, in any case, the Engineer will require that the Contractor furnish weight slips and daily summary weigh sheets. In such cases, furnish a duplicate weight slip or a load slip for each vehicle weighed, and deliver the slip to the Engineer at the point of delivery of the material.
5. If the material is shipped by rail, the certified car weights will be accepted, provided only actual weight of material will be paid for and not minimum car weights used for assessing freight tariff. Car weights will not be acceptable for material to be passed through mixing plants. Material to be measured by weight shall be weighed separately for each bid item under which it is to be paid.
6. Trucks used to haul material being paid for by weight shall be weighed empty daily and at such additional times as the Engineer may require. Each truck shall bear a plainly legible identification mark. The Engineer may require the weight of the material be verified by weighing empty and loaded trucks on such other scales as the Engineer may designate.

C. Measurement by Volume:

1. Measurement by volume will be by the cubic dimension indicated in the Contractor's submitted bid. Method of volume measurement will be by the unit volume in place or removed as shown on the Contract Drawings or as specified.
2. When material is to be measured and paid for on a volume basis and it is impractical to determine the volume by the specified method of measurement, or when requested by the Contractor in writing and accepted by the Engineer in writing, the material may be weighed in accordance with the requirements specified for weight measurement. Such weights will be converted to volume measurement for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the Resident Engineer and shall be agreed to by the Contractor before such method of measurement of pay quantities will be accepted.

D. Measurement by Area: Measurement by area will be by the square dimension shown on the Contract Drawings or as specified. Method of square measurement will be as specified.

E. Linear Measurement: Linear measurement will be by the linear dimension listed or indicated in the Contractor's submitted bid. Unless otherwise indicated, items, components, or Work to be measured on a linear basis will be measured at the centerline of the item in place.

F. Field Measurement for Payment:

1. The Contractor shall take all measurements by providing equipment, workers, and survey crews as required to measure quantities in accordance with the provisions for measurement specified herein. No allowance will be made for specified tolerances.
2. The Engineer will verify all quantities of Work performed by the Contractor on a unit-price basis, for progress payment purposes.

#### 1.06 REJECTED, EXCESS, OR WASTED MATERIALS

- A. Quantities of material wasted or disposed of in a manner not called for under the Contract; rejected loads of material, including material rejected after it has been placed by reasons of the failure of the Contractor to conform to the provisions of the Contract; material not unloaded from the transporting vehicle; material placed outside the lines indicated on the Contract Drawings or established by the Engineer; or material remaining on hand after completion of the Work, will not be paid for, and such quantities shall not be included in the final total quantities. No

additional compensation will be permitted for loading, hauling, and disposing of rejected material.

## 1.07 MEASUREMENT AND PAYMENT

### A. Item #1: Mobilization and Demobilization

1. Payment for Mobilization and Demobilization shall be for preparatory work and operations performed by the Contractor including, but not limited to, those necessary for the movement of its personnel, equipment, supplies and incidentals to and from the project site; temporary facilities and controls; for the establishment and removal of its offices, buildings and other facilities necessary for work on the project; for other work and operations which it must perform or costs it must incur before beginning production work on the various items on the project site, and for removal of personnel, equipment, supplies, offices, building facilities, sheds, fencing, and other incidentals from the site.
2. Mobilization and Demobilization shall be paid at the lump sum price listed in the Contractor's submitted bid. Incremental payment shall be made for each location as follows:
  - a. 40% after completion of 5% of the total contract amount of other bid items have been earned.
  - b. 40% after completion of 20% of the total contract amount of other bid items have been earned.
  - c. 20% after completion of all work on the project has been completed, including cleanup and acceptance of the project by the Port.

### B. Item #2: Project Administration

1. Item Description: The Work of this item includes all administrative costs associated with administering and supervising the project including, but not limited to supervision of personnel, coordination of all work activities, coordination of subcontractors and/or suppliers, preparation and transmittal of submittals, permit acquisitions, for premiums on bonds and insurance for the project, and project overhead.
2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.
3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted bid, in accordance with the approved Schedule of Values.

### C. Item #3: SIM Yard Charging Stations

1. Item Description: The Work of this item encompasses all activities required to complete the SIM Yard Charging Stations Project including but is not limited to roller-compacted concrete demolition and repair; trenching and restoration by asphalt paving; construction of concrete pedestals and protective bollards; installation of Port-provided charging stations; miscellaneous metal work; and modification of existing electrical system infrastructure.
2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.
3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted bid, in accordance with the approved Schedule of Values.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXEUCION - NOT USED**

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

### **1.02 SUBMITTALS**

- A. The Contractor shall submit for approval the following documentation to the Port for force account change orders:
  - 1. List of Labor Rates
    - a. For the Contractor and each subcontractor, a list of labor rates for each trade applicable to the scope of work to be performed. These submitted rates shall be broken down to include the base wage, fringes, FICA, SUTA, FUTA, industrial insurance, and medical aid premiums as stated in the General Conditions. The rates shall not contain any travel time, safety, loss efficiency factors, overhead, or profit. Rates shall be submitted for straight time, overtime, and double time in a form acceptable to the Engineer. Contractor shall provide proof of all labor rate costs as required by the Engineer, including the submission of a copy of the most current Workers Compensation Rate Notice from Labor & Industries and a copy of the Unemployment Insurance Tax Rate notice from the Employment Security Department.
      - 1) If labor rates change during the course of the project or additional labor rates become required to complete the work, the Contractor shall submit new rates for approval.
  - 2. List of Equipment.
    - a. Submit for the Contractor and each subcontractor, a list of equipment and rates applicable to the scope of work to be performed. The equipment rates shall conform to the rates shown on Equipment Watch. A separate page from equipment watch detailing the hourly rate shall be submitted as backup documentation for each piece of equipment.
      - 1) If the list of equipment and/or equipment rates changes during the course of the project or additional equipment becomes required to complete the work, the Contractor shall submit a new list and rates for approval.

### **1.03 METHOD TO CALCULATE ADJUSTMENTS TO CONTRACT PRICE**

- A. One of the following methods shall be used:
  - 1. Unit Price Method;
  - 2. Firm Fixed Price Method (Lump Sum); or,
  - 3. Time and Materials Method (Force Account).
- B. The Port preferred methods are firm fixed price or unit prices.

### **1.04 MINOR CHANGES IN THE WORK**

- A. Engineer will issue a written directive authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time.



## 1.05 PROPOSAL REQUESTS

- A. Port-Initiated Proposal Requests: The Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
1. Work Change Proposal Requests issued by Engineer are not instructions either to stop work in progress or to execute the proposed change.
  2. Contractor shall submit a written proposal within the time specified in the General Conditions. The proposal shall represent the Contractor's offer to perform the requested work, and the pricing set forth within the proposal shall represent full, complete, and final compensation for the proposed change and any impacts to any other Contract Work, including any adjustments in the Contract Time.
    - a. Include a breakdown of the changed work in sufficient detail that permits the Engineer to substantiate the costs.
      - 1) Generally, the cost breakdown should be divided into the time and materials categories listed in the General Conditions under Article 8.02.B for either Lump Sum Proposals or Force Account Proposals.
      - 2) For Unit Price Proposals, include the quantity and description of all work involved in the unit pricing being proposed, along with a not to exceed total cost.
    - b. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- B. Contractor-Initiated Proposals: If latent or differing site conditions require modifications to the Contract, the Contractor may initiate a claim by submitting a request for a change to the Engineer.
1. Notify the Engineer immediately upon finding differing conditions prior to disturbing the site.
  2. Provide follow-up written notification and differing site conditions proposal within the time frames set forth in the General Conditions.
  3. Provide the differing site condition change proposal in the same or similar manner as described above under 1.05.A.
  4. Comply with requirements in Section 00 26 00 Substitution Procedures if the proposed change requires substitution of one product or system for product or system specified.
  5. Proposal Request Form: Use form acceptable to Engineer.

## 1.06 PROCEEDING WITH CHANGED WORK

- A. The Engineer may issue a directive instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order per the General Conditions, Article 8.01.E.
1. The directive will contain a description of change in the Work and a not-to-exceed amount. It will designate the method to be followed to determine the change in the Contract Sum or the Contract Time.

## 1.07 CHANGE ORDER PROCEDURES

- A. Issuance of Change Order

1. On approval of the Contractor's proposal, and following successful negotiations, the Engineer will issue a Change Order for signature by the Contractor and execution by the Engineer.
  - a. The Contractor shall sign and return the Change Order to the Engineer within **four (4) days** following receipt of the Change Order from the Engineer. If the Contractor fails to return the signed Change Order within the allotted time, the Engineer may issue a Unilateral Change Directive.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. This section includes specifications for preparation, format, and submittal of Schedule of Values.
- B. The Schedule of Values will establish unit prices for individual items of work.
- C. The Schedule of Values will be the basis for payment of contract work.

### **1.02 PREPARATION**

- A. To facilitate monthly pay requests, develop the Schedule of Values based on the Contractor's submitted Bid Items. The Schedule of Values shall be used to provide an allocation of the Work for measurement and payment to a level of detail to ensure accurate payment for the Work accomplished. The Schedule of Values is based on unit priced bid items and a breakdown of each lump-sum bid item. The total dollars for the Schedule of Values shall total the bid amount.
- B. Obtain the agreement of the Engineer on the Schedule of Values. No payment will be made prior to an agreed upon Schedule of Values.
- C. Include an updated version of the Schedule of Values as changes occur. Update the Schedule of Values to include:
  - 1. Dollars earned and percent complete for the current progress payment period,
  - 2. Dollars earned and percent complete to-date, excluding the current progress payment period,
  - 3. Total dollars earned and percent complete to-date,
  - 4. Total dollars remaining, and
  - 5. Changes resulting from Change Orders.
- D. The total value of the line items in the Schedule of Values plus any approved Change Orders shall be equal to the current approved contract price.
- E. The value of stored material shall be identified in the Schedule of Values with both a material-purchase activity and a separate corresponding installation activity in the Construction Schedule(s).
- F. Include as exhibits, drawings or sketches as necessary, to better define the limits of pay items that are in close proximity and that have no clear boundary in the Contract Drawings.

### **1.03 SUBMITTAL**

- A. Submit preliminary Schedule of Values within 10 days of the effective date of the Notice to Proceed.
- B. Submit corrected Schedule of Values within 10 days upon receipt of reviewed Schedule of Values.
- C. At the Engineer's request, submit documentation substantiating the cost allocations for line items within the Schedule of Values.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION**

**3.01 SCHEDULE OF VALUES**

- A. Submit the Schedule of Values in a form acceptable to the Engineer.
- B. Provide updated Schedule of Values as required by the Engineer and as indicated in the Contract Documents.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.01 SCOPE**

- A. The purpose of this section is to provide the framework for communication between the Port and the Contractor by defining the types and timing of administrative tasks, including meetings and other items related to communications.

### **1.02 NOTICE TO PROCEED**

- A. Contract execution will be made per the requirements of the Contract Documents. Once the contract has been executed and all pre-work submittals have been received, the Engineer will issue a Notice to Proceed (NTP).
  - 1. In certain instances, the Engineer may issue to the Contractor a Limited NTP for specified elements of the work described in these Contract Documents.
- B. The Contractor shall submit all pre-work submittals within 10 days of contract execution.
  - 1. No contract time extension shall be granted for any delays in issuance of the NTP by the Engineer due to the Contractor's failure to provide acceptable submittals required by the Contract Documents.
  - 2. Refer to Section 01 33 00, Article 3.02 for list of pre-work submittals.

### **1.03 COORDINATION**

- A. The Contractor shall coordinate all its activities through the Engineer.
- B. The Contractor shall coordinate construction operations as required to execute the Work efficiently, to obtain the best results where installation of one part of the Work depends on other portions.

### **1.04 PROJECT MEETINGS**

- A. Pre-Construction Meeting
  - 1. After execution of the contract, but prior to commencement of any work at the site, a mandatory one time meeting will be scheduled by the Engineer to discuss and develop a mutual understanding relative to the administration of the safety program, preparation of the Schedule of Values, change orders, RFI's, submittals, scheduling prosecution of the work. Major subcontractors who will engage in the work shall attend.
  - 2. Suggested Agenda: The agenda will include items of significance to the project.
  - 3. The Pre-Construction Meeting will be held at the Port of Tacoma Administration Building located at One Sitcum Plaza, if possible. However, based on assessment of current COVID-19 conditions, the Pre-Construction meeting may instead be completed via conference or web-based call.
- B. Weekly Progress Meetings – Progress meetings include the Contractor, Engineer, consultants and others affected by decisions made.
  - 1. The Engineer will arrange meetings, prepare standard agenda with copies for participants, preside at meetings, record minutes and distribute copies within ten working days to the Contractor, meeting participants, and others affected by decisions made.
    - a. The Engineer will approve submitted meeting minutes in writing within 10 working days.

2. Attendance is required for the Contractor's job superintendent, major subcontractors and suppliers, Engineer, and representatives of the Port as appropriate to the agenda topics for each meeting.
3. Standard Agenda
  - a. Review minutes of previous meeting
  - b. Review of work progress
  - c. Field observations, problems, and decisions
  - d. Identification of problems that impede planned progress
  - e. Maintenance of Progress Schedule (3 weeks ahead; 1 week back)
  - f. Corrective measures to regain projected schedules
  - g. Planned progress during succeeding work period
  - h. Coordination of projected progress
  - i. Maintenance of quality and work standards
  - j. Effect of proposed changes on progress schedule and coordination
  - k. Demonstration that the project record drawings are up-to-date
  - l. Other business relating to the work

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION - NOT USED**

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. The Port and Contractor shall use the Port Contract Management application (e-Builder®) for electronic information exchange throughout the duration of the Contract, as later described.
  - 1. e-Builder® is a web-based application accessed via the web.
  - 2. The Contractor will receive up to two separate user accounts for access to e-Builder®.
  - 3. The joint use of this system is to facilitate and coordinate the electronic exchange of Requests for Information, Submittals, Change Order Proposals, Pay Applications, and project specific correspondence.

### **1.02 USER ACCESS LIMITATIONS**

- A. Contractor's access to e-Builder® is granted and controlled by the Engineer.
  - 1. The users assigned by the Contractor to use e-Builder® shall be competent and experienced with the practices commonly employed in the industry for electronically submitting requests for information, submittals, product data, shop drawings and related items as required by the contract and the methods commonly used for project correspondence transmission and filing.
  - 2. Any users assigned by the Contractor whom the Engineer determines is incapable of performing the prescribed tasks in an accurate, competent and efficient manner will be removed upon request from the Engineer. The qualifications and identity of a replacement user shall be submitted within 24 hours for consideration by the Engineer. Once accepted by the Engineer, the user account will be modified accordingly.

### **1.03 CONTRACTOR TECHNOLOGY REQUIREMENTS**

- A. The Contractor is responsible for providing and maintaining web enabled devices capable of running the desktop version of the e-Builder® website effectively.

### **1.04 CONTRACTOR SOFTWARE REQUIREMENTS**

- A. The Contractor is responsible for providing and maintaining the following:
  - 1. An office suite that is Microsoft Office 2013 compatible for generation and manipulation of correspondence.
  - 2. A program capable of editing, annotating and manipulating Adobe pdf files for inserting the Contractor's review stamp, clouding and adding notation to the files as necessary for review by the Engineer.

### **1.05 CONTRACTOR RESPONSIBILITY**

- A. Provide all the equipment, internet connections, software, personnel and expertise required to support the use of e-Builder® as described in the Contract documents.

### **1.06 PORT RESPONSIBILITY**

- A. Provide the Contractor with the following:
  - 1. All forms necessary for application to obtain permissions to access e-Builder® as described above.
  - 2. Information, basic user guides and requirements on methods for using e-Builder®.
  - 3. Instruction for the Contractor's staff utilizing e-Builder®.

**PART 2 - PRODUCTS - NOT USED**

**PART 3 - EXECUTION**

**3.01 UTILIZATION OF E-BUILDER®**

- A. The Contractor shall provide required information in a timely manner that also supports the project schedule and meets the requirements of the Contract.
- B. The Contractor shall provide and maintain competent and qualified personnel to perform the various tasks required to support the work within e-Builder®.
- C. The Port will not be liable for any delays associated from the usage of e-Builder® including, but not limited to: slow response time, Port maintenance and off-line periods, connectivity problems or loss of information. Under no circumstances shall the usage of e-Builder® software be grounds for a time extension or cost adjustment to the contract.

**END OF SECTION**



## **PART 1 GENERAL**

### **1.01 SUMMARY**

- A. This section includes the requirements to provide a preliminary schedule and construction progress schedule, bar chart type.

### **1.02 SUBMITTALS**

- A. Within 10 days following execution of the contract, submit a baseline project schedule defining planned operations.
- B. If the baseline project schedule requires revision after review, submit revised baseline project schedule within 10 days.
- C. Within 20 days after review of baseline project schedule, submit draft of proposed complete baseline project schedule for review.
- D. Submit updated progress schedule monthly to the Engineer with each pay application as required in Section 01 20 00 Price and Payment Procedures.

### **1.03 QUALITY ASSURANCE**

- A. Scheduler: Contractor's personnel or Consultant specializing in Critical Path Method (CPM) scheduling with one year's minimum experience in scheduling construction work of a complexity comparable to this Project, and having use of computer facilities capable of delivering a detailed graphic printout within 48 hours of request.

### **1.04 SCHEDULE FORMAT**

- A. The baseline project schedule shall be produced using the CPM format.
- B. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.
- C. Sheet Size: Multiples of 11 x 17 (280 x 432 mm).

## **PART 2 PRODUCTS - NOT USED**

## **PART 3 EXECUTION**

### **3.01 BASELINE SCHEDULE**

- A. Prepare baseline project schedule in the form of a horizontal bar chart.
- B. The baseline project schedule shall include all the activities listed in the Schedule of Values and be directly related to items listed in the Bid Form. The Contractor is encouraged to add sufficient activities to facilitate a clear understanding of the means and methods planned for the various work items.
- C. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction and critical path. At a minimum it shall include and show the following:
  - 1. A time scale showing the elementary work items needed to complete the work;
  - 2. Estimated time durations for each activity, defined as any single identifiable work step within the project;
  - 3. A graphical network diagram showing the logical sequence of activities, their precedence relationships, and estimated float or leeway available for each;

4. The different categories of work as distinguished by crew requirements, equipment requirements, and construction materials; and
  5. The different areas of responsibility, such as distinctly separate or subcontracted work, and identifiable subdivisions of work.
- D. It shall be maintained and updated as necessary to accurately reflect past progress and the most probable future progress.
- E. Activities shown shall include submittals, milestones, and sufficient task breakdown for major components of work.
- F. Identify work of separate stages and other logically grouped activities.
- G. Provide sub-schedules to define critical portions of the entire schedule.
- H. Provide separate schedule of submittal dates for shop drawings, product data, samples, owner-furnished products, products identified, and dates reviewed submittals will be required from the Engineer. Indicate decision dates for selection of finishes.

### 3.02 PROGRESS SCHEDULE

- A. From the regularly-maintained baseline project schedule, progress schedules showing a three-week look-ahead, one-week look-back, shall be submitted and distributed at the weekly progress meetings. The progress schedule shall represent a practical plan to complete the work shown within the contract work window presented. At a minimum, the presentation, typically a Gantt-style chart, shall convey the task durations, a logical work sequence, task interdependencies, and identify important or critical constraints.
- B. Submittal and distribution of progress schedules will be understood to be the Contractor's representation that the scheduled work meets the requirements of the contract documents and that the work will be executed in the manner and sequence presented, and over the durations indicated.
- C. The scheduling, coordination, and execution of construction in accordance with the contract documents are the responsibility of the Contractor. The Contractor shall involve, coordinate, and resolve scheduling with all subcontractors, material suppliers, or others affected in development of the progress schedules.
- D. The progress schedule shall be used for coordination purposes for inspection and testing purposes as well as validation of work progress against the baseline schedule.

### 3.03 UPDATING SCHEDULE

- A. Maintain schedules to record actual start and finish dates of completed activities.
- B. Indicate progress of each activity to date of revision, with projected completion date of each activity.
- C. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.
- D. Indicate changes required to maintain Date of Substantial Completion.
- E. Submit reports required to support recommended changes.
- F. Contractor shall submit an updated progress schedule with each pay application and include a written narrative describing the overall progress of the work. The narrative shall include the following key aspects:
1. Progress in the last period.

2. Critical Path progress and schedule concerns.
3. Changes to schedule logic or sequencing of the work.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. This section includes the requirements to provide a submittal log and project submittals.

### **1.02 SUBMITTAL LOG**

- A. Contractor shall, within 14 days of contract execution prepare and submit for Engineer approval a detailed log of all the submittals required under this Contract, along with any other submittals identified by the Port or Contractor. The log shall include, but not be limited to, schedules, required construction Work plans, equipment and material cut sheets, shop drawings, project record documents, test results, survey records, record drawings, results of QC testing, and all other items for which a submittal is required. The submittal log shall be organized by CSI Specification Division, and Section number and include the following information:
1. Item Description
  2. Category
  3. Specification Section information of the applicable section
  4. After the submittal log is reviewed and approved by the Engineer, it shall become the basis for the submittal of all items by Contractor.

### **1.03 COMPLIANCE**

- A. Failure to comply with these requirements shall be deemed as the Contractor's agreement to furnish the exact materials specified or materials selected by the Engineer based on these specifications.

### **1.04 SHOP DRAWINGS AND MANUFACTURERS' LITERATURE**

- A. The Port will not accept shop drawings that prohibit the Port from making copies for its own use.
- B. Shop drawings shall be prepared accurately and to a scale sufficiently large to indicate all pertinent features of the products and the method of fabrication, connection, erection, or assembly with respect to the Work.
- C. All drawings submitted to the Engineer for approval shall be drawn to scale as ANSI D.
- D. Required electronic formats for these drawings are as follows:
1. AutoCad DWG
  2. PDF - Formatted to print to half-scale using 11x17 paper
- E. Catalog cuts or brochures shall show the type, size, ratings, style, color, manufacturer, and catalog number of each item and be complete enough to provide for positive and rapid identification in the field. General catalogs or partial lists will not be accepted. Manufacturers' original electronic files are required for submitting.

### **1.05 SUBMITTAL REVIEW**

- A. After review of each of Contractor's submittals, the submittal will be returned to Contractor with a form indicating one or more of the following:
1. No Exceptions Taken - Means, accepted subject to its compatibility with future submittals and additional partial submittals for portions of the work not covered in this submittal. But it does not constitute approval or deletion of specified or required items not shown in the partial submittal.

2. Make Corrections Noted - Same as Item 1, except that minor corrections as noted shall be made by Contractor.
  3. Reviewed - Submittal has been reviewed by the Port, does not constitute approval, and the Contractor is responsible for requirements in submittal.
  4. Review as Noted - Submittal has to be reviewed by the Port with comments as noted.
  5. Revise and Resubmit - Means, rejected because of major inconsistencies or errors. Resolve or correct before next submittal.
  6. Rejected - Means, submitted material does not conform to the Contract Documents in a major respect (e.g., wrong material, size, capacity, model, etc.).
- B. Submittals marked "No Exceptions Taken," "Make Corrections Noted," or "Reviewed as Noted" authorizes Contractor to proceed with construction covered by those data sheets or shop drawings with corrections, if any, incorporated.
- C. When submittals or prints of shop drawings have been marked "Revise and Resubmit" or "Rejected," Contractor shall make the necessary corrections and submit required copies. Every revision shall be shown by number, date, and subject in a revision block, and each revised shop drawing shall have its latest revision numbers and items clearly indicated by clouding around the revised areas on the shop drawing.
- D. Submittals authorized by the Engineer do not in any case supersede the Contract Documents. The approval by the Engineer shall not relieve the Contractor from responsibility to conform to the Drawings or Specifications, or correct details when in error, or ensure the proper fit of parts when installed. A favorable review by the Port of shop drawings, method of work, or information regarding material and equipment Contractor proposes to furnish shall not relieve Contractor of its responsibility for errors therein and shall not be regarded as assumption of risk or liability by the Port or its officers, employees, or representatives. Contractor shall have no claim under the Contract on account of failure or partial failure, or inefficiency or insufficiency of any plan or method of work, or material and equipment so accepted. Favorable review means that the Port has no objection to Contractor using, upon its own full responsibility, the plan or method of work proposed, or furnishing the material and equipment proposed.
- E. It is considered reasonable that the Contractor's submittals shall be complete and acceptable by at least the second submission of each submittal. The Port reserves the right to deduct monies from payments due Contractor to cover additional costs for review beyond the second submission.

## **PART 2 - PRODUCTS - NOT USED**

## **PART 3 - EXECUTION**

### **3.01 PREPARATION OF SUBMITTALS**

- A. The Contractor shall submit all shop drawings, catalog cuts, brochures and physical samples using e-Builder® (a web based construction management software). All post-document-generated notations such as notes, arrows, stamps, clouding, or other items, are required to be shown directly on the submittal document. **Each submittal shall be accompanied by a transmittal developed within the e-Builder® software.**
- B. A separate submittal shall be prepared for each product or procedure and shall be further identified by referencing the Specification Section and paragraph number and each submittal shall be numbered consecutively.

- C. Product submittals that cannot be accomplished electronically shall be submitted electronically without attachments, marked as being hand delivered, and accompanied by a printed version of a transmittal.
- D. Shop and detail drawings shall be submitted in related packages. All equipment or material details which are interdependent, or are related in any way, must be submitted indicating the complete installation. Submittals shall not be altered once marked "No Exceptions Taken" Revisions shall be clearly marked and dated. Major revisions must be submitted for approval.
- E. The Contractor shall thoroughly review all shop and detail drawings, prior to submittal, to assure coordination with other parts of the work.
- F. Components or materials which require shop drawings and which arrive at the job site prior to approval of shop drawings shall be considered as not being made for this project and shall be subject to rejection and removal from the premises.
- G. All submittal packages including, but not limited to, product data sheets, mix designs, shop drawings and other required information for submittal must be submitted, reviewed and approved before the relevant scheduled task may commence. It is the responsibility of the Contractor to provide the submittal information which may drive a task on the construction schedule to submit items well enough in advance as to provide adequate time for review and comment from the Engineer without adversely impacting the construction schedule.
- H. When completing the e-Builder® submittal form, a Date Due field is required to be completed. This field is intended to inform the Port of the urgency of the submittal. Failure of the Port to return the submittal by the date provided by the Contractor will not be considered grounds for a contract time extension.

### 3.02 PRE-WORK SUBMITTALS

- A. Prior to issuance of Notice to Proceed, the following submittals must be submitted and returned to the Contractor as No Exceptions Taken, Make Corrections Noted, Reviewed, or Reviewed as Noted.
  - 1. Baseline Project Schedule per Section 01 32 16 - Construction Progress Schedule
  - 2. List of Contractor and Subcontractor Personnel per Section 00 73 63 – Security Requirements including emergency contacts for each Company on-site
  - 3. Submittal Log per Section 01 33 00 - Submittal Procedures
  - 4. Health and Safety Plan (HASP) and Spill Prevention, Control, and Countermeasures (SPCC) Plan per Section 01 35 29 - Health Safety and Emergency Response
  - 5. List of equipment and written certification per Section 01 35 47 - Air and Noise Control

### 3.03 MAINTENANCE OF SUBMITTAL LOG

- A. Prepare and submit for Port review a detailed submittal log conforming to the requirements of paragraph 1.02 of this section. When approved by the Engineer, use the submittal log to track the transmittal of submittals to the Engineer, the receipt of submittal comments from the Engineer, and all subsequent action with respect to each submittal. Provide an updated copy of the submittal log to the Engineer during each weekly progress meeting, unless otherwise approved by the Engineer.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. The work includes the requirements for health and safety provisions necessary for all work at the site for this project. The work also includes compliance with all laws, regulations and ordinances with respect to safety, noise, dust, fire and police action, civil disobedience, security or traffic.
- B. Some of the work tasks may place workers in the potential position of coming into contact with regulated waste or environmental media. Detailed information regarding the known nature and extent of refuse and regulated materials in the project area is included in Section 00 31 26 Existing Hazardous Material Information.
- C. The Contractor shall monitor site conditions for indications of identified and other potentially hazardous, dangerous, and/or regulated materials (suspicious material). Indicators of suspicious material include, but are not limited to, refuse, oily sheen or coloring on soil or water, or oily or chemical odors. If suspicious materials are encountered, the Contractor shall stop all work in that area and notify the Engineer immediately.
- D. Landfill have the potential to create hazardous conditions if not controlled or recognized. Some of the hazards include:
  - 1. Fires that may start spontaneously from exposed and/or decomposed refuse.
  - 2. Fires and explosions that may occur from the presence of methane gas.
  - 3. Landfill gases and other trace gases may cause an oxygen deficiency in confined spaces such as trenches, vaults, conduits, and structures.
  - 4. Hydrogen sulfide, a highly toxic and flammable gas, and/or other toxic gases may be present.
  - 5. Possible caving of trenches and excavations when working over or in refuse fills.

### **1.02 SUBMITTALS**

- A. Prior to Notice to Proceed, the Contractor shall provide a site specific Health and Safety Plan (HASP), which meets all the requirements of local, state and federal laws, rules and regulations. The HASP shall address all requirements for general health and safety and shall include, but not be limited to:
  - 1. Description of work to be performed and anticipated chemical and/or physical hazards associated with the work;
  - 2. Map of the site(s) illustrating the location of the anticipated hazards and areas of control for those hazards (including containments, exclusion/work zones, and contaminant reduction/decontamination zones);
  - 3. Hazardous material inventory and safety data sheets (SDSs) for all chemicals which will be brought on site;
  - 4. Signage appropriate to warn site personnel and visitors of anticipated site hazards;
  - 5. Documentation that the necessary workers have completed the required Hazardous Waste Operations and Emergency Response (HAZWOPER) training;
  - 6. Engineering controls/equipment to be used to protect against anticipated hazards;
  - 7. Personal protective equipment and clothing including head, foot, skin, eye, and respiratory protection;

8. Procedures which will be used for:
    - a. Lockout/Tagout,
    - b. Trenching and shoring,
    - c. Explosive conditions due to methane,
    - d. Oxygen deficient conditions,
    - e. Suspicious materials and/or unidentified materials,
  9. Exposure monitoring to be used to evaluate actual hazards compared with anticipated conditions, including but not limited to arsenic exposure assessment;
  10. Site housekeeping procedures and personal hygiene practices;
  11. Personnel and equipment decontamination plan;
  12. Administrative controls;
  13. Emergency plan including locations of and route to nearest hospital;
  14. Recordkeeping including:
    - a. Documentation of appropriate employee training (e.g., Hazardous Waste Operations and Emergency Response [HAZWOPER] 40-hour training for staff involved with excavation and handling of soil),
  15. Name and qualification of person preparing the HASP and person designated to implement and enforce the HASP;
  16. Excavation, stockpiling, and truck loading procedures;
  17. Lighting and sanitation; and
  18. Signatory page for site personnel to acknowledge receipt, understanding, and agreement to comply with the HASP.
- B. Prior to the start of any Work, the Contractor shall provide a site specific Spill Prevention, Control and Countermeasures (SPCC) Plan, which meets all the requirements of local, state and federal laws, rules and regulations.
- C. Contractor may submit the HASP and SPCC Plan as one comprehensive document or may submit the plans as separate documents.
- D. The Contractor shall include in the HASP recent requirements associated with the State's COVID-19 Job Site Requirements as noted in the Appendix B or online at <https://www.governor.wa.gov/sites/default/files/Phase%201%20Construction%20COVID-19%20Safety%20Requirements%20%28final%29.pdf>.

### 1.03 POTENTIAL CHEMICAL HAZARDS

- A. Site Contaminants
1. The Contractor must provide site workers with Hazard Communication standard information for potential site contaminants (in accordance with WAC 296-843). The Contractor shall ensure that all site workers are aware of and understand this information. Additional information shall also be provided by the Contractor, as necessary, to meet the Hazard Communication Standard and HASP requirements as noted in WAC 296-901-14010 and 296-843. Workers shall be instructed on basic methods or techniques to assist in detecting suspicious material.



**B. Potential Exposures Routes**

1. Inhalation: Airborne dusts, fibers, particulates, or vapors may be released during site activities. Inhalation of airborne inorganic arsenic may occur.
2. Skin and Eye Contact: Dusts generated during site work activities may settle on the skin or clothing of site workers. Also, workers may contact potentially regulated sediments, or water, in the normal course of their work. Precautions to prevent skin or eye contact with hazardous materials will be included in the HASP. Arsenic exposure may cause skin irritation.
3. Ingestion: Inadvertent transfer of site contaminants from hands or other objects to the mouth could occur if site workers eat, drink, smoke, chew tobacco, or engage in similar activities in work areas. This could result in ingestion of site contaminants. Precautions to prevent accidental or inadvertent ingestion of hazardous materials will be included in the HASP.

- C. Chemical hazards may also result from Contractor operations resulting in inadvertent release of fuel, oil, or other chemicals in a manner that would expose workers.

**1.04 POTENTIAL PHYSICAL AND OTHER HAZARDS**

- A. The Work of the Contractor is described elsewhere in these specifications. Precautions to prevent all anticipated physical and other hazards, including heavy equipment, shall be addressed in the HASP.
- B. Specific aspects of construction resulting in physical hazards anticipated for this project include, but are not limited to the following:
1. Major hazards associated with earthwork impacts from moving construction vehicles and trucks, noise, thermal stress, contact with unguarded machines, excavation hazards (i.e., cave-in, utility, etc.), strains from heavy lifting, and reduced visibility and communications difficulties in work area; and
  2. Operation of equipment, including excavators, loaders, and related equipment, presenting hazards of entrapment, ensnarement, and being struck by moving parts.
- C. Other anticipated physical hazards:
1. Heat stress, such as that potentially caused by impermeable clothing (may reduce the cooling ability of the body due to evaporation reduction);
  2. Cold stress, such as that potentially caused during times when temperatures are low, winds are high, especially when precipitation occurs during these conditions;
  3. Biological hazards, such as mold, insect stings, or bites, poisonous plants (i.e., poison oak, sumac, etc.); and
  4. Trips and falls.

**PART 2 - PRODUCTS**

**2.01 SAFETY SIGNAGE**

- A. The Contractor shall provide signage at strategic locations within the project site to alert jobsite workers and visitors of the remediation work, associated hazards, and required precautions.

**2.02 PRODUCTS SPECIFIED FOR HEALTH AND SAFETY**

- A. Provide the equipment and supplies necessary to support the work as described in the site-specific HASP. Equipment and supplies may include, but are not limited to:

1. All chemicals to be used on site;
2. A hazardous materials inventory and SDSs for the chemicals brought on site;
3. Fencing and barriers;
4. Warning signs and labels;
5. Trenching equipment;
6. Fire extinguishers;
7. Equipment to support hot work;
8. Equipment to support lockout/tagout procedures;
9. Personal protective equipment (hard hats, foot gear, skin, eye, and respiratory protection);
10. Area and personnel exposure monitoring equipment;
11. Demolition equipment and supplies;
12. Decontamination equipment and supplies;
13. First aid equipment;
14. Spill response and spill prevention equipment; and
15. Field documentation logs/supplies.

### **PART 3 - EXECUTION**

#### **3.01 WORK AREA PREPARATION**

- A. Contractor shall comply with health and safety rules, regulations, ordinances promulgated by the local, state, and federal government, the various construction permits, and other sections of the Contract Documents. Such compliance shall include, but not be specifically limited to: any and all protective devices, equipment and clothing; guards; restraints; locks; latches; switches; and other safety provisions that may be required or necessitated by state and federal safety regulations. The Contractor shall determine the specific requirements for safety provisions and shall have inspections and reports by the appropriate safety authorities to be conducted to ensure compliance with the intent of the regulations.
- B. Contractor shall inform employees, subcontractors and their employees of the potential danger in working with any potentially regulated materials, equipment, soils and groundwater at the project site.
  1. The Contractor shall not proceed with jobsite activities that might result in exposure of employees to hazardous materials, including arsenic, until the HASP is reviewed by the Engineer.
- C. The Contractor's HASP shall be amended as needed by the CIH or CSP to include special work practices warranted by jobsite conditions actually encountered. Special practices could include provisions for decontamination of personnel and equipment, and the use of special equipment not covered in the initial plan.
- D. Contractor shall perform whatever work is necessary for safety and be solely and completely responsible for conditions of the job site, including safety of all persons (including employees of the Engineer, Engineer's Representative, and Contractor) and property during the Contract period. This requirement applies continuously and is not limited to normal working hours.

- E. The Engineer's review of the Contractor's performance does not include an opinion regarding the adequacy of, or approval of, the Contractor's safety supervisor, the site-specific HASP, safety program or safety measures taken in, on, or near the job site.
- F. Accidents causing death, injury, or damage must be reported immediately to the Engineer and the Port Security Department in person or by telephone or messenger. In addition, promptly report in writing to the Engineer all accidents whatsoever arising out of, or in connection with, the performance of the work whether on, or adjacent to, the site, giving full details and statements of witnesses.
- G. If a claim is made by anyone against the Contractor or any subcontractor on account of any accident, the Contractor shall promptly report the facts in writing within 24 hours after occurrence, to the Engineer, giving full details of the claim.

### 3.02 SITE SAFETY AND HEALTH OFFICER

- A. Contractor shall provide a person designated as the Site Safety and Health Officer, who is thoroughly trained in rescue procedures, has a minimum current 40-hour HAZWOPER certification (minimum), and trained to use all necessary safety equipment, air monitoring equipment, and gas detectors. The person must be available and/or present at all times while work is being performed, and conduct testing, as necessary.
- B. The Site Safety and Health Officer shall be empowered with the delegated authority to order any person or worker on the project site to follow the safety rules. Failure to observe these rules is sufficient cause for removal of the person or worker(s) from this project.
- C. The Site Safety and Health Officer is responsible for determining the extent to which any safety equipment must be utilized, depending on conditions encountered at the site.

### 3.03 SPILL PREVENTION AND CONTROL

- A. The Contractor shall be responsible for prevention, containment and cleanup of spilling petroleum and other chemicals/hazardous materials used in the Contractor's operations. All such prevention, containment and cleanup costs shall be borne by the Contractor.
- B. The Contractor is advised that discharge of oil, fuel, other petroleum, or any chemicals/hazardous materials from equipment or facilities into state waters or onto adjacent land is not permitted under state water quality regulations.
- C. In the event of a discharge of oil, fuel or chemicals/hazardous materials into waters, or onto land with a potential for entry into waters, containment and cleanup efforts shall begin immediately and be completed as soon as possible, taking precedence over normal work. Cleanup shall include proper disposal of all spilled material and used cleanup materials.
- D. The Contractor shall, at a minimum, take the following measures regarding spill prevention, containment and cleanup:
  - 1. Fuel hoses, lubrication equipment, hydraulically operated equipment, oil drums and other equipment and facilities shall be inspected regularly for drips, leaks or signs of damage, and shall be maintained and stored properly to prevent spills. Proper security shall be maintained to discourage vandalism.
  - 2. All land-based chemical, oil and products' storage tanks shall be diked, contained and/or located so as to prevent spills from escaping into the water. Dikes and containment area surfaces shall be lined with impervious material to prevent chemicals or oil from seeping through the ground and dikes.

3. All visible floating sheen shall be immediately contained with booms, dikes or other appropriate means and removed from the water prior to discharge into state waters. All visible spills on land shall be immediately contained using dikes, straw bales or other appropriate means and removed using sand, sawdust or other absorbent material, which shall be properly disposed of by the Contractor. Waste materials shall be temporarily stored in drums or other leak-proof containers after cleanup and during transport to disposal. Waste materials shall be disposed offsite in accordance with applicable local, state and federal regulations.
  4. In the event of any oil or product discharges into public waters, or onto land with a potential for entry into public waters, the Contractor shall immediately notify the Port Security at their listed 24-hour response number:
    - a. Port Security: 253-383-9472
- E. The Contractor shall maintain the following materials (as a minimum) at each of the project sites:
1. Oil-absorbent booms: 100 feet;
  2. Oil-absorbent pads or bulk material, adequate for coverage of 200 square feet of surface area;
  3. Oil-skimming system; and
  4. Oil dry-all, gloves, and plastic bags.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. This Section discloses procedures to follow if unknown regulated materials are encountered.

### **1.02 NOTIFICATION AND SUSPENSION**

- A. In the event the Contractor detects the presence of potentially regulated materials not previously identified in this specification, the Contractor shall stop work and immediately notify the Port. Following such notification by the Contractor, the Port shall in turn notify the various governmental and regulatory agencies concerned with the presence of regulated materials, if warranted. Depending upon the type of materials identified, the Port may suspend work in the vicinity of the discovery under the provisions of General Conditions.
1. Following completion of any further testing necessary to determine the nature of the materials involved, the Port will determine how the material shall be managed. Although the actual procedures used in resuming the work shall depend upon the nature and extent of the regulated material, the following alternate methods of operation are foreseen as possible:
    - a. Contractor to resume work as before the suspension.
    - b. Contractor to move its operations to another portion of the work until measures to eliminate any hazardous conditions can be developed and approved by the appropriate regulatory agencies.
    - c. The Port to direct the Contractor to dispose or treat the material in an approved manner.
    - d. The Port to terminate or modify the Contract accordingly, for unforeseen conditions.

## **PART 2 - PRODUCTS - NOT USED**

## **PART 3 - EXECUTION - NOT USED**

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. The Work includes the requirements to provide air and noise control measures until Final Completion of the Work.

### **1.02 SUBMITTALS**

- A. Prior to Notice to Proceed, the Contractor shall submit a list of equipment to be used on the project and written certification that all equipment on the list and any additional equipment, including Contractor's, subcontractors or supplier's equipment, shall meet the requirements of 3.01 below.

## **PART 2 - PRODUCTS - NOT USED**

## **PART 3 – EXECUTION**

### **3.01 AIR POLLUTION CONTROL**

- A. The Contractor shall meet or exceed EPA Tier 2 off-road diesel engine emission standards for off-road equipment  $\geq 25$ hp and meet or exceed EPA 1994 on-road diesel engine emission standards for on-road equipment except as follows:
  - 1. Equipment being used in an emergency or public safety capacity
- B. The Contractor shall not discharge smoke, dust, and other hazardous materials into the atmosphere that violate local, state or federal regulations.
- C. No vehicles can idle for more than 5 consecutive minutes, except as follows:
  - 1. Idling is required to bring or maintain the equipment to operating temperature;
  - 2. Engine idling is necessary to accomplish work for which the equipment was designed (i.e. operating a crane); or
  - 3. Idling vehicles being used in an emergency or public safety capacity.
- D. The Contractor shall minimize nuisance dust by cleaning, sweeping, vacuum sweeping, sprinkling with water, or other means. Equipment for this operation shall be on the job site or available at all times.

### **3.02 NOISE CONTROL**

- A. The Contractor shall comply with all local controls and noise level rules, regulations and ordinances which apply to work performed pursuant to the Contract.
- B. All internal combustion engines used on the job shall be equipped with a muffler of a type recommended by the manufacturer.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.01 PERMITS, CODES, AND REGULATIONS**

- A. The following permits/approvals have been applied for (or are on file) and incorporated into the Contract:
  - 1. None.
- B. Conform with the requirements of all applicable permits, codes, and regulations as may govern the Work.
- C. Obtain and pay fees for licenses, permits, inspections, and approvals required by laws ordinances, and rules of appropriate governing or approving agencies necessary for proper completion of Work (other than those listed under item 1.01.A above and Special Inspections called for by the International Building Code).
- D. Conform with current applicable codes, regulations and standards, which is the minimum standard of quality for material and workmanship. Provide labor, materials, and equipment necessary for compliance with code requirements or interpretations, although not specifically detailed in Drawings or specifications. Be familiar with applicable codes and standards prior to bidding.
- E. Process through Engineer, request to extend, modify, revise, or renew any of the permits (listed in 1.01.A above). Furnish requests in writing and include a narrative description and adequate Drawings to clearly describe and depict proposed action. Do not contact regulatory agency with requests for permit extensions, modifications, revisions, or renewals without the prior written consent of the Engineer.

### **1.02 VARIATIONS WITH CODES, REGULATIONS AND STANDARDS**

- A. Nothing in the Drawings and specifications permits Work not conforming to codes, permits, or regulations. Promptly submit written notice to the Engineer of observed variations or discrepancies between the Contract Documents and governing codes and regulations.
- B. Appropriate modifications to the Contract Documents will be made by Change Order to incorporate changes to Work resulting from code and/or regulatory requirements. Contractor assumes responsibility for Work contrary to such requirements if Work proceeds without notice.
- C. Contractor is not relieved from complying with requirements of Contract Documents which may exceed, but not conflict with requirements of governing codes.

### **1.03 COORDINATION WITH REGULATORY AGENCIES**

- A. Coordinate Work with appropriate governing or regulating authorities and agencies.
- B. Provide advance notification to proper officials of Project schedule and schedule revisions throughout Project duration, in order to allow proper scheduling of inspection visits at proper stages of Work completion.
- C. Regulation coordination is in addition to inspections conducted by Engineer. Notify Engineer at least 48 hours in advance of scheduled inspections involving outside regulating officials, to allow Engineer to be present for inspections.

## **PART 2 - PRODUCTS - NOT USED**

## **PART 3 – EXECUTION - NOT USED**

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. This section includes requirements relating to referenced standards.

### **1.02 QUALITY ASSURANCE**

- A. For products or workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard of date of issue specified in this section, except where a specific date is established by applicable code.
- C. Should specified reference standards conflict with Contract Documents, request clarification from the Engineer before proceeding.
- D. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the Engineer shall be altered by the Contract Documents by mention or inference otherwise in any reference document.

## **PART 2 - PRODUCTS - NOT USED**

## **PART 3 - EXECUTION - NOT USED**

**END OF SECTION**



## **PART 1 - GENERAL**

### **1.01 QUALITY CONTROL FOR COMPLIANCE:**

- A. The Contractor shall perform such detailed examination, inspection, quality control and assurance of the Work as to ensure that the Work is progressing and is being completed in strict accordance with the Contract Documents. The Contractor shall plan and lay out all Work in advance of operations so as to coordinate all Work without delay or revision. The Contractor shall be responsible for inspection of portions of the Work already performed to determine that such portions are in proper condition to receive subsequent Work. Under no conditions shall a portion of Work proceed prior to preparatory work having been satisfactorily completed. The Contractor shall ensure that the responsible Subcontractor has carefully examined all preparatory work and has notified the Contractor (who shall promptly notify the Port in writing) of any defects or imperfections in preparatory work that will, in any way, affect completion of the Work.

### **1.02 QUALITY ASSURANCE - 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. Should 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 that field measurements are as indicated on shop Drawings or as instructed by the manufacturer.
- G. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

### **1.03 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. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Adjust Products to appropriate dimensions; position before securing Products in place.

### **1.04 TESTING SERVICES**

- A. Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities.
  - 1. Neither observations by an inspector retained by the Port, the presence or absence of such inspector at the site, nor inspections, tests, or approvals by others, shall relieve the Contractor from any requirement of the Contract Documents, nor is any such inspector authorized to change any term or condition of the Contract Documents.

- B. Necessary materials testing shall be performed by an independent testing laboratory during the execution of the Work and paid for by the Port of Tacoma, unless otherwise specified. Access to the area necessary to perform the testing and/or to secure the material for testing, shall be provided by the Contractor.
- C. Testing does not relieve Contractor from performing work to contract requirements.
- D. Re-testing required because of non-conformance to specified requirements will be charged to the Contractor by deducting testing charges from the Contract Sum via Change Order.
- E. Material testing for initial material approval will be performed by an independent, certified laboratory and paid for by the Contractor. These tests must be dated within six (6) months of the submittal date.
- F. Subsequent sampling and testing, required as the work progresses to ensure continual control of materials and compliance with all requirements of the Contract documents, shall be the responsibility of the Port, except as required by other sections of these Specifications.

#### 1.05 MANUFACTURER'S FIELD SERVICES

- A. When specified in individual specification sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up equipment, test, and adjust and balance equipment as applicable, and to initiate instructions when necessary.
- B. Submit qualifications of observer to Engineer 30 days in advance of required observations. Observer subject to approval of Engineer.
- C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

#### **PART 2 - PRODUCTS - NOT USED**

#### **PART 3 - EXECUTION - NOT USED**

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. This section includes requirements relating to the following:
  - 1. Temporary utilities,
  - 2. Temporary sanitary facilities, and
  - 3. Temporary Controls: Barriers and fencing.

### **1.02 TEMPORARY UTILITIES**

- A. Provide and pay for all electrical power, lighting, water, heating and cooling, and ventilation required for construction purposes. Contractor is responsible for getting required permits and meters from the City of Tacoma.
- B. Existing facilities may not be used.
- C. Use trigger-operated nozzles for water hoses, to avoid waste of water.

### **1.03 TEMPORARY SANITARY FACILITIES**

- A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.
- B. Maintain daily in clean and sanitary condition.
- C. At end of construction, return facilities to same or better condition as originally found.

### **1.04 BARRIERS**

- A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for Port's use of site, and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
- B. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

### **1.05 FENCING**

- A. Construction: Contractor's option.
- B. Provide 6 ft. (1.8 m) high fence around construction site; equip with vehicular gates with locks.

### **1.06 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS**

- A. Remove temporary utilities, equipment, facilities, materials, prior to final inspection.
- B. Clean and repair damage caused by installation or use of temporary work.

## **PART 2 - PRODUCTS - NOT USED**

## **PART 3 - EXECUTION - NOT USED**

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. This section includes requirements relating to the following:
  - 1. Access roads
  - 2. Parking
  - 3. Construction parking controls
  - 4. Haul routes
  - 5. Maintenance
  - 6. Removal, repair
  - 7. Mud from site vehicles

## **PART 2 - PRODUCTS - NOT USED**

## **PART 3 - EXECUTION**

### **3.01 PREPARATION**

- A. Clear areas, provide surface and storm drainage of road, parking, area premises, and adjacent areas.

### **3.02 ACCESS TO SITE**

- A. Contractor shall conduct all business through the gate assigned by the Engineer.
  - 1. The Contractor may be required to relocate entry and related work areas as required by Rail Management Services (RMS).
- B. Provide unimpeded access for emergency vehicles. Maintain 20 foot (6 m) width driveways with turning space between and around combustible materials.
- C. Provide and maintain access to fire hydrants free of obstructions.

### **3.03 PARKING**

- A. All Contractor's employee cars and work vehicles will be parked on-site as designated by the Engineer.

### **3.04 CONSTRUCTION PARKING CONTROL**

- A. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and RMS operations.
- B. Prevent parking on or adjacent to access roads or in non-designated areas.

### **3.05 HAUL ROUTES**

- A. Confine construction traffic to designated haul routes.
- B. Provide traffic control at critical areas of haul routes to regulate traffic, to minimize interference with public traffic.

### **3.06 MAINTENANCE**

- A. Maintain traffic and parking areas in a sound condition free of excavated material, construction equipment, Products, mud, snow, and ice.

- B. Maintain existing paved areas used for construction. Promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain paving and drainage in original, or specified, condition.

### 3.07 REMOVAL, REPAIR

- A. Repair existing facilities damaged by use, to original condition.
- B. Repair damage caused by installation.

### 3.08 PUBLIC STREET AND ONSITE ROADWAY CLEANING

- A. The Contractor shall be responsible for preventing dirt and dust escaping from trucks and other vehicles operating on or departing the project site by sweeping, covering dusty loads, washing truck tires, and all other reasonable methods.

**END OF SECTION**

## **PART 1 – GENERAL**

### **1.01 SUMMARY**

- A. The Work shall consist of planning, installing, inspecting, maintaining and removing Temporary Erosion and Sediment Control (TESC) Best Management Practices (BMPs) to prevent pollution of air and water; and to control, respond to, and dispose of eroded sediment and turbid water during the term of the Contract.
- B. These TESC requirements shall apply to all areas associated with the Work, including but not limited to the following:
  - 1. Work areas;
  - 2. Equipment and material storage areas;
  - 3. Staging areas;
  - 4. Stockpiles; and
  - 5. Discharge points within or adjacent to the work areas that are impacted by stormwater runoff from the site.
- C. Acceptance of TESC plans does not constitute an approval of permanent Work or drainage design (e.g., size and location of roads, pipes, restrictors, channels, retention facilities, utilities, etc.).
- D. Contractor shall read and conform to all requirements set forth in Washington Department of Ecology's (Ecology) Phase I Municipal Stormwater Permit (MS4) for projects less than one acre.

### **1.02 REFERENCES**

- A. The rules, requirements, and regulations that apply to this Work include, but are not necessarily limited to the following:
  - 1. Washington Department of Ecology, "Stormwater Management Manual for Western Washington," current version.
  - 2. Washington Department of Ecology Phase I Municipal Stormwater Permit (MS4), current version.
  - 3. Washington State Department of Transportation, current version, Standard Specification M41-10, Division 8-01 Erosion Control and Water Pollution Control.
  - 4. Pierce County Stormwater and Site Development Manual, current version (if applicable).

### **1.03 SUBMITTALS**

- A. Prior to the start of any construction activities, a Construction Stormwater Pollution Prevention Plan (SWPPP), as required by the MS4.
  - 1. The Port has prepared a project SWPPP template that complies with the MS4 requirements. This template is included in Appendix A.
  - 2. Contractor shall comply with a Contractor provided project SWPPP.
  - 3. Contractor shall be responsible for updating the project SWPPP during construction to reflect the required changes to BMPs and personnel, as needed, to comply with the MS4 at no additional cost to the Port.
- B. Safety Data Sheet (SDS) for any dust palliative product.

- C. A copy of all Contractor site inspection logs at a time interval (e.g., weekly, monthly) specified by the Engineer.
- D. Water Management Plan/Temporary Dewatering Plan.

#### 1.04 AUTHORITY OF ENGINEER

- A. The Engineer has the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow and fill operations, as determined by analysis of project conditions; and to direct the Contractor to provide immediate permanent or temporary pollution control measures to minimize impacts to adjacent streams or other watercourses, lakes, ponds, and other areas of water impoundment.
- B. In the event that areas adjacent to the work area are suffering degradation due to erosion, sediment deposit, water flows, or other causes, the Engineer may stop construction activities until the Contractor rectifies the situation.

### **PART 2 – PRODUCTS**

#### 2.01 DUST CONTROL

- A. Dust palliative for dust control proposed by the Contractor and approved by the Engineer.

### **PART 3 – EXECUTION**

#### 3.01 GENERAL

- A. The Port is subject to a Phase I Municipal Stormwater Permit (MS4). The Contractor shall be responsible for compliance with the Department of Ecology Western Washington Stormwater Management Manual, Volume II, Construction Stormwater Pollution Prevention for the duration of the project.
- B. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply as determined by the Engineer.
- C. No project discharge of water shall be allowed that exceeds the regulated pollutant levels in Ecology's NPDES permit associated with the Project.
- D. Contractor shall be solely responsible for all BMP modifications and upgrades to comply with the MS4 and the requirements of this Section, at no additional cost to the Port.
- E. Contractor shall be solely responsible for any damages and fines incurred because of Contractor, subcontractor, or supplier actions in implementing the requirements of this Section.
- F. The Contractor shall be solely responsible for schedule impacts incurred because of Contractor, subcontractor, or supplier actions in implementing the requirements of this Section.

#### 3.02 TEMPORARY EROSION AND SEDIMENT CONTROL DEVELOPMENT

- A. Contractor shall prepare and submit a site-specific SWPPP prior to initiating ground disturbing activities.
  - 1. The SWPPP describes construction activities and sequencing, and the proposed Temporary and Permanent Erosion and Sediment Control measures. If there are any changes to BMPs or personnel on the site, Contractor must update the SWPPP and be prepared to submit the SWPPP to the Port and Ecology upon request.
  - 2. The SWPPP shall consist of planning, installing, inspecting, maintaining, and removing TESC BMPs per Volume II of the Stormwater Management Manual for Western Washington (current version) or equivalent. The BMPs shown in the Drawings are the

minimum required to prevent pollution of air and water, to control peak volumetric flow rates and velocity of stormwater, and to control, respond to, and dispose of eroded sediment and turbid water during the term of the Contract.

3. A SWPPP template is available to the Contractor for this purpose. The template was prepared by the Port to meet part of the National Pollution Discharge Elimination System (NPDES) stormwater permit requirements for the project. Contractor may use the applicable Port template to prepare the project SWPPP or prepare their own SWPPP. If the Contractor elects to prepare their own SWPPP, it must meet or exceed the control measures required by Ecology (reference Ecology's Stormwater Management Manual for Western Washington, current version).
  4. If Contractor chooses to write a SWPPP separate from the Port-provided SWPPP, it must comply with all of the requirements set forth by the CSGP.
- B. Contractor shall develop project-specific TESC BMPs and incorporate them into the SWPPP. Contractor shall address the following issues as part of developing and implementing the BMPs:
1. TESC BMPs must meet the requirements in Ecology's Volume II of the Stormwater Management Manual for Western Washington (current version) or equivalent.
  2. TESC notes and details shown in the Drawings and the information in this Section form a basis of the minimum requirements for a TESC Plan. Contractor shall develop a TESC Plan specific to the construction schedule and proposed means and methods prior to commencing construction activities for the duration of the Project.
- C. Contractor shall inspect the existing system and report to the Engineer the levels of existing material prior to installation of TESC BMPs.

### 3.03 TEMPORARY EROSION AND SEDIMENT CONTROL IMPLEMENTATION

- A. Contractor is responsible for implementing and updating the SWPPP including TESC BMPs.
1. Contractor shall inspect the TESC measures daily and maintain these measures to ensure continued proper functioning for the duration of the Project.
  2. Contractor will be responsible for documenting TESC site inspections on a weekly basis in areas of active construction and on a monthly basis in areas that have undergone stabilization. Contractor shall keep records of the inspections on site.
  3. During the construction period the Contractor shall, at no additional cost to the Port, upgrade and/or maintain TESC measures as needed, based on Contractor means and methods, work sequencing, and changing site conditions (e.g., changes to impervious surface coverage, proximity of work to storm conveyance systems, storm events, etc.). Contractor shall modify these measures for changing site conditions and update the SWPPP to document all modifications made.
- B. Contractor shall clean all stormwater components affected by construction debris prior to Work completion, per TESC BMPs for catch basin maintenance. The cleaning process shall not flush sediment-laden water into a downstream system.
- C. Contractor shall ensure that water, or a dust palliative and a dispensing subcontractor, if needed, is available for project use. It is the responsibility of the Contractor to develop and adhere to appropriate safety measures pertaining to the palliative use. This also includes ensuring the dispensing subcontractor develops and adheres to the appropriate safety measures, if a dispensing subcontractor is used. Water used for dust suppression shall not be applied at such a rate or in a location that it will generate runoff from the site.



- D. Areas of exposed soils, including embankments, which will not be disturbed for two days during the wet season (October 1 through April 30) or seven days during the dry season (May 1 through September 30), shall immediately be stabilized by the Contractor with an Ecology-approved TESC measure (e.g., seeding, mulching, plastic covering, etc.).
- E. TESC measures in an inactive area shall be inspected and maintained by the Contractor until the area is permanently stabilized.
- F. In the event that additional temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the Work as scheduled or as ordered by the Engineer, such work shall be performed by the Contractor at its own expense.
- G. Contractor shall remove all TESC facilities, install permanent site surfacing improvements and permanent BMPs with minimal disturbance, and shall clean stormwater facilities prior to Work completion.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. This section includes the requirements to provide product data under the applicable specification section.

### **1.02 SUBMITTALS**

- A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
  - 1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

## **PART 2 - PRODUCTS**

### **2.01 NEW PRODUCTS**

- A. Provide new products unless specifically required or permitted by the Contract Documents.

### **2.02 PRODUCT OPTIONS**

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

## **PART 3 - EXECUTION**

### **3.01 TRANSPORTATION AND HANDLING**

- A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- B. Transport and handle products in accordance with manufacturer's instructions.
- C. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- D. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.
- F. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

### 3.02 STORAGE AND PROTECTION

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
- E. For exterior storage of fabricated products, place on sloped supports above ground.
- F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- G. Prevent contact with material that may cause corrosion, discoloration, or staining.
- H. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.01 SCOPE**

- A. The purpose of this section is to provide the framework for transferring Port provided equipment and materials to the Contractor in a safe, timely and effective manner.

### **1.02 SUBMITTALS**

- A. Submit an inspection report or log to the Engineer of the inspection performed on the equipment and materials before acceptance by the Contractor. Flag any equipment or materials identified as being in unsatisfactory condition before moving or relocating it from the Location Area described below. Document unsatisfactory condition of equipment photographically, using digital media.

### **1.03 COORDINATION**

- A. The materials will be available upon request. Contact the Engineer to coordinate inspection and acceptance.

### **1.04 LOCATION**

- A. The Port will deliver the materials to the SIM yard. Contractor shall be responsible for receiving, unloading, and relocating all owner supplied equipment.
- B. Owner furnished materials shall be staged in the Contractor staging area or at the charging station construction area at Contractor's option.

## **PART 2 - PRODUCTS**

### **2.01 ITEMS**

- A. Assume all items are in satisfactory condition unless otherwise indicated. Report in writing to the Engineer equipment found to be in unsatisfactory condition.

| No. | Description      | Quantity | Manufacturer/Supplier |
|-----|------------------|----------|-----------------------|
| 1   | Charging station | 6        | OrangeEV              |
| 2   | Charging cable   | 6        | OrangeEV              |
| 3   | Cable hangar     | 6        | OrangeEV              |

## **PART 3 - EXECUTION**

### **3.01 REMOVAL OF EQUIPMENT FROM STORAGE LOCATION**

- A. Protect, transport and install where indicated within the Contract Documents.

### **3.02 PROTECTION**

- A. Equipment
1. Tightly cover and protect equipment against dirt, moisture or impact, mechanical and chemical damage.
  2. Repair
    - a. Repair or replace Port provided property damaged by the Contractor.

### **3.03 RELOCATION**

- A. Install in accordance with the Contract Documents.

### 3.04 FIELD QUALITY CONTROL

#### A. Equipment Inspection

1. Examine each piece or component for visual defects.

#### B. Tests

1. Test each piece or component to ensure that it is operational in conformance with the Contract Documents.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. This section includes requirements relating to the following:
  - 1. Examination, preparation, and general installation procedures
  - 2. Cutting and patching

### **1.02 SUBMITTALS**

- A. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
  - 1. Structural integrity of any element of Project;
  - 2. Integrity of weather exposed or moisture resistant element;
  - 3. Efficiency, maintenance, or safety of any operational element;
  - 4. Visual qualities of sight exposed elements; and
  - 5. Work of the Port or separate Contractor.
- B. Project As-Built Documents: Accurately record actual locations of capped and active utilities.

## **PART 2 - PRODUCTS**

### **2.01 PATCHING MATERIALS**

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

## **PART 3 - EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that 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.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

### **3.02 PREPARATION**

- 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 any new material or substance in contact or bond.

### 3.03 GENERAL INSTALLATION REQUIREMENTS

- A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- E. Make neat transitions between different surfaces, maintaining texture and appearance.

### 3.04 CUTTING AND PATCHING

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. Perform whatever cutting and patching is necessary to:
  - 1. Complete the work;
  - 2. Fit products together to integrate with other work;
  - 3. Provide openings for penetration of mechanical, electrical, and other services;
  - 4. Match work that has been cut to adjacent work;
  - 5. Repair areas adjacent to cuts to required condition;
  - 6. Repair new work damaged by subsequent work;
  - 7. Remove samples of installed work for testing when requested; and
  - 8. Remove and replace defective and non-conforming work.
- C. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
- D. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- E. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
- F. Restore work with new products in accordance with requirements of Contract Documents.
- G. Patching:
  - 1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
  - 2. Match color, texture, and appearance.
  - 3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

### 3.05 PROTECTION OF INSTALLED WORK

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- E. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

### 3.06 ADJUSTING

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

**END OF SECTION**



## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. This section includes information for progress and final cleaning and restoration of damaged work prior to final inspection.

## **PART 2 - PRODUCTS**

### **2.01 MATERIALS**

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

## **PART 3 - EXECUTION**

### **3.01 PROGRESS CLEAN-UP**

- A. The Contractor shall clean the project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
  - 1. Comply with all requirements for removal of combustible waste materials and debris.
  - 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
  - 3. Containerize unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
    - a. Use containers intended for holding waste materials for the type of material to be stored.
  - 4. Coordinate progress cleaning for joint use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free from waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the work.
  - 1. Remove liquid spills promptly.
  - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 01 74 19.
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from

damage or deterioration until Substantial Completion.

- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

### 3.02 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
  - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
    - a. Clean Project site, yard, and grounds in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    - b. Sweep paved areas broom clean. Remove spills, stains, and other foreign deposits.
    - c. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - d. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances.
    - e. Remove labels that are not permanent.

### 3.03 REPAIR OF WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surface, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
  - 1. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
    - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
  - 2. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.

**END OF SECTION**

## **PART 1 GENERAL**

### **1.01 SUMMARY**

- A. This section includes construction waste management requirements.

### **1.02 DEFINITIONS**

- A. Co-mingled or Off-site Separation: Collecting all material types into a single bin or mixed collection system and separating the waste materials into recyclable material types at an off-site facility.
- B. Construction, Demolition and Land-Clearing (CDL) Waste: Includes all nonhazardous solid wastes resulting from construction, remodeling, alterations, repair, demolition, and land clearing. Includes material that is recycled, reused, salvaged or disposed as garbage. This also includes uncontaminated soils that are designated as geotechnically unsuitable or excess excavation.
- C. Hazardous/Dangerous Waste: As defined by Chapter 70.105.010 Revised Code of Washington and 40 Code of Federal Regulations, Part 261 and by Washington Administrative Code 173-303.
- D. Proper Disposal: As defined by the jurisdiction receiving the waste.
- E. Recyclable Materials: Products and materials that can be recovered and remanufactured into new products.
- F. Recycling: The process of sorting, cleaning, treating and reconstituting materials for the purpose of using the material in the manufacture of a new product. Can be conducted on-site (as in the grinding of concrete).
- G. Recycling Facility: An operation that is permitted to accept materials for the purpose of processing the materials into an altered form for the manufacture of a new product.
- H. Salvage for Reuse: Existing usable product or material that can be saved and reused in some manner on the project site or other projects off-site.
- I. Salvage for Resale: Existing usable product or material that can be saved and removed intact (as is) from the project site to another site for resale to others without remanufacturing.
- J. Source-Separated Materials: Materials that are sorted at the site into separate containers for the purpose of reuse or recycling.
- K. Sources Separation: Sorting the recovered materials into specific material types with no, or a minimum amount of, contamination on site.
- L. Time-Based Separation: Collecting waste during each phase of construction or deconstruction that results in primarily one major type of recovered material. The material is removed before it becomes mixed with the material from the next phase of construction.
- M. Garbage: Product or material typically considered to be trash or debris that is unable to be salvaged for resale, salvaged and reused, returned, or recycled.

### **1.03 SUBMITTALS**

- A. Waste Management Plan
- B. Waste Management Final Report

#### 1.04 PERFORMANCE GOALS

- A. General: Divert CDL waste to the maximum extent practicable from the landfill by one or a combination of the following activities:
  - 1. Salvage
  - 2. Reuse
  - 3. Source separated CDL recycling
  - 4. Co-mingled CDL recycling
- B. CDL waste materials that can be salvaged, resold, reused or recycled, include, but are not limited to the following:
  - 1. Clean dimensional wood, pallet wood, plywood, OSB, and particleboard
  - 2. Asphalt
  - 3. Concrete and concrete masonry units
  - 4. Ferrous and non-ferrous metals
  - 5. Field office waste paper, aluminum cans, glass, plastic, and cardboard
- C. Hazardous/Dangerous Wastes, contaminated soils and other hazardous materials such as paints, solvents, adhesives, batteries, and fluorescent light bulbs and ballasts shall be disposed of at applicable permitted facilities.

#### 1.05 WASTE MANAGEMENT PLAN

- A. Submit to the Engineer a Waste Management Plan narrative in accordance with these specifications. Provide a Waste Management Plan in a format as approved by the Engineer.
- B. The Waste Management Plan shall include the following:
  - 1. Name of designated Recycling Coordinator;
  - 2. A list of waste materials that will be salvaged for resale, salvaged for reuse, recycled, and disposed;
  - 3. Identify waste handling methods to be used, including one or more of the following:
    - a. Method 1 - Contractor or subcontractor(s) hauls recyclable materials to an approved recycling facility,
    - b. Method 2 - Contracting with diversion/recycling hauler to haul recyclable material to an approved recycling or material recovery facility,
    - c. Method 3 - Recyclable material reuse on-site, and
    - d. Method 4- Recyclable material salvage for resale;
  - 4. Identification of each recycling or material recovery facility to be utilized, including name, address and types of materials being recycled at each facility;
  - 5. Description of the method to be employed in collecting, and handling, waste materials; and
  - 6. Description of methods to communicate Waste Management Plan to personnel and subcontractors.

#### 1.06 WASTE MANAGEMENT FINAL REPORT

- A. Provide a Waste Management Final Report, in a format approved by the Engineer. The Waste Management Final Report shall list the following for the project:
  - 1. A record of each waste material type and quantity recycled, reused, salvaged, or disposed from the Project. Include total quantity of waste material removed from the site and hauled to a landfill.
  - 2. Percentage of total waste material generated that was recycled, reused, or salvaged.
- B. Quantities shall be reported by weight (tons) unless otherwise approved by the Engineer.
- C. Submit copies of manifests, weight tickets, recycling/disposal receipts or invoices, which validate the calculations or a signed certification of completeness and accuracy of the final quantities reported.

#### 1.07 QUALITY ASSURANCE

- A. Regulatory Requirements: The Contractor shall maintain compliance with all applicable Federal, State, or Local laws that apply to Construction Waste Management and material salvage, reuse, recycling and disposal.
- B. Disposal Sites, Recyclers and Waste Materials Processors: All facilities utilized for management of any materials covered under this specification must maintain all necessary permits as required by federal, state and local jurisdictions.

### **PART 2 - PRODUCTS - NOT USED**

### **PART 3 - EXECUTION**

#### 3.01 SOURCE-SEPARATED CDL RECYCLING

- A. Provide individual containers for separate types of CDL waste to be recycled, clearly labeled with a list of acceptable and unacceptable materials.

#### 3.02 CO-MINGLED CDL RECYCLING

- A. Provide containers for co-mingled CDL waste to be recycled, clearly labeled with a list of acceptable and unacceptable materials.

#### 3.03 LANDFILL

- A. Provide containers for CDL waste that is to be disposed of in a landfill clearly labeled as such.

#### 3.04 REMOVAL OF CDL WASTE FROM PROJECT SITE

- A. Transport CDL waste off Port's property and legally dispose of them.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.01 SUMMARY**

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Substantial Completion procedures
  - 2. Final completion procedures
  - 3. Warranties
  - 4. As-Built Drawings

### **1.02 ACTION SUBMITTALS**

- A. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

### **1.03 PROJECT SUBMITTALS**

- A. Submittal of Project Warranties
- B. Record Drawings
  - 1. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous recordkeeping requirements and submittals in connection with various construction activities.
- C. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

### **1.04 SUBSTANTIAL COMPLETION PROCEDURES**

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request:
  - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Port unrestricted use of the Work.
  - 2. Submit closeout submittals specified in individual Sections, including specific warranties, operation and maintenance manuals, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  - 3. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by the Contract Document or Engineer. Label with manufacturer's name and model number where applicable.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request:
  - 1. Complete startup and testing of systems and equipment
  - 2. Perform preventive maintenance on equipment used prior to Substantial Completion

3. Instruct Port's personnel in operation, adjustment, and maintenance of products, equipment, and systems
  4. Terminate and remove temporary facilities from Project site
  5. Complete final cleaning requirements
- D. Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to the date the work will be completed and ready for final inspection and tests. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare the Notice of Substantial Completion after inspection or will notify Contractor of items, either on the Contractor's list or additional items identified by the Engineer, that must be completed or corrected before notice will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
  2. Results of completed inspection will form the basis of requirements for final completion.

#### 1.05 PUNCH LIST (LIST OF INCOMPLETE ITEMS)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of Construction.
1. Organize list of spaces in sequential order.
  2. Organize items applying to each space by major elements.

#### 1.06 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete and submit the following:
1. Submittal of all remaining items, including as-built documents and similar final record information and all other submittals defined in the Contract Documents.
  2. List of Incomplete Items: Submit copy of Engineer's Substantial Completion inspection list of items to be completed or corrected (Punch List). Copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 7 days prior to date the work will be complete and ready for final inspection and tests. On receipt of request, the Engineer will either proceed with inspection or notify contractor of unfulfilled requirements.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
- C. Execution of all Change Orders.

#### 1.07 FINAL ACCEPTANCE PROCEDURES

- A. Submittals Prior to Final Acceptance:
1. Receipt and approval of application for final payment; due within seven (7) days of receipt of Final Completion by the Engineer;
  2. Contractor's signed waiver and release of claims on the Engineer provided form;

3. Contractor's submittal of list of all suppliers and subcontractors and the total amounts paid to each on the Engineer provided form; and
4. Contractor's submittal of a list of all subcontractors and suppliers requiring Affidavits of Wages paid on the Contract and certify that each of companies will submit an approved Affidavit of Wages paid to the Port within 30 days.

B. The Engineer will issue the Final Acceptance Memo upon receipt of the required submittals.

## **PART 2 - PRODUCTS**

### **2.01 CONTRACTOR'S WARRANTY**

- A. The Contractor warrants the labor, materials and equipment delivered under the contract to be free from defects in design, material, or workmanship, and against damage caused prior to final inspection. Unless otherwise specified, this warranty extends for a period of one (1) year from the date of Substantial Completion.
  1. Time of Submittal: Submit written warranties on request of Engineer for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit the Port's rights under warranty.
  2. Submit Warranties to the Engineer as a submittal, as described in 01 33 00 – Submittal Procedures.
  3. Provide additional copies of each warranty in Operation and Maintenance Manuals as described in 01 78 23 – Operation and Maintenance Manuals.
- B. In the event of equipment failure, during such time or in such a location that immediate repairs are mandatory, the Contractor shall respond promptly (within 48 hours), irrespective of day of the week. If the Contractor is not available, the Port will affect repairs. The Contractor shall then reimburse the Port for parts and labor necessary to correct deficiencies as defined within the warranty clause and time.

### **2.02 AS-BUILT DRAWINGS**

- A. Project As-Built Drawings: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
- B. Project As-Built Drawings shall be compiled by the Contractor and submitted to the Engineer for translation to the Record Drawings on a monthly basis.
  1. The Project As-Built Drawings will be submitted on paper full-sized (ANSI D) copy.
  2. Drawings shall be kept current and shall be done at the time the material and equipment is installed. Annotations to the record documents shall be made with an erasable colored pencil conforming to the following color code:
    - a. Additions – Red
    - b. Deletions – Green
    - c. Comments – Blue
    - d. Dimensions – Graphite
  3. Project As-Built Drawings must be complete and accepted by the Engineer before Final Completion is issued.



4. As-Built Drawings shall be in accordance with horizontal and vertical control as shown on the drawings.

### **PART 3 – EXECUTION**

#### **3.01 MAINTENANCE OF AS-BUILT DRAWINGS**

- A. The Contractor shall maintain at the Project site, in good order for ready reference by the Engineer, one complete copy of the Contract Documents, including Addenda, Change Orders, other documents issued by the Port, a current Progress Schedule, and approved Submittals. The Contractor shall also generate and keep on site all documents and reports required by applicable permits.
- B. The Contractor's As-Built Drawings shall be updated to record all changes made during construction. The location of all existing or new underground piping, valves and utilities, and obstructions located during the Work shall be appropriately marked until the Contractor incorporates the actual field dimensions and coordinates into the as-built drawings. The as-built drawings shall be updated at least weekly and before elements of the Work are covered or hidden from view. After the completion of the Work, the as-built drawings shall be provided to the Port.

**END OF SECTION**

## **PART 1 – GENERAL**

### **1.01 SUMMARY**

- A. Operation and Maintenance Manual Submittal

### **1.02 SUBMITTALS**

- A. Operation and Maintenance Data:
  - 1. Submit 1 electronic copy of completed documents 14 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Engineer comments. Revise content of all document sets as required prior to final submission.
  - 2. Submit 2 hardcopy and 1 electronic sets of revised documents in final form by Final Completion.

## **PART 2 - PRODUCTS**

### **2.01 OPERATION AND MAINTENANCE MANUALS**

- A. For small equipment and products (such as furnishings or equipment not requiring routine maintenance), the following information (minimum of 3 printed copies, plus one electronic copy on CD) shall be furnished for all items on the Project requiring operational and/or maintenance procedures and for any additional items indicated by the Engineer. Printed information shall be organized by the Contractor into appropriately sized 3-ring binders (no larger than 3"). The binders shall be sized for material approximately 8-1/2 by 11 inches, and the material in the binders shall not protrude beyond the covers. The binder(s) shall be divided with coversheets for each major item of equipment. The cover sheets shall be typewritten to indicate the name, type of equipment, and location(s) within the Project where installed. A neatly typewritten index shall be provided. Electronic information shall be in PDF format (additional formats where specified) and shall be organized with folders and appropriate file names so as to make the information easily accessible:
  - 1. Product Summary:
    - a. Provide the following information (as applicable, indicate 'N/A' where an item does not apply) in Excel spreadsheet format:
      - 1) Description
      - 2) Plan Sheet Number
      - 3) Parcel Number
      - 4) Vendor
      - 5) Manufacturer
      - 6) Model
      - 7) Warranty – Start Date; Finish Date
      - 8) Purchase Price
  - 2. Operating Procedures: These instructions consist of the manufacturer's recommended step-by-step procedures for use of the product.
  - 3. Maintenance Procedures: These instructions consist of the equipment manufacturer's recommended steps and schedules for maintaining the product.

4. Specific Information: Where items of information not included in the above list are required, they will be provided as described in the specifications for the equipment.
5. Complete identification, including model and serial numbers.
6. Submittal information, as specified in Section 01 33 00 Submittal Procedures.
7. Warranty Information: This information consists of the name, address, and telephone number of the manufacturer's representative to be contacted for warranty, parts, or service information.
8. All operation and maintenance information shall be comprehensive and detailed and shall contain information adequately covering all normal operation and maintenance procedures.
9. All information shall be specific for the items of equipment installed on the project. Material not directly applicable shall be removed, omitted, or clearly marked as inapplicable.
10. If manufacturer's standard brochures and manuals are used to describe operating and maintenance procedures, such brochures and manuals shall be modified to reflect only the model or series of equipment used on this project.
11. Extraneous material shall be crossed out neatly or otherwise annotated or eliminated. It shall be the responsibility of the Contractor to ensure that all operation and maintenance materials are obtained. Material submitted must meet the approval of the Engineer prior to project final acceptance.

**PART 3 - EXECUTION - NOT USED**

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 RELATED WORK SPECIFIED ELSEWHERE**

- A. The provisions and intent of the Contract, including the General Conditions apply to this work as if specified in this section. Work related to this section is described in:
  - 1. Section 01 35 29 - Health, Safety, and Emergency Response Procedures
  - 2. Section 01 50 00 - Temporary Facilities and Controls
  - 3. Section 01 57 13 – Temporary Erosion and Sediment Controls
  - 4. Division 26 - Electrical
  - 5. Section 31 00 00 - Earthwork

### **1.2 DESCRIPTION OF WORK**

- A. The extent and location of the "Demolition" work is indicated on the drawings and in the Specifications. The work includes removal and disposal, in whole or in part, all items in compliance with the Specifications and all agencies of jurisdiction.
- B. The work includes the backfilling and compaction of holes, voids, trenches, or pits that result from such removal.

### **1.3 REFERENCE STANDARDS**

- A. City of Tacoma Surface Water Management Manual, Volume 1, Minimum Technical Requirements and Site Planning, dated September, 2008.

### **1.4 SITE CONDITIONS:**

- A. South Intermodal Yard is an operating facility. The work shall be completed in accordance with the drawings. Access to the site is restricted by ongoing yard operations. Contractor operations shall be restricted to the designated areas.
- B. The Contractor shall coordinate and schedule, with the Engineer, access to the site in advance, and shall acknowledge that yard operations take precedence over construction activities.
- C. For access to the site see Section 01 55 00 Vehicular Access and Parking.
- D. All demolition items not identified for salvage or recycle shall become the property of the Contractor. Disposal of all demolition items shall be in accordance with the Specifications, local, state and federal requirements.
- E. Refer to Section 00 31 26 - Existing Hazardous Material Information for additional information.

### **1.5 SUMMARY**

- A. Items and material categories for demolition include, but are not limited to, the following:
  - 1. Asphalt concrete pavement

### **1.6 SUBMITTALS**

- A. A demolition management plan (DMP) with documentation that includes and addresses, but is not limited to, the following: Removal of Asphalt concrete pavement.
  - 1. Work sequence and schedule. Include the demolition requirements that are consistent with the overall project schedule.

2. Activity-based schedule.
3. List of subcontractors proposed including point of contact and telephone numbers.
4. List of equipment to be used for demolition operations.
5. Means and methods to protect existing infrastructure, stockpile materials, and deliver salvaged material. Include the methods used to provide floats, false work, temporary supports, bracing, and shoring.
6. Laydown areas for materials management.
7. Worker safety, toolbox meetings, and signs.
8. Protection of the public or other persons in areas surrounding the work.
9. Environmental protection plan and compliance with permit requirements.
10. Contractor quality control plan.
11. Hazardous material abatement plan.
12. Disposal procedures and locations of temporary storage shall be determined by the contractor.
13. Concrete crusher operations and stockpile plan.
14. Construction stormwater pollution prevention plan.
15. Schedule of disposal sites, their locations, and the materials that will be disposed at each site. To be approved by the Port of Tacoma and environmental agencies, including local health department Waste Authorization permits.
16. Puget Sound Clean Air Agency, Notice of Intent to Demolish.

NOTE: If the demolition plan is revised, resubmit with any proposed changes for review by the Engineer prior to incorporating changes to means, methods, equipment, tools, temporary supports, etc.

- B. Utility locate survey results described in Part 3 - Execution

## **PART 2 - PRODUCTS**

### **2.1 GENERAL**

- A. All other products that are required to repair, accomplish, or be incorporated into the work shall be selected by the Contractor, subject to the approval of the Engineer.
- B. Concrete/asphalt crushing equipment shall be furnished by the contractor and be capable of crushing all concrete and asphalt to the gradations specified herein. The equipment shall be capable of removing all reinforcing and other embedded steel fabrications. Crushing operations shall meet all permit and Puget Sound Clean Air Agency requirements. Upon completion of the crushing operations, the crushing equipment shall be removed as part of demobilization.

## **PART 3 - EXECUTION**

### **3.1 PREPARATION**

- A. A utility locate survey shall be performed and submitted that locates all existing utilities prior to start of demolition. Coordinate and resolve with the Port and yard operators to turn off or de-energize affected services before starting demolition.
- B. The Contractor shall verify all items for demolition, disposal, and salvage as early as

practicable prior to start of the work. Notify the Engineer immediately if observed conditions differ from anticipated conditions.

### 3.2 DEMOLITION OF STRUCTURES

- A. Completely remove and dispose of all designated items. Infrastructure or materials designated to remain that are damaged by Contractor activities shall be replaced at no additional cost to the Port.
- B. All pavements, barriers, and curbs designated for removal shall be broken up, prior to loading and disposal. Do not damage existing pavement which is to remain in place. Pavement demolition shall be accomplished by making neat vertical saw cuts at the boundaries of areas to be removed.
- C. Blasting will not be permitted.

### 3.3 DEMOLITION OF UTILITIES

- A. In advance of demolition activities, notify the Port of impending demolition and schedule the work required by that utility. Meeting the conditions required by the Port and affected utility shall be the sole responsibility of the Contractor.

### 3.4 BACKFILL AND EXCESS FILL MATERIAL

- A. Backfill: All areas disturbed during demolition shall be backfilled and compacted to match the elevations of the existing sub-base, as shown on the plans, or as directed by the Engineer, and repaved as shown on the drawings.
- B. Excess Fill Material: Excess fill material shall be reused on site or disposed of off-site in accordance with Section 31 00 00 paragraph 2.09 of these Specifications and applicable local and state regulations.
- C. The Port encourages the salvage and recycling of materials from demolished structures. The Contractor shall salvage or recycle to the extent possible, in a manner acceptable to environmental agencies and the Port, any of the materials designated for demolition and disposal.
- D. Disposal of all asphalt pavement shall be at an appropriate facility. All asphalt pavement shall be pulverized to a gradation of 1½ inch minus.
- E. Concrete shall be disposed at an appropriate facility. Concrete shall be pulverized to a gradation of 3 inch minus and shall not contain any reinforcing or other deleterious materials objectionable to the Port.

### 3.5 DISPOSAL

- A. Disposal shall be in accordance with the Specifications, and in compliance with local, state, and federal regulatory agencies.
- B. Cleanup: After removal of all demolition items and materials, clean and grade the area. There shall be no debris, rubble or litter left at the site from any of the demolition operations and the site shall be clean.

## END OF SECTION

## **PART 1 - GENERAL**

### **1.1 RELATED WORK SPECIFIED ELSEWHERE**

- A. The provisions and intent of the Contract, including the General Conditions apply to this work as if specified in this section. Work related to this section is described in:
  - 1. Section 03 20 00 - Concrete Reinforcing
  - 2. Section 03 30 00 - Cast-in-Place Concrete

### **1.2 DESCRIPTION OF WORK**

- A. The Work includes furnishing all necessary material, labor, and equipment for providing the structural support and physical barriers or forms which control the shape and location of the concrete. Also included in this section are the requirements for the removal of the forms and their supports.

### **1.3 REFERENCE STANDARDS**

- A. American Concrete Institute ACI 318-14: Building Code Requirements for Structural Concrete and Commentary.
- B. American Concrete Institute ACI 347-14: Guide to Formwork for Concrete.

### **1.4 QUALITY ASSURANCE**

- A. Inspect before casting concrete all forms, falsework, accessories, and shoring, using workers having at least five (5) years of experience with the types of construction involved and the techniques necessary for completion of the work.

### **1.5 SUBMITTALS**

- A. Submit form release agent information, as identified in section 3.2A, to engineer for review and approval.

## **PART 2 - PRODUCTS**

### **2.1 GENERAL**

- A. Materials for concrete forms may be new or used. The quality of the materials, not the age or previous usage, will be the determining factor as to their suitability.
- B. Forms shall be kept in a condition to produce finished work meeting the location, alignment, and surface tolerances specified.

### **2.2 JOB-BUILT FORMS**

- A. Wood Forms:
  - 1. Framing lumber shall be of standard dimensions and of such quality as to meet the requirements of the applied stresses or loads.
  - 2. Ply form Grade B-B Plywood shall be used for all exposed concrete forms.
  - 3. Plywood shall be exterior type without splits or knotholes and sanded smooth. The face grain of the plywood shall run perpendicular to the studs or joists. All joints in surfaces of forms used on exposed surfaces shall be vertical or horizontal. Plywood shall not be less than ½-inch thick except where curved areas require the use of ¼-inch thick material. When ¼-inch-thick material is used, it shall be backed with heavier material.
  - 4. Shiplap, square-edged boards, or tongue-and-groove sheathing may be used for forming

unexposed concrete surfaces.

**2.3 FORM LINERS AND COATINGS**

- A. Forms shall be lined, coated, or treated with a suitable release agent or bond-breaker to ensure their timely removal with no damage to the concrete.
- B. Release agents or bond-breakers shall be non-coloring and shall not leave a film on the concrete surface that may inhibit subsequent finishing activities required to attain the prescribed finish.

**PART 3 - EXECUTION**

**3.1 GENERAL**

- A. Set forms and falsework to allow for structural camber plus an allowance for shrinkage and settlement. The finished concrete shall conform to the lines and grades indicated on the drawings. Forms shall be constructed as to be rigid, unyielding, true to line, level, and sufficiently tight to prevent escape of mortar.
- B. Openings, embedded objects, and reinforcement shall be placed at the locations shown on the drawings. They shall be formed and fastened securely in position to maintain minimum cover for all reinforcement, and to leave smooth surfaces, true openings, accurate geometry, etc., after the forms are removed.
- C. Clean forms of all material, debris, or other objects and substances deleterious to the concrete, concrete surface, or element, prior to casting.

**3.2 FORM INSTALLATION**

- A. Prior to final setting or placing of reinforcing steel, forms for exposed concrete shall be treated with a release agent, bond-breaker, or parting compound. Apply the compound at a rate recommended by the manufacturer, to provide a smooth surface free of dusting action caused by the chemical reaction of the compound.
- B. Immediately remove any release agent or bond-breaker that comes in contact with reinforcement or embedded objects.
- C. Forms may be set with a slight bevel or draft for easy removal, where approved by the Engineer. Use 3/4-inch chamfer strips on all exposed inside and outside corners including the bottoms of pile caps and all vertical faces.
- D. All forms shall be mortar-tight. Standing water in the forms shall not be permitted. Forms shall be cleaned before assembly and prior to placing concrete.

**3.3 FORM REMOVAL**

- A. Forms shall remain in place for the minimum length of time shown below, provided the ambient temperature is 40 degrees Fahrenheit or higher.

|             |   |   |
|-------------|---|---|
|             | Ordinary<br>Concrete<br>(Type I-II or II) | High-Early-Strength<br>Concrete<br>(Type III) |
| Foundations | 7 days                                    | 72 hours                                      |

- B. When lower temperatures prevail, forms shall remain in place longer, and at the Engineer's discretion. All periods where the ambient temperature is below 40 degrees Fahrenheit shall be disregarded in determining the length of time forms are to remain in place. The Contractor may submit for prior approval a cold-weather concreting plan in accordance with Section 03 30 00 - Cast-in-Place Concrete. Development and incorporation of an approved cold-weather concreting plan shall be at the Contractor's expense.



- C. In lieu of the above methods for determining the minimum time forms shall remain in place, forms may be removed when concrete cylinder tests, according to ACI 318, indicate that a compressive strength greater than or equal to 80 percent of the specified 28-day strength has been reached. Additional concrete cylinder testing for the purpose of establishing the 80 percent threshold level shall be at the Contractor's expense.
- D. The removal of forms as stipulated herein shall in no case relieve the Contractor of responsibility for the performance, acceptability, or finish of the work.
- E. All form and falsework removal shall be accomplished in a manner that prevents damage to the concrete, concrete finishes, and adjacent work elements.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 RELATED WORK SPECIFIED ELSEWHERE**

- A. The provisions and intent of the Contract, including the General Conditions, Supplementary Conditions, and General Requirements, apply to this work as if specified in this section. Work related to this section is described in:
- B. Section 03 10 00 - Concrete Forming and Accessories
- C. Section 03 30 00 - Cast-in-Place Concrete

### **1.2 DESCRIPTION OF WORK**

- A. The work includes the requirements for manufacture, detailing, cutting, bending, transporting, handling, and placing of all concrete reinforcement and associated items required or indicated on the drawings.

### **1.3 REFERENCE STANDARDS**

- A. American Concrete Institute ACI 301: Specifications for Structural Concrete for Buildings.
- B. American Concrete Institute SP-66: ACI Detailing Manual (including ACI 315).
- C. American Concrete Institute ACI 318: Building Code Requirements for Structural Concrete and Commentary.
- D. Concrete Reinforcing Steel Institute (CRSI) Manual of Standard Practice

### **1.4 QUALITY ASSURANCE**

- A. Provide at least one (1) qualified person who shall be present at all times during execution of this portion of work, be thoroughly familiar with the type of materials being installed, be skilled in the required methods for installation, and who shall direct all the work. Qualified personnel shall have a minimum of five (5) years experience in placement of reinforcing for concrete and prestressed concrete structures.

### **1.5 SUBMITTALS**

- A. Submit detailed shop drawings that are coordinated and checked for all concrete reinforcing prior to casting concrete. Do not deliver concrete reinforcing to the site prior to approval of the shop drawings. The shop drawings shall include, but not be limited to, material specifications, bar lengths, bar bending schedules, order lists, splice lengths, and proposed splice locations.
- B. Submit mill certificates for each heat of reinforcing steel, indicating specification compliance, yield strength, ultimate strength, and chemistry of steel to be furnished.
- C. Data sheets for mortar blocks and chairs used for placing reinforcement.

## **PART 2 - PRODUCTS**

### **2.1 HANDLING**

- A. Protect from damage all reinforcement before, during, and after installation in the work. Protect from damage the installed work and materials of other trades.
- B. All reinforcement shall be new and free from rust, grease, oil, wax, paint, soil, dirt, kinks, bend, or other defects. Store in a manner to prevent fouling with bond-breaking and deleterious coatings.
- C. Maintain reinforcement identification after the bundles are broken.
- D. In the event of damage, immediately make all repairs and replacements necessary as directed by the Engineer and at no additional cost to the Port.

## 2.2 REINFORCEMENT

- A. All reinforcing bars, except as noted below, shall be deformed billet-steel bars conforming to ASTM A 615, Grade 60, deformed. Bars conforming to ASTM A 706 may be substituted for ASTM A 615 reinforcing steel at the Contractor's expense.

## 2.3 OTHER MATERIALS

- A. All other materials, not specifically described but required for complete and proper installation of reinforcement, shall be selected by the Contractor, subject to approval by the Engineer.

# PART 3 - EXECUTION

## 3.1 GENERAL

- A. Prior to installation of this section, carefully inspect the installed work of other trades and verify that such work is complete to the point where reinforcing installation may commence.
- B. Details of bending, placing, and splicing of all reinforcing steel shall conform to ACI 318, except as modified herein.

## 3.2 REINFORCING STEEL BARS

- A. Order Lists: Before ordering material, furnish all order lists and bending diagrams for approval by the Engineer; reinforcement placing drawings submitted for approval shall conform to Concrete Reinforcing Steel Institute (CRSI) Manual of Standard Detailing Practice. Do not order material until such lists and bending diagrams have been approved. The approval of order lists and bending diagrams by the Engineer shall in no way relieve the Contractor of responsibility for the correctness of such lists and diagrams.
- B. Fabrication: Bend all bars cold to the shapes indicated on the drawings unless otherwise approved by the Engineer. Do not field-bend bars partially embedded in concrete except as indicated on the drawings or as approved by the Engineer. Make bends and hooks in accordance with the applicable portions of the CRSI Manual.
- C. Placing and Fastening:
  - 1. Place all steel reinforcement accurately and hold firmly in the position indicated on the drawing during the placing and setting of concrete. Tie bars at all intersections.
  - 2. Minimum concrete cover to reinforcement shall be as indicated on the drawings:
  - 3. Maintain the minimum distance from the forms by means of stays, blocks, ties, hangers, or other approved supports.
    - a. Blocks for holding reinforcement from contact with the forms shall be precast mortar blocks of compressive strength not less than 3750 pounds per square inch, of approved shape and dimensions, or approved metal chairs.
    - b. Metal chairs which are in contact with the exterior surface of the concrete shall be plastic-coated.
    - c. Separate layers of bars by plastic chairs, by precast mortar blocks of compressive strength not less than 3750 pounds per square inch, or by other devices approved equal.
    - d. The minimum spacing between bars, except at lap splices, shall not be less than one bar diameter or one inch minimum, but not less than 1-1/3 times the maximum size of the coarse aggregate.
  - 4. In the event that conduits, anchor bolts, piping, inserts, sleeves, embedded objects, headed studs, or other items interfere with placing reinforcement as indicated on the drawings, or as otherwise required, immediately contact the Engineer and obtain approval

of a new procedure before placing concrete.

### 3.3 SPLICING

- A. Furnish all reinforcement in the full lengths indicated on the drawings, except that reinforcement over forty feet in length may be spliced.
- B. Splicing of bars, except when indicated on the drawings, will not be permitted without approval of the Engineer. When approved, splices shall be staggered with no more than fifty percent of any particular bar type being spliced at any one location. Minimum length of lap splice shall be 50 times the bar diameter or 18 inches minimum unless noted otherwise on the drawings. Minimum distance between spliced zones shall be three lap lengths.

### 3.4 CLEANING REINFORCEMENT

- A. Steel reinforcement, at the time concrete is placed around it, shall be free from loose rust or mill scale, oil, paint, and all other coatings which will destroy, impair, or reduce the bond between steel and concrete.

### 3.5 INSPECTION

- A. Reinforcement in any member shall be placed and inspected by qualified personnel before placement of concrete. Access for inspection by the Engineer prior to concrete placement shall be provided for all pours. Concrete placed in violation of this provision will be rejected. The Contractor shall remove the rejected concrete, place new reinforcing steel, and cast new concrete at its own expense.
- B. The Contractor shall notify the Engineer at least 48 hours in advance of any concrete pour, to allow for inspection.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 RELATED WORK SPECIFIED ELSEWHERE**

- A. The provisions and intent of the Contract, including the General Conditions, Supplementary Conditions, and General Requirements, apply to this work as if specified in this section. Work related to this section is described in:
- B. Section 03 10 00 - Concrete Forming and Accessories
- C. Section 03 20 00 - Concrete Reinforcing

### **1.2 DESCRIPTION OF WORK**

- A. The extent and location of the "Cast-in-Place Concrete" work is indicated on the drawings. The work includes the requirements for providing all cast-in-place concrete and associated work in conformance with these specifications and as indicated on the drawings.

### **1.3 REFERENCE STANDARDS**

- A. American Concrete Institute ACI 301: Specifications for Structural Concrete.
- B. American Concrete Institute ACI 305R: Hot Weather Concreting.
- C. American Concrete Institute ACI 306R: Cold Weather Concreting.
- D. American Concrete Institute ACI 308R: Guide to Curing Concrete.
- E. American Concrete Institute ACI 318: Building Code Requirements for Structural Concrete and Commentary.
- F. International Building Code (IBC), as amended and adopted by the City of Tacoma.

### **1.4 QUALITY ASSURANCE**

- A. All concrete work shall conform to the requirements of ACI 301, Specifications for Structural Concrete, unless otherwise noted in the drawings or the specifications.
- B. Inspection and Testing: The Port will provide for necessary inspection and testing as required, which shall be determined by the Engineer. The Contractor shall provide all necessary assistance in carrying out such inspections and tests at no cost to the Port.. The results will be available from the Port upon request.
- C. Qualifications of Supplier: Ready-mixed concrete plants shall be approved and certified by the National Ready Mix Concrete Association (NRMCA) or qualified by WSDOT. Ready-mixed concrete shall be batched in accordance with the applicable portions of ASTM C94, Standard Specification for Ready-Mixed Concrete.
- D. Qualifications of Personnel:
  - 1. Provide at least one qualified person who shall be present at all times during execution of this portion of the work, who shall be thoroughly trained and experienced in placing the types of concrete specified, and who shall direct all work performed under this section. Qualified personnel shall have at least five (5) years experience performing the work described in this section.
  - 2. Trained and experienced journeyman concrete finishers having at least five (5) years experience shall be responsible for finishing all exposed surfaces.
- E. Building Code: All concrete shall meet the requirements of the International Building Code as amended and adopted by the City of Tacoma. Where provisions of pertinent codes and standards conflict with this specification, the more stringent provisions shall govern.

## 1.5 SUBMITTALS

- A. Proposed concrete design mix, indicating all material contents per cubic yard of concrete, including certificates of specification compliance. Written evidence that the ready-mix concrete plant is approved and certified by the NRMCA and other organizations.
- B. Test certificates for compressive strength, yield, air content, and slump of the proposed concrete mix. Report strength test results in accordance with ACI 318
- C. Manufacturer's name, address, catalog number, and specifications for all proposed admixtures, concrete bonding agents, curing compounds, etc.
- D. Certificates of specification compliance for materials to be used including aggregate alkali-silica reactivity (ASR). Identify all aggregate supply pit names and locations.
- E. Proposed curing methods including manufacturer's data for curing membranes, evaporation retardants, accelerated cure methods, etc. Submit detailed plans for concreting in ambient temperatures below 40 degrees F. Describe the specific methods and procedures used for substrate preparation, concrete placement, curing, and protection. Provide specific references to ACI 306 and ACI 308.

## PART 2 - PRODUCTS

### 2.1 CONCRETE

- A. General:
  - 1. All concrete, unless otherwise specifically permitted by the Engineer, shall be batched and mixed at the approved Ready-Mix plant. Batching, mixing, and delivery of ready-mix concrete shall conform to ASTM C 94.
  - 2. All cast-in-place concrete shall be proportioned on the basis of field experience or laboratory trial mixtures according to ACI 318,
- B. Cementitious Materials:
  - 1. All cement shall be Portland cement conforming to ASTM C 150.
  - 2. Portland cement for use in mixes without fly ash shall be Type I-II or Type II conforming to ASTM C150 and to the requirements of WSDOT Standard
  - 3. Portland cement for use in mixes with fly ash shall be Type I or Type I-II conforming to ASTM C150.
  - 4. Fly ash, if used, shall meet the requirements of ASTM C 618, Type F, with the added provision that the loss on ignition shall not exceed 1 percent, and that the fly ash is stored in a separate silo from the cement. Split bins are not acceptable.
- C. Aggregates:
  - 1. Aggregates shall conform to ASTM C 33. All coarse and fine aggregate shall consist of hard, tough, durable particles free from foreign and deleterious materials, and shall be stored in such a manner as to prevent segregation, excessive breakage, and the introduction of foreign material.
  - 2. Evaluate and test fine and coarse aggregates to be used in all concrete for alkali-aggregate reactivity in accordance with ASTM C 1260 or ASTM C 1293. Test both coarse aggregate size groups if from different sources. Test results of the combination shall have a measured expansion equal to or less than 0.10 percent at 16 days after casting when aggregates are tested in accordance with ASTM C 1260 or 0.04 percent for aggregates tested in accordance with ASTM C 1293.

3. Grading shall conform to WSDOT Standard Specifications Combined Aggregate Gradation for Portland Cement Concrete. Nominal maximum aggregate size shall be 3/4 inches unless approved by the Engineer.
  4. The maximum size of coarse aggregate shall not be larger than three fourths of the minimum clear spacing between reinforcing bars, between reinforcing bars and side forms, and between reinforcing bars and top or bottom surface of the concrete.
  5. Lightweight aggregate or aggregate larger than 1-1/2 inches shall not be used without written permission from the Engineer.
- D. Water used for mixing concrete shall conform to the quality requirements of paragraph 9-25.1 of the WSDOT Standard Specifications.
- E. Admixtures: All admixtures shall be supplied by one manufacturer approved by the Engineer.
1. Air-entraining admixtures shall conform to ASTM C 260. Dosage rates shall be in accordance with the manufacturer's recommendations to meet the air content specified herein.
  2. Water-reducing admixtures shall conform to the requirements of ASTM C 494. Dosage rates shall be in accordance with the manufacturer's recommendations.

## 2.2 OTHER MATERIALS

- A. All other materials not specifically described but required for a complete and proper installation of cast-in-place concrete shall be selected by the Contractor subject to the approval of the Engineer.

## 2.3 MIX PROPORTIONS AND STRENGTH

- A. The mix proportions shall produce a mixture that will readily work into all corners, sides, and angles of the forms, around reinforcement and embedded items, with the least possible segregation, and prevent free water from collecting on the surface.
- B. The mix proportions shall be selected in accordance with ACI 318. Test data representing thirty recent consecutive tests for each design shall be submitted to establish the standard deviation. The criteria for acceptance of submitted tests shall be accordance with Section 5.3.1.1. Section 5.3.1.1(b) shall be amended to read, "... 500 psi of  $f'_c$ ", instead of 1000 psi. Where 30 recent consecutive tests are not available, the standard deviation may be determined by records based on no less than 15 tests as described in Section 5.3.1.2. Where no previous data are available, the mix or mixes shall be oversized in accordance with Section 5.3.2.2. When consecutive test data have been established during the project the oversize criteria may be relaxed in accordance with Section 5.5. Deviation from any reviewed design mix without approval of the Engineer will not be permitted.
- C. Unless otherwise indicated, concrete minimum 28-day compressive strengths shall be 4000PSI.
- D. Concrete shall meet the following requirements:
1. Minimum Cementitious Material

|                        |   |
|------------------------|---|
| Cement without fly ash | 6.5 sacks/cy (611 lbs/cy)                         |
| Cement with fly ash    | 6 sacks/cy (564 lbs/cy)<br>and 100 lbs fly ash/cy |
  2. Maximum Water/Cement Ratio  
(by weight, including free



moisture on aggregate) 0.40\*

\*\*If fly ash is used, the water/cement ratio shall be calculated as the weight of water divided by the weight of cement plus the weight of the fly ash.

3. Air Content 3.5 percent to 6.5 percent
4. Water reducing admixture shall be Type A, D, F, or G. The amount shall control the desired workability and water/cement ratio of the mix and shall be within the manufacturer's recommended range.
5. Slump: 3 to 5 inches with Type A or D admixtures, 4 to 8 inches with Type F or G admixtures. The slump shall be chosen to enhance workability without violating the maximum water/cement ratio requirement.
6. Air Content 3.5 percent to 6.5 percent
7. Water reducing admixture shall be Type A, D, F, or G. The amount shall be such as to control the desired workability and water/cement ratio of the mix and shall be within the manufacturer's recommended range.
8. Slump: 3 to 5 inches with Type A or D admixtures, 4 to 8 inches with Type F or G admixtures. The slump shall be chosen to enhance workability without violating the maximum water/cement ratio requirement.

### **PART 3 - EXECUTION**

#### **3.1 PREPARATORY WORK**

##### **A. General:**

1. Prior to casting, inspect the installed work of all other trades and verify that such work is complete to the point where this installation may commence.
2. Verify that all items to be embedded in concrete are in place, properly oriented, located, and secured.
3. Verify that concrete may be placed to the lines and elevations indicated on the drawings with all required clearances for reinforcement.
4. All areas in which concrete is to be placed shall be thoroughly cleaned to remove all wood debris, sawdust, tie wire cuttings, and all deleterious material. Tie wire ends shall be bent back so they do not encroach into the specified clear cover of the concrete. Concrete forms which have not been treated with oils, waxes, or other bond breakers shall be thoroughly wet prior to placing concrete.
5. All transporting and handling equipment shall be cleaned of all hardened concrete.
6. On-site wash-out area will not be provided. Excess concrete will either require eco-buckets or off-site disposal by the contractor.

B. Discrepancies: In the event of discrepancy, immediately notify the Engineer. Do not proceed with installation until all discrepancies have been fully resolved.

C. Notification: Notify the Engineer at least 48 hours in advance of any concrete pour. Notify the Engineer when inspection by the Contractor is complete.

#### **3.2 TRANSPORTING AND PLACING CONCRETE**

##### **A. General:**

1. Concrete that does not reach its final position in the forms within 1-1/2 hours after the addition of cement shall not be used. During hot weather this time limit shall be reduced



- in accordance with ACI 305.
2. Place concrete as soon as possible after mixing. Concrete which has developed initial set or partially hardened shall not be re-tempered or remixed.
  3. The method and manner of placing concrete shall not allow segregation of the aggregates or displacement of reinforcement and embedded objects.
  4. Conveyor belts, when used, shall be limited to 300 feet in length to prevent segregation and shall be covered to protect the concrete from sun or rain.
  5. If a concrete pump is used as the placing system, the pump priming slurry shall be discarded before placement into the forms. Initial acceptance testing may be delayed until the pump priming slurry has been eliminated. No pump shall be used that allows free water to flow past the piston. Aluminum conduits or tremies shall not be used for pumping or placing concrete.
  6. Place concrete in continuous horizontal layers not exceeding 18 inches and compact so that there will be no line of separation between layers. Carefully fill each part of the forms by depositing concrete directly at or near as possible to the final destination.
  7. When concrete must be dropped more than five feet into the forms, it shall be deposited through a sheet metal or other approved conduit. Approved conduit shall also be used to place concrete in sloping forms or in other locations, as directed by the Engineer, to prevent concrete from sliding around reinforcing or other embedded objects.
  8. The methods of depositing and compacting concrete shall produce compact, dense, impervious concrete with the required surface finishes and no segregation. Remove defective concrete as directed by the Engineer at no additional cost to the Port.
- B. Hot/Cold Weather Placement: Do not place concrete on frozen ground or against frosted reinforcing steel or forms. Do not mix or place concrete while the atmospheric temperature is below 40° F. If air temperature exceeds 90° F, provide water spray or other approved methods to cool contact surfaces to less than 90° F. Hot and cold-weather concrete placement shall follow the respective recommendations in ACI 305 and ACI 306.
- C. Consolidation of Concrete:
1. Provide suitable internal vibrators for use in compacting all concrete except that which is placed under water. The vibrators shall be of the type designed to be placed directly in the concrete, and their frequency of vibration shall not be less than 7,000 impulses per minute when in actual operation.
  2. Vibration shall be such that the concrete becomes uniformly plastic. Insert vibrators to a depth sufficient to vibrate the bottom of each layer effectively, but do not penetrate partially hardened concrete. Do not apply the vibrators directly to steel which extends into partially hardened concrete. The intervals between points of insertion shall be not less than 2 feet, nor more than 3 feet.
  3. Do not continue vibration in any one spot such that pools of cement or cement and sand are formed. In vibrating and finishing top surfaces which are exposed to weather or wear, care shall be exercised to avoid drawing water or laitance to the surface. In relatively high lifts, the top layer shall be comparatively shallow and the concrete mix shall be as stiff as can be effectively vibrated into place and properly finished. Do not use vibrators to transport or move concrete inside the form.
  4. A sufficient number of vibrators shall be supplied to effectively vibrate all of the concrete placed. Hand-tamping shall be required wherever necessary to secure a smooth and dense concrete on the outside surfaces.

### 3.3 CURING CONCRETE

- A. Follow ACI 308R for guide practices for curing concrete.
- B. Concrete, other than high-early strength, shall be maintained above 40° F and in a moist condition for at least the first three days (72 hours) after placement.
- C. Apply an ASTM C 309, Type 1, Class A or B curing compound to the fresh concrete immediately after finishing the concrete and as soon as the visible bleed water has evaporated or as directed by the Engineer. Apply according to the manufacturer's recommendations. The rate of coverage shall be at least one gallon per 100 square feet and be sufficient to effectively obscure the original color of the concrete.
- D. Apply the curing compound in two applications to ensure full coverage of the concrete, with the second coat applied in a direction perpendicular to that of the first application. Do not apply curing compound to construction joint surfaces. Curing compound on construction joints or reinforcing steel shall be completely removed before the following concrete pour.
- E. Supply backup spray equipment and sufficient workmen to properly apply the curing compound.
- F. Not later than the morning following the application of the curing compound, the top surfaces shall be covered with cotton mats, an approved vapor proof curing paper, or white polyethylene sheeting. If the covering used is cotton mats, it shall be kept continuously wet day and night for the period of time specified above, and if curing paper or plastic film is used, it shall be left in place for the same length of time.
- G. Curing paper and white polyethylene sheeting shall be kept tightly in place by taping and weighting joints, or other methods for the prescribed length of time.
- H. Membrane curing compounds which leave a waxy film on the concrete shall not be used.
- I. After the concrete has cured for the required time, slabs shall be swept clean.
- J. All concrete shall be protected from damage and accelerated drying. No fire or excessive heat shall be permitted near the concrete at any time.
- K. In lieu of curing compounds the contractor may use wet burlap or other moist cure methods as approved by the Engineer. It is preferable to use wet cure methods on surfaces that will receive additional concrete. Wet/moist cure methods shall be continuous for the prescribed duration of the curing period.

### 3.4 FINISHING CONCRETE

- A. General:
  - 1. All permanently exposed surfaces, unless specifically noted otherwise, shall be free from local bulging and all ridges or lips shall be removed to leave a smooth, flat surface. Patching mortar, if used, shall be of the same color as the surrounding concrete. White Portland cement shall be added to the patching mortar for color matching. A test section, approved by the Engineer, shall be completed prior to production work.
  - 2. Protect finished surfaces from damage, stains and abrasion. Surfaces or edges damaged during construction shall be repaired at the Contractor's expense.
- B. Defects:
  - 1. Surface defects include honeycomb, rock pockets, spalls, chips, air bubbles, voids, pinholes, bug holes, and indentations greater than or equal to ¼ inch in depth, or greater than or equal to ¾ inch in width, length, or diameter.

2. Surface irregularities include embedded objects, embedded debris, lift lines, sand lines, bleed lines, segregation, form pop-outs, fins, form leakage, texture irregularities, stains and other discolorations that cannot be removed by water blast cleaning.

C. Horizontal Surfaces:

1. All horizontal surfaces that will carry additional concrete are construction joints and shall be thoroughly cleaned and roughened to an amplitude of at least  $\frac{1}{4}$  inch. Roughening shall be accomplished using methods in accordance with the construction permits and approved by the Engineer, to expose sound concrete without undercutting around the edges of the larger aggregate particles.
2. Exposed horizontal surfaces that will not receive additional concrete shall have a smooth wood float finish.

3.5 TESTING

- A. Testing of concrete will be done by an accredited testing agency retained by the Contractor. Methods of sampling, testing, evaluation, and acceptance will conform to ACI 301.
- B. Testing as described above will be at the Engineer's discretion and in no way relieves the Contractor of any obligations. The Contractor shall perform its own tests and institute a quality assurance program to assure the specified quality of materials and work are provided.
- C. Tests performed by the Port will be done at no cost to the Contractor, except as noted below.
  1. Additional testing and inspection required because of changes in materials, proportions, and procedures requested by the Contractor.
  2. Additional testing of materials or concrete either fails to meet the specification requirements when tested in accordance with the ACI standards outlined and the appropriate ASTM standards contained therein.

**END OF SECTION**

PART 1 GENERAL

1.01 SUMMARY OF WORK

- A. The extent and location of the “Welding” Work is indicated in the Contract Documents. Terms
  - 1. The terms, “welding,” “weld,” “joining,” and other similar variations of these terms used in the context of this section generally refer to the joining of metals, using approved materials and procedures.

1.02 GOVERNING CODES, STANDARDS, AND REFERENCES

- 1. American Institute of Steel Construction (AISC)
  - a. AISC 360, Specification for Structural Steel Buildings
  - b. AISC 303, Code of Standard Practice for Steel Buildings and Bridges
  - c. AISC 325, Steel Construction Manual
- 2. American Welding Society (AWS)
  - a. AWS A2.4, Standard Symbols for Welding, Brazing, and Nondestructive Examination
  - b. AWS A3.0, Standard Welding Terms and Definitions
  - c. AWS D3.6, Underwater Welding
  - d. AWS D1.1, Structural Welding Code – Steel
  - e. AWS D1.3, Structural Welding Code – Sheet Steel
  - f. AWS D1.4, Structural Welding Code – Reinforcing Steel
  - g. AWS D14.4, Specification for Welding Joints for Machinery and Equipment
- 3. American Society for Testing and Materials (ASTM)
  - a. ASTM E165, Standard Practice for Liquid Penetrant Examination for General Industry
  - b. ASTM E709, Standard Guide for Magnetic Particle Examination
- 4. International Building Code (IBC)
  - a. International Building Code as adopted and amended by Washington State.

1.03 SUBMITTALS

- A. Submittals shall include the following:
  - 1. Shop Drawings
    - a. Manufacturer shall submit shop drawings detailing the following information at a minimum in addition to shop drawing requirements:
      - (1) Show all shop and erection details, including cuts, copes, splices, weld preparations, cambers, holes, fasteners, and welds (etc.).

- (2) Show all welds, both shop and field, using AWS A2.4 standard notation.
- 2. Filler Material Specifications
  - a. Material specifications shall be provided and presented as a direct comparison with the material requirements listed in this specification section.
  - b. Each comparison shall be labeled with a 'Pass' or a 'Fail.'
  - c. Generic or incomplete manufacturer-supplied data may be rejected.
- 3. Weld Qualifications
  - a. Submit qualification documents (WPS, PQR, WPQ, WPQT) in accordance with:
    - (1) AWS D1.1 for structural component thickness 1/8" and greater.
    - (2) AWS D1.3 for structural component thickness of 1/8" and smaller.
- 4. Testing and Inspection Plan
  - a. Locations of planned weld testing and inspection
  - b. Schedule of planned weld testing and inspection, including inspection frequency
  - c. Name(s) of testing and inspection agency or agencies
- 5. Testing and Inspection Results
  - a. Inspector name, company, date
  - b. Project name
  - c. Test location, using design drawings
  - d. Welding Process
  - e. Code Standard
  - f. NDT Type
  - g. Inspection Standard
  - h. Acceptance Standard
  - i. Pass/Fail
  - j. Inspector remarks, photos, and measurements
- 6. Qualifications of Welding Supervisor
  - a. Name of welding supervisor(s)
- 7. Installer Performance Qualifications
  - a. Submit WABO performance qualifications for each welder, showing approval for each of the following at a minimum.
    - (1) Name of welder

- (2) Weld positions
- (3) Welding processes
- (4) Plate thicknesses
- (5) Dates of qualification

## PART 2 MATERIALS

### 2.01 MATERIAL REQUIREMENTS

#### A. All Materials

- 1. Unless noted or specified otherwise, all products shall be new, free from defects, and of the best quality for the intended use.
- 2. Materials shall be within specification tolerances throughout the duration of the project, including at the time of installation.
- 3. All materials not specified but required for a complete and proper installation shall be selected by the Contractor but are subject to the approval of the Engineer.

#### B. Filler Material

- 1. Only low hydrogen weld filler material shall be used.
- 2. Weld filler metal shall meet the following minimum mechanical property requirements:

| PROPERTY             | ACCEPTANCE REQUIREMENTS |
|----------------------|-------------------------|
| Charpy V-Notch (CVN) | 20 ft-lb @ 40°F         |
| Charpy V-Notch (CVN) | 40 ft-lb @ 70°F         |
| Yield Strength       | 58 ksi min.             |
| Tensile Strength     | 70 ksi min.             |
| Elongation           | 22%, minimum            |

#### C. Base Metals

- 1. Weld filler metal shall comply with matching filler metal/base metal combinations of AWS D1.1/D1.4.

### 2.02 MATERIAL HANDLING, DELIVERY, AND STORAGE

#### A. Storage

- 1. Welding electrodes shall be packaged, stored, and used in a manner consistent with AWS D1.1/D1.4, and electrode manufacturer specifications.

B. Damage & Replacements

1. In the event of damage, immediately make all repairs and replacements necessary at no additional cost to the Port of Tacoma in accordance with AWS D1.1/1.4.

2.03 QUALITY ASSURANCE

A. Inspection and Testing

1. Any testing and inspection shall be in accordance with Section 01 45 00 – Quality Control.
2. The Port of Tacoma retains the right to inspect and test all materials at all phases of construction.

PART 3 EXECUTION

3.01 PREPARATION FOR EXECUTION OF WORK

A. Prequalified Welding Procedure Specifications (WPS)

1. All welds shall be prequalified by AWS D1.1/1.4 unless otherwise approved by the Engineer.
2. Use prequalified WPS's in accordance with AWS D1.1/D1.4.
  - a. Use prequalified base metal/ filler metal combinations.
  - b. Use prequalified partial and complete joint penetration details.
  - c. Use prequalified minimum preheat and interpass temperatures.

B. Weld Qualifications

1. All welds shall be qualified per AWS D1.1/D1.4.
2. Previously qualified welds are allowable at the sole discretion of the approval of the Engineer.
3. Welds with qualification tests are allowable at the sole discretion of the approval of the Engineer.
4. Approval of any procedure does not relieve the Contractor of the sole responsibility for producing a finished structure meeting all specified strength and serviceability requirements.

C. Base Metals

1. Where weld is intended for application to steel with surface coatings such as paint or galvanizing, remove surface coatings within 1" clear of weld.

3.02 EXECUTION OF WORK

A. Fit-Up

1. Fit-up tolerances, per AWS D1.1/D1.4, shall be measured and reported as a component of Periodic and Continuous Inspections.
2. Root thickness tolerances shall be observed as described in AWS D1.1/D1.4.

3. The Contractor shall not build-up out-of-tolerance roots using weld material unless approved by the Engineer.
  - a. Approval of root build-up at one location shall not be considered to be tacit approval at other locations.
- B. Preheat and Interpass
  1. Use a maximum preheat and maximum interpass temperature of 550 deg. F, measured at a distance of 1 in. from the point of arc initiation.
    - a. This maximum temperature may not be increased by the WPS, regardless of qualification testing.
- C. Minimum Welds
  1. Use minimum prequalified partial joint penetration (PJP) weld sizes in accordance the more stringent of the project specifications, drawings, and AWS D1.1/D1.4.
    - a. Use PJP welds larger than the minimum allowable where shown on the plans.
  2. Where fillet weld size is not shown on the drawings, use minimum fillet weld sizes in accordance with the more stringent of the project specifications, drawings, and AWS D1.1/ D1.4.
- D. Welding
  1. Welding materials, procedures, and equipment shall comply with AWS D1.1/D1.4.
  2. Conform the design of welded connections to AISC 360 unless otherwise indicated or specified.
  3. Do not commence welding until welding procedures, inspectors, nondestructive testing personnel, welders, welding operators, and tackers have been qualified and the submittals approved by the Port.
  4. Metals shall be joined as indicated on drawings.
  5. Members in tubular structures shall be joined under the AWS D1.1 design requirements for cyclically loaded tubular structures.
- E. Field Welding
  1. Field welding shall comply with AWS D1.1/D1.4.
  2. Contactor shall shield welding operations from wind, rain, dirt, and other environmental weld detriments as directed by the Engineer.
  3. If light produced by welding arcs hinder the ongoing operations of tenants or the public, the Contractor shall make arrangements to move the weld location or screen the welding operations from view as directed.
- F. Finishing
  1. Where detailed, each weld shall be ground or otherwise mechanically finished to smooth condition without pits, edges, and sharp corners.
  2. Where coatings such as paint or galvanizing is to be applied, welds shall be prepared to compliance.



3. All welds shall be completed to be smooth and free of burs, protrusions, edges, and other sharp discontinuities.
4. Where applicable, weld must retain required throat thickness after finishing operations are completed.
5. No weld shall be finished to allow for pits or cause pooling water when the finished structure is oriented as shown on plan.
6. Weld contours shall be completed as required by AWS D1.1 reference.
7. All finished welds shall remain within allowable sizes and tolerances throughout and after all finishing operations.

G. Warping

1. Fabricator shall use jigs, templates, strategic application of welds, and other means necessary to protect members from warping.
2. Fabrications with excessive distortion due to welding may be rejected by the Engineer.

H. Repair

1. Repairs shall be performed in accordance with AWS requirements.
2. Heat generated from weld may have a deleterious effect on surface conditioning, causing cracks, debonding, delamination, and other types of distress.
  - a. Remove and repair surface coatings damaged by welding operations with like materials to the approval of the Engineer.
  - b. Galvanizing shall be repaired by zinc solder or as approved by the Engineer.

3.03 QUALITY ASSURANCE

A. Testing and Inspection

1. All Testing and Inspection
  - a. All inspection procedures, techniques, methods, acceptance criteria, and inspector qualifications shall be completed in accordance with AWS D1.1/D1.4 and D3.6 as applicable.
  - b. All Special Inspections shall be completed in compliance with the more stringent of IBC Chapter 17 or the adopted building code.
  - c. Special Inspection or other Testing and Inspection of welding will be performed by the Special Inspector or agent of the Port in accordance with the 2018 International Building Code Chapter 17, subject to the limitations of this section.
  - d. Costs associated with the Independent Testing and Inspection Service inspecting replacement materials, products, welds, and other installations due to Contractor error shall be deducted from monies due to the Contractor.
  - e. Testing and Inspection shall be completed at or near the Work site.

- f. The Port of Tacoma and the Inspector shall be given the option to be present to view all fit-up and welding operations.
- 2. Off-site Testing and Inspection
  - a. Fabrication facility must be Washington Association of Building Officials (WABO) registered steel fabrication facilities. Fabricators must provide WABO registration to the Building Department for review and approval.
  - b. It is not the intent to prevent any fabricator who is not registered with WABO to manufacture structural steel components for building construction. Those fabricators, however, would be subject to special inspection at the fabrication facility by a WABO certified structural steel and welding special inspector.
  - c. Upon completion of fabrication, the approved fabricator shall submit a certificate of compliance to the Building Department stating that the work was performed in accordance with the approved construction documents.
  - d. The Contractor shall provide and pay for off-site inspection and testing service required to confirm the quality of materials used.
- 3. Minimum Testing and Inspection Requirements
  - a. Test Methods and Acceptance Criteria
    - (1) Test methods and acceptance criteria shall be determined by location in accordance with AWS D1.1/D1.4 and adopted building codes for all Testing and Inspection requirements.
    - (2) The extent of Testing and Inspection required shall be continuously determined by the Engineer.
  - b. Visual Inspection
    - (1) The Contractor shall sequence Work or otherwise schedule welding operations to accommodate the scheduling of 75% minimum required visual weld inspections to occur during normal business hours.
    - (2) Visual Inspection shall be performed by the Inspector before, during, and after welding.
    - (3) All root openings shall be inspected prior to welding.
      - (a) Out-of-tolerance root openings must be approved by the Engineer prior to welding.
    - (4) Inspector shall visually inspect 100% of installed welds after welding and prior to coating application.
  - c. Nondestructive Testing (NDT)
    - (1) The Contractor shall sequence Work or otherwise schedule welding operations to accommodate the scheduling of 100% minimum required nondestructive weld inspections to occur during normal business hours.

(2) Magnetic Particle Testing

- (a) The following shall be tested by the magnetic particle method in accordance with AWS D1.1/D1.4.
  - (i) 30% of fillet welds
  - (ii) 50% of all partial penetration welds
  - (iii) All complete penetration welds not tested by ultrasonic testing.

(3) Ultrasonic Testing

- (a) The following shall be tested by the ultrasonic method in accordance with AWS D1.1/D1.4.
  - (i) 100% of complete penetration welds.
  - (ii) All complete penetration welds in which, in the opinion of the inspector, ultrasonic testing is more conclusive than magnetic particle testing.

4. Testing and Inspection Results

- a. Inspection results shall be made available to the Port and the Contractor within 2 business days of testing.
- b. Each weld designated for testing shall be inspected, located on design drawings, compared with acceptance standards, and assigned a "PASS" or "FAIL" grade.

B. Qualifications

1. Qualifications of Welding Supervisor(s)

- a. Provide at least one person who shall be present at all times during execution of this portion of the Work who shall be thoroughly trained and experienced in placing the types of welding specified and who shall direct all Work performed under this section.

2. Installer Performance Qualifications

- a. All welders shall be currently certified by AWS or Washington Association of Building Officials (WABO) for structural welding.
  - (1) If the welder has not been engaged in the welding process for three or more months, re-qualify the welder before permitting structural welding Work.
- b. All welders performing underwater welding Work shall be in compliance with the standards stated or referenced in AWS D3.6M, latest edition.

C. Weld Inspection Work Schedules

- 1. The Contractor shall notify the Port of Tacoma and the Independent Testing Agency 14 days prior to beginning welding operations.
- 2. The Contractor shall notify the Port of Tacoma and the Independent Testing Agency 3 business days prior to fit-up and welding operations for

all structural welds requiring Periodic or Continuous Inspection in accordance with adopted building codes.

**PART 4 MEASUREMENT AND PAYMENT**

**4.01 GENERAL**

- A. No separate measurement or payment will be made for the Work required by this section. The cost for this portion of the Work will be considered incidental to, and included in the payments made for the applicable bid items.

|                |
|----------------|
| End of Section |
|----------------|

PART 1 GENERAL

1.01 SUMMARY OF WORK

A. GENERAL

1. The extent and location of the "Metal Fabrications" work is indicated on the drawings. The work includes the requirements for providing all miscellaneous iron, steel, aluminum, or other non-ferrous metals not specifically described in other Sections of these specifications but required for a complete and operable facility.
2. The work includes:
  - a. Bollards and rails.
  - b. Conduit, pipe, duct and miscellaneous equipment supports as indicated on the drawings.
  - c. Miscellaneous fabricated assemblies as indicated on the drawings.

B. Related Documents:

1. The provisions and intent of the Contract, including the General Conditions, Supplementary Conditions and General Requirements, apply to the work as if specified in this Section.

C. Related Work Specified Elsewhere:

1. Section 03 20 00 - Concrete Reinforcement.
2. Section 05 05 23 - Welding.
3. Section 09 90 00 - Paints and Coatings.

1.02 QUALITY ASSURANCE

- A. Qualification of Fabricator: The fabricator of the metals specified in this Section shall be experienced in the fabrication and working of metals, including cutting, bending, forming and finishing.
- B. Qualification of Welders: Welders shall be currently certified by the Washington Association of Building Officials for structural welding and shall submit qualification test reports, bearing witness certification of independent laboratory and inspection service approved by the Engineer. If the welder has not been engaged in the welding process for three or more months, re-qualify the welder before permitting him to do structural welding work.

1.03 CODES AND STANDARDS

1. AISC 360 – Steel Construction Manual
2. AWS D1.1 – Structural Welding Code
3. RCSC – Specifications for Structural Joints Using ASTM A325 or A490 Bolts
4. SSTC – Structural Bolting Handbook

1.04 SUBMITTALS

- A. Before metal fabrications are delivered to the job site, submit shop drawings to the Engineer. Shop drawings shall show all locations, markings, quantities, materials,

sizes and shapes and indicate typical details of connecting, anchoring, fastening, bracing and attaching to the work of other trades.

1.05 PRODUCT HANDLING

- A. Protection: 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 architectural exposed metals during fabrication or erection.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Port.

PART 2 MATERIALS

2.01 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.
- B. Unless otherwise noted or specified, all products and fabricated units for exterior use shall be galvanized and painted as described in Section 09 90 00 – Paints and Coatings.

2.02 STEEL AND IRON

- A. Structural Steel W-Section Shapes: ASTM A992 Grade 50 (Fy = 50 KSI).
- B. Structural Steel S-Sections: ASTM A36 (Fy = 36 KSI).
- C. Structural Steel Channels: ASTM A36 (Fy = 36 KSI).
- D. Structural Steel Plates: ASTM A36 (Fy = 36 KSI) unless noted.
- E. Structural Steel Angles: ASTM A36 (Fy = 36 KSI).
- F. Hollow Structural Shapes: Square and Rectangular Structural Tube: ASTM A500 Grade B (Fy = 46 KSI).
- G. Hollow Structural Shapes: Round Structural Tube: ASTM A500 Grade B (Fy = 42 KSI).
- H. Pipe: ASTM A53 Grade B (Fy = 35 KSI).
- I. Structural Steel Bar: ASTM A36 (Fy = 36 KSI) unless noted.
- J. Threaded Anchor Rod: ASTM F1554 Grade 36.
- K. Slotted Channel (Strut) Framing: ASTM A1011 SS GR 33 or ASTM A653 GR 33.
  - 1. B-Line as manufactured by Cooper B-Line, Inc.
  - 2. Unistrut as manufactured by Unistrut Corp.
  - 3. Powerstrut as manufactured by Power Engineering Corp., Inc.
  - 4. Caddy as manufactured by Erico.
  - 5. Superstrut as manufactured by Thomas and Betts.
  - 6. Or approved equal
- L. All Other Materials: Best commercial grades.

2.03 FASTENINGS & ACCESSORIES

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

2.04 BOLTS AND NUTS

- A. High-Strength Bolts (HSB): ASTM F3125 Grade A325 Type 1.
- B. Common Bolts: ASTM A307 Grade A.
- C. Blind Bolts: Boxbolt expansion anchors as manufactured by Kee Safety, Inc., Type HB-Hollo-Bolt as manufactured by EV IP LP, or approved equal.

2.05 FABRICATION

- A. All miscellaneous metal shall be fabricated in accordance with the approved shop drawings.
- B. Insofar as practicable, shop-prefabricate all items complete and ready for installation.
- C. Unless otherwise indicated on the drawings, weld all shop connections. All joints shall be tightly fitting, securely fastened, square, plumb, straight and true.
- D. Drill or punch all holes required for the attachment of work of other trades and for bolted connections. Burned holes are not acceptable.

2.06 SHOP PAINTING

- A. Preparation: Thoroughly clean all metal as described in Section 09 90 00 - Paints and Coatings.
- B. Painting: Shop-prime all steel except:
  - 1. Steel to be encased in concrete.
  - 2. Surfaces to be welded.
  - 3. Contact surfaces to be high-strength bolted.

2.07 WELDING AND WORKMANSHIP

- A. Prevent warping in finished product; use jigs if necessary.
  - 1. Grind welds smooth on exterior exposed surfaces.
  - 2. All work to standard tolerances, careless template work not acceptable.
- B. Relieve all exposed edges and corners.

2.08 GALVANIZING

- A. Unless noted otherwise on drawings all exterior steel work shall be hot-dip galvanized, weight of coating 1.5 oz. per square foot:
  - 1. ASTM A123 for assembled steel products.
  - 2. ASTM A123 for rolled shapes and plate 1/8-inch thick and heavier.
  - 3. ASTM A153 for iron and steel hardware.
- B. Repair minor damage to galvanizing by thorough cleaning of the damaged surfaces and the application of a fast-drying, cold-galvanizing compound for galvanized metal, iron and steel in accordance with Federal Specification TT-P-

641 G Type 1. Apply in strict accordance with the manufacturer's recommendations.

## 2.09 COATINGS

- A. Coat galvanized or other forms of zinc coating of exterior materials with the coating system specified in Section 09 90 00 - Paints and Coatings, for exterior weather-exposed galvanized surfaces.
- A. Coat non-galvanized exterior ferrous materials with coating system specified in Section 09 90 00 - Paints and Coatings, for exterior ferrous metals.
- B. Where fabrications are shop or factory - primed, apply primer immediately following cleaning and pretreatment to surfaces that will be exposed after assembly and installation and to concealed, non-galvanized surfaces. Provide a minimum dry film thickness of 2.0-mils per applied coat.
  - 1. Primer Paint for Ferrous Metals: Manufacturer's standard rust-inhibiting primer complying with applicable federal requirements governing application and service exposure. The primer shall be compatible with the finish coats of paint. Coordinate selection of metal primer with finish paint requirements specified in Section 09 90 00 - Paints and Coatings.
- C. Proprietary metal framing system components shall be furnished with manufacturer's standard galvanized coating.

## 2.10 FABRICATED ITEMS

- A. Steel Bollards and Guard Rails:
  - 1. General: As indicated on drawings.

## 2.11 MISCELLANEOUS

- A. Provide all other miscellaneous metal items and fastenings as noted or indicated on drawings. Requirements for galvanizing and coatings as specified in this Section apply to miscellaneous items.

# PART 3 EXECUTION

## 3.01 PREPARATORY REVIEW

- A. Inspection:
  - 1. Prior to all work of this Section, carefully inspect the installed work of all other trades affecting this work and verify that all such work is complete to the point where this installation may properly commence.
  - 2. Verify that all items to be embedded in concrete or masonry are in place, properly oriented, located and secured.
- B. Discrepancies: In the event of a discrepancy, do not proceed with fabrication or installation until resolved by the Engineer.

## 3.02 ERECTION

- A. Erect and install all miscellaneous metal items in strict accordance with the drawings, the approved shop drawings and the reference standards, aligning straight, plumb and level within a tolerance of 1 in 200.



- B. After the erection and installation are complete, touch up all shop priming coats damaged, using the priming paint specified for shop priming.

PART 4 MEASUREMENT AND PAYMENT

4.01 GENERAL

- A. No separate measurement or payment will be made for the Work required by this section. The cost for this portion of the Work will be considered incidental to, and included in the payments made for the applicable bid items.

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| End of Section |
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PART 1 GENERAL

1.01 SUMMARY OF WORK

- A. The extent and location of "Paints and Coatings" Work is indicated in the Contract Documents.
- B. Pavement striping will be completed by Port Maintenance.
- C. Surfaces Not to Be Painted
  - 1. Unless specifically specified otherwise, the following surfaces are not to be painted:
    - a. Exposed finish metals (aluminum, brass, bronze, stainless steel, copper, chrome).
    - b. Sealant, interior and exterior.
    - c. Ceramic tile, brick.
    - d. Exterior concrete (both precast and cast-in-place).
    - e. Glass and plastic laminate.
    - f. Resilient floor coverings, bases, mats.
    - g. Acoustic tile, lay-in panels, metal suspension systems.
    - h. Items having a complete factory finish, except items built into surfaces which have painted finish.
    - i. Permanently concealed surfaces need not be painted, except for prime coats on metal and millwork.

1.02 GOVERNING CODES, STANDARDS, AND REFERENCES

- A. Federal Specification Standards materials
- B. Manual of Uniform Traffic Control Devices paragraph 3B-18 layout
- C. Master Painter's Institute Inc. (MPI) standard specifications 90.00: Architectural Painting Specifications Manual.
- D. State Specification Standards materials

1.03 SUBMITTALS

- A. Submit material data. Furnish manufacturers' technical literature, standard details, product specifications, and installation instructions for all products.
- B. Submittal shall include the following:
  - 1. Submit color samples of all paints allowing ample time for consideration before the material to be painted is delivered or ready for painting. Where the same color stain is applied to different kinds of wood, carefully sample and test mixing proportions to arrive at the same relative appearance.

1.04 QUALITY ASSURANCE

- A. Standard Specifications: "Master Painter's Institute" (MPI), latest edition, published by the Master Painters Institute Inc., Las Vegas, Nevada (604) 298-7578.

- B. Application: Shall be by an experienced painter or a painting firm employing experienced personnel.
- C. Manufacturers' Specifications, Directions and Recommendations: Conform to manufacturers' specifications, directions and recommendations for best results in the use of each of their products for each condition. If results are at variance with these specifications, report the discrepancy to the Engineer for decision.
- D. Layout: The location, lettering size, and style of the surface regulatory signs shall be in accordance with the applicable portions of paragraph 3B-18 of the "Manual of Uniform Traffic Control Devices" as published by the U.S. Department of Transportation, Federal Highway Administration.

#### 1.05 PRODUCT HANDLING

- A. Delivery and Storage: Deliver paint materials in unbroken, unopened containers bearing the manufacturers' labels. Do not open containers or remove labels until the Engineer inspects and approves. Store materials in a dry location where the indicated ambient temperature of storage is not less than 50°F.
- B. Precautions: Take extraordinary care to prevent fire, open containers or inflammable materials only as needed. Keep rubbing cloths and oily rags in tightly closed metal containers, or remove from the site daily. Benzene, gasoline and distillate will not be permitted on the job site.
- C. Protection: Care shall be exercised in the handling of painting materials to ensure that this Work and the Work of other trades are not damaged before, during, or after the installation.
- D. Replacements: Repair or replace damaged Work, if any, as necessary to the approval of the Engineer at no additional cost to the Port.

### PART 2 PRODUCTS

#### 2.01 MATERIALS

- A. General: Unless otherwise specified, furnish paint, varnish, stain, enamel, lacquer, fillers and related products for prime and intermediate and finish coats, of a type brand and manufacture listed in Master Painter's Institute Manual, latest edition, factory-labeled for positive identification. Materials not specifically noted in the Master Painter's Institute and required for the Work such as linseed oil, shellac, thinners or other materials required for the Work, shall be of quality not less than required by applicable published Federal or State Specification Standards, and as manufactured by approved firms.
- B. Supplemental Specifications
  - 1. Additional Approved Manufacturers - Paint: Unless otherwise specified, in addition to approved manufacturers' listed in the Master Paint's Institute Manual, paint materials may also be as manufactured by Pratt & Lambert, provided best grade primers and finish coats manufactured by them (and recommended by them for the particular surfaces to be painted) are used.
- C. Materials selected for coating systems for each type of surface shall be the product of a single manufacturer.
- D. All paint materials shall be the respective equivalent, in the opinion of the Engineer, to the several types of materials specified. Deliver all materials to the job

## DIVISION 9 - FINISHES

### Section 09 90 00- Paints and Coatings

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site in the original, unbroken containers, bearing the manufacturers' labels indicating the contents and directions for use, storage and handling.

- E. Materials not specifically noted but required for the Work, such as linseed oil, shellac, thinners, or other materials, shall be the product of the approved paint manufacturer.

#### 2.02 MIXING

- A. Mix paint products according to the manufacturer's printed directions. Do not adulterate in any manner except upon specific approval of, and in the presence of, the Engineer.

#### 2.03 COLOR SELECTION

- A. Concrete filled bollards, corral bollards, and rails shall be painted safety yellow after fabrication.

#### 2.04 IDENTIFICATION

- A. The manufacturer's identification numbers and specifications listed are for the purpose of indicating the type and quality of paint product desired for the purpose indicated.

#### 2.05 SUBSTITUTIONS

- A. If the Contractor desires to use an alternate manufacturer's materials or methods of application, these shall be submitted in writing to the Engineer for review and approval prior to procurement of material. Substantiating technical data is required. Approval will not be granted unless, in the opinion of the Engineer, the quality of finished construction will be equal to that intended. Substitutions shall be at no additional cost to the Port.

### PART 3 EXECUTION

#### 3.01 GENERAL

- A. Apply the paints in accordance with the manufacturer's recommendations as to the application, weather and temperature conditions. Provide "highest" quality workmanship performed to the Engineer's satisfaction. Use clean equipment and brushes when applying paint; spread paint materials evenly, without runs, sags, laps, or brush marks, without variations in color, texture, or sheen and without "holidays." Vary colors or sheens between coats and apply all coats to uniform thicknesses. Cut sharp lines against glass, other materials and different colors. Recoat suction spots in the first coat on drywall as necessary to produce uniformity of color and gloss. Refinish any Work judged defective at no additional cost to the Port; repair all Work damaged during the progress of the construction. Leave finished surfaces clean, completely covered, uniform in appearance and satisfactory to the Engineer.

#### 3.02 SURFACE PREPARATION

- A. Provide means to control odors so that they do not affect or impact any Port, tenant.
- B. Ensure any generation of dust is contained and does not affect or impact any Port, tenant.

## DIVISION 9 - FINISHES

### Section 09 90 00- Paints and Coatings

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- C. Clean all surfaces thoroughly, removing all rust, mill scale, fabrication films, dust, dirt and other foreign matter from surfaces. Apply film to completely dry surfaces.
- D. Galvanized Metal: Thoroughly clean surfaces, wiping with mineral spirits, isopropanol, or xylol. If silicone surface treatments have been applied in the fabrication shop, use xylol; remove silicates or similar surface treatments and deposits of "white rust" by sanding or other approved abrasive methods. Thoroughly clean and rinse contaminants from surfaces.
- E. Ferrous Metal Surfaces: Thoroughly clean using mineral spirits, isopropanol, xylol, or toluol in accordance with SSPC SP-1. Take care to ensure that adequate ventilation is provided at all times when using solvents. Carefully rinse and clean surfaces before applying paint.
- F. Condition of Surfaces: Inspect and approve conditions of substrate surfaces scheduled to receive paint; notify the Engineer of any surfaces unsuitable for application as specified. The application of a paint finish constitutes an acceptance of the surface as suitable, unless directed to proceed in writing by the Engineer. Do no outside Work during wet or freezing weather, or until surfaces have thoroughly dried from the effect of such weather; see that proper temperatures and ventilation are maintained for all interior Work.
- G. Mixing and Thinning: Mix and thin paint products in strict accordance with the manufacturer's directions; mix and thin other materials in accordance with the "best" trade practices as approved.
- H. Sheen: Where gloss or sheen is specified or is listed as standard for approval for the Project, the terms refer to tested luster, shine, or sheen of the dry film. For purposes of this specification, luster, shine, or sheen is defined as follows when tested with a 60-degree gloss-meter; flat, 10-degree gloss or less; eggshell 11- to 19-degree gloss; satin, 20- to 30-degree gloss; semi gloss, 31- to 74-degree gloss; and gloss, 75-degree gloss or more.

#### 3.03 APPLICATION

- A. Number of Coats: As specified in paragraph 3.06 for each type of finish. On shop-primed Work, an additional prime coat is not intended.
- B. Thickness of Coats: Use ample undiluted materials; apply in a uniform thickness over entire areas. Do not exceed the manufacturer's recommended spreading rate per gallon.
- C. Colors of Coats: Tint prime coats if necessary to obtain uniform finish coats. Vary color between coats; the final coat shall exactly match approved samples.
- D. Approval of Successive Coats: Obtain the Engineer's approval of each coat before the succeeding coat is applied; if this approval is not obtained, the Engineer reserves the right to require an additional coat.
- E. Prime and finish door jambs by using brush or spray. Rollers or other methods are not acceptable.

#### 3.04 MECHANICAL OR ELECTRICAL EQUIPMENT

- A. Apply primer and two finish coats as specified for the appropriate metal surface, including ductwork, according to the finish schedule.

3.05 PROTECTION OF FINISHED WORK

- A. Use tarpaulins or drop cloths when working above or adjacent to completed Work; clean all paint splatters and stains from finished surfaces. Protect all Work from dust and insects.

3.06 PAINTING AND FINISHING SCHEDULES

- A. General: Painting and Finishing Titles and Code Numbers -References are from the MPI unless otherwise indicated. With linked cross-references in the MPI, they indicate coating, grades, manufacturers, and the like. Selections relate to surface, type, coating, grade, and named products and their manufacturers listed in the MPI. Provide Work on the drawings as scheduled, specified, and a directed. Consult MPI for surfaces not scheduled, submit proposed system(s) for approval and follow Engineer's directions.
- B. Exterior Painting and Finishing Schedule: Provide the Work as shown on the drawings and as scheduled following:
1. Structural Steel and Metal Fabrications: for low contact/low traffic areas (ducts, conduit, misc. steel)  
EXT 5.1D-G5: Two coats Alkyd Semi-Gloss finish over Alkyd Metal Primer.
  2. Structural Steel and Metal Fabrications: for high contact/high traffic areas (railings, bollards)EXT 5.1G: Two coats Pigmented Polyurethane finish over 1 tie coat high build epoxy over 1 coat epoxy zinc rich primer.
  3. Galvanized Metal: (not chromate passivated) for low contact / low traffic areas (ducts, conduit, misc. steel)  
EXT 5.3H-G5: Two coats Latex Semi-Gloss finish over waterborne primer.
  4. Galvanized Metal: (not chromate passivated) for high contact / high traffic areas (doors, railings, bollards)  
EXT 5.3L-G5: Two coats Pigmented Polyurethane Semi-gloss finish over epoxy primer.
  5. Asphalt Surfaces: for zone/traffic marking for drive and parking areas  
EXT 2.1A Spray apply Latex Zone/Traffic Marking paint in strick accordance with the manufacturer's instructions and guarantee.
  6. Concrete Horizontal Surfaces: for Zone/Traffic marking for drive and parking areas  
EXT 3.1E Spray apply Latex Zone/Traffic Marking paint in strick accordance with the manufacturer's instructions and guarantee.

PART 4 MEASUREMENT AND PAYMENT

4.01 GENERAL

- A. No separate measurement or payment will be made for the Work required by this section. The cost for this portion of the Work will be considered incidental to, and included in the payments made for the applicable bid items.

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| End of Section |
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PART 1 GENERAL

1.01 SUMMARY OF WORK

- A. The extent and location of “Electrical Work” Work is shown in the Contract Documents. This Section includes general requirements for accomplishing electrical Work as specified herein and indicated on the Drawings.
- B. Electrical hot Work may be required to be performed on portions of the electrical power distribution and utilization equipment. The Contractor and its subcontractors shall provide personal protection equipment (PPE), training, authority having jurisdiction (AHJ) safety compliance and all necessary tools for the execution of such Work.

1.02 GOVERNING CODES, STANDARDS AND REFERENCES

- A. FAA (Federal Aviation Administration)
- B. NFPA 70: National Electrical Code (NEC)
- C. NFPA 70 E: Standard for Electrical Safety in the Workplace
- D. Power Company
- E. State of Washington Dept. of Labor & Industries.
- F. Underwriters Laboratories, Inc.
- G. WAC 296-45
- H. State requirements for highway signage, flagging, and re-routing traffic
- I. State of Washington safety rules and health standards

1.03 SUBMITTALS

- A. Submit materials data in accordance with of Section 01 33 00 - Submittals. Furnish manufacturers’ technical literature, standard details, product specifications, and installation instructions.
- B. Submittals shall include the following:
  - 1. Review of Shop Drawings and Brochures shall not relieve the Contractor of responsibility for dimensions and/or errors that may be contained therein, or deviations from Contract Document requirements. It shall be clearly understood that the noting of some errors, but the overlooking of others does not grant the Contractor permission to proceed in error. Regardless of any information contained in the Shop Drawings and Brochures, the requirements of the Contract Documents shall govern and are not waived or superseded in any way by the review of the Shop Drawings and Brochures.
  - 2. Manufacturer Approval Drawings: Equipment that is laid out, configured, or designed by manufacturer based on performance specifications only shall be submitted to the Engineer for approval prior to release of drawings for manufacturing.
- C. Ordering Materials: Order materials within two (2) weeks of receiving reviewed submittals from the Engineer. Provide proof of order placement upon request. Failure to comply will be considered non-performance and progress payments will



be suspended until proof of order placement is reviewed and accepted by the Engineer.

- D. Provide weekly updated Submittal Log of all penetrations and cuts performed when cutting and patching for installation.

#### 1.04 DRAWINGS

- A. The electrical drawings are diagrammatic and are not intended to show all raceway, wiring, exact locations of equipment, terminations, or number or types of fittings required by the electrical system. Provide all related electrical Work which is specified herein, diagrammed or scheduled on the electrical drawings, required by code enforcing agencies and as indicated on other details or elevations for complete and operating electrical systems. Since the drawings of floor, wall, and ceiling installation are made at a small scale, outlets, devices, equipment, etc. are indicated only in their approximate location unless dimensioned or otherwise indicated. Locate outlets and apparatus symmetrically on floors, walls and ceilings where not dimensioned and coordinate such locations with the Work of other trades to prevent interferences. Verify all dimensions on the job. Do not scale the electrical drawings. Refer to Architectural and Mechanical shop drawings and project drawings for dimensions as applicable.

#### 1.05 PRODUCTS

- A. General: Products are specified by manufacturer name, description, and/or catalog number to show intended function and quality. Report discrepancies, such as discontinued equipment or catalog numbers, to the Engineer prior to bidding.
- B. Manufacturers: Provide only equipment specified in the Contract Documents or approved by addendum. Manufacturers' catalog numbers and descriptions establish the quality of product required.
- C. Warranty shall be manufacturer's standard or a minimum of one year unless noted otherwise in Division 26 Electrical Sections.

#### 1.06 SUBSTITUTIONS

- A. Comply with Section 00 26 00 – Substitution Procedures.

#### 1.07 QUALITY ASSURANCE

- A. All materials shall be new, unless noted otherwise. Properly store all materials and equipment for protection from physical damage or damage due to corrosion.
- B. Review accessibility of equipment for operation, maintenance and repair prior to installation. Proceed with installation only after unsatisfactory conditions have been corrected
- C. Equipment Manufacturer Qualifications: Equipment manufacturers shall have at least 10 years experience in manufacturing products and accessories similar to those for this Project, with a record of successful in-service performance.

#### 1.08 COORDINATION AND SCHEDULING

- A. Coordinate and schedule electrical Work with the Work of other trades. Every reasonable effort shall be made to prevent conflicts as to space requirements, dimensions, locations, code required working spaces, access openings, drawout and removal spaces or other matters tending to obstruct or delay the Work of other

trades. All changes caused by failure to coordinate shall be made at the Contractor's expense.

#### 1.09 SAFETY AND PROTECTION

- A. Safety Measures To Be Taken: The Engineer has not been retained or compensated to provide design and construction review services relating to the Contractor's safety precautions or to the means, methods, techniques, sequences or procedures required for the Contractor to perform his Work. The Contractor will be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the Work. This requirement will apply continuously and not be limited to normal working hours. The duty of the Engineer to conduct construction observations of the Contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures, in, on or near the construction site. It shall be the Contractor's responsibility to comply with applicable safety and health regulations for construction. The Contractor shall consult with the state or federal safety inspector for interpretation whenever in doubt as to whether safe conditions do or do not exist or whether they are or are not in compliance with state or federal regulations.
- B. Protection: The Contractor shall take whatever measures are required to ensure that electrical safety and protection are maintained, including the proper covering, signage, and securing of "live" circuits.

#### 1.10 ELECTRICAL SERVICE

- A. Continuity of Service: Provide temporary service to existing systems as required to maintain continuous operation without reducing equipment efficiency. Coordinate the extent of temporary services with the Engineer.
- B. Power Outages: Outages shall be kept to an absolute minimum. Any essential outages required in the course of construction, whether for temporary services, cutovers, or testing, shall be closely coordinated with the Engineer and shall occur at times approved by the Port.

#### 1.11 DEMOLITION

- A. General: De-energize circuits in demolition areas to ensure a safe condition.
- B. Existing material that is not to be reused or is not requested by the Port to be retained shall be removed from the site and shall become the property of the Contractor for salvage. All materials removed from the site shall be disposed of at facilities licensed for the material.
- C. In areas of where alterations are to be done, existing conduits may be reused, with the approval of the Engineer, in their original location, unless noted otherwise.
  - 1. Wiring that is discovered with damaged or deteriorating insulation shall be replaced with new.
  - 2. No existing conduit or wiring once removed may be reused, unless noted otherwise.
- D. Remove all unused exposed conduit except where located in or above existing construction, which is not being altered and would require removal and replacement of the existing construction.

1.12 ELECTRICAL EQUIPMENT INSTALLATION

- A. Comply with Division 1 General Requirements Sections for environmental regulatory requirements, quality control, construction facilities and temporary controls, traffic control, access control, and signage requirements.
- B. Provide electrical connection of all equipment having electrical requirements. Make final connections for all Owner-furnished equipment.
  - 1. Make electrical connections in accordance with manufacturer's written instructions, with recognized industry practices, and complying with requirements of the National Electrical Code.
  - 2. Verify all electrical loads (voltage, phase, full load amperes, number and point of connections, minimum circuit capacity, etc.) for equipment furnished under other divisions of this specification by reviewing respective shop drawings furnished under each division.
  - 3. Meet with each subcontractor furnishing equipment requiring electrical service to review electrical characteristics for each equipment item before rough-in begins. Report any variances from electrical characteristics noted on the electrical drawings to the Engineer before proceeding with rough-in Work.
- C. National Electrical Code Compliance: Comply with applicable portions of National Electrical Code as to the type of products used and provisions for electrical power connections.
- D. Underwriters Laboratories acceptance: All material and equipment within the scope of the UL Re-examination service shall be approved by Underwriters Laboratories, Inc. for the purpose for which they are used and shall bear their label.
- E. Cutting and Patching: Provide and coordinate the locations of all openings required in the building construction for installation of the Work.
  - 1. Drill penetrations required through existing concrete slabs or walls with a diamond core drill. In no case shall any structural member be cut.
  - 2. Provide approved sleeves as required for electrical penetrations through floors and walls. Seal all openings around conduits in sleeves with a material of equal fire rating as the surface penetrated.
  - 3. Obtain written approval from a Structural Engineer licensed in the State of Washington prior to cutting any reinforcing bars.
- F. Equipment Accessibility: Comply with applicable codes and install equipment to be accessible for operation, maintenance or repair. Equipment deemed inaccessible shall be reported to the Engineer, and relocated as directed.
- G. Electrical Work Exposed to Weather: Provide weatherproof enclosures and corrosion protection for all ferrous metal portions of electrical Work exposed to weather, including conduit, clamps, supports, and hardware.
  - 1. All galvanized electrical equipment exposed to the weather shall be painted to prevent leaching of zinc into the stormwater system. Paint coating shall be a minimum of 3 mils thick, and application as part of the manufacturing process is preferred over painting in the field.

1.13 EARTHWORK

- A. Existing Underground Utilities: Verify, before any excavation, the location of all existing utilities in the area of new construction. Exercise extreme care with all Work adjacent to these utilities. A designated representative of the Contractor shall advise the Port of Tacoma and Tacoma Public Utilities where they can be contacted in case of emergency.
  - 1. Review drawings and notify the Engineer of any deviations in duct runs to avoid conflicts with existing utilities. Any changes in the Work resulting in the same quantities of trenching material shall not entitle the Contractor to any claim for an addition to this Contract.
  - 2. The Contractor is responsible for any damage done to existing utility installations during the course of the Work. All damaged installations shall be replaced to the satisfaction of the utility or agency involved at the expense of the Contractor.
- B. Comply with the Division 1 General Requirements and Division 31 Earthwork requirements for site work, including excavation, bracing and shoring, erosion control, requirements for temporary pumping equipment, backfilling, patching and paving, sod replacement, removal of surplus material, and requirements for traffic control during construction.

1.14 PROJECT FINALIZATION

- A. Fully test and adjust all equipment installed under this specification and demonstrate its proper operation.
  - 1. Testing that involves use of instruments other than meggers and volt-ohm meters shall be performed by an independent testing agency.
- B. Where circuits have been added, removed or relocated on panelboards and switchboards, the Contractor shall provide to the Port as-built panel and switchboard schedules in Port standard excel format. Coordinate submittal of schedules with Engineer.
- C. Present the Port with Certificate of Inspection from the Authorities Having Jurisdiction upon completion of the Work stating that all Work complies with all applicable Codes and Ordinances.
- D. Comply with Division 1 General Requirements for cleaning, closeout procedures, commissioning, training, operations and maintenance manuals, and record drawings.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

PART 4 MEASUREMENT AND PAYMENT

4.01 GENERAL

- A. No separate measurement or payment will be made for the Work required by this section. The cost for this portion of the Work will be considered incidental to, and included in the payments made for the applicable bid items.

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| End of Section |
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## **PART 1 - GENERAL**

### **1.1 SUMMARY**

- A. This Section includes requirements for acceptance testing by an independent testing agency.
- B. Related Documents: The provisions and intent of the Contract, the General and Supplementary Conditions, and Division 1 Specification Sections, apply to the Work as if specified in this Section.

### **1.2 APPLICABLE PUBLICATIONS**

- A. All inspections and tests shall be in accordance with the following applicable standards and codes. These publications form a part of this specification to the extent referenced.
  - 1. American Society for Testing and Materials (ASTM):
    - a. D877 -- Dielectric Breakdown Voltage of Insulating Liquids Using Disk Electrodes.
  - 2. Insulated Cable Engineers Association (ICEA):
    - a. S-68-516 -- Ethylene-Propylene-Rubber Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy.
  - 3. National Electrical Manufacturers Association (NEMA):
    - a. WC8 -- Ethylene-Propylene-Rubber Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy. (ICEA S-68-516)
  - 4. Institute of Electrical and Electronic Engineers (IEEE):
    - a. 81 -- Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System.
    - b. 400 Guide for Making High-Direct-Voltage Tests on Power Cable Systems in the Field.
  - 5. National Electrical Code - NEC
  - 6. American National Standards Institute - ANSI
  - 7. National Fire Protection Association - NFPA
  - 8. Occupational Safety and Health - OSHA 29CFR Part 1910.269
  - 9. International Electrical Testing Association - NETA
  - 10. Nationally Recognized Testing Laboratory Approved - NRTL
  - 11. State of Washington Administrative Code - WAC
  - 12. Tacoma Public Utilities Amendments

### **1.3 TESTING FIRM QUALITY ASSURANCE**

- A. The Testing Firm shall be an independent testing organization which can function as an unbiased testing authority, professionally independent of the manufacturers, suppliers and installers of equipment or systems being evaluated, and regularly engaged in the testing of electrical equipment, devices, installations and systems. The Testing Firm shall meet Washington State Department of Labor and Industries and Tacoma Power criteria for accreditation of testing laboratories, for electrical product testing.

- B. Testing Firm's Field Supervisor Qualifications: A person, regularly employed by the firm for testing services and currently certified by the International Electrical Testing Association to supervise on-site testing specified.

#### 1.4 GENERAL REQUIREMENTS

- A. General Scope: Engage the services of a recognized independent testing firm for the purpose of performing quality control inspections and tests as herein specified.
  - 1. The Testing Firm shall provide all material, equipment, labor and technical supervision to perform all tests and inspections to determine suitability of equipment for energization and continued reliable operation.
  - 2. The purpose of these tests is to assure all tested electrical equipment, both Contractor- and Owner-supplied, is operational within industry and manufacturer's tolerances and equipment is installed and functioning in the system in accordance with design specifications of the Engineer.
  - 3. The Testing Firm shall inspect, test and program the following equipment:
    - a. 480Y/277V panelboard and circuit breakers.
    - b. 600V cables.

#### 1.5 SUBMITTALS

- A. Submittals by the Testing Firm:
  - 1. Field Test Reports: Maintain a written record of all tests. Assemble and certify a final test report upon completion of the project, showing dates, personnel making tests, equipment used, equipment or material tested, tests performed, and results. The field test forms included in the report shall be the original hand-written test results that were recorded and signed by the individual(s) who performed the testing.
  - 2. Qualification Data: For the Testing Firm.

#### 1.6 DIVISION OF RESPONSIBILITY

- A. The Contractor shall perform routine insulation-resistance, continuity, and rotation tests for all distribution and utilization equipment prior to, and in addition to tests performed by the Independent Testing Firm.
- B. The Contractor shall supply a suitable and stable source of electrical power to each test site. The Testing Firm shall determine the specific power requirements.
- C. The Contractor shall notify the Testing Firm when equipment becomes available for acceptance tests. Coordinate work to expedite project scheduling.
- D. Harris Group shall supply a short-circuit and protective device coordination study, a protective device setting form, a complete set of electrical drawings and specifications, and any pertinent change orders to the Testing Firm prior to commencement of testing.
- E. The Testing Firm shall notify the Engineer prior to commencement of any testing.

#### 1.7 SAFETY

- A. The Contactor shall adhere to safety procedures as required by the following:
  - 1. Occupational Safety and Health Act.
  - 2. Accident Prevention Manual for Industrial Operations, National Safety Council.
  - 3. ANSI/NFPA 70E, Electrical Safety Requirements for Employee Workplaces.



4. American National Standards for Personnel Protection: Lockout/Tagout.
5. Applicable state and local safety operating procedures.
- B. Perform all tests with apparatus de-energized, except where specifically required.
- C. Designate a Project Safety Representative to supervise operations with respect to safety.

1.8 WORK INCLUDED:

- A. The Contractor shall perform tests of the electrical system to assure code compliance and proper system operation according to the intent of the contract documents.

- B. Applicable Codes, Standards & References for Tests:

All inspections and tests shall be in accordance with the following applicable codes and standards except as provided otherwise herein.

1. National Electrical Code - NEC
2. National Electrical Manufacturer's Association - NEMA
3. American Society for Testing and Materials - ASTM
4. Institute of Electrical and Electronic Engineers - IEEE
5. National Electrical Testing Association - NETA
6. American National Standards Institute - ANSI
7. State and Local Codes and Ordinances
8. Insulated Cable Engineers Associate - ICEA
9. Association of Edison Illuminating Companies - AEIC

1.9 CIRCUIT TESTS:

- A. The Contractor shall perform routine insulation resistance, continuity and grounding tests for all distribution and utilization equipment prior to their connection and energization.
- B. A standard megger-type instrument shall be used to demonstrate insulation values are at least 200 megohms, ground system is continuous and neutral system is isolated from grounding system except at the systems' single ground point.
- C. System defects, indicated by the circuit tests, shall be corrected. Tests shall be repeated until satisfactory results are obtained.

1.10 GROUNDING TEST:

- A. Measure the ohmic value of the Electrical Service Entrance "System Ground" with reference to "Earth Ground" using multiple terminal, fall of potential methods and suitable test instruments.
- B. Maximum resistance to ground shall be less than 10 ohms. Notify the Engineer if this resistance value is not obtained for the initially installed system; and then provide corrective measures as required to reduce ground resistance to less than 10 ohms.

1.11 PHASE BALANCE TESTS:

- A. Verify the balance of the electrical system's phase currents. Re-assign load connections necessary to obtain a balance that is acceptable to the Port of Tacoma.



## **PART 2 - PRODUCTS**

### **2.1 TEST EQUIPMENT**

- A. Utilize test equipment in good mechanical and electrical condition with shape and frequency output waveforms appropriate for the test and the tested equipment.
  - 1. Accuracy shall be appropriate for the test being performed, but not in excess of 2% of the scale being used.
- B. Field test meters used to check installed power system instrument calibration must have an accuracy higher than that of the instrument being checked.

### **2.2 Test Instruments and Calibration**

- A. The Testing Firm shall have a calibration program which assures that all applicable test instruments are maintained within rated accuracy as dictated by the National Institute of Standards and Technology (NIST).
  - 1. Instruments calibration schedule:
    - a. Field instruments: Analog, 6 months maximum; Digital, 12 months maximum
    - b. Laboratory instruments - 12 months.
    - c. Leased specialty equipment - 12 months (where lessor guarantees accuracy).
  - 2. Provide visible dated calibration labels on all test equipment.
  - 3. Maintain up-to-date instrument calibration instructions and procedures for each test instrument.
- B. Provide all testing equipment required including, but not limited to, the following:
  - 1. Wet and dry-bulb thermometer.
  - 2. 500V and 1000V meggers.
  - 3. Battery-powered portable telephone sets
  - 4. DC high-potential adjustable test set for EPR medium-voltage cables.
  - 5. Multimeter (Volts-Ohms-Millimeter) rated 20k ohms per volt or higher.
  - 6. Three-phase rotation meter, 60-Hz.
  - 7. Commercial model three-point earth ground test set that reads directly in ohms.
  - 8. Miscellaneous cable, test leads, jumpers, test lights, buzzers, bells, switches, plugs, receptacles, and other test equipment as required.
  - 9. Insulation Tester (Megger): 2,000 Megohms.
  - 10. Dranetz, BMI Model 355, Fluke 41 or equivalent recording type harmonic analyzer to display individual and total harmonic currents and voltages.
  - 11. Clamp-on Ammeter.
  - 12. Circuit Breaker Current Injections Test Set.

### **2.3 Test Report**

- A. Include the following:
  - 1. Summary of Project.

2. Description of equipment tested.
  3. Description of test.
  4. Test results.
  5. Analysis and recommendations.
  6. Appendix, including appropriate test forms.
  7. List of test equipment used and calibration date.
- B. Furnish 3 copies of the completed report to the Engineer no later than thirty days after completion of the tests.

**2.4 MATERIALS AND INSTRUMENTATION:**

- A. Contractor and/or testing agency shall supply all apparatus and materials required for indicated tests.
- B. Contractor shall include all costs associated with testing in bid proposal.

**2.5 TEST REPORT(S):**

- A. Furnish minimum three (3) bound copies of test reports, as specified herein, for inclusion into the project operation and maintenance manuals. Each test report shall include the following items:
1. Name, address and telephone number of the testing agency.
  2. Name(s) of personnel conducting the tests
  3. Type of test
  4. Description of test procedure
  5. List of items tested
  6. List of actual test equipment including make, model(s), serial number(s) and calibration date(s) as applicable.
  7. Test results
  8. Conclusion and recommendations

**PART 3 - EXECUTION**

**3.1 Testing**

- A. General requirements: Test all wire, cable, and electrical equipment installed and connected by the Contractor to assure proper installation, setting, connection, and function as indicated or to conform to Contract Documents and manufacturer's instructions. As an exception to requirements stated elsewhere in the Contract, give the Engineer at least 7 calendar days' notice of the dates and times scheduled for tests (except megger tests) so Engineer may witness the tests. After the installation has been completed, the Contractor shall conduct an operating test demonstrating all equipment and devices operate in accordance with the requirements of the plans and specifications.
1. Perform tests recommended by the equipment manufacturer.
  2. Perform additional tests issued by the Engineer which are required due to field conditions.
  3. Be responsible for all damage to equipment or material due to improper test procedures or test apparatus handling.

3.2 IDENTIFICATION

- A. Upon completion of the tests and inspections noted in these specifications, attach a label to all serviced devices indicating the date serviced and the testing company responsible.

3.3 TESTING PROCEDURE:

- A. All tests shall be conducted according to applicable industry standards.

3.4 SCHEDULING:

- A. Notify Engineer at least seven (7) calendar days prior to performance of any test.

3.5 TRANSMITTAL OF REPORTS:

- A. Transmit test reports to the Engineer per Section 01 77 00 - Closeout Procedures.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 GENERAL CONDITIONS:**

- A. Bidding documents including Division 1 General Conditions, Supplementary General Conditions, Published Addenda and related work in other Divisions form an integral part of these Specifications.

### **1.2 DEFINITIONS:**

- A. The term "provide" shall mean furnish, install and connect equipment and materials complete in operating condition.
- B. The term "approved" as used herein shall mean the written approval of the Engineer.
- C. NEC means National Electrical Code.
- D. The term "code" as used herein shall mean all applicable National, State and local codes.

### **1.3 WORK INCLUDED:**

- A. The Electrical work consists of furnishing, installing, testing and placing in satisfactory operation all equipment, materials, devices and appurtenances, necessary to provide a complete electrical system according to the intent of the Drawings and Specifications. In general this includes all labor, materials, equipment, tools, etc. to complete the electrical work.
- B. There will be multiple contractors working on the site. The Contractor for this project is required to coordinate work for this project with work of the other contractors on site.
- C. All metal fabrications are to be steel, as indicated on the Drawings. Provide metal fabrications as 316 stainless steel where identified as such. The work shall consist of furnishing all materials, labor, and equipment for fabricating and/or repairing, PVC coating, painting, and erecting metal fabrications, all in accordance with the Drawings, notes, and this specification.

### **1.4 INTENT OF DRAWINGS:**

- A. The Electrical Drawings are intended to serve as working Drawings for general layout. Equipment, switches, panels, disconnects and raceway locations are partially diagrammatic and do not necessarily indicate actual routings or all appurtenances required for a complete installation.
- B. Minor changes in the locations of raceways, outlets and the like, from those shown on the Plans, shall be made without extra charge if so directed by the Engineer before installation.
- C. Contractor is required to take all working dimensions from civil drawings. Do not scale electrical Drawings.

### **1.5 MANUFACTURERS' RECOMMENDATIONS:**

- A. Make all installations in strict accordance with manufacturers' published recommendations and details. All equipment and materials recommended by them shall be considered as part of this contract.

### **1.6 RELATED WORK:**

#### **A. EQUIPMENT FURNISHED BY OTHERS:**

- 1. All equipment furnished for this project shall be coordinated with the Drawings to ensure correctness of Voltage, Phase and Ampacity. Equipment served by single circuit or feeder shall be provided with appropriate internal wiring including fusing of multiple circuits as required by code.

2. Control Voltages shall not exceed 120 volts. Provide control transformers for higher line voltages. Control transformers shall be connected from phase to neutral.

1.7 SUPERVISION AND COORDINATION:

- A. Contractor shall have a responsible person in charge at the site any time work is in progress or when necessary for coordination with other trades.

1.8 CODES AND REGULATIONS:

- A. All work shall conform to current applicable National, State and local Codes; these shall be regarded as the minimum standard of quality for material and workmanship. Contractor shall provide all Labor and Material that may be required for compliance with Code Requirements or Code Interpretations, although not specifically detailed on the Drawings or in the Specifications. Contractor shall become familiar with all the following codes prior to bidding.
  1. ASTM American Society for Testing and Materials
  2. NBFU National Board of Fire Underwriters
  3. NEC National Electrical Code
  4. WAC Washington State Administrative Code
  5. NESC National Electrical Safety Code
  6. NEMA National Electric Manufacturers Association
  7. NFPA National Fire Protection Association
  8. UL Underwriters Laboratories, Inc.
  9. ICEA Insulated Cable Engineer's Associations
  10. CBM Certified Ballast Manufacturers
  11. IBC International Building Code
  12. ETL Electrical Testing Laboratories
  13. --- Tacoma Public Utilities Standards
- B. Nothing in these Drawings and Specifications shall be construed as permitting work not conforming with governing codes.
- C. The Contractor shall not be relieved from complying with any requirements of these contract documents which may exceed, but not conflict with requirements of the governing codes.
- D. Contractor shall include in bid all costs to have a Department of Labor & Industries approved firm to evaluate the installation safety, and compliance with code as required per WAC 296-40-100 for any equipment specified or furnished that is not UL labeled.
- E. For equipment furnished by others that is not UL labeled the contractor shall not connect the equipment to the electrical system until receiving written approval by the electrical authority having jurisdiction.

1.9 PERMITS AND FEES:

- A. Obtain and pay all fees for licenses, permits and inspections required by laws, ordinances and rules governing work specified herein. Arrange for inspection of work and provide inspectors with all necessary assistance.

1.10 WORKMANSHIP:

- A. All work shall be done by competent craftsmen skilled in the specific work to be done. Equipment shall be installed in a neat and workmanlike manner following the best practice of

the trade.

1.11 OPERATING INSTRUCTIONS:

- A. Fully instruct the Owner's designated representatives in the operation and maintenance of all components of the electrical system upon completion of the work and after all tests and final inspection(s) by the Authority(s) Having Jurisdiction.

1.12 AS-BUILT RECORD DRAWINGS:

- A. See Specification Section 01 77 00.

1.13 ELECTRICAL EQUIPMENT OPERATION AND MAINTENANCE (O & M) MANUALS:

- A. See Specification Section 01 78 23.

**PART 2 - PRODUCTS**

2.1 GENERAL:

- A. All materials shall be new, free from defects, of the quality specified herein and on the Drawings. Materials shall be designed to ensure satisfactory operation and manufacturer's rated life in the prevailing environmental conditions where they are being installed. They shall be listed by Underwriter's Laboratories or a Washington Administration Code (WAC) recognized testing laboratory for use under these conditions.
- B. Each type of material shall be of the same make and quality throughout the job. The materials furnished shall be the latest standard design products of manufacturers regularly engaged in their production.

2.2 TECHNICAL DATA:

- A. Technical information contained herein relies entirely on tests and ratings provided by manufacturers who are solely responsible for their accuracy. The Engineer using this information in no way implies they have tested or otherwise verified the results of published manufacturer's information.

2.3 AS SPECIFIED EQUIPMENT:

- A. This specification generally lists only one make and model number for each item of equipment or material required for the project. This is not intended to be restrictive but is intended to indicate the standard of quality, design and features required.
- B. In addition, the listed product is the basis of the design regarding physical size, electrical power requirements and performance. The product so identified is designated "as specified."

2.4 COMPLETE SYSTEMS:

- A. All systems specified herein and shown on the Drawings shall be complete and operational in every detail. Mention of certain materials in bidding documents shall not be construed as releasing the Contractor from furnishing additional materials required by the manufacturer, installation methods, codes and performing all labor required to provide a complete and operable system.

2.5 SUBMITTALS:

- A. Submittal items: Submittals shall include, but not be limited to the following items:
  - 1. Raceways
  - 2. Wires (600V)
  - 3. Grounding Equipment
  - 4. Wiring Devices

- 5. Nameplates
- 6. Items Requested by the Port of Tacoma

### **PART 3 - EXECUTION**

#### **3.1 PROTECTION OF WORK:**

- A. Protect all work, wire, materials and equipment installed under this Division against damage by other trades, weather conditions or any other causes. Equipment found damaged or in other than new condition will be rejected as defective.
- B. Equipment shall be kept covered or enclosed to exclude moisture, dust, dirt, cement, or paint and shall be free of all such contamination before acceptance. Enclosures and trims shall be in new condition, free of rust, scratches or other finish defects. Properly refinish in a manner acceptable to the Engineer if damaged.
- C. Keep conduit and raceways closed with suitable plugs or caps during construction to prevent entrance of dirt, moisture, concrete or foreign objects. Pull a properly sized mandrel through each conduit prior to installation of wire or pull string for empty conduits and within 24 hours of concrete placement (duct tape not acceptable). Raceways shall be clean and dry before installation of wire and at the time of acceptance.
- D. Make up and insulate wiring promptly after installation of conductors. Wire shall not be pulled-in until raceways are complete, all bushings are installed and raceway terminations are completed nor pulled into conduit embedded in concrete until after the concrete is placed and forms are removed.

#### **3.2 CUTTING AND PATCHING:**

- A. Obtain permission from the Engineer prior to cutting. Locate cuttings so they will not weaken structural components. Cut carefully and only the minimum amount necessary. Cut concrete with diamond core drills or saws except where space limitations prevent the use of such equipment.
- B. All construction materials damaged or cut into during installation must be repaired or replaced with materials of like kind and quality as original materials by skilled labor experienced in that particular building trade.

#### **3.3 PAINTING:**

- A. Equipment scratched or marred in shipment or installation shall be refinished to the satisfaction of the Engineer.

#### **3.4 LABELING:**

- A. Clearly and properly label the complete conduit only and electrical system, as specified herein, to indicate the loads served or the function of each item of equipment connected under this contract. All labels shall be stamped Brass/Aluminum type. Seton or equal.
- B. Stamped Brass/Aluminum tags shall have source end point, circuit breaker, fused switch, equipment name or equipment ID.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 SUMMARY OF WORK:**

- A. The extent and location of "600 Volt or Less Wire and Cable" Work is shown in the Contract Documents. This section includes requirements for insulated copper stranded conductors and associated connectors, splices, and terminations for general power and control use at voltages below 600 volts, for sizes #14 AWG through 750 kcmil.

### **1.2 GOVERNING CODES, STANDARDS AND REFERENCES**

- A. ASTM B3 (American Society for Testing and Materials) – Standard Specification for Soft or Annealed copper Wire
- B. ASTM B8 (American Society for Testing and Materials) – Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft
- C. NECA (National Electrical Contractors Association) - National Electrical Installation Standards
- D. ANSI/NEMA WC 70/ICEA S-95-658 – Power Cables Rated 2,000V or Less for the Distribution of Electrical Energy
- E. NFPA 70 (National Fire Protection Association) – National Electrical Code
- F. NETA (International Electrical Testing Association) – Acceptance Testing Specifications
- G. UL 44 (Underwriters Laboratories) – Thermoset-Insulated Wires and Cables
- H. UL 62 (Underwriters Laboratories) – Flexible Cords and Cables
- I. UL 82 (Underwriters Laboratories) – Electric Gardening Appliances
- J. UL 854 (Underwriters Laboratories) – Service-Entrance Cables

### **1.3 SUBMITTALS**

- A. Product Data: For each type of product.
- B. Qualification Data: For testing agency.
- C. Field quality-control reports.

### **1.4 QUALITY ASSURANCE**

- A. All wire and cable shall be new and made of copper. No aluminum wire and cable allowed, unless otherwise noted.
- B. Listing and Labeling: Provide wire and cable that are Listed and Labeled as defined in NFPA 70, Article 100 and marked for specific types, sizes, and combinations of conductors and connected items.
- C. Comply with NFPA 70.
- D. Testing Agency Qualifications: Member company of NETA or an NRTL.
  - 1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

## **PART 2 - PRODUCTS**

### **2.2 PACKAGING:**

- A. Conductors shall be delivered to the job site in approved original cartons, or on reels as



recommended by the manufacturer, and shall bear the Underwriter's Label. Reels shall be provided with suitable protection to prevent fork-lift damage to conductors during shipment or storage prior to use.

2.3 CONDUCTORS - 600 VOLTS:

- A. Stranded Copper, insulated for 90 degree centigrade and 600 volts.
- B. Insulation type XHHW-2. Insulation requirements may vary per the NEC where necessary to suit more stringent installation conditions.

2.4 CONNECTORS - 600 VOLTS:

- A. Branch circuit conductor splices:
  - 1. Pre-insulated "twist-on" type or "crimped-on" type as approved (Scotch-lok, Ideal or equal).
- B. Terminator lugs of No. 12 wire and smaller:
  - 1. Spade, insulated type to be tool applied.
- C. Terminator lugs for No. 10 wire or larger:
  - 1. Two bolt (or approved positive restraint), tool applied compression type (Burndy or equal).

2.5 INSULATING MATERIALS:

- A. Insulating tape or heat shrink tubing shall have the equivalent rating of the applicable conductor insulation (Scotch 3M, RAYCHEM or equal).

2.6 PLASTIC CABLE TIES:

- A. Nylon, or equivalent, locking type (T&B or equal).

**PART 3 - EXECUTION**

3.1 GENERAL:

- A. Install all wiring in raceway.

3.2 CONDUCTOR TYPES, REFERENCED ON PLAN:

- A. Conductors shall be stranded copper.

3.3 CONDUCTOR COLORING CODE:

- A. Conductor color coding shall be as follows:
  - 1. 208/120 volt system
    - a. A Phase - Black
    - b. B Phase - Red
    - c. C Phase - Blue
    - d. Neutral - White
    - e. Grounding - Green
  - 2. 480/277 volt system
    - a. A Phase - Brown
    - b. B Phase - Orange

- c. C Phase - Yellow
- d. Neutral -Gray
- e. Grounding - Green with Yellow Trace
- f. Other Colors - Switched Wires

- B. Conductors shall have colored insulation except wires larger than #8 may be black with colored tape identification at all terminations and splices.
- C. Additional colors may be used where such colors will help in identifying wires and different systems.

3.4 CONDUCTOR INSTALLATION:

- A. Raceways shall be complete, clean and free of burrs before pulling conductors.
- B. U.L. approved pulling compounds may be used with the residue cleaned from the conductors and raceway entrances after the pull is made.
- C. Contractor shall obtain the manufacturer's published recommendations for the handling, pulling and terminating of the cable. Contractor shall perform work in accord with manufacturer's recommendations.
- D. Pulleys or blocks shall be used for alignment of the conductors when pulling. Pulling shall be in accordance with manufacturer's specifications regarding pulling tensions, bending radius of the cable and compounds. No mechanical pulling means shall be used for wires No. 8 AWG and smaller. Cables shall be pulled by the conductor, not by the insulation or shielding.

3.5 MOISTURE PROTECTION:

- A. Cable ends shall be protected at all times from moisture. Provide approved heat-shrink end caps or equivalent for all unterminated cable ends.

3.6 TERMINATIONS - COPPER CONDUCTORS 600 VOLTS:

- A. Control and special systems wires shall be terminated with a crimped on lug when terminating at a screw connection.
- B. All screw and bolt type connectors shall be made up tight and retightened after an eight-hour period. Tighten all bolted connections with a ratcheting type torque wrench per manufacturer's standards.
- C. All tool applied crimped connectors shall be applied per manufacturer's recommendations and physically checked for tightness.

**END OF SECTION**

PART 1 GENERAL

1.01 SUMMARY OF WORK

- A. The extent and location of “Hangers and Supports for Electrical Systems” Work is shown in the Contract Documents. This Section includes the following:
  - 1. Hangers and supports for electrical equipment and systems.
  - 2. Construction requirements for concrete bases.
- B. Definitions
  - 1. EMT: Electrical metallic tubing.
  - 2. IMC: Intermediate metal conduit.
  - 3. RMC: Rigid metal conduit.

1.02 GOVERNING CODES, STANDARDS, AND REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.
  - 1. ASTM (American Society for Testing and Materials)
    - a. ASTM A325 – Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
    - b. ASTM A36/A36M – Carbon Structural Steel
    - c. ASTM A780 – Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
    - d. ASTM A1011/A1011M – Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
  - 2. AWS (American Welding Society)
    - a. AWS D1.1/D1.1M – Structural Welding Code – Steel
  - 3. MSS (Manufacturers Standardization Society of the Valve and Fittings Industry)
    - a. MSS SP-58 Pipe Hangers and Supports – Materials, Design, Manufacture, Selection, Application and Installation
  - 4. MFMA (Metal Framing Manufacturers Association)
    - a. MFMA-4 Metal Framing Standards Publication
  - 5. NECA (National Electrical Contractors Association)
    - a. NECA 1 – Standard Practice of Good Workmanship in Electrical Construction
    - b. NECA 101 – Standard for Installing Steel Conduits (Rigid, IMC, EMT)

6. NFPA (National Fire Protection Association)
  - a. NFPA 70 (National Fire Protection Association) – National Electrical Code
7. OSHA (Occupational Safety & Health Administration)
  - a. OSHA 29 CFR 1910.7 – Occupational Safety and Health Standards – Definition and requirements for a nationally recognized testing laboratory
8. SSPC (The Society for Protective Coatings)
  - a. SSPC-PA 1 – Shop, Field, and Maintenance Painting of Steel

#### 1.03 SUBMITTALS

- A. Submit materials data in accordance with Section 01 33 00 – Submittals. Furnish manufacturer's technical literature, standard details, project specifications, and installation instructions for all products.
- B. Submittals shall include the following:
  1. Product Data: For the following:
    - a. Steel slotted support systems.
    - b. Nonmetallic slotted support systems.
  2. Shop Drawings: Show fabrication and installation details and include calculations for the following:
    - a. Trapeze hangers. Include Product Data for components.
    - b. Steel slotted channel systems. Include Product Data for components.
    - c. Nonmetallic slotted channel systems. Include Product Data for components.
    - d. Equipment supports.
  3. Field quality-control reports.
    - a. Test procedures used.
    - b. Test results that comply with requirements.
    - c. Results of failed tests and corrective action taken to achieve test results that comply with requirements.

#### 1.04 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a nationally recognized testing laboratory as defined by OSHA in 29 CFR 1910.7 and that is acceptable to authority having jurisdiction.
- B. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- C. Comply with NFPA 70.

1.05 COORDINATION

- A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified together in Division 3 Concrete.

1.06 PERFORMANCE REQUIREMENTS

- A. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.
- B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

PART 2 PRODUCTS

2.01 SUPPORT ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Cooper B-Line, Inc.
  - 2. ERICO International Corporation.
  - 3. Thomas & Betts Corporation.
  - 4. Unistrut; Atkore International.
  - 5. G-Strut; Gregory Industries.
  - 6. Or Approved Equal.
- B. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.
  - 1. 1-5/8 inch x 1-5/8 inch cross section.
  - 2. Formed from 0.1046 inch thick steel.
  - 3. Slots at maximum of 2 inches on center in webs, and flange edges turned toward web.
  - 4. Materials: ASTM A1011/A1011M, Grade 33
  - 5. Finish: Baked, rust inhibiting, acrylic enamel paint applied after cleaning and phosphate treatment, unless otherwise indicated.
  - 6. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4. Channel Dimensions: Selected for applicable load criteria.
- C. Nonmetallic Slotted Support Systems: Structural grade, factory formed, glass-fiber-resin channels and angels with 9/16-inch diameter holes at a maximum of 8 inches o.c., in at least 1 surface.
  - 1. Fittings and Accessories: Products of channel and angles manufacturer, designed for use with those items and of the same materials.
  - 2. Rated Strength: selected to suit applicable load criteria.

- D. Raceway and Cable Supports: As described in NECA 1 and NECA 101. All raceway and cable supports for both interior and exterior applications shall be galvanized.
- E. Conduit Support Devices: Galvanized steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- F. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.
- G. Structural Steel for Fabricated Supports and Restraints: ASTM A36/A36M, steel plates, shapes, and bars; black and galvanized.
- H. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
  - 1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened Portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
  - 2. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened Portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.
    - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      - (1) Cooper B-Line, Inc.
      - (2) Empire Tool and Manufacturing Co., Inc.
      - (3) Hilti, Inc.
      - (4) ITW Ramset/Red Head; Illinois Tool Works, Inc.
      - (5) MKT Fastening, LLC.
      - (6) Or Approved Equal
  - 3. Clip type conduit fasteners are NOT allowed. All fasteners and clamps for conduit raceway support shall use mechanical bolted type hardware.
  - 4. Concrete Inserts: Steel or malleable-iron, slotted support system units; complying with MFMA-4 or MSS SP-58.
  - 5. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
  - 6. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A325.
  - 7. Toggle Bolts: All-steel springhead type.
  - 8. Hanger Rods: Threaded galvanized steel.

2.02 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

- A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.
- B. Materials: All raceway, box and cable supports shall be galvanized steel.

PART 3 EXECUTION

3.01 APPLICATION

- A. Locations:
  - 1. Indoor Dry Locations: Steel, zinc plated materials.
  - 2. Outdoors and Damp Locations: Galvanized steel products.
  - 3. Corrosive Locations: Stainless Steel.
- B. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.
- C. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT and RMC as required by NFPA 70. Minimum rod size shall be 3/8 inch in diameter.
- D. Multiple Raceways or Cables: Install trapeze-type supports fabricated with 3/8 in rod minimum and 1-5/8 inch square preformed steel slotted channel support system, sized so conduit capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
  - 1. Secure raceways and cables to these supports with two-bolt conduit clamps approved for application by an agency acceptable to the authority having jurisdiction.
- E. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future loads within specified loading limits.

3.02 SUPPORT INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.
- B. Coordinate the location of embedded connection hardware with supported equipment attachment and mounting points and with requirements for concrete reinforcement and formwork specified by applicable Engineer of Record.
- C. Raceways shall not be supported from ducts, pipes or other systems foreign to the electrical installation. The entire electrical installation shall be kept independent from any other trade.
- D. Raceway Support Methods: In addition to methods described in NECA 1, EMT and RMC may be supported by openings through structure members, as permitted in NFPA 70.
  - 1. Raceways shall be supported with heavy-duty on-hole pressed steel straps on interior surfaces.



2. Support pendent mounted raceways on 3/8 inch rod with pear shaped hanger or trapeze type hanger with 3/8 inch rod minimum and 1-5/8 inch square pre-formed channel and pipe clamps.
  3. Parallel surface mounted raceways shall be supported from 1-5/8 inch pre-formed channel and pipe clamps.
  4. Multiple conduit runs shall be grouped and neatly racked on trapeze hangers with spare room for minimum (2) 3/4 inch future conduits.
- E. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Determination shall be weight of supported components plus 200 lb.
- F. Equipment and Hanger Restraints:
1. Install resilient, bolt-isolation washers on equipment anchor bolts where clearance between anchor and adjacent surface exceeds 0.125 inch.
- G. Install cables so they do not bend across edges of adjacent equipment or building structure.
- H. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
1. Install bushing assemblies for mounting bolts for wall-mounted equipment, arranged to provide resilient media where equipment or equipment-mounting channels are attached to wall.
  2. Attachment to Structure: If specific attachment is not indicated, anchor bracing to structure at flanges of beams, at upper truss chords of bar joists, or at concrete members.
  3. Attachment to New Concrete: Bolt to channel type concrete inserts or use expansion anchors.
  4. Attachments to Existing Concrete: Use expansion anchors.
  5. Holes for Expansion Anchors in Concrete: Drill at locations and to depths that avoid reinforcing bars.
  6. To Metal Stud Structures: Fasten with sheet metal screw or bolted fasteners.
  7. To Structural Walls or Slabs: Fasten with steel expansion shells and bolts. Provide flush concrete insert for multiple raceway support system.
  8. Structural Steel: Bolt to heavy duty beam clamps on flanges of beams and columns, or on upper truss chords or bar joists.
  9. Architectural Walls or Masonry Walls: Fasten with toggle bolts or molly screws.
  10. Provide flush concrete insert for multiple raceway support system.
  11. Attachments to Wood Structural Members: Install bolts through members.
  12. Attachments to Hollow Walls: Bolt to slotted steel channels fastened to wall with expansion anchors.



I. Drilled-in Anchors:

1. Identify position of reinforcing steel and other embedded items prior to drilling holes for anchors. Do not damage existing reinforcing or embedded items during coring or drilling. Notify the Structural Engineer if reinforcing steel or other embedded items are encountered during drilling. Locate and avoid prestressed tendons, electrical and telecommunications conduit, and gas lines.
2. Do not drill holes in concrete or masonry until concrete, mortar, or grout has achieved full design strength.
3. Wedge Anchors: Protect threads from damage during anchor installation. Heavy-duty sleeve anchors shall be installed with sleeve fully engaged in the structural element to which anchor is to be fastened.
4. Adhesive Anchors: Clean holes to remove loose material and drilling dust prior to installation of adhesive. Place adhesive in holes proceeding from the bottom of the hole and progressing toward the surface in such a manner as to avoid introduction of air pockets in the adhesive.
5. Set anchors to manufacturer's recommended torque using a torque wrench.
6. Install zinc-coated steel anchors for interior and stainless-steel anchors for exterior applications.

3.03 INSTALLATION OF FABRICATED METAL SUPPORTS

- A. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.
- B. Field Welding: Comply with AWS D1.1/D1.1M.

3.04 CONCRETE BASES

- A. Construct concrete bases of dimensions indicated. Concrete bases must not be less than 4" larger in both directions than supported unit to ensure anchors will be a minimum of 10 bolt diameters from edge of the base.
- B. Use 3,000psi, 28-day compressive-strength concrete. Concrete strength, see Section 03 31 00 – Structural Portland Cement Concrete (FAA).
- C. Anchor equipment to concrete base. Refer to Section 03 30 00 - Cast-in-Place Concrete.

3.05 ADJUSTING

- A. Adjust restraints to permit free movement of equipment within normal mode of operation.

3.06 PAINTING

- A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
  1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.

- B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A780.

PART 4 MEASUREMENT AND PAYMENT

4.01 GENERAL

- A. No separate measurement or payment will be made for the Work required by this section. The cost for this portion of the Work will be considered incidental to, and included in the payments made for the applicable bid items.

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| End of Section |
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## **PART 1 - GENERAL**

### **1.1 WORK INCLUDED:**

- A. Provide all raceways for a complete electrical system. Include all fittings, hangers and appurtenances required for a complete installation.
- B. All metal fabrications are to be steel, as indicated on the Drawings. Provide metal fabrications as 316 stainless steel where identified as such. The work shall consist of furnishing all materials, labor, and equipment for fabricating and/or repairing, galvanizing, and erecting metal fabrications, all in accordance with the Drawings, notes, and this specification.

## **PART 2 - PRODUCTS**

### **2.1 CONDUITS:**

- A. Polyvinyl Chloride (PVC) Coated Rigid Steel Conduit, Thick Wall (PVRSC).
- B. Non-metallic, polyvinyl chloride (PVC), schedule 80.
- C. Flexible Metal Conduit with polyvinyl chloride jacket.

### **2.2 FITTINGS:**

- A. PVRSC fittings shall have threaded connections.
- B. Flexible Metal Conduit: Thomas & Betts "Super Liquid-Tight" with external ground lug or equal.
- C. PVC Schedule 80 fittings shall be solvent welded type.
- D. Expansion Couplings: O.Z. type EX with ground jumper.
- E. Seismic deflection coupling: Appleton or equal.
- F. All conduit elbows 30 degrees or greater shall be factory made, galvanized rigid steel or PVRSC on wharf. All 90-degree elbows shall be a minimum radius of 24" or greater.

### **2.3 EXPOSED RACEWAY IDENTIFICATION:**

- A. Provide sign or stencil on all raceway(s) that are intended to contain conductors above 208 volts. The stencil or sign by "Seton" shall have minimum ½" high red letters indicating voltage.
- B. All exposed raceway on the wharf or where subject to damage shall be PVRSC. Exposed raceway not on the wharf and where installed not subject to damage such as in protected substation areas may be PVC Schedule 80.

## **PART 3 - EXECUTION**

### **3.1 GENERAL:**

- A. Install raceways concealed in construction or below grade.
- B. Cut conduit ends square, ream smooth and extend maximum distance into all couplings and connectors.
- C. Provide and install manufactured end caps on all conduit ends during construction to prevent the entrance of water or dirt. Tape, as a cover, is unacceptable.
- D. Pull a properly sized mandrel through each conduit prior to installation of conductors or pull-lines to remove any materials trapped within the conduit run. Conduits embedded in concrete shall have a mandrel pulled within 24 hours of concrete pour.

- E. All PVC elbows shall be factory made.
- F. Field made elbows are not acceptable for PVRSC conduits.
- G. Conduits shall maintain a minimum 12" clearance from any high temperature surface.
- H. The conduit layout shall be carefully planned by the contractor to ensure neat and workmanlike installation.
- I. Any work showing inadequate planning may be ordered removed by the Engineer and shall be replaced in a neat and proper manner at no additional cost to the Engineer.

3.2 CONDUIT SIZING:

- A. Conduits shall be sized per code for conductors with type XHHW-2 insulation, although thinner insulation types are permitted in some cases. Conduit size shall not be reduced if larger size is specified on the drawing. Minimum conduit size shall be 3/4" trade diameter for above grade and 1" trade diameter for below grade.

3.3 PVRSC:

- A. Install PVRSC for all conduits where conduit is exposed above grade where subject to damage.

3.4 FLEXIBLE CONDUIT:

- A. Provide liquid tight flexible metal conduit connection to equipment. Provide flexible conduit connection(s) at each light pole base to allow for a maximum of 6" settlement. Provide bonding jumper when required by N.E.C.

3.5 PVC CONDUIT SCHEDULE 80:

- A. PVC conduit Schedule 80 shall be used underground. Field bends, when necessary, shall be formed with factory recommended bending equipment. Offsets and bends shall not exceed 22 degrees without engineer's field review and approval. All bends greater than 30 degrees shall be galvanized rigid steel. Contractor shall field stake bends for engineer's review.

3.6 CONTINUITY OF CONDUIT SYSTEM:

- A. Conduits shall be assembled continuous and secured to boxes, panels, etc., with appropriate fittings to maintain electric continuity.

3.7 PULL-LINES:

- A. Provide 150-pound plastic pull-lines, with numbered distance marks at one-foot increments in all conduit-only systems and spare conduits to facilitate future conductor installation. Unless not required as indicated on conduit and conductor schedule, Sheets E3.0. Provide labels on source and end point of all pull lines.

**END OF SECTION**

## PART 1 GENERAL

### 1.01 SUMMARY OF WORK

- A. The extent and location of "Underground Ducts and Manholes" Work is shown in the Contract Documents. This section includes the requirements for trenching, backfilling and installation of underground conduits, ducts and ductbanks, and the design, fabrication, delivery and installation of pull boxes.
- B. Definitions
  - 1. Duct: Electrical conduit and other raceway, either metallic or nonmetallic, used underground, embedded in earth or concrete.
  - 2. Ductbank: 2 or more conduits or other raceway installed underground in the same trench or concrete envelope.

### 1.02 GOVERNING CODES, STANDARDS AND REFERENCES

- A. ASTM (American Society for Testing and Materials)
- B. NFPA 70 (National Fire Protection Association) - National Electrical Code
- C. WSDOT/APWA Specifications, Section 6-02.3

### 1.03 QUALITY ASSURANCE

- A. Listing and Labeling: Provide products that are Listed and Labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to the Authority Having Jurisdiction, and marked for intended use for the location and environment in which they are installed.
- B. Comply with NFPA 70, as adopted and administered by the Authority Having Jurisdiction.
- C. Comply with ANSI C2 "National Electrical Safety Code" for components and installation.

### 1.04 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of the Contract and Division 1 Specification Sections:
  - 1. Product data for metal accessories for conduit and duct, duct bank materials, and miscellaneous components.
  - 2. Inspection report for factory inspections, according to ASTM C 1037.
  - 3. Record Documents: Show dimensioned locations of underground ducts from nearest building or permanent structure.

### 1.05 COORDINATION

- A. Coordinate layout and installation of ducts with final arrangement of other utilities as determined by field verification. Revise locations and elevations from those indicated as required to suit field conditions. Contractor shall coordinate all modifications with the Engineer prior to final installation.

### 1.06 SAFETY REQUIREMENTS

- A. Comply with safety and protection requirements of Section 26 00 00 - Electrical Work - General.

- B. Perform Work in accordance with the safety requirements of the Department of Labor Occupational Safety and Health Administration, Volume 36, Number 75, Part II, Subpart P, "Excavations, Trenching, and Shoring," and with Section 7 of the Manual of Accident Prevention in Construction as published by the Association General Contractors of America, Inc.
- C. Educate supervisors and employees on safety requirements and practices to be followed during the course of the Work.

#### 1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver ducts to site with ends capped. Store nonmetallic ducts with supports to prevent bending, warping, and deforming.

### PART 2 PRODUCTS

#### 2.01 CONDUIT AND DUCTS

- A. Metallic Conduit:
  - 1. Galvanized Rigid Steel Conduit (GRC): ANSI C80.1
  - 2. PVC-Coated Rigid Steel Conduit: ANSI RN 1. Coating thickness shall be 0.040 inch, minimum.
- B. Nonmetallic conduit: Use underground only for medium-voltage and low-voltage applications
  - 1. Rigid Plastic Conduit: NEMA TC 2, UL 651A, Schedule 40 and Schedule 80 PVC, rated for use with 90°C conductors under all installation conditions and labeled for underground use.
  - 2. Rigid Plastic Underground Conduit: High-density polyethylene, Schedule 40 and Schedule 80.
  - 3. LFNC: UL 1660.

#### 2.02 CONDUIT FITTINGS

- A. Steel Fittings: Zinc-coated, cast malleable, ferrous metal, threaded fittings, with neoprene cover gasket on each fitting installed outdoors.
- B. PVC Conduit and Tubing Fittings: NEMA TC 3. Provide PVC fittings for PVC conduit and suitable watertight connections where PVC conduit connects to galvanized steel conduit.
- C. "Mogul Fittings": Provide "Mogul" size fittings for all conduit.
- D. Seal Bushings: O.Z. compound bushing on each conduit entering a building from outside underground and on each conduit passing from one space into another, which is normally at a lower temperature.
- E. Hubs: Appleton "Hub" or "Hub-U" series, Thomas & Betts "370" series, Or Approved Equal hub on each conduit terminating in a box where a hub was not previously provided.
- F. Unions: Appleton Type "EC", Thomas & Betts "Erickson Coupling" conduit unions, Or Approved Equal where necessary.

2.03 DUCT SUPPORTS/SPACERS

- A. Rigid PVC spacers selected to provide 3 1/2" minimum duct spacings and concrete cover depths indicated, while supporting ducts during concrete pour. Refer to drawing details for additional duct spacing requirements.

2.04 PULL BOXES

- A. Cast Metal Boxes: Cast aluminum, sized as indicated on Drawings, with outside flanges and recessed, gasketed cover for flush mounting. Non-skid finish on cover with legend reading "ELECTRIC" or "SIGNAL" as appropriate.

2.05 BACKFILL MATERIAL

- A. Designer shall coordinate trenching and backfill with Civil trenching and backfill sections.
  - 1. Lower Trench Portion (surrounding ductbank): Sandy silt, clay silt, sand clay or other material free of stones and conglomerates larger than 2"
  - 2. Upper Trench Portion (one foot above ductbank up to grade): On-site backfill material consisting of rock, soil or soil-rock mixture containing no rocks or lumps over 6"
- B. Direct-Burial Conduit
  - 1. Initial Bedding: 3" of sand below conduits.
  - 2. Secondary Bedding: Unsaturated excavated earth free of rocks, broken concrete and debris 2" and larger, and compacted to 6" minimum above conduits.
  - 3. Upper Trench:
    - a. Areas Under Pavement:
      - (1) See Civil requirements in Section 31 00 00 - Earthwork and Section 31 23 33 - Trenching and Backfilling.
      - (2) Provide plastic warning tape, 4-mil thickness reading "Caution - Buried Electrical Line Below" in trench at 12" below base course ACP.
    - b. Areas Not Under Pavement:
      - (1) Unsaturated excavated earth free of rocks, broken concrete and debris 6" and larger, and compacted in 12" lifts to prevent settlement

PART 3 EXECUTION

3.01 EXAMINATION

- A. Existing Utilities: Locate all existing utilities in the area prior to performing any excavation.

3.02 EARTHWORK

- A. Trenching:
  - 1. Comply with OSHA/WISHA safety standards for trenching, including stable slope and shoring requirements.

2. Depth: Refer to Electrical Details Sheet E4.0 for trench depth requirements. Correct points of over-excavation using mechanically-compacted backfill to form a smooth trench bottom. 24 inch minimum cover for direct burial conduit.
3. Width: Excavate to minimum width consistent with stability of sides.
4. Rock Excavation: Where rock pad is used for conduit trench, overexcavate 6" below the ductbanks and refill and compact with selected backfill material of same composition.
5. Muck Excavation: Where muck or unstable material is encountered, over-excavate and backfill to attain proper grade with coarse sand, gravel, or Controlled Density Fill.
6. Stockpile backfill material in an orderly manner; a sufficient distance from the trench to avoid overloading trench banks.
7. Bedding: The entire bottom of the excavation is to be firm, stable, and at uniform density.

### 3.03 RACEWAY APPLICATIONS

- A. Refer to Specifications and Drawings for raceway materials. Where not specified otherwise, use metallic conduit above and underground.
- B. Metallic Conduit: Only use as specified in Section 26 05 33 - Raceways and Boxes.
- C. Nonmetallic conduit: Use underground only.
  1. Underground Direct-Burial: For low-voltage applications only. Provide rigid plastic conduit, NEMA TC 2, Schedule 40 PVC with NEMA TC3 PVC conduit and tubing fittings.
- D. All underground conduit shall be a minimum of one-inch standard trade size.
- E. Use PVC fittings for PVC conduit and suitable water-tight connections where PVC conduit connects to galvanized steel conduit.

### 3.04 CONDUIT AND DUCT INSTALLATION

- A. Install conduit and ducts as indicated on Drawings and according to manufacturer's written instructions.
- B. Curves and Bends: Use manufactured galvanized rigid steel elbows for stub-ups at equipment and at building entrances with a minimum radius of 36 inches. Use manufactured long sweep bends with a minimum radius of 25 feet both horizontally and vertically at other locations. Do not exceed 20 degrees for field bends.
- C. Make joints in ducts and fittings watertight according to manufacturer's instructions. Stagger couplings so those of adjacent ducts do not lie in the same plane.
- D. Separation Between Direct-Buried, Non-Encased Ducts: Provide 3 inches minimum separation for like services, and 12 inches minimum between power and signal ducts.



- E. Stub-Ups: Use rigid steel conduit for stub-ups through concrete to equipment. Install insulated grounding bushings at the conduit terminations. For equipment mounted on outdoor concrete pads, extend steel conduit a minimum of 2 feet beyond the edge of the pad. Couple steel conduits to the ducts with adapters designed for the purpose and then encase the coupling with 3 inches of concrete.
- F. Pulling Cord: Install 100-pound- test nylon cord in installed ducts, including spares.
- G. Warning Tape: Bury warning tape approximately 12 inches above all concrete-encased ducts and duct banks. Align tape parallel to and within 3 inches of centerline of duct bank. Provide an additional warning tape for each 12-inch increment of ductbank width over a nominal 18 inches. Space additional tapes 12 inches apart, horizontally.

### 3.05 BACKFILLING

- A. Backfill only after all necessary inspections and tests have been performed.
- B. Remove all debris, rocks, broken concrete, and formwork before backfilling trenches.
- C. Deposit backfill in layers with materials described in Article 2.11, "Backfill Material." Uniformly spread and compact backfill with suitable power tampers to the density of the adjacent soil and in such a manner so as not to disturb the alignment of the conduit. If settlement occurs, refill, compact and smooth off to conform to the surface of the ground.
- D. Restore surface features at areas disturbed by excavation, and reestablish original grades.
  - 1. Replace removed sod as soon as possible after backfilling is completed.
  - 2. Restore all areas disturbed by trenching, storing of dirt, cable laying, and other Work.
  - 3. Replace disturbed paving.

### 3.06 IDENTIFICATION

- A. Identify raceways, cables and equipment as specified in Section 26 05 53 - Electrical Identification.
- B. Label raceways entering concealed locations from exposed locations as to the destination via the concealed area.

### 3.07 TESTING AND CLEANING

- A. Duct Integrity: Swab out ducts with a mandrel 1/4 inch smaller in diameter than internal diameter of ducts.

## PART 4 MEASUREMENT AND PAYMENT

### 4.01 GENERAL

- A. No separate measurement or payment will be made for the Work required by this section. The cost for this portion of the Work will be considered incidental to, and included in the payments made for the applicable bid items.

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| End of Section |
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## PART 1 - GENERAL

### 1.1 SUMMARY

- A. This Section includes identification of electrical materials, equipment, and installations.
- B. Related Documents: The provisions and intent of the Contract, the General and Supplementary Conditions, and Division 1 Specification Sections, apply to the Work as if specified in this Section.

### 1.2 REFERENCES

- A. ANSI/IEEE C2 - National Electrical Safety Code.
- B. NFPA 70 (National Fire Protection Association) - National Electrical Code.

### 1.3 QUALITY ASSURANCE

- A. Comply with NFPA 70, as adopted and administered by the Authority Having Jurisdiction.
- B. Comply with ANSI C2.

### 1.4 SUBMITTALS

- A. Product Data for each type of product specified.
- B. Provide sample label with identification nomenclature for one of each label type to be used for identification and equipment labels.

## PART 2 - PRODUCTS

### 2.1 LABEL TYPES

- A. Manufacturer's standard products with colors prescribed by ANSI A13.1, NFPA 70, and these Specifications. Refer to drawings for label schedule and types:

| Section  | Title                           | Label Types |   |   |   |                             |   |   |   |   |   |   |   |   |   |   |   |
|----------|---------------------------------|-------------|---|---|---|-----------------------------|---|---|---|---|---|---|---|---|---|---|---|
|          |                                 | B           | C | D | E | F                           | G | H | I | J | K | L | M | N | O | P | Q |
| 26 05 19 | 600-Volt or Less Wire and Cable |             | X | X |   |                             | X | X |   |   |   |   |   |   |   |   |   |
| 26 24 16 | Panelboards                     |             |   |   |   | <sup>1</sup> / <sub>2</sub> |   |   |   |   |   |   | X |   |   |   |   |
| 26 27 26 | Wiring Devices                  | X           |   |   |   |                             |   |   |   |   |   |   |   |   |   |   |   |
| 26 79 00 | Site Grounding                  |             |   |   |   |                             | X |   |   |   |   |   |   |   |   |   |   |

- B. Black felt-tip permanent marker on backside of plate in all locations.
- C. Flexible, preprinted pre-tensioned wraparound plastic sleeves sized to suit the diameter of the wire it identifies and arranged to stay in place by pre-tensioned gripping action when placed in position.
- D. Preprinted self-adhesive vinyl labels with clear chemical-resistant coating.
- E. Engraved melamine plastic laminate flat stock, 1/16-inch minimum thickness for sizes up to 15 square inches. Use 1/8-inch minimum for sizes larger than 20 square inches. Black with white letters for normal power systems and red with white letters for emergency power systems, with height as shown in table above unless specified otherwise. UV-inhibited when used outdoors. Secure with stainless steel drive screws, stainless steel self-tapping screws or stainless steel oval-head 6-32 screws tapped into enclosure, or with stainless steel bolts with elastic stopnut. Do not attach labels with screws or bolts if it voids manufacturer warranty UL listing of equipment. Provide alternate adhesive type label.
- F. Exterior use adhesive-backed plastic machine-printed labels, white with black letters.
- G. Plain-colored vinyl adhesive tape, 3-mil minimum by 1-inch wide minimum. Apply 1/2-inch minimum over-wrap through 2-inch minimum length.
- H. Stainless-steel machine or hand-stamped wire marker plates, 0.010-inch minimum thickness, with 2 holes at each end for attachment with nylon Ty-wraps. (Reference Panduit MMP350-C series.) Wire tags shall have source point, circuit breaker, fused switch, equipment name or equipment ID.
- I. Provide field stamped label on exposed metal frame and lid. Label shall match vault ID on electrical site plans.
- J. Underground line warning tape with pre-printed warning message identifying type of system. Material shall be compounded for unlimited life when direct buried. 6-inch minimum width by 4-mils thick. (Reference Seton Style 210.)
- K. Underground metallic line-warning tape with pre-printed warning message identifying type of system. Material shall be compounded for unlimited life when direct buried. Use when metal-detection of line is required on Medium Voltage Systems. 6-inch minimum width by 4-mils thick. (Reference Seton style 6ELE.)
- L. Warning signs: Baked Enamel on aluminum plate, 0.040-inch minimum thickness. OSHA standard wording where approved. Custom wording if required. Secure with non-corrosive fasteners.
- M. Stencils: Machine-punched patterns, paint with color and formulation appropriate for material and location.
- N. Adhesive-backed metal labels manufactured with testing agency logo. Punched or engraved with actual settings and date.

### **PART 3 - EXECUTION**

#### **3.1 INSTALLATION**

- A. Install identification labels according to manufacturer's written instructions.
- B. Install labels where indicated and as required by the Authority Having Jurisdiction. Locate for optimum viewing and without interference with the operation and maintenance of equipment.
- C. Coordinate names, abbreviations, colors, graphics and other designations used for electrical identification with corresponding designations used in the Contract Documents or as required

by codes and standards.

Use consistent designations throughout the Project. Labeling abbreviations are not allowed.

- D. Sequence of Work: Where identification is to be applied to surfaces that require finish, install identification after completion of finish work.
  - 1. Coordinate installing electrical identifying labels prior to installing finishes that conceal such items.
- E. Clean surfaces of dust, loose material, and oily films before applying painted or self-adhesive identification products.
- F. Painted Identification Products:
  - 1. Prime surfaces according to manufacturer's instructions prior to applying painted labels:
    - a. For galvanized metal, use single-component, acrylic vehicle coating formulated for galvanized surfaces.
    - b. For concrete masonry units, use heavy-duty, acrylic-resin block filler.
    - c. For concrete surfaces, use clear, alkali-resistant, alkyd binder-type sealer.
  - 2. Apply one intermediate and one finish coat of paint.
- G. Conductor Identification:
  - 1. Conductors to be Extended in the Future: Indicate source and circuit numbers.
  - 2. Multiple Power or Lighting Circuits in the Same Enclosure: Identify each conductor with source, voltage, circuit number, and phase. Use color coding for voltage and phase indication of secondary circuit.
  - 3. Multiple Control and Communications Circuits in the Same Enclosure: Identify each conductor by its system and circuit designation. Use a consistent system of tags, color coding, or cable marking tape.
- H. Warning, Caution, and Instruction Signs:
  - 1. Install warning, caution, and instruction signs where indicated or required to ensure safe operation and maintenance of electrical systems and of items to which they connect.
  - 2. Emergency-Operating Signs: Install engraved laminate signs with white legend on red background with minimum 3/8-inch high lettering for emergency instructions on power transfer, load shedding, and other emergency operations.
- I. Apply equipment identification labels of engraved plastic laminate on each major unit of equipment, including central or master unit of each system. This includes communication, signal, and alarm systems, unless units are specified with their own self-explanatory identification. Except as otherwise indicated, provide a single line of text with 1/4-inch high lettering on 1-inch high label. Use white lettering on black field. Apply labels parallel to equipment lines.

#### **END OF SECTION**

## PART 1 GENERAL

### 1.01 SUMMARY OF WORK

- A. The extent and location of "Panelboards" work is shown in the Contract Documents. This section includes 600 ampere Distribution Panelboards, rated 600 volts or less. The following is a summary of the work on panelboards identified on the project drawings:
  - 1. The following panels are new:
    - a. PP-C

### 1.02 GOVERNING CODES, STANDARDS AND REFERENCES

- A. NEMA AB 1 (National Electrical Manufacturers Association) - Molded Case Circuit Breakers,
- B. NEMA FU 1 (National Electrical Manufacturers Association) - Fuses,
- C. NEMA KS 1 (National Electrical Manufacturers Association) - Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum),
- D. NEMA PB 1 (National Electrical Manufacturers Association) - Panelboards,
- E. NEMA 250 (National Electrical Manufacturers Association) - Enclosures for Electrical Equipment (1000 Volts Maximum).
- F. NETA ATS (International Electrical Testing Association) - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems,
- G. NFPA 70 (National Fire Protection Association) - National Electrical Code,
- H. UL 50 (Underwriters Laboratory) - Enclosures for Electrical Equipment,
- I. UL 67 (Underwriters Laboratory) - Panelboards,

### 1.03 SUBMITTALS

- A. Submit materials data in accordance with of Section 01 33 00 - Submittals. Furnish manufacturers' technical literature, standard details, product specifications, and installation instructions for all products.
- B. Submittals shall include the following:
  - 1. Product Data: For each type of panelboard, accessory, and component indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.
  - 2. Shop Drawings: For each panelboard and related equipment.
    - a. Dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings. Include the following:
      - (1) Enclosure types and details for types other than NEMA 250, Type 1.
      - (2) Bus configuration, current, and voltage ratings.
      - (3) Short-circuit current rating of panelboards and overcurrent protective devices.

- (4) UL listing for series rating of installed devices.
  - (5) Features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
  - (6) Wiring diagrams for power, signal and control wiring.
  - (7) Time-current coordination curves for each type and rating of overcurrent protective device included in panelboards. Include selectable ranges for each type of overcurrent protective device.
- 3. Field Test Reports: Written reports specified in Part 3.
- 4. Maintenance Data: Include maintenance data for panelboards and components in maintenance manuals specified in Division 1 General Requirements. In addition to requirements specified in Section 01 78 23 - Operations and Maintenance Data include the following:
  - a. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.
  - b. Time-current curves, including selectable ranges for adjustable overcurrent protective devices.
- 5. Panelboard Schedules:
  - a. Panelboard schedules shall have provisions for totaling all loads and performing demand calculations by load category.
  - b. This schedule shall be updated with as built information upon the completion of the Project. The contractor shall post a hard copy of the revised panel schedule in any panel modified and submit an electronic copy of the panel schedule in Port standard Excel format showing accurate as-built information.

#### 1.04 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Member company of NETA or an NRTL.
  - 1. Testing Agency's Field Supervisor: Currently certified by NETA to supervise on-site testing.
- B. Source Limitations: Obtain panelboards, overcurrent protective devices, components, and accessories from single source from single manufacturer.
- C. Product Selection for Restricted Space: Verify that product submitted will fit in space shown on drawings and meet NEC working clearance requirements.
- D. Listing and Labeling: Provide components, devices and accessories that are Listed and Labeled as defined in NFPA 70, Article 100 and marked for intended use for the location and environment in which they are installed.
- E. Comply with UL 67, UL50 and NEMA PB 1.
- F. Comply with NFPA 70, as adopted and administered by the Authority Having Jurisdiction.

1.05 COORDINATION

- A. Coordinate layout and installation of panelboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, and encumbrances to workspace clearance requirements.
- B. Pipes and ducts shall not pass over panelboards.

1.06 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace transient voltage suppression devices that fail in materials or workmanship within specified warranty period.
  - 1. Warranty Period: Five years from date of Substantial Completion.

1.07 EXTRA MATERIALS

- A. Spare and extra parts shall be identified for all products. Include spare parts information in Operation and Maintenance Manuals.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Panelboards and Accessories:
    - a. Eaton.
    - b. GE.
    - c. Square D.
    - d. Or Approved Equal.

2.02 SERVICE CONDITIONS

- A. Environmental Limitations: Rate equipment for continuous operation under the following conditions, unless otherwise indicated:
  - 1. Ambient Temperature: Not exceeding 40°C.
  - 2. Altitude: Not exceeding 1000 feet Main.
  - 3. Breakers: Main breakers are required for all panelboards.

2.03 FABRICATION AND FEATURES

- A. Enclosures: Surface-mounted cabinets.
  - 1. NEMA PB 1, Type to meet environmental conditions at installed location:
    - a. Indoor Dry, and Clean Locations: NEMA 250, Type 1.
    - b. Indoor Locations Subject to dust, falling dirt, and dripping noncorrosive liquids: NEMA 250, Type 12.



- B. Hinged Front Cover: Entire front trim cover piano-hinged to box for 110-degree opening minimum. Standard door hinged within trim cover. Hinged Door-in-Door panel fronts for all panelboards, except NEMA 3R. Two locks required.
  - 1. Full size front cover shall have maintenance master keyed lock.
  - 2. Standard door within front trim cover shall allow access to circuit breakers and shall also have maintenance master keyed lock. Depending on the user group and area, this door may remain unlocked for user group access to the circuit breakers or maintenance may optionally keep this door locked. Special locks from Maintenance shall be added to the panel.
- C. Panel doors shall have a continuous piano hinge for 110 degree opening minimum.
- D. Skirt for surface mounted panelboards shall be same gage and finish as panelboard front with flanges for attachment to panelboard, wall, and ceiling or floor.
- E. Surface-mounted panelboard front cover with same dimensions as enclosure.
- F. Finish:
  - 1. Panels and Trim: Steel and galvanized steel, factory finished immediately after cleaning and pretreating with manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat.
  - 2. Back Boxes: Same finish as panels and trim.
- G. Directory Card: With transparent protective cover, mounted inside metal frame, inside panelboard standard door.
- H. Phase, Neutral, and Ground Buses:
  - 1. Material: Hard-drawn copper, 98 percent conductivity, silver plated copper.
  - 2. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment ground conductors; bonded to box.
  - 3. Neutral Bus: 100% rated.
- I. Conductor Connectors: Suitable for use with conductor material and sizes.
  - 1. Material: Hard-drawn copper, 98 percent conductivity.
  - 2. Main and Neutral Lugs: Mechanical type.
  - 3. Ground Lugs and Bus-Configured Terminators: Mechanical type.
  - 4. Feed-through Lugs: Mechanical type. Locate at opposite end of bus from incoming lugs or main device.
- J. Service Equipment Label: UL labeled for use as service equipment for panelboards or load centers with one or more main service disconnecting and overcurrent protective devices.
  - 1. Main circuit breaker is required for panelboards serving a metered tenant or user group.
- K. Panelboard shall have a minimum of 25% spare breaker capacity and 30% spare load capacity. 50% spare breaker and load capacity is preferred.



2.04 PANELBOARD SHORT-CIRCUIT RATING

- A. Fully rated to interrupt symmetrical short-circuit current available at terminals.
- B. UL label indicating series-connected rating with integral or remote upstream devices. Include size and type of upstream device allowable, branch devices allowable, and UL series-connected short-circuit rating.

2.05 DISTRIBUTION PANELBOARDS

- A. Doors: Front mounted, except omit in fused-switch panelboards; secured with vault-type latch with tumbler lock; maintenance master keyed.
  - 1. For doors more than 36 inches high, provide two latches, keyed alike.
- B. Main Overcurrent Protective Devices: Circuit breaker
- C. Branch Overcurrent Protective Devices for Circuit-Breaker Frame Sizes 125 A and Smaller: Bolt-on circuit breakers.
  - 1. Branch Overcurrent Protective Devices for Circuit-Breaker Frame Sizes Larger Than 125 A: Bolt-on circuit breakers; plug-in circuit breakers where individual positive-locking device requires mechanical release for removal.

2.06 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

- A. Molded-Case Circuit Breaker: NEMA AB 1, with interrupting capacity to meet available fault currents.
  - 1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250A and larger.
  - 2. Adjustable Instantaneous-Trip Circuit Breakers: Magnetic trip element with front-mounted, field-adjustable trip setting.
  - 3. Electronic Trip Unit Circuit Breakers: RMS sensing; field-replaceable rating plug; with the following field-adjustable settings:
    - a. Instantaneous trip.
    - b. Long- and short-time pickup levels.
    - c. Long- and short-time time adjustments.
    - d. Ground-fault pickup level, time delay, and  $I^2t$  response.
  - 4. Current-Limiting Circuit Breakers: Frame sizes 400A and smaller; let-through ratings less than NEMA FU 1, RK-5.
  - 5. Integrally Fused Circuit Breakers: Thermal-magnetic trip element with integral limiter-style fuse listed for use with circuit breaker; trip activation on fuse opening or on opening of fuse compartment door.
  - 6. GFCI Circuit Breakers: Single- and two-pole configurations with Class A 6 mA trip sensitivity.
  - 7. Ground-Fault Equipment Protection (GFEP) Circuit Breakers: Class B ground-fault protection, 30mA trip where required.

- B. Molded-Case Circuit-Breaker Features and Accessories. Standard frame sizes, trip ratings, and number of poles.
  - 1. Lugs: Mechanical style, suitable for number, size, trip ratings, and material of conductors.
  - 2. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HACR for heating, air-conditioning, and refrigerating equipment.
  - 3. Ground-Fault Protection: Integrally mounted or remote-mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
  - 4. Communication Capability: Circuit-breaker-mounted communication module with functions and features compatible with power monitoring and control system.
  - 5. Shunt Trip: 120V trip coil energized from separate circuit, set to trip at 75 percent of rated voltage.
  - 6. Undervoltage Trip: Set to operate at 35 to 75 percent of rated voltage without intentional time delay as required by the engineer of record.
  - 7. Auxiliary Switch: Two SPDT switches with "a" and "b" contacts; "a" contacts mimic circuit-breaker contacts, "b" contacts operate in reverse of circuit-breaker contacts.
  - 8. Key Interlock Kit: Externally mounted to prohibit circuit-breaker operation; key shall be removable only when circuit breaker is in off position.
  - 9. Zone-Selective Interlocking: Integral with electronic trip unit; for interlocking ground-fault protection function.

#### 2.07 ACCEPTABLE OPTIONS

- A. Shunt trip breakers for load management purposes. 120-V trip coil energized from separate circuit
- B. Adjustable trips where engineered coordination settings are provided.

### PART 3 EXECUTION

#### 3.01 INSTALLATION

- A. Install panelboards and accessories according to NEMA PB 1.1.
- B. Receive, inspect, handle, and store panelboards according to NEMA PB 1.1.
- C. Examine panelboards before installation. Reject panelboards that are damaged or rusted or have been subjected to water saturation.
- D. Examine elements and surfaces to receive panelboards for compliance with installation tolerances and other conditions affecting performance of the Work.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.
- F. Surface mounted panelboard fronts shall have same dimensions as enclosure.

- G. Standard Mounting Heights: Top of trim 72-inches above finished floor, unless otherwise indicated.
  - 1. Maximum height of highest operating handle on distribution panelboards shall be 78".
- H. Mounting: Plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish.
- I. Install filler plates in unused spaces.
- J. Provision for Future Circuits at Flush Panelboards: Stub six 1-inch empty conduits from panelboard into accessible ceiling space or space designated to be ceiling space in the future. Identify each as SPARE.
- K. Wiring in Panelboard Gutters: Arrange conductors into groups and bundle and wrap with wire ties after completing load balancing.
- L. Current Transformers: Securely support CTs so that transformer leads are not bearing weight and are not under pressure.
- M. Comply with NECA 1.

### 3.02 CONNECTIONS

- A. Install equipment grounding connections for panelboards with ground continuity to main electrical ground bus.
- B. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.
  - 1. Mark lugs after torquing with black, red or yellow paint such that paint will be visibly disturbed if lugs are disturbed.

### 3.03 IDENTIFICATION

- A. Identify field-installed conductors, interconnecting wiring, and components as specified in Section 26 05 53 - Electrical Identification.
- B. Panelboard Nameplates: Label each panelboard with engraved laminated-plastic nameplate with panel designation, power source, source location and voltage.
- C. Provide framed, typed panelboard circuit directory with accurate descriptions of the connected load. Hand-written directories are not acceptable. Complete directory only after all modifications have been made to correct load imbalance.
  - 1. Number circuit breakers with odd numbers on the left and even numbers on the right when facing the panel. Number consecutively, with multiple-pole breakers assigned multiple numbers.
  - 2. Describe branch circuit loads and identify locations using room numbers or column lines.
  - 3. Include date of last changes made and the name and company of the individual making changes.
- D. Equipment used in emergency systems shall be labeled "Suitable for use on emergency systems" per NEC 700-3.

### 3.04 FIELD QUALITY CONTROL

- A. Prepare for acceptance tests as follows:
  - 1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit. Use 1000-volt megger for 480 volts and 500-volt megger for 208 volts.
  - 2. Test continuity of each circuit and all ground connections. Megger with all circuit breakers open and then with all circuit breakers closed.
  - 3. Check for proper phase rotation: Phase A, B, C from left to right and front to back.
  - 4. After energizing, check load balance under normal operation. If load unbalance exceeds 10 percent, initiate corrective measures.
- B. Testing: After installing panelboards and after electrical circuitry has been energized, demonstrate product capability and compliance with requirements.
  - 1. Procedures: Perform each visual and mechanical inspection and electrical test indicated in NETA ATS, Section 7.5 for switches and Section 7.6 for molded-case circuit breakers. Certify compliance with test parameters.
  - 2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
  - 3. Perform the following infrared scan tests and inspections and prepare reports:
    - a. Initial Infrared Scanning: Prior to Substantial Completion, perform an infrared scan of each panelboard. Remove front panels so joints and connections are accessible to portable scanner.
    - b. Follow-up Infrared Scanning: The Port shall have the option of performing its own infrared inspection.
    - c. Instruments and Equipment: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
- C. Panelboards will be considered defective if they do not pass tests and inspections.
- D. Prepare test and inspection reports, including a certified report that identifies panelboards included and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action. Submit test and inspection reports

### 3.05 ADJUSTING

- A. Adjust moving parts and operable component to function smoothly, and lubricate as recommended by manufacturer.
- B. Set field-adjustable switches and circuit breaker trip ranges.
- C. Load Balancing: Prior to Substantial Completion, measure load balancing and make circuit changes.
  - 1. Measure as directed during period of normal system loading.

2. Perform load-balancing circuit changes outside normal occupancy/working schedule of the facility and at time directed. Avoid disrupting critical 24-hour services such as fax machines and on-line data processing, computing, transmitting, and receiving equipment.
3. After circuit changes, recheck loads during normal load period. Record all load readings before and after changes and submit test records.
4. Tolerance: Difference exceeding 10 percent between phase loads, within a panelboard, is not acceptable. Rebalance and recheck as necessary to meet this minimum requirement.

#### 3.06 CLEANING

- A. On completion of installation, inspect interior and exterior of panelboards. Remove paint splatters and other spots. Vacuum dirt and debris; do not use compressed air to assist in cleaning. Repair exposed surfaces to match original finish.

#### 3.07 OPERATION AND MAINTENANCE MANUALS

- A. Comply with Section 01 78 23 - Operations and Maintenance Data and Part 1 of this specification.
  1. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.
  2. Time-current curves, including selectable ranges for each type of overcurrent protective device that allows adjustments.

### PART 4 MEASUREMENT AND PAYMENT

#### 4.01 GENERAL

- A. No separate measurement or payment will be made for the Work required by this section. The cost for this portion of the Work will be considered incidental to, and included in the payments made for the applicable bid items.

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| End of Section |
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## PART 1 GENERAL

### 1.01 SUMMARY OF WORK

- A. The extent and location of "Cabinets and Enclosures" Work is shown in the Contract Documents. This section includes hinged cover enclosures, cabinets, terminal blocks, and accessories.

### 1.02 GOVERNING CODES, STANDARDS AND REFERENCES

- A. NECA (National Electrical Contractors Association) - National Electrical Installation Standards
- B. NEMA 250 (National Electrical Manufacturers Association) - Enclosures for Electrical Equipment (1000 Volts Maximum)
- C. NEMA ICS 4 (National Electrical Manufacturers Association) – Application Guideline for Terminal Blocks.
- D. NFPA 70 (National Fire Protection Association) - National Electrical Code

### 1.03 SUBMITTALS

- A. Submit materials data in accordance with of Section 01 33 00 - Submittals. Furnish manufacturers' technical literature, standard details, product specifications, and installation instructions for all products.
- B. Submittals shall include the following:
  - 1. Product Data: For enclosures, cabinets, and terminal blocks.
  - 2. Manufacturer's Installation Instructions, including storage, handling, protection, examination, preparation, and installation of product.
  - 3. Shop Drawings: Include layout drawings showing components and wiring for nonstandard enclosures, and cabinets.

### 1.04 QUALITY ASSURANCE

- A. Listing and Labeling: Provide products that are Listed and Labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to the Authority Having Jurisdiction, and marked for intended use for the location and environment in which they are installed.
- B. Comply with NECA's "National Electrical Installation Standards."
- C. Comply with NFPA 70, as adopted and administered by the Authority Having Jurisdiction.

### 1.05 EXTRA MATERIALS

- A. Spare and extra parts shall be identified for all products. Include spare parts information in Operation and Maintenance Manual

## PART 2 PRODUCTS

### 2.01 HINGED COVER ENCLOSURES

- A. Construction: NEMA 250, Type 1, except as noted below, with continuous hinge cover and flush latch. Key latch to match panelboards.
  - 1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.

2. Nonmetallic Enclosures: PVC or fiberglass, finished inside with radio-frequency-resistant paint.
3. Application in other than NEMA 250, Type 1 environments:
  - a. Indoor Dusty Locations: NEMA 12.
  - b. Damp or Wet Locations: NEMA 3R.
  - c. Outdoor dirty/oily and washdown locations such as Aircraft Operations Areas: NEMA 4, stainless steel.
  - d. Damp or Wet and Corrosive Locations: NEMA 250, Type 4X, stainless steel.
  - e. Hazardous Locations: NEMA 250, Type 7, 8, or 9 depending on hazardous area classification and location (unhinged).

## 2.02 CABINETS

- A. Cabinets: NEMA 250, Type 1, except as noted below, galvanized steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
  1. Hinged door in front cover with flush latch and concealed hinge. Key latch to match panelboards.
  2. Include metal barriers to separate wiring of different systems and voltage.
  3. Include accessory feet where required for freestanding equipment.
  4. Application in other than NEMA 250, Type 1 environments:
    - a. Indoor Dusty Locations: NEMA 12.
    - b. Damp or Wet Locations: NEMA 3R.
    - c. Outdoor dirty/oily and washdown locations such as Aircraft Operations Areas: NEMA 4, stainless steel.
    - d. Damp or Wet and Corrosive Locations: NEMA 250, Type 4X, stainless steel.
    - e. Hazardous Locations: NEMA 250, Type 7, 8, or 9 depending on hazardous area classification and location (unhinged).

## 2.03 TERMINAL BLOCKS

- A. Minimum 600-volt rating for 480-volt circuits.
- B. Clamp or screw terminals sized for maximum conductor size.
- C. Separate connection point for each conductor.
- D. Ten percent spare terminal points.
- E. Individual identification for each terminal block.
- F. Phenolic block separators or barriers to isolate low-voltage and control terminations from analog and DC circuits.
- G. Terminal Blocks: NEMA ICS 4.

- H. Power Terminals: Unit construction type with closed back and tubular pressure screw connectors, rated 600 volts.
- I. Signal and Control Terminals: Modular construction type, suitable for channel mounting, with tubular pressure screw connectors, rated 300 volts.
- J. Provide ground bus terminal block, with each connector bonded to enclosure.

#### 2.04 PLASTIC RACEWAY

- A. Plastic channel with hinged or snap-on cover.

### PART 3 EXECUTION

#### 3.01 EXAMINATION

- A. Examine surfaces to receive enclosures, and cabinets for compliance with installation tolerances, access and working clearances. Do not proceed with installation until unsatisfactory conditions have been corrected.

#### 3.02 INSTALLATION

- A. Install enclosures and cabinets as indicated, according to manufacturer's written instructions and in accordance with NECA "National Electrical Installation Standards."
- B. Install enclosures and cabinets plumb and level and anchor securely.

#### 3.03 IDENTIFICATION

- A. Provide labels for enclosures and components as specified in Section 26 05 53 - Electrical Identification.
- B. Equipment used in emergency systems shall be labeled "Suitable for use on emergency systems" per NEC 700-3.

#### 3.04 PROTECTION

- A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer that ensure coatings, finishes, and cabinets are without damage or deterioration at the time of Substantial Completion.
  - 1. Repair damage to finishes with matching touchup coating recommended by manufacturer.

#### 3.05 CLEANING

- A. On completion of installation, clean electrical parts and remove conductive and harmful materials
- B. Remove dirt and debris from enclosure.
- C. Clean finishes and touch up damage.



PART 4 MEASUREMENT AND PAYMENT

4.01 GENERAL

- A. No separate measurement or payment will be made for the Work required by this section. The cost for this portion of the Work will be considered incidental to, and included in the payments made for the applicable bid items.

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| End of Section |
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## **PART 1 - GENERAL**

### **1.1 WORK INCLUDED:**

- A. Provide all wiring devices and plates for a complete installation.

## **PART 2 - PRODUCTS**

### **2.1 ACCEPTABLE MANUFACTURERS:**

- A. Hubbell
- B. G.E. Wiring Devices
- C. Leviton
- D. Pass & Seymour

### **2.2 MATERIALS:**

- A. Wiring devices shall be specification grade, and the product of a nationally recognized manufacturer regularly engaged in their production.
- B. All wiring devices specified in this section shall be the product of one manufacturer. Each type shall have identical appearance and characteristics.

### **2.3 SWITCHES AND RECEPTACLES:**

- A. Ivory, toggle type, 20A, 277V.
- B. Ivory duplex 20A, 125V, specification grade with GFCI with trip indicator light.
- C. All switch and receptacle covers shall be NEMA 3R "In Use".

## **PART 3 - EXECUTION**

### **3.1 MOUNTING:**

- A. Rigidly fasten each device to auxiliary pole or non-metallic strut.

### **3.2 RECEPTACLE GROUNDING:**

- A. Provide bare bonding wire between receptacle grounding terminal and box.

**END OF SECTION**

## PART 1 GENERAL

### 1.01 SUMMARY OF WORK

- A. The extent and location of "Enclosed Switches and Circuit Breakers" Work is shown in the Contract Documents. This section includes individually mounted enclosed switches and circuit breakers used for the following:
  - 1. Service disconnecting means.
  - 2. Feeder and branch-circuit protection.
- B. Definitions
  - 1. GFCI: Ground-fault circuit interrupter.
  - 2. RMS: Root mean square.
  - 3. SPDT: Single pole, double throw.

### 1.02 GOVERNING CODES, STANDARDS AND REFERENCES

- A. NEMA AB 1 (National Electrical Manufacturers Association) - Molded Case Circuit Breakers.
- B. NEMA FU1 (National Electrical Contractors Association) - Low Voltage Cartridge Fuses.
- C. NEMA KS 1 (National Electrical Contractors Association) - Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum).
- D. NETA ATS (International Electrical Testing Association) - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems (International Electrical Testing Association).
- E. NFPA 70 (National Fire Protection Association) - National Electrical Code.

### 1.03 SUBMITTALS

- A. Submit materials data in accordance with Section 01 33 00 - Submittals. Furnish manufacturers' technical literature, standard details, product specifications, and installation instructions for all products.
- B. Submittals shall include the following:
  - 1. Product Data: For each type of switch, circuit breaker, accessory, and component indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.
  - 2. Shop Drawings: For each switch and circuit breaker.
    - a. Dimensioned plans, elevations, sections, and details, including required clearances and service space around equipment. Show tabulations of installed devices, equipment features, and ratings. Include the following:
      - (1) Enclosure types and details for types other than NEMA 250, Type 3R, 4X.
      - (2) Current and voltage ratings.
      - (3) Short-circuit current rating.

- (4) UL listing for series rating of installed devices.
  - (5) Features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
  - (6) Include time-current coordination curves for each type and rating of overcurrent protective device; include selectable ranges for each type of overcurrent protective device.
- 3. Field Test Reports: Submit written test reports and include the following:
  - a. Test procedures used.
  - b. Test results that comply with requirements.
  - c. Results of failed tests and corrective action taken to achieve test results that comply with requirements.
- 4. Manufacturer's field service report.
- 5. Maintenance Data: For enclosed switches and circuit breakers and for components to include in maintenance manuals specified in Division 1 General Requirements. In addition to requirements specified in Section 01 77 00 - Project Closeout include the following:
  - a. Routine maintenance requirements for components.
  - b. Manufacturer's written instructions for testing and adjusting switches and circuit breakers.
  - c. Time-current curves, including selectable ranges for each type of circuit breaker.

#### 1.04 QUALITY ASSURANCE

- A. Listing and Labeling: Provide components, devices and accessories that are Listed and Labeled as defined in NFPA 70, Article 100 and marked for intended use for the location and environment in which they are installed.
  - 1. Service Entrance: Switches and circuit breakers identified for use as service equipment shall be labeled for this application.
- B. Comply with NEMA AB 1 and NEMA KS 1.
- C. Comply with NFPA 70, as adopted and administered by the Authority Having Jurisdiction.

#### 1.05 PROJECT CONDITIONS

- A. Environmental Limitations: Rate equipment for continuous operation under the following conditions, unless otherwise indicated:
  - 1. Ambient Temperature: Not less than minus 22°F (minus 30°C) and not exceeding 104°F (40°C).
  - 2. Altitude: Not exceeding 1000 feet.

#### 1.06 COORDINATION

- A. Coordinate layout and installation of switches, circuit breakers, and components with other construction, including conduit, piping, equipment, and adjacent

surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

#### 1.07 EXTRA MATERIALS

- A. Spare and extra parts shall be identified for all products. Include spare parts information in Operation and Maintenance Manuals.

### PART 2 PRODUCTS

#### 2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Eaton.
  - 2. GE.
  - 3. Square D.
  - 4. Or Approved Equal.

#### 2.02 ENCLOSED CIRCUIT BREAKERS

- A. Enclosed Circuit Breakers
  - 1. Ground Fault protection type:
    - a. Required for solidly grounded wye service entrance switches over 150 Volts to ground, not exceeding 600 Volts and rated 1000 Amps and above.
  - 2. Switch Duty (SWD) rated type for switching lighting fixtures. Note that energy code restricts use of circuit breakers as sole means of switching lighting circuits. (See State of Washington Nonresidential Energy Code 1513.2)
  - 3. Auxiliary contacts: Provide as required by engineering considerations.
- B. Molded-Case Circuit Breaker: NEMA AB 1, with interrupting capacity to meet available fault currents.
  - 1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250A and larger.
  - 2. Current-Limiting Circuit Breakers: Frame sizes 400A and smaller; let-through ratings less than NEMA FU 1, RK-5.
  - 3. Integrally Fused Circuit Breakers: Thermal-magnetic trip element with integral limiter-style fuse listed for use with circuit breaker; trip activation on fuse opening or on opening of fuse compartment door.
  - 4. Molded-Case Switch: Molded-case circuit breaker without trip units.
- C. Molded-Case Circuit-Breaker Features and Accessories: Standard frame sizes, trip ratings, and number of poles.
  - 1. Lugs: Mechanical style suitable for number, size, trip ratings, and material of conductors.

2. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
  3. Communication Capability: Integral Din-rail-mounted communication module with functions and features compatible with power monitoring and control system.
  4. Shunt Trip: 120V trip coil energized from separate circuit, with coil-clearing contact.
  5. Undervoltage Trip: Set to operate at 35 to 75 percent of rated voltage without intentional time delay.
  6. Auxiliary Switch: one NO/NC reversible contact that operates only when circuit breaker has tripped.
  7. Key Interlock Kit: Externally mounted to prohibit circuit-breaker operation; key shall be removable only when circuit breaker is in off position.
  8. Zone-Selective Interlocking: Integral with electronic trip unit; for interlocking ground-fault protection function.
- D. Service Entrance: For enclosed circuit breakers identified for use as service equipment, provide solid neutral assembly and equipment ground bus.

#### 2.03 ENCLOSURES

- A. NEMA AB 1, NEMA KS 1 and UL 50 to meet environmental conditions of installed location.
1. Indoor Wet or Damp Locations and Outdoor Dirty/Oily or Washdown Locations: NEMA 250, Type 4.
  2. Outdoor Locations: NEMA 250, Type 3R.
  3. Corrosive Locations: NEMA 250, Type 4X, stainless steel.

#### 2.04 FACTORY FINISHES

- A. Manufacturer's standard prime-coat finish ready for field painting.
- B. Finish: Manufacturer's standard paint applied to factory-assembled and tested enclosures before shipping.

### PART 3 EXECUTION

#### 3.01 EXAMINATION

- A. Examine elements and surfaces to receive enclosed switches and circuit breakers for compliance with installation tolerances and other conditions affecting performance.
1. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.02 EQUIPMENT INSTALLATION

- A. Comply with NFPA 70 working space requirements and NECA 1.

- B. Standard Mounting Height: Install individual wall-mounted switches and circuit breakers with tops at uniform height unless otherwise indicated. Operating handle typically at 5'-0" above grade or finished floor.
- C. Mount on substantial structure and secure to meet seismic zone 3 requirements.
- D. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from enclosures and components.
- E. Set adjustable parameters and provide testing and calibration as required by engineering considerations.

### 3.03 IDENTIFICATION

- A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs as specified in Section 26 05 53 - Electrical Identification.
- B. Install enclosure nameplate with switch or circuit breaker designation, power source, source location, voltage, load served and load location.
  - 1. Identify special conditions for shutting down load served.
- C. Apply label inside door cover identifying NEMA fuse class and size of fuses installed.

### 3.04 CONNECTIONS

- A. Install equipment grounding connections for switches and circuit breakers with ground continuity to main electrical ground bus.
- B. Install power wiring. Install wiring between switches and circuit breakers, and control and indication devices.
- C. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.
  - 1. Mark lugs after torquing with red paint such that paint will be visibly disturbed if lugs are disturbed.

### 3.05 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to initially inspect, test, and adjust components, assemblies, and equipment installations, including connections. Verification will be by third party testing agency.
- B. Prepare for acceptance tests as follows:
  - 1. Test insulation resistance for each enclosed switch, circuit breaker, component, and control circuit.
  - 2. Test continuity of each line- and load-side circuit.
- C. Testing: After installing enclosed switches and circuit breakers and after electrical circuitry has been energized, demonstrate product capability and compliance with requirements.

1. Procedures: Perform each visual and mechanical inspection and electrical test indicated in NETA ATS, Section 7.5 for switches and Section 7.6 for molded-case circuit breakers. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

#### 3.06 ADJUSTING

- A. Adjust moving parts and operable components to function smoothly, and lubricate as recommended by manufacturer.
- B. Set field-adjustable switches and circuit-breaker trip ranges.

#### 3.07 CLEANING

- A. On completion of installation, inspect interior and exterior of enclosures. Remove paint splatters and other spots. Vacuum dirt and debris; do not use compressed air to assist in cleaning. Repair exposed surfaces to match original finish.

#### 3.08 OPERATION AND MAINTENANCE MANUALS

- A. Comply with Section 01 78 23 - Operations and Maintenance Data and Part 1 of this specification.

### PART 4 MEASUREMENT AND PAYMENT

#### 4.01 GENERAL

- A. No separate measurement or payment will be made for the Work required by this section. The cost for this portion of the Work will be considered incidental to, and included in the payments made for the applicable bid items.

|                |
|----------------|
| End of Section |
|----------------|



## **PART 1 – GENERAL**

### **1.1 SUMMARY**

- A. This Section includes grounding of electrical systems and equipment. Grounding requirements specified in this Section may be supplemented by special requirements of systems described in other Sections.
- B. Related Documents: The provisions and intent of the Contract, the General and Supplementary Conditions, and Division 1 Specification Sections, apply to the Work as if specified in this Section.

### **1.2 REFERENCES**

- A. ASTM B8.
- B. NFPA 70 (National Fire Protection Association) - National Electrical Code.
- C. ANSI/UL 467 - (Underwriter's Laboratory) - Grounding and Bonding Equipment.

### **1.3 QUALITY ASSURANCE**

- A. Listing and Labeling: Provide electrical components, devices, and accessories that are Listed and Labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to the Authority Having Jurisdiction, and marked for specific types, sizes, and combinations of conductors and connected items.
- B. Comply with IEEE 837 and UL 467.
- C. Comply with IEEE Std. 142 (Green Book).
- D. Comply with NFPA 70.
- E. Comply with IEEE C2 for overhead-line construction and medium-voltage underground construction.

### **1.4 SUBMITTALS**

- A. Submit product data for the following:
  - 1. Grounding conductors and cables.
  - 2. Grounding connectors.
  - 3. Grounding electrodes.
  - 4. Ground bus.
- B. Field Test Reports: Submit written test reports to include the following:
  - 1. Test procedures used.
  - 2. Test results that comply with requirements.
  - 3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.

## **PART 2 – PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Grounding Conductor Fittings:
    - a. Erico Inc.
    - b. Chance/Hubbell.
    - c. Copperweld Corp.
    - d. Erico Inc.; Electrical Products Group.
    - e. Framatome Connectors/Burndy Electrical.
    - f. Ideal Industries, Inc.
    - g. ILSCO.
    - h. Kearney/Cooper Power Systems.
    - i. Lyncole XIT Grounding.
    - j. O-Z/Gedney Co.
    - k. Racor, Inc.; Division of Hubbell.
    - l. Thomas & Betts, Electrical.
  - 2. Grounding Connectors:
    - a. Erico.
    - b. ILSCO.
    - c. Lyncole XIT Grounding.
    - d. O-Z/Gedney.
    - e. Racor, Inc.; Division of Hubbell.
    - f. Thomas & Betts

### **2.2 GROUNDING CONDUCTORS**

- A. For insulated conductors, comply with Specification Section 26 05 19, Low Voltage Electrical Power Conductors and Cables.
- B. Material: Copper.
- C. Equipment Grounding Conductors: Insulated with green-colored insulation.
- D. Grounding Electrode Conductors: Stranded cable.
- E. Underground Conductors: Bare, tinned, stranded.
- F. Bare Copper Conductors: Assembly of stranded conductors, ASTM B 8.
- G. Copper Bonding Conductors:
  - 1. Bonding Conductor: #4 or #6 AWG, stranded copper conductor.
  - 2. Bonding Jumper: Bare copper tape, braided bare copper conductors, terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

- H. Bonding Straps: Soft copper.
- I. Grounding Bus: Bare, annealed copper bars of rectangular cross section, with insulators.

### 2.3 CONNECTORS

- A. Pressure Connectors: High-conductivity-plated units.
- B. Bolted Connectors: Heavy-duty, bolted-pressure-type.
- C. Welded Connectors: Exothermic-welded type, in kit form, and selected per manufacturer's written instructions.

### 2.4 GROUND BUS

- A. Ground bus: 1/4 inch x 2 inch copper mounted on stand-off insulators. Size and location as shown on drawings.

## PART 3 – EXECUTION

### 3.1 APPLICATION

- A. Copper conductors for both insulated and bare grounding conductors in direct contact with earth, concrete, masonry, crushed stone, and similar materials.
- B. In raceways, use insulated equipment grounding conductors.
- C. Exothermic-Welded Connections: Use for connections to structural steel, rail, rebar and for underground connections.
- D. Equipment Grounding Conductor Terminations: Use bolted pressure clamps.
- E. Grounding Bus: Install in electrical and communications equipment rooms, in rooms housing service equipment, and elsewhere as indicated.
  - 1. Use insulated spacer; space 1 inch from wall and support from wall 18 inches above finished floor, unless otherwise indicated.

### 3.2 EQUIPMENT GROUNDING CONDUCTORS

- A. Comply with NFPA 70, Article 250, for types, sizes, and quantities of equipment grounding conductors, unless specific types, larger sizes, or more conductors than required by NFPA 70 are indicated.
- B. Install equipment grounding conductors in all feeders and branch circuits unless otherwise noted.
- C. Busway Supply Circuits: Install insulated equipment grounding conductor from the grounding bus in the switchgear, switchboard, or distribution panel to equipment grounding bar terminal on busway.
- D. Nonmetallic Raceways: Install an equipment grounding conductor in all nonmetallic raceways unless they are designated for telephone or data cables.

### 3.3 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Bonding Straps and Jumpers: Install so vibration by equipment mounted on vibration isolation hangers and supports is not transmitted to rigidly mounted equipment.
  - 1. Use exothermic-welded connectors for outdoor locations, unless a disconnect-type connection is required; then, use a bolted clamp.

2. Bond straps directly to the basic structure taking care not to penetrate any adjacent parts.
  3. Install straps only in locations accessible for maintenance.
- C. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with grounding clamp connectors.
- D. Gas Piping: Bond each aboveground portion of gas piping system upstream from equipment shutoff valve.

### 3.4 CONNECTIONS

- A. General: Make connections so galvanic action or electrolysis possibility is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.
1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer to order of galvanic series.
  2. Make connections with clean, bare metal at points of contact.
  3. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.
  4. Make aluminum-to-galvanized steel connections with tin-plated copper jumpers and mechanical clamps.
  5. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.
- B. Exothermic-Welded Connections: Comply with manufacturer's written instructions. Welds that are puffed up or that show convex surfaces indicating improper cleaning are not acceptable.
- C. Equipment Grounding Conductor Terminations: For #8 AWG and larger, use pressure-type grounding lugs. #10 AWG and smaller grounding conductors may be terminated with winged pressure-type connectors.
- D. Noncontact Metal Raceway Terminations: If metallic raceways terminate at metal housings without mechanical and electrical connection to housing, terminate each conduit with a grounding bushing.
1. Connect grounding bushings with a bare grounding conductor to grounding bus or terminal in housing.
  2. Bond electrically noncontinuous conduits at entrances and exits with grounding bushings and bare grounding conductors, unless otherwise indicated.
- E. Tighten screws and bolts for grounding and bonding connectors and terminals according to manufacturer's published torque-tightening values.
- F. Compression-Type Connections: Use hydraulic compression tools to provide correct circumferential pressure for compression connectors. Use tools and dies recommended by connector manufacturer. Provide embossing die code or other standard method to make a visible indication that a connector has been adequately compressed on the grounding conductor.
- G. Moisture Protection: If insulated grounding conductors are connected to grounding buses, insulate entire area of connection and seal against moisture penetration of insulation and cable.

### 3.5 UNDERGROUND DISTRIBUTION SYSTEM GROUNDING

- A. Ductbanks: Provide a ground conductor with each medium-voltage and low voltage feeder circuit sized per NEC.
- B. Connections to Vault/Manhole Components: Connect all exposed-metal parts, such as inserts, cable racks, pulling irons, cover frame, cover, sump ladders, and cable shields within each manhole to ground loop conductor.
  - 1. Make connections with #2 AWG minimum, stranded, hard-drawn copper conductor.
  - 2. Train conductors level or plumb around corners and fasten to manhole walls.
  - 3. Make connection to cable shield as recommended by manufacturer of splicing and termination kits.
  - 4. Connect equipment grounding conductor in each conduit to ground loop.

### 3.6 IDENTIFICATION

- A. Identify grounding system components as required by the Authority Having Jurisdiction and as specified in Division 26, Section "Identification for Electrical Systems."

### 3.7 FIELD QUALITY CONTROL

- A. Testing: Perform the following field quality-control testing:
  - 1. After installing grounding system but before permanent electrical circuitry has been energized, test for compliance with requirements.
    - a. Measure ground resistance without the soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
    - b. Test by one of the following methods for resistance measurement:
      - 1) Perform fall of potential test per IEEE Standard No. 81, Section 9.04 on the main grounding electrode or system for each substation and building.
      - 2) Perform the two-point method test per IEEE No.81 Section 9.03 to determine the ground resistance between the main grounding system and all major electrical equipment frames, system neutral and/or derived neutral points.
      - 3) Alternate Method: Perform ground continuity test between main ground system and equipment frame, system neutral and/or derived neutral point. Conduct test by passing a minimum of ten amperes dc current between ground reference system and the ground point to be tested. Measure voltage drop and calculate resistance by voltage drop method.
    - c. Test Requirements:
      - 1) Equipment Rated and manhole/handhole grounds: 10 ohms.
    - d. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Engineer promptly and include recommendations to reduce ground resistance.
  - 2. Record test results on a Ground Resistance Test Report form for inclusion with O & M Manuals.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 RELATED WORK SPECIFIED ELSEWHERE**

- A. The provisions and intent of the Contract, including the General Conditions, Supplementary Conditions and General Requirements, apply to this work as if specified in this section. Work related to this section is described in:
  - 1. Section 02 41 00 - Demolition
  - 2. Section 31 23 33 - Trenching and Backfilling
  - 3. Section 32 12 16 - Asphalt Paving
  - 4. Section 32 15 40 - Crushed Stone Surfacing

### **1.2 DESCRIPTION OF WORK**

- A. The work includes excavation and backfill areas associated with the SIM Yard Charging Stations Project construction as indicated on the drawings and specifications.
- B. Excess materials generated as a result of the work, if suitable, may be reused as on-site borrow, or exported off site. Use of the material as on-site borrow is subject to approval by the Engineer as described in these specifications. Physical and/or chemical characterization of excess materials will be required and will be provided by Engineer.

### **1.3 QUALITY ASSURANCE**

- A. The Port will provide testing and inspection services. Sampling and testing for compliance with the Contract provisions will be in accordance with Section 01 45 00 - Quality Control of these specifications. The Contractor may obtain copies of test results performed by the Port at no cost. Tests conducted for the sole benefit of the Contractor shall be at the Contractor's expense.
- B. Codes and Standards: The Contractor shall comply with the applicable provisions of all pertinent codes and regulations. References made herein for materials and execution of work refer to designations published by the Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction (WSDOT Standard Specifications 2021 edition).

### **1.4 SUBMITTALS**

- A. The Contractor shall perform and pay for and submit test reports for all imported materials as specified in paragraphs 2.08 and 2.10. Submit test reports for all field tests to determine in-place density as specified in paragraph 3.05.

### **1.5 SITE CONDITIONS**

- A. Existing Utilities: The Contractor shall verify the location of existing utilities at the site, and shall use an independent private locate company to assist. Those utilities which are to remain shall be protected from damage. Damage to utilities which are to remain shall be repaired by the Contractor at no cost to the Port.

## **PART 2 - PRODUCTS**

Materials shall be of the quality, size, shape, gradation, or equal to that manufacture as specified herein.

### **2.1 CRUSHED STONE SURFACING / BASE COURSE MATERIAL**

- A. Base Course Material shall be considered equal to Crushed Stone Surfacing and meet the

requirements of WSDOT Standard Specifications, 9-03.9(3).

## 2.2 RECYCLED MATERIALS

- A. Asphalt removed by demolition activities shall not be reused on the project. See Section 02 41 00 – Demolition.

## 2.3 BEDDING MATERIAL

- A. Bedding material for pipes shall consist of clean, well graded granular material meeting the requirements of the WSDOT Standard Specifications, Section 9-03.12(3). Imported bedding materials shall be characterized as specified in paragraphs 2.08 and 2.10 at the Contractor's expense.

## 2.4 BALLAST MATERIAL

- A. Ballast material shall be crushed or partially crushed granular material meeting the requirements of the WSDOT Standard Specifications, Section 9-03.9(1).

## 2.5 BACKFILL MATERIAL

- A. Material used for backfill shall be clean, free-draining, sandy gravel or gravelly sand obtained from natural deposits or from excess soils generated during site construction activities. Individual particles shall be free from all objectionable coating. The material shall contain no organic matter or soft friable particles considered objectionable by the Engineer.

## 2.6 STRUCTURAL (SELECT) FILL & BACKFILL

- A. Material shall be in accordance with WSDOT Standard Specification Section 9-03.14(1), Select Borrow.

## 2.7 FOUNDATION GRAVEL

- A. Foundation Gravel for use as directed by the Engineer shall be crushed stone in accordance with WSDOT Standard Specifications Section 9-03.12(1)A.

## 2.8 OFF-SITE BORROW SOURCE CHARACTERIZATION

- A. Off-site borrow source characterization shall be performed by the Contractor as specified in Paragraph 2.10 to assure that imported materials are natural, native, virgin materials, free of contaminants, including debris, and meet the requirements of the contract documents.
- B. Characterization requirements described in Section 2.10 may be waived by the Engineer if the Contractor demonstrates that the material is from a known source of natural origin and supplied by a commercial material supplier that certifies in writing that the material is free of chemical contaminants and provides certified laboratory data results representative of the source material.
- C. The Engineer maintains the right to reject any materials that have been determined to be substandard for any reason. In the event of rejection, it shall be the responsibility of the Contractor to remove all stockpiles of rejected material from the site.

### 1. General

- a. Materials shall be of the quality, size, shape, gradation, or equal to that manufacture as specified herein. The Contractor shall submit a characterization of any and all imported material prior to any on-site placement. The characterization will include source identification, analyses of a material source sample, and a source inspection report. The material shall not be imported to the site until approved by the Engineer. Once approved and imported to the site, the Contractor shall perform an on-site inspection of the material to verify that it is the material sampled for characterization



and approval.

2. Source Identification

- a. The Contractor shall provide documentation of the origin of imported materials and maps identifying specific location(s) of material source(s). Physical and chemical characterization reports available from the material supplier shall be provided to the Engineer.

3. Inspection of Source

- a. The Contractor shall inspect all material sources. During such inspection, the Contractor shall ensure that materials to be delivered to the jobsite are likely to meet the appropriate specifications. The Contractor shall provide the Engineer two weeks notice of such inspections. The Engineer or a designated representative may accompany the Contractor to witness such inspections. This witnessing shall in no way release the Contractor from complying with the specifications and in no way shall be construed as approval of any particular source of material.

4. Testing, Reporting, and Certification

- a. Off-site borrow materials shall be in accordance with the requirements of Paragraph 2.10 unless waived by the Engineer.

5. Inspection of Materials at the Jobsite

- a. The Contractor shall visually inspect import material upon delivery. Materials shall be inspected for presence of foreign, recycled, or reprocessed material. The Engineer may at any and all times perform an independent inspection. Material may be tested according to Paragraph 2.10 at the Engineer's discretion. Material may be rejected due to the presence of deleterious substances or as a result of substandard test results.

## 2.9 ON-SITE BORROW SOURCE CHARACTERIZATION

- A. Excess soils generated during site activities may be used as on-site borrow for backfill and other fills associated with the work, as approved by the Engineer. Characterization of excess materials generated during site activities and proposed for reuse as on-site borrow material may be performed by the Port as determined by the Engineer to assure that onsite borrow materials are free of contaminants, including debris and meet the requirements of the contract documents. The Engineer maintains the right to reject any materials that have been determined to be substandard for any reason. One or more of the tests listed in these specifications may be required by the Engineer for characterization prior to acceptance. The Contractor shall provide representative sample(s) of the material if requested.

1. General

- a. Materials shall be of the quality, size, shape, gradation, or equal to that manufacture as specified herein or as approved by the Engineer. The Contractor shall submit a written request for approval for use of on-site borrow materials at least 3 weeks prior to any on-site placement. The request shall identify the source of the material, proposed onsite use and quantity of material to be used. The Engineer may request that the Contractor provide samples of the material for physical and/or chemical characterization. The material shall not be reused at the site until approved by the Engineer. Once approved for site use, the Contractor shall perform an on-site inspection of the material to verify that it is the material sampled for characterization and approval.



## 2.10 CHARACTERIZATION TESTING, REPORTING, AND CERTIFICATION

- A. The Contractor shall provide characterization and testing as described below for all off-site borrow materials.
- B. The Contractor is responsible for all testing costs associated with characterization of off-site borrow materials.
- C. The Contractor shall provide the name of the material source with each sample submitted.
- D. Characterization Testing shall include:
  - 1. Grain Size Distribution (ASTM D 422)
  - 2. Maximum Dry Density (ASTM D 1557) and may include one or more of the following:
  - 3. Priority Pollutant Metals (EPA SW 846 6010/6020/7041)
  - 4. Volatile Organic Compounds (EPA SW 846 8260)
  - 5. Semi-volatile Organic Compounds (EPA SW 846 8270)
  - 6. PCBs and Pesticides (EPA SW 846 8080)
  - 7. Petroleum Hydrocarbons (NWTPH-HCID)
- E. Characterization Testing may also include one or more of the following:
  - 1. Priority Pollutant Metals (EPA SW 846 6010/6020/7041)
  - 2. Volatile Organic Compounds (EPA SW 846 8260)
  - 3. Semi-volatile Organic Compounds (EPA SW 846 8270)
  - 4. PCBs and Pesticides (EPA SW 846 8080)
  - 5. Petroleum Hydrocarbons (NWTPH-HCID)

## PART 3 - EXECUTION

Excavating which is part of this Contract, shall be completed within the tolerances established or within reasonably close conformity with the alignment grade and cross sections indicated on the drawings or as established within these specifications.

### 3.1 EXCAVATION AND GRADING

- A. Excavation: Shall be the naturally occurring earth or fill, sand, gravel, clays, or mixtures of the above, required to be moved for the construction of roadways, railways, slopes, approaches, parking areas, service yard and associated work. Excavation material shall be moved with the use of mechanical equipment, such as shovels, clamshells, loaders, bulldozers, graders, rippers, etc., but shall not require drilling and blasting or drilling and line breaking. Excavation by sluicing method will not be permitted unless specifically approved by the Engineer. In general, excavation shall be removed in horizontal layers in such a way that the resulting material will be a reasonable blend of the naturally occurring materials.
- B. Filling: Place material in horizontal layers upon earth which has been stabilized or otherwise approved by the Engineer.
  - 1. Irrespective of the method of compaction specified, at the time of compaction the moisture content of that portion of the material passing a U.S. No. 4 sieve shall not be more than three (3) percentage points above or below the optimum moisture content at 95% density as determined by Compaction Control Density Tests, described in paragraph 3.05 "Compaction Control Tests" of these specifications.

2. Construct in compacted layers of uniform thickness. Carry the layers up full width from the bottom. Compact with modern, efficient compacting units satisfactory to the Engineer. The compacting units may be of any type, provided they are capable of compacting each lift of the material to the specified density. The right is reserved for the Engineer to order the use of any particular compacting unit discontinued if it is not capable of compacting the material to the required density within a reasonable time, or if the equipment may damage underlying or adjacent soils or structures.
3. Construct fill and backfill areas in successive horizontal layers not exceeding 8 inches in loose thickness except that the layers in the top 2-feet shall not exceed 4-inches in loose thickness. Compact each layer of the top 2-feet to 95% and each layer below the top 2-feet to 90% of the maximum density as determined by compaction control tests. Use small mechanical or vibratory compactor units to compact the layers adjacent to structures that are inaccessible to the loaded haul equipment or other compaction rollers.

### 3.2 EXCAVATION FOR STRUCTURES AND UTILITIES

- A. Excavation below the designed depth, except as directed by the Port, shall be backfilled with select fill material and compacted as specified, at no extra cost to the Port.
- B. Brace and shore sides of excavations. Comply with all federal, state, and local regulations regarding shoring, bracing, and other protection requirements.
- C. Protect excavated material, stockpiled for use as backfill, from contamination by other materials and from damage by weather by covering with waterproof sheeting or other suitable means. Any material not properly protected and becomes unsuitable as a result will be replaced at no additional cost to the Port.
- D. Unsuitable Structural and Trench Excavation: Shall consist of unstable materials, such as peat, muck, water-impregnated clays, swampy or other undesirable materials, including buried logs, stumps, or trash. Unsuitable excavation materials shall be removed to the depth designated by the Port.
  1. Unsuitable material excavated shall be replaced with Foundation Gravel per paragraph 2.07 as directed by the Engineer.
  2. Unsuitable materials, excess material and excavated material not approved by the Port for use as fill shall be transported off-site by the and disposed of, by the contractor, at a qualified facility.

### 3.3 FILL AND BACKFILL FOR STRUCTURES AND UTILITIES

- A. Beneath all underground structures, place a minimum of 6-inches of Foundation Gravel, or more if specified on drawings, over compacted subgrade. If subgrade is soft and cannot be adequately compacted, contact Engineer
- B. Place backfill and structural backfill to lines and grades indicated on the drawings.
- C. Compact subgrade, as specified in paragraph 3.04, before placing any fill or aggregate material.
- D. Do not place any fill against concrete walls/structures until the concrete has attained its specified design strength and/or certain other construction sequence criteria, if noted on the drawings, are met, or as specifically approved by the Engineer.
- E. Place fill in layers not exceeding 6-inches (loose thickness) and compact to at least 95% of dry density (ASTM D1557).

### 3.4 COMPACTION

- A. Compaction shall be performed with approved compaction equipment suited to the soil and the area being compacted. Moisten or aerate material as necessary to provide the moisture content that will readily facilitate obtaining the specified compaction with the equipment used. Each lift of material placed shall be uniformly compacted to the density indicated for the specific material and use set forth in these Specifications. The percent of density required is in relation to the maximum density obtainable at optimum moisture content (Compaction Control Density) as determined in paragraph 3.05 "Compaction Control Tests."

### 3.5 COMPACTION CONTROL TESTS

- A. Laboratory and field tests shall be performed by the Port in accordance with the applicable provisions of these Specifications.
  - 1. Compaction control density shall be the maximum density at optimum moisture content as determined by ASTM D 1557, Standard Methods for Moisture-Density Relationships of Soil and Soil Aggregates, Methods B, C or D as applicable but shall be no less than 95% of dry density for Select Fill and Backfill and no less than 98% of dry density for Base Course Material.
  - 2. Field tests to determine in-place compliance with required densities as specified, shall be performed in accordance with ASTM D 1556, D 2167, or D 2922.

### 3.6 GRADING AND LEVELING:

- A. The finished profiles of the entire yard shall be graded within a tolerance of 0.05 foot plus or minus in 10 feet, ready for base course (wherever pavement is to be furnished).

### 3.7 PREPARATION FOR CRUSHED STONE SURFACING / BASE COURSE:

- A. Preparation of Subgrade: Immediately prior to placement of aggregate materials, clean the entire width of the area of all debris and dispose of as directed by the Engineer. All depressions or ruts which contain storm water shall be drained.
  - 1. Shape the entire subgrade to a smooth uniform surface, true to line, grade, and cross section as staked by the Contractor. Compact the subgrade material to 95% of the maximum density as determined by compaction tests ASTM Designation D 1557. If soft or spongy material underlying the upper six inches of the area being prepared precludes satisfactory compaction of the upper six inches, loosen, aerate, or excavate, replace and compact to the required density as directed by the Engineer.
  - 2. Remove and dispose of excess material which cannot be disposed of by normal drifting to low spots during blading and shaping operations or by placing in subgrade areas deficient in materials or by wasting, all as directed by the Engineer. Subgrade areas deficient in materials shall be brought to grade by importing suitable materials from other subgrade areas or other sources as directed by the Engineer. Materials added to subgrade areas deficient in materials shall be watered and compacted as necessary to yield a true finished subgrade as described above.
  - 3. Once it is prepared, maintain the subgrade for surfacing in the finished condition until the first course of aggregate has been placed.

- B. Finishing Subgrades: Before any paving material is placed, the subgrade shall be brought to the proper line, grade and cross section and shall be so maintained until the base course and paving is placed, except that extra depth of subgrade for increased thickness of the pavement, for pavement anchors, for pavement headers, and for increased thickness at the edges of the pavement may be removed just before the pavement is placed.
  - 1. Compact the subgrade for pavement to 95% of maximum density as defined for Compaction Control Density, Paragraph 3.05 "Compaction Control Tests" of these specifications.
- C. Subgrade Protection: Take all precautions necessary to protect the subgrade from damage; hauling over the finished subgrade shall be limited to that which is essential for construction purposes. Equipment used for hauling over the prepared subgrade which, in the opinion of the Engineer, is causing undue damage to the prepared subgrade or to the underlying materials, shall be removed from the work at the request of the Engineer. Repair at the Contractor's expense all cuts, ruts and breaks in the surface of the subgrade prior to placing surfacing, treated base, or paving materials. Protect the prepared subgrade from both the Contractor's traffic and public traffic and maintain the subgrade by blading and rolling as frequently as may be necessary to preserve the subgrade in a completely satisfactory condition.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 RELATED WORK SPECIFIED ELSEWHERE**

- A. Section 26 05 00 - Common Work Results for Electrical
- B. Section 31 00 00 - Earthwork
- C. Section 32 15 40 - Crushed Stone Surfacing

### **1.2 DESCRIPTION OF WORK**

- A. Work herein generally covers trenching, bedding, backfilling and compaction required for installation of site utilities. Trench excavation and backfill shall include all excavation, backfilling, disposal of surplus and unsuitable material and all other work incidental to the construction of trenches.

### **1.3 SITE CONDITIONS**

- A. Contractor shall verify location of all existing subsurface utilities prior to excavation.

### **1.4 SUBMITTALS**

- A. Refer to Section 31 00 00 - Earthwork.

## **PART 2 - PRODUCTS**

### **2.1 BEDDING MATERIAL**

- A. Refer to Section 31 00 00 - Earthwork.

### **2.2 BACKFILL MATERIAL**

- A. Refer to Section 31 00 00 - Earthwork

### **2.3 UNDERGROUND MARKING TAPE**

- A. Underground marking tape shall consist of inert polyethylene plastic, 4-mil thickness that is impervious to all known alkalis, acids, chemical reagents and solvents likely to be encountered in the soil, with a metallic foil core to provide the most positive detection and pipeline locators.
- B. The tape shall be color coded and shall be imprinted continuously over its entire length in permanent black ink. The message shall convey the type of line buried below and shall also have the word "Caution" prominently shown. Color coding of the tape shall be as follows:

| <u>Utility</u> | <u>Tape Color</u> |
|----------------|-------------------|
| Water          | Blue              |
| Sanitary Sewer | Green             |
| Electrical     | Red               |

- 1. The width of the tape shall be as recommended by the manufacturer for the depth of installation.

## **PART 3 - EXECUTION**

### **3.1 STOCKPILING AND DISPOSAL**

- A. All excavated material shall be stock piled beside the trench as it is removed and shall be backfilled from this position or wasted offsite. The disposal of excess material shall be performed in accordance with Section 31 00 00 - Earthwork.

### 3.2 TRENCH EXCAVATION

- A. The Contractor shall maintain, at all times during the execution of this work, safe and stable excavations. All trench excavation and preparation shall comply with applicable requirements of Section 7-08.3(1) of the WSDOT Standard Specifications, 2020 edition.
- B. Unsuitable materials encountered during trench excavation shall be handled as specified in Section 31 00 00 - Earthwork.

### 3.3 TEMPORARY TRENCH COVER

- A. So as to maintain vehicular traffic at and around the trench work, the Contractor shall provide temporary steel plate trench covers of thickness to support normal truck traffic loads as present at the site based on span dimension across trenches.
- B. Temporary trench covers are to be removed as soon as underground utility work is completed in accordance with the referenced WSDOT Standard Specification indicated in paragraph 3.02 above to allow backfill and compaction work.

### 3.4 BEDDING AND BACKFILLING

- A. Place and compact trench Bedding and Backfill material in accordance with Sections 7-08.3(1)C and 7-08.3(3) of the WSDOT Standard Specifications, 2020 edition. Compaction testing will be performed in conformance with Section 31 00 00 - Earthwork.
- B. Backfill utility structures with structural backfill as specified in Section 31 00 00 - Earthwork and as called for on the drawings.

### 3.5 COMPACTION

- A. Contractor shall properly place and compact all bedding materials to at least 90% of dry density per ASTM D1557 in the bedding zone and compact backfill materials above bedding to 95% of dry density. Contractor shall correct any deficiencies resulting from insufficient or improper compaction of such materials throughout the contract period.

### 3.6 COMPACTION CONTROL TESTS

- A. Refer to Section 31 00 00 - Earthwork

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 RELATED WORK SPECIFIED ELSEWHERE**

- A. The provisions and intent of the Contract, including the General Conditions, Supplementary Conditions and General Requirements, apply to the work as if specified in this section. Work related to this section is described in:
  - 1. Section 02 41 00 - Demolition
  - 2. Section 31 00 00 - Earthwork
  - 3. Section 32 15 40 - Crushed Stone Surfacing

### **1.2 DESCRIPTION OF WORK**

- A. The extent of work is indicated on the Drawings. The work includes the requirements for producing, transporting, placing, shaping and compacting of one or more courses of materials in conformance with these Specifications and the dimensions and sections indicated on the Drawings. Pavement, asphalt, ACP (Asphaltic Concrete Pavement), and HMA (Hot Mix Asphalt) are all intended to describe asphalt concrete pavement.

### **1.3 QUALITY ASSURANCE**

- A. The Port will provide necessary inspection services. Sampling and testing for compliance with the Contract provisions shall be in accordance with Section 01 33 00 - Submittal Procedures of these Specifications. The Contractor may obtain copies of results of tests performed by the Port from the office of the Port, at no cost. Tests conducted for the sole benefit of the Contractor, shall be at the Contractor's expense.
- B. Unless otherwise referenced or modified herein, quality control and quality standards for this section shall be as specified in the Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction 2020 edition.

### **1.4 SUBMITTALS**

- A. The Contractor shall submit a mix design / Job Mix Formula (JMF) for this project, taking into account the specific plan and equipment to be used, that is in accordance with WSDOT Standard Specifications Section 5-04.2(2). The Contractor shall also submit certificates of Specification compliance for materials to be used, and supporting documentation showing the submitted mix design has been previously approved by WSDOT for a project within the last 12 months of when paving operations are scheduled to begin. Submittal shall include all the test data demonstrating the JMF meets the requirements of WSDOT Standard Specification Sections 9-03.8(2) and 9-03.8(6). Contractor shall determine anti-strip requirements for the HMA, if any, in accordance with WSDOT test method T718.
  - 1. Note: The work cannot proceed until the Contractor's mix design and placing methods are approved by the Engineer. Mix design shall ensure air void content is between 4 to 5 percent in laboratory compacted mixtures. Asphalt content shall not be arbitrarily increased in construction to facilitate compaction, to minimize segregation, or for any other reason.
- B. Formulas shall indicate physical properties of the mixes as shown by tests made by a commercial laboratory using materials identical to those to be provided on this project. JMF for each mixture shall be in effect until modified in writing by the Contractor and approved by the Engineer. Provide a new JMF for each source change. Submittal shall include the following as a minimum:
  - 1. Source of proportions, percent by weight, of each ingredient of the mixture.



2. Correct gradation, the percentage passing each size sieve listed in Section 9-03.8(6) of WSDOT Standard Specifications.
3. Effective asphalt content as percent by weight of total mix.
4. Percent air voids (between 4 to 5).
5. Asphalt performance grade.
6. Tack Coat: Type and grade of asphalt.

#### 1.5 TESTING REQUIREMENTS

- A. Shall comply with the WSDOT Standard Specifications Sections 9-03.8(2) and 9-03.20. Aggregates for the HMA Class specified shall meet the requirements for pavements having greater than 10 million ESAL's in accordance with WSDOT Standard Specifications Section 9-03.8(2).

### PART 2 - PRODUCTS

#### 2.1 ASPHALT CONCRETE PAVING CLASS

- A. Asphalt concrete paving shall be Class 1/2" or 1" for Base Course lifts, but top 3-inches of paving shall be Class 1/2" for Wearing Course. Materials shall be proportioned according to WSDOT Standard Specification Section 9-03.8(6).

#### 2.2 ASPHALT MATERIALS

- A. Aggregate for asphalt concrete shall conform to the grading requirement of Section 9-03.8, and shall be tested according to Section 9-03.20 of WSDOT Standard Specifications.
- B. Asphalt: Manufacturer shall be on WSDOT approved list. Performance grade for all courses of paving shall be PG 64-22 conforming to AASHTO Specification M 320.
- C. Joint sealer shall be paving asphalt 64-22 conforming to AASHTO Specification M 320.
- D. Tack coat shall be emulsified asphalt, CSS-1, conforming to
  1. Section 9-02.1(6) of the WSDOT Standard Specifications.
- E. Anti-Stripping Agent: AD-HERE LOF 65-00 manufactured by ARR-MAZ Products, Dytek-BHMT by Dytek, Inc. or approved equal.

#### 2.3 ASPHALT MIXING

- A. Mixing plant for preparing asphalt concrete shall conform to the specific requirements of Section 5-04.3 of WSDOT Standard Specifications.

### PART 3 - EXECUTION

#### 3.1 GENERAL - PLACING ASPHALT CONCRETE

- A. The asphalt concrete shall be prepared from materials as previously described and by plants and methods conforming to the WSDOT Standard Specifications. Delivery of materials to the site shall meet the requirements of the WSDOT Standard Specifications.
- B. Bituminous courses shall be placed when the crushed surfacing is dry and weather is not rainy. No mix shall be placed at atmospheric temperature below 40°F unless otherwise approved by the Port. Paving shall be placed using an approved type of paving machine. Workers shall not be allowed to walk or stand on the finished mixture before it has been rolled.



- C. Asphalt concrete shall be placed in lift thicknesses submitted by the contractor and approved by the Engineer, with a tack coat between.
- D. Construction requirements of Section 5-04.3 of WSDOT Standard Specifications shall be followed.
- E. The minimum thickness of a PG 64-22 base or wearing course lift shall be 2 inches.

### 3.2 TACK COAT

- A. Tack coat of emulsified asphalt shall be applied over the concrete deck surface and existing asphalt pavement surfaces to be overlaid. Rate of application shall be 0.10 gal/sq. yd. Tack coat requirement between lifts may be waived by the Port if the base course surface is kept thoroughly clean and the time lag between placement of base and wearing course is small.

### 3.3 COMPACTION

- A. Compaction of the asphalt concrete pavement shall conform to the requirements of WSDOT Standard Specifications Section 5-04.3(10)A, except that the use of pneumatic tired rollers between October 1st and April 1st may be waived by the Engineer. Density of the pavement in place shall be a minimum of 91% or the reference maximum density as determined by WSDOT Test Method 705. The reference maximum density shall be determined as the moving average of the most recent five determinations for the lot of asphalt concrete being placed.

### 3.4 JOINT SEAL

- A. Apply joint sealer to the edges of new paving joints, catch basins, manholes, at the meet lines to concrete structures and as directed by the Engineer. Also apply joint sealer at interface of new and existing paving after paving operations are completed.

### 3.5 SURFACE SMOOTHNESS

- A. Surface smoothness of completed pavement shall conform to the specific requirements of WSDOT Standard Specifications Section 5-04.3(13).

### 3.6 TESTING

- A. Testing shall comply with the WSDOT Standard Specifications Section 5-04.3(8).
- B. Finish Surface Texture of Wearing Course: Visually check final surface texture for uniformity and reasonable compactness and tightness. Final wearing course with a surface texture having undesirable irregularities such as segregation, cavities, pulls or streaks, indentations, ripples, or lack of uniformity shall be removed and replaced at the contractor's expense.
- C. Protection: Do not permit vehicular traffic, including heavy equipment, on pavement until surface temperature has cooled to at least 120 degrees F. Measure surface temperature by approved thermometers or other satisfactory methods.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 RELATED WORK SPECIFIED ELSEWHERE**

- A. The provisions and intent of the Contract, including the General Conditions, Supplementary Conditions and General Requirements, apply to the work as if specified in this section. Work related to this section is described in:
  - 1. Section 31 00 00 - Earthwork
  - 2. Section 32 12 16 - Asphalt Paving

### **1.2 DESCRIPTION OF WORK**

- A. The extent of work is indicated on the drawings. The work includes the requirements for furnishing and installing imported aggregate base. Work includes transporting, placing, shaping and compacting base courses in conformance with these specifications and the dimensions and sections indicated on the drawings or within the lines and grades established by the Engineer.

### **1.3 REFERENCES**

- A. Standard Specifications for Road, Bridge, and Municipal Construction, M41-10, 2021 edition, by Washington State Department of Transportation (WSDOT Standard Specifications).

### **1.4 QUALITY ASSURANCE**

- A. The Port will provide inspection service to the satisfaction of the Engineer. Sampling and testing for compliance with the Contract provisions shall be in accordance with Section 01 45 00 - Quality Control, of these specifications. The Contractor may obtain copies of results of tests performed by the Port from the office of the Project Manager at no cost. Tests conducted for initial approval or for the sole benefit of the Contractor, shall be at the Contractor's expense.

### **1.5 SUBMITTALS**

- A. The Contractor shall submit test reports in accordance with Section 013300 - Submittal Procedures, for Contractor furnished import aggregate base as follows:
  - 1. Sieve analyses for all materials specified in accordance with WSDOT Standard Specifications, Section 9-03.9(3).
  - 2. Certified Test Results for Source Materials & In-Place Density Tests
  - 3. Borrow Source Characterization

## **PART 2 - PRODUCTS**

### **2.1 CRUSHED STONE SURFACING**

- A. Material used for crushed stone surfacing shall be imported aggregate Base Course material complying with WSDOT Standard Specifications, Section 9-03.9(3). Where Top Course is shown on drawings above Base Course, material for Top Course shall be in accordance with WSDOT Standard Specifications, Section 9-03.9(3). Crushed stone surfacing shall be characterized in accordance with the requirements of Section 31 00 00 - Earthworks Paragraphs 2.07 and 2.09.

## **PART 3 - EXECUTION**

### **3.1 EQUIPMENT**

- A. All equipment necessary for the satisfactory installation of crushed stone surfacing shall meet

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the requirements of WSDOT Standard Specifications Section 4-04.3(1), as amended to provide for the following:

- B. Equip grading machines or trimmers with a spirit level or other type slope indicator which will continuously indicate the average, transverse slope of the screed. Bubble or indicator movement should be no less than 1/8 inch for each 0.1 percent change in transverse slope.

### 3.2 PREPARATION OF SUBGRADE

- A. Prepare subgrade as specified in WSDOT Standard Specifications Section 4-04.3(2), and Section 31 00 00 – Earthwork. Obtain approval of the Engineer before placing base course materials.

### 3.3 PLACEMENT OF CRUSHED STONE SURFACING

- A. Equipment necessary for the satisfactory performance of this construction shall be on the project prior to beginning work. Mixing shall comply with the applicable portions of WSDOT Standard Specifications, Section 4-04.3(3).
- B. Prepare subgrades as specified above and obtain approval of the Engineer before placing base course, ballast or surfacing materials.
- C. Mixing: After each layer of material is placed, mix the material by motor graders or other approved equipment until the mixture is uniform throughout. Add water as required to facilitate mixing and compacting.
- D. Placing and Spreading: Spread each layer of material by means of approved spreading equipment. Such equipment may be bottom-dump hauling equipment with transverse spreading facilities; self-propelled spreading and leveling machines; or spreader boxes equipped with wheels or so constructed as to preclude damage to the subgrade or underlying courses. Spreading in small areas of less than 2,000 square yards or in areas irregular in shape may be accomplished by other means as approved by the Engineer. Material shall be placed in layers not exceeding 6 inches.
- E. Shaping and Compacting: In accordance with WSDOT Standard Specifications, Section 4-04.3(5). Immediately following spreading and final shaping, compact each layer to at least ninety five percent (95%) of the standard density determined by the requirements of WSDOT Standard Specifications Section 2-03.3(14)D before the next succeeding layer is placed thereon. When the thickness of the base course is less than 0.15 feet, density testing may not be required and the Engineer will determine the number of coverage's required for the particular compaction equipment available.
  - 1. Vibratory compactors or rollers shall be adequate in design and number to provide compaction and obtain the specified density for each layer while still moist. Apply a mist spray of water as needed to replace moisture lost by evaporation. The completed layer shall have a smooth, tight, uniform surface true to the line, grade and cross section indicated on the drawings.
  - 2. Variations in the surface of the top course shall be a maximum of 1/4 inch in 10 feet. Shave off or fill in variations greater than the allowable and recompact that area.
- F. Surface Maintenance: Maintain the surface of each layer of material true to line, grade and cross section by blading, watering and rolling until placing the succeeding course. Place the first course of material on all available subgrade before placing the succeeding course unless otherwise authorized by the Engineer. Should irregularities develop in any surface during or after compaction, remedy by loosening the surface and correcting the defects, then thoroughly recompact the entire area, including the surrounding surface. In the event that additional materials are necessary to make the repairs, they shall be provided at no additional cost to the

Port.

- G. Route hauling equipment over the roadway in such a manner as to be most effective in the compacting of the material. Hauling over the surfacing in the process of construction will not be permitted when, in the opinion of the Engineer, the effect will be detrimental.
- H. Miscellaneous Requirements: WSDOT Standard Specifications, Section 4-04.3(7).
- I. Weather Limitations: WSDOT Standard Specifications, Section 4-04.3(8).

**END OF SECTION**

**Port of Tacoma  
SIM Yard Charging Stations Project**

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**Appendix A  
SWPPP Short Form**

## **CONSTRUCTION SWPPP SHORT FORM**

The threshold for using the Port of Tacoma's (Port) short form is a project that proposes to clear or disturb less than one acre of land. Projects falling within this threshold may use this short form instead of preparing a professionally designed Construction Stormwater Pollution Prevention Plan (SWPPP). If project disturbance quantities exceed this threshold, you must prepare of formal Construction SWPPP as part of your submittal package. If your project is within the threshold and includes—or may affect—a critical area, please contact the Port to determine if the SWPPP short form may be used.

# CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN SHORT FORM

Project Name:

Address:

Contact/Owner:

Phone:

Erosion Control Supervisor:

Phone:

Cell:

Pager:

Emergency (After hours) Contact:

Phone:

Permit No.:

Parcel No.:

## **Required Submittals**

A Construction SWPPP consists of both a project narrative and a site plan. The project narrative describes existing conditions on the site, the proposed conditions, and how construction site runoff will be managed until final site stabilization is achieved. Any additional relevant information should be included in the project narrative. All Best Management Practices (BMPs) that will be utilized onsite must be included as part of the project narrative and provided (electronically or hard copy) as part of the submittal package. If additional BMPs beyond those included in the Washington Department of Ecology's (Ecology) Western Washington Stormwater Management Manual (Ecology SWMM) or the City of Tacoma's (City) Stormwater Management Manual (City SWMM) are proposed to be used, a narrative and appropriate details describing the BMP (its function, installation method, and maintenance activities) will be required.

The site plan is a drawing which shows the location of the proposed BMPs to control erosion and sedimentation during and after construction activities.

The City's govMe site (<http://www.govme.org>) may be used to find much of the information needed to complete this form, such as adjacent areas, topography, critical areas, the downstream drainage path, and information concerning onsite features.

## **PROJECT NARRATIVE**

The Construction SWPPP Short Form narrative must be completed at part of the submittal package. Any information described, as part of the narrative, should also be shown on the site plan.

**Note:** From October 1 through April 30, clearing, grading, and other soil disturbing activities shall only be permitted by special authorization from the Port.

**A. Project Description (Check all that apply)**

- ☐ New Structure      ☐ Building Addition      ☐ Grading/Excavation  
☐ Paving      ☐ Utilities      ☐ Other:

1. Total project area \_\_\_\_\_ (square feet)
2. Total proposed impervious area \_\_\_\_\_ (square feet)
3. Total existing impervious area \_\_\_\_\_ (square feet)
4. Total proposed area to be disturbed \_\_\_\_\_ (square feet)
5. Total volume of cut/fill \_\_\_\_\_ (cubic yards)

Additional Project Information:

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**B. Existing Site Conditions (Check all that apply)**

1. Describe the existing vegetation on the site. (Check all that apply)  
☐ Forest    ☐ Pasture/field grass    ☐ Pavement    ☐ Landscaping    ☐ Brush  
☐ Trees    ☐ Other:
2. Describe how surface water (stormwater) drainage flows across/from the site. (Check all that apply)  
☐ Sheet Flow    ☐ Gutter    ☐ Catch Basin    ☐ Ditch/Swale    ☐ Storm Sewer  
☐ Stream    ☐ Other:
3. Describe any unusual site condition(s) or other features of note.  
☐ Steep Grades    ☐ Large depression    ☐ Underground tanks    ☐ Springs  
☐ Easements    ☐ Existing structures    ☐ Existing utilities    ☐ Other:

**C. Adjacent Areas (Check all that apply)**

1. Check any/all adjacent areas that may be affected by site disturbance and fully describe below in item 2:  
☐ Streams\*    ☐ Lakes\*    ☐ Wetlands\*    ☐ Steep slopes\*  
☐ Residential Areas    ☐ Roads    ☐ Ditches, pipes, culverts    ☐ Other:

*\* If the site is on or adjacent to a critical area (e.g., waterbody), the Port may require additional information, engineering, and other permits to be submitted with this short form.*



2. Describe how and where surface water enters the site from properties located upstream:

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3. Describe the downstream drainage path from the site to the receiving body of water (minimum distance of 0.25 mile [1320 feet]). (E.g., water flows from the site into a curb-line, then to a catch basin at the intersection of X and Y streets. A 10-inch pipe system conveys water another 1000 feet to a wetland.) Include information on the condition of the drainage structures.

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**D. Soils (Check all that apply)**

The intent of this section is to identify when additional soils information may be required for applicants using this short form. There are other site-specific issues that may necessitate a soils investigation or more extensive erosion control practices. The Port will determine these situations on a case-by-case basis as part of their review.

1. Does the project propose infiltration? Infiltration systems require prior Port approval.

☐ Yes      ☐ No

2. Does the project propose construction on or near steep slopes (15% or greater)?

☐ Yes      ☐ No

If infiltration is proposed for the site or steep slopes (15% or greater) have been identified, the Port will require soils information as part of project design. The applicant must contact a soil professional or civil engineer that specializes in soil analysis and perform an in-depth soils investigation. If the Yes box is checked for either question, the Port may not permit the use of this short form.

## E. Construction Sequencing/Phasing

1. Construction sequence: the standard construction sequence is as follows:
  - Mark clearing/grading limits.
  - Install initial erosion control Best Management Practices (BMPs) (e.g., construction entrance, silt fence, catch basin inserts, etc.).
  - Clear, grade, and fill project site as outlined in the site plan while implementing and maintaining proper temporary erosion and sediment control BMPs simultaneously.
  - Install permanent erosion protection as described in the specifications (e.g., impervious surfaces, landscaping, etc.).
  - Remove temporary erosion control methods as permitted. Do not remove temporary erosion control until permanent erosion protection is fully established.

List any changes from the standard construction sequence outlined above:

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2. Construction phasing: if construction is going to occur in separate phases, please describe:

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## F. Construction Schedule

1. Provide a proposed construction schedule (dates construction starts and ends, and dates for any construction phasing.)

**Start Date:**

**End Date:**

Interim Phasing Dates:

Wet Season Construction Activities: Wet season occurs from October 1 to April 30. Please describe construction activities that will occur during this time period.

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**Note:** Additional erosion control methods may be required during periods of increased surface water runoff.

## 2. Site plan

A site plan, to scale, must be included with this checklist that shows the following items:

- ☐ a. Address, Parcel Number, Permit Number, and Street Names
- ☐ b. North Arrow
- ☐ c. Indicate boundaries of existing vegetation (e.g., tree lines, grassy areas, pasture areas, fields, etc.)
- ☐ d. Identify any onsite or adjacent critical areas and associated buffers (e.g., wetlands, steep slopes, streams, etc.).
- ☐ e. Identify any FEMA base flood boundaries and Shoreline Management boundaries.
- ☐ f. Show existing and proposed contours.
- ☐ g. Delineate areas that are to be cleared and/or graded.
- ☐ h. Show all cut and fill slopes, indicating top and bottom of slope catch lines.
- ☐ i. Show locations where upstream run-on enters the site and locations where runoff leaves the site.
- ☐ j. Indicate existing surface water flow direction(s).
- ☐ k. Label final grade contour and indicate proposed surface water flow direction and surface water conveyance systems (e.g., pipes, catch basins, ditches, etc.).
- ☐ l. Show grades, dimensions, and direction of flow in all (existing and proposed) ditches, swales, culverts, and pipes.
- ☐ m. Indicate locations and outlets of any dewatering systems (usually to sediment trap).
- ☐ n. Identify and locate all erosion control methods to be used during and after construction.

**ONSITE FIELD VERIFICATION OF ACTUAL CONDITIONS IS REQUIRED.**

**Figure 1.** (see page 5 for Site Plan requirements)

## GUIDELINES FOR EROSION CONTROL ELEMENTS

**This SWPPP must contain the 12 required elements, as required by Ecology. Check off each element as it is addressed in the SWPPP short form and/or on your site plan.**

- ☐ 1. Mark Clearing Limits
- ☐ 2. Establish Construction Access
- ☐ 3. Control Flow Rates
- ☐ 4. Install Sediment Controls
- ☐ 5. Stabilize Soils
- ☐ 6. Protect Slopes
- ☐ 7. Protect Drain Inlets
- ☐ 8. Stabilize Channels and Outlets
- ☐ 9. Control Pollutants
- ☐ 10. Control Dewatering
- ☐ 11. Maintain BMPs
- ☐ 12. Manage the Project

The following is a brief description of each of the 12 required elements of a SWPPP. If an element does not apply to the proposed project site, please describe why the element does not apply. Applicable BMPs are listed with each element and in Table 1. Please note that this list is not a comprehensive list of BMPs available for small construction projects, but erosion and sediment control techniques most pertinent to small construction sites are included here. More detailed information on construction BMPs can be found in Ecology's SWMM Volume II and the City's SWMM Volume II (Ecology 2005; City of Tacoma 2012). Please provide hard copies of the BMPs that will be used for the project and include as part of this Construction SWPPP. BMPs that may be used if needed can be noted as being contingent in the event additional erosion control is needed. Describe any additional BMPs that will be utilized onsite and add them to the SWPPP short form.

For phased construction projects, clearly indicate erosion control methods to be used for each phase of construction.

*Element #1 – Mark Clearing Limits*

All construction projects must clearly mark any clearing limits, sensitive areas and their buffers prior to beginning any land disturbing activities, including clearing and grading. Clearly mark the limits both in the field and on the site plans. Limits shall be marked in such a way that any trees or vegetation that is to remain will not be harmed.

Applicable BMPs include:

- BMP C101: Preserving Natural Vegetation
- BMP C102: Buffer Zones
- BMP C103: High Visibility Plastic or Metal Fence
- BMP C104: Stake and Wire Fence

☐ The BMP(s) being proposed to meet this element are:

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**OR**

☐ This element is not required for this project because:

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*Element #2 – Establish Construction Access*

All construction projects subject to vehicular traffic shall provide a means of preventing vehicle “tracking” soil from the site onto streets or neighboring properties. Limit vehicle traffic on- and off-site to one route if possible. All access points shall be stabilized with a rock pad construction entrance or other Port-approved BMP. The applicant should consider placing the entrance in the area for future driveway(s), as it may be possible to use the rock as a driveway base material. The entrance(s) must be inspected weekly, at a minimum, to ensure no excess sediment buildup or missing rock.

Applicable BMPs include:

- BMP C105: Stabilized Construction Entrance
- BMP C106: Wheel Wash
- BMP C107: Construction Road/Parking Area Stabilization

☐ The BMP(s) being proposed to meet this element are:

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**OR**

☐ This element is not required for this project because:

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*Element #3 – Control Flow Rates*

Protect properties and waterways downstream of the project site from erosion due to increases in volume, velocity, and peak flow of stormwater runoff from the project site.

Permanent infiltration facilities shall not be used for flow control during construction unless specifically approved by the Environmental Department. Sediment traps can provide flow control for small sites by allowing water to pool and allowing sediment to settle out of the water.

Applicable BMPs include:

- BMP C207: Check Dams
- BMP C240: Sediment Trap

☐ The BMP(s) being proposed to meet this element are:

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**OR**

☐ This element is not required for this project because:

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*Element 4 – Install Sediment Controls*

Surface water runoff from disturbed areas must pass through an appropriate sediment removal device prior to leaving a construction site or discharging into a waterbody. Sediment barriers are typically used to slow stormwater sheet flow and allow the sediment to settle out behind the barrier.

Sediment controls must be installed/constructed prior to site grading.

Applicable BMPs include:

- BMP C208: Triangular Silt Dike
- BMP C232: Gravel Filter Berm
- BMP C233: Silt Fence
- BMP C235: Straw Wattles

☐ The BMP(s) being proposed to meet this element are:

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**OR**

☐ This element is not required for this project because:

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*Element #5 – Stabilize Soils*

Stabilize exposed and unworked soils by applying BMPs that protect the soils from raindrop impact, flowing water, and wind.

From October 1 through April 30, no soils shall remain exposed or unworked for more than 2 days. From May 1 to September 30, no soils shall remain exposed or unworked for more than 7 days. This applies to all soils whether at final grade or not.

Applicable BMPs include:

- BMP C120: Temporary and Permanent Seeding
- BMP C121: Mulching
- BMP C122: Nets and Blankets
- BMP C123: Plastic Covering
- BMP C140: Dust Control



☐ The BMP(s) being proposed to meet this element are:

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**OR**

☐ This element is not required for this project because:

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*Element #6 – Protect Slopes*

Protect slopes by diverting water at the top of the slope. Reduce slope velocities by minimizing the continuous length of the slope.

Applicable BMPs include:

- BMP C200: Interceptor Dike and Swale
- BMP C204: Pipe Slope Drains
- BMP C207: Check Dams

☐ The BMP(s) being proposed to meet this element are:

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**OR**

☐ This element is not required for this project because:

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*Element #7 – Protect Drain Inlets*

All operable storm drain inlets must be protected during construction so that stormwater runoff does not enter the conveyance system without first being filtered or treated to remove sediment. Install catch basin protection on all catch basins within 500 feet downstream of the project.

Applicable BMPs include:

- BMP C220: Storm Drain Inlet Protection

☐ The BMP(s) being proposed to meet this element are:

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**OR**

☐ This element is not required for this project because:

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*Element #8 – Stabilize Channels and Outlets*

Stabilize all temporary onsite conveyance channels. Provide stabilization to prevent erosion of outlets, adjacent stream banks, slopes, and downstream reaches at the conveyance system outlets.

Applicable BMPs include:

- BMP C202: Channel Lining
- BMP C209: Outlet Protection

☐ The BMP(s) being proposed to meet this element are:

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**OR**

☐ This element is not required for this project because:

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*Element #9 – Control Pollutants*

Handle and dispose of all pollutants, including demolition debris and other solid wastes in a manner that does not cause stormwater contamination. Provide cover and containment for all chemicals, liquid products (including paint), petroleum products, and other materials. Handle all concrete and concrete waste appropriately.

Applicable BMPs include:

- BMP C150: Materials on Hand
- BMP C151: Concrete Handling
- BMP C152: Sawcutting and Surface Pollution Prevention
- BMP C153: Material Delivery, Storage and Containment

☐ The BMP(s) being proposed to meet this element are:

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**OR**

☐ This element is not required for this project because:

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*Element #10 – Control Dewatering*

Clean, non-turbid dewatering water, such as groundwater, can be discharged to the stormwater system provided the dewatering flow does not cause erosion or flooding of receiving waters. All other dewatering water shall be pumped to a settling container and taken offsite or discharged to the City sewer system. All discharges to the City sewer system require City approval, which may include a Special Approved Discharge (SAD) permit.

Applicable BMPs include:

- BMP C150: Materials on Hand

☐ The BMP(s) being proposed to meet this element are:

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**OR**

☐ This element is not required for this project because:

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*Element #11 – Maintain BMPs*

Maintain and repair temporary erosion and sediment control BMPs as needed. Inspect all BMPs at least weekly and after every storm event.

Remove all temporary erosion and sediment control BMPs within 30 days after final site stabilization or if the BMP is no longer needed. Any sediment trapped during construction activities should be removed or stabilized onsite. No sediment shall be discharged into the stormwater drainage system or any natural conveyance system (e.g., streams).

Applicable BMPs include:

- BMP C160: Certified Erosion and Sediment Control Lead

☐ The BMP(s) being proposed to meet this element are:

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**OR**

☐ This element is not required for this project because:

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*Element #12 – Manage the Project*

Phase development projects to prevent soil erosion and the transport of sediment from the project site during construction. Coordinate all work prior initial construction with subcontractors and other utilities to ensure no areas are worked prematurely.\

A designated erosion and sediment control person is required for all construction projects. This person is responsible for ensuring that the project's erosion and sediment control BMPs are appropriate for the site and are functioning properly. They are also responsible for updating the

SWPPP as necessary as site conditions warrant. They must be available 24 hours a day to ensure compliance.

Applicable BMPs include:

- BMP C160: Certified Erosion and Sediment Control Lead
- BMP C162: Scheduling
- BMP C180: Small Project Construction Stormwater Pollution Prevention

☐ The BMP(s) being proposed to meet this element are:

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**OR**

☐ This element is not required for this project because:

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**Table 1. Applicable BMPs for the 12 Elements of a SWPPP**

|  |  |  |
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| Element #1 – Mark Clearing Limits            |  |  |
| BMP C101                                     | Preserving Natural Vegetation                |  |
| BMP C102                                     | Buffer Zones                                 |  |
| BMP C103                                     | High Visibility Plastic and Wire Fence       |  |
| BMP C104                                     | Stake and Wire Fence                         |  |
| Element #2 – Establish Construction Entrance |  |  |
| BMP C105                                     | Stabilized Construction Entrance             |  |
| BMP C106                                     | Wheel Wash                                   |  |
| BMP C107                                     | Construction Road/Parking Area Stabilization |  |
| Element #3 – Control Flow Rates              |  |  |
| BMP C207                                     | Check Dams                                   |  |
| BMP C240                                     | Sediment Trap                                |  |
| Element #4 – Install Sediment Controls       |  |  |
| BMP C208                                     | Triangular Silt Trap                         |  |
| BMP C232                                     | Gravel Filter Berm                           |  |
| BMP C233                                     | Silt Fence                                   |  |
| BMP C235                                     | Straw Wattles                                |  |
| Element #5 – Stabilize Soils                 |  |  |
| BMP C120                                     | Temporary and Permanent Seeding              |  |
| BMP C121                                     | Mulching                                     |  |
| BMP C122                                     | Nets and Blankets                            |  |
| BMP C123                                     | Plastic Covering                             |  |
| BMP C140                                     | Dust Control                                 |  |
| Element #6 – Protect Slopes                  |  |  |
| BMP C200                                     | Interceptor Dike and Swale                   |  |
| BMP C204                                     | Pipe Slope Drains                            |  |
| BMP C207                                     | Check Dams                                   |  |
| Element #7 – Protect Drain Inlets            |  |  |
| BMP C220                                     | Storm Drain Inlet Protection                 |  |
| Element #8 – Stabilize Channels and Outlets  |  |  |
| BMP C202                                     | Channel Lining                               |  |
| BMP C209                                     | Outlet Protection                            |  |
| Element #9 – Control Pollutants              |  |  |
| BMP C150                                     | Materials on Hand                            |  |

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| Element #9 – Control Pollutants, cont. |  |  |
| BMP C151                               | Concrete Handling  |  |
| BMP C152                               | Sawcutting and Surfacing Pollution Prevention              |  |
| BMP C153                               | Materials, Delivery, Storage and Containment               |  |
| Element #10 – Control Dewatering       |  |  |
| BMP C150                               | Materials on Hand  |  |
| Element #11 – Maintain BMPs            |  |  |
| BMP C160                               | Certified Erosion and Sediment Control Lead                |  |
| Element #12 – Manage the Project       |  |  |
| BMP C160                               | Certified Erosion and Sediment Control Lead                |  |
| BMP C162                               | Scheduling   |  |
| BMP C180                               | Small Project Construction Stormwater Pollution Prevention |  |

## REFERENCES

City of Tacoma. 2012. Stormwater Management Manual 2012 Edition. Public Works/ Environmental Services, Maintenance Division, Tacoma, Washington.

Washington State Department of Ecology (Ecology). 2005. Stormwater Management Manual for Western Washington. Water Quality Program, Lacey, Washington.

**Port of Tacoma  
SIM Yard Charging Stations Project**

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**Appendix B  
Phase 1 Construction Restart  
COVID-19 Job Site Requirements**



# Phase 1 Construction Restart

## COVID-19 Job Site Requirements

### **Phase 1: Low-risk construction work resumes.**

***Any existing construction projects complying with the points below may resume only those work activities that do not require workers to be closer than six-feet together. If a work activity requires workers to be closer than six-feet, it is not considered low-risk and is not authorized. Adherence to the physical distancing requirement and the health and safety points below will be strictly enforced.***

Prior to recommencing work all contractors are required to develop and post at each job site a comprehensive COVID-19 exposure control, mitigation, and recovery plan. The plan must include policies regarding the following control measures: PPE utilization; on-site social distancing; hygiene; sanitation; symptom monitoring; incident reporting; site decontamination procedures; COVID-19 safety training; exposure response procedures; and a post-exposure incident project wide recovery plan. A copy of the plan must be available on each job site during any construction activities and available for inspection by state and local authorities. Failure to meet posting requirements will result in sanctions, including the job being shut down.

All Contractors are required to post at each job site written notice to employees, subcontractors and government officials the Phase 1 work that will be performed at that job site and signed commitment to adhere to the requirements listed in this document.

All contractors have a general obligation to keep a safe and healthy worksite in accordance with state and federal law. Failure to follow these requirements will be considered a violation of these duties and be penalized accordingly. Under RCW 49.17.060, “each employer shall furnish to each of their employees a place of employment free from recognized hazards that are causing or likely to cause serious injury or death to his or her employees and shall comply with the rules, regulations, and orders promulgated under this chapter.” The Washington State Department of Labor & Industries’ Division of Occupational Safety and Health (DOSH) is responsible for workplace safety and health, including inspections and enforcement, consultation, technical assistance, training, education and grants.

All contractors are also required to comply with the following COVID-19 worksite-specific safety practices, as outlined in Gov. Jay Inslee’s “Stay Home, Stay Healthy” Proclamation 20-25, and in accordance with the Washington State Department of Labor & Industries General Coronavirus Prevention Under Stay Home-Stay Healthy Order (DOSH Directive 1.70: <https://www.lni.wa.gov/safety-health/safety-rules/enforcement-policies/DD170.pdf>) and the Washington State Department of Health Workplace and Employer Resources & Recommendations at <https://www.doh.wa.gov/Coronavirus/workplace>:

### **COVID-19 Site Supervisor**

1. A site-specific COVID-19 Supervisor shall be designated by the contractor at every job site to monitor the health of employees and enforce the COVID-19 job site safety plan. A designated COVID-19 Supervisor must be present at all times during construction activities, except on single-family residential job sites with 6 or fewer people on the site.

### **COVID-19 Safety Training**

2. A Safety Stand-Down/toolbox talk/tailgate training must be conducted on all job sites on the first day of returning to work, and weekly thereafter, to explain the protective measures in place for all workers. Social distancing must be maintained at all gatherings.
3. Attendance will be communicated verbally and the trainer will sign in each attendee.
4. COVID-19 safety requirements shall be visibly posted on each jobsite.

### **Social Distancing**

5. Social distancing of at least 6 feet of separation must be maintained by every person on the worksite at all times.
6. Gatherings of any size must be precluded by taking breaks and lunch in shifts. Any time two or more persons must meet, ensure minimum 6 feet of separation.
7. Identify “choke points” and “high-risk areas” on job sites where workers typically congregate and control them so social distancing is always maintained.
8. Minimize interactions when picking up or delivering equipment or materials, ensure minimum 6-foot separation.
9. To the extent practical allow only one trade/subcontractor at a time on a jobsite and maintain 6-foot separation social distancing for each member of that trade. If more than one trade/subcontractor must be on the job to complete the job then at a minimum all trades and subcontractors must maintain social distancing policies in accordance with this guidance.

### **Personal Protective Equipment (PPE) – Employer Provided**

10. Provide personal protective equipment (PPE) such as gloves, goggles, face shields and face masks as appropriate, or required, for the activity being performed.
11. Masks, in accordance with Washington Department of Health guidelines, or as required by Washington Department of Labor & Industries (L&I) safety rules, must be worn at all times by every employee on the worksite.
12. Eye protection must be worn at all times by every employee while on worksite.
13. Gloves must be worn at all times by every employee while on worksite. The type of glove worn should be appropriate to the task. If gloves are not typically required for the task, then any type of glove is acceptable, including latex gloves.
14. If appropriate PPE cannot be provided, the worksite must be shut down.

## **Sanitation and Cleanliness**

15. Soap and running water shall be abundantly provided on all job sites for frequent handwashing. Workers should be encouraged to leave their workstations to wash their hands regularly, before and after going to the bathroom, before and after eating and after coughing, sneezing or blowing their nose.
16. When running water is not available, portable washing stations, with soap, are required, per WAC 296-155-140 2(a) – (f). Alcohol-based hand sanitizers with greater than 60% ethanol or 70% isopropanol can also be used, but are not a replacement for the water requirement.
17. Post, in areas visible to all workers, required hygienic practices, including not to touch face with unwashed hands or with gloves; washing hands often with soap and water for at least 20 seconds; use hand sanitizer with at least 60% alcohol; cleaning and disinfecting frequently touched objects and surfaces such as workstations, keyboards, telephones, handrails, machines, shared tools, elevator control buttons, and doorknobs; covering the mouth and nose when coughing or sneezing as well as other hygienic recommendations by the U.S. Centers for Disease Control (CDC).
18. Make disinfectants available to workers throughout the worksite and ensure cleaning supplies are frequently replenished.
19. Frequently clean and disinfect high-touch surfaces on job sites and in offices, such as shared tools, machines, vehicles and other equipment, handrails, doorknobs, and portable toilets. If these areas cannot be cleaned and disinfected frequently, the jobsite shall be shut down until such measures can be achieved and maintained.
20. When the worksite is an occupied home, workers should sanitize work areas upon arrival, throughout the workday and immediately before they leave, and occupants should keep a personal distance of at least 10 feet.
21. If an employee reports feeling sick and goes home, the area where that person worked should be immediately disinfected.

## **Employee Health/Symptoms**

22. Create policies which encourage workers to stay home or leave the worksite when feeling sick or when they have been in close contact with a confirmed positive case. If they develop symptoms of acute respiratory illness, they must seek medical attention and inform their employer.
23. Have employees inform their supervisors if they have a sick family member at home with COVID-19. If an employee has a family member sick with COVID-19, that employee must follow the isolation/quarantine requirements as established by the State Department of Health.
24. Screen all workers at the beginning of their shift by taking their temperature and asking them if they have a fever, cough, shortness of breath, fatigue, muscle aches, or new loss of taste or smell. Thermometers used shall be 'no touch' or 'no contact' to the greatest extent possible. If a 'no touch' or 'no contact' thermometer is not available, the thermometer must be properly sanitized between each use. Any worker with a temperature of 100.4°F or higher is considered to have a fever and must be sent home.

25. Instruct workers to report to their supervisor if they develop symptoms of COVID-19 (e.g., fever, cough, shortness of breath, fatigue, muscle aches, or new loss of taste or smell). If symptoms develop during a shift, the worker should be immediately sent home. If symptoms develop while the worker is not working, the worker should not return to work until they have been evaluated by a healthcare provider.
26. Failure of employees to comply will result in employees being sent home during the emergency actions.
27. Employees who do not believe it is safe to work shall be allowed to remove themselves from the worksite and employers must follow the expanded family and medical leave requirements included in the Families First Coronavirus Response Act or allow the worker to use unemployment benefits, paid time off, or any other available form of paid leave available to the worker at the workers discretion.
28. Any worker coming to work on a construction site in Washington from any state that is not contiguous to Washington must self-quarantine for 14 days to become eligible to work on a job site in Washington.
29. If an employee is confirmed to have COVID-19 infection, employers should inform fellow employees of their possible exposure to COVID-19 in the workplace but maintain confidentiality as required by the Americans with Disabilities Act (ADA). The employer should instruct fellow employees about how to proceed based on the CDC [Public Health Recommendations for Community-Related Exposure](#).

#### **Job Site Visitors**

30. A daily attendance log of all workers and visitors must be kept and retained for at least four weeks. The log must include the name, phone number, and email address of all workers and visitors.

**No jobsite may operate until the contractor can meet and maintain all requirements, including providing materials, schedules and equipment required to comply.**

These Phase 1 COVID-19 job site safety practices are required as long as the “Stay Home, Stay Healthy” Gubernatorial Proclamation 20-25 is in effect or if adopted as rules by a federal, state or local regulatory agency. **All items minus numbers 28 and 30 are subject to enforcement action under L&I’s Division of Occupational Safety and Health (DOSH).**

**Workplace safety and health complaints** may be submitted to the L&I Call Center: (1-800-423-7233) or via e-mail to [adag235@lni.wa.gov](mailto:adag235@lni.wa.gov). **General questions about how to comply with construction safety practices** can be submitted to the state’s Business Response Center at <https://app.smartsheet.com/b/form/2562f1caf5814c46a6bf163762263aa5>. **All other violations related to Proclamation 20-25** can be submitted via at: <https://bit.ly/covid-compliance>.