CITY OF TACOMA
ENVIRONMENTAL SERVICES DEPARTMENT

REQUEST FOR BIDS

FOR

SPECIFICATION NO.
ES23-0244F

CTP OUTFALL CATHODIC PROTECTION IMPROVEMENTS

PROJECT NO. ENV-04015-23

Daniel M. Drathman, P.E.
Environmental Services Department
326 East D Street
Tacoma, Washington 98421
NOTE: ALL BIDDERS MUST HAVE A COPY OF THE SPECIFICATIONS AND THE BID SUBMITTAL PACKAGE

REQUEST FOR BIDS

SPECIAL REMINDER TO ALL BIDDERS

SPECIAL NOTICE TO BIDDERS

PART I  BID PROPOSAL AND CONTRACT FORMS

1  Bid Proposal
2  Signature Page
3  Bid Bond
4  Certification Of Compliance With Wage Payment Statutes
5  State Responsibility and Reciprocal Bid Preference Information
6  List of Subcontractor Categories of Work
7  Statement of Qualifications
8  City of Tacoma – Equity in Contracting Requirement Form
9  City of Tacoma – Equity in Contracting Utilization Form
10  Contract
11  Payment Bond to the City of Tacoma
12  Performance Bond to the City of Tacoma
13  General Release Form

PART II  GENERAL PROVISIONS

PART III  DOCUMENT 00720 GENERAL CONDITIONS FOR WASHINGTON STATE FACILITY CONSTRUCTION

PART IV  DOCUMENT 00730 SUPPLEMENTAL CONDITIONS AS MODIFIED BY THE CITY OF TACOMA

PART V  CITY OF TACOMA INSURANCE REQUIREMENTS

PART VI  CITY OF TACOMA – EQUITY IN CONTRACTING PROGRAM

PART VII  CITY OF TACOMA – LOCAL EMPLOYMENT AND APPRENTICESHIP TRAINING PROGRAM (LEAP) REGULATIONS FOR PUBLIC WORKS CONTRACTS

PART VIII  STATE PREVAILING WAGE RATES AND GENERAL REQUIREMENTS

PART IX  TECHNICAL SPECIFICATIONS

PART X  CITY OF TACOMA STANDARDS

PART XI  REFERENCE DOCUMENTS
City of Tacoma
Environmental Services Department

REQUEST FOR BIDS  ES23-0244F
CTP Outfall Cathodic Protection Improvements

Submittal Deadline: 11:00 a.m., Pacific Time, Tuesday, December 5, 2023

Submittals must be received by the City’s Procurement and Payables Division prior to 11:00 a.m. Pacific Time.

For electronic submittals, the City of Tacoma will designate the time of receipt recorded by our email, sendbid@cityoftacoma.org, as the official time of receipt. This clock will be used as the official time of receipt of all parts of electronic bid submittals. Late submittals will be returned unopened and rejected as non-responsive.

Submittal Delivery: Sealed submittals will be received as follows:

<table>
<thead>
<tr>
<th>By Email:</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="mailto:sendbid@cityoftacoma.org">sendbid@cityoftacoma.org</a></td>
</tr>
<tr>
<td>Maximum file size: 35 MB. Multiple emails may be sent for each submittal</td>
</tr>
</tbody>
</table>

Bid Opening: Sealed submittals in response to a RFB will be opened Tuesday’s at 11:15 AM by a purchasing representative and read aloud during a public bid opening held at the Tacoma Public Utilities Administrative Building North, 3628 S. 35th Street, Tacoma, WA 98409, conference room M-1, located on the main floor. They will also be held virtually Tuesday’s at 11:15 AM. Attend via this link or call 1 (253) 215 8782. Submittals in response to an RFP, RFQ or RFI will be recorded as received. As soon as possible, after 1:00 PM, on the day of submittal deadline, preliminary results will be posted to www.TacomaPurchasing.org.

Solicitation Documents: An electronic copy of the complete solicitation documents may be viewed and obtained at the City’s plan distribution service provider, ARC, 632 Broadway, Tacoma, WA, or by going to http://www.e-arc.com/location/tacoma. Prospective bidders will be required to pay reproduction costs. A list of vendors registered for this solicitation is also available at their website.

Pre-Proposal Meeting: A pre-proposal meeting will be held at 10:00 AM Monday November 27th, 2023 in the second floor conference room of Building A (Sewer Transmission Building) at the City of Tacoma Central Wastewater Treatment Plant, 2201 E Portland Ave, Tacoma, WA 98421. Use Gate 1 to enter the facility. A potential bidder should RSVP to ddejarlais@cityoftacoma.org by November 27, 2023 at 8:00 AM. The purpose of the pre-proposal meeting is to provide a technical project overview, review the City’s EIC and LEAP requirements, provide an opportunity for site and facility familiarization, and answer project questions. A tour of all work locations will follow the meeting. Interested Bidders are encouraged to attend, will be responsible for providing their own transportation on the tour, and will need to drive to multiple locations during the tour. Some of the tour locations are at Transportation Worker Identification Credential (TWIC) restricted sites. Interested Bidders will be required to have a current TWIC to participate in the complete tour.

Project Scope: This project generally consists of replacing existing cathodic protection equipment and groundbed anodes protecting the existing 60-inch prestressed concrete cylinder pipe (PCCP) that conveys treated wastewater effluent from the Central Wastewater Treatment Plant (CTP) to Commencement Bay. This includes replacing deep and semi-deep anode groundbed wells and replacing cathodic protection equipment. The work will take place a multiple locations throughout the Port of Tacoma area.

Estimate: $530,000 plus applicable Sales Tax

Paid Sick Leave: The City of Tacoma requires all employers to provide paid sick leave as set forth in Title 18 of the Tacoma Municipal Code and in accordance with State of Washington law.

Americans with Disabilities Act (ADA Information: The City of Tacoma, in accordance with Section 504 of the Rehabilitation Act (Section 504) and the Americans with Disabilities Act (ADA), commits to nondiscrimination on the basis of disability, in all of its programs and activities. Specification materials can be made available in an alternate format by emailing the contact listed below in the Additional Information section.
**Title VI Information:** “The City of Tacoma” in accordance with provisions of Title VI of the Civil Rights Act of 1964, (78 Stat. 252, 42 U.S.C. sections 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, national origin in consideration of award.

**Additional Information:** Requests for information regarding the specifications may be obtained by contacting Dawn DeJarlais, Senior Buyer by email to ddejarlais@cityoftacoma.org.

**Protest Policy:** City of Tacoma protest policy, located at [www.tacomapurchasing.org](http://www.tacomapurchasing.org), specifies procedures for protests submitted prior to and after submittal deadline.

Meeting sites are accessible to persons with disabilities. Reasonable accommodations for persons with disabilities can be arranged with 48 hours advance notice by calling 253-502-8468.
SPECIAL REMINDER TO ALL BIDDERS

HEALTH & SAFETY: Be sure to comply with all City of Tacoma health and safety requirements.

PLEASE NOTE: Be sure you have complied with all specifications and requirements and have signed all required documents.

YOUR ATTENTION IS PARTICULARLY CALLED to the following forms, which must be executed in full and submitted with your bid response:

1. **BID PROPOSAL**: The unit prices bid must be shown in the space provided. Check your computations for omissions and errors.

2. **SIGNATURE PAGE**: To be filled in and executed by a duly authorized officer or representative of the bidding entity. If the bidder is a subsidiary or doing business on behalf of another entity, so state, and provide the firm name under which business is hereby transacted.

3. **BID BOND**: A deposit of at least 5 percent of the total Bid shall accompany each Bid. This deposit may be cash, certified check, cashier’s check, or a proposal bond (Surety bond). Any proposal bond shall be on the Contracting Agency’s form and shall be signed by the Bidder and the Surety. A proposal bond shall not be conditioned in any way to modify the minimum 5 percent required. The Surety shall: (1) be registered with the Washington State Insurance Commissioner, and (2) appear on the current Authorized Insurance List in the State of Washington published by the Office of the Insurance Commissioner.

   The failure to furnish a Bid deposit of a minimum of 5 percent shall make the Bid nonresponsive and shall cause the Bid to be rejected by the Contracting Agency.

   If submitting your bid electronically, a scanned version of the original bid bond or cashier’s check shall accompany your electronic bid submittal. The original bid bond or cashier’s check shall be sent to the Contracting Agency and received by the Contracting Agency within 7 calendar days of the bid opening or the bidder may be deemed non-responsive.

   **Original bid bonds or cashier’s check will be delivered to:**
   City of Tacoma Procurement & Payables Division
   Tacoma Public Utilities
   3628 S 35th St
   Tacoma, WA 98409

   If so stated in the Contract Provisions, cash will not be accepted for a bid deposit.

4. **CERTIFICATION OF COMPLIANCE WITH WAGE PAYMENT STATUTES**: Bidder shall complete this form in its entirety to ensure compliance with state legislation (SHB 2017).
5. **GENERAL QUESTIONS:** Any prospective Bidder desiring an explanation or interpretation of the Bid Documents, shall request the explanation or interpretation in writing to ddejarlais@cityoftacoma.org by close of business 6 business days preceding the bid opening to allow a written reply to reach all prospective Bidders before the submission of their Bids.

6. **STATE RESPONSIBILITY AND RECIPROCAL BID PREFERENCE INFORMATION:** Bidder shall complete this form in its entirety to ensure compliance with state legislation (SHB 2010).

7. **LIST OF SUBCONTRACTOR CATEGORIES OF WORK:** Bidder shall list all subcontractor(s) proposed to perform the work of heating, ventilation and air conditioning, plumbing, as described in Chapter 18.106 RCW and electrical as described in Chapter 19.28 RCW. Bidder shall also list all subcontractor(s) proposed to perform the work of structural steel installation and/or rebar installation.

**FAILURE TO LIST SUBCONTRACTORS WILL RESULT IN THE BID BEING NON-RESPONSIVE AND THEREFORE VOID.**

8. **STATEMENT OF QUALIFICATIONS:** The Contractor or subcontractor shall fill out this form in its entirety proving they meet the requirements as outlined in these specifications. It shall be the sole determination of the Engineer to determine if the Contractor/subcontractor does in fact meet the requirements. This is a condition of award of the Contract.

9. **EQUITY IN CONTRACTING (EIC) UTILIZATION FORM**
   Bidders shall complete the Equity in Contracting Utilization Form in accordance with the City of Tacoma Equity in Contracting Regulations Manual and Chapter 1.07 of the City of Tacoma Municipal Code (TMC). This form shall be fully and accurately completed and returned with submission of the Bid and will be used to determine if the Bidder is in compliance with the EIC regulations and the TMC.

   As part of the City of Tacoma’s ongoing work to address past disparities and to increase the City’s contracting with and utilization of historically underutilized businesses, the Equity in Contracting (EIC) Program places requirements on City contracts for utilization of businesses certified by the Washington State Office of Minority and Women’s Business Enterprise and approved by the Equity in Contracting Program (“Certified Businesses”). The EIC Program also provides guidance and technical assistance to Certified Businesses who are interested in providing supplies, services and public works to the City of Tacoma. The EIC Program requirements are contained in Tacoma Municipal Code Chapter 1.07.

   See City of Tacoma – Equity In Contracting Program section for additional information and EIC Requirements.

**POST AWARD FORMS EXECUTED UPON AWARD:**

A. **CONTRACT:** Must be executed by the successful bidder.
B. PAYMENT BOND TO THE CITY OF TACOMA: Must be executed by the successful bidder and his/her surety company.

C. PERFORMANCE BOND TO THE CITY OF TACOMA: Must be executed by the successful bidder and his/her surety company.

D. CERTIFICATE OF INSURANCE: Shall be submitted with all required endorsements.

E. LEAP UTILIZATION PLAN: Shall be submitted at the Pre-Construction Meeting.

F. GENERAL RELEASE.

CODE OF ETHICS: The successful bidder agrees that its violation of the City’s Code of Ethics contained in TMC Chapter 1.46 shall constitute a breach of the contract subjecting the contract to termination.

LOCAL EMPLOYMENT AND APPRENTICESHIP TRAINING PROGRAM (LEAP):

The Local Employment and Apprenticeship Training Program (LEAP) has been adopted to counteract economic and social ills, which accompany high rates of unemployment within the City of Tacoma. The Tacoma City Council established the mandatory LEAP program for public works contracts pursuant to Ordinance No. 28520. The primary goal is to provide an opportunity for City of Tacoma residents and Tacoma Public Utilities ratepayers to enter apprenticeship programs, acquire skills, and perform work that will provide living wages.

Example LEAP Requirements:

1. Local Employment Utilization Requirement – Prime contractor is required to ensure that 15 percent of the labor hours worked on the project are performed by residents of the City of Tacoma or local economically distressed areas, whether or not such person is an Apprentice.

NOTE: Depending on the number of requirements assigned to this project, the requirements could be satisfied concurrently. For example if the prime contractor utilizes individuals who simultaneously meet more than one assigned requirement, such as an apprentice who resides in the City of Tacoma or in a local economically distressed area, then the hours worked by that individual will be applied toward both requirements.

See City of Tacoma – Local Employment and Apprenticeship Training Program section for additional information and LEAP Requirements.
Public works and improvement projects for the City of Tacoma are subject to Washington state law and Tacoma Municipal Code, including, but not limited to the following:

I. STATE OF WASHINGTON

A. RESPONSIBILITY CRITERIA – STATE OF WASHINGTON

In order to be considered a responsible bidder the bidder must meet the following mandatory state responsibility criteria contained in RCW 39.04.350:

1. Have a current certificate of registration as a contractor in compliance with chapters 18.27 RCW, 18.106 RCW, 70.87 RCW, 19.28 RCW, which must have been in effect at the time of bid submittal;
2. Have a current Washington Unified Business Identifier (UBI) number;
3. If applicable:
   a. Have Industrial Insurance (workers’ compensation) coverage for the bidder’s employees working in Washington, as required in Title 51 RCW;
   b. Have a Washington Employment Security Department number, as required in Title 50 RCW;
   c. Have a Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW and;
4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 (unlicensed or unregistered contractors) or 39.12.065(3) (prevailing wage).
5. Have received training on the requirements related to public works and prevailing wage under this chapter and chapter 39.12 RCW and must designate a person or persons to be trained on these requirements. The training must be provided by the department of labor and industries or by a training provider whose curriculum is approved by the department. Bidders that have completed three or more public works projects and have had a valid business license in Washington for three or more years are exempt from this subsection.

B. RECIPROCAL PREFERENCE FOR RESIDENT CONTRACTORS:

Effective March 30, 2012, RCW 39.04.380 imposes a reciprocal preference for resident contractors. Any bid received from a non-resident contractor from a state that provides an in-state percentage bidding preference is subject application of a comparable percentage disadvantage.

A non-resident contractor from a state that provides an in-state percentage bidding preference means a contractor that:

1. Is from a state that provides a percentage bid preference to its resident contractors bidding on public works projects, and
2. Does not have a physical office located in Washington at the time of bidding on the City of Tacoma public works project.

The state of residence for a non-resident contractor is the state in which the contractor was incorporated, or if not a corporation, the state in which the contractor’s business entity was formed.
The City of Tacoma will evaluate all non-resident contractors for an out of state bidder preference. If the state of the non-resident contractor provides an in state contractor preference, a comparable percentage disadvantage will be applied to the non-resident contractor’s bid prior to contract award. The responsive and lowest and best responsible bidder after application of any non-resident disadvantage will be awarded the contract.

The reciprocal preference evaluation does not apply to public works procured pursuant to RCW 39.04.155, RCW 39.04.280, federally funded competitive solicitations where such agencies prohibit the application of bid preferences, or any other procurement exempt from competitive bidding.

Bidders must provide the City of Tacoma with their state of incorporation or the state in which the business entity was formed and include whether the bidder has a physical office located in Washington.

The bidder shall submit documentation demonstrating compliance with above criteria on the enclosed State Responsibility and Reciprocal Bidder Information form.

C. SUBCONTRACTOR RESPONSIBILITY

1. The Contractor shall include the language of this subcontractor responsibility section in each of its first tier subcontracts, and shall require each of its subcontractors to include the same language of this section in each of their subcontracts, adjusting only as necessary the terms used for the contracting parties. The requirements of this section apply to all subcontractors regardless of tier.

2. At the time of subcontract execution, the Contractor shall verify that each of its first tier subcontractors meets the following bidder responsibility criteria:

   a. Have a current certificate of registration as a contractor in compliance with chapter 18.27 RCW, which must have been in effect at the time of subcontract bid submittal;
   b. Have a current Washington Unified Business Identifier (UBI) number;
   c. If applicable, have:
      a. Have Industrial Insurance (workers’ compensation) coverage for the bidder’s employees working in Washington, as required in Title 51 RCW;
      b. A Washington Employment Security Department number, as required in Title 50 RCW;
      c. A Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW;
      d. An electrical contractor license, if required by Chapter 19.28 RCW;
      e. An elevator contractor license, if required by Chapter 70.87 RCW and;

3. Not be disqualified from bidding on any public works contract under RCW 39.06.010 (unlicensed or unregistered contractors) or 39.12.065(3) (prevailing wage).
II. CITY OF TACOMA

A. SUPPLEMENTAL RESPONSIBILITY CRITERIA – CITY OF TACOMA:

In order to be considered a responsible bidder, the prospective bidder shall have all of the following qualifications set forth in Tacoma Municipal Code 1.06.262:

1. Adequate financial resources or the ability to secure such resources;
2. The necessary experience, stability, organization and technical qualifications to perform the proposed contract;
3. The ability to comply with the required performance schedule, taking into consideration all existing business commitments;
4. A satisfactory record of performance, integrity, judgment and skills; and
5. Be otherwise qualified and eligible to receive an award under applicable laws and regulations.

In addition to the mandatory bidder responsibility criteria listed immediately above, the City may, in addition to price, consider any or all of the following criteria contained in Tacoma Municipal Code Chapter 1.06.262 in determining bidder responsibility:

1. The ability, capacity, experience, stability, technical qualifications and skill of the respondent to perform the contract;
2. Whether the respondent can perform the contract within the time specified, without delay or interference;
3. Integrity, reputation, character, judgment, experience, and efficiency of the respondents, including past compliance with the City’s Ethics Code;
4. Quality of performance of previous contracts;
5. Previous and existing compliance with laws and ordinances relating to contracts or services;
6. Sufficiency of the respondent’s financial resources;
7. Quality, availability, and adaptability of the supplies, purchased services or public works to the particular use required;
8. Ability of the respondent to provide future maintenance and service on a timely basis;
9. Payment terms and prompt pay discounts;
10. The number and scope of conditions attached to the submittal;
11. Compliance with all applicable City requirements, including but not limited to the City’s Ethics Code and its Equity in Contracting and Local Employment and Apprenticeship Training programs;
12. Other qualification criteria set forth in the specification or advertisement that the appropriate department or division head determines to be in the best interests of the City.

The City may require bidders to furnish information, sworn or certified to be true, to demonstrate compliance with the City responsibility criteria set forth above. If the city manager or director of utilities is not satisfied with the sufficiency of the information provided, or if the prospective respondent does not substantially meet all responsibility requirements, any submittal from such respondent must be disregarded.
B. ADDITIONAL SUPPLEMENTAL CRITERIA – NOT APPLICABLE

C. MODIFICATIONS TO SUPPLEMENTAL CRITERIA

Potential bidders may request modifications to the City’s supplemental criteria by submitting a written request to the Purchasing Division via email to bids@cityoftacoma.org no later than 5:00 p.m. Pacific Time, three days prior to the submittal deadline. Please include the Specification No. and Title when submitting such requests. Requests must include justification for why certain criteria should be modified. Requests received after this date and time will not be considered.

The City will respond to a timely submitted request prior to the bid opening date. Changes to the supplemental criteria, if warranted, will be issued by addendum to the solicitation documents and posted to the City’s website for the attention of all prospective bidders.

D. DETERMINATION OF BIDDER RESPONSIBILITY

If the City determines the bidder does not meet the criteria above and is therefore not a responsible bidder, the City shall notify the bidder in writing with the reasons for its determination. If the bidder disagrees, the bidder may appeal the determination in a manner consistent with the City’s Protest Policy. Appeals are coordinated by the Purchasing Division heard by the Procurement and Payables Division manager for contracts less than or equal to $500,000 and by Contracts and Awards Board for contracts greater than $500,000.
PART I

BID PROPOSAL AND CONTRACT FORMS
The undersigned hereby certifies that he/she has examined the location and construction details of work as outlined on the Plans and Specifications for Project No. ENV-04015-23 and has read and thoroughly understands the Plans and Specifications and contract governing the work embraced in this improvement and the method by which payment will be made for said work, and hereby proposes to undertake and complete the work embraced in this improvement in accordance with said Plans, Specifications and contract and at the following schedule of rates and prices:

**NOTE:**
1. Unit prices of all items, all extensions and total amount of bid should be shown. Show unit prices in figures only.

2. The notations below the item numbers refer to the specification section where information may be found regarding each contract item. These notations are intended only as a guide and are not warranted to refer to all specification sections where information may be found.

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM DESCRIPTION</th>
<th>ESTIMATED QUANTITY</th>
<th>UNIT PRICE</th>
<th>TOTAL AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>CTP Outfall Cathodic Protection Improvements</td>
<td>1</td>
<td>Lump Sum</td>
<td>$ __________</td>
</tr>
</tbody>
</table>

Base Bid (Subtotal Item No. 1) $ ______________ (A)

10.3% Sales Tax (Items No 1) $ ______________ (B)

**GRAND TOTAL (A+B)** $ _________________
SIGNATURE PAGE

CITY OF TACOMA
ENVIRONMENTAL SERVICES DEPARTMENT

All submittals must be in ink or typewritten, executed by a duly authorized officer or representative of the bidding/proposing entity, and received and time stamped as directed in the Request for Bids page near the beginning of the specification. If the bidder/proposer is a subsidiary or doing business on behalf of another entity, so state, and provide the firm name under which business is hereby transacted.

REQUEST FOR BIDS SPECIFICATION NO. ES23-0244F
CTP OUTFALL CATHODIC PROTECTION IMPROVEMENTS

The undersigned bidder/proposer hereby agrees to execute the proposed contract and furnish all materials, labor, tools, equipment and all other facilities and services in accordance with these specifications.

The bidder/proposer agrees, by submitting a bid/proposal under these specifications, that in the event any litigation should arise concerning the submission of bids/proposals or the award of contract under this specification, Request for Bids, Request for Proposals or Request for Qualifications, the venue of such action or litigation shall be in the Superior Court of the State of Washington, in and for the County of Pierce.

Non-Collusion Declaration

The undersigned bidder/proposer hereby certifies under penalty of perjury that this bid/proposal is genuine and not a sham or collusive bid/proposal, or made in the interests or on behalf of any person or entity not herein named; and that said bidder/proposer has not directly or indirectly induced or solicited any contractor or supplier on the above work to put in a sham bid/proposal or any person or entity to refrain from submitting a bid/proposal; and that said bidder/proposer has not, in any manner, sought by collusion to secure to itself an advantage over any other contractor(s) or person(s).

Bidder/Proposer’s Registered Name

Address

City, State, Zip

Authorized Signatory E-Mail Address


E-Mail Address for Communications

Signature of Person Authorized to Enter into Contracts for Bidder/Proposer Date

Printed Name and Title

(Area Code) Telephone Number / Fax Number

State Business License Number in WA, also known as UBI (Unified Business Identifier) Number

State Contractor’s License Number (See Ch. 18.27, R.C.W.)

Addendum acknowledgement #1_____ #2_____ #3_____ #4_____ #5_____

THIS PAGE MUST BE SIGNED AND RETURNED WITH SUBMITTAL.
Herewith find deposit in the form of a cashier’s check in the amount of $__________________ which amount is not less than 5-percent of the total bid.

SIGN HERE__________________________________

BID BOND

KNOW ALL MEN BY THESE PRESENTS:
That we, ______________________________________________________________, as Principal, and ______________________________________________________________, as Surety, are held and firmly bound unto the City of Tacoma, as Obligee, in the penal sum of _______________________________ dollars, for the payment of which the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by these presents.

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 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______.

PRINCIPAL: 

SURETY: 

______________________________ 

______________________________

______________________________ 

______________________________

______________________________ 

______________________________

______________________________ 

______________________________

Signed, sealed and dated this ____________ day of ________________, 20______.

______________________________ 

______________________________

______________________________ 

______________________________

______________________________ 

______________________________

______________________________ 

______________________________

______________________________ 

______________________________

______________________________ 

______________________________

______________________________ 

______________________________

______________________________ 

______________________________

______________________________ 

______________________________

Received return of deposit in the sum of $ ________________________________
Certification of Compliance with Wage Payment Statutes

The bidder hereby certifies that, within the three-year period immediately preceding the bid solicitation date (November 21, 2023), that the bidder is not a “willful” violator, as defined in RCW 49.48.082, of any provision of chapters 49.46, 49.48, or 49.52 RCW, as 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.

I certify under penalty of perjury under the laws of the state of Washington that the foregoing is true and correct.

Bidder

__________________________________________
Signature of Authorized Official*

__________________________________________
Printed Name

__________________________________________
Title

__________________________________________  __________________________  __________________________
Date                                City                               State

Check One:
Individual ☐  Partnership ☐  Joint Venture ☐  Corporation ☐

State of Incorporation, or if not a corporation, the state where business entity was formed:

__________________________________________

If a co-partnership, give firm name under which business is transacted:

__________________________________________

* If a corporation, proposal must be executed in the corporate name by the president or vice-president (or any other corporate officer accompanied by evidence of authority to sign). If a co-partnership, proposal must be executed by a partner.
Specification No. ______________________

Name of Bidder: ______________________

State Responsibility and Reciprocal Bid Preference Information

Certificate of registration as a contractor
(Must be in effect at the time of bid submittal):

Number: ______________________

Effective Date: ______________________

Expiration Date: ______________________

Current Washington Unified Business Identifier
(UBI) Number:

Number: ______________________

Do you have industrial insurance (workers’ compensation)
Coverage nor your employees working in Washington?

☐ Yes   ☐ No   ☐ Not Applicable

Washington Employment Security Department Number

Number: ______________________

Washington Department of Revenue state excise tax
Registration number:

Number: ______________________

☐ Not Applicable

Have you been disqualified from bidding any public
works contracts under RCW 39.06.010 or 39.12.065(3)?

☐ Yes   ☐ No

If yes, provide an explanation of your
disqualification on a separate page.

Do you have a physical office located in the state of
Washington?

☐ Yes   ☐ No

If incorporated, in what state were you incorporated?

State: ______________________ ☐ Not Incorporated

If not incorporated, in what state was your business
entity formed?

State: ______________________

☐ Yes   ☐ No

Have you completed the training required by RCW
39.04.350, or are you on the list of exempt businesses
maintained by the Department of Labor and Industries?

Revised: 07/20/2007, 04/12/2012, 06/21/2019
List of Subcontractor Categories of Work

Project Name

Subcontractor(s) that are proposed to perform the work of heating, ventilation and air conditioning, and/or plumbing, as described in Chapter 18.106 RCW, and electrical as described in Chapter 19.28 RCW must be listed below. **This information must be submitted with the bid proposal or within one hour of the published bid submittal time via email to sendbid@cityoftacoma.org.**

Subcontractor(s) that are proposed to perform the work of structural steel installation and/or rebar installation must be listed below. **This information must be submitted with the bid proposal or within forty-eight hours of the published bid submittal time via email to sendbid@cityoftacoma.org.**

Failure to list subcontractors or naming more than one subcontractor to perform the same work will result in your bid being non-responsive. Contractors self-performing must list themselves below. The work to be performed is to be listed below the subcontractor(s) name.

<table>
<thead>
<tr>
<th>Subcontractor Name</th>
<th>Work to be Performed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subcontractor Name</th>
<th>Work to be Performed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subcontractor Name</th>
<th>Work to be Performed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subcontractor Name</th>
<th>Work to be Performed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subcontractor Name</th>
<th>Work to be Performed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subcontractor Name</th>
<th>Work to be Performed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
STATEMENT OF QUALIFICATIONS PROJECT EXPERIENCE FORM

PROJECT: CTP OUTFALL CATHODIC PROTECTION IMPROVEMENTS

This qualification form shall be completed in its entirety and submitted with the bid package. Use additional copies of this form, if necessary, to show all required experience. Failure to submit and meet the requirements as stated in Section 1.10 of the Supplemental Conditions (Document 00_73_00) shall be grounds for rejection of the bid.

The City of Tacoma shall solely determine if a Bidder meets the minimum experience requirements.

CATHODIC PROTECTION CONTRACTOR QUALIFICATIONS

The contractor performing the cathodic protection improvements, whether as Bidder or subcontractor, shall demonstrate successful experience and competence on a minimum of three (3) completed deep anode groundbed installations within the past five (5) years, either as the general contractor or subcontractor, each with a minimum groundbed depth of 200 feet, where they provided work such as anode placement and installation, cathodic protection equipment procurement and installation, temporary power/coordination of outages/cutovers, cable splicing, field-testing, and start-up. Furthermore, this contractor will be responsible for performing all cathodic projection work indicated in the Contract Documents.

Name of Cathodic Protection Contractor: ________________________________

Address: _____________________________________________________________

Contact Person: ____________________________ Phone: ______________________

#1 Project Name: _________________________________________________________

Description of Work: ____________________________________________________

____________________________________________________________________

Number of groundbeds deeper than 200 feet: __________

Average groundbed depth (feet): __________

Notice to Proceed Date: _______________ Completion Date: _________________

Owner: ______________________ Owner’s Project Manager (PM): _____________

PM’s phone: ________________ PM’s e-mail address: _________________________
#2 Project Name: ______________________________________________________________

Description of Work: ___________________________________________________________

__________________________________________________________________________

Number of groundbeds deeper than 200 feet: __________
Average groundbed depth (feet): __________
Notice to Proceed Date: ________________ Completion Date: ________________
Owner: ____________________ Owner’s Project Manager (PM): ____________________
PM’s phone: ________________ PM’s e-mail address: ____________________________

#3 Project Name: ______________________________________________________________

Description of Work: __________________________________________________________

__________________________________________________________________________

Number of groundbeds deeper than 200 feet: __________
Average groundbed depth (feet): __________
Notice to Proceed Date: ________________ Completion Date: ________________
Owner: ____________________ Owner’s Project Manager (PM): ____________________
PM’s phone: ________________ PM’s e-mail address: ____________________________

#4 Project Name: ______________________________________________________________

Description of Work: __________________________________________________________

__________________________________________________________________________

Number of groundbeds deeper than 200 feet: __________
Average groundbed depth (feet): __________
Notice to Proceed Date: ________________ Completion Date: ________________
Owner: ____________________ Owner’s Project Manager (PM): ____________________
PM’s phone: ________________ PM’s e-mail address: ____________________________
EIC REQUIREMENT FORM

EQUITY IN CONTRACTING REQUIREMENTS & PROCEDURES:

All bidders must complete and submit with their bid the following solicitation form contained in the bid submittal package:

City of Tacoma – EIC Utilization Form

IMPORTANT NOTE:

It is the bidder’s responsibility to ensure that the subcontractor(s) listed on the EIC Utilization Form are currently certified by the State of Washington’s Office of Minority and Women Business Enterprises (OMWBE) at the time of bid opening. This may be verified by contacting the EIC Office at 253-591-5075 between 8 AM and 5 PM, Monday through Friday or the OMWBE Office at (866) 208-1064. Please refer to the City of Tacoma EIC code.

EQUITY IN CONTRACTING REQUIREMENTS

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3%</td>
<td>1%</td>
<td>3%</td>
</tr>
</tbody>
</table>

A list of EIC-eligible companies is available on the following web site addresses:

www.omwbe.diversitycompliance.com*

MATERIAL MISSTATEMENTS CONCERNING COMPLETED ACTIONS BY THE BIDDER IN ANY SWORN STATEMENT OR FAILURE TO MEET COMMITMENTS AS INDICATED ON THE EIC UTILIZATION FORM MAY RENDER THE BIDDER IN DEFAULT OF CITY ORDINANCE 1.07

CCD/EIC: ENV-04015-23
Date of Record: 10/20/2023
Project Spec#: ES23-0244F
Project Title: CTP Outfall Cathodic Protection Improvements

*For the OMWBE list, be sure to look for businesses in Pierce, King, Lewis, Mason, Grays Harbor, Thurston, or any counties adjacent to the county in which the work is performed per 1.07.050(2)(b-c). Contact the EIC Office if you have any questions.
EQUITY IN CONTRACTING UTILIZATION FORM

This form is to document only the contractors, subcontractors, material suppliers or other types of firms that are intended to be used to meet the stated EIC requirements for the contract awarded from this solicitation. This information will be used to determine contract award. Additional forms may be used if needed.

- You must include this form with your bid submittal in order for your bid to be responsive.
- Prime contractors are required to solicit bids from Businesses that are "Certified" by the Office of Minority and Women's Business Enterprises (OMWBE) [www.omwbe.wa.gov] as a MBE, WBE, and SBE to be known as "Certified Business".
- It is the Prime contractor’s responsibility to verify the certification status of the business(s) intended to be utilized prior to the submittal deadline.

Bidder’s Name: ____________________________

Address: ____________________________ City/State/Zip: ____________________________

Spec. No. ______________ Base Bid * $ __________

Complete business names and phone numbers are required to verify your usage of Certified Businesses

<table>
<thead>
<tr>
<th>Business Name and Certification Number(s)</th>
<th>a. MBE, WBE, or SBE (Write all that apply)</th>
<th>b. NAICS code(s)</th>
<th>c. Contractor Bid Amount (100%)</th>
<th>d. Material Supplier Bid Amount (20%)</th>
<th>e. Estimated MBE Usage Dollar Amount</th>
<th>f. Estimated WBE Usage Dollar Amount</th>
<th>g. Estimated SBE Usage Dollar Amount</th>
<th>h. Estimated SBE Usage Dollar Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

i. MBE Utilization %

j. WBE Utilization %

k. SBE Utilization %

By signing and submitting this form the bidder certifies that the OMWBE Certified Business(s) listed will be used on this project including all applicable change orders.

Type or Print Name of Responsible Officer / Title ____________________________________________________________________________

Signature of Responsible Officer ____________________________________________________________________________ Date ____________

CCD/EIC/BID DOCS revised March 4, 2022
INSTRUCTIONS FOR COMPLETING
EIC UTILIZATION FORM

The purpose of these instructions is to assist bidders in properly completing the EIC Utilization Form.

This form when submitted with your bid, provides information to the City of Tacoma to accurately review and evaluate your proposed EIC usage.

1. * Base Bid is the prime contractor’s bid, plus any alternates, additives and deductibles selected by the City of Tacoma. Also, please refer to Items #10-12 below.

2. Column “a” – List all **Certified Business(s)** that you will be awarding a contract to if you are the successful bidder.

3. Column "b" – Identify if the **Certified Business(s)** is being utilized as an MBE, WBE, or SBE. (Businesses may count towards multiple requirements).

4. Column "c" – List the appropriate NAICS code(s) for the scope of work, services, or materials/supplies for each **Certified Business**.

5. Column “d” – The bid amount must be indicated for all listed **Certified Businesses** that you plan on doing business with. This quote is the price that you and the **Certified Businesses** have negotiated prior to bid opening.

6. Column “e” – The bid amount must be indicated for all listed **Certified Businesses** that you plan on doing business with. This quote is the price that you and the material supplier have negotiated prior to bid opening.

7. Column "f" – Estimated MBE Usage Dollar Amount: For all MBE firms used, multiply the amount in Column “d” by 1.0 plus the amount in Column “e” by 0.20. Insert the total amount in this column.

8. Column “g” – Estimated WBE Usage Dollar Amount: For all WBE firms used, multiply the amount in Column “d” by 1.0 plus the amount in Column “e” by 0.20. Insert the total amount in this column.

9. Column “h” – Estimated SBE Usage Dollar Amount: For all MBE, WBE, or SBE firms used, Multiply the amount in Column “d” by 1.0 plus the amount in Column “e” by 0.20. Insert the total amount in this column.

10. Block “i” – The percentage of actual MBE utilization calculated on the Base Bid only. (Divide the sum of Estimated MBE Usage Dollar Amount (Column “f”) by your Base Bid (*) then multiply by 100 to get a percentage: $ amounts from column “f” divided by Base Bid (*) x 100 = MBE usage as a percentage of the Base Bid.)

11. Block “j” – The percentage of actual WBE utilization calculated on the Base Bid only. (Divide the sum of Estimated WBE Usage Dollar Amount (Column “g”) by your Base Bid (*) then multiply by 100 to get a percentage: $ amounts from column “g” divided by Base Bid (*) x 100 = WBE usage as a percentage of the Base Bid.)
12. Block “k” – The percentage of actual SBE utilization calculated on the Base Bid only. (Divide the sum of Estimated SBE Usage Dollar Amount (Column “h”) by your Base Bid (*) then multiply by 100 to get a percentage: $ amounts from column “h” divided by Base Bid (*) x 100 = SBE usage as a percentage of the Base Bid.)

It is the prime contractor’s responsibility to check the status of **Certified Businesses** prior to bid opening. Call the EIC Office at 253-591-5826 or email at EICOoffice@cityoftacoma.org for additional information.
CONTRACT
Resolution No.
Contract No.

This Contract is made and entered into effective as of [Month], [Day], [Year] (“Effective Date”) by and between the City of Tacoma, a Municipal Corporation of the State of Washington (“City”), and [supplier name as it appears in Ariba, including dbas or trade names] (“Contractor”).

That in consideration of the mutual promises and obligations hereinafter set forth the Parties hereto agree as follows:

I. Contractor shall fully execute and diligently and completely perform all work and provide all services and deliverables described herein and in the items listed below each of which are fully incorporated herein and which collectively are referred to as “Contract Documents”:

1. Specification No. [Spec Number] [Spec Title] together with all authorized addenda.
2. Contractor’s submittal [or specifically described portions thereof] dated [Enter Submittal Date] submitted in response to Specification No. [Spec Number] [Spec Title].
3. Describe with specific detail and list separately any other documents that will make up the contract (fee schedule, work schedule, authorized personnel, etc.) or any other additional items mutually intended to be binding upon the parties.

II. If federal funds will be used to fund, pay or reimburse all or a portion of the services provided under the Contract, the terms and conditions set forth at this Appendix A are incorporated into and made part of this Contract and CONTRACTOR will comply with all applicable provisions of Appendix A and with all applicable federal laws, regulations, executive orders, policies, procedures, and directives in the performance of this Contract.

If CONTRACTOR’s receipt of federal funds under this Contract is as a sub-recipient, a fully completed Appendix B, “Sub-recipient Information and Requirements” is incorporated into and made part of this Contract.

III. In the event of a conflict or inconsistency between the terms and conditions contained in this document entitled Contract and any terms and conditions contained the above referenced Contract Documents the following order of precedence applies with the first listed item being the most controlling and the last listed item the least controlling:

1. Contract, inclusive of Appendices A and B.
2. List remaining Contract Documents in applicable controlling order.

IV. The Contract terminates on xxxxx, and may be renewed for xxxxxxxx

V. The total price to be paid by City for Contractor’s full and complete performance hereunder, including during any authorized renewal terms, may not exceed: $[Dollar Amount], plus any applicable taxes.

VI. Contractor agrees to accept as full payment hereunder the amounts specified herein and in Contract Documents, and the City agrees to make payments at the times and in the manner and upon the terms and conditions specified. Except as may be otherwise provided herein or in Contract Documents Contractor shall provide and bear the expense of all equipment, work and labor of any sort whatsoever that may be required for the transfer of materials and for constructing and completing the work and providing the services and deliverables required by this Contract.

VII. The City’s preferred method of payment is by ePayables (Payment Plus), followed by credit card (aka procurement card), then Electronic Funds Transfer (EFT) by Automated Clearing House (ACH), then check or other cash equivalent. CONTRACTOR may be required to have the capability of accepting the City’s ePayables or credit card methods of payment. The City of Tacoma will not accept price changes or pay additional fees when ePayables (Payment Plus) or credit card is used. The City, in its sole discretion, will determine the method of payment for this Contract.
VIII. Failure by City to identify a deficiency in the insurance documentation provided by Contractor or failure of City to demand verification of coverage or compliance by Contractor with the insurance requirements contained in the Contract Documents shall not be construed as a waiver of Contractor’s obligation to maintain such insurance.

IX. Contractor and for its heirs, executors, administrators, successors, and assigns, does hereby agree to the full performance of all the requirements contained herein and in Contract Documents.

It is further provided that no liability shall attach to City by reason of entering into this Contract, except as expressly provided herein.

IN WITNESS WHEREOF, the Parties hereto have accepted and executed this Contract, as of the Effective Date stated above, which shall be Effective Date for bonding purposes as applicable.

CITY OF TACOMA: 
Signature: 
Name: 
Title: 

CONTRACTOR: 
Signature: 
Name: 
Title: 

(City of Tacoma use only - blank lines are intentional) 

Director of Finance: 

Deputy/City Attorney (approved as to form): 

Approved By: 

Approved By: 

Approved By: 

Approved By: 

Approved By: 

APPENDIX A
FEDERAL FUNDING
1. Termination for Breach

CITY may terminate this Contract in the event of any material breach of any of the terms and conditions of this Contract if CONTRACTOR’s breach continues in effect after written notice of breach and 30 days to cure such breach and fails to cure such breach.

2. Prevailing Wages

1. If federal, state, local, or any applicable law requires CONTRACTOR to pay prevailing wages in connection with this Contract, and CONTRACTOR is so notified by the CITY, then CONTRACTOR shall pay applicable prevailing wages and otherwise comply with the Washington State Prevailing Wage Act (RCW 39.12) in the performance of this Contract.

2. If applicable, a Schedule of Prevailing Wage Rates and/or the current prevailing wage determination made by the Secretary of Labor for the locality or localities where the Contract will be performed is made of part of the Contract by this reference. If prevailing wages apply to the Contract, CONTRACTOR and its subcontractors shall:

   i. Be bound by and perform all transactions regarding the Contract relating to prevailing wages and the usual fringe benefits in compliance with the provisions of Chapter 39.12 RCW, as amended, the Washington State Prevailing Wage Act and/or the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) and the requirements of 29 C.F.R. pt. 5 as may be applicable, including the federal requirement to pay wages not less than once a week.

   ii. Ensure that no worker, laborer or mechanic employed in the performance of any part of the Contract shall be paid less than the prevailing rate of wage specified on that Schedule and/or specified in a wage determination made by the Secretary of Labor (unless specifically preempted by federal law, the higher of the Washington state prevailing wage or federal Davis-Bacon rate of wage must be paid.

   iii. Immediately upon award of the Contract, contact the Department of Labor and Industries, Prevailing Wages section, Olympia, Washington and/or the federal Department of Labor, to obtain full information, forms and procedures relating to these matters. Per such procedures, a Statement of Intent to Pay Prevailing Wages and/or other or additional documentation required by applicable federal law, must be submitted by CONTRACTOR and its subcontractors to the CITY, in the manner requested by the CITY, prior to any payment by the CITY hereunder, and an Affidavit of Wages Paid and/or other or additional documentation required by federal law must be received or verified by the CITY prior to final Contract payment.

3. COPELAND ANTI-KICKBACK ACT

For Contracts subject to Davis Bacon Act the following clauses will be incorporated into the Contract:

A. CONTRACTOR shall comply with 18 U.S.C. § 874, 40 U.S.C. § 3145, and the requirements of 29 C.F.R. pt. 3 as may be applicable, which are incorporated by reference into this Contract.

B. CONTRACTOR or subcontractor shall insert in any subcontracts the clause above and such other clauses federal agencies may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts.
The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these Contract clauses.

C. Breach. A breach of the contract clauses above may be grounds for termination of the contract, and for debarment as a contractor and subcontractor as provided in 29 C.F.R. § 5.12.

4. EQUAL EMPLOYMENT OPPORTUNITY

During the performance of this Contract, CONTRACTOR will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. If the CONTRACTOR does over $10,000 in business a year that is funded, paid or reimbursed with federal funds, CONTRACTOR will take specific and affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:

A. Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. CONTRACTOR agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

B. CONTRACTOR will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

C. CONTRACTOR will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee’s essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the Contractor’s legal duty to furnish information.

D. CONTRACTOR will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers’ representatives of the contractor’s commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

E. CONTRACTOR will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

F. In the event of CONTRACTOR’s noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this Contract may be canceled, terminated, or suspended in whole or in part and the CONTRACTOR may be declared ineligible for further federally funded contracts in accordance with procedures
authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

G. CONTRACTOR will include the portion of the sentence immediately preceding paragraph (A) and the provisions of paragraphs (A) through (G) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. CONTRACTOR will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however, that in the event CONTRACTOR becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the CONTRACTOR may request the United States to enter into such litigation to protect the interests of the United States.

5. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

A. Overtime requirements. Neither CONTRACTOR or subcontractor contracting for any part of the Contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

B. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (3)(A) of this section the CONTRACTOR and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such CONTRACTOR and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (3)(A) of this section, in the sum of $27 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (3)(A) of this section.

C. Withholding for unpaid wages and liquidated damages. The CITY shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the CONTRACTOR or subcontractor under any such contract or any other Federal
contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such CONTRACTOR or sub-contractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (3)(B) of this section.

D. Subcontracts. The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (3)(A) through (D) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime CONTRACTOR shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (3)(A) through (D) of this section.

6. CLEAN AIR ACT
   A. CONTRACTOR agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq.

   B. CONTRACTOR agrees to report each violation to the CITY and understands and agrees that the CITY will, in turn, report each violation as required to assure notification to the Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.

   CONTRACTOR agrees to include these requirements in each subcontract exceeding $150,000 financed in whole or in part with federal funds.

7. FEDERAL WATER POLLUTION CONTROL ACT
   A. CONTRACTOR agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq.

   B. CONTRACTOR agrees to report each violation to the CITY and understands and agrees that the CITY will, in turn, report each violation as required to assure notification to the appropriate federal agency.

   C. CONTRACTOR agrees to include these requirements in each subcontract exceeding $150,000 financed in whole or in part with federal funding.

8. DEBARMENT AND SUSPENSION
   A. This Contract is a Covered Transaction for purposes of 2 C.F.R. pt. 180 and 2 C.F.R. pt. 3000. As such, the CONTRACTOR is required to verify that none of the contractor’s principals (defined at 2 C.F.R. § 180.995) or its affiliates (defined at 2 C.F.R. § 180.905) are excluded (defined at 2 C.F.R. § 180.940) or disqualified (defined at 2 C.F.R. § 180.935).

   B. CONTRACTOR must comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, and must include a requirement to comply with these regulations in any lower tier Covered Transaction it enters into.
C. This certification is a material representation of fact relied upon by the CITY. If it is later determined that the CONTRACTOR did not comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, in addition to remedies available to CITY, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.

D. CONTRACTOR agrees to comply with the requirements of 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C throughout the period of this Contract and to include a provision requiring such compliance in its lower tier covered transactions.

9. BYRD ANTI-LOBBYING AMENDMENT

A. Contractors who apply or bid for an award of $100,000 or more shall file the required certification with CITY. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a Member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the CITY.

B. If applicable, CONTRACTOR must sign and submit to the CITY the certification required by Appendix A to 44 CFR Part 18 contained at Appendix A-1 to this Contract.

10. PROCUREMENT OF RECOVERED MATERIALS

A. In the performance of this Contract, CONTRACTOR shall make maximum use of products containing recovered materials that are EPA-designated items unless the product cannot be acquired:
   
   i. Competitively within a timeframe providing for compliance with the contract performance schedule;
   
   ii. Meeting contract performance requirements; or
   
   iii. At a reasonable price.

B. Information about this requirement, along with the list of EPA-designated items, is available at EPA’s Comprehensive Procurement Guidelines web site, https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program.

C. CONTRACTOR also agrees to comply with all other applicable requirements of Section 6002 of the Solid Waste Disposal Act.
APPENDIX A-1

APPENDIX A to 44 C.F.R. PART 18 – CERTIFICATION REGARDING LOBBYING
Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, “Disclosure Form to Report Lobbying,” in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The Contractor, __________, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. Chap.38, Administrative Remedies for False Claims and Statements, apply to this certification and disclosure, if any.

___________________________________
Signature of Contractor’s Authorized Official

___________________________________
Name and Title of Contractor’s Authorized Official

_______________ Date
<table>
<thead>
<tr>
<th>(i)</th>
<th>Agency Name (must match the name associated with its unique entity identifier)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(ii)</td>
<td>Unique Entity Identifier (i.e., DUNS)</td>
</tr>
<tr>
<td>City of Tacoma</td>
<td></td>
</tr>
<tr>
<td>(iii)</td>
<td>Federal Award Identification Number (FAIN)</td>
</tr>
<tr>
<td>(iv)</td>
<td>Federal Award Date</td>
</tr>
<tr>
<td>(v)</td>
<td>Federal Period of Performance Start and End Date</td>
</tr>
<tr>
<td>(vi)</td>
<td>Federal Budget Period Start and End Date</td>
</tr>
<tr>
<td>(vii)</td>
<td>Amount of Federal Funds Obligated to the agency by this action:</td>
</tr>
<tr>
<td>$</td>
<td></td>
</tr>
<tr>
<td>(viii)</td>
<td>Total Amount of Federal Funds Obligated to the agency</td>
</tr>
<tr>
<td>$</td>
<td></td>
</tr>
<tr>
<td>(ix)</td>
<td>Total Amount of the Federal Award Committed to the agency</td>
</tr>
<tr>
<td>$</td>
<td></td>
</tr>
<tr>
<td>(x)</td>
<td>Federal Award Project Description:</td>
</tr>
<tr>
<td>CORONAVIRUS STATE AND LOCAL FISCAL RECOVERY FUNDS– City of Tacoma</td>
<td></td>
</tr>
<tr>
<td>(xi)</td>
<td>Federal Awarding Agency:</td>
</tr>
<tr>
<td>DEPARTMENT OF THE TREASURY</td>
<td></td>
</tr>
<tr>
<td>Pass-Through Entity:</td>
<td></td>
</tr>
<tr>
<td>City of Tacoma</td>
<td></td>
</tr>
<tr>
<td>Awarding Official Name and Contact Information:</td>
<td></td>
</tr>
<tr>
<td>(xii)</td>
<td>Assistance Listing Number and Name (the pass-through entity must identify the dollar amount made available under each Federal award and the Assistance Listing number at time of disbursement)</td>
</tr>
<tr>
<td>(xiii)</td>
<td>Identification of Whether the Award is R&amp;D</td>
</tr>
<tr>
<td>(xiv)</td>
<td>Indirect Cost Rate for the Federal Award</td>
</tr>
<tr>
<td>Award Payment Method (lump sum payment or reimbursement)</td>
<td></td>
</tr>
<tr>
<td>REIMBURSEMENT</td>
<td></td>
</tr>
</tbody>
</table>
PAYMENT BOND
TO THE CITY OF TACOMA

Resolution No. [Enter Reso # Here]
Bond No.

That we, the undersigned, [Supplier name] as principal, and
as a surety, are jointly and severally held and firmly bound to the CITY OF TACOMA, in the penal sum of,
[dollar value], plus any applicable taxes, for the payment whereof Contractor and Surety bind themselves,
their executors, administrators, legal representatives, successors and assigns, jointly and severally, firmly by these presents.

This obligation is entered into in pursuance of the statutes of the State of Washington, the Ordinances of the City of Tacoma.

WHEREAS, under and pursuant to the City Charter and general ordinances of the City of Tacoma, the said City has or is about to enter with the above bounden principal, a contract, providing for

| Specification No. [Enter Spec # Here] |
| Specification Title: [Enter Spec Title Here] |
| Contract No. [Enter Contract # Here] |

(which contract is referenced to herein and is made a part hereof as though attached hereto), and

WHEREAS, the said principal has accepted, the said contract, and undertake to perform the work therein provided for in the manner and within the time set forth.

This statutory payment bond shall become null and void, if and when the Principal, its heirs, executors, administrators, successors, or assigns shall pay all persons in accordance with RCW 39.08, 39.12, and 60.28, including all workers, laborers, mechanics, subcontractors, and materialmen, and all person who shall supply such contractor or subcontractor with provisions and supplies for the carrying on of such work, and all taxes incurred on said Contract under Titles 50 and 51 RCW and all taxes imposed on the Principal under Title 82 RCW; and if such payment obligations have not been fulfilled, this bond shall remain in full force and effect.

The Surety for value received agrees that no change, extension of time, alteration or addition to the terms of the Contract shall in any way affect its obligation on this bond, and waives notice of any changes, extension of time, alteration or addition to the terms of the Contract or the work performed. The Surety agrees that modifications and changes to the terms and conditions of the Contract that increase the total amount to be paid the Principal shall automatically increase the obligation of the Surety on this bond and notice to Surety is not required for such increased obligation.

No suit or action shall be commenced hereunder by any claimant unless claimant shall have given the written notices to the City, and where required, the Contractor, in accordance with RCW 39.08.030.

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.

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 City as a result of such suit. Venue for any action arising out of or in connection with this bond shall be in Pierce County, WA.

Surety companies executing bonds must be authorized to transact business in the State of Washington as surety and named in the current list of “Surety Companies Acceptable in Federal Bonds” as published in the Federal Register by the Audit Staff Bureau of Accounts, U.S. Department of the Treasury.
One original bond shall be executed, and be signed by the parties’ duly authorized officers. This bond will only be accepted if it is accompanied by a fully executed power of attorney for the office executing on behalf of the surety.

Principal: [Supplier name]

By: ________________________________

Surety:

___________________________________

By: ________________________________

Agent's Name: __________________________

Agent's Address: ________________________________
That we, the undersigned, [Supplier Name] as principal, and ______________________________ as a surety, are jointly and severally held and firmly bound to the CITY OF TACOMA, in the penal sum of $[dollar value], plus any applicable tax, for the payment whereof Contractor and Surety bind themselves, their executors, administrators, legal representatives, successors and assigns, jointly and severally, firmly by these presents.

This obligation is entered into in pursuance of the statutes of the State of Washington, the Ordinances of the City of Tacoma.

WHEREAS, under and pursuant to the City Charter and general ordinances of the City of Tacoma, the said City has or is about to enter with the above bounden principal, a contract, providing for

<table>
<thead>
<tr>
<th>Specification No.</th>
<th>[Enter Spec # Here]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specification Title</td>
<td>[Enter Spec Title Here]</td>
</tr>
<tr>
<td>Contract No.</td>
<td>[Enter Contract # Here]</td>
</tr>
</tbody>
</table>

(which contract is referenced to herein and is made a part hereof as though attached hereto), and

WHEREAS, the said principal has accepted, the said contract, and undertake to perform the work therein provided for in the manner and within the time set forth.

This statutory performance bond shall become null and void, if and when the principal, its heirs, executors, administrators, successors, or assigns shall well and faithfully perform all of the Principal’s obligations under the Contract and fulfill all terms and conditions of all duly authorized modifications, additions and changes to said Contract that may hereafter be made, at the time and in the manner therein specified; and if such performance obligations have not been fulfilled, this bond shall remain in force and effect.

The Surety for value received agrees that no change, extension of time, alteration or addition to the terms of the Contract, the specifications accompanying the Contract, or to the work to be performed under the Contract shall in any way affect its obligation on this bond, and waives notice of any change, extension of time, alteration or addition to the terms of the Contract or the work performed. The Surety agrees that modifications and changes to the terms and conditions of the Contract that increase the total amount to be paid the Principal shall automatically increase the obligation of the Surety on this bond and notice to Surety is not required for such increase.

If the City shall commence suit and obtain judgment against the Surety for recovery hereunder, then the Surety, in addition to such judgement, shall pay all costs and attorney’s fees incurred by the City in enforcement of its rights hereunder. Venue for any action arising out of in connection with this bond shall be in Pierce County, Washington.

Surety companies executing bonds must be authorized to transact business in the State of Washington as surety and named in the current list of "Surety Companies Acceptable in Federal Bonds" as published in the Federal Register by the Audit Staff Bureau of Accounts, U.S. Department of the Treasury.

One original bond shall be executed, and signed by the parties’ duly authorized officers. This bond will only be accepted if it is accompanied by a fully executed power of attorney for the office executing on behalf of the surety.

Principal: [Supplier name] ____________________________
By: ____________________________
Surety: ____________________________________________________________________________
By: ____________________________
Agent’s Name: ____________________________
Agent’s Address: ____________________________
GENERAL RELEASE TO THE CITY OF TACOMA

The undersigned, named as the contractor for _________________ between _________________ and the City of Tacoma, (Themselves or Itself) dated ________________________, 20___, hereby releases the City of Tacoma, its departmental officers and agents from any and all claim or claims whatsoever in any manner whatsoever at any time whatsoever arising out of and/or in connection with and/or relating to said contract, excepting only the equity of the undersigned in the amount now retained by the City of Tacoma under said contract, to-wit the sum of $__________________________.

Signed at Tacoma, Washington this _____ day of _______, 20___.

________________________________________
Contractor

By ____________________

Title ____________________
PART II

GENERAL PROVISIONS
GENERAL PROVISIONS

(Revised December 15, 2020)

SECTION I - BIDDING REQUIREMENTS

SECTION I REQUIREMENTS ARE BINDING ON ALL RESPONDENTS.

1.01 USE AND COMPLETION OF CITY PROPOSAL SHEETS

A. Respondent’s Proposal

Each Respondent must bid exactly as specified on the Proposal sheets. All proposals must remain open for acceptance by the City for a period of at least 60 calendar days from the date of opening of the bids.

B. Alterations of Proposals Not Allowed

Proposals that are incomplete or conditioned in any way contain alternatives or items not called for in the General Provisions and Specifications, or not in conformity with law may be rejected as being nonresponsive. The City cannot legally accept any proposal containing a substantial deviation from these Specifications.

C. Filling Out City Proposal Sheets

All proposals must be completed using the proposal sheets and forms included with this specification, and the prices must be stated in figures either written in ink or typewritten. No proposal having erasures or interlineations will be accepted unless initialed by the Respondent in ink.

1.02 CLARIFICATION OF PROPOSAL FOR RESPONDENT

If a prospective Respondent has any questions concerning any part of the Proposal, he/she may submit a written request for answer of his/her questions. Any interpretation of the Proposal will be made by an Addendum duly issued and mailed or delivered to each prospective Respondent. Such addendum must be acknowledged in the proposal. The City of Tacoma will not be responsible for any other explanation or interpretation of the bid documents.

1.03 RESPONDENT’S BOND OR CERTIFIED CHECK

Each bid for construction must be accompanied either by a certified or cashier’s check for 5 percent of the total amount bid, including tax, payable to the City Treasurer, or an approved bid bond, by a surety company authorized to do business in the State of Washington, for 5 percent of the total amount bid. The person legally authorized to sign the bid must sign all bid bonds. The approved bid bond form attached to these Specifications should be used: no substantial variations from the language thereof will be accepted.

If a bid bond is used, the 5 percent may be shown either in dollars and cents, or the bid bond may be filled in as follows, “5 percent of the total amount of the accompanying proposal.”

The check of the successful Respondent will be returned after award of the Contract, acceptance of the Payment and Performance Bond and City’s receipt of the signed Contract. The checks of all other Respondents will be returned immediately upon the award of the Contract. Bid bonds will not be returned.

1.04 DELIVERY OF PROPOSALS TO THE CITY’S PURCHASING OFFICE

A. Proposal packages must be received by the City’s Procurement and Payables Division in SAP Ariba (unless another form of delivery is stated), prior to the scheduled time and date stated in the Solicitation.

B. Supplier is solely responsible for timely delivery of its Submittal.

C. Submittals received after the time stated in the solicitation will not be accepted.

D. For purposes of determining whether a Submittal has been timely received in SAP Ariba, the City’s Procurement and Payables Division will rely on the submittal clock in SAP Ariba.
1.05 LICENSES/PERMITS
A. Suppliers, if applicable, must have a Washington state business license at the time of Submittal and throughout the term of the Contract. Failure to include a Washington state business license may be grounds for rejection of the Submittal or cancellation of contract award. Information regarding Washington state business licenses may be obtained at http://bls.dor.wa.gov.
B. Upon award, it is the responsibility of the Supplier to register with the City of Tacoma's Tax and License Division, 733 South Market Street, Room 21, Tacoma, WA 98402-3768, 253-591-5252, https://www.cityoftacoma.org/government/city_departments/finance/tax_and_license/. Supplier shall obtain a business license as is required by Tacoma Municipal Code Subtitle 6C.20.
C. During the term of the Contract, Supplier, at its expense, shall obtain and keep in force any and all necessary licenses and permits.

1.06 CONTRACTOR'S STATE REGISTRATION NUMBER
Contractors for construction or public works construction are required to be licensed by the state. If the provisions of Chapter 18.27 of the Revised Code of Washington apply to the Respondent, then the Respondent's Washington State Contractor's Registration No. must accompany the bid.

1.07 BID IS NONCOLLUSIVE
The Respondent represents by the submission of the Proposal that the prices in this Bid are neither directly nor indirectly the result of any formal or informal agreement with another Respondent.

1.08 EVALUATION OF BID
A. Price, Experience, Delivery Time and Responsibility
In the evaluation of bids, the Respondent's experience, delivery time, quality of performance or product, conformance to the specifications and responsibility in performing other contracts (including satisfying all safety requirements) may be considered in addition to price. In addition, the bid evaluation factors set forth in City Code Section 1.06.262 may be considered by the City. Respondents who are inexperienced or who fail to properly perform other contracts may have their bids rejected for such cause.
B. Prequalified Electrical Contractor
Certain types of electrical construction require special expertise, experience, and prequalification of the Contractor (or subcontractor) by the City. In such cases, the Respondent must be prequalified or the Respondent must subcontract with a City prequalified electrical contractor for the specialty work.
C. Insertions of Material Conflicting with Specifications
Only material inserted by the Respondent to meet requirements of the Specifications will be considered. Any other material inserted by the Respondent will be disregarded as being nonresponsive and may be grounds for rejection of the Respondent's Proposal.
D. Correction of Ambiguities and Obvious Errors
The City reserves the right to correct obvious errors in the Respondent's proposal. In this regard, if the unit price does not compute to the extended total price, the unit price shall govern.

1.09 WITHDRAWAL OF BID
A. Prior to Bid Opening
Any Respondent may withdraw his/her Proposal prior to the scheduled bid opening time by delivering a written notice to the City’s Procurement and Payables Office. The notice may be submitted in person or by mail; however, it must be received by the City’s Procurement and Payables Office prior to the time of bid opening.
B. After Bid Opening
No Respondent will be permitted to withdraw his/her Proposal after the time of bid opening, as set forth in the Call for Bids, and before the actual award of the Contract, unless the award of Contract is delayed more than sixty (60) calendar days after the date set for bid opening. If a delay of more than 60 calendar days does occur, then the Respondent must submit written notice withdrawing his/her Proposal to the Purchasing Manager.
1.10 OPENING OF BIDS
At the time and place set for the opening of bids, all Proposals, unless previously withdrawn, will be publicly opened and read aloud, irrespective of any irregularities or informalities in such Proposal.

1.11 CITY COUNCIL/PUBLIC UTILITY BOARD FINAL DETERMINATION
The City Council or Public Utility Board of the City of Tacoma shall be the final judge as to which is the lowest and best bid in the interest of the City of Tacoma. The City reserves the right to reject any and all bids, waive minor deviations or informalities, and if necessary, call for new bids.

1.12 RESPONDENT'S REFUSAL TO ENTER INTO CONTRACT
Any Respondent who refuses to enter into a Contract after it has been awarded to the Respondent will be in breach of the agreement to enter the Contract and the Respondent's certified or cashier's check or bid bond shall be forfeited.

1.13 TAXES
A. Include In Proposal All Taxes
Respondent shall include in his/her Proposal all applicable local, city, state, and federal taxes. It is the Respondent's obligation to state on his/her Proposal sheet the correct percentage and total applicable Washington State and local sales tax. The total cost to the City including all applicable taxes may be the basis for determining the low Respondent.
B. Federal Excise Tax
The City of Tacoma is exempt from federal excise tax. Where applicable, the City shall furnish a Federal Excise Tax Exemption certificate.
C. City of Tacoma Business and Occupation Tax
Sub-Title 6A of the City of Tacoma Municipal Code (TMC) provides that transactions with the City of Tacoma, may be subject to the City of Tacoma's Business and Occupation Tax. It is the responsibility of the Respondent awarded the Contract to register with the City of Tacoma's Department of Tax and License, 733 South Market Street, Room 21, Tacoma, WA 98402-3768, telephone 253-591-5252. The City's Business and Occupation Tax amount shall not be shown separately but shall be included in the unit and/or lump sum prices bid.

1.14 FIRM PRICES/ESCALATION
Except as specifically allowed by the Special Provisions, only firm prices will be accepted.

1.15 AWARD
A. Construction and/or Labor Contracts
Unless specifically noted in the Special Provisions or Proposal sheets, all construction and/or labor contracts will be awarded to only one Respondent.
B. Supply/Equipment Contracts
The City reserves the right to award an equipment or supply contract for any or all items to one or more Respondents as the interests of the City will be best satisfied.

1.16 INCREASE OR DECREASE IN QUANTITIES
The City of Tacoma reserves the right to increase or decrease the quantities of any items under this Contract and pay according to the unit prices quoted in the Proposal (with no adjustments for anticipated profit).

1.17 EXTENSION OF CONTRACT
Contracts resulting from this specification shall be subject to extension by mutual agreement per the same prices, terms and conditions.
1.18 PAYMENT TERMS

A. Prices will be considered as net 30 calendar days if no cash discount is shown. Payment discount periods of twenty (20) calendar days or more if offered in the submittal, will be considered in determining the apparent lowest responsible submittal. Discounts will be analyzed in context of their overall cumulative effect. Invoices will not be processed for payment nor will the period of cash discount commence until receipt of a properly completed invoice and until all invoiced items are received and satisfactory performance of the Contractor has been attained. If an adjustment in payment is necessary due to damage or dispute, the cash discount period shall commence on the date final approval for payment is authorized.

B. ePayable/Credit Card Acceptance. Submittals offering ePayable/Credit card acceptance may be compared against submittals offering a prompt payment discount to evaluate the overall cumulative effect of the discount against the advantage to the City of the ePayable/Credit card acceptance, and may be considered in determining the apparent lowest responsible submittal.

1.19 PAYMENT METHOD – EPAYABLES – CREDIT CARD ACCEPTANCE – EFT/ACH ACCEPTANCE

A. Payment methods include:

- EPayables (Payment Plus). This is payment made via a virtual, single use VISA card number provided by the City’s commercial card provider. Suppliers accepting this option will receive “due immediately” payment terms. Two options for acceptance are available to suppliers. Both are accompanied by an emailed advice containing complete payment details:
  - Straight-through processing (buyer initiated). Immediate, exact payments directly deposited to supplier accounts by the City’s provider bank; the supplier does not need to know card account details.
  - Supplier retrieves card account through the secure, on-line portal provided via email notifications sent by the City’s commercial card provider.

- Credit card. Tacoma’s VISA procurement card program is supported by standard bank credit suppliers and requires that merchants abide by the VISA merchant operating rules. It provides “due immediately” payment terms.
  - Suppliers must be PCI-DSS compliant (secure credit card data management) and federal FACTA (sensitive card data display) compliant.
  - Suppliers must be set up by their card processing equipment provider (merchant acquirer) as a minimum of a Level II merchant with the ability to pass along tax, shipping and merchant references information.

- Electronic Funds Transfer (EFT) by Automated Clearing House (ACH). Standard terms are net 30 for this payment method.

- Check or other cash equivalent. Standard terms are net 30 for this payment method.

B. The City’s preferred method of payment is by ePayables (Payment Plus) followed by credit card (aka procurement card). Suppliers may be required to have the capability of accepting the City’s ePayables or credit card methods of payment. The City of Tacoma will not accept price changes or pay additional fees when ePayables (Payment Plus) or credit card is used.

C. The City, in its sole discretion, will determine the method of payment for goods and/or services as part of the Contract.

1.20 COOPERATIVE PURCHASING

The Washington State Interlocal Cooperative Act RCW 39.34 provides that other governmental agencies may purchase goods and services on this solicitation or contract in accordance with the terms and prices indicated therein if all parties are agreeable.

1.21 PUBLIC DISCLOSURE: PROPRIETARY OR CONFIDENTIAL INFORMATION

A. Respondent’s Submittals, all documents and records comprising any Contract awarded to Respondent, and all other documents and records provided to the City by Respondent are deemed public records subject to disclosure under the Washington State Public Records Act, Chapter 42.56 RCW (Public Records Act). Thus, City may be required, upon request, to disclose the Contract and documents or records related to it unless an exemption under the Public Records Act or other laws applies. In the event CITY receives a request for such disclosure, determines in its legal judgment that no applicable exemption to disclosure applies; and Respondent has complied with the requirements to Respondent has complied with the requirements to mark records considered confidential or proprietary.
as such requirements are stated below, City agrees to provide Respondent 10 days written notice of impending release. Should legal action thereafter be initiated by Respondent to enjoin or otherwise prevent such release, all expense of any such litigation shall be borne by Respondent, including any damages, attorneys’ fees or costs awarded by reason of having opposed disclosure. City shall not be liable for any release where notice was provided and Respondent took no action to oppose the release of information.

B. If Respondent provides City with records or information that Respondent considers confidential or proprietary, Respondent must mark all applicable pages or sections of said record(s) as “Confidential” or “Proprietary.” Further, in the case of records or information submitted in response to a Request for Proposals, an index must be provided indicating the affected pages or sections and locations of all such material identified Confidential or Proprietary. Information not included in the required index will not be reviewed for confidentiality or as proprietary before release. If Supplier fails to so mark or index Submittals and related records, then the City, upon request, may release said record(s) without the need to satisfy the requirements of subsection A above; and Respondent expressly waives its right to allege any kind of civil action or claim against the City pertaining to the release of said record(s). Submission of materials in response to City’s Solicitation shall constitute assent by Respondent to the foregoing procedure and Respondent shall have no claim against the City on account of actions taken pursuant to such procedure.

1.22 FEDERAL AID PROJECTS

The City of Tacoma in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 U.S.C. 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Transportation, subtitle A, Office of the Secretary, part 21, nondiscrimination in federally assisted programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises as defined at 49 CFR, part 26, will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, national origin, or sex in consideration for an award.

SECTION II - CONTRACT REQUIREMENTS

2.01 CONTRACTOR'S RESPONSIBILITY

A. Contract Documents

The Respondent to whom the Contract is awarded, hereinafter called the Contractor, shall enter into a Contract with the City of Tacoma, , within 10 days after receipt from the City of Tacoma of a properly prepared Contract. In addition, the Contractor will do all things required to promptly perform this Contract pursuant to the terms of this Contract. Certain contracts for supplies, goods or equipment may use the City Purchase Order in place of a formal contract document.

B. Surety Bonds

Except as modified by the Special Provisions, the Respondent to whom the Contract is awarded shall provide a payment and performance bond, including power of attorney, for 100 percent of the amount of his/her bid (including sales taxes), to insure complete performance of the Contract including the guarantee. The bonds must be executed by a surety company licensed to do business in the State of Washington. For a supply-type contract, a cashier’s check or cash may be substituted for the bonds; however, this cash or cashier’s check must remain with the City through the guarantee period and any interest on said amount shall accrue to the City.

C. Independent Contractor

Contractor is an independent contractor; no personnel furnished by the Contractor shall be deemed under any circumstances to be the agent or servant of the City. Contractor shall be fully responsible for all acts or omissions of Subcontractors and its and their suppliers and of persons employed by them, and shall be specifically responsible for sufficient and competent supervision and inspection to assure compliance in every respect with the Contract. There shall be no contractual relationship between any Subcontractors or supplier and the City arising out of or by virtue of this agreement. No provision of the Contract is intended or is to be construed to be for the benefit of any third party.
2.02 CONFLICTS IN SPECIFICATIONS

Anything mentioned in the Specifications and not shown on the Drawings and anything on the Drawings and not mentioned in the Specifications shall be of like effect and shall be understood to be shown and/or mentioned in both. In case of differences between Drawings and Specifications, the Specifications shall govern. In addition, in the event of any conflict between these General Provisions, the Special Provisions, the Technical Provisions and/or the Proposal pages, the following order of precedence shall control:

1. Proposal pages prevail if they conflict with the General, Special or Technical Provisions.
3. Technical Provisions prevail if they are in conflict with the General Provisions.

In case of discrepancy of figures between Drawings, Specifications or both, the matter shall immediately be submitted to the Engineer for determination. Failure to submit the discrepancy issue to the Engineer shall result in the Contractor's actions being at his/her own risk and expense. The Engineer shall furnish from time to time such detailed drawings and other information as he/she may consider necessary.

2.03 INSPECTION

A. Of the Work

All materials furnished and work done shall be subject to inspection.

The Inspector administering the Contract shall at all times have access to the work wherever it is in progress or being performed, and the Contractor shall provide proper facilities for such access and inspection. Such inspection shall not relieve the Contractor of the responsibility of performing the work correctly, utilizing the best labor and materials in strict accordance with the Specifications of this Contract. All material or work approved and later found to be defective shall be replaced without cost to the City of Tacoma.

B. Inspector's Authority

The inspector shall have power to reject materials or workmanship which do not fulfill the requirements of these Specifications, but in case of dispute the Contractor may appeal to the Director or Superintendent, whose decision shall be final. The word "Director" means the Director of the City of Tacoma General Government department that is administering the contract. The word "Superintendent" means the Superintendent of the City of Tacoma, Department of Public Utilities Division that is administering the contract.

The Contract shall be carried out under the general control of the representative of the particular City Department or Division administering the Contract, who may exercise such control over the conduct of the work as may be necessary, in his or her opinion, to safeguard the interest of the City of Tacoma. The Contractor shall comply with all orders and instructions given by the representative of the particular Department or Division administering the Contract in accordance with the terms of the Contract.

Provided, that for the purposes of construction contracts, such control shall only apply (a) to the extent necessary to ensure compliance with the provisions of this contract, and (b) to the extent necessary to fulfill any nondelegable duty of the City for the benefit of third parties not engaged in promoting the activity of this contract.

Nothing herein contained, however, shall be taken to relieve the Contractor of his/her obligations or responsibilities under the Contract.

2.04 FEDERAL, STATE AND MUNICIPAL REGULATIONS

All federal, state, municipal and/or local regulations shall be satisfied in the performance of all portions of this Contract. The Contractor shall be solely responsible for all violations of the law from any cause in connection with work performed under this Contract.
2.05 INDEMNIFICATION

A. Indemnification

Contractor acknowledges that pursuant to the terms of this agreement, Contractor is solely and totally responsible for the safety of all persons and property in the performance of this Contract. To the greatest extent allowed by law, Contractor assumes the risk of all damages, loss, cost, penalties and expense and agrees to indemnify, defend and hold harmless the City of Tacoma, from and against any and all liability which may accrue to or be sustained by the City of Tacoma on account of any claim, suit or legal action made or brought against the City of Tacoma for the death of or injury to persons (including Contractor's or subcontractor's employees) or damage to property involving Contractor, or subcontractor(s) and their employees or agents, arising out of and in connection with or incident to the performance of the Contract including if the City is found to have a nondelegable duty to see that work is performed with requisite care, except for injuries or damages caused by the sole negligence of the City. In this regard, Contractor recognizes that Contractor is waiving immunity under industrial Insurance Law, Title 51 RCW. This indemnification extends to the officials, officers and employees of the City and also includes attorney's fees and the cost of establishing the right to indemnification hereunder in favor of the City of Tacoma. In addition, within the context of competitive bidding laws, it is agreed that this indemnification has been mutually negotiated. Provided however, this provision is intended to be applicable to the parties to this agreement and it shall not be interpreted to allow a Contractor's employee to have a claim or cause of action against Contractor.

B. Limitation of Liability for Primarily Supply-Type Contracts

In all contracts where the total cost of the supply of materials and/or equipment constitute at least 70 percent of the total contract price (as determined by the City), the City agrees that it will not hold the contractor, supplier or manufacturer liable for consequential damages for that part of the contract related to the manufacture and/or design of the equipment, materials or supplies.

2.06 CONTRACTOR'S INSURANCE

A. During the course and performance of a Contract, Contractor will provide proof and maintain the insurance coverage in the amounts and in the manner specified in the City of Tacoma Insurance Requirements as applicable to the services, products, and deliverables provided under the Contract. The City of Tacoma Insurance Requirements document, if issued, is fully incorporated into the Contract by reference.

B. Failure by City to identify a deficiency in the insurance documentation provided by Contractor or failure of City to demand verification of coverage or compliance by Contractor with these insurance requirements shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

2.07 ASSIGNMENT AND SUBLETTING OF CONTRACT

C. Assignment

The Contract shall not be assigned except with the consent of the Superintendent or his/her designee.

Requests for assignment of this contract must be in writing with the written consent of the surety, and the request must show the proposed person or organization to which the contract is assigned is capable, experienced and equipped to perform such work. The proposed substitute person or organization may be required to submit to the City information as to his/her experience, financial ability and give statements covering tools, equipment, organization, plans and methods to fulfill any portion of the Contract prior to approval of assignment.

D. Subletting

The Contract shall not be sublet except with the written consent of the Superintendent or his/her designee.

In the event that a prequalified electrical contractor is necessary to perform certain portions of the work, such work may be subcontracted with a City prequalified electrical contractor for the type of work involved.

Requests for subletting of this Contract must be in writing with the written consent of the Surety, and the request must show the proposed person or organization to which the Contract is sublet is capable, experienced and equipped to perform such work. The proposed substitute person or organization may be required to submit to the City information as to his experience, financial ability and give statements covering tools, equipment, organization, plans and methods to fulfill any portion of the Contract prior to approval of subletting.
The written consent approving the subletting of the Contract shall not be construed to relieve the Contractor of his/her responsibility for the fulfillment of the Contract. The Subcontractor shall be considered to be the agent of the Contractor and the Contractor agrees to be responsible for all the materials, work and indebtedness incurred by the agent.

A subcontractor shall not sublet any portion of a subcontract for work with the City without the written consent of the City.

2.08 DELAY

E. Extension of Time

With the written approval of the Superintendent or his/her designee, the Contractor may be granted additional time for completion of the work required under this Contract, if, in the Superintendent's opinion the additional time requested arises from unavoidable delay.

F. Unavoidable Delay

Unavoidable delays in the prosecution of the work shall include only delays from causes beyond the control of the Contractor and which he/she could not have avoided by the exercise of due care, prudence, foresight and diligence. Delay caused by persons other than the Contractor, Subcontractors or their employees will be considered unavoidable delays insofar as they necessarily interfere with the Contractor's completion of the work, and such delays are not part of this Contract.

Unavoidable delay will not include delays caused by weather conditions, surveys, measurements, inspections and submitting plans to the Engineer of the particular Division involved in administering this Contract.

2.09 GUARANTEE

A. Guarantee for Construction, Labor or Services Contract

Neither the final certificate of payment or any provision in the Contract Documents, nor partial or entire occupancy of the premises by the City, shall constitute an acceptance of work not done in accordance with the Contract Documents or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall remedy any defects in the work and pay for any damage to other work resulting therefrom, which shall appear within a period of one year from the date of final acceptance of the work unless a longer period is specified. The City will give notice of observed defects with reasonable promptness.

If it has been discovered, before payment is required under the terms of the Contract, that there is a failure to comply with any of the terms and provisions of this Contract, the City has the right and may withhold payment.

In case of a failure of any part of the work, materials, labor and equipment furnished by the Contract or to fully meet all of the requirements of the Contract, the Contractor shall make such changes as may be necessary to fully meet all of the specifications and requirements of this Contract. Such changes shall be made at the Contractor's sole cost and expense without delay and with the least practicable inconvenience to the City of Tacoma. Rejected material and equipment shall be removed from the City's property by and at the expense of the Contractor.

B. Guarantee for Supply Contracts

Unless a longer period is specified, the supplier and/or manufacturer of the supplies, materials and/or equipment furnished pursuant to this Contract agrees to correct any defect or failure of the supplies, materials and/or equipment which occurs within one year from the date of: (1) test energization if electrical or mechanical equipment; (2) commencement of use if supplies or materials, provided, however, said guarantee period shall not extend beyond eighteen months after date of receipt by the City. All of the costs (including shipping, dismantling and reinstallation) of repairs and/or corrections of defective or failed equipment, supplies and/or material is the responsibility of the supplier and/or manufacturer.

When the supplier is not the manufacturer of the item of equipment, supplier agrees to be responsible for this guarantee and supplier is not relieved by a manufacturer's guarantee.
C. Guarantee Period Extension

The Contract guarantee period shall be suspended from the time a significant defect is first documented by the City until the work or equipment is repaired or replaced by Contractor and accepted by the City. In addition, in the event less than ninety (90) days remain on the guarantee period (after recalculating), the guarantee period shall be extended to allow for at least ninety (90) days from the date the work or equipment is repaired or replaced and accepted by the City.

2.10 DEDUCTIONS FOR UNCORRECTED WORK

If the City of Tacoma deems it expedient to correct work not done in accordance with the terms of this Contract, an equitable deduction from the Contract price shall be made.

2.11 CITY OF TACOMA’S RIGHT TO TERMINATE CONTRACT

A. Termination for Convenience

1. Supplies. The City may terminate a Contract for supplies at any time upon prior written notice to Contractor. Upon the effective date of termination specified in such notice, and payment by the City, all conforming supplies, materials, or equipment previously furnished hereunder shall become its property.

2. Services. The City may terminate a Contract for services at any time, with or without cause, by giving 10-business day’s written notice to Supplier. In the event of termination, all finished and unfinished work prepared by Supplier pursuant to the Contract shall be provided to the City. In the event City terminates the Contract due to the City’s own reasons and without cause due to Supplier’s actions or omissions, the City shall pay Supplier the amount due for actual work and services necessarily performed under the Contract up to the effective date of termination, not to exceed the total compensation set forth in the Contract.

B. Termination for Cause

1. The City may terminate a Contract for either services or supplies in the event of any material breach of any of the terms and conditions of the Contract if the Contractor’s breach continues in effect after written notice of breach and 30 days to cure such breach and fails to cure such breach

2. Bankruptcy. If the Contractor should be adjudged as bankrupt, or makes a general assignment for the benefit of creditors, or a receiver should be appointed on account of his/her insolvency, or if he/she or any of his/her subcontractors should violate any of the provisions of the Contract, or if the work is not being properly and diligently performed, the City of Tacoma may serve written notice upon the Contractor and Surety, executing the Payment and Performance Bond, of its intention to terminate the Contract; such notice will contain the reasons for termination of the Contract, and unless within 10 days after the serving of such notice, such violation shall cease and an arrangement satisfactory to the City of Tacoma for correction thereof shall be made, the Contract shall, upon the expiration of said 10 days, cease and terminate and all rights of the Contractor hereunder shall be forfeited. In the event the Contract is terminated for cause, Contractor shall not be entitled to any lost profits resulting therefrom.

3. Notice. In the event of any such termination for cause, the City of Tacoma shall immediately send (by regular mail or other method) written notice thereof to the Surety and the Contractor. Upon such termination the Surety shall have the right to take over and perform the Contract, provided however, the Surety must provide written notice to the City of its intent to complete the work within 15 calendar days of its receipt of the original written notice (from the City) of the intent to terminate. Upon termination and if the Surety does not perform the work, the City of Tacoma may take over the work and prosecute the same to completion by any method it may deem advisable, for the account of and at the expense of the Contractor, and the Contractor and the Surety shall be liable to the City of Tacoma for all cost occasioned to the City of Tacoma thereby. The City of Tacoma may without liability for doing so, take possession of and utilize in completing the work, such materials, equipment, plant and other property belonging to the Contractor as may be on the site of the work and necessary therefore.
2.12 LIENS
In the event that there are any liens on file against the City of Tacoma, the City of Tacoma shall be entitled to withheld final or progress payments to the extent deemed necessary by the City of Tacoma to properly protect the outstanding lien claimants until proper releases have been filed with the City Clerk.

2.13 LEGAL DISPUTES
A. General
Washington law shall govern the interpretation of the Contract. The state or federal courts located in Pierce County Washington shall be the sole venue of any mediation, arbitration, or litigation arising out of the Contract.

Respondents providing submittals from outside the legal jurisdiction of the United States of America will be subject to Tacoma’s City Attorney’s Office (CAO) opinion as to the viability of possible litigation pursuant to a contract resulting from this Specification. If it is the opinion of the CAO that any possible litigation would be beyond reasonable cost and/or enforcement, the submittal may be excluded from evaluation.

B. Attorney Fees
For contracts up to $250,000, which become the subject of litigation or arbitration, the substantially prevailing party may be entitled to reasonable attorney fees, as provided in RCW 39.04.240. Provided, however, the attorney fee hourly rate for the City of Tacoma’s assistant city attorneys is agreed to be $150 per hour or the same as the hourly rate for Contractor’s legal counsel, whichever is greater.

2.14 DELIVERY
Prices must be quoted F.O.B. destination, freight prepaid and allowed with risk of loss during transit remaining with Contractor/Supplier (unless otherwise stated in these Specifications) to the designated address set forth in these Specifications.

Deliveries shall be between 9:00 a.m. and 3:30 p.m.; Monday through Friday only (except legal holidays of the City of Tacoma).

Legal holidays of the City of Tacoma are:

<table>
<thead>
<tr>
<th>Holiday</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Year's Day</td>
<td>January 1</td>
</tr>
<tr>
<td>Martin Luther King's Birthday</td>
<td>3rd Monday in January</td>
</tr>
<tr>
<td>Washington's Birthday</td>
<td>3rd Monday in February</td>
</tr>
<tr>
<td>Memorial Day</td>
<td>Last Monday in May</td>
</tr>
<tr>
<td>Independence Day</td>
<td>July 4</td>
</tr>
<tr>
<td>Labor Day</td>
<td>1st Monday in September</td>
</tr>
<tr>
<td>Veteran's Day</td>
<td>November 11</td>
</tr>
<tr>
<td>Thanksgiving Day</td>
<td>4th Thursday in November</td>
</tr>
<tr>
<td>Day after Thanksgiving</td>
<td>4th Friday of November</td>
</tr>
<tr>
<td>Christmas Day</td>
<td>December 25</td>
</tr>
</tbody>
</table>

When any of these holidays occur on Saturday or Sunday, the preceding Friday or the following Monday, respectively, is a legal holiday for the City of Tacoma.

2.15 PACKING SLIPS AND INVOICES
A. Packing slips and shipping notices shall be sent to the specific City Division or Department receiving the item(s) at the address stated in City’s Solicitation or as otherwise stated in the Contract and include complete description of items, contents of items if crated or cased, quantity, shipping point, carrier, bill of lading number and City of Tacoma purchase order.

B. Each invoice shall show City of Tacoma purchase order number, release number if applicable, quantity, unit of measure, item description, unit price and extended price for each line if applicable, services and deliverables provided if applicable. Line totals shall be summed to give a grand total to which sales tax shall be added, if applicable.

1. For transactions conducted in SAP Ariba, invoices shall be submitted through Ariba.
2. For invoices paid by ACH or by check, unless stated otherwise, invoices shall be electronically submitted by email with corresponding PO number listed in the subject line to accounts payable@cityoftacoma.org.
3. For invoices paid by credit card, invoices shall also display the last name of the cardholder and last four digits (only) of the card number (e.g., Jones/6311). Unless stated otherwise, invoices shall be electronically submitted by email with corresponding PO number listed in the subject line to (do not combine different POs into one invoice or charge) to pcardadmin@cityoftacoma.org.

2.16 APPROVED EQUALS

A. Unless an item is indicated as "No substitute", special brands, when named, are intended to describe the standard of quality, performance or use desired. Equal items will be considered by the City, provided that the respondent specifies the brand and model, and provides all descriptive literature, independent test results, product samples, local servicing and parts availability to enable the City to evaluate the proposed "equal".

B. The decision of the City as to what items are equal shall be final and conclusive. If the City elects to purchase a brand represented by the respondent to be an "equal", the City's acceptance of the item is conditioned on the City's inspection and testing after receipt. If, in the sole judgment of the City, the item is determined not to be an equal, the item shall be returned at the respondent's expense.

C. When a brand name or level of quality is not stated by the respondent, it is understood the offer is exactly as specified. If more than one brand name is specified, respondents must clearly indicate the brand and model/part number being bid.

2.17 ENTIRE AGREEMENT

This written contract represents the entire Agreement between the parties and supersedes any prior oral statements, discussions or understandings between the parties.

2.18 CODE OF ETHICS

The City's Code of Ethics, Chapter 1.46, Tacoma Municipal Code, provides ethical standards for City personnel and prohibits certain unethical conduct by others including respondents and contractors. Violation of the City's Code of Ethics will be grounds for termination of this contract.

2.19 FEDERAL FINANCIAL ASSISTANCE

If federal funds, including FEMA financial assistance to the City of Tacoma, will be used to fund, pay or reimburse all or a portion of the Contract, Contractor will comply with all applicable Federal law, regulations, executive orders, FEMA policies, procedures, and directives and the following clauses will be incorporated into the Contract:

A. EQUAL EMPLOYMENT OPPORTUNITY During the performance of this Contract, Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:

1. Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

2. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

3. The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other
employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

4. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

5. The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

6. The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

7. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

8. The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

B. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (B)(1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (B)(1) of this section, in the sum of $27 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.
3. Withholding for unpaid wages and liquidated damages. The City shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (B)(2) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (B)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (B)(1) through (4) of this section.

C. CLEAN AIR ACT

1. Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq.

2. Contractor agrees to report each violation to the City and understands and agrees that the City will, in turn, report each violation as required to assure notification to the Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.

3. Contractor agrees to include these requirements in each subcontract exceeding $150,000 financed in whole or in part with Federal assistance provided by FEMA.

D. FEDERAL WATER POLLUTION CONTROL ACT

1. Contractor agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq.

2. Contractor agrees to report each violation to the City, understands, and agrees that the City will, in turn, report each violation as required to assure notification to the Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.

3. Contractor agrees to include these requirements in each subcontract exceeding $150,000 financed in whole or in part with Federal assistance provided by FEMA.

E. DEBARMET AND SUSPENSION

1. This contract is a covered transaction for purposes of 2 C.F.R. pt. 180 and 2 C.F.R. pt. 3000. As such, the contractor is required to verify that none of the contractor’s principals (defined at 2 C.F.R. § 180.995) or its affiliates (defined at 2 C.F.R. § 180.905) are excluded (defined at 2 C.F.R. § 180.940) or disqualified (defined at 2 C.F.R. § 180.935).

2. Contractor must comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.

3. This certification is a material representation of fact relied upon by the City. If it is later determined that the contractor did not comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, in addition to remedies available to (insert name of recipient/subrecipient/applicant), the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.

4. Contractor agrees to comply with the requirements of 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.
F. **BYRD ANTI-LOBBYING AMENDMENT**

1. Contractors who apply or bid for an award of $100,000 or more shall file the required certification with City. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a Member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the City.

2. If applicable, Contractor must sign and submit to the City the following certification:

**APPENDIX A, 44 C.F.R. PART 18 – CERTIFICATION REGARDING LOBBYING**

Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, “Disclosure Form to Report Lobbying,” in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The Contractor, __________, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. Chap.38, Administrative Remedies for False Claims and Statements, apply to this certification and disclosure, if any.

___________________________________
Signature of Contractor’s Authorized Official

___________________________________
Name and Title of Contractor’s Authorized Official

___________ Date
G. PROCUREMENT OF RECOVERED MATERIALS

1. In the performance of this contract, the Contractor shall make maximum use of products containing recovered materials that are EPA-designated items unless the product cannot be acquired:
   a. Competitively within a timeframe providing for compliance with the contract performance schedule;
   b. Meeting contract performance requirements; or
   c. At a reasonable price.

2. Information about this requirement, along with the list of EPA-designated items, is available at EPA’s Comprehensive Procurement Guidelines web site, https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program.

3. Contractor also agrees to comply with all other applicable requirements of Section 6002 of the Solid Waste Disposal Act.

[Section III is for contracts that involve construction and/or labor, and are not applicable to contracts solely for material/supply purchases.]

GENERAL PROVISIONS

SECTION III - CONSTRUCTION AND/OR LABOR CONTRACTS

SECTION III REQUIREMENTS APPLY ONLY TO CONSTRUCTION AND/OR LABOR CONTRACTS AND ARE IN ADDITION TO APPLICABLE REQUIREMENTS CONTAINED IN SECTION II CONTRACT REQUIREMENTS.

3.01 RESPONDENT'S DUTY TO EXAMINE

The Respondent agrees to be responsible for examining the site(s) and to have compared them with the Specifications and Contract Drawings, and to be satisfied as to the facilities and difficulties attending the execution of the proposed Contract (such as uncertainty of weather, floods, nature and condition of materials to be handled and all other conditions, obstacles and contingencies) before the delivery of his/her Proposal. No allowance will be subsequently made by the City on behalf of the Respondent by reason of any error or neglect on Respondent's part, for such uncertainties as aforesaid.

3.02 PERMITS

Except when modified by the Special Provisions, the Contractor shall procure and pay for all permits and licenses necessary for the completion of this Contract including those permits required by the City of Tacoma. The City will obtain county or state road crossing permits if required. In the event a necessary permit is not obtained, the Contractor will not be permitted to work on items subject to said permit and any delays caused thereby will not be subject to extra compensation or extensions.

3.03 NOTIFICATION OF OTHER GOVERNMENTAL AGENCIES AND UTILITIES WHEN UNDERGROUND WORK IS INVOLVED

The Contractor shall notify all other affected governmental agencies and utilities whenever underground work is done under the terms of this Contract. The Contractor is required to obtain permission of the appropriate public and private utilities and governmental agencies before performing underground work pursuant to the terms of this Contract. The Contractor is required to call "one call" at 1-800-424-5555 for all work involving excavation or digging more than 12 inches beneath ground or road surface.

The City may have indicated on the plans and specifications the existence of certain underground facilities that are known to the City department responsible for this Contract. It is the Contractor's responsibility to fully comply with the Underground Utility Locate Law, Chapter 19.122 RCW. If the site conditions are "changed or differing" as defined by RCW 19.122.040(l), the Contractor may pursue the party responsible for not properly marking or identifying the underground facility. The Contractor agrees not to file any claim or legal action against the City (department responsible for this Contract) for said "changed or differing" conditions unless said City department is solely responsible for the delay or damages that the Contractor may have incurred.
3.04 TRENCH EXCAVATION BID ITEM

In the event that "trench excavation" in excess of four feet requires a safety system pursuant to Washington State law and safety shoring, sloping, sheeting, or bracing is used, a separate bid item should be set forth in the Proposal for this work. If a separate bid item is not set forth in the Proposal pages, said installed safety system shall be paid at $3.00 per lineal foot of trench, which unit price includes both sides of the trench.

3.05 SAFETY

A. General

The Contractor shall, at all times, exercise adequate precautions for the safety of all persons, including its employees and the employees of a Subcontractor, in the performance of this Contract and shall comply with all applicable provisions of federal, state, county and municipal safety laws and regulations. It is the Contractor's responsibility to furnish safety equipment or to contractually require Subcontractors to furnish adequate safety equipment relevant to their responsibilities.

The Contractor shall obtain the necessary line clearance from the inspector before performing any work in, above, below or across energized Light Division circuits.

The Inspector and/or Engineer may advise the Contractor and the Safety Officer of any safety violations. It is the Contractor's responsibility to make the necessary corrections. Failure to correct safety violations is a breach of this Contract and, as such, shall be grounds for an order from the Safety Officer, Inspector or Engineer to cease further work and remove from the job site until the condition is corrected. Time and wages lost due to such safety shutdowns shall not relieve the Contractor of any provisions of Section 3.14 of this Specification and shall be at the sole cost of the Contractor. The purpose of this authority to stop work is to enforce the contract and not to assume control except to the extent necessary to ensure compliance with the provisions of this contract.

Any of the above actions by employees of the City of Tacoma shall in no way relieve the Contractor of his/her responsibility to provide for the safety of all persons, including his/her employees.

B. Work Hazard Analysis Report

The Contractor will be required to complete a work hazard analysis report. This report shall outline how the Contractor proposes to satisfy all safety laws and regulations involved in performing the work. This report shall be completed and submitted to the City Safety Officer before the pre-construction conference. A copy of the report shall be maintained at the work site (accessible to the supervisor).

3.06 PROTECTION OF WORKERS AND PROPERTY

The Contractor shall erect and maintain good and sufficient guards, barricades and signals at all unsafe places at or near the work and shall, in all cases, maintain safe passageways at all road crossings, and crosswalks, and shall do all other things necessary to prevent accident or loss of any kind.

The Contractor shall protect from damage all utilities, improvements, and all other property that is likely to become displaced or damaged by the execution of the work under this Contract.

The Contractor is responsible for all roads and property damaged by his/her operations as shall be determined by the Engineer administering this Contract. The Contractor shall be responsible for repairing all damage to roads caused by his/her operations to the satisfaction of the particular governmental body having jurisdiction over the road.

3.07 CONTRACTOR - SUPERVISION AND CHARACTER OF EMPLOYEES

A. Superintendent to Supervise Contractor's Employees

The Contractor shall keep on his/her work, during its progress, a competent superintendent and any necessary assistants, all of whom must be satisfactory to the City of Tacoma. The Contractor's superintendent shall not be changed except with the consent of the City of Tacoma, unless the Contractor's superintendent proves to be unsatisfactory to the Contractor and ceases to be in his/her employ. The Contractor's superintendent shall represent the Contractor in his/her absence and all directions given to him/her shall be binding as if given to the Contractor directly. The Contractor shall give efficient supervision to the work, using his/her best skill and attention.
B. Character of Contractor's Employees
The Contractor shall employ only competent, skillful, faithful and orderly persons to do the work, and whenever the Engineer administering the Contract shall notify the Contractor in writing that any person on the work is, in his or her opinion, incompetent, unfaithful, disorderly or otherwise unsatisfactory, the Contractor shall forthwith discharge such persons from the work and shall not again employ him or her on this Contract.

3.08 CONTRACTOR'S COMPLIANCE WITH THE LAW

A. Hours of Labor
The Contractor and Subcontractors shall be bound by the provisions of RCW Chapter 49.28 (as amended) relating to hours of labor. Except as set forth in the Special Provisions, eight (8) hours in any calendar day shall constitute a day's work on a job performed under this Contract.

In the event that the work is not performed in accordance with this provision and in accordance with the laws of the State of Washington, then this Contract may be terminated by the City of Tacoma for the reason that the same is not performed in accordance with the public policy of the State of Washington as defined in said statutes.

B. Prevailing Wages
If federal, state, local, or any applicable law requires Supplier to pay prevailing wages in connection with a Contract, and Supplier is so notified by the City, then Supplier shall pay applicable prevailing wages.

If applicable, a Schedule of Prevailing Wage Rates and/or the current prevailing wage determination made by the Secretary of Labor for the locality or localities where the Contract will be performed is attached and made of part of the Contract by this reference. If prevailing wages do apply to the Contract, Supplier and its subcontractors shall:

1. Be bound by and perform all transactions regarding the Contract relating to prevailing wages and the usual fringe benefits in compliance with the provisions of Chapter 39.12 RCW, as amended, the Washington State Prevailing Wage Act and/or the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) and the requirements of 29 C.F.R. pt. 5 as may be applicable, including the federal requirement to pay wages not less than once a week;

2. Ensure that no worker, laborer or mechanic employed in the performance of any part of the Contract shall be paid less than the prevailing rate of wage specified on that Schedule and/or specified in a wage determination made by the Secretary of Labor (unless specifically preempted by federal law, the higher of the Washington state prevailing wage or federal Davis-Bacon rate of wage must be paid) andAdditionally, in compliance with applicable federal law, contractors are required to pay wages not less than once a week.

3. Immediately upon award of the Contract, contact the Department of Labor and Industries, Prevailing Wages section, Olympia, Washington and/or the federal Department of Labor, to obtain full information, forms and procedures relating to these matters. Per such procedures, a Statement of Intent to Pay Prevailing Wages and/or other or additional documentation required by applicable federal law, must be submitted by Contractor and its subcontractors to the City, in the manner requested by the City, prior to any payment by the City hereunder, and an Affidavit of Wages Paid and/or other or additional documentation required by federal law must be received or verified by the City prior to final Contract payment. In the event any dispute arises as to what are the prevailing rates of wages for work of a similar nature and such 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 State of Washington, Department of Labor and industries whose decision shall be final, conclusive and binding on all parties involved in the dispute.
3.09 COPELAND ANTI-KICKBACK ACT

For contracts subject to Davis Bacon Act the following clauses will be incorporated into the Contract:

A. Contractor. The contractor shall comply with 18 U.S.C. § 874, 40 U.S.C. § 3145, and the requirements of 29 C.F.R. pt. 3 as may be applicable, which are incorporated by reference into this contract.

B. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clause above and such other clauses as FEMA may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these contract clauses.

C. Breach. A breach of the contract clauses above may be grounds for termination of the contract, and for debarment as a contractor and subcontractor as provided in 29 C.F.R. § 5.12.

3.10 CHANGES

A. In Plans or Quantities

The City of Tacoma, without invalidating this Contract, or any part of this Contract, may order extra work or make reasonable changes by altering, adding to or deducting from the materials, work and labor and the Contract sum will be adjusted accordingly. All such work and labor shall be executed under the conditions of the original Contract except that any claim for extension of time caused thereby shall be adjusted at the time of ordering such change. When work or bid items are deducted, reduced or eliminated, it is agreed that no payment will be made to Contractor for anticipated profit.

B. Extra Work

Any claim or order for extra materials, work and labor made necessary by alterations or additions to the plans or by other reasons for which no price is provided in this Contract, shall not be valid unless the Contractor and Engineer administering the Contract have agreed upon a price prior to commencing extra work, and the agreement has been signed by the Contractor and approved by the Superintendent or his/her designee, and approved by the payment and performance bond surety.

C. Extra Work - No Agreed Price

If it is impracticable to fix an increase in price definitely in advance, the order may fix a maximum price which shall not under any circumstances, be exceeded, and subject to such limitation, such alteration, modification, or extra shall be paid for at the actual necessary cost as determined by the City of Tacoma, which cost (including an allowance for profit) shall be determined as the sum of the following items (1) to (7) inclusive:

1. Labor, computed at regular wage scale, including premium on compensation insurance and charge for social security taxes, and other taxes, pertaining to labor; no charge for premium pay shall be allowed unless authorized by the Engineer administering the Contract;

2. The proportionate cost of premiums on comprehensive general liability and other insurance applicable to the extra work involved and required under this Contract;

3. Material, including sales taxes pertaining to materials;

4. Plant and equipment rental, to be agreed upon in writing before the work is begun; no charge for the cost of repairs to plant or equipment will be allowed;

5. Superintendence, general expense and profit computed at 20 percent of the total of paragraphs (1) to (4) inclusive;

6. The proportionate cost of premiums on bonds required by this Contract, computed by 1 1/2 percent of the total of paragraphs (1) to (5) inclusive.

7. The City of Tacoma reserves the right to furnish such materials as it may deem expedient, and no allowance will be made for profit thereon.

Whenever any extra work is in progress, for which the definite price has not been agreed on in advance, the Contractor shall each day, report to the Engineer the amount and cost of the labor and material used, and any other expense incurred in such extra work on the preceding day, and no claim for compensation for such extra work will be allowed unless such report shall have been made.
The above-described methods of determining the payment for work and materials shall not apply to the performance of any work or the furnishing of any material, which, in the judgment of the Engineer administering the Contract, may properly be classified under items for which prices are established in the Contract.

D. Claims for Extra Work

If the Contractor claims that any instructions by drawings or otherwise, involve extra cost under this Contract, he/she shall give the City of Tacoma written notice thereof within 30 days after receipt of such instruction, and in any event before proceeding to execute the work, except in an emergency endangering life or property, and the procedures governing the same shall be as provided for immediately above in this paragraph. The method in these paragraphs is the only method available to the Contractor for payment of claims for extra work performed under the terms of this Contract.

3.11 CLEANING UP

The Contractor shall at all times, at his/her own expense, keep the premises free from accumulation of waste materials or debris caused by any workers or the work, at the completion of the work the Contractor shall remove all his waste materials from and about the site and all his/her equipment, sanitary facilities and surplus materials. In the case of dispute, the City of Tacoma may remove the debris and charge the cost to the Contractor as the City of Tacoma shall determine to be just. All material that is deposited or placed elsewhere than in places designated or approved by the Engineer administering the Contract will not be paid for and the Contractor may be required to remove such material and deposit or place it where directed.

3.12 PROGRESS PAYMENT

Progress payments will be made up to the amount of ninety-five percent (95%) of the actual work completed as shall be determined by the Engineer administering the Contract.

The Contractor may request that an escrow account be established as permitted by law, in which event the Contractor will earn interest on the retained funds.

When the time for construction, services and/or installation will exceed thirty (30) days, the Contractor may request, by invoice, to be paid a progress payment based on percentage of work completed. The Engineer will review and approve the progress payment request on a monthly basis.

3.13 FINAL PAYMENT

The final payment of five percent (5%) of the Contract price shall be approved on final acceptance of the work under this Contract by the Superintendent or his/her designee. In addition, before final payment is made, the Contractor shall be required to:

A. Provide a certificate from the Washington State Department of Revenue that all taxes due from the Contractor have been paid or are collectible in accordance with the provisions of Chapter 60.28 and Title 82 of the Revised Code of Washington;

B. Provide the General Release to the City of Tacoma on the form set forth in these Contract documents;

C. Provide a release of any outstanding liens that have been otherwise filed against any monies held or retained by the City of Tacoma;

D. File with the City Director of Finance, and with the Director of the Washington State Department of Labor and Industries, on the state form to be provided, an affidavit of wages paid;

E. File with the City Director of Finance, on the state form to be provided, a statement from the State of Washington, Department of Labor and Industries, certifying that the prevailing wage requirements have been satisfied.

F. File with the City Director of Finance, on the state form to be provided, a statement of release from the Public Works Contracts Division of the State of Washington, Department of Labor and Industries, verifying that all industrial insurance and medical aid premiums have been paid.

If there is a fee assessed to the City for any certificate, release or other form required by law, the contractor agrees that the fee amount may be passed on to the Contractor and deducted from the monies paid to the Contractor.
3.14 FAILURE TO COMPLETE THE WORK ON TIME

Should the completion of the work required under the Contract be delayed beyond the expiration of the period herein set for the completion of said work, or such extension of said period as may be allowed by reason of unavoidable delays, there shall be deducted from the total Contract price of work, for each calendar day by which such completion shall be delayed beyond said period of such extension thereof the sum of $300 or a sum of money as set forth hereinafter in these Specifications, as the amount of such deduction per calendar day.

Said sum shall be considered not as a penalty, but as liquidated damages, which the City will suffer by reason of the failure of the Contractor to perform and complete the work within the period, herein fixed or such extensions of said period as may be allowed by reason of unavoidable delays.

Any money due or to become due the Contractor may be retained by the City to cover said liquidated damages, and should such money not be sufficient to cover such damages, the City shall have the right to recover the balance from the Contractor or his/her Sureties.

The filing of any bid for the work herein contemplated shall constitute acknowledgment by the Respondent that he/she understands, agrees and has ascertained that the City will actually suffer damage to the amount hereinabove fixed for each and every calendar day during which the completion of the work herein required shall be delayed beyond the expiration of the period herein fixed for such completion or such extension of said period as may be allowed by reason of unavoidable delays.

3.15 CITY RESERVES RIGHT TO USE FACILITIES PRIOR TO ACCEPTANCE

The City of Tacoma hereby reserves the right to use the facilities herein contracted prior to final acceptance under this Contract. The use of said facilities, as mentioned herein, shall not be construed as a waiver or relinquishment of any rights that the City of Tacoma has under this Contract.

3.16 LIST OF SUBCONTRACTORS

Bid proposals for construction, alteration or repair of any building or other public works that may exceed $1,000,000 including tax shall satisfy the following requirement: Respondent shall submit as part of the bid, the names of the subcontractors, with whom the respondent, if awarded the contract, will subcontract the performance of the work of heating, ventilation and air conditioning, plumbing as described in chapter 18.106 RCW, and electrical as described in chapter 19.28 RCW, or to name itself for the work. The respondent shall not list more than one subcontractor for each category of work identified, unless subcontractors vary with bid alternates, in which case the respondent must indicate which subcontractor will be used for which alternate. Failure to comply with this provision or the naming of two or more subcontractors to perform the same work shall require the City (pursuant to state law RCW 39.30.060) to determine that respondent's bid is nonresponsive; therefore, the bid will be rejected.
PART III

DOCUMENT 00720 GENERAL CONDITIONS FOR WASHINGTON STATE FACILITY CONSTRUCTION
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>PART 1 – GENERAL PROVISIONS</td>
<td>1.01 Definitions</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>1.02 Order of Precedence</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>1.03 Execution and Intent</td>
<td>5</td>
</tr>
<tr>
<td>PART 2 – INSURANCE AND BONDS</td>
<td>2.01 Contractor’s Liability Insurance</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>2.02 Coverage Limits</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>2.03 Insurance Coverage Certificates</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>2.04 Payment and Performance Bonds</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>2.05 Alternative Surety</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>2.06 Builder’s Risk</td>
<td>7</td>
</tr>
<tr>
<td>PART 3 – TIME AND SCHEDULE</td>
<td>3.01 Progress and Completion</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>3.02 Construction Schedule</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>3.03 Owner’s Right to Suspend the Work for Convenience</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>3.04 Owner’s Right to Stop the Work for Cause</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>3.05 Delay</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>3.06 Notice to Owner of Labor Disputes</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>3.07 Damages for Failure to Achieve Timely Completion</td>
<td>10</td>
</tr>
<tr>
<td>PART 4 – SPECIFICATIONS, DRAWINGS, AND OTHER DOCUMENTS</td>
<td>4.01 Discrepancies and Contract Document Review</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>4.02 Project Record</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>4.03 Shop Drawings</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>4.04 Organization of Specifications</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>4.05 Ownership and Use of Drawings, Specifications &amp; other Documents</td>
<td>13</td>
</tr>
<tr>
<td>PART 5 – PERFORMANCE</td>
<td>5.01 Contractor Control and Supervision</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>5.02 Permits, Fees and Notices</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>5.03 Patents and Royalties</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>5.04 Prevailing Wages</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>5.05 Hours of Labor</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>5.06 Nondiscrimination</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>5.07 Safety Precautions</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>5.08 Operations, Material Handling, and Storage Areas</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>5.09 Prior Notice of Excavation</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>5.10 Unforeseen Physical Conditions</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>5.11 Protection of Existing Structures, Equipment, Vegetation, Utilities, &amp; Improvements</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>5.12 Layout of Work</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>5.13 Material and Equipment</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>5.14 Availability and Use of Utility Services</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>5.15 Tests and Inspections</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>5.16 Correction of Nonconforming Work</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>5.17 Clean Up</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>5.18 Access to Work</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>5.19 Other Contracts</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>5.20 Subcontractors and Suppliers</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>5.21 Warranty of Construction</td>
<td>24</td>
</tr>
</tbody>
</table>
PART 5 – PERFORMANCE (continued)

5.22 Indemnification

PART 6 – PAYMENTS AND COMPLETION

6.01 Contract Sum
6.02 Schedule of Values
6.03 Application for Payment
6.04 Progress Payments
6.05 Payments Withheld
6.06 Retainage and Bond Claim Rights
6.07 Substantial Completion
6.08 Prior Occupancy
6.09 Final Completion, Acceptance, and Payment

PART 7 – CHANGES

7.01 Change in the Work
7.02 Change in the Contract Sum
7.03 Change in the Contract Time

PART 8 – CLAIMS AND DISPUTE RESOLUTION

8.01 Claims Procedure
8.02 Arbitration
8.03 Claims Audits

PART 9 – TERMINATION OF THE WORK

9.01 Termination by Owner for Cause
9.02 Termination by Owner for Convenience

PART 10 – MISCELLANEOUS PROVISIONS

10.01 Governing Law
10.02 Successors and Assigns
10.03 Meaning of Words
10.04 Rights and Remedies
10.05 Contractor Registration
10.06 Time Computations
10.07 Records Retention
10.08 Third-Party Agreements
10.09 Antitrust Assignments
10.10 Headings and Captions
PART 1 – GENERAL PROVISIONS

1.01 DEFINITIONS

A. “Application for Payment” means a written request submitted by Contractor to A/E for payment of Work completed in accordance with the Contract Documents and approved Schedule of Values, supported by such substantiating data as Owner or A/E may require.

B. “Architect,” “Engineer,” or “A/E” means a person or entity lawfully entitled to practice architecture or engineering, representing Owner within the limits of its delegated authority.

C. “Change Order” means a written instrument signed by Owner and Contractor stating their agreement upon all of the following: (1) a change in the Work; (2) the amount of the adjustment in the Contract Sum, if any, and (3) the extent of the adjustment in the Contract Time, if any.

D. “Claim” means Contractor’s exclusive remedy for resolving disputes with Owner regarding the terms of a Change Order or a request for equitable adjustment, as more fully set forth in Part 8.

E. “Contract Award Amount” is the sum of the Base Bid and any accepted Alternates.

F. “Contract Documents” means the Advertisement for Bids, Instructions for Bidders, completed Bid Form, General Conditions, Modifications to the General Conditions, Supplemental Conditions, Public Works Contract, other Special Forms, Drawings and Specifications, and all addenda and modifications thereof.

G. “Contract Sum” is the total amount payable by Owner to Contractor, for performance of the Work in accordance with the Contract Documents, including all taxes imposed by law and properly chargeable to the Work, except Washington State sales tax.

H. “Contract Time” is the number of calendar days allotted in the Contract Documents for achieving Substantial Completion of the Work.

I. “Contractor” means the person or entity who has agreed with Owner to perform the Work in accordance with the Contract Documents.

J. “Day(s); Unless otherwise specified, day(s) shall mean calendar day(s).”

K. “Drawings” are the graphic and pictorial portions of the Contract Documents showing the design, location, and dimensions of the Work, and may include plans, elevations, sections, details, schedules, and diagrams.

L. “Final Acceptance” means the written acceptance issued to Contractor by Owner after Contractor has completed the requirements of the Contract Documents, as more fully set forth in Section 6.09 B.

M. “Final Completion” means that the Work is fully and finally complete in accordance with the Contract Documents, as more fully set forth in Section 6.09 A.

N. “Force Majeure” means those acts entitling Contractor to request an equitable adjustment in the Contract Time, as more fully set forth in paragraph 3.05A.

O. “Notice” means a written notice which has been delivered in person to the individual or a member of the firm or entity or to an officer of the corporation for which it was intended or, if delivered or sent by registered or certified mail, to the last business address known to the party giving notice.
P. “Notice to Proceed” means a notice from Owner to Contractor that defines the date on which the Contract Time begins to run.

Q. “Owner” means the state agency, institution, or its authorized representative with the authority to enter into, administer, and/or terminate the Work in accordance with the Contract Documents and make related determinations and findings.

R. “Person” means a corporation, partnership, business association of any kind, trust, company, or individual.

S. “Prior Occupancy” means Owner’s use of all or parts of the Project before Substantial Completion, as more fully set forth in Section 6.08 A.

T. “Progress Schedule” means a schedule of the Work, in a form satisfactory to Owner, as further set forth in Section 3.02.

U. “Project” means the total construction of which the Work performed in accordance with the Contract Documents may be the whole or a part and which may include construction by Owner or by separate contractors.

V. “Project Record” means the separate set of Drawings and Specifications as further set forth in paragraph 4.02A.

W. “Schedule of Values” means a written breakdown allocating the total Contract Sum to each principal category of Work, in such detail as requested by Owner.

X. “Specifications” are that portion of the Contract Documents consisting of the written requirements for materials, equipment, construction systems, standards and workmanship for the Work, and performance of related services.

Y. “Subcontract” means a contract entered into by Subcontractor for the purpose of obtaining supplies, materials, equipment, or services of any kind for or in connection with the Work.

Z. “Subcontractor” means any person, other than Contractor, who agrees to furnish or furnishes any supplies, materials, equipment, or services of any kind in connection with the Work.

AA. “Substantial Completion” means that stage in the progress of the Work when the construction is sufficiently complete, as more fully set forth in Section 6.07.

AB. “Work” means the construction and services required by the Contract Documents, and includes, but is not limited to, labor, materials, supplies, equipment, services, permits, and the manufacture and fabrication of components, performed, furnished, or provided in accordance with the Contract Documents.

1.02 ORDER OF PRECEDENCE

Any conflict or inconsistency in the Contract Documents shall be resolved by giving the documents precedence in the following order:

1. Signed Public Works Contract, including any Change Orders.

2. Supplemental Conditions.

3. Modifications to the General Conditions.

4. General Conditions.
5. Specifications. Provisions in Division 1 shall take precedence over provisions of any other Division.

6. Drawings. In case of conflict within the Drawings, large scale drawings shall take precedence over small scale drawings.

7. Signed and Completed Bid Form.

8. Instructions to Bidders.

9. Advertisement for Bids.

1.03 EXECUTION AND INTENT

Contractor Representations: Contractor makes the following representations to Owner:

1. Contract Sum reasonable: The Contract Sum is reasonable compensation for the Work and the Contract Time is adequate for the performance of the Work, as represented by the Contract Documents;

2. Contractor familiar with project: Contractor has carefully reviewed the Contract Documents, visited and examined the Project site, become familiar with the local conditions in which the Work is to be performed, and 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, as well as the surface and subsurface conditions and other matters that may be encountered at the Project site or affect performance of the Work or the cost or difficulty thereof;

3. Contractor financially capable: Contractor is financially solvent, able to pay its debts as they mature, and possesses sufficient working capital to complete the Work and perform Contractor's obligations required by the Contract Documents; and

4. Contractor can complete Work: Contractor is able to furnish the plant, tools, materials, supplies, equipment and labor required to complete the Work and perform the obligations required by the Contract Documents and has sufficient experience and competence to do so.

PART 2 – INSURANCE AND BONDS

2.01 CONTRACTOR’S LIABILITY INSURANCE

General insurance requirements: Prior to commencement of the Work, Contractor shall obtain all the insurance required by the Contract Documents and provide evidence satisfactory to Owner that such insurance has been procured. Review of the Contractor’s insurance by Owner shall not relieve or decrease the liability of Contractor. Companies writing the insurance to be obtained by this part shall be licensed to do business under Chapter 48 RCW or comply with the Surplus Lines Law of the State of Washington. Contractor shall include in its bid the cost of all insurance and bond costs required to complete the base bid work and accepted alternates. Insurance carriers providing insurance in accordance with the Contract Documents shall be acceptable to Owner, and its A.M. Best rating shall be indicated on the insurance certificates.

A. Term of insurance coverage: Contractor shall maintain the following insurance coverage during the Work and for one year after Final Acceptance. Contractor shall also maintain the following insurance coverage during the performance of any corrective Work required by Section 5.16.
1. **General Liability Insurance:** Commercial General Liability (CGL) on an Occurrence Form. Coverage shall include, but not be limited to:
   a. Completed operations/products liability;
   b. Explosion, collapse, and underground; and
   c. Employer’s liability coverage.

2. **Automobile Liability Insurance:** Automobile liability

   B. **Industrial Insurance compliance:** Contractor shall comply with the Washington State Industrial Insurance Act and, if applicable, the Federal Longshoremen’s and Harbor Workers’ Act and the Jones Act.

   C. **Insurance to protect for the following:** All insurance coverages shall protect against claims for damages for personal and bodily injury or death, as well as claims for property damage, which may arise from operations in connection with the Work whether such operations are by Contractor or any Subcontractor.

   D. **Owner as Additional Insured:** All insurance coverages shall be endorsed to include Owner as an additional named insured for Work performed in accordance with the Contract Documents, and all insurance certificates shall evidence the Owner as an additional insured.

2.02 **COVERAGE LIMITS**

   Insurance amounts: The coverage limits shall be as follows:

   A. Limits of Liability shall not be less than $1,000,000 Combined Single Limit for Bodily Injury and Property Damage (other than Automobile Liability) Each Occurrence; Personal Injury and Advertising Liability Each Occurrence.

   B. $2,000,000 Combined Single Limit Annual General Aggregate.

   C. $2,000,000 Annual Aggregate for Products and Completed Operations Liability.

   D. $1,000,000 Combined Single Limit for Automobile Bodily Injury and Property Damage Liability, Each Accident or Loss.

2.03 **INSURANCE COVERAGE CERTIFICATES**

   A. **Certificate required:** Prior to commencement of the Work, Contractor shall furnish to Owner a completed certificate of insurance coverage.

   B. **List Project info:** All insurance certificates shall name Owner’s Project number and Project title.

   C. **Cancellation provisions:** All insurance certificates shall specifically require 45 Days prior notice to Owner of cancellation or any material change, except 30 Days for surplus line insurance.

2.04 **PAYMENT AND PERFORMANCE BONDS**

   Conditions for bonds: Payment and performance bonds for 100% of the Contract Award Amount, plus state sales tax, shall be furnished for the Work, using the Payment Bond and Performance Bond form published by and available from the American Institute of Architects (AIA) – form A312. Prior to execution of a Change Order that, cumulatively with previous Change Orders, increases the Contract Award Amount by 15% or more, the Contractor shall provide either new payment and performance bonds for the
revised Contract Sum, or riders to the existing payment and performance bonds increasing the amount of
the bonds. The Contractor shall likewise provide additional bonds or riders when subsequent Change
Orders increase the Contract Sum by 15% or more. No payment or performance bond is required if the
Contract Sum is $35,000 or less and Contractor agrees that Owner may, in lieu of the bond, retain 50% of
the Contract Sum for the period allowed by RCW 39.08.010.

2.05 ALTERNATIVE SURETY

When alternative surety required: Contractor shall promptly furnish payment and performance bonds
from an alternative surety as required to protect Owner and persons supplying labor or materials required
by the Contract Documents if:

A. Owner has a reasonable objection to the surety; or

B. Any surety fails to furnish reports on its financial condition if required by Owner.

2.06 BUILDER’S RISK

A. Contractor to buy Property Insurance: Contractor shall purchase and maintain property insurance
in the amount of the Contract Sum including all Change Orders for the Work on a replacement
cost basis until Substantial Completion. For projects not involving New Building Construction,
“Installation Floater” is an acceptable substitute for the Builder’s Risk Insurance. The insurance
shall cover the interest of Owner, Contractor, and any Subcontractors, as their interests may
appear.

B. Losses covered: Contractor property insurance shall be placed on an “all risk” basis and insure
against the perils of fire and extended coverage and physical loss or damage including theft,
vandalism, malicious mischief, collapse, false work, temporary buildings, debris removal including
demolition occasioned by enforcement of any applicable legal requirements, and shall cover
reasonable compensation for A/E’s services and expenses required as a result of an insured loss.

C. Waiver of subrogation rights: Owner and Contractor waive all subrogation rights against each
other, any Subcontractors, A/E, A/E’s subconsultants, separate contractors described in
Section 5.20, if any, and any of their subcontractors, for damages caused by fire or other perils to the
extent covered by property insurance obtained pursuant to this section or other property
insurance applicable to the Work, except such rights as they have to proceeds of such insurance
held by Owner as fiduciary. The policies shall provide such waivers of subrogation by
endorsement or otherwise. A waiver of subrogation shall be effective to a person or entity even
though that person or entity would otherwise have a duty of indemnification, contractual or
otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person
or entity had an insurable interest in the property damaged.

PART 3 – TIME AND SCHEDULE

3.01 PROGRESS AND COMPLETION

Contractor to meet schedule: Contractor shall diligently prosecute the Work, with adequate forces,
achieve Substantial Completion within the Contract Time, and achieve Final Completion within a
reasonable period thereafter.

3.02 CONSTRUCTION SCHEDULE

A. Preliminary Progress Schedule: Unless otherwise provided in Division 1, Contractor shall, within
14 Days after issuance of the Notice to Proceed, submit a preliminary Progress Schedule. The
Progress Schedule shall show the sequence in which Contractor proposes to perform the Work,
and the dates on which Contractor plans to start and finish major portions of the Work, including dates for shop drawings and other submittals, and for acquiring materials and equipment.

B. **Form of Progress Schedule:** Unless otherwise provided in Division 1, the Progress Schedule shall be in the form of a bar chart, or a critical path method analysis, as specified by Owner. The preliminary Progress Schedule may be general, showing the major portions of the Work, with a more detailed Progress Schedule submitted as directed by Owner.

C. **Owner comments on Progress Schedule:** Owner shall return comments on the preliminary Progress Schedule to Contractor within 14 Days of receipt. Review by Owner of Contractor’s schedule does not constitute an approval or acceptance of Contractor’s construction means, methods, or sequencing, or its ability to complete the Work within the Contract Time. Contractor shall revise and resubmit its schedule, as necessary. Owner may withhold a portion of progress payments until a Progress Schedule has been submitted which meets the requirements of this section.

D. **Monthly updates and compliance with Progress Schedule:** Contractor shall utilize and comply with the Progress Schedule. On a monthly basis, or as otherwise directed by Owner, Contractor shall submit an updated Progress Schedule at its own expense to Owner indicating actual progress. If, in the opinion of Owner, Contractor is not in conformance with the Progress Schedule for reasons other than acts of Force Majeure as identified in Section 3.05, Contractor shall take such steps as are necessary to bring the actual completion dates of its work activities into conformance with the Progress Schedule, and if directed by Owner, Contractor shall submit a corrective action plan or revise the Progress Schedule to reconcile with the actual progress of the Work.

E. **Contractor to notify Owner of delays:** Contractor shall promptly notify Owner in writing of any actual or anticipated event which is delaying or could delay achievement of any milestone or performance of any critical path activity of the Work. Contractor shall indicate the expected duration of the delay, the anticipated effect of the delay on the Progress Schedule, and the action being or to be taken to correct the problem. Provision of such notice does not relieve Contractor of its obligation to complete the Work within the Contract Time.

3.03 **OWNER’S RIGHT TO SUSPEND THE WORK FOR CONVENIENCE**

A. **Owner may suspend Work:** Owner may, at its sole discretion, order Contractor, in writing, to suspend all or any part of the Work for up to 90 Days, or for such longer period as mutually agreed.

B. **Compliance with suspension; Owner’s options:** Upon receipt of a written notice suspending the Work, Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of cost of performance directly attributable to such suspension. Within a period up to 90 Days after the notice is delivered to Contractor, or within any extension of that period to which the parties shall have agreed, Owner shall either:

1. Cancel the written notice suspending the Work; or
2. Terminate the Work covered by the notice as provided in the termination provisions of Part 9.

C. **Resumption of Work:** If a written notice suspending the Work is cancelled or the period of the notice or any extension thereof expires, Contractor shall resume Work.

D. **Equitable Adjustment for suspensions:** Contractor shall be entitled to an equitable adjustment in the Contract Time, or Contract Sum, or both, for increases in the time or cost of performance
directly attributable to such suspension, provided Contractor complies with all requirements set forth in Part 7.

3.04 OWNER’S RIGHT TO STOP THE WORK FOR CAUSE

A. Owner may stop Work for Contractor’s failure to perform: If Contractor fails or refuses to perform its obligations in accordance with the Contract Documents, Owner may order Contractor, in writing, to stop the Work, or any portion thereof, until satisfactory corrective action has been taken.

B. No Equitable Adjustment for Contractor’s failure to perform: Contractor shall not be entitled to an equitable adjustment in the Contract Time or Contract Sum for any increased cost or time of performance attributable to Contractor’s failure or refusal to perform or from any reasonable remedial action taken by Owner based upon such failure.

3.05 DELAY

A. Force Majeure actions not a default; Force Majeure defined: Any delay in or failure of performance by Owner or Contractor, other than the payment of money, shall not constitute a default hereunder if and to the extent the cause for such delay or failure of performance was unforeseeable and beyond the control of the party (“Force Majeure”). Acts of Force Majeure include, but are not limited to:

1. Acts of God or the public enemy;
2. Acts or omissions of any government entity;
3. Fire or other casualty for which Contractor is not responsible;
4. Quarantine or epidemic;
5. Strike or defensive lockout;
6. Unusually severe weather conditions which could not have been reasonably anticipated; and
7. Unusual delay in receipt of supplies or products which were ordered and expedited and for which no substitute reasonably acceptable to Owner was available.

B. Contract Time adjustment for Force Majeure: Contractor shall be entitled to an equitable adjustment in the Contract Time for changes in the time of performance directly attributable to an act of Force Majeure, provided it makes a request for equitable adjustment according to Section 7.03. Contractor shall not be entitled to an adjustment in the Contract Sum resulting from an act of Force Majeure.

C. Contract Time or Contract Sum adjustment if Owner at fault: Contractor shall be entitled to an equitable adjustment in Contract Time, and may be entitled to an equitable adjustment in Contract Sum, if the cost or time of Contractor’s performance is changed due to the fault or negligence of Owner, provided the Contractor makes a request according to Sections 7.02 and 7.03.

D. No Contract Time or Contract Sum adjustment if Contractor at fault: Contractor shall not be entitled to an adjustment in Contract Time or in the Contract Sum for any delay or failure of performance to the extent such delay or failure was caused by Contractor or anyone for whose acts Contractor is responsible.
E. Contract Time adjustment only for concurrent fault: To the extent any delay or failure of performance was concurrently caused by the Owner and Contractor, Contractor shall be entitled to an adjustment in the Contract Time for that portion of the delay or failure of performance that was concurrently caused, provided it makes a request for equitable adjustment according to Section 7.03, but shall not be entitled to an adjustment in Contract Sum.

F. Contractor to mitigate delay impacts: Contractor shall make all reasonable efforts to prevent and mitigate the effects of any delay, whether occasioned by an act of Force Majeure or otherwise.

3.06 NOTICE TO OWNER OF LABOR DISPUTES

A. Contractor to notify Owner of labor disputes: If Contractor has knowledge that any actual or potential labor dispute is delaying or threatens to delay timely performance in accordance with the Contract Documents, Contractor shall immediately give notice, including all relevant information, to Owner.

B. Pass through notification provisions to Subcontractors: Contractor agrees to insert a provision in its Subcontracts and to require insertion in all sub-subcontracts, that in the event timely performance of any such contract is delayed or threatened by delay by any actual or potential labor dispute, the Subcontractor or Sub-subcontractor shall immediately notify the next higher tier Subcontractor or Contractor, as the case may be, of all relevant information concerning the dispute.

3.07 DAMAGES FOR FAILURE TO ACHIEVE TIMELY COMPLETION

A. Liquidated Damages

1. Reason for Liquidated Damages: Timely performance and completion of the Work is essential to Owner and time limits stated in the Contract Documents are of the essence. Owner will incur serious and substantial damages if Substantial Completion of the Work does not occur within the Contract Time. However, it would be difficult if not impossible to determine the exact amount of such damages. Consequently, provisions for liquidated damages are included in the Contract Documents.

2. Calculation of Liquidated Damages amount: The liquidated damage amounts set forth in the Contract Documents will be assessed not as a penalty, but as liquidated damages for breach of the Contract Documents. This amount is fixed and agreed upon by and between the Contractor and Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain. This amount shall be construed as the actual amount of damages sustained by the Owner, and may be retained by the Owner and deducted from periodic payments to the Contractor.

3. Contractor responsible even if Liquidated Damages assessed: Assessment of liquidated damages shall not release Contractor from any further obligations or liabilities pursuant to the Contract Documents.

B. Actual Damages

Calculation of Actual Damages: Actual damages will be assessed for failure to achieve Final Completion within the time provided. Actual damages will be calculated on the basis of direct architectural, administrative, and other related costs attributable to the Project from the date when Final Completion should have been achieved, based on the date Substantial Completion is actually achieved, to the date Final Completion is actually achieved. Owner may offset these costs against any payment due Contractor.
PART 4 – SPECIFICATIONS, DRAWINGS, AND OTHER DOCUMENTS

4.01 DISCREPANCIES AND CONTRACT DOCUMENT REVIEW

A. Specifications and Drawings are basis of the Work: The intent of the Specifications and Drawings is to describe a complete Project to be constructed in accordance with the Contract Documents. Contractor shall furnish all labor, materials, equipment, tools, transportation, permits, and supplies, and perform the Work required in accordance with the Drawings, Specifications, and other provisions of the Contract Documents.

B. Parts of the Contract Documents are complementary: The Contract Documents are complementary. What is required by one part of the Contract Documents shall be binding as if required by all. Anything mentioned in the Specifications and not shown on the Drawings, or shown on the Drawings and not mentioned in the Specifications, shall be of like effect as if shown or mentioned in both.

C. Contractor to report discrepancies in Contract Documents: Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by Owner. If, during the performance of the Work, Contractor finds a conflict, error, inconsistency, or omission in the Contract Documents, it shall promptly and before proceeding with the Work affected thereby, report such conflict, error, inconsistency, or omission to A/E in writing.

D. Contractor knowledge of discrepancy in documents – responsibility: Contractor shall do no Work without applicable Drawings, Specifications, or written modifications, or Shop Drawings where required, unless instructed to do so in writing by Owner. If Contractor performs any construction activity, and it knows or reasonably should have known that any of the Contract Documents contain a conflict, error, inconsistency, or omission, Contractor shall be responsible for the performance and shall bear the cost for its correction.

E. Contractor to perform Work implied by Contract Documents: Contractor shall provide any work or materials the provision of which is clearly implied and is within the scope of the Contract Documents even if the Contract Documents do not mention them specifically.

F. Interpretation questions referred to A/E: Questions regarding interpretation of the requirements of the Contract Documents shall be referred to the A/E.

4.02 PROJECT RECORD

A. Contractor to maintain Project Record Drawings and Specifications: Contractor shall legibly mark in ink on a separate set of the Drawings and Specifications all actual construction, including depths of foundations, horizontal and vertical locations of internal and underground utilities and appurtenances referenced to permanent visible and accessible surface improvements, field changes of dimensions and details, actual suppliers, manufacturers and trade names, models of installed equipment, and Change Order Proposals (COP). This separate set of Drawings and Specifications shall be the “Project Record.”

B. Update Project Record weekly and keep on site: The Project Record shall be maintained on the project site throughout the construction and shall be clearly labeled “PROJECT RECORD.” The Project Record shall be updated at least weekly noting all changes and shall be available to Owner at all times.

C. Final Project Record to A/E before Final Acceptance: Contractor shall submit the completed and finalized Project Record to A/E prior to Final Acceptance.
4.03 SHOP DRAWINGS

A. Definition of Shop Drawings: “Shop Drawings” means documents and other information required to be submitted to A/E by Contractor pursuant to the Contract Documents, showing in detail: the proposed fabrication and assembly of structural elements; and the installation (i.e. form, fit, and attachment details) of materials and equipment. Shop Drawings include, but are not limited to, drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, samples, and similar materials furnished by Contractor to explain in detail specific portions of the Work required by the Contract Documents. For materials and equipment to be incorporated into the Work, Contractor submittal shall include the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the item. When directed, Contractor shall submit all samples at its own expense. Owner may duplicate, use, and disclose Shop Drawings provided in accordance with the Contract Documents.

B. Approval of Shop Drawings by Contractor and A/E: Contractor shall coordinate all Shop Drawings, and review them for accuracy, completeness, and compliance with the Contract Documents and shall indicate its approval thereon as evidence of such coordination and review. Where required by law, Shop Drawings shall be stamped by an appropriate professional licensed by the state of Washington. Shop Drawings submitted to A/E without evidence of Contractor's approval shall be returned for resubmission. Contractor shall review, approve, and submit Shop Drawings with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of Owner or separate contractors. Contractor's submittal schedule shall allow a reasonable time for A/E review. A/E will review, approve, or take other appropriate action on the Shop Drawings. Contractor shall perform no portion of the Work requiring submittal and review of Shop Drawings until the respective submittal has been reviewed and the A/E has approved or taken other appropriate action. Owner and A/E shall respond to Shop Drawing submittals with reasonable promptness. Any Work by Contractor shall be in accordance with reviewed Shop Drawings. Submittals made by Contractor which are not required by the Contract Documents may be returned without action.

C. Contractor not relieved of responsibility when Shop Drawings approved: Approval, or other appropriate action with regard to Shop Drawings, by Owner or A/E shall not relieve Contractor of responsibility for any errors or omissions in such Shop Drawings, nor from responsibility for compliance with the requirements of the Contract Documents. Unless specified in the Contract Documents, review by Owner or A/E shall not constitute an approval of the safety precautions employed by Contractor during construction, or constitute an approval of Contractor’s means or methods of construction. If Contractor fails to obtain approval before installation and the item or work is subsequently rejected, Contractor shall be responsible for all costs of correction.

D. Variations between Shop Drawings and Contract Documents: If Shop Drawings show variations from the requirements of the Contract Documents, Contractor shall describe such variations in writing, separate from the Shop Drawings, at the time it submits the Shop Drawings containing such variations. If A/E approves any such variation, an appropriate Change Order will be issued. If the variation is minor and does not involve an adjustment in the Contract Sum or Contract Time, a Change Order need not be issued; however, the modification shall be recorded upon the Project Record.

E. Contractor to submit 5 copies of Shop Drawings: Unless otherwise provided in Division 1, Contractor shall submit to A/E for approval 5 copies of all Shop Drawings. Unless otherwise indicated, 3 sets of all Shop Drawings shall be retained by A/E and 2 sets shall be returned to Contractor.
4.04 ORGANIZATION OF SPECIFICATIONS

Specification organization by trade: Specifications are prepared in sections which conform generally with trade practices. These sections are for Owner and Contractor convenience and shall not control Contractor in dividing the Work among the Subcontractors or in establishing the extent of the Work to be performed by any trade.

4.05 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS, AND OTHER DOCUMENTS

A. A/E, not Contractor, owns Copyright of Drawings and Specifications: The Drawings, Specifications, and other documents prepared by A/E are instruments of A/E’s service through which the Work to be executed by Contractor is described. Neither Contractor nor any Subcontractor shall own or claim a copyright in the Drawings, Specifications, and other documents prepared by A/E, and A/E shall be deemed the author of them and will, along with any rights of Owner, retain all common law, statutory, and other reserved rights, in addition to the copyright. All copies of these documents, except Contractor’s set, shall be returned or suitably accounted for to A/E, on request, upon completion of the Work.

B. Drawings and Specifications to be used only for this Project: The Drawings, Specifications, and other documents prepared by the A/E, and copies thereof furnished to Contractor, are for use solely with respect to this Project. They are not to be used by Contractor or any Subcontractor on other projects or for additions to this Project outside the scope of the Work without the specific written consent of Owner and A/E. Contractor and Subcontractors are granted a limited license to use and reproduce applicable portions of the Drawings, Specifications, and other documents prepared by A/E appropriate to and for use in the execution of their Work.

C. Shop Drawing license granted to Owner: Contractor and all Subcontractors grant a non-exclusive license to Owner, without additional cost or royalty, to use for its own purposes (including reproduction) all Shop Drawings, together with the information and diagrams contained therein, prepared by Contractor or any Subcontractor. In providing Shop Drawings, Contractor and all Subcontractors warrant that they have authority to grant to Owner a license to use the Shop Drawings, and that such license is not in violation of any copyright or other intellectual property right. Contractor agrees to defend and indemnify Owner pursuant to the indemnity provisions in Section 5.03 and 5.22 from any violations of copyright or other intellectual property rights arising out of Owner’s use of the Shop Drawings hereunder, or to secure for Owner, at Contractor’s own cost, licenses in conformity with this section.

D. Shop Drawings to be used only for this Project: The Shop Drawings and other submittals prepared by Contractor, Subcontractors of any tier, or its or their equipment or material suppliers, and copies thereof furnished to Contractor, are for use solely with respect to this Project. They are not to be used by Contractor or any Subcontractor of any tier, or material or equipment supplier, on other projects or for additions to this Project outside the scope of the Work without the specific written consent of Owner. The Contractor, Subcontractors of any tier, and material or equipment suppliers are granted a limited license to use and reproduce applicable portions of the Shop Drawings and other submittals appropriate to and for use in the execution of their Work under the Contract Documents.

PART 5 – PERFORMANCE

5.01 CONTRACTOR CONTROL AND SUPERVISION

A. Contractor responsible for Means and Methods of construction: Contractor shall supervise and direct the Work, using its best skill and attention, and shall perform the Work in a skillful manner. Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures and for coordinating all portions of the Work, unless the
Contract Documents give other specific instructions concerning these matters. Contractor shall disclose its means and methods of construction when requested by Owner.

B. Competent Superintendent required: Performance of the Work shall be directly supervised by a competent superintendent who has authority to act for Contractor. The superintendent must be satisfactory to the Owner and shall not be changed without the prior written consent of Owner. Owner may require Contractor to remove the superintendent from the Work or Project site, if Owner reasonably deems the superintendent incompetent, careless, or otherwise objectionable, provided Owner has first notified Contractor in writing and allowed a reasonable period for transition.

C. Contractor responsible for acts and omissions of self and agents: Contractor shall be responsible to Owner for acts and omissions of Contractor, Subcontractors, and their employees and agents.

D. Contractor to employ competent and disciplined workforce: Contractor shall enforce strict discipline and good order among all of the Contractor’s employees and other persons performing the Work. Contractor shall not permit employment of persons not skilled in tasks assigned to them. Contractor’s employees shall at all times conduct business in a manner which assures fair, equal, and nondiscriminatory treatment of all persons. Owner may, by written notice, request Contractor to remove from the Work or Project site any employee Owner reasonably deems incompetent, careless, or otherwise objectionable.

E. Contractor to keep project documents on site: Contractor shall keep on the Project site a copy of the Drawings, Specifications, addenda, reviewed Shop Drawings, and permits and permit drawings.

F. Contractor to comply with ethical standards: Contractor shall ensure that its owner(s) and employees, and those of its Subcontractors, comply with the Ethics in Public Service Act RCW 42.52, which, among other things, prohibits state employees from having an economic interest in any public works contract that was made by, or supervised by, that employee. Contractor shall remove, at its sole cost and expense, any of its, or its Subcontractors’ employees, if they are in violation of this act.

5.02 PERMITS, FEES, AND NOTICES

A. Contractor to obtain and pay for permits: Unless otherwise provided in the Contract Documents, Contractor shall pay for and obtain all permits, licenses, and inspections necessary for proper execution and completion of the Work. Prior to Final Acceptance, the approved, signed permits shall be delivered to Owner.

B. Allowances for permit fees: If allowances for permits or utility fees are called for in the Contract Documents and set forth in Contractor’s bid, and the actual costs of those permits or fees differ from the allowances in the Contract Documents, the difference shall be adjusted by Change Order.

C. Contractor to comply with all applicable laws: Contractor shall comply with and give notices required by all federal, state, and local laws, ordinances, rules, regulations, and lawful orders of public authorities applicable to performance of the Work.

5.03 PATENTS AND ROYALTIES

Payment, indemnification, and notice: Contractor is responsible for, and shall pay, all royalties and license fees. Contractor shall defend, indemnify, and hold Owner harmless from any costs, expenses, and liabilities arising out of the infringement by Contractor of any patent, copyright, or other intellectual property right used in the Work; however, provided that Contractor gives prompt notice, Contractor shall not be responsible for such defense or indemnity when a particular design, process, or product of a
particular manufacturer or manufacturers is required by the Contract Documents. If Contractor has reason to believe that use of the required design, process, or product constitutes an infringement of a patent or copyright, it shall promptly notify Owner of such potential infringement.

5.04 PREVAILING WAGES

A. Contractor to pay Prevailing Wages: Contractor shall pay the prevailing rate of wages to all workers, laborers, or mechanics employed in the performance of any part of the Work in accordance with RCW 39.12 and the rules and regulations of the Department of Labor and Industries. The schedule of prevailing wage rates for the locality or localities of the Work, is determined by the Industrial Statistician of the Department of Labor and Industries. It is the Contractor’s responsibility to verify the applicable prevailing wage rate.

B. Statement of Intent to Pay Prevailing Wages: Before payment is made by the Owner to the Contractor for any work performed by the Contractor and subcontractors whose work is included in the application for payment, the Contractor shall submit, or shall have previously submitted to the Owner for the Project, a Statement of Intent to Pay Prevailing Wages, approved by the Department of Labor and Industries, certifying the rate of hourly wage paid and to be paid each classification of laborers, workers, or mechanics employed upon the Work by Contractor and Subcontractors. Such rates of hourly wage shall not be less than the prevailing wage rate.

C. Affidavit of Wages Paid: Prior to release of retainage, the Contractor shall submit to the Owner an Affidavit of Wages Paid, approved by the Department of Labor and Industries, for the Contractor and every subcontractor, of any tier, that performed work on the Project.

D. Disputes: Disputes regarding prevailing wage rates shall be referred for arbitration to the Director of the Department of Labor and Industries. The arbitration decision shall be final and conclusive and binding on all parties involved in the dispute as provided for by RCW 39.12.060.

E. Statement with pay application; Post Statements of Intent at job site: Each Application for Payment submitted by Contractor shall state that prevailing wages have been paid in accordance with the prefilled statement(s) of intent, as approved. Copies of the approved intent statement(s) shall be posted on the job site with the address and telephone number of the Industrial Statistician of the Department of Labor and Industries where a complaint or inquiry concerning prevailing wages may be made.

F. Contractor to pay for Statements of Intent and Affidavits: In compliance with chapter 296-127 WAC, Contractor shall pay to the Department of Labor and Industries the currently established fee(s) for each statement of intent and/or affidavit of wages paid submitted to the Department of Labor and Industries for certification.

G. Certified Payrolls: Consistent with WAC 296-127-320, the Contractor and any subcontractor shall submit a certified copy of payroll records if requested.

5.05 HOURS OF LABOR

A. Overtime: Contractor shall comply with all applicable provisions of RCW 49.28 and they are incorporated herein by reference. Pursuant to that statute, no laborer, worker, or mechanic employed by Contractor, any Subcontractor, or any other person performing or contracting to do the whole or any part of the Work, shall be permitted or required to work more than eight hours in any one calendar day, provided, that in cases of extraordinary emergency, such as danger to life or property, the hours of work may be extended, but in such cases the rate of pay for time employed in excess of eight hours of each calendar day shall be not less than one and one-half times the rate allowed for this same amount of time during eight hours of service.

July 1, 2010
B. 4-10 Agreements: Notwithstanding the preceding paragraph, RCW 49.28 permits a contractor or subcontractor in any public works contract subject to those provisions, to enter into an agreement with its employees in which the employees work up to ten hours in a calendar day. No such agreement may provide that the employees work ten-hour days for more than four calendar days a week. Any such agreement is subject to approval by the employees. The overtime provisions of RCW 49.28 shall not apply to the hours, up to forty hours per week, worked pursuant to any such agreement.

5.06 NONDISCRIMINATION

A. Discrimination prohibited by applicable laws: Discrimination in all phases of employment is prohibited by, among other laws and regulations, Title VII of the Civil Rights Act of 1964, the Vietnam Era Veterans Readjustment Act of 1974, Sections 503 and 504 of the Vocational Rehabilitation Act of 1973, the Equal Employment Act of 1972, the Age Discrimination Act of 1967, the Americans with Disabilities Act of 1990, the Civil Rights Act of 1991, Presidential Executive Order 11246, Executive Order 11375, the Washington State Law Against Discrimination, RCW 49.60, and Gubernatorial Executive Order 85-09. These laws and regulations establish minimum requirements for affirmative action and fair employment practices which Contractor must meet.

B. During performance of the Work:

1. Protected Classes: Contractor shall not discriminate against any employee or applicant for employment because of race, creed, color, national origin, sex, age, marital status, or the presence of any physical, sensory, or mental disability, Vietnam era veteran status, or disabled veteran status, nor commit any other unfair practices as defined in RCW 49.60.

2. Advertisements to state nondiscrimination: Contractor shall, in all solicitations or advertisements for employees placed by or for it, state that all qualified applicants will be considered for employment, without regard to race, creed, color, national origin, sex, age, marital status, or the presence of any physical, sensory, or mental disability.

3. Contractor to notify unions and others of nondiscrimination: Contractor shall send to each labor union, employment agency, or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice advising the labor union, employment agency, or workers’ representative of Contractor’s obligations according to the Contract Documents and RCW 49.60.

4. Owner and State access to Contractor records: Contractor shall permit access to its books, records, and accounts, and to its premises by Owner, and by the Washington State Human Rights Commission, for the purpose of investigation to ascertain compliance with this section of the Contract Documents.

5. Pass through provisions to Subcontractors: Contractor shall include the provisions of this section in every Subcontract.

5.07 SAFETY PRECAUTIONS

A. Contractor responsible for safety: Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Work.

B. Contractor safety responsibilities: In carrying out its responsibilities according to the Contract Documents, Contractor shall protect the lives and health of employees performing the Work and other persons who may be affected by the Work; prevent damage to materials, supplies, and equipment whether on site or stored off-site; and prevent damage to other property at the site or adjacent thereto. Contractor shall comply with all applicable laws, ordinances, rules, regulations,
and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury, or loss; shall erect and maintain all necessary safeguards for such safety and protection; and shall notify owners of adjacent property and utilities when prosecution of the Work may affect them.

C. Contractor to maintain safety records: Contractor shall maintain an accurate record of exposure data on all incidents relating to the Work resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment. Contractor shall immediately report any such incident to Owner. Owner shall, at all times, have a right of access to all records of exposure.

D. Contractor to provide HazMat training: Contractor shall provide all persons working on the Project site with information and training on hazardous chemicals in their work at the time of their initial assignment, and whenever a new hazard is introduced into their work area.

1. Information. At a minimum, Contractor shall inform persons working on the Project site of:
   a. WAC: The requirements of chapter 296-62 WAC, General Occupational Health Standards;
   b. Presence of hazardous chemicals: Any operations in their work area where hazardous chemicals are present; and
   c. Hazard communication program: The location and availability of written hazard communication programs, including the required list(s) of hazardous chemicals and material safety data sheets required by chapter 296-62 WAC.

2. Training. At a minimum, Contractor shall provide training for persons working on the Project site which includes:
   a. Detecting hazardous chemicals: Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);
   b. Hazards of chemicals: The physical and health hazards of the chemicals in the work area;
   c. Protection from hazards: The measures such persons can take to protect themselves from these hazards, including specific procedures Contractor, or its Subcontractors, or others have implemented to protect those on the Project site from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used; and
   d. Hazard communication program: The details of the hazard communication program developed by Contractor, or its Subcontractors, including an explanation of the labeling system and the material safety data sheet, and how employees can obtain and use the appropriate hazard information.

E. Hazardous, toxic or harmful substances: Contractor’s responsibility for hazardous, toxic, or harmful substances shall include the following duties:

1. Illegal use of dangerous substances: Contractor shall not keep, use, dispose, transport, generate, or sell on or about the Project site, any substances now or hereafter designated as, or which are subject to regulation as, hazardous, toxic, dangerous, or
harmful by any federal, state or local law, regulation, statute or ordinance (hereinafter collectively referred to as “hazardous substances”), in violation of any such law, regulation, statute, or ordinance, but in no case shall any such hazardous substance be stored more than 90 Days on the Project site.

2. Contractor notifications of spills, failures, inspections, and fines: Contractor shall promptly notify Owner of all spills or releases of any hazardous substances which are otherwise required to be reported to any regulatory agency and pay the cost of cleanup. Contractor shall promptly notify Owner of all failures to comply with any federal, state, or local law, regulation, or ordinance; all inspections of the Project site by any regulatory entity concerning the same; all regulatory orders or fines; and all responses or interim cleanup actions taken by or proposed to be taken by any government entity or private party on the Project site.

F. Public safety and traffic: All Work shall be performed with due regard for the safety of the public. Contractor shall perform the Work so as to cause a minimum of interruption of vehicular traffic or inconvenience to pedestrians. All arrangements to care for such traffic shall be Contractor’s responsibilities. All expenses involved in the maintenance of traffic by way of detours shall be borne by Contractor.

G. Contractor to act in an emergency: In an emergency affecting the safety of life or the Work or of adjoining property, Contractor is permitted to act, at its discretion, to prevent such threatened loss or injury, and Contractor shall so act if so authorized or instructed.

H. No duty of safety by Owner or A/E: Nothing provided in this section shall be construed as imposing any duty upon Owner or A/E with regard to, or as constituting any express or implied assumption of control or responsibility over, Project site safety, or over any other safety conditions relating to employees or agents of Contractor or any of its Subcontractors, or the public.

5.08 OPERATIONS, MATERIAL HANDLING, AND STORAGE AREAS

A. Limited storage areas: Contractor shall confine all operations, including storage of materials, to Owner-approved areas.

B. Temporary buildings and utilities at Contractor expense: Temporary buildings (e.g., storage sheds, shops, offices) and utilities may be provided by Contractor only with the consent of Owner and without expense to Owner. The temporary buildings and utilities shall be removed by Contractor at its expense upon completion of the Work.

C. Roads and vehicle loads: Contractor shall use only established roadways or temporary roadways authorized by Owner. When materials are transported in prosecuting the Work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by federal, state, or local law or regulation.

D. Ownership and reporting by Contractor of demolished materials: Ownership and control of all materials or facility components to be demolished or removed from the Project site by Contractor shall immediately vest in Contractor upon severance of the component from the facility or severance of the material from the Project site. Contractor shall be responsible for compliance with all laws governing the storage and ultimate disposal. Contractor shall provide Owner with a copy of all manifests and receipts evidencing proper disposal when required by Owner or applicable law.

E. Contractor responsible for care of materials and equipment on-site: Contractor shall be responsible for the proper care and protection of its materials and equipment delivered to the Project site. Materials and equipment may be stored on the premises subject to approval of
Owner. When Contractor uses any portion of the Project site as a shop, Contractor shall be responsible for any repairs, patching, or cleaning arising from such use.

F. **Contractor responsible for loss of materials and equipment:** Contractor shall protect and be responsible for any damage or loss to the Work, or to the materials or equipment until the date of Substantial Completion, and shall repair or replace without cost to Owner any damage or loss that may occur, except damages or loss caused by the acts or omissions of Owner. Contractor shall also protect and be responsible for any damage or loss to the Work, or to the materials or equipment, after the date of Substantial Completion, and shall repair or replace without cost to Owner any such damage or loss that might occur, to the extent such damages or loss are caused by the acts or omissions of Contractor, or any Subcontractor.

5.09 **PRIOR NOTICE OF EXCAVATION**

A. **Excavation defined; Use of locator services:** “Excavation” means an operation in which earth, rock, or other material on or below the ground is moved or otherwise displaced by any means, except the tilling of soil less than 12 inches in depth for agricultural purposes, or road ditch maintenance that does not change the original road grade or ditch flow line. Before commencing any excavation, Contractor shall provide notice of the scheduled commencement of excavation to all owners of underground facilities or utilities, through locator services.

5.10 **UNFORESEEN PHYSICAL CONDITIONS**

A. **Notice requirement for concealed or unknown conditions:** If Contractor encounters conditions at the site which are subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents, or unknown physical conditions of an unusual nature which 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, then Contractor shall give written notice to Owner promptly and in no event later than 7 Days after the first observance of the conditions. Conditions shall not be disturbed prior to such notice.

B. **Adjustment in Contract Time and Contract Sum:** If such conditions differ materially and cause a change in Contractor’s cost of, or time required for, performance of any part of the Work, the Contractor may be entitled to an equitable adjustment in the Contract Time or Contract Sum, or both, provided it makes a request therefore as provided in Part 7.

5.11 **PROTECTION OF EXISTING STRUCTURES, EQUIPMENT, VEGETATION, UTILITIES AND IMPROVEMENTS**

A. **Contractor to protect and repair property:** Contractor shall protect from damage all existing structures, equipment, improvements, utilities, and vegetation: at or near the Project site; and on adjacent property of a third party, the locations of which are made known to or should be known by Contractor. Contractor shall repair any damage, including that to the property of a third party, resulting from failure to comply with the requirements of the Contract Documents or failure to exercise reasonable care in performing the Work. If Contractor fails or refuses to repair the damage promptly, Owner may have the necessary work performed and charge the cost to Contractor.

B. **Tree and vegetation protection:** Contractor shall only remove trees when specifically authorized to do so, and shall protect vegetation that will remain in place.

5.12 **LAYOUT OF WORK**

A. **Advanced planning of the Work:** Contractor shall plan and lay out the Work in advance of operations so as to coordinate all work without delay or revision.
B. **Layout responsibilities:** Contractor shall lay out the Work from Owner-established baselines and benchmarks indicated on the Drawings, and shall be responsible for all field measurements in connection with the layout. Contractor shall furnish, at its own expense, all stakes, templates, platforms, equipment, tools, materials, and labor required to lay out any part of the Work. Contractor shall be responsible for executing the Work to the lines and grades that may be established. Contractor shall be responsible for maintaining or restoring all stakes and other marks established.

5.13 **MATERIAL AND EQUIPMENT**

A. **Contractor to provide new and equivalent equipment and materials:** All equipment, material, and articles incorporated into the Work shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in the Contract Documents. References in the Specifications to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard quality and shall not be construed as limiting competition. Contractor may, at its option, use any equipment, material, article, or process that, in the judgment of A/E, is equal to that named in the specifications, unless otherwise specifically provided in the Contract Documents.

B. **Contractor responsible for fitting parts together:** Contractor shall do all cutting, fitting, or patching that may be required to make its several parts fit together properly, or receive or be received by work of others set forth in, or reasonably implied by, the Contract Documents. Contractor shall not endanger any work by cutting, excavating, or otherwise altering the Work and shall not cut or alter the work of any other contractor unless approved in advance by Owner.

C. **Owner may reject defective Work:** Should any of the Work be found defective, or in any way not in accordance with the Contract Documents, this work, in whatever stage of completion, may be rejected by Owner.

5.14 **AVAILABILITY AND USE OF UTILITY SERVICES**

A. **Owner to provide and charge for utilities:** Owner shall make all reasonable utilities available to Contractor from existing outlets and supplies, as specified in the Contract Documents. Unless otherwise provided in the Contract Documents, the utility service consumed shall be charged to or paid for by Contractor at prevailing rates charged to Owner or, where the utility is produced by Owner, at reasonable rates determined by Owner. Contractor will carefully conserve any utilities furnished.

B. **Contractor to install temporary connections and meters:** Contractor shall, at its expense and in a skillful manner satisfactory to Owner, install and maintain all necessary temporary connections and distribution lines, together with appropriate protective devices, and all meters required to measure the amount of each utility used for the purpose of determining charges. Prior to the date of Final Acceptance, Contractor shall remove all temporary connections, distribution lines, meters, and associated equipment and materials.

5.15 **TESTS AND INSPECTION**

A. **Contractor to provide for all testing and inspection of Work:** Contractor shall maintain an adequate testing and inspection program and perform such tests and inspections as are necessary or required to ensure that the Work conforms to the requirements of the Contract Documents. Contractor shall be responsible for inspection and quality surveillance of all its Work and all Work performed by any Subcontractor. Unless otherwise provided, Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. Contractor shall give Owner timely notice of when and
where tests and inspections are to be made. Contractor shall maintain complete inspection records and make them available to Owner.

B. **Owner may conduct tests and inspections:** Owner may, at any reasonable time, conduct such inspections and tests as it deems necessary to ensure that the Work is in accordance with the Contract Documents. Owner shall promptly notify Contractor if an inspection or test reveals that the Work is not in accordance with the Contract Documents. Unless the subject items are expressly accepted by Owner, such Owner inspection and tests are for the sole benefit of Owner and do not:

1. Constitute or imply acceptance;
2. Relieve Contractor of responsibility for providing adequate quality control measures;
3. Relieve Contractor of responsibility for risk of loss or damage to the Work, materials, or equipment;
4. Relieve Contractor of its responsibility to comply with the requirements of the Contract Documents;
5. Impair Owner’s right to reject defective or nonconforming items, or to avail itself of any other remedy to which it may be entitled.

C. **Inspections or inspectors do not modify Contract Documents:** Neither observations by an inspector retained by Owner, the presence or absence of such inspector on the site, nor inspections, tests, or approvals by others, shall relieve Contractor from any requirement of the Contract Documents, nor is any such inspector authorized to change any term or condition of the Contract Documents.

D. **Contractor responsibilities on inspections:** Contractor shall promptly furnish, without additional charge, all facilities, labor, material and equipment reasonably needed for performing such safe and convenient inspections and tests as may be required by Owner. Owner may charge Contractor any additional cost of inspection or testing when Work is not ready at the time specified by Contractor for inspection or testing, or when prior rejection makes reinspection or retest necessary. Owner shall perform its inspections and tests in a manner that will cause no undue delay in the Work.

5.16 **CORRECTION OF NONCONFORMING WORK**

A. **Work covered by Contractor without inspection:** If a portion of the Work is covered contrary to the requirements in the Contract Documents, it must, if required in writing by Owner, be uncovered for Owner’s observation and be replaced at the Contractor's expense and without change in the Contract Time.

B. **Payment provisions for uncovering covered Work:** If, at any time prior to Final Completion, Owner desires to examine the Work, or any portion of it, which has been covered, Owner may request to see such Work and it shall be uncovered by Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an adjustment in the Contract Sum for the costs of uncovering and replacement, and, if completion of the Work is thereby delayed, an adjustment in the Contract Time, provided it makes such a request as provided in Part 7. If such Work is not in accordance with the Contract Documents, the Contractor shall pay the costs of examination and reconstruction.

C. **Contractor to correct and pay for non-conforming Work:** Contractor shall promptly correct Work found by Owner not to conform to the requirements of the Contract Documents, whether observed before or after Substantial Completion and whether or not fabricated, installed, or
completed. Contractor shall bear all costs of correcting such nonconforming Work, including additional testing and inspections.

D. Contractor's compliance with warranty provisions: If, within one year after the date of Substantial Completion of the Work or designated portion thereof, or within one year after the date for commencement of any system warranties established under Section 6.08, or within the terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, Contractor shall correct it promptly after receipt of written notice from Owner to do so. Owner shall give such notice promptly after discovery of the condition. This period of one year shall be extended, with respect to portions of Work first performed after Substantial Completion, by the period of time between Substantial Completion and the actual performance of the Work. Contractor's duty to correct with respect to Work repaired or replaced shall run for one year from the date of repair or replacement. Obligations under this paragraph shall survive Final Acceptance.

E. Contractor to remove non-conforming Work: Contractor shall remove from the Project site portions of the Work which are not in accordance with the requirements of the Contract Documents and are neither corrected by Contractor nor accepted by Owner.

F. Owner may charge Contractor for non-conforming Work: If Contractor fails to correct nonconforming Work within a reasonable time after written notice to do so, Owner may replace, correct, or remove the nonconforming Work and charge the cost thereof to the Contractor.

G. Contractor to pay for damaged Work during correction: Contractor shall bear the cost of correcting destroyed or damaged Work, whether completed or partially completed, caused by Contractor's correction or removal of Work which is not in accordance with the requirements of the Contract Documents.

H. No Period of limitation on other requirements: Nothing contained in this section shall be construed to establish a period of limitation with respect to other obligations which Contractor might have according to the Contract Documents. Establishment of the time period of one year as described in Section 5.16D relates only to the specific obligation of Contractor to correct the Work, and has no relationship to the time within which the Contractor's obligation to comply with the Contract Documents may be sought to be enforced, including the time within which such proceedings may be commenced.

I. Owner may accept non-conforming Work and charge Contractor: If Owner prefers to accept Work which is not in accordance with the requirements of the Contract Documents, Owner may do so instead of requiring its removal and correction, in which case the Contract Sum may be reduced as appropriate and equitable.

5.17 CLEAN UP

Contractor to keep site clean and leave it clean: Contractor shall at all times keep the Project site, including hauling routes, infrastructures, utilities, and storage areas, free from accumulations of waste materials. Before completing the Work, Contractor shall remove from the premises its rubbish, tools, scaffolding, equipment, and materials. Upon completing the Work, Contractor shall leave the Project site in a clean, neat, and orderly condition satisfactory to Owner. If Contractor fails to clean up as provided herein, and after reasonable notice from Owner, Owner may do so and the cost thereof shall be charged to Contractor.

5.18 ACCESS TO WORK

Owner and A/E access to Work site: Contractor shall provide Owner and A/E access to the Work in progress wherever located.
5.19 **OTHER CONTRACTS**

Owner may award other contracts; Contractor to cooperate: Owner may undertake or award other contracts for additional work at or near the Project site. Contractor shall reasonably cooperate with the other contractors and with Owner’s employees and shall carefully adapt scheduling and perform the Work in accordance with these Contract Documents to reasonably accommodate the other work.

5.20 **SUBCONTRACTORS AND SUPPLIERS**

A. **Subcontractor Responsibility:** The Contractor shall include the language of this paragraph in each of its first tier subcontracts, and shall require each of its subcontractors to include the same language of this section in each of their subcontracts, adjusting only as necessary the terms used for the contracting parties. Upon request of the Owner, the Contractor shall promptly provide documentation to the Owner demonstrating that the subcontractor meets the subcontractor responsibility criteria below. The requirements of this paragraph apply to all subcontractors regardless of tier. At the time of subcontract execution, the Contractor shall verify that each of its first tier subcontractors meets the following bidder responsibility criteria:

1. Have a current certificate of registration as a contractor in compliance with chapter 18.27 RCW, which must have been in effect at the time of subcontract bid submittal;

2. Have a current Washington Unified Business Identifier (UBI) number;

3. If applicable, have:
   a. Industrial Insurance (workers’ compensation) coverage for the subcontractor’s employees working in Washington, as required in Title 51 RCW;
   b. A Washington Employment Security Department number, as required in Title 50 RCW;
   c. A Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW;
   d. An electrical contractor license, if required by Chapter 19.28 RCW;
   e. An elevator contractor license, if required by Chapter 70.87 RCW.

4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065 (3).

5. On a project subject to the apprenticeship utilization requirements in RCW 39.04.320, not have been found out of compliance by the Washington state apprenticeship and training council for working apprentices out of ratio, without appropriate supervision, or outside their approved work processes as outlined in their standards of apprenticeship under chapter 49.04 RCW for the one-year period immediately preceding the date of the Owner’s first advertisement of the project.

B. **Provide names of Subcontractors and use qualified firms:** Before submitting the first Application for Payment, Contractor shall furnish in writing to Owner the names, addresses, and telephone numbers of all Subcontractors, as well as suppliers providing materials in excess of $2,500. Contractor shall utilize Subcontractors and suppliers which are experienced and qualified, and meet the requirements of the Contract Documents, if any. Contractor shall not utilize any Subcontractor or supplier to whom the Owner has a reasonable objection, and shall obtain Owner’s written consent before making any substitutions or additions.
C. **Subcontracts in writing and pass through provision:** All Subcontracts must be in writing. By appropriate written agreement, Contractor shall require each Subcontractor, so far as applicable to the Work to be performed by the Subcontractor, to be bound to Contractor by terms of the Contract Documents, and to assume toward Contractor all the obligations and responsibilities which Contractor assumes toward Owner in accordance with the Contract Documents. Each Subcontract shall preserve and protect the rights of Owner in accordance with the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights. Where appropriate, Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. However, nothing in this paragraph shall be construed to alter the contractual relations between Contractor and its Subcontractors with respect to insurance or bonds.

D. **Coordination of Subcontractors; Contractor responsible for Work:** Contractor shall schedule, supervise, and coordinate the operations of all Subcontractors. No subcontracting of any of the Work shall relieve Contractor from its responsibility for the performance of the Work in accordance with the Contract Documents or any other obligations of the Contract Documents.

E. **Automatic assignment of subcontracts:** Each subcontract agreement for a portion of the Work is hereby assigned by Contractor to Owner provided that:

1. **Effective only after termination and Owner approval:** The assignment is effective only after termination by Owner for cause pursuant to Section 9.01 and only for those Subcontracts which Owner accepts by notifying the Subcontractor in writing; and

2. **Owner assumes Contractor’s responsibilities:** After the assignment is effective, Owner will assume all future duties and obligations toward the Subcontractor which Contractor assumed in the Subcontract.

3. **Impact of bond:** The assignment is subject to the prior rights of the surety, if any, obligated under any bond provided in accordance with the Contract Documents.

### 5.21 WARRANTY OF CONSTRUCTION

A. **Contractor warranty of Work:** In addition to any special warranties provided elsewhere in the Contract Documents, Contractor warrants that all Work conforms to the requirements of the Contract Documents and is free of any defect in equipment, material, or design furnished, or workmanship performed by Contractor.

B. **Contractor responsibilities:** With respect to all warranties, express or implied, for Work performed or materials furnished according to the Contract Documents, Contractor shall:

1. **Obtain warranties:** Obtain all warranties that would be given in normal commercial practice;

2. **Warranties for benefit of Owner:** Require all warranties to be executed, in writing, for the benefit of Owner;

3. **Enforcement of warranties:** Enforce all warranties for the benefit of Owner, if directed by Owner; and

4. **Contractor responsibility for subcontractor warranties:** Be responsible to enforce any subcontractor’s, manufacturer’s, or supplier’s warranties should they extend beyond the period specified in the Contract Documents.

C. **Warranties beyond Final Acceptance:** The obligations under this section shall survive Final Acceptance.
5.22 INDEMNIFICATION

A. Contractor to indemnify Owner: Contractor shall defend, indemnify, and hold Owner and A/E harmless from and against all claims, demands, losses, damages, or costs, including but not limited to damages arising out of bodily injury or death to persons and damage to property, caused by or resulting from:

1. Sole negligence of Contractor: The sole negligence of Contractor or any of its Subcontractors;

2. Concurrent negligence: The concurrent negligence of Contractor, or any Subcontractor, but only to the extent of the negligence of Contractor or such Subcontractor; and

3. Patent infringement: The use of any design, process, or equipment which constitutes an infringement of any United States patent presently issued, or violates any other proprietary interest, including copyright, trademark, and trade secret.

B. Employee action and RCW Title 51: In any action against Owner and any other entity indemnified in accordance with this section, by any employee of Contractor, its Subcontractors, Sub-subcontractors, agents, or anyone directly or indirectly employed by any of them, the indemnification obligation of this section shall not be limited by a limit on the amount or type of damages, compensation, or benefits payable by or for Contractor or any Subcontractor under RCW Title 51, the Industrial Insurance Act, or any other employee benefit acts. In addition, Contractor waives immunity as to Owner and A/E only, in accordance with RCW Title 51.

PART 6 – PAYMENTS AND COMPLETION

6.01 CONTRACT SUM

Owner shall pay Contract Sum: Owner shall pay Contractor the Contract Sum plus state sales tax for performance of the Work, in accordance with the Contract Documents.

6.02 SCHEDULE OF VALUES

Contractor to submit Schedule of Values: Before submitting its first Application for Payment, Contractor shall submit to Owner for approval a breakdown allocating the total Contract Sum to each principal category of work, in such detail as requested by Owner (“Schedule of Values”). The approved Schedule of Values shall include appropriate amounts for demobilization, record drawings, O&M manuals, and any other requirements for Project closeout, and shall be used by Owner as the basis for progress payments. Payment for Work shall be made only for and in accordance with those items included in the Schedule of Values.

6.03 APPLICATION FOR PAYMENT

A. Monthly Application for Payment with substantiation: At monthly intervals, unless determined otherwise by Owner, Contractor shall submit to Owner an itemized Application for Payment for Work completed in accordance with the Contract Documents and the approved Schedule of Values. Each application shall be supported by such substantiating data as Owner may require.

B. Contractor certifies Subcontractors paid: By submitting an Application for Payment, Contractor is certifying that all Subcontractors have been paid, less earned retainage in accordance with RCW 60.28.011, as their interests appeared in the last preceding certificate of payment. By submitting an Application for Payment, Contractor is recertifying that the representations set forth in Section 1.03, are true and correct, to the best of Contractor’s knowledge, as of the date of the Application for Payment.
C. **Reconciliation of Work with Progress Schedule:** At the time it submits an Application for Payment, Contractor shall analyze and reconcile, to the satisfaction of Owner, the actual progress of the Work with the Progress Schedule.

D. **Payment for material delivered to site or stored off-site:** If authorized by Owner, the Application for Payment may include request for payment for material delivered to the Project site and suitably stored, or for completed preparatory work. Payment may similarly be requested for material stored off the Project site, provided Contractor complies with or furnishes satisfactory evidence of the following:

1. **Suitable facility or location:** The material will be placed in a facility or location that is structurally sound, dry, lighted and suitable for the materials to be stored;
2. **Facility or location within 10 miles of Project:** The facility or location is located within a 10-mile radius of the Project. Other locations may be utilized, if approved in writing, by Owner;
3. **Facility or location exclusive to Project’s materials:** Only materials for the Project are stored within the facility or location (or a secure portion of a facility or location set aside for the Project);
4. **Insurance provided on materials in facility or location:** Contractor furnishes Owner a certificate of insurance extending Contractor’s insurance coverage for damage, fire, and theft to cover the full value of all materials stored, or in transit;
5. **Facility or location locked and secure:** The facility or location (or secure portion thereof) is continuously under lock and key, and only Contractor’s authorized personnel shall have access;
6. **Owner right of access to facility or location:** Owner shall at all times have the right of access in company of Contractor;
7. **Contractor assumes total responsibility for stored materials:** Contractor and its surety assume total responsibility for the stored materials; and
8. **Contractor provides documentation and Notice when materials moved to site:** Contractor furnishes to Owner certified lists of materials stored, bills of lading, invoices, and other information as may be required, and shall also furnish Notice to Owner when materials are moved from storage to the Project site.

**6.04 PROGRESS PAYMENTS**

A. **Owner to pay within 30 Days:** Owner shall make progress payments, in such amounts as Owner determines are properly due, within 30 Days after receipt of a properly executed Application for Payment. Owner shall notify Contractor in accordance with chapter 39.76 RCW if the Application for Payment does not comply with the requirements of the Contract Documents.

B. **Withholding retainage; Options for retainage:** Owner shall retain 5% of the amount of each progress payment until 45 Days after Final Acceptance and receipt of all documents required by law or the Contract Documents, including, at Owner’s request, consent of surety to release of the retainage. In accordance with chapter 60.28 RCW, Contractor may request that monies reserved be retained in a fund by Owner, deposited by Owner in a bank or savings and loan, or placed in escrow with a bank or trust company to be converted into bonds and securities to be held in escrow with interest to be paid to Contractor. Owner may permit Contractor to provide an appropriate bond in lieu of the retained funds.
C. Title passes to Owner upon payment: Title to all Work and materials covered by a progress payment shall pass to Owner at the time of such payment free and clear of all liens, claims, security interests, and encumbrances. Passage of title shall not, however, relieve Contractor from any of its duties and responsibilities for the Work or materials, or waive any rights of Owner to insist on full compliance by Contractor with the Contract Documents.

D. Interest on unpaid balances: Payments due and unpaid in accordance with the Contract Documents shall bear interest as specified in chapter 39.76 RCW.

6.05 PAYMENTS WITHHELD

A. Owner’s right to withhold payment: Owner may withhold or, on account of subsequently discovered evidence, nullify the whole or part of any payment to such extent as may be necessary to protect Owner from loss or damage for reasons including but not limited to:

1. Non-compliant Work: Work not in accordance with the Contract Documents;

2. Remaining Work to cost more than unpaid balance: Reasonable evidence that the Work required by the Contract Documents cannot be completed for the unpaid balance of the Contract Sum;

3. Owner correction or completion Work: Work by Owner to correct defective Work or complete the Work in accordance with Section 5.16;

4. Contractor’s failure to perform: Contractor’s failure to perform in accordance with the Contract Documents; or

5. Contractor’s negligent acts or omissions: Cost or liability that may occur to Owner as the result of Contractor’s fault or negligent acts or omissions.

B. Owner to notify Contractor of withholding for unsatisfactory performance: In any case where part or all of a payment is going to be withheld for unsatisfactory performance, Owner shall notify Contractor in accordance with chapter 39.76 RCW.

6.06 RETAINAGE AND BOND CLAIM RIGHTS

Chapters 39.08 RCW and 60.28 RCW incorporated by reference: Chapters 39.08 RCW and 60.28 RCW, concerning the rights and responsibilities of Contractor and Owner with regard to the performance and payment bonds and retainage, are made a part of the Contract Documents by reference as though fully set forth herein.

6.07 SUBSTANTIAL COMPLETION

Substantial Completion defined: Substantial Completion is the stage in the progress of the Work (or portion thereof designated and approved by Owner) when the construction is sufficiently complete, in accordance with the Contract Documents, so Owner has full and unrestricted use and benefit of the facilities (or portion thereof designated and approved by Owner) for the use for which it is intended. All Work other than incidental corrective or punch list work shall be completed. Substantial Completion shall not have been achieved if all systems and parts are not functional, if utilities are not connected and operating normally, if all required occupancy permits have not been issued, or if the Work is not accessible by normal vehicular and pedestrian traffic routes. The date Substantial Completion is achieved shall be established in writing by Owner. Contractor may request an early date of Substantial Completion which must be approved by Change Order. Owner’s occupancy of the Work or designated portion thereof does not necessarily indicate that Substantial Completion has been achieved.
6.08 PRIOR OCCUPANCY

A. **Prior Occupancy defined; Restrictions**: Owner may, upon written notice thereof to Contractor, take possession of or use any completed or partially completed portion of the Work (“Prior Occupancy”) at any time prior to Substantial Completion. Unless otherwise agreed in writing, Prior Occupancy shall not: be deemed an acceptance of any portion of the Work; accelerate the time for any payment to Contractor; prejudice any rights of Owner provided by any insurance, bond, guaranty, or the Contract Documents; relieve Contractor of the risk of loss or any of the obligations established by the Contract Documents; establish a date for termination or partial termination of the assessment of liquidated damages; or constitute a waiver of claims.

B. **Damage; Duty to repair and warranties**: Notwithstanding anything in the preceding paragraph, Owner shall be responsible for loss of or damage to the Work resulting from Prior Occupancy. Contractor’s one year duty to repair any system warranties shall begin on building systems activated and used by Owner as agreed in writing by Owner and Contractor.

6.09 FINAL COMPLETION, ACCEPTANCE, AND PAYMENT

A. **Final Completion defined**: Final Completion shall be achieved when the Work is fully and finally complete in accordance with the Contract Documents. The date Final Completion is achieved shall be established by Owner in writing, but in no case shall constitute Final Acceptance which is a subsequent, separate, and distinct action.

B. **Final Acceptance defined**: Final Acceptance shall be achieved when the Contractor has completed the requirements of the Contract Documents. The date Final Acceptance is achieved shall be established by Owner in writing. Prior to Final Acceptance, Contractor shall, in addition to all other requirements in the Contract Documents, submit to Owner a written notice of any outstanding disputes or claims between Contractor and any of its Subcontractors, including the amounts and other details thereof. Neither Final Acceptance, nor final payment, shall release Contractor or its sureties from any obligations of these Contract Documents or the payment and performance bonds, or constitute a waiver of any claims by Owner arising from Contractor’s failure to perform the Work in accordance with the Contract Documents.

C. **Final payment waives Claim rights**: Acceptance of final payment by Contractor, or any Subcontractor, shall constitute a waiver and release to Owner of all claims by Contractor, or any such Subcontractor, for an increase in the Contract Sum or the Contract Time, and for every act or omission of Owner relating to or arising out of the Work, except for those Claims made in accordance with the procedures, including the time limits, set forth in Part 8.

PART 7 – CHANGES

7.01 CHANGE IN THE WORK

A. **Changes in Work, Contract Sum, and Contract Time by Change Order**: Owner may, at any time and without notice to Contractor’s surety, order additions, deletions, revisions, or other changes in the Work. These changes in the Work shall be incorporated into the Contract Documents through the execution of Change Orders. If any change in the Work ordered by Owner causes an increase or decrease in the Contract Sum or the Contract Time, an equitable adjustment shall be made as provided in Section 7.02 or 7.03, respectively, and such adjustment(s) shall be incorporated into a Change Order.

B. **Owner may request COP from Contractor**: If Owner desires to order a change in the Work, it may request a written Change Order Proposal (COP) from Contractor. Contractor shall submit a Change Order Proposal within 14 Days of the request from Owner, or within such other period as mutually agreed. Contractor’s Change Order Proposal shall be full compensation for
implementing the proposed change in the Work, including any adjustment in the Contract Sum or Contract Time, and including compensation for all delays in connection with such change in the Work and for any expense or inconvenience, disruption of schedule, or loss of efficiency or productivity occasioned by the change in the Work.

C. COP negotiations: Upon receipt of the Change Order Proposal, or a request for equitable adjustment in the Contract Sum or Contract Time, or both, as provided in Sections 7.02 and 7.03, Owner may accept or reject the proposal, request further documentation, or negotiate acceptable terms with Contractor. Pending agreement on the terms of the Change Order, Owner may direct Contractor to proceed immediately with the Change Order Work. Contractor shall not proceed with any change in the Work until it has obtained Owner’s approval. All Work done pursuant to any Owner-directed change in the Work shall be executed in accordance with the Contract Documents.

D. Change Order as full payment and final settlement: If Owner 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. 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.

E. Failure to agree upon terms of Change Order; Final offer and Claims: If Owner and Contractor are unable to reach agreement on the terms of any change in the Work, including any adjustment in the Contract Sum or Contract Time, Contractor may at any time in writing, request a final offer from Owner. Owner shall provide Contractor with its written response within 30 Days of Contractor’s request. Owner may also provide Contractor with a final offer at any time. If Contractor rejects Owner’s final offer, or the parties are otherwise unable to reach agreement, Contractor’s only remedy shall be to file a Claim as provided in Part 8.

F. Field Authorizations: The Owner may direct the Contractor to proceed with a change in the work through a written Field Authorization (also referred to as a Field Order) when the time required to price and execute a Change Order would impact the Project.

The Field Authorization shall describe and include the following:

1. The scope of work
2. An agreed upon maximum not-to-exceed amount
3. Any estimated change to the Contract Time
4. The method of final cost determination in accordance with the requirements of Part 7 of the General Conditions
5. The supporting cost data to be submitted in accordance with the requirements of Part 7 of the General Conditions

Upon satisfactory submittal by the Contractor and approval by the Owner of supporting cost data, a Change Order will be executed. The Owner will not make payment to the Contractor for Field Authorization work until that work has been incorporated into an executed Change Order.
7.02 CHANGE IN THE CONTRACT SUM

A. General Application

1. Contract Sum changes only by Change Order: The Contract Sum shall only be changed by a Change Order. Contractor shall include any request for a change in the Contract Sum in its Change Order Proposal.

2. Owner fault or negligence as basis for change in Contract Sum: If the cost of Contractor’s performance is changed due to the fault or negligence of Owner, or anyone for whose acts Owner is responsible, Contractor shall be entitled to make a request for an equitable adjustment in the Contract Sum in accordance with the following procedure. No change in the Contract Sum shall be allowed to the extent: Contractor’s changed cost of performance is due to the fault or negligence of Contractor, or anyone for whose acts Contractor is responsible; the change is concurrently caused by Contractor and Owner; or the change is caused by an act of Force Majeure as defined in Section 3.05.

   (a) Notice and record keeping for equitable adjustment: A request for an equitable adjustment in the Contract Sum shall be based on written notice delivered to Owner within 7 Days of the occurrence of the event giving rise to the request. For purposes of this part, “occurrence” means when Contractor knew, or in its diligent prosecution of the Work should have known, of the event giving rise to the request. If Contractor believes it is entitled to an adjustment in the Contract Sum, Contractor shall immediately notify Owner and begin to keep and maintain complete, accurate, and specific daily records. Contractor shall give Owner access to any such records and, if requested shall promptly furnish copies of such records to Owner.

   (b) Content of notice for equitable adjustment; Failure to comply: Contractor shall not be entitled to any adjustment in the Contract Sum for any occurrence of events or costs that occurred more than 7 Days before Contractor’s written notice to Owner. The written notice shall set forth, at a minimum, a description of: the event giving rise to the request for an equitable adjustment in the Contract Sum; the nature of the impacts to Contractor and its Subcontractors of any tier, if any; and to the extent possible the amount of the adjustment in Contract Sum requested. Failure to properly give such written notice shall, to the extent Owner’s interests are prejudiced, constitute a waiver of Contractor’s right to an equitable adjustment.

   (c) Contractor to provide supplemental information: Within 30 Days of the occurrence of the event giving rise to the request, unless Owner agrees in writing to allow an additional period of time to ascertain more accurate data, Contractor shall supplement the written notice provided in accordance with subparagraph a. above with additional supporting data. Such additional data shall include, at a minimum: the amount of compensation requested, itemized in accordance with the procedure set forth herein; specific facts, circumstances, and analysis that confirms not only that Contractor suffered the damages claimed, but that the damages claimed were actually a result of the act, event, or condition complained of and that the Contract Documents provide entitlement to an equitable adjustment to Contractor for such act, event, or condition; and documentation sufficiently detailed to permit an informed analysis of the request by Owner. When the request for compensation relates to a delay, or other change in Contract Time, Contractor shall demonstrate the impact on the critical path, in accordance with Section 7.03C. Failure to provide such additional information and documentation within the time allowed or within the format required shall, to the extent Owner’s interests are prejudiced, constitute a waiver of Contractor’s right to an equitable adjustment.
(d) **Contractor to proceed with Work as directed:** Pending final resolution of any request made in accordance with this paragraph, unless otherwise agreed in writing, Contractor shall proceed diligently with performance of the Work.

(e) **Contractor to combine requests for same event together:** Any requests by Contractor for an equitable adjustment in the Contract Sum and in the Contract Time that arise out of the same event(s) shall be submitted together.

3. **Methods for calculating Change Order amount:** The value of any Work covered by a Change Order, or of any request for an equitable adjustment in the Contract Sum, shall be determined by one of the following methods:

   a. **Fixed Price:** On the basis of a fixed price as determined in paragraph 7.02B.

   b. **Unit Prices:** By application of unit prices to the quantities of the items involved as determined in paragraph 7.02C.

   c. **Time and Materials:** On the basis of time and material as determined in paragraph 7.02D.

4. **Fixed price method is default; Owner may direct otherwise:** When Owner has requested Contractor to submit a Change Order Proposal, Owner may direct Contractor as to which method in subparagraph 3 above to use when submitting its proposal. Otherwise, Contractor shall determine the value of the Work, or of a request for an equitable adjustment, on the basis of the fixed price method.

**B. Change Order Pricing – Fixed Price**

**Procedures:** When the fixed price method is used to determine the value of any Work covered by a Change Order, or of a request for an equitable adjustment in the Contract Sum, the following procedures shall apply:

1. **Breakdown and itemization of details on COP:** Contractor’s Change Order Proposal, or request for adjustment in the Contract Sum, shall be accompanied by a complete itemization of the costs, including labor, material, subcontractor costs, and overhead and profit. The costs shall be itemized in the manner set forth below, and shall be submitted on breakdown sheets in a form approved by Owner.

2. **Use of industry standards in calculating costs:** All costs shall be calculated based upon appropriate industry standard methods of calculating labor, material quantities, and equipment costs.

3. **Costs contingent on Owner’s actions:** If any of Contractor’s pricing assumptions are contingent upon anticipated actions of Owner, Contractor shall clearly state them in the proposal or request for an equitable adjustment.

4. **Markups on additive and deductive Work:** The cost of any additive or deductive changes in the Work shall be calculated as set forth below, except that overhead and profit shall not be included on deductive changes in the Work. Where a change in the Work involves additive and deductive work by the same Contractor or Subcontractor, small tools, overhead, profit, bond and insurance markups will apply to the net difference.

5. **Breakdown not required if change less than $1,000:** If the total cost of the change in the Work or request for equitable adjustment does not exceed $1,000, Contractor shall not be required to submit a breakdown if the description of the change in the Work or request for equitable adjustment is sufficiently definitive for Owner to determine fair value.

July 1, 2010
6. Breakdown required if change between $1,000 and $2,500: If the total cost of the change in the Work or request for equitable adjustment is between $1,000 and $2,500, Contractor may submit a breakdown in the following level of detail if the description of the change in the Work or if the request for equitable adjustment is sufficiently definitive to permit the Owner to determine fair value:

   a. lump sum labor;
   b. lump sum material;
   c. lump sum equipment usage;
   d. overhead and profit as set forth below; and
   e. insurance and bond costs as set forth below.

7. Components of increased cost: Any request for adjustment of Contract Sum based upon the fixed price method shall include only the following items:

   a. Craft labor costs: These are the labor costs determined by multiplying the estimated or actual additional number of craft hours needed to perform the change in the Work by the hourly labor costs. Craft hours should cover direct labor, as well as indirect labor due to trade inefficiencies. The hourly costs shall be based on the following:

      (1) Basic wages and benefits: Hourly rates and benefits as stated on the Department of Labor and Industries approved “statement of intent to pay prevailing wages” or a higher amount if approved by the Owner. Direct supervision shall be a reasonable percentage not to exceed 15% of the cost of direct labor. No supervision markup shall be allowed for a working supervisor’s hours.

      (2) Worker’s insurance: Direct contributions to the state of Washington for industrial insurance; medical aid; and supplemental pension, by the class and rates established by the Department of Labor and Industries.

      (3) Federal insurance: Direct contributions required by the Federal Insurance Compensation Act; Federal Unemployment Tax Act; and the State Unemployment Compensation Act.

      (4) Travel allowance: Travel allowance and/or subsistence, if applicable, not exceeding those allowances established by regional labor union agreements, which are itemized and identified separately.

      (5) Safety: Cost incurred due to the Washington Industrial Safety and Health Act, which shall be a reasonable percentage not to exceed 2% of the sum of the amounts calculated in (1), (2), and (3) above.

   b. Material costs: This is an itemization of the quantity and cost of materials needed to perform the change in the Work. Material costs shall be developed first from actual known costs, second from supplier quotations or if these are not available, from standard industry pricing guides. Material costs shall consider all available discounts. Freight costs, express charges, or special delivery charges, shall be itemized.
c. **Equipment costs:** This is an itemization of the type of equipment and the estimated or actual length of time the construction equipment appropriate for the Work is or will be used on the change in the Work. Costs will be allowed for construction equipment only if used solely for the changed Work, or for additional rental costs actually incurred by the Contractor. Equipment charges shall be computed on the basis of actual invoice costs or if owned, from the current edition of one of the following sources:

2. The National Electrical Contractors Association for equipment used on electrical work.
3. The Mechanical Contractors Association of America for equipment used on mechanical work.

The EquipmentWatch Rental Rate Blue Book shall be used as a basis for establishing rental rates of equipment not listed in the above sources. The maximum rate for standby equipment shall not exceed that shown in the AGC WSDOT Equipment Rental Agreement, current edition on the Contract execution date.

d. **Allowance for small tools, expendables & consumable supplies:** Small tools consist of tools which cost $250 or less and are normally furnished by the performing contractor. The maximum rate for small tools shall not exceed the following:

1. **3% for Contractor:** For Contractor, 3% of direct labor costs.
2. **5% for Subcontractors:** For Subcontractors, 5% of direct labor costs.

Expendables and consumables supplies directly associated with the change in Work must be itemized.

e. **Subcontractor costs:** This is defined as payments Contractor makes to Subcontractors for changed Work performed by Subcontractors of any tier. The Subcontractors’ cost of Work shall be calculated and itemized in the same manner as prescribed herein for Contractor.

f. **Allowance for overhead:** This is defined as costs of any kind attributable to direct and indirect delay, acceleration, or impact, added to the total cost to Owner of any change in the Contract Sum. If the Contractor is compensated under Section 7.03D, the amount of such compensation shall be reduced by the amount Contractor is otherwise entitled to under this subsection (f). This allowance shall compensate Contractor for all noncraft labor, temporary construction facilities, field engineering, schedule updating, as-built drawings, home office cost, B&O taxes, office engineering, estimating costs, additional overhead because of extended time, and any other cost incidental to the change in the Work. It shall be strictly limited in all cases to a reasonable amount, mutually acceptable, or if none can be agreed upon to an amount not to exceed the rates below:

1. **Projects less than $3 million:** For projects where the Contract Award Amount is under $3 million, the following shall apply:
(a) **Contractor markup on Contractor Work:** For Contractor, for any Work actually performed by Contractor's own forces, 16% of the first $50,000 of the cost, and 4% of the remaining cost, if any.

(b) **Subcontractor markup for Subcontractor Work:** For each Subcontractor (including lower tier subcontractors), for any Work actually performed by its own forces, 16% of the first $50,000 of the cost, and 4% of the remaining cost, if any.

(c) **Contractor markup for Subcontractor Work:** For Contractor, for any work performed by its Subcontractor(s) 6% of the first $50,000 of the amount due each Subcontractor, and 4% of the remaining amount if any.

(d) **Subcontractor markup for lower tier Subcontractor Work:** For each Subcontractor, for any Work performed by its Subcontractor(s) of any lower tier, 4% of the first $50,000 of the amount due the sub-Subcontractor, and 2% of the remaining amount if any.

(e) **Basis of cost applicable for markup:** The cost to which overhead is to be applied shall be developed in accordance with Section 7.02B 7a. – e.

(2). **Projects more than $3 million:** For projects where the Contract Award Amount is equal to or exceeds $3 million, the following shall apply:

(a) **Contractor markup on Contractor Work:** For Contractor, for any Work actually performed by Contractor's own forces, 12% of the first $50,000 of the cost, and 4% of the remaining cost, if any.

(b) **Subcontractor markup for Subcontractor Work:** For each Subcontractor (including lower tier subcontractors), for any Work actually performed by its own forces, 12% of the first $50,000 of the cost, and 4% of the remaining cost, if any.

(c) **Contractor markup for Subcontractor Work:** For Contractor, for any Work performed by its Subcontractor(s), 4% of the first $50,000 of the amount due each Subcontractor, and 2% of the remaining amount if any.

(d) **Subcontractor markup for lower tier Subcontractor Work:** For each Subcontractor, for any Work performed by its Subcontractor(s) of any lower tier, 4% of the first $50,000 of the amount due the sub-Subcontractor, and 2% of the remaining amount if any.

(e) **Basis of cost applicable for markup:** The cost to which overhead is to be applied shall be developed in accordance with Section 7.02B 7a. – e.

**g. Allowance for profit:** Allowance for profit is an amount to be added to the cost of any change in contract sum, but not to the cost of change in Contract Time for which contractor has been compensated pursuant to the conditions set forth in Section 7.03. It shall be limited to a reasonable amount, mutually acceptable, or if none can be agreed upon, to an amount not to exceed the rates below:

(1) **Contractor / Subcontractor markup for self-performed Work:** For Contractor or Subcontractor of any tier for work performed by their forces, 6% of the cost developed in accordance with Section 7.02B 7a. – e.
(2) Contractor / Subcontractor markup for Work performed at lower tier: For Contractor or Subcontractor of any tier for work performed by a subcontractor of a lower tier, 4% of the subcontract cost developed in accordance with Section 7.02B 7a. – h.

h. Insurance and bond premiums: Cost of change in insurance or bond premium: This is defined as:

(1) Contractor’s liability insurance: The cost of any changes in Contractor’s liability insurance arising directly from execution of the Change Order; and

(2) Payment and Performance Bond: The cost of the additional premium for Contractor’s bond arising directly from the changed Work.

The cost of any change in insurance or bond premium shall be added after overhead and allowance for profit are calculated in accordance with subparagraph f. and g above.

C. Change Order Pricing – Unit Prices

1. Content of Owner authorization: Whenever Owner authorizes Contractor to perform Work on a unit-price basis, Owner’s authorization shall clearly state:

   a. Scope: Scope of work to be performed;
   b. Reimbursement basis: Type of reimbursement including pre-agreed rates for material quantities; and
   c. Reimbursement limit: Cost limit of reimbursement.

2. Contractor responsibilities: Contractor shall:

   a. Cooperate with Owner and assist in monitoring the Work being performed. As requested by Owner, Contractor shall identify workers assigned to the Change Order Work and areas in which they are working;
   b. Leave access as appropriate for quantity measurement; and
   c. Not exceed any cost limit(s) without Owner’s prior written approval.

3. Cost breakdown consistent with Fixed Price requirements: Contractor shall submit costs in accordance with paragraph 7.02B and satisfy the following requirements:

   a. Unit prices must include overhead, profit, bond and insurance premiums: Unit prices shall include reimbursement for all direct and indirect costs of the Work, including overhead, profit, bond, and insurance costs; and
   b. Owner verification of quantities: Quantities must be supported by field measurement statements signed by Owner.

D. Change Order Pricing – Time-and-Material Prices

1. Content of Owner authorization: Whenever Owner authorizes Contractor to perform Work on a time-and-material basis, Owner’s authorization shall clearly state:

   a. Scope: Scope of Work to be performed;
b. **Reimbursement basis:** Type of reimbursement including pre-agreed rates, if any, for material quantities or labor; and

c. **Reimbursement limit:** Cost limit of reimbursement.

2. **Contractor responsibilities:** Contractor shall:

   a. **Identify workers assigned:** Cooperate with Owner and assist in monitoring the Work being performed. As requested by Owner, identify workers assigned to the Change Order Work and areas in which they are working;

   b. **Provide daily timesheets:** Identify on daily time sheets all labor performed in accordance with this authorization. Submit copies of daily time sheets within 2 working days for Owner’s review.

   c. **Allow Owner to measure quantities:** Leave access as appropriate for quantity measurement;

   d. **Perform Work efficiently:** Perform all Work in accordance with this section as efficiently as possible; and

   e. **Not exceed Owner’s cost limit:** Not exceed any cost limit(s) without Owner’s prior written approval.

3. **Cost breakdown consistent with Fixed Price requirements:** Contractor shall submit costs in accordance with paragraph 7.02B and additional verification supported by:

   a. **Timesheets:** Labor detailed on daily time sheets; and

   b. **Invoices:** Invoices for material.

### 7.03 CHANGE IN THE CONTRACT TIME

A. **COP requests for Contract Time:** The Contract Time shall only be changed by a Change Order. Contractor shall include any request for a change in the Contract Time in its Change Order Proposal.

B. **Time extension permitted if not Contractor’s fault:** If the time of Contractor’s performance is changed due to an act of Force Majeure, or due to the fault or negligence of Owner or anyone for whose acts Owner is responsible, Contractor shall be entitled to make a request for an equitable adjustment in the Contract Time in accordance with the following procedure. No adjustment in the Contract Time shall be allowed to the extent Contractor’s changed time of performance is due to the fault or negligence of Contractor, or anyone for whose acts Contractor is responsible.

1. **Notice and record keeping for Contract Time request:** A request for an equitable adjustment in the Contract Time shall be based on written notice delivered within 7 Days of the occurrence of the event giving rise to the request. If Contractor believes it is entitled to adjustment of Contract Time, Contractor shall immediately notify Owner and begin to keep and maintain complete, accurate, and specific daily records. Contractor shall give Owner access to any such record and if requested, shall promptly furnish copies of such record to Owner.

2. **Timing and content of Contractor’s Notice:** Contractor shall not be entitled to an adjustment in the Contract Time for any events that occurred more than 7 Days before Contractor’s written notice to Owner. The written notice shall set forth, at a minimum, a description of: the event giving rise to the request for an equitable adjustment in the
Contract Time; the nature of the impacts to Contractor and its Subcontractors of any tier, if any; and to the extent possible the amount of the adjustment in Contract Time requested. Failure to properly give such written notice shall, to the extent Owner's interests are prejudiced, constitute a waiver of Contractor's right to an equitable adjustment.

3. **Contractor to provide supplemental information:** Within 30 Days of the occurrence of the event giving rise to the request, unless Owner agrees in writing to allow an additional period of time to ascertain more accurate data, Contractor shall supplement the written notice provided in accordance with subparagraph 7.03B.2 with additional supporting data. Such additional data shall include, at a minimum: the amount of delay claimed, itemized in accordance with the procedure set forth herein; specific facts, circumstances, and analysis that confirms not only that Contractor suffered the delay claimed, but that the delay claimed was actually a result of the act, event, or condition complained of, and that the Contract Documents provide entitlement to an equitable adjustment in Contract Time for such act, event, or condition; and supporting documentation sufficiently detailed to permit an informed analysis of the request by Owner. Failure to provide such additional information and documentation within the time allowed or within the format required shall, to the extent Owner's interests are prejudiced, constitute a waiver of Contractor's right to an equitable adjustment.

4. **Contractor to proceed with Work as directed:** Pending final resolution of any request in accordance with this paragraph, unless otherwise agreed in writing, Contractor shall proceed diligently with performance of the Work.

C. **Contractor to demonstrate impact on critical path of schedule:** Any change in the Contract Time covered by a Change Order, or based on a request for an equitable adjustment in the Contract Time, shall be limited to the change in the critical path of Contractor's schedule attributable to the change of Work or event(s) giving rise to the request for equitable adjustment. Any Change Order Proposal or request for an adjustment in the Contract Time shall demonstrate the impact on the critical path of the schedule. Contractor shall be responsible for showing clearly on the Progress Schedule that the change or event: had a specific impact on the critical path, and except in case of concurrent delay, was the sole cause of such impact; and could not have been avoided by resequencing of the Work or other reasonable alternatives.

D. **Cost of change in Contract Time:** Contractor may request compensation for the cost of a change in Contract Time in accordance with this paragraph, 7.03D, subject to the following conditions:

1. **Must be solely fault of Owner or A/E:** The change in Contract Time shall solely be caused by the fault or negligence of Owner or A/E;

2. **Procedures:** Contractor shall follow the procedure set forth in paragraph 7.03B;

3. **Demonstrate impact on critical path:** Contractor shall establish the extent of the change in Contract Time in accordance with paragraph 7.03C; and

4. **Limitations on daily costs:** The daily cost of any change in Contract Time shall be limited to the items below, less the amount of any change in the Contract Sum the Contractor may otherwise be entitled to pursuant to Section 7.02B 7f for any change in the Work that contributed to this change in Contract Time:

   a. **Non-productive supervision or labor:** cost of nonproductive field supervision or labor extended because of delay;

   b. **Weekly meetings and indirect activities:** cost of weekly meetings or similar indirect activities extended because of the delay;
c. **Temporary facilities or equipment rental:** cost of temporary facilities or equipment rental extended because of the delay;

d. **Insurance premiums:** cost of insurance extended because of the delay;

e. **Overhead:** general and administrative overhead in an amount to be agreed upon, but not to exceed 3% of the Contract Award Amount divided by the originally specified Contract Time for each Day of the delay.

**PART 8 – CLAIMS AND DISPUTE RESOLUTION**

**8.01 CLAIMS PROCEDURE**

A. **Claim is Contractor’s remedy:** If the parties fail to reach agreement on the terms of any Change Order for Owner-directed Work as provided in Section 7.01, or on the resolution of any request for an equitable adjustment in the Contract Sum as provided in Section 7.02 or the Contract Time as provided in Section 7.03, Contractor’s only remedy shall be to file a Claim with Owner as provided in this section.

B. **Claim filing deadline for Contractor:** Contractor shall file its Claim within 120 Days from Owner’s final offer made in accordance with paragraph 7.01E, or by the date of Final Acceptance, whichever occurs first.

C. **Claim must cover all costs and be documented:** The Claim shall be deemed to cover all changes in cost and time (including direct, indirect, impact, and consequential) to which Contractor may be entitled. It shall be fully substantiated and documented. At a minimum, the Claim shall contain the following information:

1. **Factual statement of Claim:** A detailed factual statement of the Claim for additional compensation and time, if any, providing all necessary dates, locations, and items of Work affected by the Claim;

2. **Dates:** The date on which facts arose which gave rise to the Claim;

3. **Owner and A/E employee’s knowledgeable about Claim:** The name of each employee of Owner or A/E knowledgeable about the Claim;

4. **Support from Contract Documents:** The specific provisions of the Contract Documents which support the Claim;

5. **Identification of other supporting information:** The identification of any documents and the substance of any oral communications that support the Claim;

6. **Copies of supporting documentation:** Copies of any identified documents, other than the Contract Documents, that support the Claim;

7. **Details on Claim for Contract Time:** If an adjustment in the Contract Time is sought: the specific days and dates for which it is sought; the specific reasons Contractor believes an extension in the Contract Time should be granted; and Contractor’s analysis of its Progress Schedule to demonstrate the reason for the extension in Contract Time;

8. **Details on Claim for adjustment of Contract Sum:** If an adjustment in the Contract Sum is sought, the exact amount sought and a breakdown of that amount into the categories set forth in, and in the detail as required by Section 7.02; and
9. **Statement certifying Claim:** A statement certifying, under penalty of perjury, that the Claim 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 by the accompanying data, and that the amount requested accurately reflects the adjustment in the Contract Sum or Contract Time for which Contractor believes Owner is liable.

D. **Owner’s response to Claim filed:** After Contractor has submitted a fully documented Claim that complies with all applicable provisions of Parts 7 and 8, Owner shall respond, in writing, to Contractor as follows:

1. **Response time for Claim less than $50,000:** If the Claim amount is less than $50,000, with a decision within 60 Days from the date the Claim is received; or

2. **Response time for Claim of $50,000 or more:** If the Claim amount is $50,000 or more, with a decision within 60 Days from the date the Claim is received, or with notice to Contractor of the date by which it will render its decision. Owner will then respond with a written decision in such additional time.

E. **Owner’s review of Claim and finality of decision:** To assist in the review of Contractor’s Claim, Owner may visit the Project site, or request additional information, in order to fully evaluate the issues raised by the Claim. Contractor shall proceed with performance of the Work pending final resolution of any Claim. Owner’s written decision as set forth above shall be final and conclusive as to all matters set forth in the Claim, unless Contractor follows the procedure set forth in Section 8.02.

F. **Waiver of Contractor rights for failure to comply with this Section:** Any Claim of the Contractor against the Owner for damages, additional compensation, or additional time, shall be conclusively deemed to have been waived by the Contractor unless made in accordance with the requirements of this Section.

8.02 **ARBITRATION**

A. **Timing of Contractor’s demand for arbitration:** If Contractor disagrees with Owner’s decision rendered in accordance with paragraph 8.01D, Contractor shall provide Owner with a written demand for arbitration. No demand for arbitration of any such Claim shall be made later than 30 Days after the date of Owner’s decision on such Claim; failure to demand arbitration within said 30 Day period shall result in Owner’s decision being final and binding upon Contractor and its Subcontractors.

B. **Filing of Notice for arbitration:** Notice of the demand for arbitration shall be filed with the American Arbitration Association (AAA), with a copy provided to Owner. The parties shall negotiate or mediate under the Voluntary Construction Mediation Rules of the AAA, or mutually acceptable service, before seeking arbitration in accordance with the Construction Industry Arbitration Rules of AAA as follows:

1. **Claims less than $30,000:** Disputes involving $30,000 or less shall be conducted in accordance with the Northwest Region Expedited Commercial Arbitration Rules; or

2. **Claims greater than $30,000:** Disputes over $30,000 shall be conducted in accordance with the Construction Industry Arbitration Rules of the AAA, unless the parties agree to use the expedited rules.

C. **Arbitration is forum for resolving Claims:** All Claims arising out of the Work shall be resolved by arbitration. The judgment upon the arbitration award may be entered, or review of the award may...
occur, in the superior court having jurisdiction thereof. No independent legal action relating to or arising from the Work shall be maintained.

D. **Owner may combine Claims into same arbitration:** Claims between Owner and Contractor, Contractor and its Subcontractors, Contractor and A/E, and Owner and A/E shall, upon demand by Owner, be submitted in the same arbitration or mediation.

E. **Settlement outside of arbitration to be documented in Change Order:** If the parties resolve the Claim prior to arbitration judgment, the terms of the resolution shall be incorporated in a Change Order. The Change Order shall constitute full payment and final settlement of the Claim, including all claims for time and for direct, indirect, or consequential costs, including costs of delays, inconvenience, disruption of schedule, or loss of efficiency or productivity.

### 8.03 CLAIMS AUDITS

A. **Owner may audit Claims:** All Claims filed against Owner shall be subject to audit at any time following the filing of the Claim. Failure of Contractor, or Subcontractors of any tier, to maintain and retain sufficient records to allow Owner to verify all or a portion of the Claim or to permit Owner access to the books and records of Contractor, or Subcontractors of any tier, shall constitute a waiver of the Claim and shall bar any recovery.

B. **Contractor to make documents available:** In support of Owner audit of any Claim, Contractor shall, upon request, promptly make available to Owner the following documents:

1. Daily time sheets and supervisor’s daily reports;
2. Collective bargaining agreements;
3. Insurance, welfare, and benefits records;
4. Payroll registers;
5. Earnings records;
6. Payroll tax forms;
7. Material invoices, requisitions, and delivery confirmations;
8. Material cost distribution worksheet;
9. Equipment records (list of company equipment, rates, etc.);
11. Contracts between Contractor and each of its Subcontractors, and all lower-tier Subcontractor contracts and supplier contracts;
12. Subcontractors’ and agents’ payment certificates;
13. Cancelled checks (payroll and vendors);
14. Job cost report, including monthly totals;
15. Job payroll ledger;
16. Planned resource loading schedules and summaries;
17. General ledger;
18. Cash disbursements journal;
19. Financial statements for all years reflecting the operations on the Work. In addition, the Owner may require, if it deems it appropriate, additional financial statements for 3 years preceding execution of the Work;
20. Depreciation records on all company equipment whether these records are maintained by the company involved, its accountant, or others;
21. If a source other than depreciation records is used to develop costs for Contractor’s internal purposes in establishing the actual cost of owning and operating equipment, all such other source documents;
22. All nonprivileged documents which relate to each and every Claim together with all documents which support the amount of any adjustment in Contract Sum or Contract Time sought by each Claim;
23. Work sheets or software used to prepare the Claim establishing the cost components for items of the Claim including but not limited to labor, benefits and insurance, materials, equipment, Subcontractors, all documents which establish the time periods, individuals involved, the hours for the individuals, and the rates for the individuals; and
24. Work sheets, software, and all other documents used by Contractor to prepare its bid.

C. Contractor to provide facilities for audit and shall cooperate: The audit may be performed by employees of Owner or a representative of Owner. Contractor, and its Subcontractors, shall provide adequate facilities acceptable to Owner, for the audit during normal business hours. Contractor, and all Subcontractors, shall make a good faith effort to cooperate with Owner’s auditors.

PART 9 – TERMINATION OF THE WORK

9.01 TERMINATION BY OWNER FOR CAUSE

A. 7 Day Notice to Terminate for Cause: Owner may, upon 7 Days written notice to Contractor and to its surety, terminate (without prejudice to any right or remedy of Owner) the Work, or any part of it, for cause upon the occurrence of any one or more of the following events:

1. Contractor fails to prosecute Work: Contractor fails to prosecute the Work or any portion thereof with sufficient diligence to ensure Substantial Completion of the Work within the Contract Time;
2. Contractor bankrupt: Contractor is adjudged bankrupt, makes a general assignment for the benefit of its creditors, or a receiver is appointed on account of its insolvency;
3. Contractor fails to correct Work: Contractor fails in a material way to replace or correct Work not in conformance with the Contract Documents;
4. Contractor fails to supply workers or materials: Contractor repeatedly fails to supply skilled workers or proper materials or equipment;
5. Contractor failure to pay Subcontractors or labor: Contractor repeatedly fails to make prompt payment due to Subcontractors or for labor;
6. **Contractor violates laws:** Contractor materially disregards or fails to comply with laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction; or

7. **Contractor in material breach of Contract:** Contractor is otherwise in material breach of any provision of the Contract Documents.

B. **Owner’s actions upon termination:** Upon termination, Owner may at its option:

1. **Take possession of Project site:** Take possession of the Project site and take possession of or use all materials, equipment, tools, and construction equipment and machinery thereon owned by Contractor to maintain the orderly progress of, and to finish, the Work;

2. **Accept assignment of Subcontracts:** Accept assignment of subcontracts pursuant to Section 5.20; and

3. **Finish the Work:** Finish the Work by whatever other reasonable method it deems expedient.

C. **Surety’s role:** Owner’s rights and duties upon termination are subject to the prior rights and duties of the surety, if any, obligated under any bond provided in accordance with the Contract Documents.

D. **Contractor’s required actions:** When Owner terminates the Work in accordance with this section, Contractor shall take the actions set forth in paragraph 9.02B, and shall not be entitled to receive further payment until the Work is accepted.

E. **Contractor to pay for unfinished Work:** If the unpaid balance of the Contract Sum exceeds the cost of finishing the Work, including compensation for A/E’s services and expenses made necessary thereby and any other extra costs or damages incurred by Owner in completing the Work, or as a result of Contractor’s actions, such excess shall be paid to Contractor. If such costs exceed the unpaid balance, Contractor shall pay the difference to Owner. These obligations for payment shall survive termination.

F. **Contractor and Surety still responsible for Work performed:** Termination of the Work in accordance with this section shall not relieve Contractor or its surety of any responsibilities for Work performed.

G. **Conversion of “Termination for Cause” to “Termination for Convenience”:** If Owner terminates Contractor for cause and it is later determined that none of the circumstances set forth in paragraph 9.01A exist, then such termination shall be deemed a termination for convenience pursuant to Section 9.02.

### 9.02 TERMINATION BY OWNER FOR CONVENIENCE

A. **Owner Notice of Termination for Convenience:** Owner may, upon written notice, terminate (without prejudice to any right or remedy of Owner) the Work, or any part of it, for the convenience of Owner.

B. **Contractor response to termination Notice:** Unless Owner directs otherwise, after receipt of a written notice of termination for either cause or convenience, Contractor shall promptly:

1. **Cease Work:** Stop performing Work on the date and as specified in the notice of termination;
2. **No further orders or Subcontracts:** Place no further orders or subcontracts for materials, equipment, services or facilities, except as may be necessary for completion of such portion of the Work as is not terminated;

3. **Cancel orders and Subcontracts:** Cancel all orders and subcontracts, upon terms acceptable to Owner, to the extent that they relate to the performance of Work terminated;

4. **Assign orders and Subcontracts to Owner:** Assign to Owner all of the right, title, and interest of Contractor in all orders and subcontracts;

5. **Take action to protect the Work:** Take such action as may be necessary or as directed by Owner to preserve and protect the Work, Project site, and any other property related to this Project in the possession of Contractor in which Owner has an interest; and

6. **Continue performance not terminated:** Continue performance only to the extent not terminated

**C. Terms of adjustment in Contract Sum if Contract terminated:** If Owner terminates the Work or any portion thereof for convenience, Contractor shall be entitled to make a request for an equitable adjustment for its reasonable direct costs incurred prior to the effective date of the termination, plus reasonable allowance for overhead and profit on Work performed prior to termination, plus the reasonable administrative costs of the termination, but shall not be entitled to any other costs or damages, whatsoever, provided however, the total sum payable upon termination shall not exceed the Contract Sum reduced by prior payments. Contractor shall be required to make its request in accordance with the provisions of Part 7.

**D. Owner to determine whether to adjust Contract Time:** If Owner terminates the Work or any portion thereof for convenience, the Contract Time shall be adjusted as determined by Owner.

**PART 10 – MISCELLANEOUS PROVISIONS**

**10.01 GOVERNING LAW**

Applicable law and venue: The Contract Documents and the rights of the parties herein shall be governed by the laws of the state of Washington. Venue shall be in the county in which Owner’s principal place of business is located, unless otherwise specified.

**10.02 SUCCESSORS AND ASSIGNS**

Bound to successors; Assignment of Contract: Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to the other party hereto and to partners, successors, assigns, and legal representatives of such other party in respect to covenants, agreements, and obligations contained in the Contract Documents. Neither party shall assign the Work without written consent of the other, except that Contractor may assign the Work for security purposes, to a bank or lending institution authorized to do business in the state of Washington. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations set forth in the Contract Documents.

**10.03 MEANING OF WORDS**

Meaning of words used in Specifications: Unless otherwise stated in the Contract Documents, words which have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings. Reference to standard specifications, manuals, or codes of any technical society, organization, or association, or to the code of any governmental authority,
whether such reference be specific or by implication, shall be to the latest standard specification, manual, or code in effect on the date for submission of bids, except as may be otherwise specifically stated. Wherever in these Drawings and Specifications an article, device, or piece of equipment is referred to in the singular manner, such reference shall apply to as many such articles as are shown on the drawings, or required to complete the installation.

10.04 RIGHTS AND REMEDIES

No waiver of rights: No action or failure to act by Owner or A/E shall constitute a waiver of a right or duty afforded them under the Contract Documents, nor shall action or failure to act constitute approval or an acquiescence in a breach therein, except as may be specifically agreed in writing.

10.05 CONTRACTOR REGISTRATION

Contractor must be registered or licensed: Pursuant to RCW 39.06, Contractor shall be registered or licensed as required by the laws of the State of Washington, including but not limited to RCW 18.27.

10.06 TIME COMPUTATIONS

Computing time: When computing any period of time, the day of the event from which the period of time begins shall not be counted. The last day is counted unless it falls on a weekend or legal holiday, in which event the period runs until the end of the next day that is not a weekend or holiday. When the period of time allowed is less than 7 days, intermediate Saturdays, Sundays, and legal holidays are excluded from the computation.

10.07 RECORDS RETENTION

Six year records retention period: The wage, payroll, and cost records of Contractor, and its Subcontractors, and all records subject to audit in accordance with Section 8.03, shall be retained for a period of not less than 6 years after the date of Final Acceptance.

10.08 THIRD-PARTY AGREEMENTS

No third party relationships created: The Contract Documents shall not be construed to create a contractual relationship of any kind between: A/E and Contractor; Owner and any Subcontractor; or any persons other than Owner and Contractor.

10.09 ANTITRUST ASSIGNMENT

Contractor assigns overcharge amounts to Owner: Owner and Contractor recognize that in actual economic practice, overcharges resulting from antitrust violations are in fact usually borne by the purchaser. Therefore, Contractor hereby assigns to Owner any and all claims for such overcharges as to goods, materials, and equipment purchased in connection with the Work performed in accordance with the Contract Documents, except as to overcharges which result from antitrust violations commencing after the Contract Sum is established and which are not passed on to Owner under a Change Order. Contractor shall put a similar clause in its Subcontracts, and require a similar clause in its sub-Subcontracts, such that all claims for such overcharges on the Work are passed to Owner by Contractor.

10.10 HEADINGS AND CAPTIONS

Headings for convenience only: All headings and captions used in these General Conditions are only for convenience of reference, and shall not be used in any way in connection with the meaning, effect, interpretation, construction, or enforcement of the General Conditions, and do not define the limit or describe the scope or intent of any provision of these General Conditions.
PART IV

DOCUMENT 00730 SUPPLEMENTAL CONDITIONS
AS MODIFIED BY THE CITY OF TACOMA
# Table of Contents

## PART 1  GENERAL PROVISIONS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.01</td>
<td>DEFINITIONS</td>
</tr>
<tr>
<td>1.02</td>
<td>ORDER OF PRECEDENCE</td>
</tr>
<tr>
<td>1.03</td>
<td>EXECUTION AND INTENT</td>
</tr>
<tr>
<td>1.04</td>
<td>SUBSTITUTIONS</td>
</tr>
<tr>
<td>1.05</td>
<td>REQUEST FOR INFORMATION</td>
</tr>
<tr>
<td>1.06</td>
<td>OBJECTIONS TO APPLICATION OF PRODUCTS</td>
</tr>
<tr>
<td>1.07</td>
<td>DISQUALIFICATION OF BIDDERS</td>
</tr>
<tr>
<td>1.08</td>
<td>AWARD OF CONTRACT</td>
</tr>
<tr>
<td>1.09</td>
<td>UTILITY COORDINATION</td>
</tr>
<tr>
<td>1.10</td>
<td>MINIMUM EXPERIENCE REQUIREMENTS</td>
</tr>
<tr>
<td>1.11</td>
<td>TRAFFIC CONTROL</td>
</tr>
</tbody>
</table>

## PART 2  INSURANCE AND BONDS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.01</td>
<td>CONTRACTOR’S LIABILITY INSURANCE</td>
</tr>
<tr>
<td>2.02</td>
<td>COVERAGE LIMITS</td>
</tr>
<tr>
<td>2.03</td>
<td>INSURANCE COVERAGE CERTIFICATES</td>
</tr>
<tr>
<td>2.04</td>
<td>PAYMENT AND PERFORMANCE BONDS</td>
</tr>
<tr>
<td>2.06</td>
<td>BUILDER’S RISK</td>
</tr>
<tr>
<td>2.07</td>
<td>BID DEPOSIT</td>
</tr>
</tbody>
</table>

## PART 3  TIME AND SCHEDULE

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.01</td>
<td>PROGRESS AND COMPLETION</td>
</tr>
<tr>
<td>3.02</td>
<td>CONSTRUCTION SCHEDULE</td>
</tr>
<tr>
<td>3.05</td>
<td>DELAY</td>
</tr>
<tr>
<td>3.07</td>
<td>DAMAGES FOR FAILURE TO ACHIEVE TIMELY COMPLETION</td>
</tr>
<tr>
<td>3.08</td>
<td>SUSPENSION OF WORK</td>
</tr>
<tr>
<td>3.09</td>
<td>MAINTENANCE DURING SUSPENSION</td>
</tr>
<tr>
<td>3.10</td>
<td>EXECUTION OF CONTRACT - SCHEDULE</td>
</tr>
</tbody>
</table>

## PART 4  SPECIFICATIONS, DRAWINGS, AND OTHER DOCUMENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.01</td>
<td>DISCREPANCIES AND CONTRACT DOCUMENT REVIEW</td>
</tr>
<tr>
<td>4.03</td>
<td>SHOP DRAWINGS</td>
</tr>
<tr>
<td>4.05</td>
<td>OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS, AND OTHER DOCUMENTS</td>
</tr>
</tbody>
</table>

## PART 5  PERFORMANCE

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.01</td>
<td>CONTRACTOR CONTROL AND SUPERVISION</td>
</tr>
<tr>
<td>5.02</td>
<td>PERMITS, FEES AND NOTICES</td>
</tr>
<tr>
<td>Section</td>
<td>Title</td>
</tr>
<tr>
<td>---------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>5.04</td>
<td>PREVAILING WAGES</td>
</tr>
<tr>
<td>5.07</td>
<td>SAFETY PRECAUTIONS</td>
</tr>
<tr>
<td>5.10</td>
<td>UNFORESEEN PHYSICAL CONDITIONS</td>
</tr>
<tr>
<td>5.14</td>
<td>AVAILABILITY AND USE OF UTILITY SERVICES</td>
</tr>
<tr>
<td>5.15</td>
<td>TESTS AND INSPECTION</td>
</tr>
<tr>
<td>5.16</td>
<td>CORRECTION OF NONCONFORMING WORK</td>
</tr>
<tr>
<td>5.17</td>
<td>CLEAN UP</td>
</tr>
<tr>
<td>5.20</td>
<td>SUBCONTRACTORS AND SUPPLIERS</td>
</tr>
<tr>
<td>5.22</td>
<td>INDEMNIFICATION</td>
</tr>
</tbody>
</table>

**PART 6  PAYMENTS AND COMPLETION** .......................................................... 23

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.02</td>
<td>SCHEDULE OF VALUES</td>
<td>23</td>
</tr>
<tr>
<td>6.03</td>
<td>APPLICATION FOR PAYMENT</td>
<td>23</td>
</tr>
<tr>
<td>6.04</td>
<td>PROGRESS PAYMENTS</td>
<td>24</td>
</tr>
<tr>
<td>6.05</td>
<td>PAYMENTS WITHHELD</td>
<td>25</td>
</tr>
<tr>
<td>6.07</td>
<td>SUBSTANTIAL COMPLETION</td>
<td>25</td>
</tr>
<tr>
<td>6.09</td>
<td>FINAL COMPLETION, ACCEPTANCE, AND PAYMENT</td>
<td>26</td>
</tr>
</tbody>
</table>

**PART 7  CHANGES** .................................................................................. 26

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.01</td>
<td>CHANGE IN THE WORK</td>
<td>26</td>
</tr>
<tr>
<td>7.02</td>
<td>CHANGE IN THE CONTRACT SUM</td>
<td>28</td>
</tr>
<tr>
<td>7.03</td>
<td>CHANGES IN THE CONTRACT TIME</td>
<td>31</td>
</tr>
<tr>
<td>7.04</td>
<td>DELETED OR TERMINATED WORK</td>
<td>32</td>
</tr>
</tbody>
</table>

**Part 8  CLAIMS AND DISPUTE RESOLUTION** ............................................. 32

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.01</td>
<td>CLAIMS PROCEDURE</td>
<td>32</td>
</tr>
<tr>
<td>8.02</td>
<td>ARBITRATION</td>
<td>33</td>
</tr>
<tr>
<td>8.03</td>
<td>CLAIMS AUDIT</td>
<td>33</td>
</tr>
<tr>
<td>8.04</td>
<td>AUDIT</td>
<td>34</td>
</tr>
</tbody>
</table>

**PART 9  TERMINATION OF THE WORK** ..................................................... 34

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.01</td>
<td>TERMINATION BY OWNER FOR CAUSE</td>
<td>34</td>
</tr>
<tr>
<td>9.02</td>
<td>TERMINATION BY OWNER FOR CONVENIENCE</td>
<td>34</td>
</tr>
</tbody>
</table>

**PART 10  MISCELLANEOUS PROVISIONS** .................................................. 35

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.11</td>
<td>PROTECTION OF THE ENVIRONMENT</td>
<td>35</td>
</tr>
<tr>
<td>10.12</td>
<td>ASBESTOS</td>
<td>35</td>
</tr>
<tr>
<td>10.13</td>
<td>LEAD-BASED PAINT</td>
<td>35</td>
</tr>
<tr>
<td>10.14</td>
<td>COVID-19 REQUIREMENTS</td>
<td>36</td>
</tr>
</tbody>
</table>
PART 1 GENERAL PROVISIONS

1.01 DEFINITIONS

Replace Article F in Section 1.01 with the following:

F. “Contract Documents” means the Advertisement for Bids, Instructions for Bidders, completed Bid Form, General Conditions, Modifications to the General Conditions, Supplemental Conditions, Public Works Contract, other Special Forms, Drawings and Specifications, Payment Bond, Performance Bond, and all addenda and modifications thereof.

Replace Article H in Section 1.01 with the following:

H. “Contract Time” is the number of calendar days or the dates stated in the Contract to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Owner for final payment.

Replace Article O in Section 1.01 with the following:

O. “Notice” means a written or electronic notice which has been delivered to the individual or a member of the firm or entity or to an officer of the corporation for which it was intended or, if delivered or sent by registered or certified mail to the last business address known to the party giving notice.

Replace Article Q in Section 1.01 with the following:

Q. “Owner” means the City of Tacoma or its authorized representative with the authority to enter into, administer, and/or terminate the work in accordance with the Contract Documents and make related determinations and findings.

Add the following articles to Section 1.01 of the General Provisions:

AC. “Abbreviations” refer to trade association names and titles of general standards that are frequently abbreviated. Where such acronyms or abbreviations are used in the specifications or other contract documents, they mean recognized name of the trade association, standards generating organization, authority having jurisdiction, or other entity applicable to the context of the text provision. Refer to the "Encyclopedia of Associations" published by Gale Research Co., available in most libraries.

AD. “Advertisement for Bids” is equivalent to and used interchangeably with the term Advertisement for Proposals.

AE. “Allowance” is a predefined, not to exceed amount reserved for specific work packages. The Owner will define the scope of each work package, and Work shall not take place without Owner’s prior approval. All Work is subject to the Owner’s discretion, and Owner may delete all or portions of Allowance work without cost or penalty. The Work will be priced in accordance with the methods defined in Part 7 Changes.

AF. “Alternate Bid” (or Alternate) is an amount stated in the Bid to be added or deducted from the amount of the Base Bid if the corresponding change in project scope or materials or methods of construction described in the Bidding Documents is accepted by the Contracting Agency.
AG. “Base Bid” is the sum stated in the Bid Proposal Form for which the Bidder offers to perform the work described as the base, to which work may be added or deducted for sums stated in Alternate Bid and Unit Prices. The Base Bid does not include Force Account work and taxes.

AH. “Calendar Day” is the 24-hour period from midnight to midnight.

AI. “City” is the City of Tacoma.

AJ. “Construction Manager” is the Owner’s designated representative and is equivalent to, and used interchangeably with term “Project Representative”.

AK. “Contracting Agency” (or Owner) is the City of Tacoma.

AL. “Contract Provisions” is the publication addressing the work required for an individual project. At the time of the call for proposals, the contract provisions may include, for a specific individual project, the general conditions, supplements to the general conditions, the special provisions, a listing of the applicable standard plans, the prevailing minimum hourly wage rates, contract forms, affirmative action requirements, and EIC.

AM. “Engineer” is the City of Tacoma’s registered design professional who will act as the City’s authorized representative when so designated by the City.

AN. “Furnish” is used to mean supply and deliver to the project site, ready for unloading, unpacking, assembly, installation, and other.

AO. “Holiday(s)” means the following calendar days: January 1st, 3rd Monday of January, 3rd Monday of February, last Monday of May, June 19th, July 4th, 1st Monday of September, November 11th, 4th Thursday of November, Friday after 4th Thursday of November, December 25th. If a holiday is on a Saturday, the previous Friday will be observed as a holiday. If the holiday is on a Sunday, the following Monday will be observed as a holiday.

AP. “Indicated” refers to graphic representations, notes or schedules on the drawings, or other paragraphs or schedules in the specifications, and similar requirements in the Contract Documents. Where terms such as “shown,” “noted,” “scheduled,” and “specified” are used, it is to help the reader locate the reference; no limit on location is intended.

AQ. “Install” is used to describe operations at the project site including the actual unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

AR. “Installer” is the Contractor or an entity engaged by the Contractor, either as an employee, subcontractor, or Contractor of lower tier for performance of a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.

AS. “Milestone” means a principal event specified in the Contract Documents relating to an intermediate completion date or time for a Phase prior to Substantial Completion of all Work. Milestones may be adjusted at the sole discretion of the Owner.

AT. “Provide” means to purchase, manufacture, fabricate, deliver, furnish, install, complete, assemble, erect in place, test, render ready for use or operation, including necessary related material, labor, appurtenances, services, and incidentals.
AU. “Project Site” is the space available to the Contractor for performance of construction activities, either exclusively or in conjunction with others performing other work as part of the project. The extent of the project site is shown in the plans and may or may not be identical with the description of the land on which the project is to be built.

AV. “Request for Information” is a request from the Contractor to the Owner seeking an interpretation or a clarification of some requirement of the Contract Documents.

AW. “Unit Price” is an amount stated in the Bid as a price per unit of measurement for materials or services as described in the Contract Documents.

1.02 ORDER OF PRECEDENCE

Replace the entire Section 1.02 with the following provisions:

A. Any conflict or inconsistency in the Contract Documents shall be resolved by giving the documents precedence in the following order.

1. Signed Public Works Contract, including any Change Orders, and any Special Forms.
2. Addenda issued during the bidding period.
3. Supplemental Conditions as modified by the City of Tacoma (PART IV).
5. General Provisions (PART II)
6. Specifications – provisions in Division 1 shall take precedence over provisions of any other Division.
7. Drawings – in case of conflict within the Drawings, large scale drawings shall take precedence over small scale drawings.
8. Construction Documents Appendices.
10. Special Notice to Bidders.
11. Advertisement for Bids.

B. In the event there exists a conflict, inconsistency, or ambiguity within the terms or conditions of one of the Contract Documents categories set forth above, the more stringent or more costly requirements shall be deemed to have been intended and to have been included in the Original Contract Price.

1.03 EXECUTION AND INTENT

Replace Item 2 of Section 1.03 of the General Provisions with the following:

2. Contractor familiar with project: Contractor has carefully reviewed the Contract Documents, become familiar with the local conditions in which the Work is to be performed, and 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, as well as the surface and subsurface conditions and other matters that may be encountered at the Project site or affect performance of the Work or the cost or difficulty thereof. This includes, but is not limited to:

a. Examine and carefully study of the Contract Documents, including any Addenda and the other related data identified in the Contract Documents.

b. Become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

c. Become familiar with all federal, state, and local Laws and Regulations that may affect cost, progress, or performance of the Work.

d. Carefully study of all reports of exploration and tests of subsurface conditions at or contiguous to the Site, all drawings of physical conditions in or relating to existing surface structures at or contiguous to the Site (except Underground Facilities), and all Reference Documents.

e. Obtain and carefully study (or assume responsibility for doing so) examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site, including information known to Contractor doing business in the locality of the Site, which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents, and safety precautions and programs incident thereto.

f. Agree that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the proposal price bid and within the times and in accordance with the other terms and conditions of the Contract Documents.

g. Become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents;

h. Correlate the information known to proposer, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

i. Promptly give Owner written notice of all conflicts, errors, ambiguities, or discrepancies that proposer discovers in the Contract Documents and confirm that the written resolution thereof by Owner is acceptable to Contractor.

j. Determine that the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

Add the following new Item to Section 1.03 of the General Provisions:
5. The intent of the Contract is to describe a complete project. Omissions from the Contract of details of work, which are necessary to carry out the Contract, shall not relieve the Contractor from providing a complete and functional project.

1.04 SUBSTITUTIONS

Add the following new Section 1.04 to General Provisions:

A. Substitution Requests made after Award of Contract: Requests for approval of substitute materials or products will not be considered, except if one or more of the following conditions exists.

1. Indicate one or more reasons why substitution is required with Substitution Request.
   a. Unavailability: A substitution is required because the specified item is not available, due to factors beyond the control of the Contractor or subcontractor. The request will not be considered if the product or method cannot be provided as a result of failure to pursue the work promptly or coordinate activities properly.
   b. Unsuitability: Subsequent information or changes disclose inability of the specified item to perform as intended, and where the Contractor certifies that the proposed substitution will overcome such non-performance.
   c. Regulatory Requirements: Final interpretations of Code, regulatory requirements, safety requirements, or insurance requirements necessitate a change to due inability of the specified item to conform, and the proposed substitution can be approved.
   d. Warranty: Manufacturer or fabricator cannot certify or warrant performance of specified item as required, and where the Contractor certifies that the proposed substitution will provide the required warranty.
   e. Owner's Benefit: Acceptance of the proposed substitution is clearly in the Owner's best interest because of cost, quality, or other consideration. In requesting a substitution under this clause, the Contractor shall furnish substantiation of any such reason.

2. During the construction period, Contractor will be notified in writing of decision to accept or reject the Substitution Request by the Owner. Permission to make any substitution after award of Contract shall be effected by a Change Order.

3. The Contractor shall accompany any request for substitution with such drawings, specifications, samples, manufacturer's literature, performance data, and other information necessary to describe and evaluate the proposed substitution completely as defined in Section 01_60_00 of the Technical Specifications. The burden of proof shall be on the Contractor.

4. Redesign and Coordination: In making request for approval of substitute materials, the Contractor must represent that it has investigated the proposed product and, in its opinion, it is equal or equivalent in all respects to that specified. Also, Contractor will coordinate all trades including changes thereto as may be required, that it waives all claims for additional costs which subsequently become apparent as a consequence of the substitution and that it will bear all costs related hereto, including costs of Owner's Representative's services for extensive investigation and for redesign if deemed necessary.
5. Substitutions will not be considered if they are indicated or implied on Shop Drawings or other project data submittals, without proper notice shown on attached form.

6. Where the phrase "or equal" or "equal as approved by the Engineer" occurs in the Contract Documents, do not assume that the materials, equipment, or methods will be approved as equal unless the item has been specifically so approved for this work by the Owner. This applies to all items and materials on this project. The decision of the Owner shall be final and binding.

1.05 REQUEST FOR INFORMATION

Add the following new Section 1.05 to General Provisions:

A. If the Contractor determines that some portion of the drawings, specifications or other Contract Documents require clarification or interpretation by the Owner because of an apparent error, inconsistency, omission, or lack of clarity in the Contract, the Contractor shall promptly submit a Request For Information (RFI) and, unless otherwise directed, shall not proceed with the affected Work until the Owner has responded to the RFI. The Contractor shall plan its work in an efficient manner so as to allow for timely responses to RFIs.

B. RFIs shall only be submitted by the Contractor utilizing e-Builder as described in Specification Section 01_31_24. The Contractor shall clearly and concisely set forth the issue for which clarification or interpretation is sought and why a response is needed by the Owner. In the RFI the Contractor shall set forth its own interpretation or understanding of the requirement along with reasons why it reached such an understanding and any adjustments recommended to proceed with the Work.

C. The Owner will review RFIs to determine whether they meet the requirements identified above in paragraph B to qualify as an RFI. If the Owner determines that the document is not an RFI it will be returned to the Contractor unreviewed as to content. When appropriate the Contractor may resubmit the RFI, with all required information and in the proper manner.

D. The Owner shall respond in writing within fourteen (14) calendar days to Contractor’s RFI.

1. At the request of the Owner, the Contractor shall prioritize its RFIs, identify a date by which the Contractor prefers the RFI be answered, and reasons for such priority.

2. If the Contractor submits a RFI on an activity less than twenty-one (21) days prior to the commencement of that activity, the Contractor shall not be entitled to any time extension or adjustment in Contract Price due to the time it takes the Owner to respond to the RFI provided that the Owner responds within fourteen (14) days. No delay to the Contractor’s work or damages to the Contractor shall be attributable to the failure by the Owner to respond to the RFI until fourteen (14) days after the Owner’s receipt of the RFI, and then only if the failure by the Owner to respond is unreasonable and affects the Contract completion date.

E. The Owner’s response to a RFI shall not be considered a change to the Contract requirements. To the extent the Contractor believes that the Owner’s response to the RFI constitutes changed work impacting Contract Price or Contract Time, the Contractor shall submit a Contractor’s Change Order Proposal.

1.06 OBJECTIONS TO APPLICATION OF PRODUCTS

Add the following new Section 1.06 to the General Provisions:
A. Bidders are required to thoroughly familiarize themselves with specified products and installation procedures and submit to the Owner any objections (in writing) no later than 10 days prior to the Bid Submittal Date. Submittal of Bid constitutes acceptance of products and procedures specified.

1.07 DISQUALIFICATION OF BIDDERS

Add the following new Section 1.07 to the General Provisions:

A. A Bidder may be deemed non-responsive and the bid proposal rejected by the Owner for any of the following reasons:

1. More than one bid proposal is submitted for the same project from a Bidder under the same or different name;

2. Evidence of collusion exists with any other Bidder. Participants in collusion will be restricted from submitting further bids;

3. A Bidder is not qualified for the work or to the full extent of the bid requirements;

4. An unsatisfactory performance record exists based on past or current work;

5. There is uncompleted work which might hinder or prevent the prompt completion of the proposed work;

6. The Bidder failed to settle bills for labor or materials on past or current contracts;

7. The Bidder has failed to complete a written public contract or has been convicted of a crime arising from a previous public contract;

8. The Bidder is unable, financially or otherwise, to perform the work;

9. A Bidder is not authorized to do business in the state of Washington;

10. Failure by the Bidder to properly review the project documents and/or site;

11. Submittals are not provided in the time specified;

12. The Bidder fails to meet the EIC requirements as described in these documents;

13. Receipt of addenda is not acknowledged;

14. Bidder is unable to provide acceptable bonding;

15. The Bidder fails to submit the Statement of Qualifications Project Experience Form;

16. The Bidder fails to meet the requirements of the Statement of Qualifications Project Experience Form;

17. The Bidder adds provisions reserving the right to reject or accept the award, or enter into the Contract;

18. The authorized proposal form furnished by the Contracting Agency is not used or altered;

19. The completed proposal form contains any unauthorized additions, deletions, alternate Bids, or conditions;

20. The Proposal form is not properly executed;

21. The Bidder fails to complete and submit the forms included in the Bid Submittal Package;

22. The Bidder is suspended, debarred, proposed for debarment, declared ineligible, or otherwise excluded from contracting with the federal government; or

23. There are any other reasons deemed proper by the Owner.
1.08 AWARD OF CONTRACT

Add the following new Section 1.08 to the General Provisions:

A. The Owner reserves the right to Award, in any order or combination, such Additives, Deductives, or Alternates, as may be set forth in the Bid Forms.

B. The award procedure is governed by the City’s formal bidding regulations, which includes final approval by the City Council. Normally, contract award or rejection will occur within 60 days after the Bid opening.

1.09 UTILITY COORDINATION

Add the following new Section 1.09 to the General Provisions:

A. The Contractor is responsible for location of private underground utilities within the private property which are not maintained by an outside utility company, and which are not located through the One Call Locators Service.

1. The Contractor shall provide and pay for a private locator service to locate private utilities.

1.10 MINIMUM EXPERIENCE REQUIREMENTS

Add the following new Section 1.10 to the General Provisions:

A. The Bidder shall submit, as part of its Bid Submittal Package, the completed Statement of Qualifications Project Experience Form to demonstrate compliance with the minimum experience requirements. The City reserves the right to request clarifying or additional information.

B. The Statement of Qualifications Project Experience Form shall be completed in its entirety and submitted with the Bid Submittal Package. Failure to submit and meet the requirements shall be grounds for rejection of the bid. The City of Tacoma shall solely determine if a Bidder meets the minimum experience requirements.

C. The Bidder shall meet the following minimum experience requirements:

1. Cathodic Protection Contractor: The contractor performing the cathodic protection improvements, whether as Bidder or subcontractor, shall demonstrate successful experience and competence on a minimum of three (3) completed deep anode groundbed installations within the past five (5) years, either as the general contractor or subcontractor, each with a minimum groundbed depth of 200 feet, where they provided work such as anode placement and installation, cathodic protection equipment procurement and installation, temporary power/coordination of outages/ cutovers, cable splicing, field-testing, and start-up. Furthermore, this contractor will be responsible for performing all cathodic protection work indicated in the Contract Documents.

1.11 TRAFFIC CONTROL

Add the following new Section 1.11 to the General Provisions:

A. All road closures, obstructions, or detours will require approval by the Owner and the City of Tacoma Planning and Development Services Department. The Contractor must submit a written request 72-hours in advance of any planned work that will impact a roadway. There is no guarantee that such request will be granted.
SUPPLEMENTAL CONDITIONS AS MODIFIED BY THE CITY OF TACOMA

B. The design, construction, and maintenance of all detours, including traffic control, traffic control signage, and ADA access and pedestrian access is the sole responsibility of the Contractor. This includes detours both outside the limits of the project and within the limits of the project.

C. For any road closures, obstructions, or detours, the Contractor shall submit a traffic control plan for approval by the Owner and City of Tacoma Planning and Development Services Department. The detour plan shall be in accordance with the City of Tacoma Traffic Control Handbook, Manual on Uniform Traffic Control Devices (MUTCD), state standard specifications, and these specifications.

D. The Contractor shall be responsible for obtaining all permits from the City of Tacoma Planning and Development Services Department necessary to implement the traffic control plan.

PART 2 INSURANCE AND BONDS

2.01 CONTRACTOR’S LIABILITY INSURANCE

Delete this section and replace with the following:

Contractor shall obtain all insurance policies, coverages, and terms included in the City of Tacoma Insurance Requirements in Part V of the Specifications.

Owner as Additional Insured: All insurance coverages shall be endorsed to include the Owner as an additional insured for Work performed in accordance with the Contract Documents, and all insurance certificates shall evidence the Owner as an additional insured.

2.02 COVERAGE LIMITS

Delete this section and replace with the following:

Contractor shall obtain all insurance policies, coverages, and terms included in the City of Tacoma Insurance Requirements in Part V of the Specifications.

2.03 INSURANCE COVERAGE CERTIFICATES

Delete this section and replace with the following:

Contractor shall obtain all insurance policies, coverages, and terms included in the City of Tacoma Insurance Requirements in Part V of the Specifications.

2.04 PAYMENT AND PERFORMANCE BONDS

Replace the entire Section 2.04 with the following:

A Payment and a Performance Bond shall be obtained by the Contractor utilizing the forms entitled “Payment Bond to the City of Tacoma” and “Performance Bond to the City of Tacoma” as found at the front of the Contract Documents under Part I Bid Proposal and Contract Forms. Contractor shall provide a Payment and a Performance Bond, including power of attorney, for 100 percent of the amount of the Bid (including sales tax) per RCW 39.08, securing performance of work; all Contract obligations; materials, and payment of laborers, manufacturers, and subcontractors. Contractor shall include in its bid the bond costs required to complete the base work, accepted alternates, and sales tax.
In the event that the Contractor intends to have a subcontractor perform all or a portion of the project, the Contractor should consider requiring its own performance bond from the subcontractor to guarantee successful performance of this project component.

2.06 BUILDER’S RISK

Replace Article A of Section 2.06 with the following:

A. Contractor shall obtain all insurance policies, coverages, and terms included in the City of Tacoma Insurance Requirements in Part V of the Specifications.

Delete Articles B and C.

2.07 BID DEPOSIT

Add the following new Section 2.07 to Insurance and Bonds:

A. A deposit of at least 5 percent of the total Bid shall accompany each Bid. This deposit may be cash, certified check, cashier’s check, or a proposal bond (Surety bond). Any proposal bond shall be on the Contracting Agency’s form and shall be signed by the Bidder and the Surety. A proposal bond shall not be conditioned in any way to modify the minimum 5 percent required. The Surety shall: (1) be registered with the Washington State Insurance Commissioner, and (2) appear on the current Authorized Insurance List in the State of Washington published by the Office of the Insurance Commissioner.

B. The failure to furnish a Bid deposit of a minimum of 5 percent shall make the Bid nonresponsive and shall cause the Bid to be rejected by the Contracting Agency.

C. If submitting the Bidder submits their bid electronically, a scanned version of the original bid bond or cashier’s check shall accompany their electronic bid submittal. The original bid bond or cashier’s check shall be sent to the Contracting Agency and received by the Contracting Agency within 7 calendar days of the bid opening or the bidder may be deemed non-responsive.

Original bid bonds or cashier’s check will be delivered to:

City of Tacoma Procurement & Payables Division
Tacoma Public Utilities
3628 S 35th St
Tacoma, WA 98409

D. If so stated in the Contract Provisions, cash will not be accepted for a bid deposit.

PART 3 TIME AND SCHEDULE

3.01 PROGRESS AND COMPLETION

Replace the entire Section 3.01 with the following:

Contractor to meet schedule: Contractor shall diligently prosecute the Work, with adequate forces, achieve Substantial Completion within the Contract Time, and achieve Final Completion as defined in the Contract Documents.
3.02 CONSTRUCTION SCHEDULE

Delete Section 3.02 in its entirety. Refer to Specification Section 01_32_16 Progress Schedules and Reports for requirements related to the construction schedule:

3.05 DELAY

Replace the entire Section 3.05 with the following:

A. Avoidable delays in the prosecution or completion of the Work shall include all delays that might have been avoided by the exercise of care, prudence, foresight, or diligence on the part of the Contractor. Avoidable delays may include, but are not limited to:
   1. Reasonable loss of time resulting from the necessity of submitting drawings or plans to the Owner or permitting agency for review,
   2. Collecting survey/field/analytical information,
   3. Site management and coordination,
   4. Measurements and inspections,
   5. Subcontractor management,
   6. Such interruptions as may occur in the prosecution of the Work on account of the interference of other Contractors employed by the Owner, and
   7. Loss of time due to weather.

These delays, which may interrupt the prosecution of parts of the Work, while at the time may be unavoidable but do not necessarily prevent or delay the prosecution of other parts of the Work, or prevent the completion of the whole Work within the time herein specified, will be deemed avoidable within the meaning of this contract.

B. Unavoidable delays in the prosecution of completion of the Work under this contract shall include all delays which may result through causes beyond the control of the Contractor, and which he could not have provided against by the exercise of care, prudence, foresight, or diligence. Unavoidable delays shall hereinafter be referred to as “Force Majeure”.

Force Majeure include, but are not limited to:
   1. Acts of God or the public enemy;
   2. Fire or other casualty for which Contractor is not responsible;
   3. Quarantine or epidemic;
   4. Strike or defensive lockout;
   5. Orders issued by the Owner changing the amount of Work to be accomplished in excess of 25% per single change;
   6. Failure of the Owner to provide rights-of-entry.

These delays shall be considered unavoidable so far as they necessarily interfere with the Contractor’s completion of the whole Work.

C. Whenever the Contractor foresees any delay in the prosecution of the Work, and in any event immediately upon the occurrence of any such delay, the Contractor shall submit a written notice to the Owner as provided in Section 7.02 of the General Conditions. The Owner may determine whether the delay is to be considered avoidable or unavoidable, how long it continues, and to what extent the prosecution and completion of the Work are to be delayed thereby.
Contractor may be entitled to an equitable adjustment in the Contract Sum, if the cost or time of Contractor's performance is changed due to the fault or negligence of Owner, provided the Contractor makes a request according to sections 7.02 and 7.03.

After the completion of any part or the whole of the Work, the Owner, in approving the amount due the Contractor, will assume that any and all delays which have occurred in its prosecution and completion have been avoidable, except such delays as shall have been called to the attention of the Owner in writing at the time of their occurrence, and later found by the Owner to have been unavoidable. The Contractor shall make no claims that any delay not called to the attention of the Owner, in writing, at the time of its occurrence has been and unavoidable delay ("Force Majeure").

D. For delays which are unavoidable ("Force Majeure"), as determined by the City, an extension of time beyond the time specified for completion will be allowed, within which to complete the Contract. The Contractor will not be charged, because of any extension of time for such unavoidable delay, any liquidated damages or engineering and related costs, as are charged in the case of avoidable delays. Contractors overhead cost associated with “Force Majeure” are excluded from equitable adjustment.

E. If the Work called for under this Contract is not finished and completed by the Contractor, in all parts and in accordance with all requirements in the time specified, including extensions of time granted because of an unavoidable delay; the Contractor will be charged liquidated damages, or direct engineering and related costs as provided for in the Standard Specifications.

In addition, the City shall charge to the Contractor, and may deduct from the final payment for the Work, all engineering and related costs incurred by the City in connection with the Work during the period of such extension or extensions. The City shall make the final determination as to the appropriateness of charges required to complete the Work.

F. The granting of any extension of time on account of delays, which in the judgment of the Owner are avoidable delays, shall in no way operate as a waiver on the part of the Owner of its rights under this contract.

3.07 DAMAGES FOR FAILURE TO ACHIEVE TIMELY COMPLETION

Add the following items 4 and 5 to the end of Article A of Section 3.07 of Time and Schedule:

4. Time is of the essence on the Contract. Delays inconvenience the City's daily operation and add undue time and cost required for administration, engineering, inspection, and supervision. Accordingly, the Contractor agrees to pay liquidated damages, according to the formula below, for each calendar day beyond the number of calendar days or date established for each Milestone Completion or Substantial Completion until associated Completion has been achieved, and to authorize the Owner to deduct these liquidated damages from any money due or coming due to the Contractor.

LIQUIDATED DAMAGES FORMULA

\[ LD = \frac{0.20 \times C}{T} \]
SUPPLEMENTAL CONDITIONS AS MODIFIED BY THE CITY OF TACOMA

Where:  
LD = Liquidated damages per calendar day  
C = Original contract amount (excluding sales tax)  
T = Original time for Milestone or Substantial completion

5. When the contract work has progressed to the extent that the City and Husky Terminal has full use and benefit of their facilities, both from the operational and safety standpoint, and only minor incidental work, replacement of temporary substitute facilities, or correction or repair remains to physically complete the total contract, the City may determine the work is substantially complete. The City will notify the Contractor in writing of the substantial completion date. For overruns in contract time occurring after the substantial completion date, liquidated damages shall be assessed on the basis of direct engineering and related costs assignable to the project until the final completion date of all contract work. The Contractor shall complete the remaining work as promptly as possible.

3.08 SUSPENSION OF WORK

Add the following new Section 3.08 to Part 3 Time and Schedule:

A. The Owner may order suspension of all or any part of the work if the Contractor does not comply with the Contract or the Owner’s orders.

B. When ordered by the Owner to suspend or resume work, the Contractor shall do so immediately.

C. If the work is suspended, the period of work stoppage will be counted as calendar days. The lost work time, however, shall not relieve the Contractor from any contract responsibility.

D. If the performance of all or any part of the work is suspended, delayed, or interrupted for an unreasonable period of time by an act of the Owner in the administration of the contract, or by failure to act within the time specified in the contract (or if no time is specified, within a reasonable time), the Owner will make an adjustment for any increase in the cost or time for the performance of the contract (excluding profit, overhead, home office expense, supervisory personnel labor not specifically assigned to the project) necessarily caused by the suspension, delay, or interruption. However, no adjustment will be made for any suspension, delay, or interruption if (1) the performance would have been suspended, delayed or interrupted by any other cause, including the fault or negligence of the Contractor, or (2) an equitable adjustment is provided for or excluded under any other provision of the contract.

E. If the Contractor believes that the performance of the work is suspended, delayed, or interrupted for an unreasonable period of time and such suspension, delay, or interruption is the responsibility of the Owner, the Contractor shall immediately submit a written request for equitable adjustment to the Owner as provided in section 7.02. No adjustment shall be allowed for any costs incurred more than 20 calendar days before the date the Owner receives the Contractor’s written request for equitable adjustment. If the Contractor contends damages have been suffered as a result of such suspension, delay, or interruption, the protest shall not be allowed unless the request for equitable adjustment (stating the amount of damages) is asserted in writing as soon as practicable, but no later than the date of Final Completion. The Contractor shall keep full and complete records of the costs and additional time of such suspension, delay, or interruption and shall permit the Owner to have access to those records and any other records as may be deemed necessary by the Owner to assist in evaluating the protest.

F. The Owner will determine if an equitable adjustment in cost or time is due as provided in this section. The equitable adjustment for increase in costs, if due, shall be subject to the
limitations provided in Section 7.02, provided that no profit of any kind will be allowed on any increase in cost necessarily caused by the suspension, delay, or interruption.

G. Request for extensions of time will be evaluated in accordance with Section 7.03.

H. No claim by the Contractor under this clause shall be allowed unless the Contractor has followed the procedures provided in this Section and Sections 7.02 and 7.03.

I. The Contractor shall notify the surety of all claims.

3.09 MAINTENANCE DURING SUSPENSION

Add the following new Section 3.09 to Part 3 Time and Schedule:

A. Before and during any suspension (as described in Section 3.08) the Contractor shall protect the work from damage, deterioration, or collapse. Suspension shall not relieve the Contractor from anything the contract requires unless this section states otherwise.

B. At no expense to the Owner, the Contractor shall provide a safe and unobstructed facility access for ongoing streets, CTP, and Husky Terminal operation. This may include temporary facilities, temporary access, or removal of incomplete work if left in an unsafe condition. The Contractor shall ensure existing systems are operational, functional, and safe in order to continue operations throughout the suspension.

C. If the Owner determines that the Contractor failed to pursue the work diligently before the suspension, or failed to comply with the Contract or orders, then the Owner may determine that the Contractor shall maintain the facility during suspension and maintain compliance with the CTP’s NPDES permit. In this case, the Contractor shall bear the maintenance costs. If the Contractor fails to maintain the facility, the Owner will do the work and deduct all resulting costs from payments due to the Contractor.

D. If the Owner determines that the Contractor has pursued the work diligently before the suspension, then the Contracting Agency will do the routine maintenance work (and bear its cost). This Owner-provided maintenance work will include only routine maintenance of the building services and equipment operation including routine maintenance necessary for the facility to operate and maintain compliance with the CTP’s NPDES permit.

E. The Contractor shall protect and maintain (and bear the costs of doing so) all other work in areas secured at the time of the suspension.

F. After any suspension during which the Owner has done the routine maintenance, the Contractor shall accept the area and facilities when work resumes, the Contractor shall make no claim against the Owner for the condition of the sites.

G. After any suspension, the Contractor shall retain all responsibilities the contract assigns for repairing or restoring the construction area to the requirement of the plans.

3.10 EXECUTION OF CONTRACT - SCHEDULE

Add the following new section 3.10 to Part 3 Time and Schedule:

A. Contracts will be signed electronically through DocuSign. The Contracting Agency will provide a draft copy of the contract for the successful Bidder’s Surety to obtain the performance and payment bonds. Copies of the Contract Provisions, including the draft Contract, will be available for electronic signature by the successful Bidder within 5 business
days following award. Within 10 calendar days after the award date, the successful Bidder shall return the signed contract documents including the contract, insurance certification and related endorsements, and satisfactory bonds as required.

B. The Contracting Agency will review the bonds, insurance documents, contractor submittals, and contract for conformance. The approved documents will be routed through DocuSign for final approval and signature by the Contracting Agency.

C. Until the Contracting Agency executes a contract, no proposal shall bind the Contracting Agency nor shall any work begin within the project limits or within Contracting Agency-furnished sites. The Contractor shall bear all risks for any work begun outside such areas and for any materials ordered before the contract is executed by the Contracting Agency.

D. If the Bidder experiences circumstances beyond their control that prevents return of the contract documents within 10 calendar days after the award date stated above, the Contracting Agency may grant up to a maximum of 2 additional calendar days for return of the documents, provided the Contracting Agency deems the circumstances warrant it.

PART 4 SPECIFICATIONS, DRAWINGS, AND OTHER DOCUMENTS

4.01 DISCREPANCIES AND CONTRACT DOCUMENT REVIEW

Replace Articles A, B, and C with the following:

A. Specifications and Drawings are basis of the Work: The Specifications and Drawings describe a complete Project to be constructed in accordance with the Contract Documents. Contractor shall furnish all labor, materials, equipment, tools, transportation, permits, and supplies, and perform the Work required in accordance with the Drawings, Specifications, and other provisions of the Contract Documents.

B. Parts of the Contract Documents are complementary: The Contract Documents are complementary. What is required by one part of the Contract Documents shall be binding as if required by all. Anything mentioned in the Specifications and not shown on the Drawings, or shown on the Drawings and not mentioned in the Specifications, shall be of like effect as if shown or mentioned in both, and the stricter or greater requirement of either the Specifications or Drawings shall govern.

C. Contractor knowledge of discrepancy in document – responsibility: The Contractor to report discrepancies in Contract Documents: Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by Owner. If, during the performance of the Work, Contractor finds a conflict, error, inconsistency, or omission in the Contract Documents, it shall promptly (within 72 hours) and before proceeding with the Work affected thereby, report such conflict, error, inconsistency, or omission to A/E in writing

Delete Article E in its entirety.

4.03 SHOP DRAWINGS

Replace Article E with the following:

E. Contractor to submit Shop Drawings electronically: Unless otherwise provided in Specification Section 01_33_30, the Contractor shall submit to Owner for approval Shop Drawings electronically through e-BUILDER.
4.05 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS, AND OTHER DOCUMENTS

Add the following to Article B of Section 4.05 of Specifications, Drawings, and Other Documents:

Owner shall furnish to Contractor up to 8 copies of conformed Contract Documents incorporating and integrating all Addenda and any amendments negotiated prior to the Effective Date of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies of the conformed Contract Documents will be furnished upon request at the cost of reproduction.

PART 5 PERFORMANCE

5.01 CONTRACTOR CONTROL AND SUPERVISION

Add the following provision to Article B of Section 5.01 of Performance:

A supervisor with authority to act for the Contractor must be on site when work is taking place.

5.02 PERMITS, FEES AND NOTICES

Add the following Articles to Section 5.02 of Performance:

D. Electrical Permit: The Contractor shall prepare and submit the necessary documentation to obtain an electrical permit from Tacoma Power. The Owner will pay electrical permit fee(s), but the Contractor shall act as the Permit Holder and be responsible for securing the permit, coordinating new services with Tacoma Public Utilities (TPU), and scheduling inspections and shutdowns. Fees for this permit should not be included in the Contractor's Price Proposal.

E. Right of Way Construction Permit: The Owner and the Contractor shall prepare and submit the necessary documentation to obtain a Right of Way Construction Permit from the City of Tacoma Planning and Development Services for all sites located in the City of Tacoma Right of Way. The Contractor will prepare the Traffic Control Plans and secure a Right of Way Bond. The Owner will prepare all other documentation and submit for the permit. The Owner will pay all permit fee(s), but the Contractor shall act as the Permit Holder and be responsible for performing all work and scheduling inspections. Fees for this permit should not be included in the Contractor’s Price Proposal; however, the Contractor shall be responsible for all costs associated with the Right of Way Bond.

F. The Contractor shall submit copies of each permit required on the project to the Owner’s representative. Nothing in this part shall be construed as imposing a duty upon the Owner to secure permits.

5.04 PREVAILING WAGES

Replace the entire Article F of Section 5.04 with the following:

F. Contractor to pay for Statements of Intent and Affidavits: In compliance with chapter 296-127 WAC, Contractor shall pay to the Department of Labor and Industries the currently established fee(s) for each statement of intent and/or affidavit of wages paid submitted to the Department of Labor and Industries for certification. The Contractor shall use the label
“Tacoma, City of” when adding the project to the Department of Labor and Industries’ Awarding Agency Portal website.

Add the following Article to Section 5.04 of Performance:

H. Copies of approved Intents to Pay Prevailing Wages for the Contractor and all subcontractors shall be submitted with the Contractor’s first application for payment. As additional subcontractors perform work on the project, their approved Intent forms shall be submitted with the Contractor’s next application for payment. The Owner reserves the right to withhold payment for failure to provide Intent to Pay Prevailing Wages forms.

1. The Contractor and all subcontractors shall promptly submit to the Owner certified payroll copies with monthly progress payments. Payment will be withheld if certified payroll copies are not provided with progress payments.

5.07 SAFETY PRECAUTIONS

Replace the entire Article A of Section 5.07 with the following:

A. In performing this contract, the Contractor shall provide for protecting the lives and health of employees and other persons; preventing damage to property, materials, supplies, and equipment; and avoid work interruptions. For these purposes, the Contractor shall:

1. Follow Washington Industrial Safety and Health Act (WISHA) regional directives and provide a site-specific safety program that will require an accident prevention and hazard analysis plan for the Contractor and each subcontractor on the work site. The Contractor shall submit a site-specific safety plan to the Owner’s representative prior to the initial scheduled construction meeting.

2. Provide adequate safety devices and measures including, but not limited to, the appropriate safety literature, notice, training, permits, placement and use of barricades, signs, signal lights, fall protection, ladders, scaffolding, staging, runways, hoist, construction elevators, shoring, temporary lighting, grounded outlets, wiring, hazardous materials, vehicles, construction processes, and equipment required by Chapter 19.27 RCW, State Building Code (Uniform Building, Electrical, Mechanical, Fire, and Plumbing Codes); Chapter 212-12 WAC, Fire Marshal Standards, Chapter 49.17 RCW, WISHA; Chapter 296-155 WAC, Safety Standards for Construction Work; Chapter 296-65 WAC; WISHA Asbestos Standard; WAC 296-62-071, Respirator Standard; WAC 296-62, General Occupation Health Standards, WAC 296-24, General Safety and Health Standards, WAC 296-24, General Safety and Health Standards, Chapter 49.70 RCW, and Right to Know Act.

3. Comply with the State Environmental Policy Act (SEPA), Clean Air Act, Shoreline Management Act, and other applicable federal, state, and local statutes and regulations dealing with the prevention of environmental pollution and the preservation of public natural resources.

4. Post all permits, notices, and/or approvals in a conspicuous location at the construction site.

5. Provide any additional measures that the Owner determines to be reasonable and necessary for ensuring a safe environment in areas open to the public. Nothing in this part shall be construed as imposing a duty upon the Owner to prescribe safety conditions relating to employees, public, or agents of the Contractors.
6. All construction personnel shall wear high visibility reflective vests, hardhats, and other appropriate personal protective equipment in accordance with the Contractor’s Safety Plan while on the Project Site.

5.10 UNFORESEEN PHYSICAL CONDITIONS

Replace Article A of Section 5.10 with the following:

A. Notice requirement for concealed or unknown conditions: If Contractor encounters conditions at the site which are subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents, or unknown physical conditions of an unusual nature which 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, then Contractor shall give written notice to Owner promptly and in no event later than 2 days after the first observance of the conditions. Conditions shall not be disturbed prior to such notice.

5.14 AVAILABILITY AND USE OF UTILITY SERVICES

Replace the entire Section 5.14 with the following:

A. Contractor to provide utilities: Unless otherwise indicated in the Contract Documents, the Contractor shall be responsible for providing all temporary utilities needed to complete the Work. Contractor responsible for coordinating all temporary and permanent utility services included in the Work. Contractor shall carefully conserve any utilities furnished. Contractor is responsible for removing temporary service prior to Substantial Completion.

5.15 TESTS AND INSPECTION

Replace Article A of Section 5.15 with the following:

A. General requirements for tests and inspections: Unless specifically noted otherwise in the technical specifications, the Owner will retain the services of one or more independent third-parties to perform specialty testing and specialty inspections such as those performed by a certified testing laboratory. The Contractor shall coordinate and schedule the inspections and tests directly with the testing agency. The Owner will pay for all tests that are favorably reviewed per the Contract requirements. The Contractor shall bear all costs for any non-conforming work, including the cost of re-testing required as a result of non-conforming work. In addition to specialty inspections, the Contractor shall be responsible for all other testing as specified and quality surveillance of all its work and all work performed by any Subcontractor. Contractor shall maintain complete inspection records and make them available to Owner.

Add the following Article to Section 5.15 of Performance:

E. Tests and Inspections shall include the following minimum requirements:

1. Preparatory Inspection (pre-installation meetings) shall be performed prior to beginning any work and shall include:
   a. Review applicable Contract Documents to verify that all materials have been tested, submitted and approved and that all Contractual provisions have been met for the control of inspection and testing;
   b. Examine the work area to verify that all required preliminary work has been completed and complies with contractual requirements;
c. Physically examine required materials, equipment and sample work to verify conformance with approved shop drawings and/or submitted data, and that materials and equipment are properly stored;

d. Discuss (with Owner and Contractor) procedures for constructing the work, including repetitive deficiencies, construction tolerances and workmanship standards specified in the documents.

2. Initial Inspection shall be performed as soon as work begins on a definable feature of the Project in order to accomplish the following:
   a. Review preliminary work to verify compliance with contractual requirements;
   b. Verify that required control inspection and testing is underway and meets contractual requirements;
   c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards, and that completed work compares favorably with sample work;
   d. Resolve all differences;
   e. Repeat this initial inspection phase for each new crew on site performing the work, or any time standards are not being met.

3. Follow-Up Inspections shall be performed daily to verify continuing compliance with contract requirements, including control testing, until completion of the particular feature of work.

4. Tests: Perform all operation and acceptance tests, where specified, to verify that control measures are in compliance with contractual requirements.

5.16 CORRECTION OF NONCONFORMING WORK

Replace the entire article I with the following:

I.  Owner may accept non-conforming Work and charge Contractor: If Owner prefers to accept Work which is not in accordance with the requirements of the Contract Documents, Owner may do so instead of requiring its removal and correction, in which case the Contract Sum may be reduced as appropriate and equitable, as determined by the Owner, without recourse by the Contractor.

5.17 CLEAN UP

Add the following provision to Section 5.17 of Performance:

Contractor shall supply and maintain appropriately sized container for storing waste materials and bear all costs for storing, transportation, and disposal.

5.20 SUBCONTRACTORS AND SUPPLIERS

Replace the entire Article B of Section 5.20 with the following:

B. Before submitting the first Application for Payment, Contractor shall furnish in writing to Owner on Owner provided form(s) the names, addresses, telephone numbers, and Tax Identification Numbers (TIN) of all subcontractors, as well as suppliers providing materials in excess of $2,500.00. The Contractor shall designate whether any of the subcontractors/suppliers are EIC firms, and indicate the anticipated dollar value of each EIC subcontract. Contractor shall utilize subcontractors and suppliers, which are experienced and
qualified, and meet the requirements of the Contract Documents, if any. Contractor shall not utilize any subcontractor or supplier to whom the Owner has a reasonable objection, and shall obtain Owner’s written consent before making any substitutions or additions to the submitted subcontractors and suppliers.

_add Articles F-I to Section 5.20 of Performance:

F. The LEAP and EIC Programs have been adopted by the City to counteract economic and social ills, which accompany high rates of unemployment within the City of Tacoma.
   1. The Tacoma City Council established the LEAP Program for Public Works Contracts pursuant to City of Tacoma Ordinance No. 28520. The primary goal for this program is to provide an opportunity for City of Tacoma and Empowerment Zone/Enterprise Community residents to acquire skills, enter Apprenticeship Programs, and perform work that provides living wages.
   2. The Tacoma City Council established the EIC Program for Public Works Contracts pursuant to City of Tacoma Ordinance No. 28625. The primary goal for this program is to ensure equitable participation of historically under-utilized business enterprises, by establishing requirements for their utilization in public contracting.

G. The Contractor shall not subcontract work unless the Owner approves in writing. Each request to subcontract shall be on the form the City provides. The subcontractor shall be a licensed State of Washington Contractor and shall have a valid City of Tacoma business license. If the City requests, the Contractor shall provide proof that the subcontractor has the experience, ability, and equipment the work requires. The City will approve the request only if satisfied with the proposed subcontractor’s record, equipment, experience, and ability. Approval to Subcontract shall not:
   1. Relieve the Contractor of any responsibility to carry out the contract;
   2. Relieve the Contractor of any obligations or liability under the contract and the Contractor’s bond;
   3. Create any contract between the Owner and the subcontractor; or
   4. Convey to the subcontractor any rights against the Owner.

H. The Owner will not consider the following subcontracting:
   1. Purchase of sand, gravel, crushed stone, crushed slag, batched concrete aggregates, ready mix concrete, off-site fabricated structural steel, other off-site fabricated items, and any other materials supplied by established and recognized commercial plants; or
   2. Delivery of these materials to the work site in vehicles owned or operated by such plants or by recognized independent or commercial hauling companies.

I. If Owner determines that any Subcontractor is performing services in an unsatisfactory manner or is not completing the Work in accordance with the requirements of the Contract Documents or is otherwise undesirable or unacceptable, Owner will by written notice so notify Contractor. Contractor shall then take immediate steps to rectify and correct the situation. If Owner and Contractor mutually agree such actions are ineffective or infeasible, Contractor shall terminate such Subcontractor. Subcontracting by Subcontractors will be subject to the same regulations.

5.22 INDENMIFICATION
Add the following article to Section 5.22 of Performance:

C. The Owner and Engineer shall be named as additional primary insured(s) by the Contractor's General Liability and Builders All Risk insurance policies without offset and all Construction Documents and insurance certificates shall include wording acceptable to the parties herein with reference to such provisions.

D. The Owner and Engineer shall not be responsible for the means, methods, techniques, sequences, or procedures of construction selected by Contractors or the safety precautions and programs incident to the work of Contractors and will not be responsible for Contractors’ failure to carry out work in accordance with the Contract Documents.

PART 6 PAYMENTS AND COMPLETION

6.02 SCHEDULE OF VALUES

Add the following paragraph to Section 6.02 of Payments and Completion:

Subcontracted Work shall be paid to the Contractor on the basis of Contractor's actual cost of amounts properly paid to such Subcontractors. A Schedule of Values shall be submitted for the Work of each Subcontractor, as well as suppliers providing material in excess of $2,500.00. Subcontractor invoices in support of this Schedule of Values shall be submitted with progress payments. The total for all progress payments shall not exceed the Contract Sum, as may be adjusted by Change Orders. The Contractor shall provide a schedule of values for Lump Sum bid items for review and acceptance.

The Contractor shall submit signed lien waivers by Corporate Officers for all parties. The Contractor shall submit the anticipated cash flow for the project and update monthly.

6.03 APPLICATION FOR PAYMENT

Replace Article B in Section 6.03 with the following:

B. Contractor certifies Subcontractors paid: By submitting an Application for Payment, Contractor is certifying that all Subcontractors have been paid, less earned retainage in accordance with RCW 60.28.011, as their interests appeared in the last preceding certificate of payment. By submitting an Application for Payment, Contractor is recertifying that the representations set forth in section 1.03 are true and correct, to the best of Contractor’s knowledge, as of the date of the Application for Payment. Contractor shall submit application for payment on AIA form G702/G703, with modifications made for payment certification. Payment shall be certified by a corporate officer of the Contractor.

Replace Article D in Section 6.03 with the following:

D. Payment for material delivered to site or stored off-site: If authorized by Owner, the Application for Payment may include request for payment for material delivered to the Project site and suitably stored, or for completed preparatory work. No payment will be made for material stored at an alternate location. The Contractor shall comply with or furnish satisfactory evidence of the following:

Delete items 1 through 8 of Article D of Section 6.03 of Payments and Completion and replace with the following:
1. Contractor assumes total responsibility for stored materials: Contractor and its surety assume total responsibility for the stored materials; and

2. Title: Title to all Work and materials covered by an accepted and paid Application For Payment shall pass to the Owner at the time of such payment, free and clear of all liens, claims, security interest, and encumbrances. Passage of title shall not, however, (1) relieve Contractor from any of its duties and responsibilities for the Work or materials, (2) waive any rights of the Owner to insist on full compliance by Contractor with the Contract requirements, or (3) constitute acceptance of the Work or materials.

6.04 PROGRESS PAYMENTS

Modify the first sentence of Article B to read:

Owner shall retain 5% of the amount of each progress payment until 60 days after Final Acceptance and receipt of all documents required by law or the Contract Documents, including at Owner’s request, consent of surety to release of the retainage.

Add the following Article to Section 6.04 of Payments and Completion:

E. Taxes.

Unless otherwise required in this Specification, applicable federal, state, city and local taxes shall be included in the bid submittal as indicated below. The total cost to the City, including all applicable taxes, may be the basis for contract award determination. As used herein, the term "taxes" shall include any and all taxes, assessments, fees, charges, interest, penalties, and/or fines imposed by applicable laws and regulations in connection with the procurement of goods and/or services hereunder.

1. Federal Excise Tax
   The City of Tacoma is exempt from federal excise tax. The City will furnish a Federal Excise Tax Exemption certificate, if required. If the Bidder fails to include applicable tax in its submittal, then Bidder shall be solely responsible for the payment of said tax.

2. State and Local Sales Tax
   The City of Tacoma is subject to Washington state sales tax. It is the Bidder’s obligation to state the correct sales tax percentage and include the applicable Washington state, city, and local sales tax as a separate line item(s) in the submittal.

3. City of Tacoma Business and Occupation Tax
   It is the Bidder’s obligation to include City of Tacoma Business and Occupation tax in the unit and/or lump sum prices submitted; it shall not be shown separately on the submittal. Per Sub-Title 6A of the City of Tacoma Municipal Code, transactions with the City of Tacoma may be subject to the City’s Business and Occupation Tax.

   It is the responsibility of the Bidder awarded the contract to register with the City of Tacoma’s Tax and License Division, 733 South Market Street, Room 21, Tacoma, WA 98402-3768, telephone (253) 591-5252, website http://www.cityoftacoma.org/government/city_departments/finance/tax_and_license/

4. Any or All Other Taxes
   Any or all other taxes are the responsibility of the Bidder unless otherwise required by law.
6.05 PAYMENTS WITHHELD

Add the following Items to the end of Article A in Section 6.05 of Payments and Completion:

6. Failure of Contractor to repair damaged materials, equipment, property, or Work.
7. Failure of the Contractor to provide or obtain review of Submittals.
8. Failure to pay Subcontractors or Suppliers.
9. Failure to keep Record Documents up to date.
10. Failure to comply with all applicable federal, state, and local laws, statutes, regulations, codes, licenses, easements, and permits.
11. Failure to obtain and maintain applicable permits, insurance, and bonds.
12. Failure to provide Statement of intent to Pay Prevailing Wage and/or Affidavits of Wages Paid.
13. Failure to comply with the Contract safety requirements.

6.07 SUBSTANTIAL COMPLETION

Add the following Article A to Section 6.07 of Payments and Completion:

A. When the Contractor considers that all Work is substantially complete, the Contractor shall give written Notice to the Owner. The prerequisites for issuance of Substantial Completion by the Owner for the Work associated with the Notice are as follows:

1. Submit the final progress payment showing 100% completion for the work being claimed as substantially complete. List any incomplete items of work along with their value and an explanation of why the work is incomplete.
2. Submit a statement summarizing all changes to the contract. Identify that Contractor has no claims pending or provide a list of any known pending claims associated with the Work.
3. Coordinate with the Owner for changeover of all insurance coverage.
4. Submit all warranties, maintenance agreements, and workmanship bonds as required by the Contract Documents.
5. Deliver all tools, spare parts, “Attic Stock” and other deliverables to the Owner as required by the Contract Documents.
6. Complete start-up and testing of all systems to ensure required functional operation. Submit a copy of test and start-up forms, signed off by Owner.
7. Complete all required training and final Operation and Maintenance Manuals.
8. Remove from the project site all temporary facilities and services, including tools, equipment, mockups, and similar elements that are under the Contractor’s control.
9. Perform all work as required to obtain an approved final inspection for the Electrical Permit.
10. Punch List Procedures
a. Prior to providing notice of Substantial Completion (approximately 14 calendar days), the Contractor shall provide an initial List of Deficiencies for the Owner's review. The Owner will review and make additions or deletions as they deem appropriate. The List of Deficiencies will be sent back to the Contractor for the Contractor to perform work. The Contractor must complete the work in a satisfactorily manner before the Owner will accept as complete.

11. Submit verification that Contractor is up to date on all progress payments to laborers, subcontractors, or others performing work or supplying materials to the Project.

6.09 FINAL COMPLETION, ACCEPTANCE, AND PAYMENT

Add the following Article to Section 6.09 of Payments and Completion:

D. Prerequisites for Final Acceptance

1. Submit final Payment Request, which shall be supported by final releases, and supporting documentation not previously accepted by the Owner.

2. Obtain the Owner’s written approval that all items on the List of Deficiencies as prepared by the Owner have been completed.

3. Submit consent of Surety. Provide the standard form of the surety company or submit consent using the AIA Document G-707 form.

4. Submit all Record Drawings and Record Specifications.

5. Submit the final Logs of all submittals.

6. Submit evidence of Compliance with Requirements of Governing Authorities including, but not limited to, permit approvals and Certificates of Occupancy.

7. Submit final Warranty and Bond in accordance with Specification Section 01_77_00.

8. Complete final clean up and repair of items damaged during construction.

9. Temporary Facilities: Remove temporary protection and facilities installed for protection and administration of the Work during construction, along with construction tools, mock-ups, temporary signage, and similar elements.

10. Final Inspection and Final Punch List:

   a. All remaining Punch List items that were not corrected prior to Substantial Completion shall be successfully completed by the Contractor prior to the Contractor’s request for Final Acceptance. When the Contractor considers that all Contract Work is ready for final inspection and Final Acceptance, the Contractor shall give written Notice to the Owner.

   b. Upon receipt of the Contractor’s Notice that work on the List of Deficiencies has been completed, the Owner will visit the site to determine if the work has progressed to an acceptable level of quality justifying a final inspection.

   c. Owner shall promptly perform a final inspection of the Work and, if necessary, prepare a Final Punch List (a list of items to be completed or corrected by the Contractor prior to the Owner granting Final Acceptance).

PART 7 CHANGES

7.01 CHANGE IN THE WORK
Replace the entire Article B of Section 7.01 with the following:

B. Owner may request COP from Contractor: If Owner desires to order a change in the Work, it may request a written Change Order Proposal from Contractor. Contractor shall submit a Change Order Proposal within 7 calendar days of the request from Owner, or within such other period as mutually agreed. Contractor's Change Order Proposal shall be full compensation for implementing the proposed change in the Work, including any adjustment in the Contract Sum or Contract Time, and including compensation for all delays in connection with such change in the Work and for any expense or inconvenience, disruption of schedule, or loss of efficiency or productivity occasioned by the change in the Work.

Replace the entire Article E of Section 7.01 with the following:

E. Failure to agree upon terms of Change Order; Final offer and Claims: If Owner and Contractor are unable to reach agreement on the terms of any change in the Work, including any adjustment in the Contract Sum or Contract Time, Contractor may at any time in writing, request a final offer from Owner. Owner shall provide Contractor with its written response within 14 Days of Contractor's request. Owner may also provide Contractor with a final offer at any time. If Contractor rejects Owner’s final offer, or the parties are otherwise unable to reach agreement, Contractor's only remedy shall be to file a Claim as provided in Part 8.

Replace the entire Article F of Section 7.01 with the following:

F. The Field Authorization (FA) is executed as a directive to proceed with work when the processing time for an approved change order would impact the project.

1. Situations may arise not included in the Contract Documents requiring immediate action on the part of the Contractor for safety, to protect personnel from injury, to protect property from damage, or to prevent delay, all or any as determined necessary by the Owner. In situations where processing time for a Change Order might impact the success of the project, the Owner may elect to issue a Field Authorization in writing, giving approval to proceed with a specific scope of work for an amount to be determined after the work is completed. This procedure will only be implemented in situations that are an emergency as determined by the Owner. The Owner will specify a "not to exceed" amount for this work when issuing this authorization.

2. A scope of work must be defined, a maximum not to exceed cost agreed upon, and any estimated modification to the contract completion time determined. The method of final cost verification must be noted and supporting cost data must be submitted in accordance with the requirements of Part 7 of the General Conditions. Upon satisfactory submittal and approval of supporting cost data, the completed FA will be processed into a change order. No payment will be made to the Contractor for FA work until that FA is incorporated into a Change Order.

3. All FAs must include total cost and impact on completion schedule, if any. If the cost is unknown prior to beginning the work on a FA, then a not-to-exceed dollar limit must be established.

4. Payment for work on a FA will be on the same basis as for a Change Order. Should the amount of the cost exceed the "not to exceed" amount specified in the FA, the Owner will audit the costs for reasonableness and approve for payment only that which meets that test.

Add the following Article to Section 7.01 of Changes:

G. Change Order Documentation
1. A log will be maintained by the Contractor subject to review and comment by Owner for each of the documents identified in this section leading up to issuances of Change Order. These logs will record transmittals, suspense dates, review stopovers, dates of actions, and other specific pertinent information to track the progress of the subject documents. The Owner reserves the right to dispute any and all entities the Contractor includes in the log.

2. The Owner reserves the right to include and exclude as many Requests for Proposals and or Change Order Proposals into one Change Order as the Owner determines is in its best interest.

7.02 CHANGE IN THE CONTRACT SUM
Replace Items b and c of Section 7.02.A.2 with the following:

(b) Content of notice for equitable adjustment; Failure to comply: Contractor shall not be entitled to any adjustment in the Contract Sum for any occurrence of events or costs that occurred more than 2 Days before Contractor’s written notice to Owner. The written notice shall set forth, at a minimum, a description of: the event giving rise to the request for an equitable adjustment in the Contract Sum; the nature of the impacts to Contractor and its Subcontractors of any tier, if any; and to the extent possible the amount of the adjustment in Contract Sum requested. Failure to properly give such written notice shall, to the extent Owner’s interests are prejudiced, constitute a waiver of Contractor’s right to an equitable adjustment.

(c) Contractor to provide supplemental information: Within 14 Days of the occurrence of the event giving rise to the request, unless Owner agrees in writing to allow an additional period of time to ascertain more accurate data, Contractor shall supplement the written notice provided in accordance with subparagraph a. above with additional supporting data. Such additional data shall include, at a minimum: the amount of compensation requested, itemized in accordance with the procedure set forth herein; specific facts, circumstances, and analysis that confirms not only that Contractor suffered the damages claimed, but that the damages claimed were actually a result of the act, event, or condition complained of and that the Contract Documents provide entitlement to an equitable adjustment to Contractor for such act, event, or condition; and documentation sufficiently detailed to permit an informed analysis of the request by Owner. When the request for compensation relates to a delay, or other change in Contract Time, Contractor shall demonstrate the impact on the critical path, in accordance with Section 7.03C. Failure to provide such additional information and documentation within the time allowed or within the format required shall, to the extent Owner’s interests are prejudiced, constitute a waiver of Contractor’s right to an equitable adjustment.

Replace Section 7.02.B.4 with the following:

4. Markups on additive and deductive Work: The cost of any additive or deductive changes in the Work shall be calculated as set forth below, except that overhead and profit shall not be included on deductive changes in the Work unless deductive change exceeds $10,000. Where a change in the Work involves additive or deductive Work by the same Contractor or Subcontractor, small tools, overhead, profit, bond, and insurance markups will apply to the net difference.

Replace Section 7.02.B.7.a(1) with the following:

(1) Basic wages and benefits: Hourly rates and benefits as stated on the Department of Labor and Industries approved “statement of intent to pay prevailing wages” or a higher amount if approved by the City only if supported by certified payrolls. Direct supervision shall be a reasonable percentage not to exceed 10% of the cost of direct labor. No supervision markup shall be allowed for a working supervisor’s hours.

Delete Section 7.02.B.7.a(4) in its entirety

Delete and replace Section 7.02.B.7.c with the following:

c. Equipment costs: This is an itemization of the type of equipment and the estimated or actual length of time the construction equipment appropriate for the Work is or will be used on the change in the Work. Costs will be allowed for construction equipment only if
used solely for the changed Work, or for additional rental costs actually incurred by the Contractor. Equipment charges shall be computed on the basis of actual invoice costs or if owned, from the current edition of one of the following sources:

1. Associated General Contractors - Washington State Department of Transportation (AGC WSDOT) Equipment Rental Agreement.
2. The state of Washington Utilities and Transportation Commission for trucks used on highways.
3. The National Electrical Contractors Association for equipment used on electrical work.
4. The Mechanical Contractors Association of America for equipment used on mechanical work.

The Primedia Equipment Watch (Blue Book) shall be used as a basis for establishing rental rates of equipment not listed in the above sources. The maximum rate for standby equipment shall not exceed that shown in the AGC WSDOT Equipment Rental Agreement.

Replace Section 7.02 B.7.d with the following:

d. Allowance for small tools, expendables & consumable supplies: Small tools consist of tools which cost $250 or less and are normally furnished by the performing Contractor. The maximum rate for small tools shall not exceed the following:

1. For Contractor, 2% of direct labor costs.
2. For Subcontractors, 3% of direct labor costs.

Expendables and consumables supplies directly associated with the change in Work must be itemized.

Replace Articles (a), (b) and (c) of Section 7.02 B.7.f.(1) with the following:

(a) Contractor markup on Contractor Work: For Contractor, for any Work actually performed by Contractor’s own forces, 10% of the first $50,000 of the cost, and 4% of the remaining cost, if any.

(b) Subcontractor markup for Subcontractor Work: For each Subcontractor (including lower tier subcontractors), for any Work actually performed by its own forces, 10% of the first $50,000 of the cost, and 4% of the remaining cost, if any.

(c) Contractor markup for Subcontractor Work: For Contractor, for any work performed by its Subcontractor(s) 5% of the first $50,000 of the amount due each Subcontractor, and 4% of the remaining amount if any.

Replace Articles (a), (b), (c) and (d) of Section 7.02B.7.f.(2) with the following:

(a) Contractor markup on Contractor Work: For Contractor, for any Work actually performed by Contractor’s own forces, 10% of the first $50,000 of the cost, and 4% of the remaining cost, if any.

(b) Subcontractor markup for Subcontractor Work: For each Subcontractor (including lower tier subcontractors), for any Work actually performed by its own forces, 10% of the first $50,000 of the cost, and 4% of the remaining cost, if any.
(c) Contractor markup for Subcontractor Work: For Contractor, for any Work performed by its Subcontractor(s), 3% of the first $50,000 of the amount due each Subcontractor, and 2% of the remaining amount if any.

(d) Subcontractor markup for lower tier Subcontractor Work: For each Subcontractor, for any Work performed by its Subcontractor(s) of any lower tier, 2% of the first $50,000 of the amount due the sub-Subcontractor, and 1% of the remaining amount if any.

Add the following paragraph under Article D in Section 7.02 of Changes:

4. Subcontractor and sub-subcontractor proposals to the Contractor for time and material Work shall include all direct costs plus overhead, profit, bond and insurance costs, calculated as provided in Section 7.02B.

Add the following Article to Section 7.02 of Changes:

E. Notwithstanding any other provision of the Contract Documents, no claim by the Contractor for an equitable adjustment hereunder will be allowed if not asserted within 7 days following the date of the changed condition.

7.03 CHANGES IN THE CONTRACT TIME

Replace Section 7.03.B.2 with the following:

2. Timing and content of Contractor’s Notice: Contractor shall not be entitled to an adjustment in the Contract Time for any events that occurred more than 3 Days before Contractor’s written notice to Owner. The written notice shall set forth, at a minimum, a description of: the event giving rise to the request for an equitable adjustment in the Contract Time; the nature of the impacts to Contractor and its Subcontractors of any tier, if any; and to the extent possible the amount of the adjustment in Contract Time requested. Failure to properly give such written notice shall, to the extent Owner’s interests are prejudiced, constitute a waiver of Contractor’s right to an equitable adjustment.

Replace Section 7.03.B.3 with the following:

3. Contractor to provide supplemental information: Within 7 days of the occurrence of the event giving rise to the request, unless Owner agrees in writing to allow an additional period of time to ascertain more accurate data, Contractor shall supplement the written notice provided in accordance with subparagraph 7.03B.2 with additional supporting data. Such additional data shall include, at a minimum: the amount of delay claimed, itemized in accordance with the procedure set forth herein; specific facts, circumstances, and analysis that confirms not only that Contractor suffered the delay claimed, but that the delay claimed was actually a result of the act, event, or condition complained of, and that the Contract Documents provide entitlement to an equitable adjustment in Contract Time for such act, event, or condition; and supporting documentation sufficiently detailed to permit an informed analysis of the request by Owner. Failure to provide such additional information and documentation within the time allowed or within the format required shall, to the extent Owner’s interests are prejudiced, constitute a waiver of Contractor’s right to an equitable adjustment.

Replace Item 4 of Section 7.03.D with City Supplemental Conditions:

4. Limitations no daily costs: The daily cost of any change in Contract Time shall be limited to the items below, less the amount of any change in the Contract Sum the Contractor
SUPPLEMENTAL CONDITIONS AS MODIFIED BY THE CITY OF TACOMA

may otherwise be entitled pursuant to Section 7.02B 7f for any change in the Work that contributed to this change in Contract Time:
   a. Non-productive supervision or labor: cost of Contractor and its crews specifically assigned to the project. Home office cost is not allowed;
   b. Temporary facilities or equipment rental: cost of temporary facilities or equipment rental extended because of the delay, at invoiced cost, no mark-ups allowed;
   c. Insurance premium: cost of insurance by invoice extended because of delay;
   d. Overhead: general and administrative overhead in an amount to be agreed upon, but not to exceed, 1% of the Contract Award Amount divided by the originally specified Contract Time for each Day of the delay.

Add the following Article to Section 7.03 of Changes:

E. Notwithstanding any other provision of the Contract Documents, no claim by the Contractor for an equitable adjustment hereunder will be allowed if not asserted within 7 days of discovery.

7.04 DELETED OR TERMINATED WORK

Add the following new Section 7.04 to Part 7 Changes:

A. If the Agreement is terminated for convenience in accordance with Section 9.02, or as modified or if any item of Work is deleted in whole or in part, payment will be made for partially completed items mutually agreed or as determined by the Owner in the proportion that the partially completed Work is to the total item. No claim for damages of any kind or for loss of anticipated profits on deleted or uncompleted work will be allowed because of the termination or deductive Change Order. No claim for the cost of preparing the proposal will be allowed because of the termination of the Agreement.

B. If the Agreement is terminated for convenience or parts of the Work are deleted, the Contract Time shall be adjusted as the Parties agree. If the Parties cannot agree, the Owner shall determine the equitable adjustment for Contract Time.

C. Materials approved by the Owner and ordered by the Contractor or delivered on the Work prior to the date the Work was terminated or deleted by the Owner, will either be purchased from the Contractor by the Owner at the actual cost and shall become the property of the Owner, or the Owner will reimburse the Contractor for the actual costs connected with returning these materials to the suppliers.

D. If a portion of the Work that has a value of $25,000 or more is deleted, the Contractor shall reimburse the Owner for the value of the work plus mark-up on profit.

PART 8 CLAIMS AND DISPUTE RESOLUTION

8.01 CLAIMS PROCEDURE

Replace Article B of Section 8.01 with the following:

B. Claim filing deadline for Contractor: Contractor shall file its Claim within 30 Days from Owner’s final offer made in accordance with paragraph 7.01E, or by the date of Substantial Completion, whichever occurs first.

Replace Item 6 of Section 8.01.C with the following:
6. **Copies of supporting documentation:** Copies of any identified documents, inclusive of contract documents, that support the Claim;

*Replace the entire Article D of Section 8.01 with the following:*

D. **Owner’s response to Claim filed:** After Contractor has submitted a fully documented Claim that complies with all applicable provisions of Parts 7 and 8, Owner shall respond, in writing, to Contractor as follows:

1. **Response time for Claim less than $50,000:** If the Claim amount is less than $50,000, with a decision within **30** Days from the date the Claim is received; or

2. **Response time for Claim of $50,000 or more:** If the Claim amount is $50,000 or more, with a decision within **45** Days from the date the Claim is received, or with notice to Contractor of the date by which it will render its decision. Owner will then respond with a written decision in such additional time.

*Add the following new Article to Section 8.01 of Claims and Dispute Resolution:*

G. **Subcontractor Claims:** Contractor shall fully investigate its subcontractor’s claims and process said claim(s) as Contractor’s Claim. Any and all claims which do not meet notification requirements shall be considered null and void.

**8.02 ARBITRATION**

*Replace the entire Article B of Section 8.02 with the following:*

B. **Filing of Notice for arbitration:** Notice of the demand for arbitration shall be filed with the American Arbitration Association (AAA), in the state where the project is located, with a copy provided to the City. The parties shall negotiate or mediate under the Voluntary Construction Mediation Rules of AAA, or mutually acceptable service, before seeking arbitration in accordance with the Construction Industry Arbitration Rules of AAA as follows:

1. **Claims less than $30,000:** Disputes involving $30,000 or less shall be conducted in accordance with the Northwest Region Expedited Commercial Arbitration Rules; or

2. **Claims greater than $30,000:** Disputes over $30,000 shall be conducted in accordance with the Construction Industry Arbitration Rules of AAA, unless the parties agree to use the expedited rules.

*Add the following Article to Section 8.02 of Claims and Dispute Resolution:*

F. Location of arbitration proceedings shall be in a mutually-agreed to location in Pierce County, Washington State.

**8.03 CLAIMS AUDIT**

*Add the following Paragraphs under Article B in Section 8.03 of Claims and Dispute Resolution:*

25. Schedules;

26. Expediting Records and Information;

27. Original Cost Estimates;

28. Privilege documentation shall be allowed for all Claims of $500,000 and over.
Add the following new Section 8.04 to Claims and Dispute Resolution:

8.04 AUDIT

A. At such times as Owner deems necessary for reasonable cause, Contractor shall permit the Owner to inspect and audit all pertinent books and records of the Contractor and its Subcontractors or other persons or entities that have performed work in connection with or related to the Contractor’s Work under this Agreement. The audit may take place up to three years after Completion. The books and records are to be made available at reasonable times in Pierce County, Washington, or at such other reasonable location as Owner selects. At Owner's request, Contractor shall supply Owner with, or shall permit Owner to make a copy of, any books and records and any portion thereof. Contractor shall ensure that such inspection, audit and copying right is a condition of any Subcontract, agreement or other arrangement under which any person or entity is permitted to perform work in connection with or related to the Work under this Agreement. Any failure of the Contractor to incorporate contract requirements shall be at the expense of the Contractor.

PART 9 TERMINATION OF THE WORK

9.01 TERMINATION BY OWNER FOR CAUSE

Add the following Articles to Section 9.01 of Termination of the Work:

H. If the Contractor defaults, fails, or neglects to carry out the Work in accordance with the Contract Documents, the Owner may give written notice to cure the problem within seven (7) days. If the problem is not cured or the Owner determines the effort for correction is inadequate within this time, the Owner may give a second notice to cure within seven (7) days. If the problem is not cured within this time, the Owner may issue a notice to terminate for cause, which shall be effective immediately upon issuance.

I. The Owner rights to the site are subject to the rights and duties of the surety, if any, that may be obligated under any bond provided in accordance with the Contract Documents.

J. In a termination situation, the Owner reserves the right to use any subcontractor, material manufacturer, fabricator, or any vendor originally contracted by the Contractor or to assign their contract with the Contractor to the Owner. The cost of completing the work shall include additional management, design services, legal fees, and other associated costs to complete the project as scheduled.

K. The Contractor will be terminated for cause if any employee, agent, or representative of the Contractor gives, or offers to give, any gratuity such as a gift or entertainment to an official, employee, officer, or agent of the Owner.

9.02 TERMINATION BY OWNER FOR CONVENIENCE

Add the following Articles to Section 9.02 of Termination of the Work:

E. This Contract may be terminated by the Owner upon fourteen (14) days written notice to the Contractor in the event the Owner determines it is in the best interest of the Owner to terminate this project. If such termination occurs, the Owner shall only pay the Contractor for
work completed and materials or equipment delivered as previously approved by the Owner after Notice to Proceed.

F. This Contract may be terminated by the Owner prior to Notice to Proceed in the event the Owner determines it is in the best interest of the Owner to terminate this project. If such termination occurs, the Contractor shall not be entitled to any monetary remuneration.

**PART 10 MISCELLANEOUS PROVISIONS**

*Add the following new Section 10.11 to Miscellaneous Provisions*

**10.11 PROTECTION OF THE ENVIRONMENT**

**Protection of the Environment**: No construction related activity shall contribute to the degradation of the environment, allow material to enter surface or ground waters, or allow particulate emissions to the atmosphere, which exceed state or federal standards.

*Add the following new Section 10.12 to Miscellaneous Provisions*

**10.12 ASBESTOS**

A. Asbestos Products: Contractor shall ensure that no Asbestos products in any form are incorporated into the Work.

B. Contractor shall inspect materials, equipment, and surfaces scheduled for demolition or modification for the presence of Asbestos prior to beginning the Work.

C. Notice: If in the course of performing the Work, Contractor encounters or disturbs Asbestos, Contractor shall immediately stop work in the area and notify Owner. Contractor shall not recommence work in the area until authorized by Owner.

D. Contractor shall perform all work in accordance with Specification Section 01_35_44.

E. Delays: If Contractor is delayed during the course of performance because the presence of Asbestos not identified in the Contract Documents, Contractor may request an equitable adjustment in the Contract Sum or Contract Time in accordance with the provisions of Part 7.

*Add the following new Section 10.13 to Miscellaneous Provisions*

**10.13 LEAD-BASED PAINT**

A. Lead Paint: Contractor shall ensure that no lead-based paint is incorporated into the Work.

B. Contractor shall inspect all painted surfaces for the presence of lead prior to making any modifications.

C. Contractor shall perform all work in accordance with Specification Section 01_35_44.
10.14 COVID-19 REQUIREMENTS

A. The Contractor shall comply with all safety requirements and work restrictions imposed by the Washington State Governor’s Office, Department of Labor and Industries, and other regulatory agencies in response to COVID-19 in effect on the Bid Submittal Date. The Contractor shall be responsible for maintaining compliance with all regulatory requirements associated with COVID-19. The Contractor shall perform all work in accordance with these restrictions while they remain in effect. The cost of compliance shall be included in the base bid.
PART V

CITY OF TACOMA INSURANCE REQUIREMENTS
This Insurance Requirements shall serve as an attachment and/or exhibit form to the Contract. The Agency entering a Contract with City of Tacoma, whether designated as a Supplier, Contractor, Vendor, Proposer, Bidder, Respondent, Seller, Merchant, Service Provider, or otherwise referred to as “Contractor”.

1. GENERAL REQUIREMENTS

The following General Requirements apply to Contractor and to Subcontractor(s) performing services and/or activities pursuant to the terms of this Contract. Contractor acknowledges and agrees to the following insurance requirements:

1.1. Contractor shall not begin work under the Contract until the required insurance has been obtained and approved by the City of Tacoma.

1.2. Contractor shall keep in force during the entire term of the Contract, at no expense to the City of Tacoma, the insurance coverage and limits of liability listed below and for Thirty (30) calendar days after completion of all work required by the Contract, unless otherwise provided herein.

1.3. Liability insurance policies, except for Professional Liability and Workers' Compensation, shall:
   1.3.1. Name the City of Tacoma and its officers, elected officials, employees, and agents as additional insured
   1.3.2. Be considered primary and non-contributory for all claims with any insurance or self-insurance or limits of liability maintained by the City of Tacoma
   1.3.3. Contain a “Waiver of Subrogation” clause in favor of City of Tacoma
   1.3.4. Include a “Separation of Insureds” clause that applies coverage separately to each insured and additional insured
   1.3.5. Name the “City of Tacoma” on certificates of insurance and endorsements and not a specific person or department
   1.3.6. Be for both ongoing and completed operations using Insurance Services Office (ISO) form CG 20 10 04 13 and CG 20 37 04 13 or the equivalent
   1.3.7. Be satisfied by a single primary limit or by a combination of a primary policy and a separate excess umbrella

1.4. A notation of coverage enhancements on the Certificate of Insurance shall not satisfy these requirements below. Verification of coverage shall include:
   1.4.1. An ACORD certificate or equivalent
   1.4.2. Copies of requested endorsements

1.5. Contractor shall provide to City of Tacoma Procurement & Payable Division, prior to the execution of the Contract, Certificate(s) of Insurance and endorsements from the insurer certifying the coverage of all insurance required herein. Contract or Permit number and the City of Tacoma Department must be shown on the Certificate of Insurance.

1.6. A renewal Certificate of Insurance shall be provided electronically prior to coverage
1.7. Contractor shall send a notice of cancellation or non-renewal of this required insurance within Thirty (30) calendar days to coi@cityoftacoma.org.

1.8. “Claims-Made” coverages, except for pollution coverage, shall be maintained for a minimum of three years following the expiration or earlier termination of the Contract. Pollution coverage shall be maintained for six years following the expiration of the Contract. The retroactive date shall be prior to or coincident with the effective date of the Contract.

1.9. Each insurance policy must be written by companies licensed or authorized (or issued as surplus line by Washington surplus line broker) in the State of Washington pursuant to RCW 48 with an (A-) VII or higher in the A.M. Best key rating guide.

1.10. Contractor shall not allow any insurance to be cancelled, voided, suspended, or reduced in coverage/limits, or lapse during any term of this Contract. Otherwise, it shall constitute a material breach of the Contract.

1.11. Contractor shall be responsible for the payment of all premiums, deductibles and self-insured retentions, and shall indemnify and hold the City of Tacoma harmless to the extent such a deductible or self-insured retained limit may apply to the City of Tacoma as an additional insured. Any deductible or self-insured retained limits in excess of Twenty Five Thousand Dollars ($25,000) must be disclosed and approved by City of Tacoma Risk Manager and shown on the Certificate of Insurance.

1.12. City of Tacoma reserves the right to review insurance requirements during any term of the Contract and to require that Contractor make reasonable adjustments when the scope of services changes.

1.13. All costs for insurance are included in the initial Contract and no additional payment will be made by City of Tacoma to Contractor.

1.14. Insurance coverages specified in this Contract are not intended and will not be interpreted to limit the responsibility or liability of Contractor or Subcontractor(s).

1.15. Failure by City of Tacoma to identify a deficiency in the insurance documentation or to verify coverage or compliance by Contractor with these insurance requirements shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

1.16. If Contractor is a government agency or self-insured for any of the above insurance requirements, Contractor shall be liable for any self-insured retention or deductible portion of any claim for which insurance is required. A certification of self-insurance shall be attached and incorporated by reference and shall constitute compliance with this Section.
2. SUBCONTRACTORS

It is Contractor's responsibility to ensure that each subcontractor obtain and maintain adequate liability insurance coverage that applies to the service provided. Contractor shall provide evidence of such insurance upon City of Tacoma's request. Failure of any subcontractor to comply with insurance requirements does not limit Contractor's liability or responsibility.

3. REQUIRED INSURANCE AND LIMITS

The insurance policies shall provide the minimum coverages and limits set forth below. Providing coverage in these stated minimum limits shall not be construed to relieve Contractor from liability in excess of such limits.

3.1 Commercial General Liability Insurance
Contractor shall maintain Commercial General Liability Insurance policy with limits not less than One Million Dollars ($1,000,000) each occurrence and Two Million Dollars ($2,000,000) annual aggregate. This policy shall be written on ISO form CG 00 01 04 13 or its equivalent and shall include product liability especially when a Contract is solely for purchasing supplies. It includes Products and Completed Operations for three years following the completion of work related to performing construction services. It shall be endorsed to include: A per project aggregate policy limit (using ISO form CG 25 03 05 09 or equivalent endorsement) and/or Contractual Liability-Railroad using ISO form CG 24 17 10 01 or equivalent if Contractor is performing work within Fifty (50) feet of a City of Tacoma railroad right of way.

3.2 Commercial (Business) Automobile Liability Insurance
Contractor shall maintain Commercial Automobile Liability policy with limits not less than One Million Dollars ($1,000,000) each accident for bodily injury and property damage and bodily injury and property damage coverage for owned (if any), non-owned, hired, or leased vehicles. Commercial Automobile Liability Insurance shall be written using ISO form CA 00 01 or equivalent. Contractor must also maintain MCS 90 and CA 99 48 endorsements or equivalent if "Pollutants" are to be transported unless in-transit Pollution coverage is covered under required Contractor's Pollution Liability Insurance.

3.3 Workers' Compensation
Contractor shall comply with Workers' Compensation coverage as required by the Industrial Insurance laws of the State of Washington, as well as any other similar coverage required for this work by applicable federal laws of other states. Contractor must comply with their domicile State Industrial Insurance laws if it is outside the State of Washington.

3.4 Employers' Liability Insurance
Contractor shall maintain Employers' Liability coverage with limits not less than One Million Dollars ($1,000,000) each employee, One Million Dollars ($1,000,000) each accident, and One Million Dollars ($1,000,000) policy limit.

3.5 Professional Liability Insurance or Errors and Omissions
For contracts with professional licensing, design, or engineering services. Contractor and/or its subcontractor shall maintain Professional Liability or Errors and Omissions with limits of One Million Dollars ($1,000,000) per claim and Two Million Dollars ($2,000,000) in the aggregate covering acts, errors and omissions arising out of the professional services under this Contract. Contractor shall maintain this coverage for Two Million Dollars ($2,000,000) if the policy limit includes the payment of claims or defense costs, from the policy limit. If the scope of such design-related professional services includes work related to pollution conditions, the
Professional Liability policy shall include Pollution Liability coverage.

3.6 **Excess or Umbrella Liability Insurance**
Contractor shall provide Excess or Umbrella Liability Insurance with limits not less than Three Million Dollars ($3,000,000) per occurrence and in the aggregate. This coverage shall apply, at a minimum, in excess of primary underlying Commercial General Liability, Employer’s Liability, Pollution Liability, Marine General Liability, Protection and Indemnity, and Automobile Liability if required herein.

3.7 **Pollution Liability Insurance**
Contractor shall maintain Pollution Liability or Environmental Liability Insurance with limits not less than One Million Dollars ($1,000,000) each occurrence and Two Million Dollars ($2,000,000) in the aggregate. Coverage shall include investigation and defense costs for bodily injury and property damage, loss of use of damaged or destroyed property, Natural Resource Damage, and Hazardous Substance Removal. Such coverage shall provide both on-site and off-site cleanup costs, cover gradual and sudden pollution, and include in its scope of coverage the City of Tacoma damage claims for loss arising out of Contractor's work.

3.8 **Railroad Protective Liability Insurance**
Contractor shall maintain Railroad Protective Liability coverage with limits of Two Million Dollars ($2,000,000) per occurrence and Six Million Dollars ($6,000,000) in the aggregate during the term of the Contract if Contractor’s work will involve working on, above, under or being within Fifty (50) feet of City of Tacoma railroad right of ways. The policy must be issued on a standard ISO form CG 00 35 (04-13), or equivalent, with City of Tacoma as a named insured (not named as an additional insured) and shall include Limited Seepage, Pollution Endorsement and Evacuation Expense Coverage Endorsements.

3.9 **Other Insurance**
Other insurance may be deemed appropriate to cover risks and exposures related to the scope of work or changes to the scope of work required by City of Tacoma. The costs of such necessary and appropriate Insurance coverage shall be borne by Contractor.

3.10 **Other Conditions**
Contractor will be responsible to comply with all specific insurance requirements associated with any highway or rail crossings, e.g., Washington State Department of Transportation (WSDOT), Burlington Northern Santa Fe Railway (BNSF), and Union Pacific Railroad (UPRR).
PART VI

CITY OF TACOMA EQUITY IN CONTRACTING PROGRAM
CITY OF TACOMA EQUITY IN CONTRACTING (EIC) PROGRAM

Bidders Special Instructions

As part of the City of Tacoma's ongoing work to address past disparities and to increase the City’s contracting with and utilization of historically underutilized businesses, the Equity in Contracting (EIC) Program places requirements on City contracts for utilization of businesses certified by the Washington State Office of Minority and Women’s Business Enterprise (OMWBE) and approved by the Equity in Contracting Program (“Certified Businesses”). The EIC Program also provides guidance and technical assistance to Certified Businesses who are interested in providing supplies, services and public works to the City of Tacoma.

The EIC Program requirements are contained in Tacoma Municipal Code Chapter 1.07.

Contractors bidding on City of Tacoma projects are required to meet the stated EIC requirements. Bids will be evaluated on an individual basis to determine EIC compliance. A contractor who fails to meet the stated EIC requirements will be considered non-responsible. Bidders are also subject to the City’s Equal Employment Opportunity policies prohibiting discrimination.

The stated EIC requirements may be met by the contractor or by identified subcontractors. All EIC Requirements may be met by using MBEs, WBEs, DBEs or SBEs from the OMWBE certified list (OMWBE website). It is the bidder’s responsibility to ensure that their firm or identified subcontractors are certified by OMWBE and approved by the City of Tacoma EIC Program at the time of bid submittal. Business certification may be verified by contacting the EIC Office*.

For the OMWBE list, be sure to look for businesses in Pierce, King, Lewis, Mason, Grays Harbor, Thurston, or any counties adjacent to the county in which the work is performed per 1.07.050(2)(b-c). Contact the EIC Office* if you have any questions.

The Equity in Contracting (EIC) forms included in these bid documents must be fully completed (including attachments) and included with bid submittals. Failure to include the required forms will result in the submittal being rejected as nonresponsive.

Post-Award Important Information
For all contracts that have requirements related to the EIC policy, the City of Tacoma is utilizing a cloud-based software system:

B2Gnow - Contractors and subcontractors must report payment information in the B2Gnow System on a monthly basis. The EIC Staff will monitor/audit that retainage is paid by the prime contractor to the subcontractor(s) within 10 [working] days after the subcontractors’ work is satisfactorily completed. This will be monitored/audited using the B2Gnow System.

(updated 05/2023)
The system is monitored/audited by EIC staff to ensure contract compliance, proactively identify potential issues, and track contract progress.

*EIC STAFF Contact Information*

For questions regarding Certifications, EIC Compliance and B2GNow support, contact EIC Staff:

- Call EIC Office at (253) 591-5630 or (253) 591-5826
- Email EIC Office at EICOffice@cityoftacoma.org
EQUITY IN CONTRACTING UTILIZATION FORM

This form is to document only the contractors, subcontractors, material suppliers or other types of firms that are intended to be used to meet the stated EIC requirements for the contract awarded from this solicitation. This information will be used to determine contract award. Additional forms may be used if needed.

- You must include this form with your bid submittal in order for your bid to be responsive.
- Prime contractors are required to solicit bids from Businesses that are "Certified" by the Office of Minority and Women's Business Enterprises (OMWBE) [www.omwbe.wa.gov] as a MBE, WBE, and SBE to be know as "Certified Business".
- It is the Prime contractor’s responsibility to verify the certification status of the business(s) intended to be utilized prior to the submittal deadline.

Bidder’s Name: ____________________________
Address: __________________________________ ______________________________________________________
Spec. No. _________________ Base Bid * $ ____________

<table>
<thead>
<tr>
<th>a. Business Name and Certification Number(s)</th>
<th>b. MBE, WBE, or SBE (Write all that apply)</th>
<th>c. NAICS code(s)</th>
<th>d. Contractor Bid Amount (100%)</th>
<th>e. Material Supplier Bid Amount (20%)</th>
<th>f. Estimated MBE Usage Dollar Amount</th>
<th>g. Estimated WBE Usage Dollar Amount</th>
<th>h. Estimated SBE Usage Dollar Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

i. MBE Utilization %  
j. WBE Utilization %  
k. SBE Utilization %

By signing and submitting this form the bidder certifies that the OMWBE Certified Business(s) listed will be used on this project including all applicable change orders.

Type or Print Name of Responsible Officer / Title ____________________________ Signature of Responsible Officer ____________________________ Date ____________________________

CCD/EIC/BID DOCS revised March 4, 2022
INSTRUCTIONS FOR COMPLETING EIC UTILIZATION FORM

The purpose of these instructions is to assist bidders in properly completing the EIC Utilization Form.

This form when submitted with your bid, provides information to the City of Tacoma to accurately review and evaluate your proposed EIC usage.

1. * Base Bid is the prime contractor’s bid, plus any alternates, additives and deductibles selected by the City of Tacoma. Also, please refer to Items #10-12 below.

2. Column “a” – List all Certified Business(s) that you will be awarding a contract to if you are the successful bidder.

3. Column "b" – Identify if the Certified Business(s) is being utilized as an MBE, WBE, or SBE. (Businesses may count towards multiple requirements).

4. Column "c" – List the appropriate NAICS code(s) for the scope of work, services, or materials/supplies for each Certified Business.

5. Column “d” – The bid amount must be indicated for all listed Certified Businesses that you plan on doing business with. This quote is the price that you and the Certified Businesses have negotiated prior to bid opening.

6. Column “e” – The bid amount must be indicated for all listed Certified Businesses that you plan on doing business with. This quote is the price that you and the material supplier have negotiated prior to bid opening.

7. Column "f" – Estimated MBE Usage Dollar Amount: For all MBE firms used, multiply the amount in Column “d” by 1.0 plus the amount in Column “e” by 0.20. Insert the total amount in this column.

8. Column “g” – Estimated WBE Usage Dollar Amount: For all WBE firms used, multiply the amount in Column “d” by 1.0 plus the amount in Column “e” by 0.20. Insert the total amount in this column.

9. Column “h” – Estimated SBE Usage Dollar Amount: For all MBE, WBE, or SBE firms used, Multiply the amount in Column “d” by 1.0 plus the amount in Column “e” by 0.20. Insert the total amount in this column.

10. Block “i” – The percentage of actual MBE utilization calculated on the Base Bid only. (Divide the sum of Estimated MBE Usage Dollar Amount (Column “f”) by your Base Bid (*) then multiply by 100 to get a percentage: $ amounts from column “f” divided by Base Bid (*) x 100 = MBE usage as a percentage of the Base Bid.)

11. Block “j” – The percentage of actual WBE utilization calculated on the Base Bid only. (Divide the sum of Estimated WBE Usage Dollar Amount (Column “g”) by your Base Bid (*) then multiply by 100 to get a percentage: $ amounts from column “g” divided by Base Bid (*) x 100 = WBE usage as a percentage of the Base Bid.)

CCD/EIC/BID DOCS revised March 4, 2022
12. Block “k” – The percentage of actual SBE utilization calculated on the Base Bid only. (Divide the sum of Estimated SBE Usage Dollar Amount (Column “h”) by your Base Bid (*) then multiply by 100 to get a percentage: $ amounts from column “h” divided by Base Bid (*) x 100 = SBE usage as a percentage of the Base Bid.)

It is the prime contractor's responsibility to check the status of **Certified Businesses** prior to bid opening. Call the EIC Office at 253-591-5826 or email at EICOoffice@cityoftacoma.org for additional information.
EIC REQUIREMENT FORM

EQUITY IN CONTRACTING REQUIREMENTS & PROCEDURES:

All bidders must complete and submit with their bid the following solicitation form contained in the bid submittal package:

City of Tacoma – EIC Utilization Form

IMPORTANT NOTE:

It is the bidder’s responsibility to ensure that the subcontractor(s) listed on the EIC Utilization Form are currently certified by the State of Washington’s Office of Minority and Women Business Enterprises (OMWBE) at the time of bid opening. This may be verified by contacting the EIC Office at 253-591-5075 between 8 AM and 5 PM, Monday through Friday or the OMWBE Office at (866) 208-1064. Please refer to the City of Tacoma EIC code.

EQUITY IN CONTRACTING REQUIREMENTS

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3%</td>
<td>1%</td>
<td>3%</td>
</tr>
</tbody>
</table>

A list of EIC-eligible companies is available on the following web site addresses:

www.omwbe.diversitycompliance.com*

MATERIAL MISSTATEMENTS CONCERNING COMPLETED ACTIONS BY THE BIDDER IN ANY SWORN STATEMENT OR FAILURE TO MEET COMMITMENTS AS INDICATED ON THE EIC UTILIZATION FORM MAY RENDER THE BIDDER IN DEFAULT OF CITY ORDINANCE 1.07

CCD/EIC: ENV-04015-23
Date of Record: 10/20/2023
Project Spec#: ES23-0244F
Project Title: CTP Outfall Cathodic Protection Improvements

*For the OMWBE list, be sure to look for businesses in Pierce, King, Lewis, Mason, Grays Harbor, Thurston, or any counties adjacent to the county in which the work is performed per 1.07.050(2)(b-c). Contact the EIC Office if you have any questions.
CHAPTER 1.07
EQUITY IN CONTRACTING

Sections:
1.07.010 Policy and purpose.
1.07.020 Definitions.
1.07.030 Discrimination prohibited.
1.07.040 Program administration.
1.07.050 Approval as a Certified Business.
1.07.060 Program requirements.
1.07.070 Evaluation of submittals.
1.07.080 Contract compliance.
1.07.090 Program monitoring.
1.07.100 Enforcement.
1.07.110 Remedies.
1.07.120 Unlawful acts.
1.07.130 Severability.
1.07.140 Review of program.

1.07.010 Policy and purpose.

It is the policy of the City of Tacoma that citizens be afforded an opportunity for full participation in our free enterprise system and that historically underutilized business enterprises shall have an equitable opportunity to participate in the performance of City contracts. The City finds that in its contracting for supplies, services and public works, there has been historical underutilization of small and minority-owned businesses located in certain geographically and economically disfavored locations and that this underutilization has had a deleterious impact on the economic well-being of the City. The purpose of this chapter is to remedy the effects of such underutilization through use of narrowly tailored contracting requirements to increase opportunities for historically underutilized businesses to participate in City contracts. It is the goal of this chapter to facilitate a substantial procurement, education, and mentorship program designed to promote equitable participation by historically underutilized businesses in the provision of supplies, services, and public works to the City. It is not the purpose of this chapter to provide any person or entity with any right, privilege, or claim, not shared by the public, generally, and this chapter shall not be construed to do so. This chapter is adopted in accordance with Chapter 35.22 RCW and RCW 49.60.400.

(Ord. 28625 Ex. A; passed Nov. 5, 2019; Ord. 27867 Ex. A; passed Dec. 15, 2009)

1.07.020 Definitions.

Terms used in this chapter shall have the following meanings unless defined elsewhere in the Tacoma Municipal Code (“TMC”), or unless the context in which they are used clearly indicates a different meaning.

1.07.020.B
A. “Bid” means an offer submitted by a Respondent to furnish Supplies, Services, and/or Public Works in conformance with the Specifications and any other written terms and conditions included in a City request for such offer.
B. “Bidder” means an entity or individual who submits a Bid, Proposal or Quote. See also “Respondent.”

1.07.020.C
“Certified Business” means an entity that has been certified as a Disadvantaged Business Enterprise (“DBE”), Small Business Enterprise (“SBE”), Minority Business Enterprise (“MBE”), Women Business Enterprise (“WBE”), or Minority and Women’s Business Enterprise (“MWBE”) by the Washington State Office of Minority and Women’s Business Enterprise and meets the criteria set forth in Section 1.07.050 (2) of this chapter and has been approved as meeting that criteria by the Community and Economic Development Department Program Manager.

“City” means all Departments, Divisions and agencies of the City of Tacoma.

“Contract” means any type of legally binding agreement regardless of form or title that governs the terms and conditions for procurement of Public Works and Improvements and/or Non-Public Works and Improvements Supplies and Services. Contracts include the terms and conditions found in Specifications, Bidder or Respondent Submittals, and purchase orders issued by the City. A “Contract” as used in this chapter shall include an agreement between the City and a non-profit entity to perform construction-related services for Public Works. A “Contract” does not include: (1) awards made by the City with
federal/state grant or City general funds monies to a non-profit entity where the City offers assistance, guidance, or supervision on a project or program, and the recipient of the grant awards uses the grant moneys to provide services to the community; (2) sales transactions where the City sells its personal or real property; (3) a loan transaction where the City is acting as a debtor or a creditor; (4) lease, franchise; (5) agreements to use City real property (such as Licenses, Permits and Easements) and, (6) banking and other financial or investment services.

“Contractor” means any Person that presents a Submittal to the City, enters into a Contract with the City, and/or performs all or any part of a Contract awarded by the City, for the provision of Public Works, or Non-Public Works and Improvements, Supplies or Services.

1.07.020.G

“Goals” means the annual level of participation by Certified Businesses in City Contracts as established in this chapter, the Program Regulations, or as necessary to comply with applicable federal and state nondiscrimination laws and regulations. Goals for individual Contracts may be adjusted as provided for in this chapter and shall not be construed as a minimum for any particular Contract or for any particular geographical area.

1.07.020.N

“Non-Public Works and Improvements” means all competitively solicited procurement of Supplies and/or Services by the City not solicited as Public Works.

1.07.020.P

“Person” means individuals, companies, corporations, partnerships, associations, cooperatives, any other legally recognized business entity, legal representative, trustee, or receivers.

“Program Manager” means the individual appointed, from time to time, by the City’s Community and Economic Development Director to administer the Program Regulations.

“Program Regulations” means the written regulations and procedures adopted pursuant to this chapter for procurement of Supplies, Services and Public Works.

“Proposal” means a written offer to furnish Supplies or Services in response to a Request for Proposals. This term may be further defined in the Purchasing Policy Manual and/or in competitive solicitations issued by the City.

“Public Works (or “Public Works and Improvements”)” means all work, construction, alteration, repair, or improvement other than ordinary maintenance, executed at the cost of the City, or that is by law a lien or charge on any property therein. This term includes all Supplies, materials, tools, and equipment to be furnished in accordance with the Contract for such work, construction, alteration, repair, or improvement.

1.07.020.Q

“Quote” means a competitively solicited written offer to furnish Supplies or Services by a method of procurement that is less formalized than a Bid or a Proposal. This term may be further defined in the Purchasing Policy Manual.

1.07.020.R

“Respondent” means any entity or Person, other than a City employee, that provides a Submittal in response to a request for Bids, Request for Proposals, Request for Qualifications, request for quotes or other request for information, as such terms are defined in Section 1.06.251 TMC. This term includes any such entity or Person whether designated as a supplier, seller, vendor, proposer, Bidder, Contractor, consultant, merchant, or service provider that; (1) assumes a contractual responsibility to the City for provision of Supplies, Services, and/or Public Works; (2) is recognized by its industry as a provider of such Supplies, Services, and/or Public works; (3) has facilities similar to those commonly used by Persons engaged in the same or similar business; and/or (4) distributes, delivers, sells, or services a product or performs a Commercially Useful Function.

1.07.020.S

“Services” means non-Public Works and Improvements services and includes professional services, personal services, and purchased services, as such terms are defined in Section 1.06.251 TMC and/or the City’s Purchasing Policy Manual.

“Submittal” means Bids, Proposals, Quotes, qualifications or other information submitted in response to requests for Bids, Requests for Proposals, Requests for Qualifications, requests for Quotations, or other City requests for information, as such terms are defined in Section 1.06.251 TMC.

“Supplies” means materials, Supplies, and other products that are procured by the City through a competitive process for either Public Works procurement or Non-Public Works and Improvements procurement unless an approved waiver has been granted by the appropriate authority.
1.07.020.T

“Tacoma Public Utilities Service Area” means any ZIP code in which Tacoma Public Utilities maintains infrastructure or provides retail services.

1.07.020.W

“Waiver” means a discretionary decision by the City that the one or more requirements of this chapter will not be applied to a Contract or Contracts.


1.07.030 Discrimination prohibited.

A. No person that is engaged in the construction of public works for the City, engaged in the furnishing of laborers or craftspeople for public works of the City, or is engaged for compensation in the provision of non-public works and improvements supplies and/or services to the City, shall discriminate against any other person on the basis of race, religion, color, national origin or ancestry, sex, gender identity, sexual orientation, age, marital status, familial status, or the presence of any sensory, mental or physical disability, or “pregnancy outcomes” under TMC 1.29.040, in employment. Such discrimination includes the unfair treatment or denial of normal privileges to a person as manifested in employment upgrades, demotions, transfers, layoffs, termination, rates of pay, recruitment of employees, or advertisement for employment.

B. The violation of the terms of RCW 49.60 or Chapter 1.29 TMC by any person that is engaged in the construction of public works for the City, is engaged in the furnishing of laborers or craftspeople for public works of the City, or is engaged for compensation in the provision of non-public works and improvements supplies and/or services shall result in the rebuttable presumption that the terms of this chapter have also been violated. Such violation may result in termination of any City contract the violator may have with the City and/or the violator’s ineligibility for further City Contracts.

(Ord. 28859 Ex. A; passed Nov. 22, 2022: Ord. 27867 Ex. A; passed Dec. 15, 2009)

1.07.040 Program administration.

A. The Community and Economic Development Director, or their designated Program Manager, shall be responsible for administering this chapter and obtaining compliance with respect to contracts entered into by the City and/or its contractors. It shall be the duty of the Director to pursue the objectives of this chapter by conference, conciliation, persuasion, investigation, or enforcement action, as may be necessary under the circumstances. The Director is authorized to implement an administrative and compliance program to meet these responsibilities and objectives.

B. The Director is hereby authorized to adopt and to amend administrative regulations known as the Program Regulations, to properly implement and administer the provisions of this chapter. The Program Regulations shall be in conformance with City of Tacoma policies and state and federal laws and be designed to encourage achievement of the Goals set forth herein.


1.07.050 Approval as a Certified Business.

A. The Program Manager shall approve an entity as a Certified Business if all of the following criteria are satisfied:

1. The entity is certified as a DBE, SBE, MBE, WBE, or MWBE through the state of Washington’s Office of Minority & Women Business Enterprises; and

2. The entity can demonstrate that it also meets at least one of the following additional requirements:

a. The personal residence of the owner is located within the City of Tacoma or Tacoma Public Utilities Service Area, or

b. The entity’s business offices are located in any county of the Tacoma Public Utilities Service Area or any county adjacent to Pierce County, or

c. When the work is performed outside of Pierce County, the entity’s business offices may be located in an adjacent county in which the work is performed, or

d. Such additional information as the Program Manager or designee may require.

3. When another governmental entity has an equivalent business classification process, the City may enter into an interlocal cooperative agreement for mutual recognition of certifications.
B. Appeals.

The applicant may appeal any approval determination by the Program Manager under this chapter to the Director. The appeal must be made in writing and must set forth the specific reasons for the appeal. The Director shall make a decision on the appeal request within a reasonable time, which decision shall be final unless further appeal is made to the Hearing Examiner. In that event, the Hearing Examiner Rules of Procedure for Hearings, Chapter 1.23 TMC, shall be applicable to that appeal proceeding.


1.07.060 Program requirements.

A. The program shall meet the following requirements:

1. Establishment of Annual Goals.

The Program Regulations adopted pursuant to this chapter shall state reasonably achievable cumulative annual goals for utilization of Certified Businesses in the provision of supplies, services, and public works procured by the City. Cumulative annual goals for the participation of Certified Businesses in City contracts shall be based on the number of qualified Certified Businesses operating within the Tacoma Public Utilities Service Area. The dollar value of all contracts awarded by the City to Certified Businesses in the procurement of supplies, services, and public works shall be counted toward the accomplishment of the applicable goal.


The Program Manager shall consult with City departments/divisions to establish department/division specific goals for competitively solicited contracts in accordance with this chapter and the Program Regulations.

B. Exceptions:

City departments/divisions or the Program Manager may request an exception to one or more of the requirements of this chapter as they apply to a particular Contract or Contracts. Exceptions may be granted in any one or more of the following circumstances:

1. Emergency:

The supplies, services and/or public works must be provided with such immediacy that neither the City nor the contractor can comply with the requirements herein. Such emergency will be deemed documented whenever a waiver of competitive solicitation for emergency situations is authorized under Tacoma Municipal Code Chapter 1.06.257 or as may be hereinafter amended.

2. Not Practicable:

The Contract involves special facilities or market conditions or specially tailored or performance criteria-based products, such that compliance with the requirements of this chapter would cause financial loss to the City or an interruption of vital services to the public. Such circumstances must be documented by the department/division awarding the Contract and approved by the senior financial manager or, for Contracts where the estimated cost is over $500,000 (excluding sales tax), approved by the Board of Contracts and Awards (“C&A Board”).

3. Sole source:

The supplies, services, and/or public works are available from only one feasible source, and subcontracting possibilities do not reasonably exist as documented by the department/division awarding the Contract and approved by the senior financial manager or, for Contracts where the estimated cost is over $500,000 (excluding sales tax), approved by the C&A Board.


The Contract or Contracts are the result of a federal, state or inter-local government purchasing agreement and the use of such agreement in lieu of a bid solicitation conducted by the City is approved by the senior financial manager.

5. Lack of certified contractors:

An insufficient number of qualified contractors exist to create any utilization opportunities as documented by the Program Manager.

C. Waiver:
If, after receipt of Submittals but prior to Contract award, it is determined that due to unforeseen circumstances, waiver of goals is in the best interests of the City, the Director or Superintendent of the department/division awarding the Contract may request in writing that the City Manager or designee, on behalf of General Government, or the Director of Utilities or designee, on behalf of the Department of Public Utilities, approve such waiver.

Waivers may be granted only after determination by the City Manager or Director of Utilities that compliance with the requirements of this chapter would impose unwarranted economic burden on, or risk to, the City of Tacoma as compared with the degree to which the purposes and policies of this chapter would be furthered by requiring compliance.


1.07.070 Evaluation of submittals.

A. All submittals for a supplies, services, or public works and improvements contracts shall be evaluated for attainment of the Certified Business requirements established for that contract in accordance with this chapter and the Program Regulations.

B. The determination of Certified Business usage and the calculation of Certified Business requirements per this section shall include the following considerations:

1. General.

The dollar value of the contract awarded by the City to a Certified Business in the procurement of supplies, services, or public works shall be counted toward achievement of the respective goal.

2. Supplies.

A public works and improvements contractor may receive credit toward attainment of the Certified Business requirement(s) for expenditures for supplies obtained from a Certified Business; provided such Certified Business assumes the actual and contractual responsibility for delivering the supplies with its resources. The contractor may also receive credit toward attainment of the Certified Business goal for the amount of the commission paid to a Certified Business resulting from a supplies contract with the City; provided the Certified Business performs a commercially useful function in the process.


Any bid by a Certified Business or a bidder that utilizes a Certified Business shall receive credit toward requirement attainment based on the percentage of Certified Business usage demonstrated in the bid. A contractor that utilizes a Certified Business as a subcontractor to provide services or public works shall receive a credit toward the contractor’s attainment of the respective requirement based on the value of the subcontract with that firm.


Certified Business acting as brokers, fronts, or similar pass-through arrangements (as such terms are defined in the Program Regulations) shall not count toward the requirement attainment unless the activity reflects normal industry practices and the broker performs a commercially useful function.

C. Evaluation of competitively solicited submittals for public works and improvements and for services when a requirement has been established for the contract to be awarded shall be as follows:

1. When contract award is based on price.

The lowest priced bid submitted by a responsive and responsible bidder will be reviewed to determine if it meets the requirement. Certified Businesses may self-count utilization on such bids if they will perform the work for the scope the requirement is based upon.

a. If the low bidder meets the requirements, the bid shall be presumed the lowest and best responsible bid for contract award.

b. Any bidder that does not meet the stated Certified Business requirements shall be considered a non-responsible bidder unless a waiver of one or more of the requirements of this chapter is granted, in the City’s sole discretion, pursuant to the criteria and processes in Tacoma Municipal Code 1.07.060.C.

2. When contract award is based on qualifications or other performance criteria in addition to price, solicitations shall utilize a scoring system that promotes participation by certified contractors. The Program Regulations may establish further requirements and procedures for final selection and contract award, including:

a. Evaluation of solicitations for Architectural and Engineering (A&E) services;

b. Evaluation and selection of submittals in response to requests for proposals; and
c. Selection of contractors from pre-qualified roster(s).

1.07.080 Contract compliance.

A. The contractor awarded a contract based on Certified Business participation shall, during the term of the contract, comply with the requirements established in said contract. To ensure compliance with this requirement following contract award, the following provisions apply:

1. Any substitutions for or failure to utilize Certified Business projected to be used must be approved in advance by the Program Manager. Substitution of one Certified Business with another shall be allowed where there has been a refusal to execute necessary agreements by the original Certified Business, a default on agreements previously made or other reasonable excuse; provided that the substitution does not increase the dollar amount of the bid.

2. Where it is shown that no other Certified Business is available as a substitute and that failure to secure participation by the Certified Business identified in the solicitation is not the fault of the respondent, substitution with a non-Certified Business shall be allowed; provided, that, the substitution does not increase the dollar amount of the bid.

3. If the Program Manager determines that the contractor has not reasonably and actively pursued the use of replacement Certified Business, such contractor shall be deemed to be in non-compliance.

B. Record Keeping.

All contracts shall require contractors to maintain relevant records and information necessary to document compliance with this chapter and the contractor's utilization of Certified Businesses, and shall include the right of the City to inspect such records.


1.07.090 Program monitoring.

A. An Advisory Committee shall monitor compliance with all provisions of this chapter and the related Regulations. The Program Manager shall establish procedures to collect data and monitor the effect of the provisions of this chapter to assure, insofar as is practical, that the remedies set forth herein do not disproportionately favor one or more racial, gender, ethnic, or other protected groups, and that the remedies do not remain in effect beyond the point that they are required to eliminate the effects of under utilization in City contracting, unless such provisions are supported by a Disparity Study. The Program Manager shall have the authority to obtain from City departments/divisions, respondents, and contractors such relevant records, documents, and other information as is reasonably necessary to determine compliance.

B. The Program Manager shall submit an annual report to the Community and Economic Development Director, Director of Utilities, and the City Manager detailing performance of the program. The report shall document Certified Business utilization levels, waivers, proposed modifications to the program, and such other matters as may be specified in the Program Regulations.


1.07.100 Enforcement.

The Director, or designee, may investigate the employment practices of contractors to determine whether or not the requirements of this chapter have been violated. Such investigation shall be conducted in accordance with the procedures established in the Program Regulations.


1.07.110 Remedies.

A. Upon receipt of a determination of contractor violation by the Program Manager, the City Manager or Director of Utilities, as appropriate, may take the following actions, singly or together, as appropriate:

1. Forfeit the contractor’s bid bond and/or performance bond;
2. Publish notice of the contractor’s noncompliance;
3. Cancel, terminate, or suspend the contractor’s contract, or portion thereof;
4. Withhold funds due contractor until compliance is achieved; and/or
5. Recommend appropriate action including, but not limited to, disqualification of eligibility for future contract awards by the City (debarment) per Section 1.06.279 TMC;

B. Prior to exercise of any of the foregoing remedies, the City shall provide written notice to the contractor specifying the violation and the City’s intent to exercise such remedy or remedies. The notice shall provide that each specified remedy becomes effective within ten business days of receipt unless the contractor appeals said action to the Hearing Examiner pursuant to Chapter 1.23 TMC.

C. When non-compliance with this chapter or the Program Regulations has occurred, the Program Manager and the department/division responsible for enforcement of the contract may allow continuation of the contract upon the contractor’s development of a plan for compliance acceptable to the Director.


1.07.120 Unlawful acts.

It shall be unlawful for any Person to willfully prevent or attempt to prevent, by intimidation, threats, coercion, or otherwise, any Person from complying with the provisions of this chapter.

(Ord. 27867 Ex. A; passed Dec. 15, 2009)

1.07.130 Severability.

If any section of this chapter or its application to any Person or circumstance is held invalid by a court of competent jurisdiction, then the remaining sections of this chapter, or the application of the provisions to other Persons or circumstances, shall not be affected.

(Ord. 27867 Ex. A; passed Dec. 15, 2009)

1.07.140 Review of program.

This chapter shall be in effect through and until December 31, 2024, unless the City Council shall determine at an earlier date that the requirements of this chapter are no longer necessary. If this chapter has not been repealed by July 1, 2024, the City Council shall determine by the end of that year whether substantial effects or lack of opportunity of MWBEs and/or SBEs remain true in the relevant market and whether, and for how long, some or all of the requirements of this chapter should remain in effect.

PART VII

CITY OF TACOMA LOCAL EMPLOYMENT AND APPRENTICESHIP TRAINING PROGRAM (LEAP) REGULATIONS FOR PUBLIC WORKS CONTRACTS
LEAP
LOCAL EMPLOYMENT AND APPRENTICESHIP TRAINING PROGRAM
ABBREVIATED PROGRAM REQUIREMENTS

LEAP is a mandatory City of Tacoma program adopted to provide employment opportunities for City of Tacoma residents and residents of Economically Distressed Areas of the Tacoma Public Utilities Service Area. Based on the dollar amounts of projects, it requires Prime Contractors performing qualifying public works projects or service contracts ensure that a percentage of the total labor hours worked on the project are performed by LEAP-Qualified local employees and/or LEAP-Qualified apprentices approved by the Washington State Apprenticeship Council (SAC), residents of Tacoma, residents of surrounding Economically Distressed Areas, and/or TPU Service Areas (as outlined below). Compliance may be met through any combination LEAP-Qualified employees.

Prime Contractors may obtain further information by contacting the City of Tacoma’s LEAP Coordinator, Deborah Trevorrow, at (253) 591-5590 or leap@cityoftacoma.org. The LEAP Coordinator can assist contractors in the recruitment of qualified entry-level workers to work on City of Tacoma Public Works projects. The LEAP Office is in the Tacoma Municipal Building, 747 Market Street, Rm 900.

*NOTE – for projects bid on or after October 10, 2023, compliance with workforce requirements and payrolls will be strictly enforced.

LEAP PROGRAM REQUIREMENTS:
1. LOCAL EMPLOYMENT Requirement: The Prime Contractor is required to ensure that 15 percent of the total Labor Hours worked on the project are performed by residents of the City of Tacoma or Economically Distressed ZIP Codes for the following projects:
   a) Civil Projects over $250,000
   b) Building Projects over $750,000

2. APPRENTICE Requirement: The Contractor is required to ensure that an additional 15 percent of the total Labor Hours worked on any project over $1,000,000 are performed by Apprentices who are residents of the Tacoma Public Utilities Service Area. This is in addition to the Local Employment Goal.

3. SUBCONTRACTOR NOTIFICATION: Prime Contractors shall notify all Subcontractors of the LEAP Program requirement(s). Subcontractor labor hours may be utilized towards achievement of the LEAP Requirements. Owner/Operator hours may be used for the Local Employment Requirement.

4. FAILURE TO MEET LEAP UTILIZATION REQUIREMENT: Contractors shall be assessed an amount for each hour that is not achieved. The amount per hour shall be based on the percent of the requirement that is met. All rounding shall be done down to the nearest whole percent. The amount per hour that shall be assessed is as follows:

   • 100% achievement $0.00 penalty
   • 99% to 90% achievement $2.00 penalty
   • 89% to 75% achievement $3.50 penalty
   • 74% to 50% achievement $5.00 penalty
   • 49% to 1% achievement $7.50 penalty
   • 0% achievement $10.00 penalty
LEAP DOCUMENT SUBMITTALS**:

1. **LEAP EMPLOYEE VERIFICATION FORM**: upon request, the Contractor must provide the LEAP Office with a form for every person whom the contractor thinks will assist with attaining credit towards meeting the LEAP Utilization Requirements with at least one piece of verifying documentation. The LEAP Office staff will respond regarding whether or not the employee is LEAP-Qualified.

2. **WEEKLY CERTIFIED PAYROLL**: In LCP Tracker: the Prime and Subcontractors must submit weekly Certified Payrolls that include, employee name, address, social security number, craft/trade, class, hours worked on this job, rate of pay, and gross wages paid including benefits for this job.

3. **DEPARTMENT OF LABOR & INDUSTRIES (L&I)**: The Prime must enter the project in the L&I project site under the ‘Tacoma, City of’ account and notify the LEAP Office when this has been completed.

**WITHHOLDING PROGRESS PAYMENTS**: The LEAP Coordinator may withhold progress payments for failure to follow the above-outlined procedures.
LEAP
Documents and Submittal Schedule

In the attached packet, you will find the LEAP documentation and forms that are required to be submitted by the Prime and Sub Contractors.

- **LEAP Abbreviated Program Requirements**: brief overview of LEAP Program requirements
- **LEAP Employee Verification Form**: to be submitted, upon request, for each employee who may be a LEAP-qualified employee
- **Tacoma Public Utilities Service Area Map and List, Economically Distressed ZIP Codes Map and List**: for your reference on LEAP-qualified zoning areas

In addition, the City of Tacoma will also require from the Prime Contractor and all its Subcontractors:

- **Weekly Certified Payrolls**: to be submitted via LCP Tracker weekly, biweekly or monthly.
- **Statement of Intent to Pay Prevailing Wages**: to be submitted prior to commencing work
- **Affidavit of Wages Paid**: to be submitted upon completion of each contractor’s work
- **Document Verification**: provide required information when requested from LEAP Office

Please submit above documents as instructed by the LEAP Coordinator.

If you have any questions or request further information, please feel free to contact the City of Tacoma’s LEAP Program at (253) 591-5590 or leap@cityoftacoma.org

06/2023  DT
CHAPTER 1.90
LOCAL EMPLOYMENT AND APPRENTICESHIP TRAINING PROGRAM

Sections:
1.90.010 Purpose.
1.90.020 Scope.
1.90.030 Definitions.
1.90.040 LEAP goals.
1.90.050 Repealed.
1.90.060 Effect of program on prime contractor/subcontractor relationship.
1.90.070 Apprentice utilization requirements – Bidding and contractual documents.
1.90.080 Enforcement.
1.90.090 Compliance with applicable law.
1.90.100 Review and reporting.
1.90.105 Authority
1.90.110 Interpretation.

1.90.010 Purpose.
The purpose of this Chapter is to establish a means of providing for the development of a trained and capable workforce possessing the skills necessary to fully participate in the construction trades.

(Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.020 Scope.
The provisions of this Chapter shall apply to all Public Works or Improvements funded in whole or in part with City funds or funds which the City expends or administers in accordance with the terms of a grant.

(Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.030 Definitions.
As used in this chapter, the following terms shall have the following meanings:

A. “Apprentice” shall mean a person enrolled in a course of training specific to a particular construction trade or craft, which training shall be approved by the Washington State Apprenticeship and Training Council established pursuant to RCW 49.04.010.

B. “Building Projects” shall mean all Public Works or Improvements having an Estimated Cost greater than $750,000.00, and for which a building permit must be issued pursuant to Chapter 1 of the current edition of the state building code (Uniform Building Code).

C. “City” shall mean all divisions and departments of the City of Tacoma, and all affiliated agencies, provided, however, that the Tacoma Community Redevelopment Authority shall not be included within this definition.

D. “Civil Projects” shall mean all Public Works or Improvements that are not defined as a “Building Project,” provided that those projects having an Estimated Cost of less than $250,000.00 shall not be included in this definition.

E. “Contractor or Service Provider” means a person, corporation, partnership, or joint venture entering into a contract with the City to construct a Public Work or Improvement.

F. “Director” shall mean the Director of Community and Economic Development, or the Director’s Designee.

G. “Economically Distressed ZIP Codes” shall mean ZIP codes in the Tacoma Public Utilities Service Area that meet two out of three (2/3) of the thresholds of:
   1. High concentrations of residents living under 200% of the federal poverty line in terms of persons per acre (69th percentile)
   2. High concentrations of unemployed people in terms of persons per acre (45th percentile)
   3. High concentrations of people 25 years or older without a college degree in terms of persons per acre (75th percentile)

Said thresholds shall be updated within 30 days following any Prevailing Wage updates issued by the Washington State Labor and Industry. All updates are to be published on the first business day in August and in February of each calendar year.
H. “Electrical Utility” and “Water Utility” shall mean, respectively, the Light Division of the Department of Public Utilities of
the City of Tacoma, and shall include the electrical and telecommunications services of that Division, and the Water Division
of the Department of Public Utilities of the City of Tacoma.

I. “Estimated Cost” shall mean the anticipated cost of a Public Work or Improvement, as determined by the City, based upon
the expected costs of materials, supplies, equipment, and labor, but excluding taxes and contingency funds.

J. “Estimated Labor Hours” shall mean the anticipated number of Labor Hours determined by the City to be necessary to
construct a Public Work or Improvement and set forth in the specifications for the project, or as may be subsequently revised
due to contract or project adjustment, or pursuant to an agreed upon change order.

K. “Existing Employee” shall mean an employee whom the Contractor or Service Provider can demonstrate was actively
employed by the Contractor or Service Provider for at least 1000 hours in the calendar year prior to bid opening plus one
month following bid opening, and who was performing work in the construction trades.

L. “Labor Hours” shall mean the actual number of hours worked by workers receiving an hourly wage who are employed on
the site of a Public Work or Improvement, and who are subject to state or federal prevailing wage requirements. The term
“Labor Hours” shall include hours performed by workers employed by the Contractor or Service Provider and all
Subcontractors, and shall include additional hours worked as a result of a contract or project adjustment or pursuant to an
agreed upon change order. The term “Labor Hours” shall not include hours worked by workers who are not subject to the

M. “LEAP Coordinator” shall mean the City of Tacoma staff member who administers LEAP.

N. “LEAP Program” or “Program” shall mean the City of Tacoma’s Local Employment and Apprenticeship Training
Program, as described in this chapter.

O. “LEAP Regulations” or “Regulations” shall mean the rules and practices established in this document.

P. “LEAP Utilization Plan” shall mean the document submitted by the Contractor to the LEAP Coordinator which outlines
how the associated goals will be met on the project.

Q. “Priority Hire Resident” shall mean any resident within the Economically Distressed ZIP Codes.

R. “Project Engineer” shall mean the City employee who directly supervises the engineering or administration of a particular
construction project subject to this chapter.

S. “Public Work or Improvement” shall have the same meaning as provided in Section 39.04.010 RCW, as that Section may
now exist or hereafter be amended.

T. “Resident of Tacoma” shall mean any person, not defined as a Resident of the Community Empowerment Zone, who
continues to occupy a dwelling within the boundaries of the City of Tacoma, has a present intent to continue residency within
the boundaries of the City, and who demonstrates the genuineness of that intent by producing evidence that the person’s
presence is more than merely transitory in nature.

U. “Service Area - Electrical” or “Electrical Service Area” shall mean that area served with retail sales by the Electrical Utility
of the City of Tacoma at the time a bid is published by the Electrical Utility for a Public Work or Improvement to be
performed primarily for the Electrical Utility.

V. “Service Area - Water” or “Water Service Area” shall mean that area served with retail sales by the water utility of the City
of Tacoma at the time a bid is published by the water utility for a Public Work or Improvement to be performed primarily for
the water utility.

W. “Service Contract” shall mean all City contracts relating to a Public Work or Improvement which utilize labor at a City
site and which are not within the exceptions to nor defined as “Building Projects” or “Civil Projects.”

X. “Subcontractor” means a person, corporation, partnership, or joint venture that has contracted with the Contractor or
Service Provider to perform all or part of the work to construct a Public Work or Improvement by a Contractor.

Y. “Tacoma Public Utilities” means the City of Tacoma, Department of Public Utilities.

Z. “Tacoma Public Utilities Service Area” shall mean every ZIP code listed by Tacoma Public Utilities as an area that either
receives services or maintains infrastructure to provide services.

AA. Washington State Labor and Industry Prevailing Wage shall mean the hourly wage, usual benefits and overtime, paid in
the largest city in each county, to the majority of workers, laborers, and mechanics. Prevailing wages are established, by the
Department of Labor & Industries, for each trade and occupation employed in the performance of public work. They are
established separately for each county, and are reflective of local wage conditions.
(Ord. 28520 Ex. A; passed Jul. 17, 2018; Ord. 28147 Ex. B; passed May 7, 2013; Ord. 28110 Ex. C; passed Dec. 4, 2012; Ord. 27815 Ex. A; passed Jun. 30, 2009; Ord. 27368 § 1; passed Jun. 21, 2005; Ord. 26698 § 1; passed Sept. 12, 2000; Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.040 LEAP goals.

A. Utilization Goals.

1. All Contractors constructing Civil Projects or Building Projects, and all Service Providers involved with the construction of a Public Work or Improvement, shall ensure that at least 15 percent of the total Labor Hours actually worked on the Project are performed by persons having their residence within the boundaries of the City of Tacoma or Economically Distressed ZIP Codes, whether or not any such person is an Apprentice.

   a. The thresholds for this section shall be $250,000.00 for Civil Projects and $750,000.00 for Building Projects.

2. Fifteen percent (15%) of the Total Labor Hours on contracts above one-million dollars ($1,000,000.00) shall have work performed by Apprentices who are residents of the Tacoma Public Utilities Service Area consistent with RCW 39.04.320(1)(a), subject to waiver based on exceptions as specified in RCW 39.04.320(2)(a), (b), and (c).

3. Labor Hours performed by non-residents of the State of Washington will be deducted from a project’s total Labor Hours for purposes of determining compliance with the requirements of this chapter.

4. All Contractors and Service Providers shall submit a LEAP Utilization Plan as provided for in the regulations adopted under this chapter, and shall meet with the LEAP Coordinator to review said Plan prior to being issued a Notice to Proceed. Failure to submit a LEAP Utilization Plan may be grounds for the City to withhold remittance of a progress payment until such Plan is received from the responsible Contractor or Provider. A meeting with the LEAP Coordinator prior to issuance of a Notice to Proceed shall be excused only when the LEAP Coordinator is unavailable to meet prior to the scheduled date for issuance of the Notice to Proceed and the Contractor and the LEAP Coordinator have otherwise scheduled a meeting for the coordinator to review the Contractor’s or Provider’s plan.

The Contractor or Service Provider shall be responsible for meeting the LEAP utilization goal requirements of the contract, including all amendments and change orders thereto, and shall be responsible for overall compliance for all hours worked by Subcontractors. To the extent possible, the Contractor or Service Provider shall recruit Apprentices from multiple trades or crafts.

B. Failure to Meet Utilization Goal.

1. Contracts for the construction of Building projects or Civil projects and Service Contracts shall provide that Contractors or Service Providers failing to meet the LEAP utilization goals shall be assessed an amount for each hour that is not achieved. The amount per hour shall be based on the extent the Contractor or Service Provider met its goal. The amount per hour that shall be assessed shall be as follows:

<table>
<thead>
<tr>
<th>Percent of Goal Met</th>
<th>Assessment per unmet hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>$ 0.00</td>
</tr>
<tr>
<td>90% - 99%</td>
<td>$ 2.00</td>
</tr>
<tr>
<td>75% to 89%</td>
<td>$ 3.50</td>
</tr>
<tr>
<td>50% to 74%</td>
<td>$ 5.00</td>
</tr>
<tr>
<td>1% to 49%</td>
<td>$ 7.50</td>
</tr>
<tr>
<td>0%</td>
<td>$10.00</td>
</tr>
</tbody>
</table>

When determining the percent of goal that is met, all rounding shall be down to the nearest whole percent. No penalty shall be waived by the City unless it is determined by the Director to be in the best interests of the City, which determination shall be made after consultation with the LEAP Coordinator.

2. Deposit of Assessments. All assessments imposed pursuant to this section shall be deposited into a separate account and utilized to support the City’s pre-apprenticeship and training program. The policies and regulations adopted by the City Manager and Director of Utilities pursuant to this chapter shall address issues pertaining to a Contractor’s existing workforce. Contributions need not be made for Labor Hours that have been adjusted in accordance with Section 1.90.040(E).

C. LEAP Reports.

Notwithstanding the provisions of TMC 1.90.100, the Director shall, not less than annually, publish a LEAP report setting forth Contractor compliance with this chapter. Said report shall include information on all contracts and all Contractors to which this chapter applies, and shall detail the level and nature of LEAP participation by contract and by Contractor, The
Director’s LEAP report may include such other information as may be helpful to assuring fair and accurate representation of the contracts, Contractors or projects covered in the report. The Director’s LEAP reports may be considered by the Board of Contracts and Awards in its determinations as to bidder responsibility.

D. LEAP Goal Adjustments.

1. LEAP utilization goals may be adjusted prior to bid opening and/or as a result of a contract amendment or change order on a Building Project, Civil Project, or Service Contract.

a. If LEAP utilization goals are adjusted prior to bid opening, they shall be set forth in the bid or Request For Proposal advertisement and specification documents or in an addendum timely provided to prospective bidders, provided that such adjustment shall be based upon a finding by the Project Engineer that the reasonable and necessary requirements of the contract render LEAP utilization unfeasible at the required levels. The Director shall concur with the Project Engineer’s finding, provided that should the Project Engineer and the Director fail to reach agreement on the Project Engineer’s finding, then in that circumstance the matter shall be referred to the City Manager or the Director of Utilities, as appropriate, for ultimate resolution. Notwithstanding any other provision of this chapter to the contrary, the decision of the City Manager or the Director of Utilities with regard to LEAP goal adjustment may not be appealed.

b. If LEAP utilization goals are adjusted due to contract amendment or change order, the amount of adjustment shall be consistent with the utilization goals set forth in this chapter and shall be determined pursuant to regulations adopted pursuant to this chapter for administration of LEAP utilization goal adjustments.

2. The methodology of determining the appropriate adjustments to LEAP utilization goals shall be determined in consultation with the LEAP Advisory Committee, established pursuant to this ordinance for so long as the LEAP Advisory Committee remains in existence.

3. LEAP utilization goals shall not apply to those portions of a project that are funded by sources other than (a) City funds, or (b) funds which the City expends or administers in accordance with the terms of a grant to the City, provided that the Project Engineer shall notify the Director of such non-application prior to bid advertisement. For the purposes of this paragraph, credits extended by another entity for the purpose of providing project funding shall not be considered to be City funds.

E. Utilization - Electrical Projects Outside Electrical Service Area.

Civil Projects or Building Projects that are constructed primarily for the benefit or use by the City’s Electrical Utility, which are wholly situated outside the Electrical Service Area, and for which the estimated cost is less than $1,000,000.00, are exempt from the requirements of this chapter.

F. Utilization - Water Projects Outside Water Service Area.

Civil Projects or Building Projects that are constructed primarily for the benefit or use by the City’s water utility, which are wholly situated outside the Water Service Area, and for which the estimated cost is less than $1,000,000.00 are exempt from the requirements of this chapter.

G. Utilization - Projects Outside Tacoma Public Utilities Service Area.

Civil Projects or Building Projects that are constructed primarily for the benefit or use by Tacoma Public Utilities, which are wholly situated outside the retail service area of the Tacoma Public Utilities Service Area, and for which the estimated cost is less than $1,000,000.00 are exempt from the requirements of this chapter. Projects wholly situated outside the Tacoma Public Utilities Service Area, and for which the estimated cost is more than $1,000,000.00, shall be exempt from 15% utilization goal specified in subsection A1. of this section. The 15% utilization goal specified in subsection A2. of this section may be met if project work is performed by Apprentices who are enrolled in a course of training specific to a particular construction trade or craft, provided such training has been approved by the Washington State Apprenticeship and Training Council in accordance with Chapter 49.04, RCW.

H. Emergency.

This chapter shall not apply in the event of an Emergency. For the purposes of this section, an “Emergency” means unforeseen circumstances beyond the control of the City that either: (a) present a real, immediate threat to the proper performance of essential functions; or (b) will likely result in material loss or damage to property, bodily injury, or loss of life if immediate action is not taken.

I. Conflict with State or Federal Requirements.

If any part of this chapter is found to be in conflict with federal or state requirements which are a prescribed condition to the allocation of federal or state funds to the City, then the conflicting part of this chapter is inoperative solely to the extent of the conflict and with respect to the City departments directly affected. This provision does not affect the operation of the
remainder of this chapter. Administrative rules or regulations adopted under this chapter shall meet federal and state requirements which are a necessary condition to the receipt of federal or state funds by the City.

(Ord. 28520 Ex. A; passed Jul. 17, 2018; Ord. 28147 Ex. B; passed May 7, 2013; Ord. 27815 Ex. A; passed Jun. 30, 2009; Ord. 27368 § 2; passed Jun. 21, 2005; Ord. 26992 § 1; passed Oct. 15, 2002; Ord. 26698 § 2; passed Sept. 12, 2000; Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.050  Repealed by Ord. 27368. Good faith efforts.

(Ord. 27368 § 3; passed Jun. 21, 2005; Ord. 26698 § 3; passed Sept. 12, 2000; Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.060  Effect of program on prime contractor/service provider - subcontractor relationship.

The LEAP Program shall not be construed so as to modify or interfere with any relationship between any Contractor or Service Provider and Subcontractor. The LEAP Program shall not grant the City any authority to control the manner or method of accomplishing any construction work that is additional to any authority retained by the City in a Public Works contract.

(Ord. 26698 § 4; passed Sept. 12, 2000; Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.070  Apprentice utilization requirements – Bidding and contractual documents.

All packages of bid documents for every Building Project and every Civil Project shall incorporate provisions satisfactory to the City Attorney so as to allow enforcement of the provisions contained in this Chapter. Such contractual provisions may include liquidated damages, calculated to reimburse the City for the Contractor’s breach of these performance requirements, which shall be published with the City’s call for bids.

(Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.080  Enforcement.

A. The Director shall review the Contractor’s or Service Provider’s and all Subcontractor’s employment practices during the performance of the work for compliance with LEAP Program requirements. On-site visits may be conducted as necessary to verify compliance with the requirements of the LEAP Program. The Contractor, Service Provider, or Subcontractors shall not deny to the City the right to interview its employees, provided that the Director shall make reasonable efforts to coordinate employee interviews with employers.

B. Any knowing failure or refusal to cooperate in compliance monitoring may disqualify the defaulting Contractor, Service Provider, or Subcontractor from eligibility for other City contracts.

C. The making of any material misrepresentation may disqualify the defaulting Contractor, Service Provider, or Subcontractor from eligibility for other City contracts.

D. Any action by the City, its officers and employees, under the provisions of this Chapter may be reviewed by the Board of Contracts and Awards, upon written application of the party so affected. Application shall be made within twenty (20) days of the date of the action upon which the appeal is based, and provided to the City by certified mail or by personal service. Any action taken by the Board of Contracts and Awards may be appealed to the City Council or Public Utility Board, as appropriate, and thereafter if desired, to the Superior Court of Pierce County, Washington, within fifteen (15) days of the previous decision.

(Ord. 26698 § 5; passed Sept. 12, 2000; Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.090  Compliance with applicable law.

Nothing in this Chapter shall excuse a Prime Contractor, Service Provider, or Subcontractor from complying with all relevant federal, state, and local laws.

(Ord. 26698 § 6; passed Sept. 12, 2000; Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.100  Review and reporting.

The City Manager and Director of Utilities shall review the Program on or before January 1, 2000, and every two (2) years thereafter, and shall report to the City Council and Public Utility Board the Manager’s and Director’s findings, conclusions, and recommendations as to the continued need for the Program, and any revisions thereto that should be considered by the Council and Board.
1.90.105 Authority.

The City Manager and the Director of Utilities shall have authority to jointly adopt policies and regulations consistent with this chapter to implement the LEAP program.

(Ord. 26698 § 7; passed Sept. 12, 2000; Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.110 Interpretation.

This Chapter shall not be interpreted or construed so as to conflict with any state or federal law, nor shall this Chapter be enforced such that enforcement results in the violation of any applicable judicial order.

(Ord. 26301 § 1; passed Oct. 6, 1998)
LOCAL EMPLOYMENT AND APPRENTICESHIP TRAINING PROGRAM (LEAP)

The LEAP office enforces post-award mandatory requirements. Bidders do not have to submit any information in the bid submittal package to be in compliance with LEAP.

Post-award:
- **Provide information to the LEAP Office (see LEAP contact information below).** Provide the name and email address of the person(s) who will oversee LEAP utilization and payrolls.
- **LEAP Employee Verification.** Proof of residency may be requested for employees who may be LEAP-Qualified and may be able to help meet the LEAP Requirements.
- **All certified payrolls.** Prime contractor is responsible for ensuring their, and their subcontractors’, payrolls are submitted via LCP Tracker. By submitting payrolls in LCP Tracker before the Labor & Industry’s website, you can reduce data entry.

The City of Tacoma’s LEAP office enforces varying workforce utilization requirements based on City projects based on certain monetary thresholds and project locations.

**Local Employment Utilization Requirement** - the Prime Contractor performing a qualifying public work or improvement must ensure that 15 percent of the total labor hours worked on the project are performed by journey or apprentice level craft workers who are residents of the City of Tacoma or Economically Distressed Zip Codes.

**Apprenticeship Utilization Requirement** – the Prime Contractor performing a qualifying public work or improvement must ensure that 15 percent of the total labor hours worked on the project are performed by apprentices who are residents of the Tacoma Public Utilities Service Area.

*Exceptions:* If the project is located outside of the retail service area of the Tacoma Public Utilities Service Area, then Apprentices may come from the county in which the work is performed.

This project is subject to the:

1. **15% Local Employment Utilization Requirement**

LEAP staff can assist contractors in identifying qualified City of Tacoma residents, Economically Distressed Area residents, and Apprentices. Contractors may obtain further information by contacting the City’s LEAP Office at (253) 591-5590. The LEAP Office is located in the Tacoma Municipal Building, 747 Market Street, Room 900, Tacoma, WA 98402. www.cityoftacoma.org/leap
LEAP EMPLOYEE VERIFICATION FORM
Submit upon request from LEAP Office

Contractor/Sub: ___________________________ Specification Number: ___________________________

Project Description: ____________________________________________

Employee Name: ______________________________________ Craft: __________________________

Ethnic Group (optional): ☐ Asian/Pac Isl. ☐ Black ☐ Hispanic ☐ Native American ☐ White ☐ Other

Gender (optional): ☐ MALE ☐ FEMALE

Complete Physical Address (No PO Boxes): ____________________________

City: __________ State: ______ Zip: ______ Telephone: __________ Date of Hire: __________

Apprenticeship County: _________ Apprentice Registration I.D. (if applicable): ______________________

Age: _____ Copy of DD-214: ______

*******Please fill out entire form for tracking LEAP performance*******

LEAP qualified employee categories: (check all that apply and provide evidence for each check)

_____ a. Resident (journey level or certified apprentice) within the geographic boundaries of the City of Tacoma

_____ b. Resident (journey level or certified apprentice) within Economically Distressed ZIP Codes of the Tacoma Public Utilities Service Area

_____ c. WA State Approved Apprentice living in the Tacoma Public Utilities Service Area (Only valid for projects over $1,000,000)

_____ d. WA State Approved Apprentice *(Only valid for contracts where 100% of work is performed outside of Pierce County)

Signature of Employee: ___________________________ Date: ______________

Contractor Representative: ___________________________ Date: ______________
LEAP EMPLOYEE VERIFICATION FORM

To be Completed by Contractor or Subcontractor

Please attach a legible copy of one or more of the following document(s) showing the address of residence as proof of local (Tacoma) and/or Economically Distressed Area and/or TPU Service Areas residency. For youth, see first line and for veteran status, see second line.

........................................................................................................................................

_____ Driver’s License with current address

_____ Utility Bill/Phone Bill/Cell Bill/Cable Bill with current address

_____ Copy of current tax form W-4

_____ Rental Agreement/Lease (residential)

_____ Computer Printout From Other Government Agencies

_____ Property Tax Records

_____ Apprentice Registration I.D.

_____ Food Stamp Award Letter

_____ Housing Authority Verification

_____ Insurance Policy (Residence/Auto)

*Any of the above must have a complete physical address verified by the www.govme.org website.

No PO Boxes

Contractor Representative: ___________________________ Date: ______________

Title: ________________________________________________
LOCAL EMPLOYEE REQUIREMENT ONLY

City of Tacoma
(Journeyman AND Apprentice)

<table>
<thead>
<tr>
<th>98402</th>
<th>98421</th>
</tr>
</thead>
<tbody>
<tr>
<td>98403</td>
<td>98422</td>
</tr>
<tr>
<td>98404 (some)</td>
<td>98424</td>
</tr>
<tr>
<td>98405</td>
<td>98444</td>
</tr>
<tr>
<td>98406</td>
<td>98445</td>
</tr>
<tr>
<td>98407</td>
<td>98465 (some)</td>
</tr>
<tr>
<td>98408</td>
<td>98466 (some)</td>
</tr>
<tr>
<td>98409</td>
<td>98467 (some)</td>
</tr>
<tr>
<td>98418</td>
<td></td>
</tr>
</tbody>
</table>

Check addresses here:
https://tacoma.maps.arcgis.com/apps/webappviewer/index.html?id=38107f6b096a4b8280c0d9b8a05bc7eb
**LOCAL EMPLOYEE REQUIREMENT ONLY**

Economically Distressed Areas
(Journeyman AND Apprentice)

<table>
<thead>
<tr>
<th>Zip Code</th>
<th>200% Pov</th>
<th>Unemployed</th>
<th>25+ College</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>98002</td>
<td>Y</td>
<td>Y</td>
<td></td>
<td>Auburn</td>
</tr>
<tr>
<td>98304</td>
<td>Y</td>
<td>Y</td>
<td></td>
<td>Ashford/Rainier</td>
</tr>
<tr>
<td>98323</td>
<td>Y</td>
<td></td>
<td>Y</td>
<td>Carbonado</td>
</tr>
<tr>
<td>98328</td>
<td>Y</td>
<td>Y</td>
<td></td>
<td>Eatonville</td>
</tr>
<tr>
<td>98330</td>
<td>Y</td>
<td>Y</td>
<td></td>
<td>Elbe</td>
</tr>
<tr>
<td>98336</td>
<td>Y</td>
<td></td>
<td>Y</td>
<td>Glenoma</td>
</tr>
<tr>
<td>98349</td>
<td>Y</td>
<td></td>
<td></td>
<td>Lakebay</td>
</tr>
<tr>
<td>98355</td>
<td>Y</td>
<td></td>
<td>Y</td>
<td>Mineral</td>
</tr>
<tr>
<td>98356</td>
<td>Y</td>
<td>Y</td>
<td></td>
<td>Morton</td>
</tr>
<tr>
<td>98377</td>
<td>Y</td>
<td>Y</td>
<td></td>
<td>Randle</td>
</tr>
<tr>
<td>98385</td>
<td>Y</td>
<td>Y</td>
<td></td>
<td>South Prairie</td>
</tr>
<tr>
<td>98402</td>
<td>Y</td>
<td></td>
<td></td>
<td>Downtown</td>
</tr>
<tr>
<td>98403</td>
<td>Y</td>
<td></td>
<td></td>
<td>Stadium/St. Helens</td>
</tr>
<tr>
<td>98404</td>
<td>Y</td>
<td></td>
<td></td>
<td>Eastside</td>
</tr>
<tr>
<td>98405</td>
<td>Y</td>
<td></td>
<td></td>
<td>Hilltop/Central</td>
</tr>
<tr>
<td>98408</td>
<td>Y</td>
<td></td>
<td>Y</td>
<td>South End</td>
</tr>
<tr>
<td>98409</td>
<td>Y</td>
<td></td>
<td></td>
<td>South Tacoma</td>
</tr>
<tr>
<td>98418</td>
<td>Y</td>
<td></td>
<td>Y</td>
<td>Lincoln/South End</td>
</tr>
<tr>
<td>98421</td>
<td>Y</td>
<td></td>
<td>Y</td>
<td>Port</td>
</tr>
<tr>
<td>98439</td>
<td>Y</td>
<td></td>
<td></td>
<td>McChord AFB</td>
</tr>
<tr>
<td>98444</td>
<td>Y</td>
<td></td>
<td></td>
<td>Parkland</td>
</tr>
<tr>
<td>98445</td>
<td>Y</td>
<td></td>
<td></td>
<td>Midland</td>
</tr>
<tr>
<td>98499</td>
<td>Y</td>
<td></td>
<td></td>
<td>Lakewood</td>
</tr>
<tr>
<td>98520</td>
<td>Y</td>
<td>Y</td>
<td></td>
<td>Aberdeen</td>
</tr>
<tr>
<td>98528</td>
<td>Y</td>
<td></td>
<td></td>
<td>Belfair</td>
</tr>
<tr>
<td>98533</td>
<td>Y</td>
<td></td>
<td></td>
<td>Cinebar</td>
</tr>
<tr>
<td>98546</td>
<td>Y</td>
<td></td>
<td>Y</td>
<td>Grapeview</td>
</tr>
<tr>
<td>98548</td>
<td>Y</td>
<td></td>
<td></td>
<td>Hoodsport</td>
</tr>
<tr>
<td>98563</td>
<td>Y</td>
<td></td>
<td>Y</td>
<td>Montesano</td>
</tr>
<tr>
<td>98564</td>
<td>Y</td>
<td></td>
<td>Y</td>
<td>Mossyrock</td>
</tr>
<tr>
<td>98575</td>
<td>Y</td>
<td></td>
<td></td>
<td>Quinault</td>
</tr>
<tr>
<td>98580</td>
<td>Y</td>
<td></td>
<td></td>
<td>Roy</td>
</tr>
<tr>
<td>98582</td>
<td>Y</td>
<td></td>
<td></td>
<td>Salkum</td>
</tr>
<tr>
<td>98584</td>
<td>Y</td>
<td></td>
<td></td>
<td>Shelton</td>
</tr>
<tr>
<td>98591</td>
<td>Y</td>
<td></td>
<td></td>
<td>Toledo</td>
</tr>
<tr>
<td>98592</td>
<td>Y</td>
<td></td>
<td>Y</td>
<td>Union</td>
</tr>
<tr>
<td>98925</td>
<td>Y</td>
<td></td>
<td></td>
<td>Easton</td>
</tr>
</tbody>
</table>
PART VIII

STATE PREVAILING WAGE RATES AND GENERAL REQUIREMENTS
PREVAILING WAGE RATES

This project requires prevailing wages under 39.12 RCW. Any worker, laborer, or mechanic employed in the performance of any part of the work shall be paid not less than the applicable prevailing rate of wage.

The project site is located in Pierce County.

The effective date for prevailing wages on this project will be the submittal deadline with these exceptions:
   a. If the project is not awarded within six months of the submittal deadline, the award date is the effective date.
   b. If the project is not awarded pursuant to a competitive solicitation, the date the contract is executed is the effective date.
   c. Janitorial contracts follow WAC 296-127-023.

Except for janitorial contracts, these rates shall apply for the duration of the contract unless otherwise noted in the solicitation.

Look up prevailing rates of pay, benefits, and overtime codes from this link: https://secure.lni.wa.gov/wagelookup/

REQUIRED FILINGS

The contractor and all subcontractors covered under 39.12 RCW shall submit to the Department of Labor and Industries (L&I) for work provided under this contract:

1. A Statement of Intent to Pay Prevailing Wages must be filed with and approved by L&I upon award of contract.

2. An Affidavit of Wages Paid must be filed with and approved by L&I upon job completion.

Payments cannot be released by the City until verification of these filings are received by the engineer. Additional information regarding these filings can be obtained by calling the Department of Labor & Industries, Prevailing Wage at 360-902-5335, https://www.lni.wa.gov/ or by visiting their MY L&I account.
The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

### Journey Level Prevailing Wage Rates for the Effective Date: 10/31/2023

<table>
<thead>
<tr>
<th>County</th>
<th>Trade</th>
<th>Job Classification</th>
<th>Wage</th>
<th>Holiday</th>
<th>Overtime</th>
<th>Note</th>
<th>*Risk Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pierce</td>
<td>Asbestos Abatement Workers</td>
<td>Journey Level</td>
<td>$59.07</td>
<td>5D</td>
<td>1H</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Boilermakers</td>
<td>Journey Level</td>
<td>$74.29</td>
<td>5N</td>
<td>1C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Brick Mason</td>
<td>Journey Level</td>
<td>$69.07</td>
<td>7E</td>
<td>1N</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Brick Mason</td>
<td>Pointer-Caulker-Cleaner</td>
<td>$69.07</td>
<td>7E</td>
<td>1N</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Building Service Employees</td>
<td>Janitor</td>
<td>$22.29</td>
<td>5S</td>
<td>2F</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Building Service Employees</td>
<td>Traveling Waxer / Shampooer</td>
<td>$23.24</td>
<td>5S</td>
<td>2F</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Building Service Employees</td>
<td>Window Cleaner (High Time)</td>
<td>$31.24</td>
<td>5S</td>
<td>2F</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Building Service Employees</td>
<td>Window Cleaner (Non-High Time)</td>
<td>$29.74</td>
<td>5S</td>
<td>2F</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Cabinet Makers (In Shop)</td>
<td>Journey Level</td>
<td>$28.36</td>
<td></td>
<td></td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Carpenters</td>
<td>Acoustical Worker</td>
<td>$74.96</td>
<td>15J</td>
<td>4C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Carpenters</td>
<td>Bridge, Dock And Wharf Carpenters</td>
<td>$74.96</td>
<td>15J</td>
<td>4C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Carpenters</td>
<td>Floor Layer &amp; Floor Finisher</td>
<td>$74.96</td>
<td>15J</td>
<td>4C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Carpenters</td>
<td>Journey Level</td>
<td>$74.96</td>
<td>15J</td>
<td>4C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Carpenters</td>
<td>Scaffold Erector</td>
<td>$74.96</td>
<td>15J</td>
<td>4C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Cement Masons</td>
<td>Application of all Composition Mastic</td>
<td>$72.87</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Cement Masons</td>
<td>Application of all Epoxy Material</td>
<td>$72.37</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Cement Masons</td>
<td>Application of all Plastic Material</td>
<td>$72.87</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Cement Masons</td>
<td>Application of Sealing Compound</td>
<td>$72.37</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Cement Masons</td>
<td>Application of Underlayment</td>
<td>$72.87</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Cement Masons</td>
<td>Building General</td>
<td>$72.37</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Cement Masons</td>
<td>Composition or Kalman Floors</td>
<td>$72.87</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Cement Masons</td>
<td>Concrete Paving</td>
<td>$72.37</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Cement Masons</td>
<td>Curb &amp; Gutter Machine</td>
<td>$72.87</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Cement Masons</td>
<td>Curb &amp; Gutter, Sidewalks</td>
<td>$72.37</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Cement Masons</td>
<td>Curing Concrete</td>
<td>$72.37</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Cement Masons</strong></td>
<td>Finish Colored Concrete</td>
<td>$72.87</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Cement Masons</strong></td>
<td>Floor Grinding</td>
<td>$72.87</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Cement Masons</strong></td>
<td>Floor Grinding/Polisher</td>
<td>$72.37</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Cement Masons</strong></td>
<td>Green Concrete Saw, self-powered</td>
<td>$72.87</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Cement Masons</strong></td>
<td>Grouting of all Plates</td>
<td>$72.37</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Cement Masons</strong></td>
<td>Grouting of all Tilt-up Panels</td>
<td>$72.37</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Cement Masons</strong></td>
<td>Gunite Nozzledeman</td>
<td>$72.87</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Cement Masons</strong></td>
<td>Hand Powered Grinder</td>
<td>$72.87</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Cement Masons</strong></td>
<td>Journey Level</td>
<td>$72.37</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Cement Masons</strong></td>
<td>Patching Concrete</td>
<td>$72.37</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Cement Masons</strong></td>
<td>Pneumatic Power Tools</td>
<td>$72.87</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Cement Masons</strong></td>
<td>Power Chipping &amp; Brushing</td>
<td>$72.87</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Cement Masons</strong></td>
<td>Sand Blasting Architectural Finish</td>
<td>$72.87</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Cement Masons</strong></td>
<td>Screed &amp; Rodding Machine</td>
<td>$72.87</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Cement Masons</strong></td>
<td>Spackling or Skim Coat Concrete</td>
<td>$72.37</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Cement Masons</strong></td>
<td>Troweling Machine Operator</td>
<td>$72.87</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Cement Masons</strong></td>
<td>Troweling Machine Operator on Colored Slabs</td>
<td>$72.87</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Cement Masons</strong></td>
<td>Tunnel Workers</td>
<td>$72.87</td>
<td>15J</td>
<td>4U</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Divers &amp; Tenders</strong></td>
<td>Bell/Vehicle or Submersible Operator (Not Under Pressure)</td>
<td>$129.71</td>
<td>15J</td>
<td>4C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Divers &amp; Tenders</strong></td>
<td>Dive Supervisor/Master</td>
<td>$93.94</td>
<td>15J</td>
<td>4C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Divers &amp; Tenders</strong></td>
<td>Diver</td>
<td>$129.71</td>
<td>15J</td>
<td>4C</td>
<td>8V</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Divers &amp; Tenders</strong></td>
<td>Diver On Standby</td>
<td>$88.94</td>
<td>15J</td>
<td>4C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Divers &amp; Tenders</strong></td>
<td>Diver Tender</td>
<td>$80.82</td>
<td>15J</td>
<td>4C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Divers &amp; Tenders</strong></td>
<td>Hyperbaric Worker - Compressed Air Worker 0-30.00 PSI</td>
<td>$93.26</td>
<td>15J</td>
<td>4C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Divers &amp; Tenders</strong></td>
<td>Hyperbaric Worker - Compressed Air Worker 30.01 - 44.00 PSI</td>
<td>$98.26</td>
<td>15J</td>
<td>4C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Divers &amp; Tenders</strong></td>
<td>Hyperbaric Worker - Compressed Air Worker 44.01 - 54.00 PSI</td>
<td>$102.66</td>
<td>15J</td>
<td>4C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Divers &amp; Tenders</strong></td>
<td>Hyperbaric Worker - Compressed Air Worker 54.01 - 60.00 PSI</td>
<td>$107.26</td>
<td>15J</td>
<td>4C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Divers &amp; Tenders</strong></td>
<td>Hyperbaric Worker - Compressed Air Worker 60.01 - 64.00 PSI</td>
<td>$109.76</td>
<td>15J</td>
<td>4C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Divers &amp; Tenders</strong></td>
<td>Hyperbaric Worker - Compressed Air Worker 64.01 - 68.00 PSI</td>
<td>$114.76</td>
<td>15J</td>
<td>4C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Divers &amp; Tenders</strong></td>
<td>Hyperbaric Worker - Compressed Air Worker 68.01 - 70.00 PSI</td>
<td>$116.76</td>
<td>15J</td>
<td>4C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Divers &amp; Tenders</strong></td>
<td>Hyperbaric Worker - Compressed Air Worker 70.01 -</td>
<td>$118.76</td>
<td>15J</td>
<td>4C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td>Company</td>
<td>Description</td>
<td>Base Pay</td>
<td>Grade</td>
<td>Shift</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>------------------------------------</td>
<td>----------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>----------</td>
<td>-------</td>
<td>-------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>Hyperbaric Worker - Compressed Air Worker 72.01 - 74.00 PSI</td>
<td>Pierce Divers &amp; Tenders</td>
<td></td>
<td>$120.76</td>
<td>15J</td>
<td>4C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Manifold Operator</td>
<td>Pierce Divers &amp; Tenders</td>
<td></td>
<td>$80.82</td>
<td>15J</td>
<td>4C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Manifold Operator Mixed Gas</td>
<td>Pierce Divers &amp; Tenders</td>
<td></td>
<td>$85.82</td>
<td>15J</td>
<td>4C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Remote Operated Vehicle Operator/Technician</td>
<td>Pierce Divers &amp; Tenders</td>
<td></td>
<td>$80.82</td>
<td>15J</td>
<td>4C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Remote Operated Vehicle Tender</td>
<td>Pierce Divers &amp; Tenders</td>
<td></td>
<td>$75.41</td>
<td>15J</td>
<td>4C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Assistant Engineer</td>
<td>Pierce Dredge Workers</td>
<td></td>
<td>$79.62</td>
<td>5D</td>
<td>3F</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Assistant Mate (Deckhand)</td>
<td>Pierce Dredge Workers</td>
<td></td>
<td>$79.01</td>
<td>5D</td>
<td>3F</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Boatmen</td>
<td>Pierce Dredge Workers</td>
<td></td>
<td>$79.62</td>
<td>5D</td>
<td>3F</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Engineer Welder</td>
<td>Pierce Dredge Workers</td>
<td></td>
<td>$81.15</td>
<td>5D</td>
<td>3F</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Leverman, Hydraulic</td>
<td>Pierce Dredge Workers</td>
<td></td>
<td>$82.77</td>
<td>5D</td>
<td>3F</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Mates</td>
<td>Pierce Dredge Workers</td>
<td></td>
<td>$79.62</td>
<td>5D</td>
<td>3F</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Oiler</td>
<td>Pierce Dredge Workers</td>
<td></td>
<td>$79.01</td>
<td>5D</td>
<td>3F</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Journey Level</td>
<td>Pierce Drywall Applicator</td>
<td></td>
<td>$74.96</td>
<td>15J</td>
<td>4C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Journey Level</td>
<td>Pierce Drywall Tapers</td>
<td></td>
<td>$74.50</td>
<td>5P</td>
<td>1E</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Journey Level</td>
<td>Pierce Electrical Fixture Maintenance Workers</td>
<td></td>
<td>$17.76</td>
<td>1</td>
<td></td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Cable Splicer</td>
<td>Pierce Electricians - Inside</td>
<td></td>
<td>$88.45</td>
<td>5C</td>
<td>1G</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Journey Level</td>
<td>Pierce Electricians - Inside</td>
<td></td>
<td>$82.57</td>
<td>5C</td>
<td>1G</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Lead Covered Cable Splicer</td>
<td>Pierce Electricians - Inside</td>
<td></td>
<td>$94.34</td>
<td>5C</td>
<td>1G</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Welder</td>
<td>Pierce Electricians - Inside</td>
<td></td>
<td>$88.45</td>
<td>5C</td>
<td>1G</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Craftsman</td>
<td>Pierce Electricians - Motor Shop</td>
<td></td>
<td>$15.74</td>
<td>1</td>
<td></td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Journey Level</td>
<td>Pierce Electricians - Motor Shop</td>
<td></td>
<td>$15.74</td>
<td>1</td>
<td></td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Cable Splicer</td>
<td>Pierce Electricians - Powerline Construction</td>
<td></td>
<td>$93.00</td>
<td>5A</td>
<td>4D</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Certified Line Welder</td>
<td>Pierce Electricians - Powerline Construction</td>
<td></td>
<td>$85.42</td>
<td>5A</td>
<td>4D</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Groundperson</td>
<td>Pierce Electricians - Powerline Construction</td>
<td></td>
<td>$55.27</td>
<td>5A</td>
<td>4D</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Heavy Line Equipment Operator</td>
<td>Pierce Electricians - Powerline Construction</td>
<td></td>
<td>$85.42</td>
<td>5A</td>
<td>4D</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Journey Level Lineperson</td>
<td>Pierce Electricians - Powerline Construction</td>
<td></td>
<td>$85.42</td>
<td>5A</td>
<td>4D</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Line Equipment Operator</td>
<td>Pierce Electricians - Powerline Construction</td>
<td></td>
<td>$73.35</td>
<td>5A</td>
<td>4D</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Meter Installer</td>
<td>Pierce Electricians - Powerline Construction</td>
<td></td>
<td>$55.27</td>
<td>5A</td>
<td>4D</td>
<td>8W</td>
<td>View</td>
</tr>
<tr>
<td>Pole Sprayer</td>
<td>Pierce Electricians - Powerline Construction</td>
<td></td>
<td>$85.42</td>
<td>5A</td>
<td>4D</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Powderperson</td>
<td>Pierce Electricians - Powerline Construction</td>
<td></td>
<td>$63.50</td>
<td>5A</td>
<td>4D</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Journey Level</td>
<td>Pierce Electronic Technicians</td>
<td></td>
<td>$53.46</td>
<td>6Z</td>
<td>1B</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Mechanic</td>
<td>Pierce Elevator Constructors</td>
<td></td>
<td>$107.49</td>
<td>7D</td>
<td>4A</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Mechanic In Charge</td>
<td>Pierce Elevator Constructors</td>
<td></td>
<td>$116.13</td>
<td>7D</td>
<td>4A</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Journey Level</td>
<td>Pierce Fabricated Precast Concrete Products</td>
<td></td>
<td>$15.74</td>
<td>1</td>
<td></td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Job Title</td>
<td>Level</td>
<td>Rate</td>
<td>J</td>
<td>P</td>
<td>Y</td>
<td>View</td>
</tr>
<tr>
<td>--------</td>
<td>--------------------------------------------------------------------------</td>
<td>---------------------</td>
<td>---------</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>------</td>
</tr>
<tr>
<td>Pierce</td>
<td>Fence Erectors</td>
<td>Fence Erector</td>
<td>$50.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Fence Erectors</td>
<td>Fence Laborer</td>
<td>$50.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Flaggers</td>
<td>Journey Level</td>
<td>$50.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Glaziers</td>
<td>Journey Level</td>
<td>$79.16</td>
<td>7L</td>
<td>1Y</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Heat &amp; Frost Insulators And Asbestos Workers</td>
<td>Journey Level</td>
<td>$87.15</td>
<td>15H</td>
<td>11C</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Heating Equipment Mechanics</td>
<td>Journey Level</td>
<td>$96.42</td>
<td>7F</td>
<td>1E</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Hod Carriers &amp; Mason Tenders</td>
<td>Journey Level</td>
<td>$62.49</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Industrial Power Vacuum Cleaner</td>
<td>Journey Level</td>
<td>$15.74</td>
<td></td>
<td></td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Inland Boatmen</td>
<td>Boat Operator</td>
<td>$61.41</td>
<td>5B</td>
<td>1K</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Inland Boatmen</td>
<td>Cook</td>
<td>$56.48</td>
<td>5B</td>
<td>1K</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Inland Boatmen</td>
<td>Deckhand</td>
<td>$57.48</td>
<td>5B</td>
<td>1K</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Inland Boatmen</td>
<td>Deckhand Engineer</td>
<td>$58.81</td>
<td>5B</td>
<td>1K</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Inland Boatmen</td>
<td>Launch Operator</td>
<td>$58.89</td>
<td>5B</td>
<td>1K</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Inland Boatmen</td>
<td>Mate</td>
<td>$57.31</td>
<td>5B</td>
<td>1K</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Inspection/Cleaning/Sealing Of Sewer &amp; Water Systems By Remote Control</td>
<td>Cleaner Operator, Foamer Operator</td>
<td>$15.74</td>
<td></td>
<td></td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Inspection/Cleaning/Sealing Of Sewer &amp; Water Systems By Remote Control</td>
<td>Grout Truck Operator</td>
<td>$15.74</td>
<td></td>
<td></td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Inspection/Cleaning/Sealing Of Sewer &amp; Water Systems By Remote Control</td>
<td>Head Operator</td>
<td>$15.74</td>
<td></td>
<td></td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Inspection/Cleaning/Sealing Of Sewer &amp; Water Systems By Remote Control</td>
<td>Technician</td>
<td>$15.74</td>
<td></td>
<td></td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Inspection/Cleaning/Sealing Of Sewer &amp; Water Systems By Remote Control</td>
<td>Tv Truck Operator</td>
<td>$15.74</td>
<td></td>
<td></td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Insulation Applicators</td>
<td>Journey Level</td>
<td>$74.96</td>
<td>15J</td>
<td>4C</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Ironworkers</td>
<td>Journeyman</td>
<td>$85.80</td>
<td>15K</td>
<td>11N</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Air, Gas Or Electric Vibrating Screed</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Airtrac Drill Operator</td>
<td>$60.90</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Ballast Regular Machine</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Batch Weighman</td>
<td>$50.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Brick Pavers</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Brush Cutter</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Brush Hog Feeder</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Burner</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Caisson Worker</td>
<td>$60.90</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Carpenter Tender</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Cement Dumper-paving</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Cement Finisher Tender</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Change House Or Dry Shack</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Chipping Gun (30 Lbs. And Over)</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Chipping Gun (Under 30 Lbs.)</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Choker Setter</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>--------------------------------</td>
<td>--------</td>
<td>-----</td>
<td>-----</td>
<td>----</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Chuck Tender</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Clary Power Spreader</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Clean-up Laborer</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Concrete Dumper/Chute Operator</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Concrete Form Stripper</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Concrete Placement Crew</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Concrete Saw Operator/Core Driller</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Crusher Feeder</td>
<td>$50.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Curing Laborer</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Demolition: Wrecking &amp; Moving (Incl. Charred Material)</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Ditch Digger</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Diver</td>
<td>$60.90</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Drill Operator (Hydraulic, Diamond)</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Dry Stack Walls</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Dump Person</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Epoxy Technician</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Erosion Control Worker</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Faller &amp; Bucker Chain Saw</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Fine Graders</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Firewatch</td>
<td>$50.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Form Setter</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Gabian Basket Builders</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>General Laborer</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Grade Checker &amp; Transit Person</td>
<td>$62.49</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Grinders</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Grout Machine Tender</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Groutmen (Pressure) Including Post Tension Beams</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Guardrail Erector</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Hazardous Waste Worker (Level A)</td>
<td>$60.90</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Hazardous Waste Worker (Level B)</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Hazardous Waste Worker (Level C)</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>High Scaler</td>
<td>$60.90</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Jackhammer</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Laserbeam Operator</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Maintenance Person</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Manhole Builder-Mudman</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Material Yard Person</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Mold Abatement Worker</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce Laborers</td>
<td>Motorman-Dinky Locomotive</td>
<td>$62.59</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Description</td>
<td>Pay Rate</td>
<td>Date</td>
<td>Shift</td>
<td>Year</td>
<td>View</td>
</tr>
<tr>
<td>---------</td>
<td>----------</td>
<td>------------------------------------------------------------------------------</td>
<td>-----------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>nozzleman (concrete pump, green cutter when using combination of high pressure air &amp; water on concrete &amp; rock, sandblast, gunite, shotcrete, water blaster, vacuum blaster)</td>
<td>$62.49</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Pavement Breaker</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Pilot Car</td>
<td>$50.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Pipe Layer (Lead)</td>
<td>$62.49</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Pipe Layer/Tailor</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Pipe Pot Tender</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Pipe Reliner</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Pipe Wrapper</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Pot Tender</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Powderman</td>
<td>$60.90</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Powderman's Helper</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Power Jacks</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Railroad Spike Puller - Power</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Raker - Asphalt</td>
<td>$62.49</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Remote Equipment Operator</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Rigger/Signal Person</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Rip Rap Person</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Rivet Buster</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Rodder</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Scaffold Erector</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Scale Person</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Sloper (Over 20&quot;)</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Sloper Sprayer</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Spreader (Concrete)</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Stake Hopper</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Stock Piler</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Swinging Stage/Boatswain Chair</td>
<td>$50.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Tamper &amp; Similar Electric, Air &amp; Gas Operated Tools</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Tamper (Multiple &amp; Self-propelled)</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Timber Person - Sewer (Lagger, Shorer &amp; Cribber)</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Toolroom Person (at Jobsite)</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Topper</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Track Laborer</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Track Liner (Power)</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Traffic Control Laborer</td>
<td>$53.54</td>
<td>15J</td>
<td>11P</td>
<td>9C</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Traffic Control Supervisor</td>
<td>$56.73</td>
<td>15J</td>
<td>11P</td>
<td>9C</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Truck Spotter</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Tugger Operator</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Tunnel Work-Compressed Air Worker 0-30 psi</td>
<td>$175.79</td>
<td>15J</td>
<td>11P</td>
<td>9B</td>
<td>View</td>
</tr>
<tr>
<td>--------</td>
<td>----------</td>
<td>------------------------------------------</td>
<td>---------</td>
<td>-----</td>
<td>-----</td>
<td>----</td>
<td>------</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Tunnel Work-Compressed Air Worker 30.01-44.00 psi</td>
<td>$180.82</td>
<td>15J</td>
<td>11P</td>
<td>9B</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Tunnel Work-Compressed Air Worker 44.01-54.00 psi</td>
<td>$184.50</td>
<td>15J</td>
<td>11P</td>
<td>9B</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Tunnel Work-Compressed Air Worker 54.01-60.00 psi</td>
<td>$190.20</td>
<td>15J</td>
<td>11P</td>
<td>9B</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Tunnel Work-Compressed Air Worker 60.01-64.00 psi</td>
<td>$192.32</td>
<td>15J</td>
<td>11P</td>
<td>9B</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Tunnel Work-Compressed Air Worker 64.01-68.00 psi</td>
<td>$197.42</td>
<td>15J</td>
<td>11P</td>
<td>9B</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Tunnel Work-Compressed Air Worker 68.01-70.00 psi</td>
<td>$201.32</td>
<td>15J</td>
<td>11P</td>
<td>9B</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Tunnel Work-Compressed Air Worker 70.01-72.00 psi</td>
<td>$203.32</td>
<td>15J</td>
<td>11P</td>
<td>9B</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Tunnel Work-Guage and Lock Tender</td>
<td>$62.59</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Tunnel Work-Miner</td>
<td>$62.59</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Vibrator</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Vinyl Seamer</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Watchman</td>
<td>$45.51</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Welder</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Well Point Laborer</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers</td>
<td>Window Washer/Cleaner</td>
<td>$45.51</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers - Underground Sewer &amp; Water</td>
<td>General Laborer &amp; Topman</td>
<td>$59.07</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Laborers - Underground Sewer &amp; Water</td>
<td>Pipe Layer</td>
<td>$60.15</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Landscape Construction</td>
<td>Landscape Construction/Landscaping Or Planting Laborers</td>
<td>$45.51</td>
<td>15J</td>
<td>11P</td>
<td>8Y</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Landscape Construction</td>
<td>Landscape Operator</td>
<td>$79.01</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Landscape Maintenance</td>
<td>Groundskeeper</td>
<td>$17.07</td>
<td>1</td>
<td></td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Lathers</td>
<td>Journey Level</td>
<td>$74.96</td>
<td>15J</td>
<td>4C</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Marble Setters</td>
<td>Journey Level</td>
<td>$69.07</td>
<td>7E</td>
<td>1N</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Metal Fabrication (In Shop)</td>
<td>Fitter</td>
<td>$15.74</td>
<td>1</td>
<td></td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Metal Fabrication (In Shop)</td>
<td>Laborer</td>
<td>$15.74</td>
<td>1</td>
<td></td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Metal Fabrication (In Shop)</td>
<td>Machine Operator</td>
<td>$15.74</td>
<td>1</td>
<td></td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Metal Fabrication (In Shop)</td>
<td>Welder</td>
<td>$15.74</td>
<td>1</td>
<td></td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Millwright</td>
<td>Journey Level</td>
<td>$76.51</td>
<td>15J</td>
<td>4C</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Modular Buildings</td>
<td>Journey Level</td>
<td>$15.74</td>
<td>1</td>
<td></td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Painters</td>
<td>Journey Level</td>
<td>$51.71</td>
<td>6Z</td>
<td>11J</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Pile Driver</td>
<td>Crew Tender</td>
<td>$80.82</td>
<td>15J</td>
<td>4C</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Pile Driver</td>
<td>Journey Level</td>
<td>$75.41</td>
<td>15J</td>
<td>4C</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Plasterers</td>
<td>Journey Level</td>
<td>$70.91</td>
<td>7Q</td>
<td>1R</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Plasterers</td>
<td>Nozzleman</td>
<td>$74.91</td>
<td>7Q</td>
<td>1R</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Journey Level</td>
<td>Hour Rate</td>
<td>Hours</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>---------------------------------------------------------------</td>
<td>---------------</td>
<td>-----------</td>
<td>-------</td>
<td>------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Playground &amp; Park Equipment Installers</td>
<td>Journey Level</td>
<td>$15.74</td>
<td>1</td>
<td></td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Plumber &amp; Pipefitters</td>
<td>Journey Level</td>
<td>$85.72</td>
<td>5A</td>
<td>1G</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Power Equipment Operators</td>
<td>Asphalt Plant Operator</td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Power Equipment Operators</td>
<td>Assistant Engineer</td>
<td>$78.95</td>
<td>7A</td>
<td>11H</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Power Equipment Operators</td>
<td>Barrier Machine (zipper)</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Power Equipment Operators</td>
<td>Batch Plant Operator: Concrete</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Power Equipment Operators</td>
<td>Bobcat</td>
<td>$75.57</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Power Equipment Operators</td>
<td>Brokk - Remote Demolition Equipment</td>
<td>$75.57</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Power Equipment Operators</td>
<td>Broom</td>
<td>$75.57</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Power Equipment Operators</td>
<td>Bump Cutter</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Power Equipment Operators</td>
<td>Cableways</td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Power Equipment Operators</td>
<td>Chipper</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Power Equipment Operators</td>
<td>Compressor</td>
<td>$75.57</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Power Equipment Operators</td>
<td>Concrete Pump: Truck Mount With Boom Attachment Over 42m</td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Power Equipment Operators</td>
<td>Concrete Finish Machine -laser Sceed</td>
<td>$75.57</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Power Equipment Operators</td>
<td>Concrete Pump - Mounted Or Trailer High Pressure Line Pump, Pump High Pressure</td>
<td>$79.01</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Power Equipment Operators</td>
<td>Concrete Pump: Truck Mount With Boom Attachment Up To 42m</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Power Equipment Operators</td>
<td>Conveyors</td>
<td>$79.01</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Power Equipment Operators</td>
<td>Cranes Friction: 200 tons and over</td>
<td>$86.48</td>
<td>7A</td>
<td>11H</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Power Equipment Operators</td>
<td>Cranes, A-frame: 10 tons and under</td>
<td>$78.95</td>
<td>7A</td>
<td>11H</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Power Equipment Operators</td>
<td>Cranes: 100 tons through 199 tons, or 150' of boom (including jib with attachments)</td>
<td>$84.77</td>
<td>7A</td>
<td>11H</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Power Equipment Operators</td>
<td>Cranes: 20 tons through 44 tons with attachments</td>
<td>$83.20</td>
<td>7A</td>
<td>11H</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Power Equipment Operators</td>
<td>Cranes: 200 tons- 299 tons, or 250’ of boom including jib with attachments</td>
<td>$85.66</td>
<td>7A</td>
<td>11H</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Power Equipment Operators</td>
<td>Cranes: 300 tons and over or 300’ of boom including jib with attachments</td>
<td>$86.48</td>
<td>7A</td>
<td>11H</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Power Equipment Operators</td>
<td>Cranes: 45 tons through 99 tons, under 150’ of boom (including jib with attachments)</td>
<td>$83.95</td>
<td>7A</td>
<td>11H</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Power Equipment Operators</td>
<td>Cranes: Friction cranes through 199 tons</td>
<td>$85.66</td>
<td>7A</td>
<td>11H</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce Power Equipment Operators</td>
<td>Cranes: through 19 tons with attachments, A-frame over 10 tons</td>
<td>$82.56</td>
<td>7A</td>
<td>11H</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Operation/Equipment Description</td>
<td>Rate (USD)</td>
<td>Rate Code</td>
<td>Rate Description</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>---------------------------</td>
<td>---------------------------------</td>
<td>------------</td>
<td>-----------</td>
<td>------------------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Crusher</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Deck Engineer/Deck Winches (power)</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Derricks: on building work</td>
<td>$83.95</td>
<td>7A</td>
<td>11H</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Dozers D-9 &amp; Under</td>
<td>$79.01</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Drill Oilers: Auger Type, Truck Or Crane Mount</td>
<td>$79.01</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Drilling Machine</td>
<td>$81.15</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Elevator and man-lift: permanent and shaft type</td>
<td>$78.95</td>
<td>7A</td>
<td>11H</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Finishing Machine, Bidwell and Gamaco &amp; Similar Equipment</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Forklift: 3000 lbs and over with attachments</td>
<td>$82.56</td>
<td>7A</td>
<td>11H</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Forklifts: under 3000 lbs. with attachments</td>
<td>$78.95</td>
<td>7A</td>
<td>11H</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Grade Engineer: Using Blueprints, Cut Sheets, etc.</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Gradechecker/stakeman</td>
<td>$75.57</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Guardrail punch/Auger</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Hard Tail End Dump Articulating Off-Road Equipment 45 Yards &amp; Over</td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Hard Tail End Dump Articulating Off-road Equipment Under 45 Yards</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Horizontal/directional Drill Locator</td>
<td>$79.01</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Horizontal/directional Drill Operator</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Hydralifts/boom trucks: 10 tons and under</td>
<td>$78.95</td>
<td>7A</td>
<td>11H</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Hydralifts/boom trucks: over 10 tons</td>
<td>$82.56</td>
<td>7A</td>
<td>11H</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Loader, Overhead 8 Yards &amp; Over</td>
<td>$81.15</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Loader, Overhead, 6 Yards. But Not Including 8 Yards</td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Loaders, Overhead Under 6 Yards</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Loaders, Plant Feed</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Loaders: Elevating Type Belt</td>
<td>$79.01</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Locomotives, All</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Material Transfer Device</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Mechanics: all (Leadmen - $0.50 per hour over mechanic)</td>
<td>$84.77</td>
<td>7A</td>
<td>11H</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Motor patrol graders</td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Mucking Machine, Mole, Tunnel Drill, Boring, Road Header And/or Shield</td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Oil Distributors, Blower Distribution &amp; Mulch Seeding</td>
<td>$75.57</td>
<td>15J</td>
<td>3K</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Operator</td>
<td>Pay Rate</td>
<td>Code1</td>
<td>Code2</td>
<td>Code3</td>
<td>View</td>
</tr>
<tr>
<td>--------</td>
<td>---------------------------</td>
<td>----------</td>
<td>----------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Outside Hoists (elevators and manlifts), Air Tuggers, Strato</td>
<td>$82.56</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Overhead, bridge type Crane: 20 tons through 44 tons</td>
<td>$83.20</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Overhead, bridge type: 100 tons and over</td>
<td>$84.77</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Overhead, bridge type: 45 tons through 99 tons</td>
<td>$83.95</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Pavement Breaker</td>
<td>$75.57</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Pile Driver (other Than Crane Mount)</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Plant Oiler - Asphalt, Crusher</td>
<td>$79.01</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Posthole Digger, Mechanical</td>
<td>$75.57</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Power Plant</td>
<td>$75.57</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Pumps - Water</td>
<td>$75.57</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Quad 9, HD 41, D10 And Over</td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Quick Tower: no cab, under 100 feet in height based to boom</td>
<td>$78.95</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Remote Control Operator On Rubber Tired Earth Moving Equipment</td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Rigger and Bellman</td>
<td>$78.95</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Rigger/Signal Person, Bellman(Certified)</td>
<td>$82.56</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Rollagon</td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Roller, Other Than Plant Mix</td>
<td>$75.57</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Roller, Plant Mix Or Multi-lift Materials</td>
<td>$79.01</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Roto-mill, Roto-grinder</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Saws - Concrete</td>
<td>$79.01</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Scraper, Self Propelled Under 45 Yards</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Scrapers - Concrete &amp; Carry All</td>
<td>$79.01</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Scrapers, Self-propelled: 45 Yards And Over</td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Service Engineers: equipment</td>
<td>$82.56</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Shotcrete/gunite Equipment</td>
<td>$75.57</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Shovel, Excavator, Backhoe, Tractors Under 15 Metric Tons</td>
<td>$79.01</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Shovel, Excavator, Backhoe: Over 30 Metric Tons To 50 Metric Tons</td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Shovel, Excavator, Backhoes, Tractors: 15 To 30 Metric Tons</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Shovel, Excavator, Backhoes: Over 50 Metric Tons To 90 Metric Tons</td>
<td>$81.15</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Shovel, Excavator, Backhoes: Over 90 Metric Tons</td>
<td>$81.96</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Slipform Pavers</td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Spreader, Topsider &amp; Screedman</td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Subgrader Trimmer</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Tower Bucket Elevators</td>
<td>$79.01</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Tower Crane: over 175’ through 250’ in height, base to boom</td>
<td>$85.66</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Tower Crane: up to 175’ in height base to boom</td>
<td>$84.77</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Transporters, All Track Or Truck Type</td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Trenching Machines</td>
<td>$79.01</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Truck Crane Oiler/Driver: 100 tons and over</td>
<td>$83.20</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Truck crane oiler/driver: under 100 tons</td>
<td>$82.56</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Truck Mount Portable Conveyor</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Vacuum Truck (Vactor Guzzler, Hydro Excavator)</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Welder</td>
<td>$83.95</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Wheel Tractors, Farmall Type</td>
<td>$75.57</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators</td>
<td>Yo Yo Pay Dozer</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators - Underground Sewer &amp; Water</td>
<td>Asphalt Plant Operator</td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators - Underground Sewer &amp; Water</td>
<td>Assistant Engineer</td>
<td>$78.95</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators - Underground Sewer &amp; Water</td>
<td>Barrier Machine (zipper)</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators - Underground Sewer &amp; Water</td>
<td>Batch Plant Operator: Concrete</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators - Underground Sewer &amp; Water</td>
<td>Bobcat</td>
<td>$75.57</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators - Underground Sewer &amp; Water</td>
<td>Brokk - Remote Demolition Equipment</td>
<td>$75.57</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators - Underground Sewer &amp; Water</td>
<td>Brooms</td>
<td>$75.57</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators - Underground Sewer &amp; Water</td>
<td>Bump Cutter</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators - Underground Sewer &amp; Water</td>
<td>Cableways</td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators - Underground Sewer &amp; Water</td>
<td>Chipper</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators - Underground Sewer &amp; Water</td>
<td>Compressor</td>
<td>$75.57</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators - Underground Sewer &amp; Water</td>
<td>Concrete Pump: Truck Mount With Boom Attachment Over 42m</td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators - Underground Sewer &amp; Water</td>
<td>Concrete Finish Machine -laser Screed</td>
<td>$75.57</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators: Underground Sewer &amp; Water</td>
<td>Concrete Pump - Mounted Or Trailer High Pressure Line Pump, Pump High Pressure</td>
<td>$79.01</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>--------</td>
<td>-----</td>
<td>----</td>
<td>----</td>
<td>------</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators: Underground Sewer &amp; Water</td>
<td>Concrete Pump: Truck Mount With Boom Attachment Up To 42m</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators: Underground Sewer &amp; Water</td>
<td>Conveyors</td>
<td>$79.01</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators: Underground Sewer &amp; Water</td>
<td>Cranes Friction: 200 tons and over</td>
<td>$86.48</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators: Underground Sewer &amp; Water</td>
<td>Cranes, A-frame: 10 tons and under</td>
<td>$78.95</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators: Underground Sewer &amp; Water</td>
<td>Cranes: 100 tons through 199 tons, or 150' of boom (including jib with attachments)</td>
<td>$84.77</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators: Underground Sewer &amp; Water</td>
<td>Cranes: 20 tons through 44 tons with attachments</td>
<td>$83.20</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators: Underground Sewer &amp; Water</td>
<td>Cranes: 200 tons- 299 tons, or 250’ of boom including jib with attachments</td>
<td>$85.66</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators: Underground Sewer &amp; Water</td>
<td>Cranes: 300 tons and over or 300’ of boom including jib with attachments</td>
<td>$86.48</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators: Underground Sewer &amp; Water</td>
<td>Cranes: 45 tons through 99 tons, under 150’ of boom (including jib with attachments)</td>
<td>$83.95</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators: Underground Sewer &amp; Water</td>
<td>Cranes: Friction cranes through 199 tons</td>
<td>$85.66</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators: Underground Sewer &amp; Water</td>
<td>Cranes: through 19 tons with attachments, A-frame over 10 tons</td>
<td>$82.56</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators: Underground Sewer &amp; Water</td>
<td>Crusher</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators: Underground Sewer &amp; Water</td>
<td>Deck Engineer/deck Winches (power)</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators: Underground Sewer &amp; Water</td>
<td>Derricks: on building work</td>
<td>$83.95</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators: Underground Sewer &amp; Water</td>
<td>Dozers D-9 &amp; Under</td>
<td>$79.01</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators: Underground Sewer &amp; Water</td>
<td>Drill Oilers: Auger Type, Truck Or Crane Mount</td>
<td>$79.01</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators: Underground Sewer &amp; Water</td>
<td>Drilling Machine</td>
<td>$81.15</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators: Underground Sewer &amp; Water</td>
<td>Elevator and man-lift: permanent and shaft type</td>
<td>$78.95</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators: Underground Sewer &amp; Water</td>
<td>Finishing Machine, Bidwell And Gamaco &amp; Similar Equipment</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators: Underground Sewer &amp; Water</td>
<td>Forklift: 3000 lbs and over with attachments</td>
<td>$82.56</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators: Underground Sewer &amp; Water</td>
<td>Forklifts: under 3000 lbs. with attachments</td>
<td>$78.95</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Power Equipment Operators-Underground Sewer &amp; Water</strong></td>
<td><strong>Grade Engineer: Using Blueprints, Cut Sheets, etc.</strong></td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>--------</td>
<td>------------------------------------------------------</td>
<td>------------------------------------------------------</td>
<td>----------</td>
<td>------</td>
<td>----</td>
<td>----</td>
<td>------</td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Power Equipment Operators-Underground Sewer &amp; Water</strong></td>
<td><strong>Gradechecker/stakeman</strong></td>
<td>$75.57</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Power Equipment Operators-Underground Sewer &amp; Water</strong></td>
<td><strong>Guardrail punch/Auger</strong></td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Power Equipment Operators-Underground Sewer &amp; Water</strong></td>
<td><strong>Hard Tail End Dump Articulating Off-Road Equipment 45 Yards &amp; Over</strong></td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Power Equipment Operators-Underground Sewer &amp; Water</strong></td>
<td><strong>Hard Tail End Pump Articulating Off-road Equipment Under 45 Yards</strong></td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Power Equipment Operators-Underground Sewer &amp; Water</strong></td>
<td><strong>Horizontal/directional Drill Locator</strong></td>
<td>$79.01</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Power Equipment Operators-Underground Sewer &amp; Water</strong></td>
<td><strong>Horizontal/directional Drill Operator</strong></td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Power Equipment Operators-Underground Sewer &amp; Water</strong></td>
<td><strong>Hydralifts/boom trucks: 10 tons and under</strong></td>
<td>$78.95</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Power Equipment Operators-Underground Sewer &amp; Water</strong></td>
<td><strong>Hydralifts/boom trucks: over 10 tons</strong></td>
<td>$82.56</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Power Equipment Operators-Underground Sewer &amp; Water</strong></td>
<td><strong>Loader, Overhead 8 Yards &amp; Over</strong></td>
<td>$81.15</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Power Equipment Operators-Underground Sewer &amp; Water</strong></td>
<td><strong>Loader, Overhead, 6 Yards. But Not Including 8 Yards</strong></td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Power Equipment Operators-Underground Sewer &amp; Water</strong></td>
<td><strong>Loaders, Overhead Under 6 Yards</strong></td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Power Equipment Operators-Underground Sewer &amp; Water</strong></td>
<td><strong>Loaders, Plant Feed</strong></td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Power Equipment Operators-Underground Sewer &amp; Water</strong></td>
<td><strong>Loaders: Elevating Type Belt</strong></td>
<td>$79.01</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Power Equipment Operators-Underground Sewer &amp; Water</strong></td>
<td><strong>Locomotives, All</strong></td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Power Equipment Operators-Underground Sewer &amp; Water</strong></td>
<td><strong>Material Transfer Device</strong></td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Power Equipment Operators-Underground Sewer &amp; Water</strong></td>
<td><strong>Mechanics: all (Leadmen - $0.50 per hour over mechanic)</strong></td>
<td>$84.77</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Power Equipment Operators-Underground Sewer &amp; Water</strong></td>
<td><strong>Motor patrol graders</strong></td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Power Equipment Operators-Underground Sewer &amp; Water</strong></td>
<td><strong>Mucking Machine, Mole, Tunnel Drill, Boring, Road Header And/or Shield</strong></td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Power Equipment Operators-Underground Sewer &amp; Water</strong></td>
<td><strong>Oil Distributors, Blower Distribution &amp; Mulch Seeding Operator</strong></td>
<td>$75.57</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Power Equipment Operators-Underground Sewer &amp; Water</strong></td>
<td><strong>Outside Hoists (elevators and manlifts), Air Tuggers, Strato</strong></td>
<td>$82.56</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Power Equipment Operators-Underground Sewer &amp; Water</strong></td>
<td><strong>Overhead, bridge type Crane: 20 tons through 44 tons</strong></td>
<td>$83.20</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Power Equipment Operators-Underground Sewer &amp; Water</strong></td>
<td><strong>Overhead, bridge type: 100 tons and over</strong></td>
<td>$84.77</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td><strong>Power Equipment Operators-Underground Sewer &amp; Water</strong></td>
<td><strong>Overhead, bridge type: 45 tons through 99 tons</strong></td>
<td>$83.95</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators-Underground Sewer &amp; Water</td>
<td>Description</td>
<td>Rate</td>
<td>Location</td>
<td>Notes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------------</td>
<td>----------------------------------------------------------</td>
<td>-------</td>
<td>----------</td>
<td>-------</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pavement Breaker</td>
<td>$75.57</td>
<td>15J</td>
<td>3K 8X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pile Driver (other Than Crane Mount)</td>
<td>$79.62</td>
<td>15J</td>
<td>3K 8X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Plant Oiler - Asphalt, Crusher</td>
<td>$79.01</td>
<td>15J</td>
<td>3K 8X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Posthole Digger, Mechanical</td>
<td>$75.57</td>
<td>15J</td>
<td>3K 8X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Power Plant</td>
<td>$75.57</td>
<td>15J</td>
<td>3K 8X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pile Driver (other Than Crane Mount)</td>
<td>$79.62</td>
<td>15J</td>
<td>3K 8X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Quick Tower: no cab, under 100 feet in height based to boom</td>
<td>$78.95</td>
<td>7A 11H</td>
<td>8X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Remote Control Operator On Rubber Tired Earth Moving Equipment</td>
<td>$80.33</td>
<td>15J</td>
<td>3K 8X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rigger and Bellman</td>
<td>$78.95</td>
<td>7A 11H</td>
<td>8X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rigger/Signal Person, Bellman(Certified)</td>
<td>$82.56</td>
<td>7A 11H</td>
<td>8X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rollagon</td>
<td>$80.33</td>
<td>15J</td>
<td>3K 8X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Roller, Other Than Plant Mix</td>
<td>$75.57</td>
<td>15J</td>
<td>3K 8X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Roller, Plant Mix Or Multi-lift Materials</td>
<td>$79.01</td>
<td>15J</td>
<td>3K 8X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Roto-mill, Roto-grinder</td>
<td>$79.62</td>
<td>15J</td>
<td>3K 8X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Saws - Concrete</td>
<td>$79.01</td>
<td>15J</td>
<td>3K 8X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Scraper, Self Propelled Under 45 Yards</td>
<td>$79.62</td>
<td>15J</td>
<td>3K 8X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Scapers - Concrete &amp; Carry All</td>
<td>$79.01</td>
<td>15J</td>
<td>3K 8X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Scraper, Self-propelled: 45 Yards And Over</td>
<td>$80.33</td>
<td>15J</td>
<td>3K 8X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Service Engineers: equipment</td>
<td>$82.56</td>
<td>7A 11H</td>
<td>8X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shotcrete/gunite Equipment</td>
<td>$75.57</td>
<td>15J</td>
<td>3K 8X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shovel, Excavator, Backhoe, Tractors Under 15 Metric Tons</td>
<td>$79.01</td>
<td>15J</td>
<td>3K 8X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shovel, Excavator, Backhoe: Over 30 Metric Tons To 50 Metric Tons</td>
<td>$80.33</td>
<td>15J</td>
<td>3K 8X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shovel, Excavator, Backhoes, Tractors: 15 To 30 Metric Tons</td>
<td>$79.62</td>
<td>15J</td>
<td>3K 8X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shovel, Excavator, Backhoes: Over 50 Metric Tons To 90</td>
<td>$81.15</td>
<td>15J</td>
<td>3K 8X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators-Underground Sewer &amp; Water</td>
<td>Metric Tons</td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------------</td>
<td>-------------</td>
<td>---------</td>
<td>-----</td>
<td>----</td>
<td>----</td>
<td>------</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators-Underground Sewer &amp; Water</td>
<td>Slipform Pavers</td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators-Underground Sewer &amp; Water</td>
<td>Spreader, Topsider &amp; Screedman</td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators-Underground Sewer &amp; Water</td>
<td>Subgrader Trimmer</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators-Underground Sewer &amp; Water</td>
<td>Tower Bucket Elevators</td>
<td>$79.01</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators-Underground Sewer &amp; Water</td>
<td>Tower Crane: over 175' through 250' in height, base to boom</td>
<td>$85.66</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators-Underground Sewer &amp; Water</td>
<td>Tower crane: up to 175' in height base to boom</td>
<td>$84.77</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators-Underground Sewer &amp; Water</td>
<td>Tower Cranes: over 250' in height from base to boom.</td>
<td>$86.48</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators-Underground Sewer &amp; Water</td>
<td>Transporters, All Track Or Truck Type</td>
<td>$80.33</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators-Underground Sewer &amp; Water</td>
<td>Trenching Machines</td>
<td>$79.01</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators-Underground Sewer &amp; Water</td>
<td>Truck Crane Oiler/Driver: 100 tons and over</td>
<td>$83.20</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators-Underground Sewer &amp; Water</td>
<td>Truck crane oiler/driver: under 100 tons</td>
<td>$82.56</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators-Underground Sewer &amp; Water</td>
<td>Truck Mount Portable Conveyor</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators-Underground Sewer &amp; Water</td>
<td>Vac Truck (Vactor Guzzler, Hydro Excavator)</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators-Underground Sewer &amp; Water</td>
<td>Welder</td>
<td>$83.95</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators-Underground Sewer &amp; Water</td>
<td>Wheel Tractors, Farmall Type</td>
<td>$75.57</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Equipment Operators-Underground Sewer &amp; Water</td>
<td>Yo Yo Pay Dozer</td>
<td>$79.62</td>
<td>15J</td>
<td>3K</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Line Clearance Tree Trimmers</td>
<td>Journey Level In Charge</td>
<td>$57.22</td>
<td>5A</td>
<td>4A</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Line Clearance Tree Trimmers</td>
<td>Spray Person</td>
<td>$54.32</td>
<td>5A</td>
<td>4A</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Line Clearance Tree Trimmers</td>
<td>Tree Equipment Operator</td>
<td>$57.22</td>
<td>5A</td>
<td>4A</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Line Clearance Tree Trimmers</td>
<td>Tree Trimmer</td>
<td>$51.18</td>
<td>5A</td>
<td>4A</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Power Line Clearance Tree Trimmers</td>
<td>Tree Trimmer Groundperson</td>
<td>$38.99</td>
<td>5A</td>
<td>4A</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Refrigeration &amp; Air Conditioning Mechanics</td>
<td>Journey Level</td>
<td>$87.46</td>
<td>5A</td>
<td>1G</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Residential Brick Mason</td>
<td>Journey Level</td>
<td>$27.02</td>
<td>1</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Residential Carpenters</td>
<td>Journey Level</td>
<td>$49.93</td>
<td>15J</td>
<td>4C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Residential Cement Masons</td>
<td>Journey Level</td>
<td>$45.99</td>
<td>1</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Residential Drywall Applicators</td>
<td>Journey Level</td>
<td>$74.96</td>
<td>15J</td>
<td>4C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Residential Drywall Tapers</td>
<td>Journey Level</td>
<td>$74.50</td>
<td>5P</td>
<td>1E</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Residential Electricians</td>
<td>Journey Level</td>
<td>$44.11</td>
<td>1</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Residential Glaziers</td>
<td>Journey Level</td>
<td>$79.16</td>
<td>7L</td>
<td>1Y</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Residential Insulation Applicators</td>
<td>Journey Level</td>
<td>$24.52</td>
<td>1</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------</td>
<td>---------------</td>
<td>--------</td>
<td>----</td>
<td>------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Residential Laborers</td>
<td>Journey Level</td>
<td>$33.97</td>
<td>1</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Residential Marble Setters</td>
<td>Journey Level</td>
<td>$29.29</td>
<td>1</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Residential Painters</td>
<td>Journey Level</td>
<td>$51.71</td>
<td>6Z</td>
<td>11J</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Residential Plumbers &amp; Pipefitters</td>
<td>Journey Level</td>
<td>$85.72</td>
<td>5A</td>
<td>1G</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Residential Refrigeration &amp; Air Conditioning Mechanics</td>
<td>Journey Level</td>
<td>$85.72</td>
<td>5A</td>
<td>1G</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Residential Sheet Metal Workers</td>
<td>Journey Level</td>
<td>$96.42</td>
<td>7F</td>
<td>1E</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Residential Soft Floor Layers</td>
<td>Journey Level</td>
<td>$57.11</td>
<td>5A</td>
<td>3J</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Residential Sprinkler Fitters (Fire Protection)</td>
<td>Journey Level</td>
<td>$58.26</td>
<td>5C</td>
<td>2R</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Residential Stone Masons</td>
<td>Journey Level</td>
<td>$29.29</td>
<td>1</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Residential Terrazzo Workers</td>
<td>Journey Level</td>
<td>$15.74</td>
<td>1</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Residential Terrazzo/Tile Finishers</td>
<td>Journey Level</td>
<td>$21.96</td>
<td>1</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Residential Tile Setters</td>
<td>Journey Level</td>
<td>$25.98</td>
<td>1</td>
<td>View</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Roofers</td>
<td>Journey Level</td>
<td>$60.90</td>
<td>5A</td>
<td>3H</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Roofers</td>
<td>Using Irritable Bituminous Materials</td>
<td>$63.90</td>
<td>5A</td>
<td>3H</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Sheet Metal Workers</td>
<td>Journey Level (Field or Shop)</td>
<td>$96.42</td>
<td>7F</td>
<td>1E</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Shipbuilding &amp; Ship Repair</td>
<td>New Construction Boilermaker</td>
<td>$51.85</td>
<td>7X</td>
<td>4J</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Shipbuilding &amp; Ship Repair</td>
<td>New Construction Carpenter</td>
<td>$51.85</td>
<td>7X</td>
<td>4J</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Shipbuilding &amp; Ship Repair</td>
<td>New Construction Crane Operator</td>
<td>$41.83</td>
<td>7V</td>
<td>1</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Shipbuilding &amp; Ship Repair</td>
<td>New Construction Electrician</td>
<td>$51.85</td>
<td>7X</td>
<td>4J</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Shipbuilding &amp; Ship Repair</td>
<td>New Construction Heat &amp; Frost Insulator</td>
<td>$87.15</td>
<td>15H</td>
<td>11C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Shipbuilding &amp; Ship Repair</td>
<td>New Construction Laborer</td>
<td>$51.85</td>
<td>7X</td>
<td>4J</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Shipbuilding &amp; Ship Repair</td>
<td>New Construction Machinist</td>
<td>$51.85</td>
<td>7X</td>
<td>4J</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Shipbuilding &amp; Ship Repair</td>
<td>New Construction Operating Engineer</td>
<td>$41.83</td>
<td>7V</td>
<td>1</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Shipbuilding &amp; Ship Repair</td>
<td>New Construction Painter</td>
<td>$51.95</td>
<td>7X</td>
<td>4J</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Shipbuilding &amp; Ship Repair</td>
<td>New Construction Pipefitter</td>
<td>$51.85</td>
<td>7X</td>
<td>4J</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Shipbuilding &amp; Ship Repair</td>
<td>New Construction Rigger</td>
<td>$51.85</td>
<td>7X</td>
<td>4J</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Shipbuilding &amp; Ship Repair</td>
<td>New Construction Sheet Metal</td>
<td>$51.85</td>
<td>7X</td>
<td>4J</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Shipbuilding &amp; Ship Repair</td>
<td>New Construction Shipwright</td>
<td>$51.85</td>
<td>7X</td>
<td>4J</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Shipbuilding &amp; Ship Repair</td>
<td>New Construction Warehouse/Teamster</td>
<td>$41.83</td>
<td>7V</td>
<td>1</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Shipbuilding &amp; Ship Repair</td>
<td>New Construction Welder / Burner</td>
<td>$51.85</td>
<td>7X</td>
<td>4J</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Shipbuilding &amp; Ship Repair</td>
<td>Ship Repair Boilermaker</td>
<td>$51.85</td>
<td>7X</td>
<td>4J</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Shipbuilding &amp; Ship Repair</td>
<td>Ship Repair Carpenter</td>
<td>$51.85</td>
<td>7X</td>
<td>4J</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Shipbuilding &amp; Ship Repair</td>
<td>Ship Repair Crane Operator</td>
<td>$45.06</td>
<td>7Y</td>
<td>4K</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Shipbuilding &amp; Ship Repair</td>
<td>Ship Repair Electrician</td>
<td>$51.85</td>
<td>7X</td>
<td>4J</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Shipbuilding &amp; Ship Repair</td>
<td>Ship Repair Heat &amp; Frost Insulator</td>
<td>$87.15</td>
<td>15H</td>
<td>11C</td>
<td>View</td>
<td></td>
</tr>
<tr>
<td>Pierce</td>
<td>Job Title</td>
<td>Subcategory</td>
<td>Rate</td>
<td>Code</td>
<td>Code</td>
<td>Code</td>
<td>View</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------</td>
<td>--------------------------------------</td>
<td>------------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Pierce</td>
<td>Shipbuilding &amp; Ship Repair Laborer</td>
<td></td>
<td>$51.85</td>
<td>7X</td>
<td>4J</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Ship Repair Machinist</td>
<td></td>
<td>$51.85</td>
<td>7X</td>
<td>4J</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Ship Repair Operating Engineer</td>
<td></td>
<td>$45.06</td>
<td>7Y</td>
<td>4K</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Ship Repair Painter</td>
<td></td>
<td>$51.95</td>
<td>7X</td>
<td>4J</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Ship Repair Pipefitter</td>
<td></td>
<td>$51.85</td>
<td>7X</td>
<td>4J</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Ship Repair Sheet Metal</td>
<td></td>
<td>$51.85</td>
<td>7X</td>
<td>4J</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Ship Repair Shipwright</td>
<td></td>
<td>$51.85</td>
<td>7X</td>
<td>4J</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Ship Repair Warehouse / Teamster</td>
<td></td>
<td>$45.06</td>
<td>7Y</td>
<td>4K</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Sign Installer (Electrical)</td>
<td></td>
<td>$26.17</td>
<td></td>
<td></td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Sign Maker (Electrical)</td>
<td></td>
<td>$20.33</td>
<td></td>
<td></td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Sign Installer (Non-Electrical)</td>
<td></td>
<td>$33.43</td>
<td></td>
<td></td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Sign Maker (Non-Electrical)</td>
<td></td>
<td>$22.79</td>
<td></td>
<td></td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Soft Floor Layers</td>
<td>Journey Level</td>
<td>$66.32</td>
<td>15J</td>
<td>4C</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Solar Controls For Windows</td>
<td>Journey Level</td>
<td>$15.74</td>
<td></td>
<td></td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Sprinkler Fitters (Fire Protection)</td>
<td>Journey Level</td>
<td>$93.99</td>
<td>5C</td>
<td>1X</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Stage Rigging Mechanics (Non Structural)</td>
<td>Journey Level</td>
<td>$15.74</td>
<td></td>
<td></td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Street And Parking Lot Sweeper Workers</td>
<td>Journey Level</td>
<td>$69.07</td>
<td>7E</td>
<td>1N</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Surveyors</td>
<td>Assistant Construction Site Surveyor</td>
<td>$82.56</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Surveyors</td>
<td>Chainman</td>
<td>$78.95</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Surveyors</td>
<td>Construction Site Surveyor</td>
<td>$83.95</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Surveyors</td>
<td>Drone Operator (when used in conjunction with surveying work only)</td>
<td>$78.95</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Surveyors</td>
<td>Ground Penetrating Radar</td>
<td>$78.95</td>
<td>7A</td>
<td>11H</td>
<td>8X</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Telecommunication Technicians</td>
<td>Journey Level</td>
<td>$53.46</td>
<td>6Z</td>
<td>1B</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Telephone Line Construction - Outside</td>
<td>Cable Splicer</td>
<td>$40.11</td>
<td>5A</td>
<td>2B</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Telephone Line Construction - Outside</td>
<td>Hole Digger/Ground Person</td>
<td>$26.67</td>
<td>5A</td>
<td>2B</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Telephone Line Construction - Outside</td>
<td>Telephone Equipment Operator (Light)</td>
<td>$33.49</td>
<td>5A</td>
<td>2B</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Telephone Line Construction - Outside</td>
<td>Telephone Lineperson</td>
<td>$37.90</td>
<td>5A</td>
<td>2B</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Terrazzo Workers</td>
<td>Journey Level</td>
<td>$62.36</td>
<td>7E</td>
<td>1N</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Tile Setters</td>
<td>Journey Level</td>
<td>$62.36</td>
<td>7E</td>
<td>1N</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Tile, Marble &amp; Terrazzo Finishers</td>
<td>Finisher</td>
<td>$53.19</td>
<td>7E</td>
<td>1N</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Traffic Control Stripers</td>
<td>Journey Level</td>
<td>$89.54</td>
<td>15L</td>
<td>1K</td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Truck Drivers</td>
<td>Asphalt Mix Over 16 Yards</td>
<td>$74.95</td>
<td>15J</td>
<td>11M</td>
<td>8L</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Service Provider</td>
<td>Description</td>
<td>Price</td>
<td>Date</td>
<td>Time</td>
<td>Day</td>
<td>View</td>
</tr>
<tr>
<td>--------</td>
<td>----------------------------------------</td>
<td>------------------------------------</td>
<td>-----------</td>
<td>------</td>
<td>------</td>
<td>-----</td>
<td>------</td>
</tr>
<tr>
<td>Pierce</td>
<td>Truck Drivers</td>
<td>Asphalt Mix To 16 Yards</td>
<td>$74.02</td>
<td>15J</td>
<td>11M</td>
<td>8L</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Truck Drivers</td>
<td>Dump Truck</td>
<td>$74.02</td>
<td>15J</td>
<td>11M</td>
<td>8L</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Truck Drivers</td>
<td>Dump Truck &amp; Trailer</td>
<td>$74.95</td>
<td>15J</td>
<td>11M</td>
<td>8L</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Truck Drivers</td>
<td>Other Trucks</td>
<td>$74.95</td>
<td>15J</td>
<td>11M</td>
<td>8L</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Truck Drivers - Ready Mix</td>
<td>Transit Mix</td>
<td>$74.95</td>
<td>15J</td>
<td>11M</td>
<td>8L</td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Well Drillers &amp; Irrigation Pump</td>
<td>Irrigation Pump Installer</td>
<td>$16.09</td>
<td></td>
<td></td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Well Drillers &amp; Irrigation Pump</td>
<td>Oiler</td>
<td>$15.74</td>
<td></td>
<td></td>
<td></td>
<td>View</td>
</tr>
<tr>
<td>Pierce</td>
<td>Well Drillers &amp; Irrigation Pump</td>
<td>Well Driller</td>
<td>$18.30</td>
<td></td>
<td></td>
<td></td>
<td>View</td>
</tr>
</tbody>
</table>
Overtime Codes

Overtime calculations are based on the hourly rate actually paid to the worker. On public works projects, the hourly rate must be not less than the prevailing rate of wage minus the hourly rate of the cost of fringe benefits actually provided for the worker.

1. ALL HOURS WORKED IN EXCESS OF EIGHT (8) HOURS PER DAY OR FORTY (40) HOURS PER WEEK SHALL BE PAID AT ONE AND ONE-HALF TIMES THE HOURLY RATE OF WAGE.

   B. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

   C. The first two (2) hours after eight (8) regular hours Monday through Friday and the first ten (10) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other overtime hours and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

   D. The first two (2) hours before or after a five-eight (8) hour workweek day or a four-ten (10) hour workweek day and the first eight (8) hours worked the next day after either workweek shall be paid at one and one-half times the hourly rate of wage. All additional hours worked and all worked on Sundays and holidays shall be paid at double the hourly rate of wage.

   E. The first two (2) hours after eight (8) regular hours Monday through Friday and the first eight (8) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other hours worked Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

   F. The first two (2) hours after eight (8) regular hours Monday through Friday and the first ten (10) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other overtime hours worked, except Labor Day, shall be paid at double the hourly rate of wage. All hours worked on Labor Day shall be paid at three times the hourly rate of wage.

   G. The first ten (10) hours worked on Saturdays and the first ten (10) hours worked on a fifth calendar weekday in a four-ten hour schedule, shall be paid at one and one-half times the hourly rate of wage. All hours worked in excess of ten (10) hours per day Monday through Saturday and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

   H. All hours worked on Saturdays (except makeup days if work is lost due to inclement weather conditions or equipment breakdown) shall be paid at one and one-half times the hourly rate of wage. All hours worked Monday through Saturday over twelve (12) hours and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

   I. All hours worked on Sundays and holidays shall also be paid at double the hourly rate of wage.

   J. The first two (2) hours after eight (8) regular hours Monday through Friday and the first ten (10) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked over ten (10) hours Monday through Saturday, Sundays and holidays shall be paid at double the hourly rate of wage.

   K. All hours worked on Saturdays and Sundays shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid at double the hourly rate of wage.

   M. All hours worked on Saturdays (except makeup days if work is lost due to inclement weather conditions) shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

   N. All hours worked on Saturdays (except makeup days) shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
Overtime Codes Continued

1. **O.** The first ten (10) hours worked on Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays, holidays and after twelve (12) hours, Monday through Friday and after ten (10) hours on Saturday shall be paid at double the hourly rate of wage.

   **P.** All hours worked on Saturdays (except makeup days if circumstances warrant) and Sundays shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid at double the hourly rate of wage.

   **Q.** The first two (2) hours after eight (8) regular hours Monday through Friday and up to ten (10) hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked in excess of ten (10) hours per day Monday through Saturday and all hours worked on Sundays and holidays (except Christmas day) shall be paid at double the hourly rate of wage. All hours worked on Christmas day shall be paid at two and one-half times the hourly rate of wage.

   **R.** All hours worked on Sundays and holidays shall be paid at two times the hourly rate of wage.

   **U.** All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays (except Labor Day) shall be paid at two times the hourly rate of wage. All hours worked on Labor Day shall be paid at three times the hourly rate of wage.

   **V.** All hours worked on Sundays and holidays (except Thanksgiving Day and Christmas day) shall be paid at one and one-half times the hourly rate of wage. All hours worked on Thanksgiving Day and Christmas day shall be paid at double the hourly rate of wage.

   **W.** All hours worked on Saturdays and Sundays (except make-up days due to conditions beyond the control of the employer) shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid at double the hourly rate of wage.

   **X.** The first four (4) hours after eight (8) regular hours Monday through Friday and the first twelve (12) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked over twelve (12) hours Monday through Saturday, Sundays and holidays shall be paid at double the hourly rate of wage. When holiday falls on Saturday or Sunday, the day before Saturday, Friday, and the day after Sunday, Monday, shall be considered the holiday and all work performed shall be paid at double the hourly rate of wage.

   **Y.** All hours worked outside the hours of 5:00 am and 5:00 pm (or such other hours as may be agreed upon by any employer and the employee) and all hours worked in excess of eight (8) hours per day (10 hours per day for a 4 x 10 workweek) and on Saturdays and holidays (except Labor Day) shall be paid at one and one-half times the hourly rate of wage. (except for employees who are absent from work without prior approval on a scheduled workday during the workweek shall be paid at the straight-time rate until they have worked 8 hours in a day (10 in a 4 x 10 workweek) or 40 hours during that workweek.) All hours worked Monday through Saturday over twelve (12) hours and all hours worked on Sundays and Labor Day shall be paid at double the hourly rate of wage.

   **Z.** All hours worked on Saturdays and Sundays shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid the straight time rate of pay in addition to holiday pay.
2. **ALL HOURS WORKED IN EXCESS OF EIGHT (8) HOURS PER DAY OR FORTY (40) HOURS PER WEEK SHALL BE PAID AT ONE AND ONE-HALF TIMES THE HOURLY RATE OF WAGE.**

   **B.** All hours worked on holidays shall be paid at one and one-half times the hourly rate of wage.

   **F.** The first eight (8) hours worked on holidays shall be paid at the straight hourly rate of wage in addition to the holiday pay. All hours worked in excess of eight (8) hours on holidays shall be paid at double the hourly rate of wage.

   **M.** This code appears to be missing. All hours worked on Saturdays, Sundays and holidays shall be paid at double the hourly rate of wage.

   **R.** All hours worked on Sundays and holidays and all hours worked over sixty (60) in one week shall be paid at double the hourly rate of wage.

   **U.** All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked over 12 hours in a day or on Sundays and holidays shall be paid at double the hourly rate of wage.

3. **ALL HOURS WORKED IN EXCESS OF EIGHT (8) HOURS PER DAY OR FORTY (40) HOURS PER WEEK SHALL BE PAID AT ONE AND ONE-HALF TIMES THE HOURLY RATE OF WAGE.**

   **F.** All hours worked on Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sunday shall be paid at two times the hourly rate of wage. All hours worked on paid holidays shall be paid at two and one-half times the hourly rate of wage including holiday pay.

   **H.** All work performed on Sundays between March 16th and October 14th and all Holidays shall be compensated for at two (2) times the regular rate of pay. Work performed on Sundays between October 15th and March 15th shall be compensated at one and one half (1-1/2) times the regular rate of pay.

   **J.** All hours worked between the hours of 10:00 pm and 5:00 am, Monday through Friday, and all hours worked on Saturdays shall be paid at a one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

   **K.** Work performed in excess of eight (8) hours of straight time per day, or ten (10) hours of straight time per day when four ten (10) hour shifts are established, or forty (40) hours of straight time per week, Monday through Friday, or outside the normal 5 am to 6pm shift, and all work on Saturdays shall be paid at one and one-half times the hourly rate of wage. All work performed after 6:00 pm Saturday to 5:00 am Monday and Holidays, and all hours worked in excess of twelve (12) hours in a single shift shall be paid at double the hourly rate of wage.

   After an employee has worked eight (8) hours at an applicable overtime rate, all additional hours shall be at the applicable overtime rate until such time as the employee has had a break of eight (8) hours or more. When an employee returns to work without at least eight (8) hours time off since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until he/she shall have the eight (8) hours rest period.
Overtime Codes Continued

4. ALL HOURS WORKED IN EXCESS OF EIGHT (8) HOURS PER DAY OR FORTY (40) HOURS PER WEEK SHALL BE PAID AT ONE AND ONE-HALF TIMES THE HOURLY RATE OF WAGE.

A. All hours worked in excess of eight (8) hours per day or forty (40) hours per week shall be paid at double the hourly rate of wage. All hours worked on Saturdays, Sundays and holidays shall be paid at double the hourly rate of wage.

C. On Monday through Friday, the first four (4) hours of overtime after eight (8) hours of straight time work shall be paid at one and one half (1-1/2) times the straight time rate of pay, unless a four (4) day ten (10) hour workweek has been established. On a four (4) day ten (10) hour workweek scheduled Monday through Thursday, or Tuesday through Friday, the first two (2) hours of overtime after ten (10) hours of straight time work shall be paid at one and one half (1-1/2) times the straight time rate of pay. On Saturday, the first twelve (12) hours of work shall be paid at one and one half (1-1/2) times the straight time rate of pay, except that if the job is down on Monday through Friday due to weather conditions or other conditions outside the control of the employer, the first ten (10) hours on Saturday may be worked at the straight time rate of pay. All hours worked over twelve (12) hours in a day and all hours worked on Sunday and Holidays shall be paid at two (2) times the straight time rate of pay.

D. All hours worked in excess of eight (8) hours per day or forty (40) hours per week shall be paid at double the hourly rate of wage. All hours worked on Saturday, Sundays and holidays shall be paid at double the hourly rate of pay. Rates include all members of the assigned crew.

EXCEPTION:
On all multipole structures and steel transmission lines, switching stations, regulating, capacitor stations, generating plants, industrial plants, associated installations and substations, except those substations whose primary function is to feed a distribution system, will be paid overtime under the following rates:

The first two (2) hours after eight (8) regular hours Monday through Friday of overtime on a regular workday, shall be paid at one and one-half times the hourly rate of wage. All hours in excess of ten (10) hours will be at two (2) times the hourly rate of wage. The first eight (8) hours worked on Saturday will be paid at one and one-half (1-1/2) times the hourly rate of wage. All hours worked in excess of eight (8) hours on Saturday, and all hours worked on Sundays and holidays will be at the double the hourly rate of wage.

All overtime eligible hours performed on the above described work that is energized, shall be paid at the double the hourly rate of wage.

E. The first two (2) hours after eight (8) regular hours Monday through Friday and the first eight (8) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other hours worked Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

On a four-day, ten-hour weekly schedule, either Monday thru Thursday or Tuesday thru Friday schedule, all hours worked after ten shall be paid at double the hourly rate of wage. The Monday or Friday not utilized in the normal four-day, ten hour work week, and Saturday shall be paid at one and one half (1½) times the regular shift rate for the first eight (8) hours. All other hours worked Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

G. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked Monday through Saturday over twelve (12) hours and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

I. The First eight (8) hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked in excess of eight (8) per day on Saturdays shall be paid at double the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
Overtime Codes Continued

4. J. The first eight (8) hours worked on a Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked in excess of eight (8) hours on a Saturday shall be paid at double the hourly rate of wage. All hours worked over twelve (12) in a day, and all hours worked on Sundays and Holidays shall be paid at double the hourly rate of wage.

K. All hours worked on a Saturday shall be paid at one and one-half times the hourly rate of wage, so long as Saturday is the sixth consecutive day worked. All hours worked over twelve (12) in a day Monday through Saturday, and all hours worked on Sundays and Holidays shall be paid at double the hourly rate of wage.

L. The first twelve (12) hours worked on a Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked on a Saturday in excess of twelve (12) hours shall be paid at double the hourly rate of pay. All hours worked over twelve (12) in a day Monday through Friday, and all hours worked on Sundays shall be paid at double the hourly rate of wage. All hours worked on a holiday shall be paid at one and one-half times the hourly rate of wage, except that all hours worked on Labor Day shall be paid at double the hourly rate of pay.

S. On a four (4) day ten (10) hour workweek scheduled Monday through Thursday, or Tuesday through Friday, work performed in excess of (10) hours shall be paid at one and one-half (1-1/2) times the hourly rate of pay. On Monday through Friday, work performed outside the normal work hours of 6:00 a.m. and 6:00 p.m. shall be paid at one and one-half (1-1/2) times the straight time rate, (except for special shifts or multiple shift operations).

All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All work performed on Sundays and holidays shall be paid at double the hourly rate of wage. When an employee returns to work without at least eight (8) hours time off since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours.

Multiple Shift Operations: When the first shift of a multiple shift (a two or three shift) operation is started at the basic straight time rate or at a specific overtime rate, all shifts of that day's operation shall be completed at that rate. Special Shifts: The Special Shift Premium is the basic hourly rate of pay plus $2.00 an hour. When due to conditions beyond the control of the employer or when an owner (not acting as the contractor), a government agency or the contract specifications require more than four (4) hours of a special shift can only be performed outside the normal 6am to 6pm shift then the special shift premium will be applied to the basic straight time for the entire shift. When an employee works on a special shift, they shall be paid the special shift premium for each hour worked unless they are in overtime or double-time status. (For example, the special shift premium does not waive the overtime requirements for work performed on Saturday or Sunday).

U. The first four (4) hours after eight (8) regular hours Monday through Friday and the first twelve (12) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. (Except on makeup days if work is lost due to inclement weather, then the first eight (8) hours on Saturday may be paid the regular rate.) All hours worked over twelve (12) hours Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
4. V. Work performed in excess of ten (10) hours of straight time per day when four ten (10) hour shifts are established or outside the normal shift (5 am to 6pm), and all work on Saturdays, except for make-up days shall be paid at time and one-half (1 ½) the straight time rate.

In the event the job is down due to weather conditions, then Saturday may, be worked as a voluntary make-up day at the straight time rate. However, Saturday shall not be utilized as a make-up day when a holiday falls on Friday. All work performed on Sundays and holidays and work in excess of twelve (12) hours per day shall be paid at double (2x) the straight time rate of pay.

After an employee has worked eight (8) hours at an applicable overtime rate, all additional hours shall be at the applicable overtime rate until such time as the employee has had a break of eight (8) hours.

When an employee returns to work without a break of eight (8) hours since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours.

X. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage. Work performed outside the normal shift of 6 am to 6pm shall be paid at one and one-half the straight time rate, (except for special shifts or three shift operations). All work performed on Sundays and holidays shall be paid at double the hourly rate of wage. Shifts may be established when considered necessary by the Employer.

The Employer may establish shifts consisting of eight (8) or ten (10) hours of work (subject to WAC 296-127-022), that shall constitute a normal forty (40) hour work week. The Employer can change from a 5-eight to a 4-ten hour schedule or back to the other. All hours of work on these shifts shall be paid for at the straight time hourly rate. Work performed in excess of eight hours (or ten hours per day (subject to WAC 296-127-022) shall be paid at one and one-half the straight time rate.

When due to conditions beyond the control of the Employer, or when contract specifications require that work can only be performed outside the regular day shift, then by mutual agreement a special shift may be worked at the straight time rate, eight (8) hours work for eight (8) hours pay. The starting time shall be arranged to fit such conditions of work.

When an employee returns to work without a break of eight (8) hours since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours.

11. ALL HOURS WORKED IN EXCESS OF EIGHT (8) HOURS PER DAY OR FORTY (40) HOURS PER WEEK SHALL BE PAID AT ONE AND ONE-HALF TIMES THE HOURLY RATE OF WAGE.

B. After an employee has worked eight (8) hours, all additional hours worked shall be paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours or more.

C. The first two (2) hours after eight (8) regular hours Monday through Friday and the first eight (8) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other overtime hours worked, except Labor Day, and all hours on Sunday shall be paid at double the hourly rate of wage. All hours worked on Labor Day shall be paid at three times the hourly rate of wage. All non-overtime and non-holiday hours worked between 4:00 pm and 5:00 am, Monday through Friday, shall be paid at a premium rate of 15% over the hourly rate of wage.
11. **D.** All hours worked on Saturdays and holidays shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays shall be paid at double the hourly rate of wage.

After an employee has worked eight (8) hours, all additional hours worked shall be paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours or more.

**E.** The first two (2) hours after eight (8) regular hours Monday through Friday, the first ten (10) hours on Saturday, and the first ten (10) hours worked on Holidays shall be paid at one and one-half times the hourly rate of wage. All hours worked over ten (10) hours Monday through Saturday, and Sundays shall be paid at double the hourly rate of wage.

After an employee has worked eight (8) hours, all additional hours worked shall be paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours or more.

**F.** The first two (2) hours after eight (8) regular hours Monday through Friday and the first eight (8) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other hours worked Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

On a four-day, ten-hour weekly schedule, either Monday thru Thursday or Tuesday thru Friday schedule, all hours worked after ten shall be paid at double the hourly rate of wage. The Monday or Friday not utilized in the normal four-day, ten hour work week, and Saturday shall be paid at one-half times the hourly rate of wage for the first eight (8) hours. All other hours worked Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

**G.** Work performed in excess of eight (8) hours of straight time per day, or ten (10) hours of straight time per day when four ten (10) hour shifts are established, or forty (40) hours of straight time per week, Monday through Friday, or outside the normal 5 am to 6pm shift, and all work on Saturdays shall be paid at one and one-half times the hourly rate of wage.

All work performed after 6:00 pm Saturday to 5:00 am Monday and Holidays, and all hours worked in excess of twelve (12) hours in a single shift shall be paid at double the hourly rate of wage.

After an employee has worked eight (8) hours at an applicable overtime rate, all additional hours shall be at the applicable overtime rate until such time as the employee has had a break of nine (9) hours or more. When an employee returns to work without at least nine (9) hours time off since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until he/she shall have the nine (9) hours rest period.

**H.** Work performed in excess of eight (8) hours of straight time per day, or ten (10) hours of straight time per day when four ten (10) hour shifts are established, or forty (40) hours of straight time per week, Monday through Friday, or outside the normal 5 am to 6pm shift, and all work on Saturdays shall be paid at one and one-half times the hourly rate of wage.

All work performed after 6:00 pm Saturday to 5:00 am Monday and Holidays, and all hours worked in excess of twelve (12) hours in a single shift shall be paid at double the hourly rate of wage.

After an employee has worked eight (8) hours at an applicable overtime rate, all additional hours shall be at the applicable overtime rate until such time as the employee has had a break of ten (10) hours or more. When an employee returns to work without at least ten (10) hours time off since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until he/she shall have the ten (10) hours rest period.
11. **J.** All hours worked on holidays shall be paid at double the hourly rate of wage.

**K.** On Monday through Friday hours worked outside 4:00 am and 5:00 pm, and the first two (2) hours after eight (8) hours worked shall be paid at one and one-half times the hourly rate. All hours worked over 10 hours per day Monday through Friday, and all hours worked on Saturdays, Sundays, and Holidays worked shall be paid at double the hourly rate of wage.

**L.** An employee working outside 5:00 am and 5:00 pm shall receive an additional two dollar ($2.00) per hour for all hours worked that shift. All hours worked on holidays shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid at one and one-half times the hourly rate of wage.

**M.** On Monday through Friday, the first four (4) hours of overtime after eight (8) hours of straight time work shall be paid at one and one half (1-1/2) times the straight time rate of pay, unless a four (4) day ten (10) hour workweek has been established. On a four (4) day ten (10) hour workweek scheduled Monday through Thursday, or Tuesday through Friday, the first two (2) hours of overtime after ten (10) hours of straight time work shall be paid at one and one half (1-1/2) times the straight time rate of pay.

Work performed outside the normal work hours of 5:00 a.m. and 6:00 p.m. shall be paid at one and one-half (1-1/2) times the straight time rate, (except for special shifts or multiple shift operations). When the first shift of a multiple shift (a two or three shift) operation is started at the basic straight time rate or at a specific overtime rate, all shifts of that day’s operation shall be completed at that rate. When due to conditions beyond the control of the Employer or when contract specifications require that work can only be performed outside the regular day shift of 5:00 am to 6:00 pm, then a special shift may be worked at the straight time rate, plus the shift pay premium when applicable. The starting time of work will be arranged to fit such conditions of work. Such shift shall consist of eight (8) hours work for eight (8) hours pay or ten (10) hours work for ten (10) hours pay for four ten shifts.

On Saturday, the first twelve (12) hours of work shall be paid at one and one half (1-1/2) times the straight time rate of pay. All work performed after 6:00 pm Saturday to 5:00 am Monday, all work performed over twelve (12) hours, and all work performed on holidays shall be paid at double the straight time rate of pay.

Shift Pay Premium: In an addition to any overtime already required, all hours worked between the hours of 6:00 pm and 5:00 am shall receive an additional two dollars ($2.00) per hour.

**N.** All work performed over twelve hours in a shift and all work performed on Sundays and Holidays shall be paid at double the straight time rate.

Any time worked over eight (8) hours on Saturday shall be paid double the straight time rate, except employees assigned to work six 10-hour shifts per week shall be paid double the straight time rate for any time worked on Saturday over 10 hours.

**O.** All work performed on Saturdays, Sundays, and Holidays shall be paid at one and one half (1-1/2) times the straight time rate of pay.
**Holiday Codes**


Holiday Codes Continued


Z. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, And Christmas Day (7). If a holiday falls on Saturday, the preceding Friday shall be considered as the holiday. If a holiday falls on Sunday, the following Monday shall be considered as the holiday.

7. A. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, And Christmas Day (8). Any Holiday Which Falls On A Sunday Shall Be Observed As A Holiday On The Following Monday. If any of the listed holidays falls on a Saturday, the preceding Friday shall be a regular work day.

B. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, And Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

C. Holidays: New Year's Day, Martin Luther King Jr. Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

D. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran’s Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (8). Unpaid Holidays: President’s Day. Any paid holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any paid holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

E. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

F. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the last working day before Christmas day and Christmas day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.


H. Holidays: New Year's Day, Martin Luther King Jr. Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the Last Working Day before Christmas Day and Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

I. Holidays: New Year's Day, President’s Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, The Friday After Thanksgiving Day, The Day Before Christmas Day And Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
Holiday Codes Continued

7. J. Holidays: New Year's Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day and Christmas Day (6). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

K. Holidays: New Year's Day, Memorial Day, Independence Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, And Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

L. Holidays: New Year's Day, Memorial Day, Labor Day, Independence Day, Thanksgiving Day, the Last Work Day before Christmas Day, And Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

N. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. When Christmas falls on a Saturday, the preceding Friday shall be observed as a holiday.


Q. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the Last Working Day before Christmas Day and Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. If any of the listed holidays falls on a Saturday, the preceding Friday shall be a regular work day.

S. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Day after Christmas, and A Floating Holiday (9). If any of the listed holidays falls on a Sunday, the day observed by the Nation shall be considered a holiday and compensated accordingly.

V. Holidays: New Year's Day, President’s Birthday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, the day before or after Christmas, and the day before or after New Year’s Day. If any of the above listed holidays falls on a Sunday, the day observed by the Nation shall be considered a holiday and compensated accordingly.

W. Holidays: New Year’s Day, Day After New Year’s, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Eve Day, Christmas Day, the day after Christmas, the day before New Year’s Day, and a Floating Holiday.

X. Holidays: New Year’s Day, Day before or after New Year’s Day, Presidents’ Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, and the day before or after Christmas day. If a holiday falls on a Saturday or on a Friday that is the normal day off, then the holiday will be taken on the last normal workday. If the holiday falls on a Monday that is the normal day off or on a Sunday, then the holiday will be taken on the next normal workday.

Y. Holidays: New Year’s Day, Presidents’ Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, and Christmas Day. (8) If the holiday falls on a Sunday, then the day observed by the federal government shall be considered a holiday and compensated accordingly.

Z. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, Christmas Eve, and Christmas Day (9). Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday. Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday.
**Holiday Codes Continued**

15. **G.** New Year's Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, The Friday After Thanksgiving Day, the last scheduled workday before Christmas, and Christmas Day (9). If any of the listed holidays falls on a Sunday, the day observed by the Nation shall be considered a holiday and compensated accordingly.

   **H.** Holidays: New Year's Day, Martin Luther King Jr. Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the Last Working Day before Christmas Day and Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

   **I.** Holidays: New Year's Day, President's Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, The Friday after Thanksgiving Day, The Day Before Christmas Day and Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

   **J.** Holidays: New Year's Day, Martin Luther King Jr. Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, and Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. If any of the listed holidays falls on a Saturday, the preceding Friday shall be a regular work day.

   **K.** Holidays: New Year's Day, Memorial Day, Independence Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, And Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

   **L.** Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, the Friday after Thanksgiving Day, and Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. If any of the listed holidays falls on a Saturday, the preceding Friday shall be a regular work day.

   **M.** Holidays: New Year's Day, Martin Luther King Jr. Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Eve Day and Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. If any of the listed holidays falls on a Saturday, the preceding Friday shall be a regular work day.


**Note Codes**

8. **D.** Workers working with supplied air on hazmat projects receive an additional $1.00 per hour.

   **L.** Workers on hazmat projects receive additional hourly premiums as follows - Level A: $0.75, Level B: $0.50, And Level C: $0.25.

   **M.** Workers on hazmat projects receive additional hourly premiums as follows: Levels A & B: $1.00, Levels C & D: $0.50.

   **N.** Workers on hazmat projects receive additional hourly premiums as follows - Level A: $1.00, Level B: $0.75, Level C: $0.50, And Level D: $0.25.
Note Codes Continued

8. S. Effective August 31, 2012 – A Traffic Control Supervisor shall be present on the project whenever flagging or spotting or other traffic control labor is being utilized. Flaggers and Spotters shall be posted where shown on approved Traffic Control Plans or where directed by the Engineer. All flaggers and spotters shall possess a current flagging card issued by the State of Washington, Oregon, Montana, or Idaho. This classification is only effective on or after August 31, 2012.

T. Effective August 31, 2012 – A Traffic Control Laborer performs the setup, maintenance and removal of all temporary traffic control devices and construction signs necessary to control vehicular, bicycle, and pedestrian traffic during construction operations. Flaggers and Spotters shall be posted where shown on approved Traffic Control Plans or where directed by the Engineer. All flaggers and spotters shall possess a current flagging card issued by the State of Washington, Oregon, Montana, or Idaho. This classification is only effective on or after August 31, 2012.

U. Workers on hazmat projects receive additional hourly premiums as follows – Class A Suit: $2.00, Class B Suit: $1.50, and Class C Suit: $1.00. Workers performing underground work receive an additional $0.40 per hour for any and all work performed underground, including operating, servicing and repairing of equipment. The premium for underground work shall be paid for the entire shift worked. Workers who work suspended by a rope or cable receive an additional $0.50 per hour. The premium for work suspended shall be paid for the entire shift worked. Workers who do “pioneer” work (break open a cut, build road, etc.) more than one hundred fifty (150) feet above grade elevation receive an additional $0.50 per hour.

V. In addition to the hourly wage and fringe benefits, the following depth and enclosure premiums shall be paid. The premiums are to be calculated for the maximum depth and distance into an enclosure that a diver reaches in a day. The premiums are to be paid one time for the day and are not used in calculating overtime pay.

Depth premiums apply to depths of fifty feet or more. Over 50’ to 100’ - $2.00 per foot for each foot over 50 feet. Over 101’ to 150’ - $3.00 per foot for each foot over 101 feet. Over 151’ to 220’ - $4.00 per foot for each foot over 220 feet. Over 221’ - $5.00 per foot for each foot over 221 feet.

Enclosure premiums apply when divers enter enclosures (such as pipes or tunnels) where there is no vertical ascent and is measured by the distance travelled from the entrance. 25’ to 300’ - $1.00 per foot from entrance. 300’ to 600’ - $1.50 per foot beginning at 300’. Over 600’ - $2.00 per foot beginning at 600’.

W. Meter Installers work on single phase 120/240V self-contained residential meters. The Lineman/Groundmen rates would apply to meters not fitting this description.

X. Workers on hazmat projects receive additional hourly premiums as follows - Class A Suit: $2.00, Class B Suit: $1.50, Class C Suit: $1.00, and Class D Suit: $0.50. Special Shift Premium: Basic hourly rate plus $2.00 per hour.

When due to conditions beyond the control of the Employer or when an owner (not acting as the contractor), a government agency or the contract specifications requires that work can only be performed outside the normal 5 am to 6pm shift, then the special shift premium will be applied to the basic hourly rate. When an employee works on a special shift, they shall be paid a special shift premium for each hour worked unless they are in OT or Double-time status. (For example, the special shift premium does not waive the overtime requirements for work performed on Saturday or Sunday.)

Y. Tide Work: When employees are called out between the hours of 6:00 p.m. and 6:00 a.m. to work on tide work (work located in the tide plane) all time worked shall be at one and one-half times the hourly rate of pay.

Swinging Stage/Boatswains Chair: Employees working on a swinging state or boatswains chair or under conditions that require them to be tied off to allow their hands to be free shall receive seventy-five cents ($0.75) per hour above the classification rate.
8. Z. Workers working with supplied air on hazmat projects receive an additional $1.00 per hour.

Special Shift Premium: Basic hourly rate plus $2.00 per hour. When due to conditions beyond the control of the Employer or when an owner (not acting as a contractor), a government agency or the contract specifications require that more than four (4) hours of a special shift can only be performed outside the normal 6 am to 6pm shift, then the special shift premium will be applied to the basic straight time for the entire shift. When an employee works on a special shift, they will be paid a special shift premium for each hour worked unless they are in overtime or double-time status. (For example, the special shift premium does not waive the overtime requirements for work performed on Saturday or Sunday.)

9. A. Workers working with supplied air on hazmat projects receive an additional $1.00 per hour.

Special Shift Premium: Basic hourly rate plus $2.00 per hour. When due to conditions beyond the control of the Employer or when an owner (not acting as the contractor), a government agency or the contract specifications require that more than four (4) hours of a special shift can only be performed outside the normal 6 am to 6pm shift, then the special shift premium will be applied to the basic straight time for the entire shift. When an employee works on a special shift, they shall be paid a special shift premium for each hour worked unless they are in overtime or double-time status. (For example, the special shift premium does not waive the overtime requirements for work performed on Saturday or Sunday.)

Certified Crane Operator Premium: Crane operators requiring certifications shall be paid $0.50 per hour above their classification rate.

Boom Pay Premium: All cranes including tower shall be paid as follows based on boom length:

(A) – 130’ to 199’ – $0.50 per hour over their classification rate.
(B) – 200’ to 299’ – $0.80 per hour over their classification rate.
(C) – 300’ and over – $1.00 per hour over their classification rate.

B. The highest pressure registered on the gauge for an accumulated time of more than fifteen (15) minutes during the shift shall be used in determining the scale paid.

Tide Work: When employees are called out between the hours of 6:00 p.m. and 6:00 a.m. to work on tide work (work located in the tide plane) all time worked shall be at one and one-half times the hourly rate of pay. Swinging Stage/Boatswains Chair: Employees working on a swinging stage or boatswains chair or under conditions that require them to be tied off to allow their hands to be free shall receive seventy-five cents ($0.75) per hour above the classification rate.

C. Tide Work: When employees are called out between the hours of 6:00 p.m. and 6:00 a.m. to work on tide work (work located in the tide plane) all time worked shall be at one and one-half times the hourly rate of pay. Swinging Stage/Boatswains Chair: Employees working on a swinging stage or boatswains chair or under conditions that require them to be tied off to allow their hands to be free shall receive seventy-five cents ($0.75) per hour above the classification rate.

Effective August 31, 2012 – A Traffic Control Supervisor shall be present on the project whenever flagging or spotting or other traffic control labor is being utilized. A Traffic Control Laborer performs the setup, maintenance and removal of all temporary traffic control devices and construction signs necessary to control vehicular, bicycle, and pedestrian traffic during construction operations. Flaggers and Spotters shall be posted where shown on approved Traffic Control Plans or where directed by the Engineer. All flaggers and spotters shall possess a current flagging card issued by the State of Washington, Oregon, Montana, or Idaho. These classifications are only effective on or after August 31, 2012.

D. Industrial Painter wages are required for painting within industrial facilities such as treatment plants, pipelines, towers, dams, bridges, power generation facilities and manufacturing facilities such as chemical plants, etc., or anywhere abrasive blasting is necessary to prepare surfaces, or hazardous materials encapsulation is required.
9. E. Heavy Construction includes construction, repair, alteration or additions to the production, fabrication or manufacturing portions of industrial or manufacturing plants, hydroelectric or nuclear power plants and atomic reactor construction. Workers on hazmat projects receive additional hourly premiums as follows - Level A: $1.00, Level B: $0.75, Level C: $0.50, And Level D: $0.25.

F. Industrial Painter wages are required for painting within industrial facilities such as treatment plants, pipelines, towers, dams, power generation facilities and manufacturing facilities such as chemical plants, etc., or anywhere abrasive blasting is necessary to prepare surfaces, or hazardous materials encapsulation is required.

H. One (1) person crew shall consist of a Party Chief. (Total Station or similar one (1) person survey system). Two (2) person survey party shall consist of a least a Party Chief and a Chain Person. Three (3) person survey party shall consist of at least a Party Chief, an Instrument Person, and a Chain Person.
PART IX

TECHNICAL SPECIFICATIONS
# ES23-0244F TECHNICAL SPECIFICATIONS

## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>SECTION</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>01_11_00</td>
<td>Summary of Work</td>
</tr>
<tr>
<td>01_14_00</td>
<td>Work Restriction</td>
</tr>
<tr>
<td>01_29_77</td>
<td>Applications for Payment</td>
</tr>
<tr>
<td>01_31_19</td>
<td>Project Meetings</td>
</tr>
<tr>
<td>01_31_24</td>
<td>Web Based Construction Documentation Management</td>
</tr>
<tr>
<td>01_32_16</td>
<td>Progress Schedules and Reports</td>
</tr>
<tr>
<td>01_32_34</td>
<td>Photographic Documentation</td>
</tr>
<tr>
<td>01_33_00</td>
<td>Submittal Procedures</td>
</tr>
<tr>
<td>01_35_03</td>
<td>Special Procedures for Locating and Verifying Concealed Existing Utilities</td>
</tr>
<tr>
<td>01_35_21</td>
<td>Selective Alterations and Demolition</td>
</tr>
<tr>
<td>01_35_22</td>
<td>Safety Plan</td>
</tr>
<tr>
<td>01_35_44</td>
<td>Hazardous Material Procedures</td>
</tr>
<tr>
<td>01_41_00</td>
<td>Regulatory Requirements</td>
</tr>
<tr>
<td>01_41_50</td>
<td>Environmental and Sustainability Management System (ESMS)</td>
</tr>
<tr>
<td>01_45_00</td>
<td>Quality Control</td>
</tr>
<tr>
<td>01_50_00</td>
<td>Temporary Facilities and Controls</td>
</tr>
<tr>
<td>01_60_00</td>
<td>Product Requirements</td>
</tr>
<tr>
<td>01_71_23</td>
<td>Field Engineering</td>
</tr>
<tr>
<td>01_77_00</td>
<td>Closeout Procedures</td>
</tr>
<tr>
<td>01_78_23</td>
<td>Operation and Maintenance Data</td>
</tr>
<tr>
<td>01_81_02</td>
<td>Seismic Design Criteria</td>
</tr>
<tr>
<td>03_11_07</td>
<td>Concrete Formwork</td>
</tr>
<tr>
<td>03_20_00</td>
<td>Concrete Reinforcing</td>
</tr>
<tr>
<td>03_21_17</td>
<td>Adhesive-Bonded Reinforcing Bars and All Thread Rods in Concrete</td>
</tr>
<tr>
<td>03_30_00</td>
<td>Cast-In-Place Concrete</td>
</tr>
<tr>
<td>03_35_29</td>
<td>Tooled Concrete Finishing</td>
</tr>
<tr>
<td>03_63_01</td>
<td>Epoxies</td>
</tr>
<tr>
<td>13_11_00</td>
<td>Cathodic Protection Groundbed Installation and Equipment Upgrades</td>
</tr>
<tr>
<td>26_05_00</td>
<td>Common Work Results for Electrical</td>
</tr>
<tr>
<td>26_05_03</td>
<td>Utility Coordination</td>
</tr>
<tr>
<td>26_05_18</td>
<td>600-Volt or Less Wires and Cables</td>
</tr>
<tr>
<td>26_05_21</td>
<td>Low Voltage Wire Connections</td>
</tr>
<tr>
<td>26_05_33</td>
<td>Conduits</td>
</tr>
<tr>
<td>26_08_50</td>
<td>Field Electrical Acceptance Tests</td>
</tr>
<tr>
<td>31_00_00</td>
<td>Earthwork</td>
</tr>
<tr>
<td>31_50_00</td>
<td>Excavation Support and Protection</td>
</tr>
<tr>
<td>32_01_15</td>
<td>Pavement Restoration and Rehabilitation</td>
</tr>
<tr>
<td>32_12_15</td>
<td>Asphaltic Concrete Paving</td>
</tr>
<tr>
<td>32_26_14</td>
<td>Concrete Curbs, Gutters, and Sidewalks</td>
</tr>
<tr>
<td>40_05_03</td>
<td>Pipe Identification</td>
</tr>
<tr>
<td>40_05_03</td>
<td>Soils and Aggregates for Earthwork</td>
</tr>
<tr>
<td>40_05_04</td>
<td>Trenching</td>
</tr>
</tbody>
</table>
SECTION 01_11_00
SUMMARY OF WORK

PART 1 GENERAL

1.01 SUMMARY
A. Section includes: Detailed description of the Work.

1.02 THE WORK
A. The Work generally consists of replacing existing cathodic protection equipment and anodes protecting the existing 60-inch prestressed concrete cylinder pipe (PCCP) that conveys effluent from the Central Wastewater Treatment Plant (CTP) to Commencement Bay. This includes replacing deep and semi-deep anode groundbed wells and the electrical improvements to connect the wells to new equipment. The work will take place at multiple locations throughout the Port of Tacoma area. Access to some of the sites is restricted and all workers at those locations will be required to have current Transportation Worker Identification Credentials (TWIC).

B. Price Proposal Summary:
1. Lump sum descriptions for each scope of Work shall reflect furnishing all labor, equipment, materials, and incidentals necessary to perform all Work shown and specified:
   a. **CTP Outfall Cathodic Protection Improvements**: All costs associated with replacing and improving the cathodic protection systems at the eight (8) locations shown on the Contract Drawings. This includes utility coordination, surface restoration, and all other necessary costs.

1.03 LOCATION OF PROJECT
A. The Work is located at multiple locations in the Port of Tacoma. Approximate address are listed below.
   1. **CTP Deep Anode Groundbed Rectifier Station**
      a. City of Tacoma Central Treatment Plant (Plant No. 1), 2201 E Portland Avenue, Tacoma, Washington 98421.
   2. **Lincoln Avenue Semi-Deep Groundbed**
      a. 1625 Lincoln Ave, Tacoma WA 98421.
   3. **Milwaukee Way Deep Groundbed Rectifier Station**
      a. 1110 Milwaukee Way, Tacoma WA 98421.
   4. **Sitcum Way Semi-Deep Groundbeds (3 Locations)**
      a. 465 Sitcum Way, Tacoma WA 98421.
      b. These sites require TWIC access.
   5. **Port of Tacoma Deep Groundbed Rectifier Station**
      a. 710 Port of Tacoma Road, Tacoma WA 98421.
      b. This site requires TWIC access.
   6. **Port of Tacoma Marine Outfall Deep Groundbed Rectifier Station**
      a. 500 Port of Tacoma Road, Tacoma WA 98421.
      b. This site requires TWIC access.
1.04 OWNER ASSIGNED SUBCONTRACTORS (NOT USED)

1.05 OWNER FURNISHED EQUIPMENT (NOT USED)

1.06 ACTIVITIES BY OTHERS

A. Activities by others which may affect performance of work include those defined in Section 01_14_00 – Work Restrictions:
   1. Ongoing plant operation and maintenance: Ongoing operations and maintenance of CTP to operate the facility must be provided. Refer to Section 01_14_00 – Work Restrictions.
   2. Ongoing Husky Terminal operations.
   3. Tacoma Rail Operations
   4. Work, as needed, by utilities.

1.07 USE OF TYPICAL DETAILS

A. The Typical Details provided in the plan set constitute Contract Documents for use by the Contractor to complete the Work. These Typical Details provide the standard design features, materials, and installation basis for specific items of Work whether or not its specific use is expressly identified at each location to complement the Contract Drawings. For cases where a Typical Detail does not apply or is not provided, develop details that may be necessary for completing the Work, and submit these details for review by the Owner:
   1. The Contractor will be required to develop project specific details for certain aspects of the work as indicated on the Drawings.

1.08 COORDINATION OF WORK

A. Contractor shall have a preconstruction video made that records the project sites (with the Owner and Engineer present), including all concrete and asphalt pavements, curb and gutter, fencing to remain, structures to be demolished, and existing structures and facilities that are to be modified:
   1. The original and 2 copies of the DVD or flash drive shall be turned over to Engineer and Owner prior to beginning construction activities.
   2. The format of the video file on the DVD or flash drive shall be 1 file that can be played on a desktop in the windows media player.
   3. The video shall clearly identify existing site and structural conditions prior to construction.

1.09 USE OF SITE

A. Contractor shall confine use of the site for work, parking, and storage to boundaries shown on the Contract Drawings. The Contractor’s use of adjacent lands and roads for access to move onto and off of the sites and for daily access of workers, material and equipment shall be arranged and scheduled to minimize interference with the Owner's continued operations:

B. Contractor shall request approval from the Owner 7 days prior to construction activity at any site.

C. Restrictions to the CTP and Port of Tacoma Sites:
   1. Speed limit: 10 mph.
2. Follow all posted signs.
3. Smoking in designated areas.
4. Cellphone use limited to non-traffic areas.

PART 2  PRODUCTS
Not Used.

PART 3  EXECUTION
Not Used.

END OF SECTION
SECTION 01_14_00
WORK RESTRICTIONS

PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Requirements for sequencing and scheduling the Work affected by existing site and facility, work restrictions, and coordination between construction operations and CTP operations, Husky Terminal, Port of Tacoma, and Tacoma Rail.

1.02 SUBMITTALS

A. Baseline Schedule, including sequencing, with Strategic Procedures (SP) tasks identified.

B. Strategic Procedures Form.

C. Strategic Procedures Log.

D. Progress Schedule with SP tasks.

1.03 CONTRACT COMPLETION TIMES

A. Milestone Contract Times are defined as follows:

1. Port of Tacoma Road Rectifier Station: 60 days from Notice to Proceed (NTP):
   a. Work at this location is being coordinated with the Husky Terminal and Port of Tacoma. Contractor shall prioritize completion at this location prior to working at other locations.
   b. If equipment lead-times extend past 60 days, the Contractor shall complete all other site work (trenching, well drilling, electrical, and pavement restoration, etc.) within the first 60 days. The only work allowed to exceed 60-days is the equipment installation, associated terminations, and startup.

2. The Contractor shall complete improvements at each location within 30 days of starting work.

B. Substantial Completion: Completion of remaining site improvements and restoration including paving, surface restoration, and landscaping. Achieve within 120 days from NTP.

C. Final Completion: Achieve within 30 calendar days after Substantial Completion.

1.04 SECURITY

A. Make adequate provision, including chain link fence and gates, for protection of the work areas against fire, theft, and vandalism, and for protection of public against exposure to injury.
B. Personnel identification:
   1. The Contractor shall issue an identification badge to each team member during site orientation. The badge shall remain highly visible on each team member’s personal protective equipment (PPE) via hardhat or on safety vests at all times while working on-site.
   2. The identification badge shall, at a minimum, contain:
      a. Project name.
      b. Company.
      c. Employee name.

C. Transportation Worker Identification Credential (TWIC)
   1. All workers performing work or accessing the TWIC Restricted sites are required to have current TWIC cards.
   2. Workers will check-in at the security check points at each entry point.
   3. TWIC Restricted sites:
      a. Port of Tacoma Road Rectifier Station
      b. Port of Tacoma Marine Outfall Rectifier Station
      c. Sitcum Way Steel Casing Anode Replacements (3 Locations)

1.05 GENERAL CONSTRAINTS ON WORK AND SCHEDULING OF WORK

A. Wastewater operations:
   1. The Central Treatment Plant (CTP) is the City of Tacoma’s primary means of treating domestic and industrial wastewater prior to discharging to Commencement Bay and Puget Sound. Impairing the operational capabilities of this treatment plant will result in serious environmental damage and monetary fines.
   2. Conduct Work in a manner that will not impair the operational capabilities of essential elements of the treatment process or reduce the capacity of the entire treatment plant below levels sufficient to treat the quality of raw wastewater to the water quality limitations specified in the National Pollutant Discharge Elimination System (NPDES) discharge permit.

B. Environmental:
   1. Mitigation of construction impacts:
      a. Requirements: All construction activities shall comply with all federal, state and local regulations pertaining to water, air, solid waste, and noise pollution.
      b. Definitions of contaminants:
         a. Sediment: Soil and other debris that have been eroded and transported by runoff water.
         b. Solid waste: Rubbish, debris, garbage and other discarded solid materials resulting from construction activities, including a variety of combustible and non-combustible wastes, such as ashes, waste materials that result from construction or maintenance and repair work, leaves and tree trimmings.
         c. Chemical waste: Includes petroleum products, bituminous materials, salts, acids, alkalis, herbicides, pesticides, disinfectants, organic chemicals and inorganic wastes. Some of the above may be classified as "hazardous."
         d. Sanitary wastes:
            1) Sewage: That which is considered as domestic sanitary sewage.
2) Garbage: Refuse and scraps resulting from preparation, cooking, dispensing and consumption of food.

e. Hazardous Materials: As defined by applicable laws and regulations. Undisclosed hazardous material contamination, if encountered will constitute a changed site condition. The Owner may retain a separate contractor to dispose of undisclosed hazardous material encountered.

3. Protection of natural resources:
   a. General: It is required that the natural resources within the project boundaries and outside the limits of permanent work performed under this Contract be preserved in their existing condition or be restored to an equivalent or improved condition upon completion of the work. Confine construction activities to areas defined by the public roads, easements, and work area limits shown on the Drawings. Return construction areas to their pre-construction elevations except where surface elevations are otherwise noted to be changed. Maintain natural drainage patterns. Conduct construction activities to avoid ponding stagnant water conducive to mosquito breeding.

4. Noise control: Contractor shall conform with all requirements of City of Tacoma Noise Ordinance Number 28293.

5. Dust control, Air Pollution and Odor Control: Employ measures to prevent the creation of dust, air pollution and odors:
   a. Unpaved areas where vehicles are operated shall be periodically wetted down or given an equivalent form of treatment, to eliminate dust formation.
   b. Store all volatile liquids, including fuels or solvents in closed containers.
   c. No open burning of debris, lumber or other scrap will be permitted.
   d. Properly maintain equipment to reduce gaseous pollutant emissions.

6. Construction storage areas: Storage of construction equipment and materials shall be limited to the areas are shown on the Drawings:
   a. Store and service equipment at the designated Contractor's storage area where oil wastes shall be collected in containers and covered in compliance with the CTP's Stormwater Pollution Prevention Plan (SWPPP) included in Section 01_41_00 Appendix A. Oil wastes shall not be allowed to flow onto the ground or into surface waters. Containers shall be required at the construction site for the disposal of materials such as paint, paint thinner, solvents, motor oil, fuels, resins and other environmentally deleterious substances.

7. No dumping of surplus concrete, grout, or drilling spoils on the sites will be permitted. Contractor to provide containment and disposal for all of these materials.

8. Erosion and sediment transport control:
   a. Comply with CTP's SWPPP and project SWPPP/TESC.
   b. Discharge construction runoff into small drainages at frequent intervals to avoid buildup of large potentially erosive flows.
   c. Prevent runoff from flowing over unprotected slopes.
   d. Keep disturbed areas to the minimum necessary for construction.
   e. Keep runoff away from disturbed areas during construction.
   f. Direct flows over vegetated areas prior to discharge into public storm drainage systems.
   g. Trap sediment before it leaves the site, using such techniques as check dams, sediment ponds, siltation fences, catch basin inlet socks.
9. Disposal operations:
   a. Solid waste management:
      1) Contractor shall make every effort to recycle demolished material, construction waste, and other materials prior to landfilling.
      2) Supply covered solid waste transfer containers for all construction activities. Remove daily, all debris such as spent air filters, oil cartridges, cans, bottles, combustibles and litter. Take care to prevent trash and papers from blowing onto adjacent property. Personnel are required to use refuse containers. Convey contents to a sanitary landfill weekly. Comply with City of Tacoma Stormwater Management Manual BMP S117.
      3) Washing of concrete containers where runoff may reach adjacent property or natural water courses will not be permitted. Remove any excess concrete to the sanitary landfill. Capture and dispose of concrete slurry water. Comply with City of Tacoma Stormwater Management Manual BMP C151, C152, and C154.
   b. Chemical waste and hazardous materials management: Furnish containers for storage of spent oil and chemicals used during construction operations. Dispose of accumulated chemicals and hazardous materials in accordance with applicable regulations on a weekly basis, unless otherwise approved by Owner.
   c. Garbage: Store garbage in covered containers, pick up garbage daily and dispose of in a sanitary landfill each week.
   d. Dispose of vegetation, weeds, rubble, and other materials removed by the clearing, stripping and grubbing operations off site at a suitable disposal site in accordance with applicable regulations. Provide truck tickets for all material disposed off site.

C. Contractor's use of sites:
   1. The Contractor shall confine his use of the sites for work and storage to within the work areas designated on the drawings, unless otherwise noted. The Contractor's use of adjacent lands and roads for access to move onto and off of the site and for daily access of workers, material, and equipment shall be arranged and scheduled to minimize interference with the Owner's continued operations. Comply with all posted signs and obey all traffic laws:
   2. All drilling spoils, fluids, and materials shall be collected and contained in Baker Tanks or other approved storage devices. These materials shall not accumulate on the ground, landscaping, or paved surfaces.
   3. Contractor shall not store materials or operate equipment within 11 feet of the Tacoma Rail railroad Tracks. Move materials and equipment as directed by Tacoma Rail or Port of Tacoma staff.
   4. Contractor shall not work, store materials, or operate equipment within 25-ft of the BNSF railroad tracks.

D. Activities by others which may affect performance of work include:
   1. Ongoing plant operation: Ongoing operations of CTP to operate and maintain the facility must be maintained. Refer to this Section.
   2. Husky Terminal Operations. Ongoing operations of the Husky Terminal at 710 Port of Tacoma Road must be maintained. Coordinate access and road closures with Husky. Minimum one (1) lane of road must remain open at all
times. Provide steel plates for access during construction. Contractor to provide flagger traffic control whenever road is reduced to one lane.

3. Port of Tacoma Rail Operations: Ongoing operations of the Port of Tacoma Rail lines adjacent to Port of Tacoma Road and Sitcum Way must be maintained. Coordinate access and working conditions with Patrick Patterson

4. Tacoma Rail Operations: Ongoing operations of the Tacoma Rail lines adjacent to Port of Tacoma Road and Sitcum Way must be maintained. Coordinate access and working conditions with Tacoma Rail. Contact Kyle Kellem at 253-377-3554.

E. Working hours: between the hours of 7 a.m. and 4 p.m. Monday through Friday, or as otherwise approved by Owner.

1.06 SHUTDOWN AND CONSTRUCTION CONSTRAINTS

A. General construction constraints:
   1. Activities that disrupt facility operations are prohibited, unless otherwise approved in writing by the Owner.
   2. Execute the Work while the existing facilities are in operation as specified in Division 1 specifications.
   3. Apply to activities of construction regardless of work area.
   4. Activities that disrupt plant or utility operations must comply with the shutdown constraints in this Section.
   5. Organize work to be completed in a minimum number of shutdowns.
   6. Provide thorough advanced planning, including having required equipment, materials, and labor on hand at time of shutdown.

B. Site specific construction constraints:
   1. The following constraints shall be observed while working in and around each of the following sites:
      a. CTP Rectifier Station:
         1) Do not block access to Building A garage doors.
         2) Do not block road between Rectifier Station and Building A before 8AM, between 11AM-12PM, and after 3PM.
      b. Lincoln Avenue Anodes:
         1) Do not stand, store material or equipment, or perform work within 15-feet of the centerline of the railroad tracks.
         2) Do not block the driveway serving the business at 1916 Marc Avenue without prior permission from property owner.
      c. Milwaukee Way Rectifier Station:
         1) Milwaukee Way to remain open at all times.
         2) Coordinate power outage, if needed, with Tacoma Power.
         3) Contractor may move ecology blocks as needed to access the Work. Restore ecology blocks to pre-construction locations following completion of improvements.
      d. Sitcum Way Anodes:
         1) All workers at these locations shall have current TWIC cards on them at all times. This includes delivery drivers and truck drivers.
         2) Do not stand, store materials or equipment, or perform work within 8-feet of the edge the railroad tracks without prior approval.
3) The adjacent railroad is owned by Port of Tacoma and operated by Tacoma Rail. Coordinate rail shutdowns and access daily with Port of Tacoma and Tacoma Rail.

e. Port of Tacoma Road Rectifier Station
    1) All workers at these locations shall have current TWIC cards on them at all times. This includes delivery drivers and truck drivers.
    2) Do not stand, store materials or equipment, or perform work within 8-feet of the edge the railroad tracks without prior approval.
    3) The adjacent railroad is owned by Port of Tacoma and operated by Tacoma Rail. Coordinate rail shutdowns and access daily with Port of Tacoma and Tacoma Rail.
    4) Sequence work to maintain 1 available lane of traffic. Provide flagging whenever road is limited to single lane.
    5) Coordinate all site work with Husky Terminal.

f. Port of Tacoma Marine Outfall Rectifier Station
    1) All workers at these locations shall have current TWIC cards on them at all times. This includes delivery drivers and truck drivers.
    2) Contractor to keep all vehicles, equipment, and materials off of the road.
    3) Coordinate all site work with Husky Terminal.
    4) City of Tacoma staff shall have access to one parking space and the adjacent Outfall Sample Shed at all times.

H. Puyallup River Levee Requirements:
    1. All excavations and other improvements near the Puyallup river levee shall commence when Puyallup River levels are below gage height 19 feet (NGVD29 datum) as measured by USGS Station 12101500 available at the web address below: https://waterdata.usgs.gov/wa/nwis/uv/?site_no=12101500&PARAmeter_cd=0060.00065.
    2. The Puyallup River is tidally influenced and river levels further rise during wet weather. Contractor shall perform excavations near levee when favorable tide and weather conditions are forecasted, in agreement with the Owner. Should gage height exceed 19 feet, any open excavation near levee shall be backfilled immediately as directed by the Owner.

1.07 STRATEGIC PROCEDURES (SP)

A. SP Instructions: See Appendix A.

B. Prepare SP for the following conditions:
    1. Utility performed electrical shutdowns and start-ups.
       a. Port of Tacoma Rectifier Station
       b. Milwaukee Way Rectifier Station

C. Other Work not specifically listed may require SPs as determined necessary by the Contractor, Owner, or Engineer.

D. Submit Baseline Schedule, as specified in Section 01_32_16 - Progress Schedules and Reports, with proposed SPs.
E. No consideration will be given to claims of additional time and cost associated to preparing SPs required by the Owner and Engineer to complete this work in a manner that facilitates proper operation of the facility.

1.08 COMPLIANCE WITH NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT AT CTP

A. The existing facility is operating under the terms of a National Pollutant Discharge Elimination System permit issued by the Washington State Department of Ecology. This permit specifies the water quality limits that the plant must meet prior to discharge of effluent. A copy of the existing permit is on file for review at the Operation Control Room of the plant.

B. Perform work in a manner that will not prevent the existing facility from achieving the finished water quality requirements established by regulations.

C. The Contractor shall bear the cost of penalties and any imposed fines including expenses on the Owner for discharge violations caused by actions of the Contractor. Penalties also include expenses to the Owner related to the violations.

1.09 OPERATIONS AND MAINTENANCE ACCESS

A. Owners and site operators must have access to and around the entire site including areas of Work. Coordinate work activities with Owner to facilitate and ensure safe and reasonable access is maintained for personnel as well as emergency vehicles. In addition, the Contractor shall be responsible for maintaining safe emergency access for the Owner's and Contractor's personnel in all areas affected by the Contractor's work.

B. At all times, the Contractor shall provide safe and adequate passage of facility staff, truck deliveries, and the public in terms of vehicular and pedestrian traffic through, around, and adjacent to all construction operations by use of detours, bridging, backfilling, paving, traffic barriers, plating, or other favorably-reviewed means.

1.10 UTILITIES

A. Provide advance notice to and utilize services of Utilities Underground Location Center at 1-800-424-5555 (or 811) for location and marking of underground utilities operated by utility agencies other than the Owner.

B. Maintain electrical (overhead and underground), telephone, water, gas, sanitary, and other utilities in service.

C. New improvements were designed using available as-built drawings:
   1. Contractor must use a high degree of care when locating and working around existing facilities and utilities.
   2. Contractor shall conduct field verification of existing utilities as required to perform the work. The Contractor shall pothole with a vacuum excavator a minimum 10-feet deep prior to drilling anode wells to confirm absence of utilities.
1.11 WORK SEQUENCE

A. All Project Work will follow an approved sequenced approach. The Owner has developed a Work Sequence that the contractor may incorporate into the project. Modifications to the Work Sequence plan may approved provided the cost and schedule are not increased.

B. The Contractor shall develop and submit their proposed Work Sequence plan for Owner approval. The Work Sequence shall be based on minimizing power outages (duration and frequency) and road closures.
   1. Alternative Sequences must include completion of the Port of Tacoma Rectifier Station as the first site.

C. Provide Work Sequence broken down by site as follows:
   1. Phase 1 – Port of Tacoma Rectifier Station: achieve within 60 days from NTP:
      a. Submit materials and equipment
      b. Coordinate with TPU to submit and obtain electrical permit and schedule utility shutdown with TPU and Husky Terminal.
      c. De-energize existing system. Removal all cables and equipment as indicated on Drawings.
      d. Vactor excavate first 10-ft of well area to eliminate risk of unknown utilities and locate existing well. Install new deep anode well.
      e. Extended existing electrical conduit across Port of Tacoma Road to new location.
      g. Pull and terminate new cables, coordinate startup with TPU and Husky.
   2. Phase 2 – Remaining Sites: achieve within 120 days from NTP:
      a. CTP Rectifier Station
         1) Submit materials and equipment.
         2) De-energize existing system. Remove all cables and equipment as indicated on Drawings.
         3) Vactor excavate first 10-ft of well area to eliminate risk of unknown utilities and locate existing well. Install new deep anode well.
         4) Install new conduit, cable, and equipment.
         5) Startup and commission new system.
         6) Surface restoration including paving and landscaping.
      b. Port of Tacoma Marine Outfall Rectifier Station
         1) Submit materials and equipment.
         2) De-energize existing system. Remove and replace all cables and equipment as indicated on Drawings.
         3) Startup and commission new system.
      c. Milwaukee Way Rectifier Station
         1) Submit materials and equipment.
         2) De-energize existing system in coordination with TPU. Remove all cables and equipment as indicated on Drawings.
         3) Install new conduit, cable, and equipment.
         4) Startup and commission new system.
         5) Surface restoration to restore preconstruction condition.
      d. Lincoln Ave Galvanic Anodes
         1) Submit materials and equipment.
2) Vactor excavate first 10-ft of well area to eliminate risk of unknown utilities and locate existing well. Install new semi-deep galvanic anode well. Install new anode ground beds as shown on the Drawings.

3) Locate and protect existing conduit and cables to casing. Remove and dispose of all obsolete equipment and materials.

4) Install new conduit, cable, and equipment.

5) Startup and commission new system.

6) Perform surface restoration.

e. Sitcum Way Anodes

1) Submit materials and equipment.

2) Vactor excavate first 10-ft of well area to eliminate risk of unknown utilities and locate existing well. Install new semi-deep galvanic anode well. Install new anode ground beds as shown on the Drawings.

3) Locate and protect existing conduit and cables to casing. Remove and dispose of all obsolete equipment and materials.

4) Install new conduit, cable, and equipment.

5) Startup and commission new system.

6) Perform surface restoration.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION
APPENDIX A
“Strategic Procedures” (SP)
Instructions and Forms

Definition and Purpose

“Strategic Procedures” (SP) is a detailed document submitted by the Contractor to request process shutdown(s), utility tie-in(s), work in areas that may risk unanticipated outages, or flow diversions to accommodate site construction activities during a project. Such activities may include (but are not limited to) new tie-ins to utilities or structures, mechanical modifications to process piping or equipment, demolition, bulkhead installation, and cleaning processes.

The SP provides a detailed plan to the Owner and Engineer that describes specific aspects of the work including purpose, time of execution, and anticipated impacts on treatment processes. The SP also includes contingency measures and provisions for rapid closure in the event that shutdown or work progress difficulties are encountered. Information from relevant trades associated with the requested shutdown, diversion, or tie-in is also included.

The Owner should use the information within the SP to define operational procedures and methods to safely and successfully assist the Contractor.

SP Process Summary

<table>
<thead>
<tr>
<th>WHO</th>
<th>STEP</th>
<th>TIMING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contractor</td>
<td>1. Submits SP.</td>
<td>No later than 7 days prior to work</td>
</tr>
<tr>
<td>Owner</td>
<td>2. Reviews SP.</td>
<td></td>
</tr>
<tr>
<td>Owner</td>
<td>3. SP finalized.</td>
<td>7 days prior to work</td>
</tr>
<tr>
<td>Contractor</td>
<td>4. Complete Readiness Checklist.</td>
<td>5 days prior to work</td>
</tr>
<tr>
<td>Contractor</td>
<td>5. Complete Safety Checklist.</td>
<td>Just prior to commencing work</td>
</tr>
<tr>
<td>Contractor</td>
<td>7. Update SP Log and Progress Schedules.</td>
<td>Monthly</td>
</tr>
</tbody>
</table>

SP Process Detail

STEP 1. Submits SP.
Contractor completes the SP Form and submits for approval.

STEP 2. Reviews SP.
Owner distributes SP Form for review by the Owner’s Construction Team. Review SP Form for completeness, accuracy, compliance with both the construction schedule, constraints defined in contract documents, and to ensure that the requested work does not negatively impact operations or other concurrent project activities. Additional information may be requested to better understand the nature of and method for completing the Work.
STEP 3. SP finalized.
Once the SP is agreed to by all parties, the SP will be finalized by signature. Copies are distributed to the Owner, Engineer, and Contractor.

Contractor verifies everything is ready for the work.

Contractor ensures safety.

STEP 6. Complete work.
Contractor complete work.

STEP 7. Update SP Log and Progress Schedules.
Contractor updates SP Log weekly and distributes at the regularly scheduled construction progress meetings.
**STRATEGIC PROCEDURE (SP) SAMPLE FORM**

<table>
<thead>
<tr>
<th>Owner:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contractor:</td>
<td>Project No.:</td>
</tr>
<tr>
<td>Project Name:</td>
<td>Submittal No.:</td>
</tr>
<tr>
<td>Submittal Title:</td>
<td>Spec/Dwg. Reference:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SP #</th>
<th>Task Title (Provide &lt;10 word title):</th>
<th>Submittal Date: (No later than 28 days prior to work)</th>
</tr>
</thead>
</table>

**SCHEDULE OF WORK ACTIVITY START:** (Date/Time) **END:** (Date/Time)

**REQUESTOR:**

**PRIMARY POINT OF CONTACT:**

**SECONDARY POINT OF CONTACT:**

**NOTIFY**

- Control Room, Phone
- Security, Phone

**BUILDING:**

**LOCATION OF WORK FLOOR/LEVEL:**

**DESCRIPTION OF WORK:** (Provide sufficient details on process isolation, work sequencing, and safety (i.e., control of significant hazards unique to the work) to demonstrate an understanding of the work and how it will be completed within the constraints, and its impact on the processes and facility.)

**Task Summary:**

**Processes Affected:**

**Trades Affected:**

**WORK PLAN:**

**Work Sequencing:**

**Process Isolation:**

**Spill Prevention Plan:**

**Contingency Plans:**

**CRITICAL EQUIPMENT/MATERIALS/TOOLS:** (pumps and discharge hoses with correct fittings, blind flanges and pipe plugs, no-hub fittings, properly sized electrical service components, generators, portable lighting, chlorine for potable water pipe breaks, etc.)

- Acoustic Ceiling/or Walls Access
- Excavation Permit
- Lock Out/Tag Out
- Chemical Use Approval
- Fire Sprinkler Impairment
- Life Safety Systems
- Confined Space Permit
- Flammable Materials
- Roof Protocol
- Critical Lift Plan
- Flush / Discharge
- Work After Dark
- Energized Electrical Work
- High Pressure Test
- Elect. Panel Schedules
- Hot Work/Open Flame

**EXISTING SERVICE(S) AT RISK:**

- Breathing Air
- Elect Normal
- Process Access
- Telephones
- Chemical Distribution
- Fire Protection
- Safety Showers
- UPS
- City Water
- HVAC
- SCADA
- Communication
- Inert Gas
- Security
- Domestic Drain
- Instrument - Air
- Solvent Drain
- Elect-Bus Duct
- Life Safety System
- Specialty Gases
- Elect Emergency
- Natural Gas
- Storm Drain

**REVIEWER’S INSTRUCTIONS / COMMENTS:**

**PREJOB BRIEFING MUST BE COMPLETED PRIOR TO COMMENCING WORK:**

<table>
<thead>
<tr>
<th>Submitted By</th>
<th>Full Name (printed)</th>
<th>Signature</th>
<th>Phone</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Owner</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reviewer (if needed)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reviewer (if needed)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reviewer (if needed)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reviewer (if needed)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
READINESS CHECKLIST (SAMPLE)
(5 days prior to work)

Checklist provided as a guide but is not all inclusive.

1. Confirm all parts and materials are on site:
2. Review work plan:
3. Review contingency plan:
SAFETY CHECKLIST
(Just prior to commencing work)

Checklist provided as a guide but is not all inclusive.

1. Location awareness:
   a. Emergency exits: 
   b. Emergency shower and eyewash: 
   c. Telephones and phone numbers: 
   d. Shut-off valve: 
   e. Electrical disconnects: 

2. Inspect work area:
   a. Take time to survey the area you are working in. Ensure that what you want to do will work. Do you have enough clearance? Is your footing secure? Do you have adequate lighting and ventilation? Are surrounding utilities out of the way for you to perform your work?

3. SDS (Safety Data Sheets):
   a. Understand the chemicals and substances in the area you are working in by reading the SDS.

4. Lockout/Tagout Procedure:
   a. Lockout/tagout energy sources before beginning work.
   b. Make sure all valves associated with the work are locked out and tagged out on each side of the penetration.
   c. Make sure the lines are depressurized.

5. Overhead work:
   a. Use appropriate personal protective equipment; i.e., safety harness, lifeline, etc.
   b. Select appropriate tie-off points; i.e., structurally adequate, not a pipe or conduit, etc.
   c. Spotter assigned and in position.
   d. Pipe rack access; i.e., check design capacity, protective decking or scaffolding in place, exposed valves or electrical switches identified and protected.

6. Safety equipment:
   a. Shepherd's hook.
   b. ARC flash protection.
   c. Fire extinguisher.
   d. Other: 

7. Accidents:
   a. Should accidents occur, do not shut off and do not attempt to correct the situation, unless you are absolutely positive that your action will correct the problem and not adversely affect other people or equipment.

8. Review process start-up documents:
   a. In the event the system is shutdown, the Control Center should have a working knowledge of the process start-up procedures in order to deal effectively with unforeseen events.

9. Evacuation procedures:
   a. Do not obstruct evacuation routes.
   b. Take time to survey the area for evacuation routes.
## Strategic Procedures (SP) Log

**Sample**

<table>
<thead>
<tr>
<th>SP Number</th>
<th>Task Title</th>
<th>Date Requested</th>
<th>Date Approved</th>
<th>Date Work Planned</th>
<th>Work Completed (yes/no)</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>002</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>003</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PART 1    GENERAL

1.01 SUMMARY

A. Section includes:
   1. Schedule of Values.
   2. Procedures for preparation and submittal of Applications for Payment.

1.02 FORMAT

A. Develop satisfactory spreadsheet-type form generated from the Progress Schedule.

A. When Change Orders are executed, add Change Orders at end of listing of scheduled activities:
   1. Identify change order by number and description.
   2. Provide cost of change order in appropriate column.

B. After completing, submit Application for Payment.

C. Owner will review application for accuracy.

D. Execute application with signature of responsible officer of Contractor.

1.03 SUBSTANTIATING DATA

A. Provide Substantiating Data with cover letter identifying:
   1. Owner’s specification number and project number.
   2. Project name and location.
   3. Contractor’s name and address.
   4. Application number and date of submittal.
   5. Detailed list of enclosures.
   6. For stored products with item number and identification on application, description of specific material, and proof of insurance coverage for stored products.
   7. Submit certified payroll.

1.04 SUBMITTALS

A. Application for Payment and Substantiating Data with cover letter: Submit 3 hard copies in accordance with Section 01_33_00 – Submittal Procedures and electronic in accordance with Section 01_31_24 – Web Based Construction Document Management.

B. Prepare progress payment requests on a monthly basis. Base requests on the breakdowns of costs for each scheduled activity and the percentage of completion for each activity.
1.05 SCHEDULE OF VALUES

A. Submit, in conjunction with the Baseline Schedule, a Schedule of Values per Document 00_72_00, Article 6.02 and Document 00_73_00 Article 6.02, identifying costs of all construction activities as generated by the schedule. Equate the aggregate of these costs to the Contract Sum.

B. Submit corrected schedule of values within 5 calendar days upon receipt of reviewed Schedule of Values.

C. Submit per unit material, equipment, and labor costs used in developing the final bid for the civil and electrical project elements, for the express purpose of pricing and cost justification for any proposed change orders. In addition to the items shown on the schedule of values, provide per unit material and labor costs for conduit and wire installation for specific types, sizes, and locations as indicated on the Drawings. It is the responsibility of the electrical subcontractor to prove to the Owner’s satisfaction that said per unit costs were used in the development of the final Bid amount.

D. Provide certified payroll statements with application for payment.

E. Additional breakdown requirements:
   1. Separate by each Work Location.
   2. For items on which progress payments will be requested for materials or equipment purchased/fabricated/delivered but not yet installed, show "initial value" for payment request and "value added" for subsequent stage(s) of completion on that unit of Work. Identify materials stored on-site or off-site.
   3. For each line item of installed value exceeding 5 percent of the Contract Sum, show breakdown by major products or plant operations under each item for ease of review and confirmation of Work completed. Identify material and labor as separate items.
   4. Identify each administrative and procedural requirement separately as a separate line item:
      a. Mobilization.
      b. Contract Administration.
      c. Construction schedule.
      d. Bonds and insurance at actual cost.
      e. Demolition and repair.
      f. Cleanup.
      g. Record Documents – paid upon acceptance.
      h. Operation and Maintenance Manuals with Parts Lists – paid upon acceptance.
      i. Special warranties.
      j. Temporary facilities.
   5. The minimum value shall be no less than 2-percent of the Contract Sum for each requirement listed:
      a. Cleanup.
      b. Record Documents.
      c. Operation and Maintenance Manuals.
   6. Round figures to nearest dollar amount.
7. Coordinate items of the Schedule of Values so that there is a corresponding item in the Construction Progress Schedule. If activities are added or removed from the Progress Schedule, revise the Schedule of Values and resubmit.

1.06 PAYMENT APPLICATIONS

A. General:
1. Submit itemized payment request as required in Documents 00_72_00 and 00_73_00 together with Schedule of Values and other submittals as listed herein.
2. Except as otherwise indicated, sequence of progress payments is to be regular, and each must be consistent with previous applications and payments; it is recognized that certain applications involve extra requirements, including initial application, application at times of Substantial Completion, and final payment application.
3. By submitting an Application for Payment, Contractor is certifying that to the best of Contractor’s knowledge, information, and belief, the work covered by each Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by him for work for which previous Applications for Payment were issued and payments received from the Owner, and that current payment is now due.
4. Contractor certifying Subcontractor payment: In accordance with Documents 00_72_00 and 00_73_00.

B. Submit progress payment requests at progress meetings.

C. Payment Application Times: The Owner at the pre-construction meeting will establish the date for each progress payment and the period of construction Work covered by each Application for Payment.

D. Payment Application Forms: In accordance with Documents 00_72_00 and 00_73_00. Provide with continuation sheets for the schedule of values, and place the following paragraphs at the end for signatures:

“The undersigned Contractor certifies that to the best of the Contractor’s knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Document, that all amounts have been paid by the contractor to employees, subcontractors, suppliers, etc. for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payments shown herein is now due.

(Contracting Firm)

By __________________________ _______________________
(SIGN IN INK)             Date

E. Application Preparation: Complete every entry on form. Notarize and execute by an Officer of the Company authorized to sign legal documents on behalf of Contractor. Owner will return incomplete applications without action:
1. Entries shall match data on the Schedule of Values and Contractor’s Construction Schedule. Use updated schedules if revisions were made.
2. Include amounts of Change Orders issued before last day of construction period covered by application.
F. Transmittal: Submit (3) three signed and notarized original copies of each Application for Payment to Owner by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments, if required:
   1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

G. Waivers of Mechanic’s Lien: With each Application for Payment, submit waivers of mechanic’s lien from every entity who is lawfully entitled to file a mechanic’s lien arising out of the Contract and related to the Work covered by the payment.

H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
   1. List of subcontractors.
   2. Statement of Intent to pay prevailing wages.
   3. Schedule of Values.
   4. Contractor’s Construction Schedule (preliminary if not final).
   5. Products list.
   6. Schedule of unit prices.
   7. Submittals Schedule (preliminary if not final).
   8. List of Contractor’s staff assignments.
   9. List of Contractor’s principal suppliers and subcontractors.
   12. Initial progress report.
   14. Certificates of insurance and insurance policies.
   15. Performance and payment bonds.
   16. Data needed to acquire Owner’s insurance.
   17. Other documents as may be required in the Contract Documents.

I. Applications each Month During Construction: Submit itemized application, in number of copies as specified herein, each with Contractor’s notarized affidavit and signed receipts from Principal Subcontractors and Suppliers as specified below. Also include with each application:
   1. Updated construction schedule in accordance with Section 01_32_16 – Progress Schedules and Reports.

J. Construction Schedule Update: Submit with applications for payment a revised updated project CPM schedule for evaluation and measurement of actual work-in-place with said applications for payment:
   1. Application for Payment at Substantial Completion: In accordance with Documents 00_72_00 and 00_73_00.
   2. Final Payment Application: In accordance with Documents 00_72_00 and 00_73_00.

K. On-going documentation verifications prior to payment: Owner will verify the following documentation prior to payment. Failure to provide current documentation to Owner’s satisfaction shall be considered grounds for withholding progress payment and/or final payment to the Contractor in accordance with Documents 00_72_00 and 00_73_00:
1. Current Record Documents: With each Progress Meeting, Contractor is required to present for review to the Owner, a current set of Record Documents in accordance with Section 01_77_00 – Closeout Procedures.

L. Notarization and Signed Receipts: Contractor’s Affidavit:
1. After the first request for payment, all copies of each subsequent request shall be accompanied by Contractor’s notarized original signature with the statement that all subcontractors and suppliers have been paid to date as their interests appeared in the last payment received (less earned retainage applicable to subcontractors). And shall also be accompanied by a signed receipt from the Principal Subcontractors and Suppliers stating that all sub-subcontractors, suppliers, wages, fringes, and taxes arising out of such subcontract have been paid in full as their interest appeared in the last payment received. Any amounts withheld from any subcontractor’s or supplier’s payment due to lack of performance, or other reason, shall be fully documented with the statement, indicating the amount and justification of payment(s) withheld.

2. No application for payment by the Contractor shall be processed unless accompanied by both the affidavit and the receipts.

1.07 PAYMENT FOR STORED MATERIAL

A. Payment for stored items will be subject to the following:
   1. On-Site Materials: Progress payments shall be made for permanent materials and equipment to be incorporated in the Work and properly protected and stored on the project site with invoices from the original supplier provided to substantiate the value.
   2. Off-Site Materials: No payment will be made for materials stored off site.

B. Stored materials items may be included in monthly application for payment only after drawing and data submittals, if any are required, have been completed per Contract Documents. A maximum of 90 percent will be paid for materials stored.

C. Partial payment for materials and equipment in advance of installation shall not constitute acceptance thereof and will not relieve Contractor of full responsibility for condition and subsequent acceptance by the City. Faulty materials discovered will be rejected even though partial payment may have been made.

1.02 FORCE ACCOUNT

A. The Owner will indicate to the Contractor when Work is to be performed under Force Account:
   1. Force account work administered by the Contractor shall be consistent with the requirements of the Contract Documents.
   2. Prior to performing Force Account Work, the Contractor shall submit an equipment list containing equipment type, horsepower, attachments, etc. as well as labor rates.

B. Payment for Force Account Work shall be agreed to in writing by the Owner and Contractor prior to performance of the Force Account Work.

C. Force Account work will be tracked and reconciled daily.
1.03 OVERTIME

A. Overtime, double shifts and longer than normal shifts will not be considered reason or justification for extra compensation, unless specifically approved in advance and in writing by the Owner.

1.04 SUBSTANTIATING DATA

A. When Owner requires substantiating information, submit data within 3 days justifying line item amounts in question.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION
PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Requirements for conducting conferences and meetings for the purposes of addressing issues related to the Work, reviewing and coordinating progress of the Work and other matters of common interest, and includes the following:
   1. Preconstruction Conference.
   2. Preconstruction Scheduling Meeting (reference Section 01_32_16).
   3. Progress Meetings.
   4. Pre-Installation Meetings.
   5. Pre-SP Meetings (reference Section 01_14_00).
   6. Electrical Coordination Meetings (reference Division 26).
   7. Post Construction Meetings.

1.02 QUALIFICATIONS OF MEETING PARTICIPANTS

A. Representatives of entities participating in meetings shall be qualified and authorized to act on behalf of entity each represents.

1.03 PRE-CONSTRUCTION CONFERENCE

A. Upon issuance of Notice to Proceed (NTP), or earlier when mutually agreeable, Owner will arrange pre-construction conference in place convenient for most invitees.

B. Pre-construction Conference invitees: Contractor's project manager and superintendent, Owner, Engineer, representatives of utilities, major subcontractors and others involved in performance of the Work, and others necessary to agenda.

C. Owner will preside at conference.

D. Purpose of conference: To establish working understanding between parties and to discuss Construction Schedule, shop drawing and other submittals, cost breakdown of major lump sum items, processing of submittals and applications for payment, and other subjects pertinent to execution of the Work.

E. Owner will prepare the agenda. Contractor shall be prepared to discuss the following:
   2. Distribution and discussion of list of major subcontractors and suppliers.
   3. Proposed progress schedules and critical construction sequencing.
   4. Major equipment deliveries and priorities.
   5. Project coordination.
   6. Designation of responsible personnel.
   7. Procedures and processing of:
a. Field decisions.
b. Proposal requests.
c. Submittals.
d. Change Orders.
e. Request for Information/Interpretations.
f. Applications for Payment.
g. Record Documents.

8. Use of premises:
   a. Office, construction, and storage areas.
   b. Owner’s requirements.
   c. Husky Terminal coordination
   d. Rail coordination


10. Temporary utilities.

11. Safety and first aid procedures.


13. Housekeeping procedures.

F. Owner will record minutes of meeting and distribute copies of minutes within 3 days of meeting to participants and interested parties.

1.04 PROGRESS MEETINGS

A. Contractor shall conduct progress meetings in Contractor’s field office or other mutually agreed upon place. Progress meetings shall be conducted, at a minimum, weekly for the project duration. The frequency of meetings may be adjusted as required. Virtual meetings may be allowed as the Owner’s discretion. Virtual meetings will take place using Microsoft Teams software.

B. Distribute to each anticipated participant written notice and agenda of each meeting at least 3 days before meeting.

C. Require attendance of Contractor’s superintendent and subcontractors who are or are proximate to be actively involved in the Work, or who are necessary to agenda.

D. Invite Owner and Engineer to all meetings and others necessary to agenda.

E. Complete and bring Application for Payment in accordance with Section 01_29_77 - Applications for Payment and updated Progress Schedule to progress meeting.

F. The Contractor shall prepare and distribute agenda. All meetings shall include the following minimum agenda items:
   1. Review of Critical Items/action List.
   2. Review work progress and “look-ahead schedule”, and compare projected and actual progress with planned progress and methods to correct deficiencies.
   3. Review submittal status, delivery dates, and deadlines for critical items.
   4. Review change order status.
   5. Review RFI status.
   6. Review quality control issues including field observations/problems and out-of-compliance inspection/test results.
   7. Review deficiency list maintained and updated by Contractor throughout the project.
8. Review coordination problems.
9. Schedule needed meetings, deliveries, inspections, testing, start-up and training.
10. Changes to Contractor’s safety plan and report on safety incidents, if any.
11. Other business as necessary.

G. Contractor will preside at meetings.

H. Purpose of progress meetings:
   1. Review progress of the Work, Progress Schedule, narrative report, Application for Payment, record documents, and additional items of current interest that are pertinent to execution of the Work.

I. To expedite work of subcontractors or other organizations that are not meeting scheduled progress, resolve conflicts, and coordinate and expedite execution of the Work. Verify:
   1. Actual start and finish dates of completed activities since last progress meeting.
   2. Durations and progress of activities not completed.
   3. Reason, time, and cost data for Change Order Work that will be incorporated into Progress Schedule and application for payment.
   4. Percentage completion of items on Application for Payment, on a monthly basis.
   5. Reasons for required revisions to Progress Schedule and their effect on Contract Time and Contract Price.

J. Discuss potential problems which may impede scheduled progress and corrective measures.

K. Contractor will record minutes of meeting and distribute copies of minutes within 3 days of meeting to participants and interested parties.

1.05 PRE-INSTALLATION MEETINGS

A. Meetings shall be conducted in accordance with Section 5.15 E of Document 00_73_00 - Supplemental Conditions.

B. General: Meet with manufacturers and installers of major units of construction which require coordination between subcontractors. Major units of construction which require pre-installation meetings include:
   1. Deep and Semi-deep anode wells

C. Distribute to each anticipated participant written notice and agenda of each meeting at least 3 days before meeting.

D. Schedule meeting at least 7 days in advance of installation.

E. Conduct meetings in Contractor's field office or other mutually agreed upon place.

F. Require attendance of Superintendent, appropriate manufacturers and installers of major units of constructions, and affected subcontractors.

G. Invite Owner and Engineer.
H. Contractor shall preside at meetings.
I. Contractor will record minutes of meeting and distribute copies of minutes within 3 days of meeting to participants and interested parties.

1.06 PRE-STRATEGIC PROCEDURES AND STRATEGIC PROCEDURES MEETINGS

A. Purpose: discuss the nature and anticipated impacts of the shutdown, diversion, or tie-in, and to gather the information necessary to complete the SP Form.

B. Follow Owner’s standard Construction Strategic Procedures form (SP). See Appendix A of Section 01_14_00 – Work Restrictions for SP format.

C. All short-term and longer-term shutdowns and other tie-ins that require an Owner approved SP also require a pre-shutdown meeting at Project site prior to commencing shutdown for tie-in or modification of specific plant systems.

D. Require attendance of parties directly affecting, or affected by shutdown, including Engineer, specific work crews, Owner’s construction, operations, and maintenance staff.

E. Notify Owner 7 calendar days in advance of meeting date.

F. Prepare agenda and preside at meeting:

G. Review accepted SP including conditions of shutdown, preparation, and installation procedures.

H. Review timelines and sequences.

I. Review responsibilities.

J. Review dry run plan and schedule, as necessary.

K. Review coordination with related work.

L. Contractor will record minutes and distribute copies within 3 calendar days after meeting and prior to scheduled shutdown to participants, with copies to Engineer, Owner, and those affected by decisions made.

1.07 POST CONSTRUCTION MEETINGS

A. Purpose: prepare a list of corrective work required prior to the expiration of warranty period for the project.

B. Meet with and inspect the Work with Owner and Engineer 11 months following the accepted Substantial Completion date or 45 days before expiration of warranty period, whichever occurs earlier.

C. Schedule meeting at least 14 days in advance of meeting.

D. Require attendance of Superintendent, appropriate manufacturers and installers of major units of construction, and affected subcontractors.
E. Meet in Owner’s office or other mutually agreed upon place.

F. Inspect the Work and draft list of items to be completed or corrected. The Contractor shall correct all items found to be defective within 20 days of receipt of the list of items to be corrected.

G. Review service and maintenance contracts, and take appropriate corrective action when necessary.

1.08 ELECTRICAL AND INSTRUMENTATION COORDINATION MEETINGS

A. Electrical Meetings:
   1. Pre-submittal review meeting as specified in Section 26_05_00 - Common Work Results for Electrical.
   2. Other meetings as required and as otherwise specified.

B. Pre-SP Meetings: In accordance with Section 01_14_00 - Work Restrictions.

PART 2 PRODUCTS
Not Used.

PART 3 EXECUTION
Not Used.

END OF SECTION
SECTION 01_31_24
WEB BASED CONSTRUCTION DOCUMENT MANAGEMENT

PART 1  GENERAL

1.01  SUMMARY

A. Section includes:
   1. Requirements for web-based construction document management.

1.02  REQUIREMENTS

A. The Owner, Engineer, and Contractor shall utilize e-Builder® ASP software (e-Builder) and protocols as the primary means for submission and tracking of data and documents (unless specified otherwise in this Section) throughout the duration of the Contract. Certain documents (such as those requiring original signatures, product samples and large format documents) will require hard-copy submittal instead. This specification section describes document submittal procedures and requirements for e-Builder submittal requirements only. Refer to Section 01_33_00 - Submittal Procedures which describes general submittal procedures and submittal content requirements:
   1. e-Builder is a web-based electronic media site hosted by e-Builder, Inc.
   2. e-Builder is paid for by the Owner. Access to the web site will be by individuals who are licensed users.
   3. Access to the e-Builder project will be made available by the Owner for up to a total of four (4) licensed user accounts for Contractor’s personnel at no cost. The joint use of this system is to facilitate electronic exchange of information, automation of key processes, and overall management of Contract Documentation.
   4. The joint use of this system is to facilitate electronic exchange of information, automation of key processes, and overall management of Contract Documentation.
   5. e-Builder shall be the primary means of project information submission and management.

B. User access limitations:
   1. The Owner will control the Contractor’s access to e-Builder by allowing access and assigning user profiles to accepted Contractor personnel. User profiles will define levels of access into the system; determine assigned function based authorizations and user privileges. The Contractor may choose to provide subcontractors and suppliers access to e-Builder through the Contractor’s accounts. Entry of information exchanged and transferred between the Contractor and its subcontractors and suppliers on e-Builder shall be the responsibility of the Contractor.
   2. Only entities with a direct contract with the Owner will be allowed to be an authorized user. The Owner reserves the right to perform a security check on all potential users.
C. Joint ownership of data:
   1. Data entered in a collaborative mode (entered with the intent to share as
determined by permissions and workflows within the e-BUILDER system) by the
Owner, Engineer, and the Contractor will be jointly owned. The use of CAD
files, processes or design information distributed in this system is intended
only for the project specified herein.
   2. **DO NOT POST PRIVATE OR YOUR COMPANY CONFIDENTIAL ITEMS IN THE
DATABASE!**
   3. The Owner may, at the Owner’s discretion, provide electronic copies of CAD
Drawings of the Contract Drawings for Contractor’s use in preparing submittal
drawings. The Contractor must complete and submit the indemnification form
for Owner approval before electronic files will be released. Contractor shall be
responsible for distributing copies of CAD drawings to subcontractors for use
in submittal drawings. Contractor shall not release any drawings to
subcontractors without first receiving and forwarding a copy of the completed
release and indemnification paperwork signed by the subcontractor to the
Owner. Release form is included at the end of the section. Owner makes no
representations as to the accuracy or completeness of CAD Drawings as they
relate to the Contract Drawings.

D. Automated system notification and audit log tracking:
   1. Review comments made (or lack thereof) by the Owner on Contractor
submitted documentation shall not relieve the Contractor from compliance with
requirements of the Contract Documents. The Contractor is responsible for
managing, tracking, and documenting the Work to comply with the
requirements of the Contract Documents. Owner’s acceptance via automated
system notifications or audit logs extends only to the face value of the
submitted documentation and does not constitute validation of the Contractor's
submitted information.

E. Computer Requirements:
   1. The Contractor shall use computer hardware and software that meets the
requirements of the e-BUILDER system as recommended by e-BUILDER, Inc. to
access and utilize e-BUILDER. As recommendations are modified by e-BUILDER,
the Contractor will upgrade their system(s) to meet or exceed the
recommendations. Upgrading of the Contractor's computer systems will not be
justification for a cost or time modification to the Contract.
   2. The Contractor shall ensure that connectivity to the e-BUILDER system is
accomplished through DSL, cable, T-1 or wireless communications systems.
The Owner will not be liable for any delays associated from the usage of
e-BUILDER including, but not limited to slow response time, down time periods,
connectivity problems, or loss of information. The Contractor will ensure that
connectivity to the e-BUILDER system meets the minimum requirements
described in this Section. Under no circumstances shall the usage of the
e-BUILDER be grounds for a time extension or cost adjustment to the contract.
   3. The e-BUILDER mobile application is available on the iOS and Android platforms
only.

F. Contractor responsibility:
   1. The Contractor shall be responsible for the validity of their information placed
in e-BUILDER and for the abilities of their personnel.
2. Accepted users shall be knowledgeable in the use of computers, including Internet Browsers, email programs, CAD drawing applications, Microsoft Office Suite, and Adobe Portable Document Format (PDF) document distribution program.

3. The Contractor shall utilize the existing forms in e-Builder to the maximum extent possible. If a form does not exist in e-Builder the Contractor must include a form of their own or provided by the Owner as an attachment to a submittal. Owner may create an e-Builder form based on Contractor request.

4. Adobe PDF documents will be created through electronic conversion rather than optically scanned whenever possible. The Contractor is responsible for the training of their personnel in the use of e-Builder (outside what is provided by the Owner) and the other programs indicated above as needed. e-Builder may be contacted directly to provide training as needed at proposer's cost.

G. Documents that shall be transmitted and otherwise processed utilizing the e-Builder system shall include, but not be limited to the following:
   1. Construction Correspondence.
   2. Submittals.
   3. Requests for Information and responses.
   5. Meeting Minutes and Agendas.

1.03 SUBMITTALS

A. Use e-Builder for submittals.

B. Preconstruction Submittals: List of Contractor’s key e-Builder personnel. Include descriptions of key personnel’s roles and responsibilities for this project. Contractor shall also identify their organization’s administrator on the list.

C. All other submittals: Establish a list of all submittals in accordance with Section 01_33_00 - Submittal Procedures, and identify which submittals are anticipated to be submitted through e-Builder and which submittals in paper form only.

1.04 TRAINING & SUPPORT

A. One group training session scheduled by the Owner will be provided for the Contractor at an Owner training facility. The training session duration is generally four (4) hours.

B. Companies may also obtain group training from e-Builder at their own expense. Contact e-Builder for availability and cost.

C. e-Builder will provide on-going support through on-line help files and technical support available at support@e-builder.net or 1-888-288-5717.
PART 2    PRODUCTS

2.01 DESCRIPTION

A. e-Builder project management application provided by e-Builder, Inc.
   www.e-Builder.net.

PART 3    EXECUTION

3.01 UTILIZATION

A. e-Builder shall be utilized in connection with all document and information
   management required by these Contract Documents otherwise in the
   Specifications.

B. Track and send notifications for all documents requiring Owner input (such as
   submittals, RFIs, and change orders) using the e-Builder system. In cases requiring
   hard-copy submittal, also submit the submittal cover (or transmittal cover sheet)
   sheet simultaneously through e-Builder.

3.02 RECORD KEEPING:

A. Except for paper documents which require original signatures or large format
   documents (greater than 11 x 17 inches) and photographic documentation, all
   documents shall be submitted by transmission solely in electronic form to the
   e-Builder web site by licensed users, except as noted otherwise:
   1. The Owner and his representatives, the Construction Manager and his
      representatives, and the Contractor shall respond to documents received in
      electronic form through the web site, and consider them as if received in paper
      document form.
   2. The Owner and his representatives, the Construction Manager and his
      representatives, and the Contractor reserves the right to and shall reply or
      respond by transmissions in electronic form on the web site to documents
      actually received in paper document form.
   3. The Owner and his representatives, the Construction Manager and his
      representatives, and the Contractor reserves the right to and shall copy any
      paper document into electronic form and make same available on the web site.
   4. Paper documents with original signature(s) shall be submitted for certain key
      forms. Once received, reviewed and otherwise completed, the Owner will scan
      and upload these signed forms to e-Builder. The following are some but not all
      of the paper documents which require original signature:
         a. Contract.
         b. Change Orders.
         c. Application & Certificates for Payment.
   5. Photographic Documentation: in accordance with
      Section 01_32_34 - Photographic Documentation.

3.03 DESIGN DOCUMENTS

A. All design drawings and specifications shall be submitted as CAD (in
   AutoCAD 2022 format) files whenever possible and in PDF format as attachments
   (depending on specific requirements of other specification sections) to e-Builder.
3.04 SUBMITTALS

A. Shop drawings:
   1. Shop drawing and design data documents shall be submitted as PDF attachments to the e-Builder submittal module, with exceptions noted below.
      Examples of shop drawings include, but are not limited to:
      a. Standard manufacturer installation drawings.
      b. Drawings prepared to illustrate portions of the work designed or developed by the Contractor.
      c. Steel fabrication, piece, and erection drawings.
   2. Hard copy submittals will be allowed where the page size exceeds 11-inches x 17-inches, and where paper documents with original signatures are required.
      Hard-copy submittals may also be allowed, if approved by the Owner on a case-by-case basis:
      a. Hard copy submittals shall follow procedures for Samples defined below.
   3. Unless noted otherwise or if requested by the Owner to assist submittal review, hardcopies will be submitted in addition to electronic submittals.

3.05 PRODUCT DATA

A. Product catalog data and manufacturer’s instructions shall be submitted as PDF attachments to the e-Builder submittal module. Examples of product data include, but are not limited to:
   1. Manufacturer's printed literature.
   2. Preprinted product specification data and installation instructions.

3.06 SAMPLES

A. Sample submittals shall be physically submitted as specified in Section 01_33_00 - Submittal Procedures. The Contractor shall enter submittal data information into e-Builder with a copy of the submittal form(s) attached to the sample. Examples of samples include, but are not limited to:
   1. Product finishes and color selection samples.
   2. Product finishes and color verification samples.
   3. Finish/color boards.
   4. Physical samples of materials.

3.07 ADMINISTRATIVE SUBMITTALS

A. All correspondence and pre-construction submittals shall be submitted using e-Builder. Examples of administrative submittals include, but are not limited to:
   1. Permits.
   2. Requests for substitutions (RFS).
   3. List of contact personnel.
   4. Requests for Information (RFI).
   5. Survey Requests.

B. Progress Schedules and associated reports and updates. Each schedule submittal specified in these Contract Documents shall be submitted as a native backed-up file of the scheduling program being used. The schedule shall also be posted as a PDF file in the format specified in these Contract Documents.

C. Plans for safety, demolition, environmental protection, and similar activities.
D. Quality Control Plan(s), Testing Plan and Log, Quality Control Reports, Production Reports, Quality Control Specialist Reports, Preparatory Phase Checklist, Initial Phase Checklist, Field Test reports, Summary reports, Rework Items List, etc.

E. Meeting minutes of pre-SP meetings, progress meetings, pre-installation meetings, etc.

F. Any general correspondence submitted.

3.08 COMPLIANCE SUBMITTALS

A. Test reports, certificates, and manufacture field report submittals shall be submitted on e-Builder as PDF attachments. Examples of compliance submittals include, but are not limited to:
   1. Inspection requests:
      a. When a portion of Work is ready for inspection and prior to covering up the Work, inspection requests shall be submitted via e-Builder and approved via e-Builder.
      b. Reports associated with this element of the Work will be submitted via e-Builder and associated with the inspection request.
   2. Field test reports.
   3. Quality Control certifications.
   4. Manufacturer’s documentation and certifications for quality of products and materials provided.

3.09 RECORD AND CLOSEOUT SUBMITTALS

A. Operation and maintenance data and closeout submittals shall be submitted on e-Builder as PDF documents during the approval and review stage as specified, with actual set of documents (format as specified in Section 01_78_23) submitted for final in hard copy format. Examples of record submittals include, but are not limited to:
   1. Operation and Maintenance Manuals: final documents shall be submitted as specified.
   2. As-built drawings: Final documents shall be submitted as specified.
   3. Extra materials, spare stock, etc.: submittal forms shall indicate when actual materials are submitted.

B. Training: submitted in hard copy/DVD format (format as specified in Section 01_75_17 - Commissioning):
   1. Videograph of sessions.
   2. Training materials.

3.10 FINANCIAL SUBMITTALS

A. Schedule of Values and Change Request Proposals shall be submitted using e-Builder. Supporting material for Change Requests shall be submitted using e-Builder. Examples of compliance submittals include, but are not limited to:
   1. Contractor’s Schedule of Values.
   2. Contract Change proposals requested by the Owner.

END OF SECTION
PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Preparation, submittal, and maintenance of computerized progress schedule and reports, contract time adjustments, and payment requests, including the following:
   1. Preliminary Schedule.
   2. Baseline Schedule.
   3. Progress Schedule.
   4. Schedule Updates.
   5. Final Schedule Submittal.

1.02 RESPONSIBLE PERSON

A. Designate, in writing and within 5 calendar days after Notice of Award, person responsible for preparation, maintenance, updating and revision of all schedules.

B. Qualifications of responsible person:
   1. Authority to act on behalf of Contractor.
   2. 5 years verifiable experience in preparation of complex construction schedules for projects of similar value, size, and complexity.

C. References: Submit written reference of 3 project Owners who have personal experience with this scheduler on previous projects within the past 5 years. Identify name, address, telephone number, project name, and construction cost.

D. Owner reserves the right to disapprove scheduler when submitted by Contractor if not qualified. Owner reserves the right to remove scheduler from the project if found to be deficient.

1.03 SCHEDULING FORMAT AND SOFTWARE

A. Schedule format: Utilize CPM format.

B. Prepare computerized schedule utilizing MS Project or approved equal, most current version:
   1. If software other than MS Project is used, the Contractor shall provide one (1) licensed copy of the scheduling software to the Owner, registered in the Owner's name, for the duration of the project. The provided copy of the software shall be a standalone version for installation on a standalone computer.
1.04 PRECONSTRUCTION SCHEDULING MEETING

A. Owner will conduct Preconstruction Scheduling Meeting with Contractor’s Project Manager, General Superintendent, and scheduler within 7 calendar days after Notice To Proceed. This meeting is separate from the Preconstruction Conference Meeting and is intended to cover schedule issues exclusively.

B. At the meeting, review scheduling requirements. These include schedule preparation, reporting requirements, labor and equipment loading, updates, revisions, and schedule delay analysis. Present schedule methodology, planned sequence of operations, cost and resource loading methodology, and proposed activity coding structure.

C. Coding structure:
   1. Submit proposed coding structure, identifying the code fields and the associated code values it intends to use in the project schedule.
   2. A minimum, include code fields for Project Segment or Phase, Area of Work, Type of Work, Submittal/Procurement/Construction and Responsibility/Subcontractor. Refer to NETWORK DETAILS AND GRAPHICAL OUTPUT for listing of activity categories to be included in the schedule.

D. Naming convention: Name schedule files with the year, month and day of the data date, revision identifier, and a description of the schedule:
   1. Example 1: 2014_07_30 rev 1 draft baseline schedule.mpp.

E. Filing: Post submitted files to Owner’s construction document control system.

1.05 SCHEDULE PREPARATION

A. Preparation and submittal of Progress Schedule represents Contractor's commitment to execute the Work within specified time and constraints. Failure to conform to requirement may result in termination for cause as specified in:
   1. Document 00_72_00, Paragraph 3 Time and Schedule.
   2. Document 00_73_00, Paragraph 3.08 Suspension of Work.

B. Contractor's bid covers all costs associated with the execution of the Work in accordance with the Progress Schedule.

C. During preparation of the preliminary Progress Schedule, Owner will facilitate Contractor's efforts by being available to answer questions regarding sequencing issues, scheduling constraints, interface points, and dependency relationships.

D. Prepare schedule utilizing Precedence Diagramming Method (PDM).

E. Prepare schedule utilizing activity durations in terms of calendar days. Do not exceed 19 calendar day duration on activities except concrete curing, submittal review, and equipment fabrication and deliveries. Where duration of continuous work exceeds 19 calendar days, subdivide activities by location, stationing, or other sub-element of the Work. Coordinate holidays to be observed with the Owner and incorporate them into the schedule as Owner non-working days.
F. Failure to include an activity required for execution of the Work does not excuse Contractor from completing the Work and portions thereof within specified times and at price specified in Agreement. Contract requirements are not waived by failure of Contractor to include required schedule constraints, sequences, or milestones in schedule. Contract requirements are not waived by Owner’s acceptance of the schedule. In event of conflict between accepted schedule and Contract requirements, terms of Contract govern at all times, unless requirements are waived in writing by the Owner.

G. Reference schedule to calendar days with beginning of Contract Time Notice to Proceed as Day "1."

H. Baseline Schedule and Project Completion: Should Contractor submit a Baseline Schedule showing project completion more than 26 calendar days prior to Contract completion date Owner may issue Change Order, at no cost to Owner, revising time of performance of Work and Contract completion date to match Contractor’s schedule completion date. Adjust accordingly any Contract milestone dates.

I. Contract float is for benefit of the Project, and may be utilized by both Owner and Contractor, at the Owner’s sole discretion. Changes to the project that can be accomplished within the Contract Time may be made by Owner by utilizing float. Extensions to the Contract Time will not be granted nor delay damages owed until all float is utilized, and Work extends beyond currently accepted Contract completion date. Upon utilization of all available float, extensions of the Contract time will be granted by Owner for valid Owner-caused or third party-caused delays, which affect the planned completion date and which have been properly documented and demonstrated by Contractor.

J. Schedule logic: Assembled to show order in which Contractor proposes to carry out Work, indicate restrictions of access, availability of Work areas, and availability and use of manpower, materials, and equipment. Form basis for assembly of schedule logic on the following criteria:
   1. Which activities must be completed before subsequent activities can be started.
   2. Which activities can be performed concurrently.
   3. Which activities must be started immediately following completed activities.
   4. What major facility, equipment or manpower restrictions are required for sequencing these activities.

K. Non-sequestering of float: Pursuant to float sharing requirements of Contract, schedule submittals can be rejected for, use of float suppression techniques such as preferential sequencing or logic, special lead or lag logic restraints, extended activity durations or imposed dates.

L. Interim milestone dates, operational constraints: In event there are interim milestone dates and/or operational constraints set forth in Contract, show them on schedule. Do not use Zero Total Float constraint or Mandatory Finish Date on such Contract requirements.

M. Schedule windows for owner-furnished, Contractor-installed equipment or materials: Immediately after Award of Contract, obtain from Owner anticipated delivery dates of Owner furnished equipment or materials. Show these dates in the schedule in same manner indicated by Owner.
1.06 SUBMITTAL OF PROGRESS SCHEDULES

A. Submittals shall be made in electronic format in accordance with Sections 01_33_00 – Submittal Procedures and 01_31_24 – Web Based Construction Document Management.

B. Submit preliminary and baseline schedule.

C. Submit, on a monthly basis, updated schedules as specified. Submit final schedule update as specified.

D. Submit revised schedules and time impact analyses as specified.

E. Submit schedules in the media and number of copies as follows:
   1. Three sets of the CPM network and/or bar chart (as specified by the Owner) on 11-inch x 17-inch sheets.
   2. Three sets of Tabular reports listing all activities sorted numerically identifying duration, early start, late start, early finish, late finish, total float, and all predecessor/successor information.
   3. One set of CPM Schedule data electronic files stored on CD/DVD.

1.07 PRELIMINARY SCHEDULE

A. Submit Preliminary Schedule within 7 calendar days after Notice to Proceed. Include a detailed plan of operations for first 90 calendar days of Work after receipt of Notice to Proceed.

B. Meet with Owner within 7 calendar days after receipt of Preliminary Schedule to review and make necessary adjustments. Submit revised preliminary schedule within 5 calendar days after meeting.

C. Submit schedule of costs for all activities on revised Preliminary Schedule.

D. Schedule of costs:
   1. Schedule of Values required under Article 6.02 of the General and Special Conditions for first 90 calendar days of Work.
   2. No pay item Work shall commence until Preliminary Schedule and schedule of costs have been accepted by Owner.

E. Incorporated the accepted Preliminary Schedule as first 90 calendar days of activity in Contractor's Baseline Schedule.

1.08 BASELINE SCHEDULE

A. No more than 14 calendar days after Notice to Proceed, submit the Baseline Schedule for all Work of the project. Show sequence and interdependence of all activities required for complete performance of all Work, beginning with date of Notice to Proceed and concluding with date of final completion of Contract.
1.09 NETWORK DETAILS AND GRAPHICAL OUTPUT

A. Produce a clear, legible, and accurate calendar based, time scaled, graphical network diagram. Group activities related to the same physical areas of the Work. Produce the network diagram based upon the early start of all activities.

B. Include for each activity, the description, activity number, estimated duration in calendar days, total float, and all activity relationship lines.

C. Illustrate order and interdependence of activities and sequence in which Work is planned to be accomplished. Incorporate the basic concept of the precedence diagram network method to show how the start of one activity is dependent upon the start or completion of preceding activities and its completion restricts the start of following activities.

D. Indicate the critical path for the project.

E. Identify system shutdown dates, system tie-in dates, specified interim completion, or milestone dates and contract completion date as milestones.

F. Include, in addition to construction activities:
   1. Submission dates and review periods for major design and equipment submittals.
   2. Any activity by the Owner or the Engineer that may affect progress or required completion dates.
   3. Equipment and long-lead material deliveries over 6 weeks.
   4. Approvals required by regulatory agencies or other third parties.

G. Produce network diagram on 22-inch by 34-inch sheets with grid coordinate system on the border of all sheets utilizing alpha and numeric designations.

H. Identify the execution of the following per identified Phase:
   1. Mobilization.
   2. All required submittals and submittal review times showing 14 calendar day duration for standard submittals or 21 calendar day duration for complicated submittals and equal amount of time for re-submittal reviews.
   3. Equipment and materials procurement/fabrication/delivery.
   4. Electric transmission, service, and distribution equipment, including identification of ordering lead time, and factory testing.
   5. Other electrical work including lighting, heating and cooling, and special systems, including identification of ordering lead time.
   6. Instrumentation and controls, including identification of ordering lead time.
   7. Preliminary performance, field, and functional testing of equipment, instrumentation, and controls.
   8. Manufacturer's services.
   10. Each Operation and maintenance training session.
   11. Performance testing.
   12. Field testing.
   13. Functional testing.
   14. Operational testing.
   15. Installation certifications.
   16. Record Drawings.
17. Milestone or Substantial Completion, as defined in Documents 00_72_00 and 00_73_00.
18. Punch list work.
19. Demobilization.

1.10 SCHEDULE OF SHOP DRAWINGS

A. Within 7 calendar days after the Preliminary Schedule has been submitted, submit a preliminary list of all anticipated shop drawings and sample submittals for the Project using early start dates for approval. Contractor shall utilize all Specification Sections to establish the submittals required for the Work.

B. Progress payments during the first 90 calendar days after Notice to Proceed will not be made until an approved list of all shop drawings and sample submittals is provided.

C. After Baseline Schedule has been submitted and accepted by Owner, print out and submit list of all shop drawings and sample submittals for all Work using early start dates. This listing will contain all submittals required for the entire Work including those listed above.

D. Submittal of final list: Schedule shall be a condition precedent to Owner making progress payments after the first 90 calendar days after Notice to Proceed.

1.11 UPDATING THE SCHEDULE

A. Update the schedule on a monthly basis, using a date as specified by the Owner.

B. Should monthly Schedule Update show project completion earlier than current Contract completion date, show early completion time as schedule activity, identified as “Project Float.”

C. Should monthly Schedule Update show project completion later than current Contract completion date, prepare and submit a Schedule Revision in accordance with the Revisions to Schedule.

1.12 PROGRESS SCHEDULE

A. Submit to Owner, at each progress meeting, a progress schedule showing the activities completed during the previous week and the schedule of activities for the following 3 weeks.

B. Use the logic and conform to the status of the current progress schedule when producing a Progress Schedule in CPM schedule or a bar chart format. In the event that the Progress Schedule no longer conforms to the current schedule, Contractor may be required to revise the schedule.

C. The activity designations used in the Progress Schedule must be consistent with those used in the Baseline Schedule and the monthly Schedule Updates.

D. Contractor and Owner must agree on the format of the Progress Schedule.
1.13 ADJUSTMENT OF CONTRACT TIME

A. If the Contractor believes that the Owner has impacted its work, such that the project completion date will be delayed, the Contractor must submit proof demonstrating the delay to the critical path in accordance with Documents 00_72_00 and 00_73_00, Article 7.03.

B. When a delay to the project as a whole can be avoided by revising preferential sequencing or logic, and the Contractor chooses not to implement the revisions, the Contractor may be entitled to a time extension but no additional compensation.

C. Utilize the latest version of the Schedule Update at the time of the alleged delay, and all other relevant information, to determine the adjustment of the contract time.

D. If completion of the project occurs within the specified contract time, the Contractor is not entitled to job-site or home office overhead beyond the Contractor’s originally planned occupancy of the site.

1.14 FINAL SCHEDULE SUBMITTAL

A. The final Schedule Update becomes the Record Schedule:
   1. The Record Schedule reflects the exact manner in which the project was constructed by reflecting actual start and completion dates for all activities accomplished on the project.
   2. Contractor’s Project Manager and scheduler sign and certify the Record Schedule as being an accurate record of the way the project was actually constructed.

B. Retainage will not be released until final Schedule Update is provided.

PART 2 PRODUCTS
Not Used.

PART 3 EXECUTION
Not Used.

END OF SECTION
SECTION 01_32_34
PHOTOGRAPHIC DOCUMENTATION

PART 1 GENERAL

1.01 SUMMARY

A. Section includes requirements for:
   1. Pre-construction photographs and video.
   2. Construction progress photographs and video.
   3. Post-construction photographs and video.

B. The purpose of the photographs and videos is to document the condition of the facilities prior to the Contractor beginning work at the Project site, during, and after Substantial Completion of the Work.

C. Areas to be photographed shall include the site of the Work and all existing facilities either on or adjoining the Project site, including the interior of existing structures that could be damaged as a result of the Contractor’s Work.

D. The scope of the photographic documentation shall be the sole responsibility of the Contractor, but shall be acceptable to the Owner.

1.02 SUBMITTALS

A. Key plan: Submit key plan of Project site with notation of vantage points marked for location and direction of each photograph. Include the same label information as the corresponding set of photographs. At a minimum, photographs shall be taken at locations designated in the table below:

<table>
<thead>
<tr>
<th>Location</th>
<th>Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTP Station</td>
<td>• Existing Rectifier Equipment</td>
</tr>
<tr>
<td></td>
<td>• City of Tacoma Conex Box</td>
</tr>
<tr>
<td></td>
<td>• Pavement in vicinity of well</td>
</tr>
<tr>
<td>Lincoln Ave Casing</td>
<td>• Road/Pavement</td>
</tr>
<tr>
<td></td>
<td>• Driveway</td>
</tr>
<tr>
<td></td>
<td>• Sidewalk</td>
</tr>
<tr>
<td></td>
<td>• Utility pole</td>
</tr>
<tr>
<td></td>
<td>• Fencing</td>
</tr>
<tr>
<td></td>
<td>• Railroad</td>
</tr>
<tr>
<td>Milwaukee Way Station</td>
<td>• Road/Pavement</td>
</tr>
<tr>
<td></td>
<td>• Jersey Barriers</td>
</tr>
<tr>
<td></td>
<td>• Utility poles</td>
</tr>
<tr>
<td></td>
<td>• Electrical boxes</td>
</tr>
<tr>
<td>Sitcum Way Casings (3)</td>
<td>• Road/Pavement</td>
</tr>
<tr>
<td></td>
<td>• Electrical boxes</td>
</tr>
<tr>
<td></td>
<td>• Railroad</td>
</tr>
<tr>
<td>Port of Tacoma Station</td>
<td>• Existing Rectifier Equipment</td>
</tr>
<tr>
<td></td>
<td>• TPU Transformers and Bollards</td>
</tr>
</tbody>
</table>
### Location Direction

<table>
<thead>
<tr>
<th>Location</th>
<th>Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Husky Terminal Building</td>
<td>• Pavement in vicinity of well</td>
</tr>
<tr>
<td>Pavement in vicinity of new concrete pad</td>
<td>• Railroad</td>
</tr>
<tr>
<td>Pavement in vicinity of well</td>
<td>• Railroad</td>
</tr>
<tr>
<td>Railroad</td>
<td>• Railroad</td>
</tr>
<tr>
<td>Port of Tacoma Marine Outfall Station</td>
<td>• Existing Rectifier Equipment</td>
</tr>
<tr>
<td>• City of Tacoma Sampling Building</td>
<td>• Road/Pavement</td>
</tr>
<tr>
<td>• Fencing</td>
<td>• Fencing</td>
</tr>
</tbody>
</table>

B. Photographs: Digital Media only:
1. Submit each photographic view within three (3) days of taking photographs.
2. Provide photos as individual, indexed JPG files corresponding to the Key Plan with the following characteristics:
   a. Compression shall be set to preserve quality over file size.
   b. Highest resolution JPG images shall be submitted. Resizing to a smaller size when high resolution JPGs are available shall not be permitted.
   c. JPG image resolution shall be 800 by 600 or higher.
   d. Images shall have rectangular clean images. Artistic borders, beveling, drop shadows, etc., are not permitted.
3. Date stamp: Date and time stamp shall be integral to each photograph.

C. Pre-construction photographs: Submit two (2) sets prior to beginning work at the Project site or prior to the Preconstruction Conference specified in Section 01_31_19 - Project Meetings, whichever occurs earlier.

D. Construction progress photographs: Take construction photographs monthly at a minimum. Construction photographs shall be date-stamped. Furnish two (2) sets of construction photographs to Owner in digital format (CD or DVD) with monthly pay application.

E. Post-construction photographs: Submit with project closeout documents as specified in Section 01_77_00 - Closeout Procedures. Furnish two (2) sets to Owner in digital format (CD or DVD).

---

**PART 2 PRODUCTS**

2.01 MEDIA

A. Upload electronic files to e-Builder for acceptance.

B. Provide each set of photos on a DVD, compatible with Microsoft Windows 7 and 8.

---

**PART 3 EXECUTION**

3.01 GENERAL

A. Date stamp: Unless otherwise indicated, date and time stamp each photograph as it is being taken so stamp is integral to photograph.
PART 1    GENERAL

1.01 SUMMARY
A. Section includes: Requirements and procedures for submittals.

B. Insofar as practical, and unless specifically noted otherwise, the Contractor, Owner and Engineer will utilize the Owner's web-based construction document management system (e-BUILDER) to process submittals.

1.02 DEFINITIONS
A. Certificates: means document affirmations by the Contractor, subcontractor, or manufacturer entities that the work is in accordance with the Contract Documents.

B. Manufacturer's instructions: means instructions, stipulations, directions, and recommendations issued in printed form by the manufacturer of a product addressing handling, installation, erection, and application of the product; manufacturer's instructions are not prepared especially for the Work.

C. Product data: usually consists of manufacturers' printed data sheets or catalog pages illustrating the products to be incorporated into the project.

D. Samples: full-size actual products required to illustrate the products to be incorporated into the project. Sample submittals are often necessary for such characteristics as colors, textures, and other appearance issues.

E. Spare parts: uninstalled spare parts necessary for the Owner's use in facility operation and maintenance with type and quantity identified as part of the specification of the product.

F. Shop drawings: Shop drawings are prepared specifically for the project to illustrate details, dimensions, and other data necessary for satisfactory fabrication or construction that are not shown in the contract documents. Shop drawings could include graphic line-type drawings, single-line diagrams, or schedules and lists of products and their application.

G. Submittals: means samples, product data, shop drawings, and others that demonstrate how Contractor intends to conform with the Contract Documents.

H. Tools: generally defined as items such as special wrenches, gauges, circuit setters, and other similar devices required for the proper operation or maintenance of a system that would not normally be in the Owner's tool kit.
**1.03 GENERAL INSTRUCTIONS**

A. The Owner, Engineer and Contractor shall utilize e-Builder software (e-Builder is a registered trademark of e-Builder, Inc.). As the primary means for submission of data and documents (unless specified otherwise in this Section) throughout the duration of the Contract. Certain documents (such as those requiring original signatures, product samples and large format documents) will require hard-copy submittal instead. This specification section describes document submittal procedures and requirements for e-Builder submittal requirements only. Refer to Section 01_31_24 - Web Based Construction Document Management which describes general Web-based construction document management procedures.

B. Provide submittals that are specified or reasonably required for construction, operation, and maintenance of the Work.

C. Contractor shall not utilize or copy any Contract Documents in part or whole as the primary basis for submittal approval. Each submittal shall clearly demonstrate the Contractor’s understanding of the scope required.

D. Edit all submittals so that the submittal specifically applies to only the equipment furnished. Neatly cross out all extraneous text, options, models, etc. that do not apply to the equipment being furnished, so that the information remaining is only applicable to the equipment being furnished. Highlight or use other methods to clearly show the submitted product details.

E. Prepare submittals in the English language. Do not include information in other languages.

F. Present measurements in customary American units (feet, inches, pounds, etc.). Metric units will not be acceptable.

G. Show dimensions, construction details, wiring diagrams, controls, manufacturers, catalog numbers, and all other pertinent details.

H. Where multiple submittals are required, provide a separate submittal for each specification section:
   1. In order to expedite construction, the Contractor may make more than one (1) submittal per specification section, but a single submittal may not cover more than one specification section.
   2. The only exception to this requirement is when one specification section covers the requirements for a component of equipment specified in another section and submittal must be coordinated with other work.

I. Submittals must be clear and legible, and of sufficient size for presentation of information:
   1. Minimum page size shall be 8 1/2 inches by 11 inches.
   2. Maximum page size shall be 11 inches by 17 inches.

J. Submittals in electronic media format:
   1. In accordance with Section 01_31_24 - Web Based Construction Document Management.
   2. General: Provide all information in PC compatible format using Windows operating system as utilized by the Owner.
3. Text: Provide text documents and manufacturer’s literature using Portable Document Format (PDF) as utilized by the Owner.
4. Graphics: Provide all graphic submittals (drawings, diagrams) utilizing Portable Document Format (PDF) as utilized by the Owner.
5. Contractor using other software shall be required to provide to the Owner conclusive evidence of 100 percent data transfer compatibility.

1.04 SUBMITTAL CONTENTS

A. Complete the Owner’s Submittal Transmittal Form provided in e-builder:
   1. Hard copy submittals or samples provided by Contractor must include a Submittal Transmittal Form providing the same information, statements, and certifications.
   2. Required submittal numbering format: Submittal number--resubmittal number:
      a. Example: 132-1:
         1) “132” indicates the submittal number is 132.
         2) “1” indicates the first resubmittal of Submittal 132.
      b. Contractor may add a separate numbering scheme for Contractor’s internal use. However, all correspondence with Owner must include the required submittal numbering.
   3. Specification section: Include with each submittal a copy of the relevant specification section, including relevant addendum updates:
      a. Indicate in the left margin, next to each pertinent paragraph, either compliance with a check (√) or deviation with a consecutive number (1, 2, 3).
      b. Provide a list of all numbered deviations with a clear explanation and reason for the deviation.
   4. Drawings: Include with each submittal a copy of the relevant Drawing, including relevant addendum or change order updates. Areas affected by addendum or change order updates shall be clearly identified using a “bubble” designation and referenced with the addendum or change order number:
      a. Indicate either compliance with a check (√) or deviation with a consecutive number (1, 2, 3).
      b. Provide a list of all numbered deviations with a clear explanation and reason for the deviation.
      c. Provide field dimensions and relationship to adjacent or critical features of the Work or materials.
   5. Other information or materials as needed.
   6. Contractor: stamp, sign and date submittals indicating review and approval:
      a. Signature indicates Contractor has satisfied submittal review responsibilities, submittal meets all requirements, and constitutes Contractor's written approval of submittal.
      b. Submittals without Contractor's signature will be returned to the Contractor unreviewed. Subsequent submittal of this information will be counted as the first resubmittal.

1.05 SUBMITTAL FORMAT

A. Fully indexed with a tabbed divider for every component.
B. Sequentially number pages within the tabbed sections:
   1. Submittals that are not fully indexed and tabbed with sequentially numbered pages, or are otherwise unacceptable, will be returned without review.

C. Organize submittals in exactly the same order as the items are referenced, listed, and/or organized in the specification section.

D. For submittals that cover multiple devices used in different areas under the same specification section, the submittal for the individual devices must list the area where the device is used.

E. Consolidate electronic format submittals with multiples pages into a single file.

F. Bookmarks:
   1. Bookmarks shall match the table of contents.
   2. Bookmark each section (tab) and heading.
   3. Drawings: Bookmark at a minimum, each discipline, area designation, or appropriate division.
   4. At file opening, display all levels of bookmarks as expanded.

1.06 SUBMITTAL PROCEDURE

A. Contractor: Prepare submittal information in sufficient detail to show compliance with specified requirements:
   1. Determine and verify quantities, field dimensions, product dimensions, specified design and performance criteria, materials, catalog numbers, and similar data.
   2. Coordinate submittal with other submittals and with the requirements of the Contract Documents.
   3. Check, verify, and revise submittals as necessary to bring them into conformance with Contract Documents and actual field conditions.

B. Contractor: Send submittal to Owner:
   1. Provide specified number of copies of submittal.
   2. Delivery:
      a. Deliver electronic submittals to Owner using web based construction document management system described in Section 01_31_24 - Web Based Construction Document Management.
      b. Deliver hard-copy submittals (if necessary) to Owner at the Center for Urban Waters [326 D Street, Tacoma, WA].
   3. Timeliness: Schedule and make submissions and resubmissions in accordance with the requirements of the individual specification sections and in such a sequence as to cause no delay in Work.
   4. Contractor assumes risk of expense and delays when proceeding with work related to required submittals without review and acceptance.

C. Owner: Review submittal and provide response:
   1. Review description:
      a. Owner will be entitled to rely upon the accuracy or completeness of designs, calculations, or certifications made by licensed professionals accompanying a particular submittal whether or not a stamp or seal is required by Contract Documents or Laws and Regulations.
b. Owner's review of submittals shall not release Contractor from Contractor's responsibility for performance of requirements of Contract Documents. Owner's review will not release Contractor from fulfilling purpose of installation or from Contractor's liability to replace defective work.

c. Owner's review of shop drawings, samples, or test procedures will be only for conformance with design concepts and for compliance with information given in Contract Documents.

d. Owner's review does not extend to:
   1) Accuracy of dimensions, quantities, or performance of equipment and systems designed by Contractor.
   2) Contractor's means, methods, techniques, sequences, or procedures except when specified, indicated on the Drawings, or required by Contract Documents.
   3) Safety precautions or programs related to safety which shall remain the sole responsibility of the Contractor.

e. Owner can accept or reject any exception at their sole discretion.

2. Review timeframe:
   a. Except as may be provided in technical specifications, a submittal will be returned within 14 calendar days; however, more complicated submittals will be reviewed within 21 calendar days.
   b. When a submittal cannot be returned within the specified period, Owner will, within a reasonable time after receipt of the submittal, give notice of the date by which that submittal will be returned.
   c. Owner's acceptance of progress schedule containing submittal review times less than those specified or agreed to in writing by Owner will not constitute Owner's acceptance of review times.
   d. Critical submittals:
      1) Contractor will notify Owner in writing that timely review of a submittal is critical to the progress of Work.
      2) Owner will provide decision on request.
      3) Written acceptance of request:
         a) Written agreement by Owner to reduce submittal review time will be made only for unusual situations.
         b) Written rejection of request.

3. Schedule delays:
   a. No adjustment in Contract Times or Contract Price will be allowed due to Owner’s review of submittals if:
      1) Contractor fails to submit appropriate submittals in adequate timeframe in order to procure necessary equipment and maintain project schedule.
      2) Owner has failed to review and return first submission within the agreed upon time frame.
      3) Contractor demonstrates that delay in progress of Work is directly attributable to Owner’s failure to return submittal within time indicated and accepted by Owner.

4. Review responses: Submittal will be returned to Contractor with one of the following reviewer’s response and stamp on the transmittal form included as Appendix A:
   a. Reviewed (no Comments):
      1) Contractor may proceed with the work described in the submittal.
b. Reviewed with Comments:
   1) Contractor shall incorporate all review comments into the work, but resubmittal of an amended submittal package is not required.
   2) Resubmit only the portion of package necessary to respond to Owner’s comments.

c. Revise and Resubmit:
   1) Contractor shall incorporate the review comments into a complete revised package, and resubmit it for review.

d. Rejected:
   1) Contractor shall review comments.
   2) Contractor shall develop a new submittal package with materials, equipment, methods, etc. that meet the requirements of the Contract Documents.

e. Submittal not reviewed, filed for record:
   1) Contractor has no further action required.

f. Submittal not reviewed:
   1) Submittals not required by these Contract Documents will be returned to the Contractor without review.

D. Contractor: Prepare resubmittal, if applicable:
   1. Clearly identify each correction or change made.
   2. Include a response in writing to each of the Owner’s comments or questions for submittal packages that are resubmitted in the order that the comments or questions were presented throughout the submittal:
      a. Acceptable responses to Owner’s comments are listed below:
         1) “Incorporated” Owner’s comment or change is accepted and appropriate changes are made.
         2) “Response” Owner’s comment not incorporated. Explain why comment is not accepted or requested change is not made. Explain how requirement will be satisfied in lieu of comment or change requested by Owner.
      b. Any resubmittal that does not contain responses to the Owner’s previous comments shall be returned “Revise and Resubmit”. No further review by the Owner will be performed until a response for previous comments has been received.
   3. Review costs:
      a. Costs incurred by Owner as a result of additional reviews of a particular submittal after the second time it has been reviewed shall be borne by Contractor.
      b. Reimbursement to Owner will be made by deducting such costs from Contractor’s subsequent progress payments.

1.07 SUBMITTALS

A. General:
   1. Submittals shall be made in electronic format in accordance with Section 01_31_24 - Web Based Construction Document Management. Electronic submittals shall be supplemented with paper documents, which either require original signatures or large format documents (greater than 11 by 17 inches).
   2. All paper documents submitted by the Contractor shall be in accordance with the City of Tacoma’s Sustainable Purchasing Policy (Resolution 38248).
Documents shall be produced on recycled paper containing the highest level of post-consumer and recycled content available. At a minimum, paper with 30 percent post-consumer recycled content shall be used.

3. If required, number of hard copies: 5 minimum except where noted.

B. Shop Drawings:
   1. Details:
      a. Fabrication drawings: drawn to scale and dimensioned.
      b. Front, side, and, rear elevations, and top and bottom views, showing all dimensions.
      c. Locations of conduit entrances and access plates.
      d. Component layout and identification.
      e. Weight.
      f. Finish.
      g. Temperature limitations, as applicable.
      h. Nameplate information.

C. Product Information:
   1. Product Data:
      a. Details:
         1) Supplier name and address.
         2) Subcontractor name and address.
      b. Include:
         1) Catalog cuts.
         2) Bulletins.
         3) Brochures.
         4) Manufacturer’s Certificate of Compliance: signed by product manufacturer along with supporting reference data, affidavits, and tests, as appropriate.
         5) Manufacturer’s printed recommendations for installation of equipment.
         6) Quality photocopies of applicable pages from manufacturer’s documents.
   2. Samples:
      a. Number of samples: 3 minimum.
      b. Details:
         1) Submit labeled samples.
         2) Samples will not be returned.
         3) Provide samples from manufacturer’s standard colors, materials, products, or equipment lines:
            a) Clearly label samples to indicate any that represent non-standard colors, materials, products, or equipment lines and that if selected, will require an increase in Contract Time or Contract Price.
   3. Minor or incidental products and equipment schedules:
      a. Details:
         1) Shop Drawings of minor or incidental fabricated products will not be required, unless requested.
         2) Submit tabulated lists of minor or incidental products showing the names of the manufacturers and catalog numbers, with Product Data and Samples as required to determine acceptability.
D. Design calculations:
   1. Details:
      a. Defined in technical sections.
      b. Calculations must bear the original seal and signature of a Professional
         Engineer licensed in the state of Washington and who provided
         responsible charge for the design. The Professional Engineer shall be
         registered in a discipline appropriate for the design calculations submitted.

E. Qualifications Statements:
   1. Details:
      a. Defined in technical sections.
      b. Licensing documentation.
      c. Certification documentation.
      d. Education documentation.

F. Quality assurance/control submittals:
   1. Mill test reports:
      a. Details:
         1) Submit certified copies of factory and mill test reports.
         2) Do not incorporate Products in the Work which have not passed
            testing and inspection satisfactorily.
         3) Pay for mill and factory tests.
      2. Test reports:
         a. Details:
            1) Include the following information:
               a) A description of the test.
               b) List of equipment used.
               c) Name of the person conducting the test.
               d) Date and time the test was conducted.
               e) Ambient temperature and weather conditions.
               f) All raw data collected.
               g) Calculated results.
               h) Clear statement if the test passed or failed the requirements
                  stated in Contract Documents.
               i) Signature of the person responsible for the test.
      3. Source Testing:
         a. Details: Include complete test procedure and all forms to be used during
            test.
      4. Certificates:
         a. Details: Defined in technical sections.
      5. Manufacturers’ field reports:
         a. Details: Certificate of proper installation.
      6. Field Samples:
         a. Details: Defined in technical sections.
      7. Field Test Plans:
         a. Details: Defined in technical sections.

G. Project management submittals:
   1. Applications for payment:
      a. Details:
         1) As specified in Documents 00_72_00 and 00_73_00, and
            Section 01_29_77 - Applications for Payment.
2. Schedules:
   a. Details:
      1) Progress schedules: As specified in Section 01_32_16 - Progress Schedules and Reports – Large Projects.
      2) Schedule of values: As specified in Documents 00_72_00 and 00_73_00.
      3) Schedule of submittals: As specified in Section 01_32_16 - Progress Schedules and Reports – Large Projects.

3. Progress reports and quantity charts:
   a. Details: As specified in Section 01_32_16 - Progress Schedules and Reports – Large Projects.

1.08 CLOSEOUT SUBMITTALS

   A. Provide closeout submittals as specified in Section 01_77_00 - Closeout Procedures.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION
SUBMITTAL REVIEW COMMENTS

Project/Spec No.: ENV-04015-23 / ES23-0244F
Project Name: CTP Outfall Cathodic Protection System Improvements
Submittal Number:
Spec Section:
Description:
Date Submitted:
Response Date:

SUBMITTAL REVIEW ACTION (select one)
The Engineer’s review of drawings and data submitted by the Contractor will cover only general conformity with the contract drawings and specifications. The Engineer’s review of submittals shall not relieve the Contractor from responsibility for errors, omissions, deviations, or responsibility for compliance with the contract.

| A | Reviewed (no Comments): Contractor may proceed with the work described in the submittal. |
| B | Reviewed with Comments: Contractor shall incorporate all review comments into the work, but resubmittal of an amended submittal package is not required. Resubmit only the portion of package necessary to respond to Owner’s comments. |
| C | Revise and Resubmit: Contractor shall incorporate the review comments into a complete revised package, and resubmit it for review. |
| D | Rejected: Contractor shall review comments. Contractor shall develop a new submittal package with materials, equipment, methods, etc. that meet the requirements of the Contract Documents. |
| E | Submittal not Reviewed,Filed for Record: Contractor has no further action required. |
| F | Submittal not Reviewed: Submittals not required by these Contract Documents will be returned to the Contractor without review. |

COMMENTS:

<table>
<thead>
<tr>
<th>No.</th>
<th>Reviewer</th>
<th>Pg./Sheet/ Spec #</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Date: ___ By: __________

CITY OF TACOMA
PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Special procedures for locating and verifying concealed existing utilities.

1.02 CONCEALED EXISTING UTILITIES

A. Verify locations of utilities which may exist by consulting with the Owner, utility companies, and Washington Utility Notification Center or other service available in area of Project:
   1. Abide by easement and right-of-way restrictions.

B. Perform exploratory vacuum excavation potholing, as necessary to more accurately identify location, depth, configuration, and utility service in congested utility areas prior to preparation of shop drawings and subsequent excavation:
   1. Potholing shall be backfilled immediately after purpose has been satisfied and the surface restored and maintained in a manner satisfactory to Owner.
   2. Adjustments in construction methods shall be made to accommodate utility location information gained from potholing as necessary to protect existing utilities.
   3. Some variation from the conditions indicated on the Drawings is to be expected.

C. Notify the Owner and owners of facilities when the Work will be in progress.

D. Notify the Owner 48 hours in advance of all potholing activities:
   1. Contractor shall allow Owner to perform independent 3-dimensional survey of all uncovered utilities for informational purposes as requested.

E. Make arrangements for potential emergency repairs in accordance with requirements of owners of utility facilities, including individual or residential facilities.

F. Assume responsibility for repair of utilities and facilities damaged by performance of the Work.

G. Expose existing underground utilities indicated on the Drawings to permit survey location prior to commencement of Work in affected area:
   1. Expose in ample time to permit relocation of interfering utilities with minimum delaying effect on Contract Time.

H. Work required for raising, lowering, or relocating utilities not indicated will be performed by affected utility owners or as part of the Work at option of affected owners of utilities:
1. Where conflicts exist between proposed improvements and existing utilities, Contractor shall adjust location of new work to avoid existing utilities at no additional cost to Owner.
2. When part of the Work, perform work in accordance with standards of affected utility owner, and adjustment to Contract Price and Contract Times will be made as stipulated in conditions of Contract.

PART 2 PRODUCTS
Not Used.

PART 3 EXECUTION
Not Used.

END OF SECTION
PART 1 GENERAL

1.01 SUMMARY

A. Section includes:
   1. Cutting or modifying of existing and new work.
   2. Partial demolition of structures.

1.02 REFERENCES

A. American National Standards Institute (ANSI):
   1. A10.6 - Safety and Health Program Requirements for Demolition Operations.

B. International Concrete Repair Institute (ICRI):
   1. Guideline No. 310.2R - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair.

1.03 DEFINITIONS

A. Chipping hammer: A hand-operated electrical or pneumatic demolition device for removal of hardened concrete or masonry materials having a weight of less than 15 pounds and an impact frequency of greater than 2,000 blows/minute.

B. Concrete breaker: A hand-operated electrical or pneumatic demolition device for removal of hardened concrete or masonry materials having a weight greater or impact frequency less than the limits defined for a chipping hammer.

C. Coring equipment: Non-impact rotary drill with diamond cutting edges.

D. Heavy abrasive blast: Cleaning procedure by which various abrasives materials, or steel shot, are forcibly propelled by high pressure against a surface to remove loose material and produce a concrete surface roughened to ICRI Surface Profile CSP-7, or higher, as specified in ICRI 301.3R.

1.04 DESCRIPTION OF WORK

A. The work includes partial demolition, cutting, and modifying of existing facilities, utilities, and/or structures.

B. These facilities may be occupied and/or operational. Satisfactory completion of the work will require that the Contractor plan activities carefully to work around unavoidable obstacles and to maintain overall stability of structures and structural elements. It will further require restoration of existing facilities, utilities, and structures that are to remain in place and that are damaged by demolition or removal operations.
1.05 SUBMITTALS

A. General:
   1. Submit specified in Section 01_33_00 - Submittal Procedures.

B. Shop drawings: Include:
   1. The location of all embedded items shall be documented using diagrams and/or other media that clearly show dimensions and locations of existing structural elements, existing embedded items and any new embedded items and their relationship to each other.

C. Submittals for information only:
   1. Permits and notices authorizing demolition.
   2. Certificates of severance of utility services.
   3. Permit for transport and disposal of debris.

D. Quality assurance submittals:
   1. Qualifications of non-destructive testing agency/agencies.

E. Project record documents.

F. Drawings and/or other media documenting locations of service lines and capped utilities discovered during demolition.

1.06 QUALITY ASSURANCE

A. Qualifications:
   1. Assign relocation, removal, cutting, coring and patching to trades and workers qualified to perform the Work in manner that causes the least damage and that provides means of returning surfaces to an appearance at least equal to that of the surrounding areas unaffected by the Work.
   2. Non-destructive testing agencies: Minimum of 5 years' experience performing non-destructive testing for location of steel reinforcement in existing concrete under conditions similar to that required for this Work.

1.07 SEQUENCING

A. Perform Work in sequences and within times specified in Section 01_14_00 - Work Restrictions.

B. If the facility or utility to be modified cannot be removed from service, perform the Work while the facility is in operation using procedures and equipment that do not jeopardize operation or materially reduce the efficiency of that facility.

C. Coordinate the Work with operation of the facility:
   1. Do not begin alterations of designated portions of the Work until specific permission for activities in each area has been granted by Owner in writing.

D. Complete Work as quickly and with as little delay as possible. Operational functions of the facility that are required to be performed to facilitate the Work will be performed by facility personnel only.
E. Owner will cooperate in every way practicable to assist in expediting the Work.

F. When necessary for the proper operation or maintenance of portions of the facility, reschedule operations so the Work will not conflict with required operations or maintenance.

1.08 REGULATORY REQUIREMENTS

A. Dispose of debris in accordance with governing regulatory agencies.

B. Comply with applicable air pollution control regulations.

C. Obtain permits for building demolition, transportation of debris to disposal site and dust control.

D. Comply with safe handling and disposal requirements as specified in Section 01_35_44 - Hazardous Material Procedures.

1.09 PREPARATION

A. Non-destructive evaluation of existing concrete and masonry:
   1. Prior to cutting, drilling, coring, and/or any other procedure that penetrates existing concrete or masonry, retain and pay for the services of a qualified non-destructive testing agency to perform investigations to determine the location of existing steel reinforcement, plumbing, conduit, and/or other embedments in the concrete.
   2. Submit documentation of the investigations to the Owner for review and approval as specified in Section 01_33_00 - Submittal Procedures before any work involving penetration of existing concrete is initiated.

B. Obtain permission from Tacoma Public Utility – Power (TPU) when outriggers, swinging cranes, and other equipment may have to traverse or extend into adjacent property or in close proximity to nearby overhead power lines.

1.10 PROJECT CONDITIONS

A. Do not interfere with use of adjacent structures and elements of the facility not subject to the Work described in this Section. Maintain free and safe passage to and from such facilities.

B. Provide, erect, and maintain barricades, lighting, guardrails, and protective devices as required to protect building occupants, general public, workers, and adjoining property:
   1. Do not close or obstruct roadways without permits.
   2. Conduct operations with minimum interference to public or private roadways.

C. Prevent movement, settlement, or collapse of structures:
   1. Notify Owner prior to any work that will require bracing, shoring, or other protective measures to prevent movement.
   2. Provide and place bracing or shoring.
   3. Cease operations and notify Owner immediately when safety of structures appears to be endangered. Take precautions to properly support structure. Do not resume operations until safety is restored.
4. Assume liability for movement, settlement, or collapse. Promptly repair damage.

D. Arrange and pay for capping and plugging utility services. Disconnect and stub off:
   1. Notify affected utility company in advance and obtain approval before starting demolition.
   2. Place markers to indicate location of disconnected services.

E. Unknown conditions:
   1. The drawings may not represent all conditions at the site and adjoining areas. Compare actual conditions with drawings before commencement of Work.
   2. Existing utilities and drainage systems below grade are located from existing documents and from surface facilities such as manholes, valve boxes, area drains, and other surface fixtures.
   3. If existing active services encountered are not indicated or otherwise made known to the Contractor and interfere with the permanent facilities under construction, notify the Owner in writing, requesting instructions on their disposition. Take immediate action to ensure that the service provided is not interrupted, and do not proceed with the Work until written instructions are received from the Owner.

PART 2  PRODUCTS

2.01 SALVAGE MATERIALS

A. Owner retains the right to salvage any materials or equipment identified for demolition or removal in the Contract Drawings. The Contractor shall notify the Owner seven days prior to any salvage or demolition work to determine the disposition of items to be removed. The Owner will mark items to be salvaged.

B. Such items shall be properly disconnected, removed from their foundations, cleaned, and delivered to the location specified.

C. Salvage materials: Materials removed from existing facility and relinquished to the Owner. The Contractor shall deliver materials to the Central WWTP at 2201 E Portland Avenue, Tacoma, WA 98421.

D. Materials designated for salvage:
   1. Equipment box pad locks

E. Handling and storage:
   1. Prevent damage to salvaged materials during removal, handling, and transportation of salvaged materials.
   2. Care of salvage Items:
      a. Salvage items designated for the Owner’s salvage as a unit.
      b. Clean, list, tag for storage.
      c. Salvage each item with auxiliary or associated equipment required for operation.

F. Disposal:
   1. Disposal of materials and equipment shall not occur until the Owner has designated salvage items on the list.
2. Upon completion of review and acceptance, promptly remove items for disposal from site.
3. Do not store or sell Contractor salvaged items or materials on site.

G. Pay costs associated with salvaging materials, including handling, transporting, storage, and replacement if damaged by Contractor.

PART 3 EXECUTION

3.01 EXAMINATION

A. Prior to beginning selective demolition operations, perform a thorough inspection of the facility and site, and report to the Owner defects and structural damage to or deterioration of existing construction to remain.

B. Examine areas affected by the Work and verify the following conditions prior to commencing demolition:
   1. Disconnection of utilities as required in accordance with Specification Section 01_35_22.
   2. That utilities serving occupied or active portions of surrounding facilities will not be disturbed, except as otherwise indicated.

C. If unsatisfactory conditions exist, notify the Owner, and do not begin demolition operations until such conditions have been corrected.

3.02 PREPARATION

A. Selective Demolition Plan:
   1. Prepare and submit a comprehensive selective demolition plan for the Work. Describe, at a minimum, the following elements:
      a. Proposed sequence, temporary support, and equipment for demolition, removal, and disposal of portions of structure(s).
      b. Provisions and procedures for salvage and delivery to Owner of salvaged items.
   2. Submit plan a minimum four (4) weeks before demolition is scheduled to begin.

B. Protection:
   1. Erect weatherproof enclosures to protect the interior of facilities and elements or equipment that are not designed for exposure to the weather. Provide temporary heat, cooling, and humidity control as necessary to prevent damage to existing and new construction. Maintain existing exiting paths and/or provide new paths in compliance with Building Code requirements.
   2. Erect and maintain dustproof partitions as required to prevent spread of dust, to other parts of building. Maintain negative pressure in the area where the Work is being performed to prevent the accidental spread of dust and to minimize the spread of fumes related to the Work.
   3. Upon completion of Work, remove weatherproof closures and dustproof partitions, and repair damaged surfaces to match adjacent surfaces.
   4. Provide and maintain protective devices to prevent injury from falling objects.
   5. Locate guardrails in stairwells and around open shafts to protect workers. Post clearly visible warning signs.
6. Cause as little inconvenience to adjacent building areas as possible.
7. Protect benchmarks and existing construction to remain from damage or displacement.
8. Carefully remove designated materials and equipment to be salvaged by Owner or reinstalled.
9. Store and protect materials and equipment to be reinstalled.

C. Layout:
1. The limits of selective demolition are indicated on the Drawings. Confine demolition operations within the limits indicated on the Drawings.
2. Lay out demolition and removal work at the site and coordinate with related Work for which demolition and removal is required. Clearly mark the extent of structural elements to be removed on the actual surfaces that will be removed.
3. Arrange for Owner's inspection of the lay out extents.
4. Do not begin demolition/removal operations until the lay out markings have been reviewed by the Owner.

3.03 DEMOLITION

A. General:
1. Perform demolition work in accordance with ANSI A10.6.
2. Demolish designated portions of structures and appurtenances in orderly and careful manner in accordance with the Selective Demolition Plan.
3. Conduct demolition and removal work in a manner that will minimize dust and flying particles:
   a. Use water or dust palliative when necessary to prevent airborne dust.
   b. Provide and maintain hoses and connections to water main or hydrant.
   c. Collect and properly dispose of all water used to control dust.
   d. Protect facility and equipment from exposure to dust control water.
4. Demolish concrete and masonry in small sections. Perform demolition with small tools as much as possible. Blasting with explosive charges is not permitted.
5. Sawcut concrete to establish the edges of demolition, wherever possible:
   a. Do not use a concrete breaker within 6 inches of reinforcing or structural metals that are designated to remain.
   b. At edges that are not sawcut, remove the final 6 inches of material with a chipping hammer as defined herein. At surfaces where material is removed with a chipping hammer, follow with a heavy abrasive blast to remove all loose material and microcracking.
   c. Alternate techniques to remove concrete may be used if acceptable to the Owner; however, techniques other than those deemed by ICRI Guideline No. 310.2R to provide a low risk of introducing microcracking will require a subsequent procedure to remove loose material.
   d. Provide final surface preparation for repairs in accordance with manufacturer's instructions.
   e. Comply with the current City of Tacoma Surface Water Management Manual BMP C152.
6. At locations indicated on the Drawings that the existing reinforcing is to be preserved, remove concrete using methods that do not damage the reinforcing. Use one of the following techniques:
   a. Hydrodemolition techniques as outlined in ICRI Guideline No. 310.3R.
b. Chipping hammer, as defined herein, followed by heavy abrasive blast to remove all loose material and microcracking at remaining surfaces impacted by the chipping hammer.
c. Provide a small completed area for Owner's review and acceptance. If the proposed method, in the opinion of the Owner, damages the reinforcing, revise the removal method to remove the concrete with a less aggressive technique to protect the reinforcing.

7. Remove materials carefully, to the extent indicated and as required:
   a. Provide neat and orderly junctions between existing and new materials.
   b. Use methods that terminate surfaces in straight lines at natural points of division.

8. Do not remove anything beyond the limits of Work indicated without prior written authorization of the Owner. If in doubt about whether to remove an item, obtain written authorization of the Owner prior to proceeding.

9. Perform work so as to provide the least interference and most protection to existing facilities to remain.

10. Assume possession of demolished materials, unless otherwise indicated on the Drawings or specified:
    a. Remove demolished materials from site at least weekly and dispose of in accordance with Laws and Regulations.
    b. Do not burn materials on site.

B. Sizing of openings in existing concrete or masonry:
   1. Make openings large enough to permit final alignment of pipe and fittings without deflections, but without oversizing.
   2. Allow adequate space for packing around pipes and conduit to ensure watertightness.
   3. If the Owner deems the opening to be insufficient in size and does not comply with the manufacturer’s recommendations to accomplish this criteria, remove additional material using the procedures outlined in this Section.

C. Cutting openings in existing concrete or masonry:
   1. Do not allow saw cuts to extend beyond limits of openings.
   2. Create openings by the following method or other means acceptable to the Owner that prevents over-cutting of member at corners:
      a. Core-drill through slab or wall at corners, being careful not to damage materials beyond the area to be removed.
      b. Saw cut completely through the member, between the core holes at the corners.
      c. As an alternate to sawcutting through the member, score the edges of the opening with a saw to a 1-inch depth on both surfaces (when accessible):
         1) Remove concrete or masonry to within 6 inches of material to remain with a concrete breaker.
         2) Remove the remaining material with a chipping hammer.
      d. Remove the remaining material at the corners left by the core-drilling with a chipping hammer.
   3. Prevent debris from falling into adjacent tanks or channels in service or from damaging existing equipment and other facilities.
D. Immediately upon discovery, remove and dispose of contaminated, vermin-infested, or dangerous materials using best practices that will not endanger health of workers and public. Notify Owner upon discovery.

E. Remove demolished materials, tools, and equipment upon completion of demolition.

3.04 RESTORATION

A. General:
1. Repair damage caused by demolition to a conditions equal to those that existing prior to beginning of demolition:
   a. Patch and replace portions of existing finished surfaces that are damaged, lifted, and discolored with matching material. Refinish patched portion surfaces in a manner which produces uniform color and texture to entire surface.
   b. When existing finish cannot be matched, refinish entire surface to nearest change of plane where angle of change exceeds 45 degrees.
2. The cost of repairs shall be at the Contractor’s expense at no increase in the Contract Price.
3. When new construction abuts or finishes flush with existing construction, make smooth transitions. Match finish of existing construction.
4. Where partitions are removed, patch floors, walls, and ceilings with finish materials that match existing materials.
5. Where removal of partitions results in adjacent spaces becoming one, rework floors, walls, and ceilings to provide smooth planes without breaks, steps, or bulkheads.
7. Trim and refinish existing doors as necessary to clear new floors.
8. Match patched construction with adjacent construction in texture and appearance so that patch or transition is invisible at 5-foot distance.
9. When finished surfaces are cut so that smooth transition is impossible, terminate existing surface in neat manner along straight line at natural line of division and provide appropriate trim.

B. Restore existing concrete reinforcement as follows:
1. Where existing reinforcement is to be incorporated into the new Work, protect, clean, and extend into new concrete.
2. Where existing reinforcement is not to be retained, cut off as follows:
   a. Where new concrete joins existing concrete at the removal line, cut reinforcement flush with concrete surface at the removal line.
   b. Where concrete surface at the removal line will become the finished surface, cut reinforcement 2 inches below the surface, paint ends with epoxy, and patch holes with dry pack mortar.

C. Restore areas affected by removal of existing equipment, equipment pads and bases, piping, supports, electrical panels, electric devices, and conduits such that little or no evidence of the previous installation remains:
1. Fill areas in existing floors, walls, and ceilings from removed piping, conduit, and fasteners with non-shrink grout and finish smooth.
2. Remove concrete bases for equipment and supports by:
a. Saw cutting clean, straight lines with a depth equal to the concrete cover over reinforcement minus 1/2 inch below finished surface:
   1) Do not cut existing reinforcement on floors.

b. Chip concrete within scored lines and cut exposed reinforcing steel and anchor bolts.

c. Patch with non-shrink grout in accordance with Section 03_60_00 to match adjacent grade and finish.

3. Terminate abandoned piping and conduits with blind flanges, caps, or plugs.

3.05 FIELD QUALITY CONTROL

A. Do not proceed with demolition without Owner’s inspection of lay out.

B. Do not deviate from the submitted demolition plan without notifying the Owner prior to Work.

END OF SECTION
PART 1  GENERAL

1.01  SUMMARY
A. Section includes: Development and maintenance of a Construction Safety Plan.

1.02  REFERENCES
A. National Fire Protection Association (NFPA):
   1. 70E - Standard for Electrical Safety in the Workplace.
B. Occupational Safety and Health Administration (OSHA).
C. Washington Industrial Safety and Health Act (WISHA).
D. Washington Administrative Code (WAC):

1.03  CONSTRUCTION SAFETY PLAN
A. In accordance with Documents 00_72_00 and 00_73_00.
B. Develop the Methods and Procedures to comply with NFPA 70E, WAC 296-155, and other federal, state, and Local Health and Safety Laws, Rules and Requirements for the duration of the Contract Times. Methods and procedures must also comply with the Owner’s Safety Plan. Include the following:
   1. Identification of the Certified or Licensed Safety Consultant who will prepare, initiate, maintain and supervise safety programs, and procedures.
   2. Procedures for providing workers with an awareness of safety and health hazards expected to be encountered in the course of construction.
   3. Safety equipment appropriate to the safety and health hazards expected to be encountered during construction. Include warning devices, barricades, safety equipment in public right-of-way and protected areas, safety equipment used in multi-level structures, personal protective equipment (PPE) as required by NFPA 70E, OSHA, WISHA, WAC, Documents 00_72_00, and 00_73_00.
   4. Methods for minimizing employees’ exposure to safety and health hazards expected during construction.
   5. Procedures for reporting safety or health hazards.
   6. Procedures to follow to correct a recognized safety and health hazard.
   7. Procedures for investigation of accidents, injuries, illnesses, and unusual events that have occurred at the construction site.
   8. Periodic and scheduled inspections of general work areas and specific workstations.
   9. Training for employees and workers at the jobsite.
  10. Methods of communication of safe working conditions, work practices and required personal protection equipment.
11. Contractor’s Lockout/Tagout Procedures that are in accordance with the Owner’s Policy.
12. Contractor’s Confined Space Entry Procedures that are in accordance with the Owner’s Policy.

C. Assume responsibility for every aspect of Health and Safety on the jobsite, including the health and safety of subcontractors, suppliers, and other persons on the jobsite:
1. Forward available information and reports to the Safety Consultant who shall make the necessary recommendations concerning worker health and safety at the jobsite.
2. Employ additional health and safety measures specified by the Safety Consultant, as necessary, for workers in accordance with OSHA guidelines.

D. Transmit to Owner, copies of reports and other documents related to accidents or injuries encountered during construction.

1.04 SUBMITTALS

A. Contractor shall submit the Safety Plan before performing any work on site in accordance with Section 01_33_00 – Submittal Procedures.

B. Contractor shall submit Safety Plan Compliance documents on a monthly basis in accordance with Section 01_33_00 – Submittal Procedures.

1.05 CONTRACTOR QUALITY ASSURANCE

A. The Contractor shall be responsible for carefully reviewing the entire scope of work, the work site location, adjacent structures and systems, and applicable Contract Document requirements to fully inform and satisfy itself, by personal review and examination or by such other means as they prefer, of the safety considerations and requirements that must be addressed and planned prior to the start of work.

B. The Contractor shall ensure that all Contractor employees, subcontractor employees, vendors, and other site visitors comply with the Contractor’s Safety Plan.

C. The Contractor shall designate a safety supervisor on site with appropriate training, responsibility, and full authority to coordinate, implement, and enforce the Safety Plan for the duration of this Contract. The name and telephone number of the safety supervisor shall appear in the Safety Plan.

1.06 SAFETY PLAN COMPLIANCE

A. The Contractor shall provide the necessary air monitoring, ventilation equipment, protective equipment, fall protection, and other specified supplies and equipment to employees to facilitate implementation of the Safety Plan.

B. Notify the Owner of all accidents and on the job injuries within the same workday.

C. Submit documentation of all pre-job safety meetings with employees and subcontractors.
D. Conduct, document, and submit meeting minutes from weekly safety tailgate meetings.

E. Submit any reports generated as part of the Safety Plan on a monthly basis.

F. The Owner may notify the Contractor of any suspected or observed inadequacies in the implementation of the Safety Plan, and may contact the regulatory agencies with jurisdiction if such inadequacies are not addressed.

G. The Contractor shall prepare and implement Lock Out/Tag Out and Confined Space Entry procedures that comply with the Owner’s procedures include in this Section.

PART 2 PRODUCTS
Not Used.

PART 3 EXECUTION
Not Used.

END OF SECTION
SECTION 01_35_44
HAZARDOUS MATERIAL PROCEDURES

PART 1 GENERAL

1.01 SUMMARY
A. Section includes: Procedures required when encountering hazardous materials at the Work site.

1.02 REFERENCES
A. Washington Administrative Code (WAC):
   2. Chapter 296-65 Asbestos Removal and Encapsulation.
   3. Chapter 296-155 Safety Standards for Construction Work
B. Washington Division of Occupational Safety and Health Administration (DOSH).
C. Occupational Safety and Health Administration (OSHA).
   1. Title 29 - Labor:
      a. 1926.62 - Lead.
   2. Title 40 - Protection of Environment:

1.03 SUBMITTALS
A. Submit laboratory reports, hazardous material removal plans, and certifications.
B. Submit a work plan prior to commencing with the removal and legal disposal. Work plan shall include, but not be limited, to the following:
   1. Schedule of work.
   2. Security measures for work and disposal area.
   3. Staff training: Contractor shall provide at least one competent person who is capable of identifying lead and asbestos hazards at the job site for the entire duration of any lead, asbestos, or silica removal and disposal operations.

1.04 DEFINITIONS
A. Adequately Wet: Continuous penetration of the pipe wall with liquid to prevent release of particulates.
B. Competent Person: A qualified and certified worker who is capable of identifying existing and predictable lead and asbestos hazards, perform exposure assessment and monitoring, is qualified to train other workers, oversees all abatement work to ensure compliance with applicable federal, state, and local regulations, and has the authority to take immediate corrective action to eliminate a hazardous exposure.
C. Asbestos - Containing Material (ACM).

D. Non-friable Asbestos - Containing Material (NACM): Material containing more than 1 percent asbestos, that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

E. Regulated Asbestos - Containing Material (RACM): Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder in the course of work.

1.05 HAZARDOUS MATERIALS PROCEDURES

A. Hazardous materials are those defined by 40 CFR and State specific codes.

B. When hazardous materials have been found:
   1. Should suspect material not identified in this Section be encountered, immediately suspend all work that could disturb said material and notify the Owner. Do not proceed with work that could disturb the material until authorized by the Owner, in writing, to do so.
   2. Prepare and initiate implementation of plan of action in compliance with State and Federal regulations.
   3. Notify immediately Owner and other affected persons and take necessary precautions.
   4. Notify such agencies as are required to be notified by Laws and Regulations with the times stipulated by such Laws and Regulations.
   5. Designate a Certified Industrial Hygienist to issue pertinent instructions and recommendations for protection of workers and other affected persons' health and safety.
   6. Identify and contact subcontractors and licensed personnel qualified to undertake storage, removal, transportation, disposal at a permitted facility, and other remedial work required by, and in accordance with, laws and regulations.

C. Forward to Owner, copies of reports, permits, signed receipts, signed shipping manifests, bill of lading with quantities indicated, and other documentation related to remedial work.

D. Assume responsibility for worker health and safety, including health and safety of subcontractors and their workers:
   1. Instruct workers on recognition and reporting of materials that may be hazardous.

E. File requests for adjustments to Contract Times and Contract Price due to the finding of Hazardous Materials in the Work site in accordance with Contract Documents:
   1. Minimize delays by continuing performance of the Work in areas not affected by hazardous materials operations.

1.06 LEAD PAINT IDENTIFICATION, REMOVAL, AND DISPOSAL

A. The Contractor shall test all painted surfaces for the presence of lead prior to making any modifications. Perform all work in a manner that limits dust creation and employee exposure. The Contractor shall use wet techniques, HEPA vacuum, or other best practices to control dust.
B. If testing determines coatings contain lead, Contractor shall comply with Part 1.05 of this Section for handling, removal, and disposal.

C. Existing paint on the exterior and interior surfaces that may contain lead in concentrations which will require implementation of hazardous material compliance procedures as legislated by the following:
   1. CFR, Title 29 and Title 40.
   2. Chapter 296-155-176 WAC.

1.07 ASBESTOS MATERIALS

A. The Contractor is hereby made aware that concealed suspect asbestos-containing building materials may be uncovered during the course of demolition or renovation work. Contractor shall have contingency plan that include stopping work, evacuation of the immediate area, and sampling by a certified AHERA Building Inspector whenever these materials are found.

B. It is the specific requirement of these Contract Documents to exclude from the Work any and all products or materials containing asbestos. No products containing asbestos shall be incorporated in the Work.

C. Notify the Owner immediately if ACM or suspected ACM is encountered. This includes electrical components that appear to be crumbling, made of cement-like material, or woven fabric or mastic. Do not disturb such material until approved by Owner.

1.08 SILICA

A. The Contractor shall anticipate encountering silica when core drilling or performing other building penetrations through existing concrete and masonry. Contractor shall take all precautions necessary to protect workers and public from silica dust while performing Contract Work in accordance with WAC 296-840.

END OF SECTION
PART 1  GENERAL

1.01 SUMMARY

A. Section includes: Regulatory authorities and codes.

B. The Contractor shall be responsible for identifying and complying with all applicable federal, state and local laws, statutes and regulations required to complete the Work. The references listed below are provided for the convenience of the Contractor and may not be comprehensive.

C. In case of conflict between the requirements of the specifications and requirements of the statutes and regulations, the Contractor shall bring them to the attention of the Owner. Lacking a specific response, the more stringent shall control. In no case can this Contract be interpreted to override statutes and regulations of governing authorities.

1.02 AUTHORITIES HAVING JURISDICTION

A. Building Department: City of Tacoma Planning and Development Services.

B. Fire Department: City of Tacoma.

C. Stormwater: City of Tacoma.

D. Electrical Department: City of Tacoma Public Utilities.

E. Potable Water Department: City of Tacoma Public Utilities.

F. Wastewater: City of Tacoma Environmental Services.

1.03 APPLICABLE CODES

A. International Code Council (ICC):
   1. Building code:
      a. International Building Code (IBC), 2018:
         1) Washington State Amendments to the 2018 IBC (Chapter 51-50 WAC).
         2) Tacoma Municipal Code, Title 2.02.
      b. International Existing Building Code (IEBC), 2018:
         1) Washington State Amendments to the 2018 IEBC (Chapter 51-50 WAC).
         2) Tacoma Municipal Code, Title 2.02.
   2. Electrical code:
         1) Washington Administrative Code Chapter 296-46B.
2) Tacoma Municipal Code, Title 12.06A.

3. Energy code:
   a. International Energy Conservation Code (IECC), 2015:
      1) Washington State Amendments to the 2015 IECC (Chapter 51-11C WAC).
      3) Tacoma Municipal Code, Title 2.10.

4. Fire code:
   a. International Fire Code (IFC), 2015:
      1) Washington State Amendments to the 2015 IMC (Chapter 51-54A WAC).
      2) Tacoma Municipal Code, Title 3.02.

5. Fuel gas code:

6. Mechanical code:
   a. International Mechanical Code (IMC), 2015:
      1) Washington State Amendments to the 2015 IMC (Chapter 51-52 WAC).
      2) Tacoma Municipal Code, Title 2.07.

7. Plumbing code:
   a. Uniform Plumbing Code (UPC), 2015:
      1) Washington State Amendments to the 2015 UPC (Chapter 51-56 WAC).
      2) Tacoma Municipal Code, Title 2.06.

B. Washington Department of Ecology:
   1. National Pollutant Discharge Elimination System Municipal Permit:
      a. Central Treatment Plant: WA0037087. The accompanying Stormwater Pollution Prevention Plan (SWPPP) has been provided as Attachment A of this Section for reference and compliance.

C. Washington State Department of Labor and Industries.

D. Tacoma Public Utilities.

E. Tacoma Pierce County Health Department.

F. Puget Sound Clean Air Agency.

1.04 OWNER-ACQUIRED PERMITS AND EASEMENTS

A. The Contractor shall examine all permit and easement conditions and be responsible for complying with all conditions set forth. Failure of the Contractor to review the permit conditions will not relieve the Contractor from compliance with the requirements stated herein.

B. National Pollutant Discharge Elimination System (NPDES)
   1. Municipal Permit: Central Treatment Plant: WA0037087.
   2. Plant-Wide Operating Stormwater Pollution Prevention Plan (SWPPP):
      b. Provided as Attachment A in this Section for reference and compliance.
1.05 CONTRACTOR-ACQUIRED PERMITS

A. In accordance with Documents 00_72_00 and 00_73_00, Section 5.02.

B. Electrical Permit: including, but not limited to, obtaining permit, required inspections, fees, and coordination with Tacoma Public Utility (TPU) at http://www.mytpu.org/tacomapower/electrical-permitting/:
   1. Owner will pay permit fee directly to TPU but all other costs and coordination provided by Contractor.

C. Disposal or hauling permits for disposal of waste materials.

PART 2 PRODUCTS
Not used

PART 3 EXECUTION
Not used

END OF SECTION
STORMWATER POLLUTION PREVENTION PLAN
THE CITY OF TACOMA CENTRAL TREATMENT PLANT
2201 PORTLAND AVENUE
TACOMA, WASHINGTON 98421-2711
JANUARY 2020
NPDES ISWGP #WAR000711
Prepared by:
City of Tacoma – Environmental Services
STORMWATER POLLUTION PREVENTION PLAN CERTIFICATION

I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

City of Tacoma Central Treatment Plant
Wastewater Operations & Maintenance Division Manager

By: Hugh Meszar Division Manager 2-16-21
Name Position Date
# TABLE OF CONTENTS

1 STORMWATER POLLUTION PREVENTION PLAN PURPOSE AND OBJECTIVES ........................................ 1
   1.1 SWPPP LOCATION AND PUBLIC ACCESS ................................................................. 1
   1.2 SWPPP REVIEW, REVISIONS, AND IMPLEMENTATION ........................................... 1
   1.3 RECORD KEEPING ......................................................................................... 1

2 FACILITY DESCRIPTION ................................................................................................. 3
   2.1 SITE DESCRIPTION ........................................................................................... 3
   2.2 FACILITY OPERATION ..................................................................................... 3
   2.3 FACILITY STORMWATER DRAINAGE SYSTEM .................................................. 3

3 INDUSTRIAL ACTIVITIES AND MATERIAL LIST .......................................................... 3
   3.1 INDUSTRIAL ACTIVITIES .................................................................................. 3
      3.1.1 Loading and unloading of dry bulk materials or liquids ............................... 3
      3.1.2 Outdoor storage of materials, products, including equipment and trucks .... 3
      3.1.3 Outdoor Processing ................................................................................... 3
      3.1.4 Dust or particulate generating processes ..................................................... 3
      3.1.5 Roofs or other surfaces exposed to air emissions from a process area ....... 3
      3.1.6 On-site waste treatment, storage, or disposal ........................................... 3
      3.1.7 Vehicle and equipment fueling, maintenance, and/or cleaning (includes washing) ........................... 3
      3.1.8 Paved areas and buildings ...................................................................... 3
      3.1.9 Underground storage of materials and products ....................................... 3
   3.2 MATERIAL LIST ............................................................................................... 3

4 MONITORING REQUIREMENTS .................................................................................. 8
   4.1 INDUSTRIAL ACTIVITIES AND SITE MAP ........................................................ 8
   4.2 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS .................. 8
   4.3 STORMWATER MONITORING PLAN ................................................................ 8
      4.3.1 Additional Monitoring Requirements ......................................................... 8
   4.4 REPORTING AND RECORDKEEPING ............................................................... 8

5 STORMWATER BEST MANAGEMENT PRACTICES ......................................................... 9
   5.1 OPERATIONAL BMPs ..................................................................................... 9
      5.1.1 Pollution Prevention Team ......................................................................... 9
      5.1.2 Good Housekeeping .................................................................................. 9
      5.1.3 Inspections and Preventative Maintenance ................................................ 9
      5.1.4 Spill Prevention and Emergency Cleanup .................................................. 9
      5.1.5 Employee Training ................................................................................... 9
      5.1.6 Management Overview .......................................................................... 9
   5.2 POLLUTANT SOURCE-SPECIFIC BMPs .............................................................. 17
      5.2.1 Source Categories .................................................................................... 17
      5.2.2 Source-Specific BMPs ............................................................................. 17

City of Tacoma Central Treatment Plant SWPPP
Tacoma, WA

Updated January 2020
LIST OF TABLES

Table 3-1 Material List.............................................................. Error! Bookmark not defined.
Table 4-1 Effluent Limitations and Monitoring Requirements........ Error! Bookmark not defined.
Table 5-1 Pollution Prevention Team............................................................. 10
Table 5-2 Source Categories Applicable at the Facility .................... Error! Bookmark not defined.
Table 5-3 Source-Specific BMPs Applicable at the Facility ............ Error! Bookmark not defined.
1 STORMWATER POLLUTION PREVENTION PLAN PURPOSE AND OBJECTIVES

The Washington State Department of Ecology (DOE) National Pollutant Discharge Elimination System (NPDES) Industrial Stormwater General Permit (Permit), Section S3, requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP). Per Section S3.B of the Permit, the SWPPP shall contain:

- A site map,
- A detailed assessment of the facility,
- A detailed description of the BMPs,
- Spill Prevention and Emergency Cleanup Plan, and
- A sampling plan.

Per Section S3.A of the Permit, the SWPPP shall specify Best Management Practices (BMPs) necessary to:

1. Provide All Known, Available, and Reasonable methods of prevention, control, and Treatment (AKART) of stormwater pollution.
2. Ensure the discharge does not cause or contribute to a violation of the Water Quality Standards.
3. Comply with applicable federal technology-based treatment requirements under 40 CFR – 125.3.

1.1 SWPPP LOCATION AND PUBLIC ACCESS

The SWPPP for the City of Tacoma’s Central Treatment Plant (the Facility) will be maintained in the Office of the Assistant Division Manager, Operations & Maintenance Division, Operations Section at the Central Treatment Plant. As required by Section S9.G of the Permit, the SWPPP maintained at the Central Treatment Plant is available, upon request, to the DOE and upon written request, to the public.

The Central Treatment Plant Wastewater Operations & Maintenance Division, Operations Section Assistant Division Manager will maintain the Facility’s Central Stormwater File. The file will include the General Permit, SWPPP, all forms completed in support of the SWPPP implementation, including inspection and spill reports, and all correspondence with DOE. Additionally, other information relevant to the implementation of the SWPPP will be maintained in the file. These records will be maintained at least five years beyond the expiration of the General Permit.

All documents required by the Permit shall be immediately available to Ecology upon request (if the request is made in writing, the documents shall be made available within 14 days).

Where signatory requirements exist on the forms and documents cited above, they will be signed by the Assistant Division Manager. Additionally, the SWPPP Certification will be signed by the Assistant Division Manager.
1.2 SWPPP UPDATES

The Central Treatment Plant Wastewater Operations & Maintenance, Operations Section Assistant Division Manager will ensure the SWPPP is kept current and updated as necessary.

Section S3.A.3 of the Permit requires updates to the SWPPP:

1. If the owner/operator or the applicable local or state regulatory authority determines during inspections or investigations that the SWPPP is, or would be, ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site.

2. Whenever there is a change in design, construction, operation, or maintenance at the facility that significantly changes the nature of pollutants discharges in stormwater from the facility, or significantly increases the quantity of pollutants discharged.

Modifications to the SWPPP shall:

- Include additional or modified BMPs designed to correct problems identified.
- Correct the deficiencies identified in writing by Ecology within 30 days of notice.
2 FACILITY ASSESSMENT

2.1 FACILITY DESCRIPTION

General Information

<table>
<thead>
<tr>
<th>Owner Name</th>
<th>City of Tacoma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility Name</td>
<td>Central Treatment Plant</td>
</tr>
<tr>
<td>Facility Address</td>
<td>2201 Portland Avenue</td>
</tr>
<tr>
<td>Parcel Numbers</td>
<td>89500000330, 0320033031, 4715010020, 4715010030, 4715010060, 4715010151, 4715010110, 4715010170, 4715010210</td>
</tr>
<tr>
<td>Business Hours</td>
<td>24 hours/day; 365 days/year</td>
</tr>
<tr>
<td>Facility Phone Number</td>
<td>253-591-5595</td>
</tr>
<tr>
<td>Facility NAICS Group</td>
<td>221320 – Sewage Treatment Facilities</td>
</tr>
<tr>
<td>Primary Industrial Activity</td>
<td>Wastewater Treatment – Publically Owned Treatment Works</td>
</tr>
<tr>
<td>Primary Land Use Designation</td>
<td>Industrial</td>
</tr>
</tbody>
</table>

General Layout and Facilities

- The City of Tacoma Central Treatment Plant is a municipal plant and processes approximately 86% of the City’s daily flow of residential and industrial sewage. The CTP includes liquid and solid stream processing including primary and High Purity Oxygen (HPO) secondary treatment, Dual-digestion, solids dewatering and production of class “A” bio-solids products.

- The site is also the main location for storage and deployment of operation and maintenance equipment for the City of Tacoma owned stormwater and wastewater systems.

- Stormwater within the site discharges to either the City of Tacoma stormwater system or the City of Tacoma wastewater system.

- See the Site Map provided in Attachment A for general site layout.

Stormwater System Description
Central Treatment Plant’s stormwater drainage basins are separated into basins that drain into the wastewater system and basins that are connected to the stormwater system. Stormwater enters a 30” stormwater system that runs through the CTP property. The 30” stormwater line discharges south of the CTP to the Cleveland Way Pump Station, which in turn discharges stormwater from east-central Tacoma to the Puyallup River.

See the map attached in Appendix A which shows the location of the CTP stormwater system.

**Facility Activities and Equipment**

The following are activities and equipment that contribute to or have the potential to contribute any pollutants to stormwater. Areas where these activities may occur are shown on the Site Map provide in Appendix A.

1. **Loading and unloading of dry bulk materials or liquids**
   - Sand and sawdust is offloaded under cover within the TAGRO mixing area. Additionally, trucks transporting biosolids cake from the Solids Dewatering process area are offloaded in this area.
   - Liquid Sodium Hypochlorite is offloaded into two (2) separate storage tanks at the disinfection pump building inside a containment area with a drain to the plant headworks.
   - LOX is offloaded to the storage tank outside the PSA building, on the dike road.
   - Assorted dry polymers are offloaded to the DAFT and Solids Dewatering process areas, and stored inside their respective areas.
   - Seasonal load-out of TAGRO product is stored on a large concrete pad under covering tarps. See Section ii below.
   - Limited quantities of Petroleum, Oil, and Lubricants (POL) materials, usually in quantities of less that 50gal/container are offloaded at the maintenance warehouse. Diesel fuel is offloaded at the storage tank adjacent to the boiler building by a vendor.
   - Storage tanks for Ferric Chloride and 25% Sodium Hydroxide (Caustic) are located in the Peak Wet Weather (PWW) facilities and are no longer used at the facility. The Ferric Chloride has been replaced with Polyaluminum Chloride. In 2014, the sodium hydroxide was eliminated from the facility. In 2015, the ferric chloride was eliminated from the facility. The tanks reside in a containment area which includes, a raised and walled berm and drainage sump which the truck park over while offloading. The drains with in the containment area are monitored by level control. The stormwater that accumulates in the area is periodically drained to the wastewater treatment facility.
Microsand for use in the Peak Wet Weather (PWW) facilities is shipped and offloaded on pallets, then stored under cover in the old grit dumpster building and in the PWW hydrocyclone building.

**ii. Outdoor storage of materials or products**

- See above, there are no uncovered storage areas for products or material. An area used for seasonal storage of mixed TAGRO product is located on a large concrete pad along the river dike at the east end of the plant. This concrete pad drains to the sanitary sewer discharging to the plant headworks. The TAGRO material is covered with heavy duty industrial tarps at all times other than for load-out.

**iii. Outdoors manufacturing and processing**

- Other than noted above, there is no uncovered outdoor manufacturing or processing.

**iv. Onsite Dust or particulate generating processes**

- The TAGRO mixing process generates sawdust particulates; these are contained for the most part by the use of netting that surrounds the process area on 3 sides.
- Operations within the maintenance shop that generate particulates and dust are mitigated by vacuum pick-up systems.

**v. On-site waste treatment, storage or disposal**

The main Septage Receiving Station is located off-site. The existing facility on-site is made available as necessary when the off-site system requires preventative or corrective maintenance.

**vi. Roofs or other surfaces exposed to air emissions from a manufacturing building or a process area**

- The Solids Dewatering has an air scrubber that vents over the roof of the facilities
- The DAFT area located in the secondary building has an air scrubber that vents over the roof of the facilities.

**vii. Vehicle and equipment fueling, maintenance and/or cleaning (includes washing)**

- Bulk solids or liquid loading and unloading areas at the plant that are subject to rain are listed with letters corresponding to the location on the facility map, i.e.: Polymers (P), Fuel Oil (FO), TAGRO (biosolids) (T), Septage (S), Oxygen (O) and Sodium Hypochlorite (H).
- There is one facility for truck and equipment washing located in the Solids Dewatering Facility. These areas include truck wash down, car and truck cleaning and materials cleaning. All equipment maintenance cleaning areas drain to the sanitary sewer. Vehicle and equipment maintenance is done off-site by our Fleet Maintenance Division of the City.
o There are no fueling operations other than limited quantities required for small engines such as pressure washers; this is done with 5 gallon cans.

viii. Roofs or other surfaces composed of materials that may be mobilized by stormwater (e.g., galvanized roofs, galvanized fencing)
   o Galvanized railings are located throughout the site as fall protection
   o Galvanized fencing surrounds the site.
   o Are there any galvanized roofs??

ix. Inventory of Materials

Table 3-1 lists categories of materials that have potential to be present in stormwater discharges, if not otherwise controlled. An available operator is used at each of the off-load sites to monitor vendor activities and to respond to any conditions that might exists as a result of their activities. Where available, the Senior Operator in the main control room is also monitoring the vendor’s activities on the cameras system.

**Table 2-1 Material List**

<table>
<thead>
<tr>
<th>Industrial Activity</th>
<th>Materials</th>
<th>Potentially present in the Stormwater if adequate controls do not exist.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations</td>
<td>Dry Polymer</td>
<td>Polymers are delivered dry in bags on pallets. The material is stored and used within the confines of two buildings. The major use is located in the Solids Dewatering Facility for biosolids dewatering. The second use is located in the secondary building in the DAF thickeners for Raw Sludge and/or WAS removal. Exposure is not likely in normal condition.</td>
</tr>
<tr>
<td>Operations</td>
<td>Hypochlorite</td>
<td>Liquid sodium hypochlorite is delivered (usually in 4800 gallon loads) and offloaded into 10,300 gallon storage tanks (2 each). The entire area drains to the sanitary sewer. Exposure is not likely in normal conditions.</td>
</tr>
<tr>
<td>Operations</td>
<td>Liquid Oxygen</td>
<td>Liquid oxygen is delivered in bulk from tanker trucks. The liquid oxygen is stored outside the PSA building in a steel pressure tank. Liquid oxygen is very volatile at normal pressure and turns into a gas if spilled. Exposure is not likely in normal conditions.</td>
</tr>
<tr>
<td>Industrial Activity</td>
<td>Materials</td>
<td>Potentially present in the Stormwater if adequate controls do not exist.</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Operations</td>
<td>Fuel Oil</td>
<td>Fuel oil is delivered in bulk from a tanker truck to an above ground double wall steel tank (3000 gallon) for use as a backup fuel for the plant boilers. The tank is located next to the boiler building. Exposure is not likely in normal conditions</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Solvents &amp; Lubricants</td>
<td>Small quantities are delivered in cans, drums or tubes and are stored in a covered containment by the maintenance building. Exposure is not likely in normal conditions.</td>
</tr>
<tr>
<td>Operations</td>
<td>Septage</td>
<td>Septage is received at the two dump station sites connected to the sanitary sewer. One station is located at the plant headworks and the second station is located off-site. The off-site location is the primary location. The station on-site is only used in the event the off-site location is undergoing preventative or corrective maintenance. Exposure is not likely in normal conditions.</td>
</tr>
<tr>
<td>TAGRO</td>
<td>TAGRO</td>
<td>TAGRO is a blend of Class “A” biosolids, sand and sawdust. The blending process is contained under a roof structure and all catch basins go to the sanitary sewer. During the off-season TAGRO is stored on a large mixing pad that also drains to the sanitary sewer. Thickened biosolids, sand and sawdust are all stored under the roof structure. Exposure is not likely in normal conditions.</td>
</tr>
<tr>
<td>Operations</td>
<td>Ferric Chloride/ Sodium Hydroxide Polyaluminum Chloride – see below</td>
<td>Storage tanks for Ferric Chloride and 25% Sodium Hydroxide (Caustic) are located in the Peak Wet Weather (PWW) facilities and are no longer used at the facility. The Ferric Chloride has been replaced with Polyaluminum Chloride. In 2014, sodium hydroxide was eliminated from the facility. In 2015, the ferric chloride as eliminated from the facility. These tanks reside in a containment area which includes, a raised</td>
</tr>
<tr>
<td>Industrial Activity</td>
<td>Materials</td>
<td>Potentially present in the Stormwater if adequate controls do not exist.</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>and walled berm and drainage sump which the truck park over while offloading. The drains within the containment area are monitored by level control. The stormwater that accumulates in the area is periodically drained to the wastewater treatment facility.</td>
</tr>
<tr>
<td>Operations</td>
<td>Microsand</td>
<td>Microsand for use in the PWW facilities is stored under cover in the old grit dumpster building. Exposure is not likely in normal conditions.</td>
</tr>
<tr>
<td>Operations</td>
<td>Polyaluminum Chloride</td>
<td>Stored in the DAFT polymer room and also in the PWW area in three large storage tanks (2ea @5k gallons in the DAFT poly area and 1ea @15K gallons in the PWW area). Exposure is not likely in normal conditions.</td>
</tr>
<tr>
<td>Operations</td>
<td>Defoam</td>
<td>The defoam is stored in a 50 gallon drum in the PWW effluent pump room. There is also a 50 gallon drum of diluted (1:10) defoam container located on the second floor of the dewatering building on a dolly. Exposure is not likely in normal conditions.</td>
</tr>
</tbody>
</table>

**Figure 1 – Site Map**

**MATERIAL LIST**
STORMWATER BEST MANAGEMENT PRACTICES

This section describes the Stormwater Best Management Practices (BMPs) from the Washington State Department of Ecology Stormwater Management Manual for Western Washington that are appropriate for this Facility. Many of the management practices included in this Plan are routinely employed by the Facility; others are based on BMPs that have been used to reduce pollutant loads elsewhere and modified to suit the specific needs of this Facility.

OPERATIONAL BMPS

Ecology SWMM BMPs

The following Best Management Practices from Volume IV of the Washington State Department of Ecology Stormwater Management Manual for Western Washington apply to this site. The BMPs from the SWMMWWW are included as an appendix to this SWPPP. The City intends to follow all applicable sections of each BMP and the recommended portions when applicable. BMPs will be applied to the entire site - the site map provides locations where there is potential for pollutants and appropriate BMPs will be applied to those areas as necessary. When additional site specific information is needed to further describe how the BMPs will be applied that information is provided below.

S410: BMPs for Correcting Illicit Discharges to Storm Drains.
S453: BMPs for Formation of a Pollution Prevention Team
S454: BMPs for Preventative Maintenance/ Good Housekeeping
S455: BMPs for Spill Prevention and Cleanup
S456: BMPs for Employee Training
S457: BMPs for Inspections
S458: BMPs for Record Keeping
S431: BMPs for Washing and Steam Cleaning Vehicles/Equipment/Building Structures
S417: BMPs for Maintenance of Stormwater Drainage and Treatment Systems
S421: BMPs for Parking and Storage of Vehicles and Equipment
S411: BMPs for Landscaping and Lawn/Vegetation Management
S450: BMPs for Irrigation
S427: BMPs for Storage of Liquid, Food Waste, or Dangerous Waste Containers
S428: BMPs for Storage of Liquids in Permanent Aboveground Tanks
S429: BMPs for Storage or Transfer (Outside) of Solid Raw Materials, Byproducts, or Finished Products
S412: BMPs for Loading and Unloading Areas for Liquid or Solid Material
S426: BMPs for Spills of Oil and Hazardous Substances
S424: BMPs for Roof/Building Drains at Manufacturing and Commercial Buildings
S442: BMPs for Labeling Storm Drain Inlets on Your Property
S447: BMPs for Roof Vents

**BMP S453: Formation of a Pollution Prevention Team**

The Operations & Maintenance, Operations Section, Assistant Division Manager is responsible for stormwater pollution prevention activities at the Facility. The Operations & Maintenance, Operations Section, Assistant Division Manager’s role as lead and coordinator of the Pollution Prevention Team is to conduct or assign responsibility to implement the stormwater pollution prevention activities identified in the SWPPP, which include the following:

(a) Develop, maintain, implement, and modify the SWPPP as required.
(b) Hold periodic meetings to review Facility BMPs.
(c) Assign the performance of inspections and monitoring, including sampling, as required.
(d) Supervise SWPPP changes to minimize pollutant exposure to stormwater.
(e) Assign or perform communication with regulatory agencies as needed.
(f) Supervise training for SWPPP activities, including spill cleanup.
(g) Assure records are maintained on-site reports are submitted to DOE.
(h) Complete the annual SWPPP review.
(i) Obtain adequate resources to complete the activities and programs identified in the SWPPP.

The remaining members of the Pollution Prevention Team are responsible for understanding and implementing the requirements of the SWPPP in their work areas, including spill response. As members of the Pollution Prevention Team, they will receive SWPPP training. They may assist the Operations & Maintenance, Operations Section, Assistant Division Manager and may assume stormwater pollution prevention responsibilities as assigned by the Operations & Maintenance Assistant Division Manager.

Additionally, Facility employees who have duties in activities subject to the General Permit will participate in implementing the activities discussed in this Plan through training, careful attention to safe environmental practices, and a constant focus on preventive measures.

The Stormwater Pollution Prevention Team is identified below along with the associated responsibilities.

<table>
<thead>
<tr>
<th>Name</th>
<th>Division</th>
<th>Office Phone</th>
<th>After Hours Phone</th>
</tr>
</thead>
</table>

City of Tacoma Central Treatment Plant SWPPP
Tacoma, WA

Updated January 2020
<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Phone</th>
<th>Cell Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jody Bratton, P.E.</td>
<td>Operations &amp; Maintenance, Operations Section, Assistant Division Manager</td>
<td>253-502-2188</td>
<td>253-591-5595</td>
</tr>
<tr>
<td>Michael Patrick</td>
<td>Operations &amp; Maintenance, Operations Section, Operations Supervisor</td>
<td>253-404-6938</td>
<td>253-591-5595</td>
</tr>
<tr>
<td>Scott Long</td>
<td>Operations &amp; Maintenance, Operations Section, Operations Supervisor</td>
<td>253-404-6998</td>
<td>253-591-5595</td>
</tr>
<tr>
<td>Norman Cook</td>
<td>Operations &amp; Maintenance, Operations Section, Operations Supervisor</td>
<td>253-404-6983</td>
<td>253-591-5595</td>
</tr>
<tr>
<td>Todd Sundvall</td>
<td>Operations &amp; Maintenance, Operations Section, WWTP Operator</td>
<td>253-404-6944</td>
<td>253-591-5595</td>
</tr>
<tr>
<td>Frank Solorio</td>
<td>Operations &amp; Maintenance, Operations Section, WWTP Operator Senior, Day Services</td>
<td>253-404-6963</td>
<td>253-591-5595</td>
</tr>
<tr>
<td>Jonathon Barta</td>
<td>Operations &amp; Maintenance, Operations Section, WWTP Operator</td>
<td>253-591-5595</td>
<td>253-591-5595</td>
</tr>
</tbody>
</table>
BMP S455 BMPs for Spill Prevention and Cleanup

Spill Prevention and Emergency Cleanup Plan (SPECP)

The Central Treatment Plant is comprised of six main work groups; Transmission, Plant Operations, Plant & Pump Station Maintenance, Business Operations Environmental Compliance, Customer Service and TAGRO. These sections share the responsibility to ensure the Plant is implementing its Stormwater Pollution Prevention Plan and operating in compliance with its NPDES Industrial Stormwater General Permit. Key components of the plan to prevent and respond to spills include;

1. **Training:** Staff from each section receives site-specific Stormwater Pollution Prevention Plan training on an annual basis. The training is a mandatory requirement of the Industrial NPDES Stormwater Permit. Training includes an overview of the content of the SWPPP, guidance on how Plant staff working in or at the CTP can play a significant role in preventing stormwater contamination, spill response procedures and general housekeeping/maintenance requirements. Training is provided by Operations, or otherwise approved, by members in our Stormwater NPDES programs in Science and Engineering along with assistance from our Environmental Services Environmental Compliance groups.

2. **Inspections:** Operations personnel fulfill the monthly facility inspection requirement of the NPDES Permit. Inspections typically include observations of water quality at stormwater outfall locations, and overall housekeeping of equipment/material storage areas. The inspection report will describe any required corrective actions that may be necessary and confirm if past corrective actions have been completed. Also, all spill kits that have been opened in the previous month are checked during each inspection for content to ensure readiness. The spill kits have zip ties on them. If the zip tie is broken the contents are surveyed. The monthly reports are submitted to the Operations Assistant Division Manager for signature and assignment of any corrective actions to appropriate responsible work group at the CTP. Inspection reports are kept with the SWPPP for a minimum of 5 years.

3. **Spill Response:** In the event of a spill, **immediate** action must be taken to contain and remediate the spilled material. All spills must be immediately reported to the Operations Assistant Division Manager (253-502-2188) and Environmental Services/Environmental Compliance (253-502-2222). Environmental Compliance will document the incident in its Spills & Complaints database in accordance with the NPDES Permit noting the date, time, amount, location, and reason for spill; date/time cleanup is completed, notifications made and staff involved. The Operations Assistant Division Manager will keep records of spills with the SWPPP.

4. **Formal Spill Reporting:** According to Washington State law, all hazardous material and oil spills must be reported immediately by the spiller. The Operations Assistant Division
Manager, or designee, will report spills to the Department of Ecology’s Southwest Regional Office, 360-407-6300 and the National Response Center 1-800-424-8802. As noted above, all spills will be reported to Environmental Services/Environmental Compliance (253-502-2222).

5. Spill Response Contractors: Significant spills may require the use of a professional contractor. Local providers used for City spill response have been:
   - Petroleum Reclaiming Services
     (253) 383-4175
   - Certified Cleaning Services, Inc.
     (253) 536-5500
     (888) 272-8644
   - Guardian Industrial
     (253) 405-7255
   - NRC (formerly Foss Environmental)
     (800) 337-7455
   NOTE: Environmental Services/Environmental Compliance (253-502-2222) has experience with these types of contractors and may provide valuable assistance.

6. Post-Incident Review: Significant spills, or spills released to the environment, must be followed up with a post-incident review consisting of Operations, Environmental Compliance and the responsible party to determine preventative measures and response effectiveness.

**BMP S456: BMPs for Employee Training**

The Facility ensures that each employee who has duties in areas of activity subject to the General Permit is trained regarding proper spill and stormwater management. This training is conducted annually. The spill training focuses on what individuals should do if they are the first person to identify a spill. The stormwater management training focuses on acceptable methods for material handling and the management of stormwater and applicable reporting requirements. The training content outline is included in Appendix E. Upon completion of the training, employees are documented as completing this training in our SAP system by our Safety and Training Officer. An alternate for documenting this training can be through signing the Stormwater Training Completion Form (SWPPP Form 5) indicating they have attended the training. The signed Stormwater Training Completion Forms are maintained in the Facility Central Stormwater File (if used).

Additional personnel training requirements are assessed based on the outcome of the monthly inspections described above and the overall performance of the Facility stormwater program.

**BMP S457: BMPs for Inspections**
Inspections

The inspection program includes monthly Facility inspections. This inspection program is intended to assess how well the BMPs identified in this section are working. The Assistant Operations & Maintenance Division Manager will ensure the visual inspections are conducted. A member of the Pollution Prevention Team, as identified in Section 5.1.1, shall conduct the actual visual inspection.

The Monthly Stormwater Inspection Checklist provided in Appendix C (SWPPP Form 3) is used to conduct the inspection. The form includes a number of assessment topics which are not currently applicable at the Facility. However, these topics are included to ensure that if they ever become applicable (which is unlikely), they will be addressed appropriately. The results of the inspection are documented on the form. The completed form is reviewed by the Assistant Operations & Maintenance Division Manager and included in the Facility Central Stormwater File along with the SWPPP. The focus of the inspection is as follows:

1. Ensure employees who have duties in areas of industrial activity subject to the General Permit have received training as described in the SWPPP. Ensure they know where spill cleanup kits and materials are located and how to respond to spills. A random sampling shall be conducted to assess the requirement.

2. Determine by inspection if potential spills of significant materials or industrial activities can impact stormwater runoff. Note all spills. Additionally, ensure that spill containment kits are located as appropriate inside and outside the Facility buildings.

3. Determine if stormwater control measures, structures, catch basins, and treatment facilities are operating as designed and clean from oils, debris, sludge, etc. Catch basins shall be cleaned when the depth of the debris reaches 60% of the sump depth or if sediment is within 6” of the inlet pipe.

4. Ensure there is no discharge of unpermitted liquid or solid wastes, process wastewater (i.e., waste product or components and any other non-stormwater discharge associated with the Facility), and sewage to ground or surface water, or to storm drains which discharge to surface water, or to the ground. At least one of these inspections shall be performed during the dry season (May - September) after at least seven (7) consecutive days of no precipitation.

5. Ensure floor drains in potential pollutant source areas are not connected to storm drains, surface water, or to the ground.

6. Ensure that industrial operations occur inside the Facility buildings or under a cover and/or containment.

7. Ensure that maintenance and repair of equipment occurs inside the Facility buildings or other covered and/or impervious containment area that is sloped to prevent run-on of uncontaminated stormwater and/or runoff of contaminated stormwater. Although not a normal practice, if equipment or trucks are maintained outside the Facility buildings, ensure that drip pans are carefully used to contain any small leaks or spills.

8. Ensure that the secondary containment for the storage of oil drums and any chemical containers stored in a manner that potential spills could reach the outside of the Facility buildings is capable of containing 110 percent of largest container capacity with no leaks.
9. Ensure that drip pans are used to collect leaks and spills from any industrial/commercial equipment such as industrial machinery and parts, trucks and other vehicles, which are stored outside.

10. Ensure that all liquid products are stored using containers, such as steel and plastic drums, that are rigid and durable, corrosion-resistant to the weather and fluid content, non-absorbent, water-tight, rodent-proof, and equipped with a close fitting cover.

11. Ensure that garbage and recyclables stored outdoors are placed in dumpsters, garbage cans, drums and comparable containers, which are durable, corrosion-resistant, non-absorbent, non-leaking, and equipped with a solid cover.

12. Ensure that outdoor containers, piping, tubing, pumps, fittings, and valves that are exposed to stormwater and contain stormwater pollutants are made of weather-resistant material and are in good condition.

13. Verify the description of the pollutant sources identified in the SWPPP (Table 3-1) and the Site Map (Appendix A) are accurate.

14. Verify all BMPs identified are being implemented as necessary.

15. In general, ensure that the stormwater pollutant controls (BMPs) being implemented are adequate.

16. Conduct inspections to ensure outstanding issues identified in previous inspections have been addressed.

17. Ensure that bare soil exposed to stormwater is either planted with grass or native vegetation, landscaped beds, covered with rock gravel, or paved to eliminate erosion.

18. Visually inspect the Discharge Points (indicated on Figure 1) and determine whether the following conditions are present: (1) presence of floating materials, (2) suspended solids, (3) oil and grease, (4) visible oil sheen, (5) discoloration, (6) turbidity obviously greater than benchmark, and (7) odor.

19. Ensure that the site map is current and accurate.

Maintenance and/or Corrective Action

Based on the outcome of the inspection described above, maintenance and or corrective action may be required. The Assistant Operations & Maintenance Division Manager will ensure the maintenance and/or corrective actions are/is completed. Following the completion of the maintenance and/or the corrective action, the Stormwater Maintenance/Corrective Action Form provided in Appendix D (SWPPP Form 4) will be completed and maintained in the Facility Central Stormwater File.

The Facility anticipates maintenance actions associated with cleaning of stormwater management features (e.g., a catch basin) and maintaining the cleanliness of any outdoor storm drainage surface (e.g. vehicle parking areas). The Facility has established an internal goal of performing all maintenance and/or conducting necessary corrective actions no later than 30 days following their identification in the Monthly Stormwater Inspection Checklist (SWPPP
Form 3). It should be noted that this schedule for conducting corrective action is not a regulatory requirement but an internal goal.

**Structural Stormwater Best Management Practices**
Most activities are performed under cover. See the site map.
APPENDIX A

SWPPP REVIEW/REVISION FORM
<table>
<thead>
<tr>
<th>SWPPP FORM 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWPPP REVIEW/REVISION FORM</td>
</tr>
</tbody>
</table>

_Forward to the Operations & Maintenance Operations Section, Assistant Division Manager upon completion for review and filing in the Facility Central Stormwater File_

<table>
<thead>
<tr>
<th>To be Completed at least Annually</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Is the revision to the SWPPP due to a change in the Facility operation?  Yes___ No___</td>
</tr>
<tr>
<td>If Yes, describe the revision:</td>
</tr>
<tr>
<td>2. Is the revision to the SWPPP in response to the comparison of the stormwater runoff grab sample monitoring results to the effluent limitations provided in the Section 4.0 of the SWPPP and the General Permit?  Yes No___</td>
</tr>
<tr>
<td>If Yes, describe the revision:</td>
</tr>
<tr>
<td>3. Is the revision to the SWPPP due to improvements and adaptive management of stormwater?  Yes___ No___</td>
</tr>
<tr>
<td>If Yes, describe the revision:</td>
</tr>
</tbody>
</table>

3. Approval of Review/Revision Form

_Name of Individual Conducting Review or Proposing Change:

Name: __________________________ Date: ____________________

Approval of Review/Revision by Operations Division Manager

_Name: __________________________ Date: ____________________

City of Tacoma Central Treatment Plant SWPPP
Tacoma, WA 18  Updated January 2020
APPENDIX B

SPILL REPORTING FORM
### SWPPP FORM 2

**SPILL REPORTING FORM**

*Forward to the Operations & Maintenance Operations Section, Assistant Division Manager upon completion for review and filing in the Facility Central Stormwater File*

<table>
<thead>
<tr>
<th>Exact Facility Address and Telephone Number:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Company Name:</strong> City of Tacoma</td>
</tr>
<tr>
<td><strong>Facility Name:</strong> Central Treatment Plant</td>
</tr>
<tr>
<td><strong>Facility Address:</strong> 2201 Portland Avenue, Tacoma WA, 98421-2711</td>
</tr>
<tr>
<td><strong>Facility Phone Number:</strong> 253-591-5595</td>
</tr>
</tbody>
</table>

Spill Date and Time: ____________________________

Type of Material Spilled (for example, lubricating oil): ____________________________

Estimated Quantity Spilled: ____________________________

Estimated Quantity Entering Navigable Waters (not Facility drainage): ____________________________

Source of Spill: ____________________________

Description of Affected Area (for example, spill covered paved area 80 feet long by 20 feet wide):

_________________________________________________________________________

Cause of Spill: ____________________________

Injuries or Damages: ____________________________

Should a Corrective Action Form (SWPPP Form 4) be completed for tracking corrective action?

_________________________________________________________________________

Evacuation Needed? ____________________________

Names of Parties Contacted: ____________________________

Name of The Facility Representative Making the Contact? ____________________________

**Person completing this report:** ____________________________  **Date:** ____________________________
APPENDIX C

MONTHLY STORMWATER INSPECTION CHECKLIST
## SWPPP FORM 3
### MONTHLY STORMWATER INSPECTION CHECKLIST

Forward to the Operations & Maintenance Operations Section, Assistant Division Manager upon completion for review and filing in the Facility Central Stormwater File

**A. Name(s) of Personnel Performing the Inspection:**

**B. Date of the Inspection:**

**C. Time of Inspection**

**C. Conditions during Inspection (i.e., raining for past 24 hours, no rain for past 7 days, etc.):**

Note: Describe the locations visited during the inspection for each element on the checklist under Comments. Additionally, describe the observations in adequate detail so they may be understood without further explanation.

**D. SWPPP/Inspection Checklist**

| 1. Ensure employees who have duties in areas of activity subject to the General Permit have received training as described in the SWPPP. Ensure they know where spill cleanup kits and materials are located and how to respond to spills. A random sampling shall be conducted to assess the requirement. Yes___ No___ |
| Comments: |

| 2. Determine by inspection if potential spills of significant materials or industrial activities can impact stormwater runoff. Note all spills. Additionally, ensure that spill containment kits are located as appropriate inside and outside the Facility buildings. Yes___ No___ |
| Comments: |

| 3. Determine if stormwater control measures, catch basins, pumps, and treatment facilities are operating as designed and clean from oils, debris, sludge, etc. Yes___ No___ |
| Comments: |

<p>| 4. Ensure there is no discharge of unpermitted liquid or solid wastes, process wastewater (i.e., waste product or components and any other non-stormwater discharge associated with the Facility), and sewage to ground or surface water, or to storm drains which discharge to surface water, or to the |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5.</td>
<td>Ensure floor drains in potential pollutant source areas are not connected to storm drains, surface water, or to the ground.</td>
<td>Yes</td>
<td>No</td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Ensure that industrial operations occur inside the Facility buildings or under a cover and/or containment.</td>
<td>Yes</td>
<td>No</td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Ensure that maintenance and repair of equipment occurs inside the Facility buildings or other covered and/or impervious containment area that is sloped to prevent run-on of uncontaminated stormwater and/or runoff of contaminated stormwater. Although not a normal practice, if equipment or trucks are maintained outside the Facility buildings, ensure that drip pans are carefully used to contain any small leaks or spills.</td>
<td>Yes</td>
<td>No</td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Ensure that the secondary containment for the storage of tanks, oil drums and any chemical containers stored in a manner that potential spills could reach the outside of the Facility buildings is capable of containing 110 percent of largest container capacity with no leaks.</td>
<td>Yes</td>
<td>No</td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Ensure that drip pans are used to collect leaks and spills from any industrial/commercial equipment such as industrial machinery and parts, trucks and other vehicles, which are stored outside.</td>
<td>Yes___ No___</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Ensure that all liquid products are stored using containers, such as steel and plastic drums, that are rigid and durable, corrosion-resistant to the weather and fluid content, non-absorbent, water-tight, rodent-proof, and equipped with a close fitting cover.</td>
<td>Yes___ No___</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Ensure that trash and garbage stored outdoors are placed in dumpsters, garbage cans, drums and comparable containers, which are durable, corrosion resistant, non-absorbent, non-leaking, and equipped with a solid cover.</td>
<td>Yes___ No___</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Ensure that outdoor containers, piping, tubing, pumps, fittings, and valves that are exposed to stormwater and contain stormwater pollutants are made of weather-resistant material and are in good condition.</td>
<td>Yes___ No___</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Verify the description of the pollutant sources identified in the SWPPP (Table 3-1) and the Site Map (Figure 1) are accurate.</td>
<td>Yes___ No___</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Description</td>
<td>Yes</td>
<td>No</td>
<td>Comments</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----</td>
<td>-----</td>
<td>----------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Verify all BMPs identified with <strong>bold and italics</strong> in Table 5-3 are being implemented.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes___ No___</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>In general, ensure that the stormwater pollutant controls (BMPs) being implemented are adequate.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes___ No___</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>Conduct inspections to ensure outstanding issues identified in previous inspections have been addressed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes___ No___</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>Ensure that bare soil exposed to stormwater is either planted with grass or native vegetation, landscaped beds, covered with rock gravel, or paved to eliminate erosion.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes___ No___</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>Visually inspect the Discharge Points SWO Manholes #140 and #57 (indicated on Figure 1) and determined whether the following conditions are present: (1) presence of floating materials, (2) suspended solids, (3) oil and grease, (4) visible sheen, (5) discoloration, (6) high turbidity, and (7) odor.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes___ No___</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>Are there any general observations not identified in the proceeding sections?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes___ No___</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# SWPPP FORM 3
## MONTHLY STORMWATER INSPECTION CHECKLIST

*Forward to the Operations & Maintenance Operations Section, Assistant Division Manager upon completion for review and filing in the Facility Central Stormwater File*

**Comments:**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>20.</td>
<td>In the judgment of the person conducting the site inspection and the Division Manager, the CTP is in compliance with the terms and conditions of the SWPPP and the ISWGP.</td>
</tr>
<tr>
<td></td>
<td>Yes___ No___</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
</tr>
</tbody>
</table>

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>E. Signature indicating inspection was completed.</strong></td>
<td></td>
</tr>
<tr>
<td>I certify that this report is true, accurate, and complete, to the best of my knowledge and belief.</td>
<td></td>
</tr>
<tr>
<td>Name of Individual(s) Conducting Inspection:</td>
<td>Date:</td>
</tr>
<tr>
<td>Review by Operations Division Manager Name:</td>
<td>Date:</td>
</tr>
</tbody>
</table>
APPENDIX D

STORMWATER MAINTENANCE/
CORRECTIVE ACTION FORM
<table>
<thead>
<tr>
<th><strong>1. What is the issue being resolved through the corrective action:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td><strong>2. Who performed the maintenance or corrective action:</strong></td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>3. What date was the maintenance or corrective action completed:</strong></td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>4. Describe the maintenance or corrective action performed:</strong></td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>5. Describe whether any follow-up evaluation should be performed to ensure the maintenance or corrective action is effective:</strong></td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>6. Signature indicating the maintenance or corrective action is complete:</strong></td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td><strong>Operations Division Manager:</strong>                                                                 <strong>Date:</strong></td>
</tr>
</tbody>
</table>

“I certify that this report is true, accurate, and complete to the best of my knowledge and belief.”
APPENDIX E

STORMWATER TRAINING OUTLINE

AND COMPLETION FORM
City of Tacoma Central Treatment Plant

SWPPP Training Outline

1. Purpose of the Industrial Stormwater General Permit and purpose of the Stormwater Pollution Prevention Plan. Role of employees in preventing stormwater contamination.

2. Industrial activities and potential pollutant sources (SWPPP, Section 3.0)
   a. Loading and unloading of materials
   b. Indoor storage of materials and products
   c. Outdoor Processing
   d. Processes that generate dust and particles
   e. Roofs and other surfaces exposed to air emissions from a process area
   f. On-site waste treatment, storage, and disposal
   g. Vehicle and equipment fueling, equipment maintenance, and/or cleaning
   h. Paved areas and buildings
   i. Underground storage of materials and products
   j. Materials that may contaminate stormwater (SWPPP, Table 3-1)

3. Stormwater monitoring (SWPPP, Section 4.0)

4. Best Management Practices (BMPs) (SWPPP, Section 5.0)
   a. Pollution Prevention Team
   b. Good Housekeeping
   c. Inspections
   d. Preventative maintenance and corrective action
   e. Spill prevention and emergency clean-up
   f. Employee training
   g. Management overview
   h. Source-specific BMPs (SWPPP, Section 5.2)
**SWPPP FORM 5**  
**STORMWATER TRAINING COMPLETION FORM**

*Forward to the Operations & Maintenance Operations Section, Assistant Division Manager upon completion for review and filing in the Facility Central Stormwater File*

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Date of training (must be conducted at least annually):</td>
<td></td>
</tr>
<tr>
<td>2. Description of training provided (should be consistent with the training requirements from the SWPPP):</td>
<td></td>
</tr>
<tr>
<td>3. Personnel who attended the training:</td>
<td></td>
</tr>
<tr>
<td>Employee Name</td>
<td>Signature</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Signature of training instructor indicating the information on this form is accurate:</td>
<td></td>
</tr>
<tr>
<td>Name:________________________ Date:______________</td>
<td></td>
</tr>
<tr>
<td>Position:________________________</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX F

STORMWATER MONITORING

DATA REPORTING FORM
SWPPP FORM 6
STORMWATER MONITORING DATA REPORT FORM

*Forward to the Operations & Maintenance Operations Section, Assistant Division Manager upon completion for review and filing in the Facility Central Stormwater File*

1. General Information
   a. Date of the Sampling Event:
   b. Sampling Location:
   c. Was adequate stormwater available for sampling:  Yes___ No___
      (If no sample could be obtained, explain why.)
      Comments:

2. Information Regarding Sampling of Stormwater at Discharge Point
   a. What date(s) were the analyses performed?
   b. Who performed the analyses?
   c. What analytical techniques or methods were used?
   d. Was sampling equipment (excluding bottles provided by the analytical laboratory) washed with a non-phosphate detergent and rinsed thoroughly prior to the sampling effort, if applicable?  Yes___ No___
   **Sample Results**
   e. NTU:
   f. Flow Rate:
   g. Temperature:
   h. pH:

3. Approval
   Name of Person Performing the Sampling:

   Signature and Date:
APPENDIX G

SAMPLING PLAN

HTTPS://FORTRESS.WA.GOV/ECY/PUBLICATIONS/DOCUMENTS/1503044.PDF
APPENDIX H

BEST MANAGEMENT PRACTICES

(BMPs)
SECTION 01_41_50
ENIRONMENTAL AND SUSTAINABILITY MANAGEMENT SYSTEM (ESMS)

PART 1 GENERAL

1.01 SUMMARY
A. Section includes: Requirements and procedures for complying with the Owner’s Environmental and Sustainability Management System (ESMS).

1.02 REFERENCES
A. Comply with requirements of Environmental Sustainability Management System Sections 4.4.6-6 “Contractor Management Environmental Manual” and the “Contractor and Vendor Environmental and Sustainability Management System Information Sheet”.

1.03 DEFINITIONS
A. Environmental Sustainability Management System (ESMS) documents practices and procedures required by the Environmental Services Department to satisfy the requirement of ISO 14001 certification.

1.04 SUBMITTALS
A. Contractor/Vendor Acknowledgment and Agreement.
B. ESMS Contractor Environmental Review Form.
C. Training records for Contractor personnel, subcontractors and suppliers.
D. Qualifications.

PART 2 PRODUCTS
Not Used.

PART 3 EXECUTION

3.01 OWNER’S RESPONSIBILITY:
A. One (1) onsite ESMS training to the Contractor. On-site training will not exceed 60 minutes.

3.02 CONTRACTOR WILL:
A. Provide training of all employees, subcontractors, and vendors in accordance with training requirements, as per ESMS documents and procedures. Contractor shall
provide additional training as needed due to personnel changes throughout the project.

B. Verify and complete of all forms listed under submittals in this specification. Forms are required to be uploaded into e-Builder as submittals.

C. Notification to the responsible ESMS on-site representative of planned activities and submission/approval of any required on-site ESMS forms as may be required.

END OF SECTION
Welcome. The City of Tacoma Central Treatment Plant (CTP) operates under an ISO 14001 Environmental and Sustainability Management System (ESMS). An ESMS is a process with procedures that will allow the CTP to operate legally, safely, and efficiently while reducing the environmental impacts of our activities. All contractors and vendors are required to comply with the ESMS and Environmental Policy published on the other side of this document. As part of the ESMS the CTP has identified the following four Significant Environmental Aspects:

- **Air Emissions:** Convert 40% of biogas emissions to fuel
- **Energy Conservation:** Reduce annual energy use by 2%
- **Resource Consumption:** Reduce impacts from fleet vehicles and deliveries
- **Water Conservation:** Optimize the use of water sources

Contractors and vendors must ensure that their activities do not negatively affect the Significant Environmental Aspects.

All contractors and vendors are required to adhere to the following safety rules and requirements:

**GENERAL SAFETY RULES**

- **Restricted Access:** Contractors and vendors shall stay within the designated areas.
- **Smoking:** Smoking is prohibited in the buildings and within 25 feet of windows and doors.
- **Eye and Hearing Protection:** Eye and Hearing protection is required in designated areas. Designated hearing protection areas are marked with appropriate signs.
- **Accidents, Near Misses, and First Aid:** Contractors, truck drivers and visitors are required to report all accidents, near misses, and first aid incidents to a City employee.
- **Drugs and Alcohol:** Alcoholic beverages and illicit drugs are prohibited on City property.
- **Guns:** Contractors are prohibited from carrying guns on City property.
- **Emergency Procedures:** Follow directions announced over Public Address system or from CTP employees. To report a fire or emergency, contact any CTP employee.
- **Vehicle Safety:** Be aware and cautious of vehicle and pedestrian traffic.

**CONTRACTOR REQUIREMENTS**

Contractors are expected to understand and comply with all federal, state and local safety regulations and work practices applicable to the activities they perform. These include, but are not limited to:

- Storage, handling and use of flammable liquids and hazardous materials and hazardous wastes
- Periodic safety inspections and housekeeping.
- Use of fall protection while working at heights.
- Following electrical safety practices and lock out /tag out procedures.
- Proper use of Personal Protective Equipment.
- Proper maintenance and use of ladders and other equipment.
- Contractors are responsible for removing and the proper disposal of any hazardous materials or hazardous wastes utilized or generated while on-site at the CTP.
- Contractors may not dispose of any chemical or waste on-site.
- Contractors must notify the Project Manager immediately of any spills or leaks.
- Requirements as outlined in the signed contract or agreement to perform the contracted work.

Agreements acknowledging you have read and understood this information must be signed prior to starting work. It is the responsibility of the contracting company to ensure anyone working for or on their behalf adheres to these requirements.
ESMS Policy – 5.2-2 Environmental Policy

The City of Tacoma, Environmental Services Department believes that everything we do supports healthy neighborhoods and a thriving Puget Sound, leaving a better Tacoma for all.

As such, the Environmental Policy serves as written communication of the department’s intent to implement sustainable, innovative solutions that measure and improve our environmental performance through a formal Environmental and Sustainability Management System (ESMS).

Through this policy the City of Tacoma, Environmental Services Department commits to:

- Environmental protection and sustainability in the planning stages of new programs, construction, and in all work conducted;
- Compliance with all applicable local, state, and federal regulations and policies verified and supported by regularly-scheduled internal reviews;
- Minimization of significant environmental impacts identified in the ESMS by establishing environmental and sustainability objectives, targets, and programs;
- Evaluation of the effectiveness of the environmental performance to ensure that established objectives, targets, and programs are met;
- Provide necessary education and tools to all staff and those working on their behalf in order to successfully carry out this policy in their daily responsibilities and work functions; and
- Strive for continuous improvements in sustainability through life cycle thinking, environmental consciousness, and pollution prevention.

The City of Tacoma, Environmental Services Department’s Environmental Policy will be communicated to all staff and those working on their behalf, including all contractors and vendors, and will be made available to the public via the City of Tacoma, Environmental Service Department’s website. In order to fulfill the commitments made in this policy, all staff and those working on their behalf are responsible for incorporating this policy into their plans and work.

Michael P. Slevin III, P.E.
Environmental Services Director

19 Jun 18
Date
Contractor/Vendor Acknowledgement and Agreement

Company Name: _______________________________________________________

The undersigned hereby acknowledges receiving the contractor/vendor informational materials for the City of Tacoma, Central Wastewater Treatment Plant, Environment and Sustainability Management System (ESMS). We further acknowledge having the responsibility to provide the training to all personnel who will be working on the property. We further agree to abide by all environmental regulations and policies whenever on the property. Sign-in sheets will be maintained as evidence that the ESMS training has been conducted and will be made available upon request. The Project Manager, primary City staff contact for the contract, or designee will communicate applicable changes to the ESMS to my company. Retraining of affected individuals will be conducted, as needed.

Contractor/Vendor Training Acknowledgment

Primary Company Contact: _______________________________________________
Title: _________________________________________________________________
Phone: ____________________________  Fax: ___________________________
Email: ____________________________

Secondary Company Contact: ____________________________________________
Title: ________________________________________________________________
____________________________________________________________________
Phone: ____________________________  Fax: ___________________________
Email: ____________________________

_______________________________________________   _______________
Signature  Date

For questions or additional information contact the designated City contact as outlined in the contract.

Return the completed signed copy to the City of Tacoma staff contact.

For City use only:

_______________________________________________   _______________
Project Manager/Project Lead  Date

Retain a copy of the completed agreement with the contract and submit a copy to the
ESMS Procedure – 4.4.6-6 Contractor Management Environmental Manual

Person Responsible: James G. Parvey, P.E.
Area of Application: Central Wastewater Treatment Plant
Document Location: eO&M Manual
Original Issue Date: January 12, 2015

Revision History

<table>
<thead>
<tr>
<th>Change #</th>
<th>Date of Change</th>
<th>Summary of Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>2/5/15</td>
<td>Updated text for consistencies.</td>
</tr>
<tr>
<td>002</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Procedure Index

1.0 Introduction ..................................................................................................................... 2
2.0 General Environmental Management Procedures ........................................................... 2
3.0 Waste Disposal ............................................................................................................. 3
4.0 Equipment Decommissioning .......................................................................................... 3
5.0 Water Discharges........................................................................................................... 3
6.0 Material Storage / Spills .............................................................................................. 3
7.0 Stormwater Management ................................................................................................. 4
8.0 PCBs ............................................................................................................................... 4
9.0 Asbestos ......................................................................................................................... 4
10.0 Lead ............................................................................................................................... 4
11.0 CFCs ............................................................................................................................. 5
12.0 Contractor Environmental Review ................................................................................... 5
1.0 Introduction

References to the “Contractors” includes anyone working for or on behalf of the contracting company, including contractors, subcontractors, vendors, and suppliers at the Central Wastewater Treatment Plant (CTP). It is the responsibility of the contracting company to ensure anyone working for or on their behalf adhere to these requirements.

1.1 The following information is supplied to contractors who perform work onsite for CTP. The information presented in these guidelines has been developed in response to the Environmental and Sustainability Management System (ESMS) developed for CTP. The intent of this information is to make Contractors aware of the ESMS and to ensure conformance to applicable ESMS procedures and work instructions.

1.2 An important part of the ESMS relates to the control of Contractors who are required to comply with relevant environmental policies and procedures. Contractors, working for or on behalf of CTP must be aware of the importance of compliance with relevant environmental legislation and regulations, and of the consequence of non-compliance. Contractors and City of Tacoma personnel must work together to achieve the goals of the ESMS in order to protect the environment.

1.3 The CTP operates an ESMS that meets the requirements of International Organization of Standardization 14001 standard. Conformance with the environmental policy and all requirements noted in this document is required of all Contractors while working onsite. Failure to follow these requirements can be grounds for termination of the onsite contract work.

1.4 For further information, please contact the individual assigned to oversee the project at CTP herein referred to as the Project Manager.

2.0 General Environmental Management Procedures

2.1 Contractors will not transport hazardous chemicals onsite without having prior knowledge of the associated Safety Data Sheets (SDS). These materials include but are not limited to sealers, adhesives, paints, coatings, fuels, oils, acids and caustics. All sizes of containers require review and approval before their use onsite.

2.2 Contractors will provide adequate control of fugitive dust emissions during all operations and activities.

2.3 Contractors will not discharge anything directly or indirectly to the stormwater system or wastewater system without the prior approval of the Project Manager or designee.

2.4 Contractors will provide adequate spill/release prevention for all bulk materials.

2.5 Contractors will immediately notify the Project Manager of any reportable spills, releases or other environmental incidents. Contractors will follow up by submitting a written report of any spills or releases.

2.6 Contractors will properly label, store and dispose of all waste materials.

2.7 Contractors will be sensitive to the effects of noise, odor, light, and traffic movement to the local community.

2.8 All contractors shall practice good housekeeping. Contractors are responsible for the proper disposal of all waste materials generated by their activities. Contractors are responsible for keeping the site clean and orderly.

2.9 Contractors will not engage in any excavation activities onsite without the prior approval of the Project Manager.
3.0 Waste Disposal

3.1 The Contractor shall provide all equipment, personnel, and materials necessary to load, transport, and dispose of waste materials, including contaminated soils and debris, for off-site treatment or disposal in accordance with federal, state and local regulations.

3.2 The Project Manager must be informed of all generated hazardous waste streams before a waste is generated and collected onsite.

3.3 The Project Manager must be informed of the location of all generated hazardous waste storage areas, maximum quantities and the container type.

3.4 Containers must be labeled with their contents and the responsible Contractor's name and contact information. No unlabeled containers are permitted onsite.

3.5 Shipping information and paperwork (SDS, waste profiles, bills of lading and inventory) must be provided upon request.

3.6 Contractors are responsible for all regulated wastes.

4.0 Equipment Decommissioning

4.1 All equipment will be thoroughly inspected by Contractors for fluids and other hazardous materials prior to removal.

4.2 All fluids and other hazardous materials will be removed prior to decommissioning and disposal of any waste generated will be handled in accordance with the above instructions in 3.0.

5.0 Water Discharges

5.1 Discharge of materials to any stormwater system or wastewater system, is prohibited without a Special Approved Discharge (SAD) permit and the prior consent of the Project Manager.

5.2 Discharges of any material besides clean stormwater runoff to the stormwater system are prohibited under the established guidelines of the Tacoma Municipal Code as mandated by the Clean Water Act.

5.3 In the event that the Project Manager approves discharges to the stormwater system or wastewater system, the CTP Managers must be notified prior to discharges of any significant volume or any discharges that could affect the operations of CTP.

6.0 Material Storage / Spills

6.1 There will be no outside storage of any chemical materials without the consent of the Project Manager.

6.2 Approved outside storage areas for chemical materials must be equipped with non-earthen secondary containment equal to 150% of the capacity of the largest container by Contractors.

6.3 Contractors will ensure that all material containers they own or manage will be properly labeled in accordance with the OSHA hazard communication standard (i.e., contents, primary hazard).

6.4 Contractors will have available the SDS for all chemical products in use at all times that their employees are working onsite. SDS’s shall be made available upon request.

6.5 Contractors will ensure that chemical containers are closed except when in use.
6.6 Contractors will maintain spill kits to contain and clean up spills they cause. Spill kits will be kept on site and will be easily accessible during an emergency.

6.7 Contractors will immediately report all spills or releases of materials other than incidental spills to the 24 Hour Sewer Emergency Line at 253-591-5585. Contractors will follow up by submitting a written report on the spill or release to the Project Manager.

7.0 Stormwater Management

7.1 No process materials or any other pollutants shall be allowed to contact stormwater runoff.

7.2 Sediments and pollutants must be prevented from entering the stormwater system or wastewater system. Roadways and outside areas must be kept clean. Track out is prohibited.

7.3 It is the Contractors responsibility to install temporary erosion and sediment control measures to ensure pollutants do not enter the stormwater system or wastewater system. Refer to City of Tacoma Stormwater Management Manual (SWMM) Volume 2 and Volume 4 for activity specific Best Management Practices (BMPs).

7.4 All stockpiles must be covered per SWMM, BMP C123: Plastic Covering or BMP S105: Cover the Activity with an Anchored Tarp or Plastic Sheet or a City of Tacoma approved equivalent to prevent potential pollutants from entering the stormwater system or wastewater system.

7.5 Vehicle maintenance shall not be performed over or near stormwater catch basins unless provisions have been made to contain any spills of vehicle fluids, including oil, gasoline and antifreeze.

7.6 In the event that a Construction Stormwater Pollution Prevention Plan (CSWPPP) is required (i.e. add or replace greater than 2,000 square feet of impervious surface or disturb more than 7,000 square feet of land), the plan will be submitted to the Project Manager for approval, prior to beginning work.

8.0 PCBs

8.1 If a material is suspected to have PCB contamination, the Project Manager is to be notified.

8.2 All PCB removal and disposal activities will be conducted in accordance with procedures approved by the Project Manager and shall follow the guidelines noted in 3.0 Waste Disposal.

8.3 Any lighting ballast that does not state that it is a ‘non-PCB containing ballast’ must be disposed of as PCB containing.

9.0 Asbestos

9.1 Contractors will contact the Project Manager prior to any construction or demolition work that could disturb existing structures or equipment that contain or suspected to contain asbestos.

9.2 All asbestos removal and disposal activities will be conducted in accordance with procedures approved by the Project Manager and shall follow the guidelines noted in 3.0 Waste Disposal.

10.0 Lead
10.1 Contractors are responsible for testing for the presence of lead based paints when grinding or welding on building or building structural steel. Testing will be done by an approved certified lab approved by the Project Manager.

10.2 All lead removal and disposal activities will be conducted in accordance with procedures approved by the Project Manager and shall follow the guidelines noted in 3.0 Waste Disposal.

11.0 Dangerous or Hazardous Wastes.

11.1 Persons involved in the handling, cleaning up, and corrective actions associated with Dangerous Waste or Hazardous Waste are to be currently certified, at a minimum, to the forty (40) hour HAZWOPER level – 29 CFR 1910.120

12.0 CFCs

12.1 Contractors will provide copies of employee training certificates to the Project Manager upon request.

12.2 Intentional venting of chlorofluorocarbons (CFCs) to the atmosphere is prohibited.

13.0 Contractor Environmental Review

13.1 Upon request, contractors are to submit the following form which contains written information outlining their activities and procedures for minimizing and managing the actual or potential environmental impacts of their operations. This must include an assessment of the potential risks to the environment, contractors, employees and other personnel associated with onsite activities and proposed measures for minimizing these risks.
ESMS Contractor Environmental Review Form

This form must be filled out by the Contractor, signed by the Contractor and reviewed by Project Manager, and returned before the contracted work commences.

Information:
Company Name: ______________________________________________________________
Contact Name: ____________________________  Title: ____________________________
Address: _________________________________  City: _________________  State: ____
Phone: __________________________  Email: ____________________________________
Secondary Contact: ____________________________  Phone: _______________________

Activities or Work Description:
Project Location at CTP: ________________________________________________________

Briefly describe the activities or work to be undertaken by your company at the CTP site.

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

Air Emissions:
Will the activities or work you perform produce or cause the release of any air emissions?
☐ Yes        ☐ No
If yes, list the air emissions and the method for preventing impact to the environment.
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

Water Discharges:
Will the activities or work you perform produce or cause the release of any wastewater?
☐ Yes        ☐ No
If yes, how will the wastewater be handled?
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
Materials:
What materials (chemicals, oils, etc.) and/or equipment will you be handling or bringing on site to perform the contracted work?

____________________________________________________________________________
____________________________________________________________________________

Training:
Your employees should be trained on the proper handling of materials and equipment, and the proper response to incidents involving these materials. Describe the training that your employees receive.

____________________________________________________________________________
____________________________________________________________________________

Waste Generation:
Will the activities or work you perform result in the generation of any wastes? □ Yes □ No
If yes, list the amounts and the types of wastes expected and the proposed disposal method.

____________________________________________________________________________
____________________________________________________________________________

Are any waste generated to be recycled? □ Yes □ No
If yes, list the recyclables, where and how they will be recycled.

____________________________________________________________________________
____________________________________________________________________________

Energy:
Will the activities or work consume energy (electricity, compressed air, natural gas, steam, etc.)? □ Yes □ No
If yes, explain what type of energy will be consumed, and how you will minimize consumption.

____________________________________________________________________________
____________________________________________________________________________

Other:
Are there any other ways in which your activities will affect or protect the environment? □ Yes □ No
If yes, please describe below.

____________________________________________________________________________
____________________________________________________________________________
Environmental Agreement

My company and subcontractors that I may bring to the site will abide by all environmental regulations and policies whenever on the property. My company will train all personnel contracting on the property. Evidence that environmental training has been conducted for all applicable staff will be maintained and made available upon request. The Project Manager will communicate applicable changes of the Environmental and Sustainability Management System to my company. Retraining of affected individuals will be conducted, as appropriate.

For questions or additional information contact the Project Manager.

Print Name: ______________________________  Title: ____________________________
Signature: _________________________________________  Date:___________________

The following will be completed by the Project Manager:

Review and Approval:
A review of the above-submitted document has been found to be:

☐ Complete – approved, no further action is needed.
☐ Incomplete – a response must be received by: _________________________

Signature:_________________________________________________________  Date:___________________
ESMS Document – 8.1-2-1 Operational Control Environmental Checklist

The following information is required prior to contracted activity or service.

Check yes or no to identify which of the following will be included in the contracted activity or service.

**Combustion Sources:**
- Air heating and supply .......................................................... □ Yes □ No
- Mobile transportation .......................................................... □ Yes □ No  
  (*i.e. forklift or carts*)
- Construction activities .................................................. □ Yes □ No
- Excavation or grading .................................................. □ Yes □ No
- Drilling or blasting ........................................................ □ Yes □ No
- Rock crushing .............................................................. □ Yes □ No
- Demolition .......................................................... □ Yes □ No
- Welding or soldering .................................................... □ Yes □ No
- Painting .......................................................... □ Yes □ No
- Asphalt paving .......................................................... □ Yes □ No
- Use or storage of chemicals or fuels ................................ □ Yes □ No
- Transfer of bulk materials ............................................ □ Yes □ No
- Disposal of chemical wastes ......................................... □ Yes □ No
  *If yes, please describe waste streams.*

**Building Maintenance Activities:**
- Architectural paint removal ........................................ □ Yes □ No
- Architectural painting .................................................. □ Yes □ No
- Hydroblasting .......................................................... □ Yes □ No
- Sandblasting .......................................................... □ Yes □ No
- Surface preparation/treatments ..................................... □ Yes □ No  
  (*i.e. floors and roof repair*)
- Purging or repair of distribution lines ................................ □ Yes □ No  
  (*i.e. those for fuel, oil or solvents*)
- Use of chemicals, solvents, corrosives, acids, oils, etc. .... □ Yes □ No
- Use of herbicides, pesticides, or insecticides .............. □ Yes □ No
Business or Work Related Activities:

- Use or receipt of chemical materials (other than janitorial or cleaning materials) □ Yes □ No
- Generation and disposal of chemical wastes □ Yes □ No
- Generation of sealers, adhesives, coatings, or paints □ Yes □ No
- Welding, soldering, brazing or similar activities □ Yes □ No
- Use of caustics or acids □ Yes □ No
- Use of combustion gases □ Yes □ No
  If yes, please list the fuels used:
- Laboratory installation □ Yes □ No
- Medical waste □ Yes □ No
- Discharge to storm drains □ Yes □ No

To be completed by the City of Tacoma, Project Manager or assigned staff prior to the contracted work or service.

A review of the above activities determined:

- No further action is required
- Contractor/supplier must refer to the project specification book/contract for the assigned operational controls

Signature:

______________________________________________   _____________
Name, Title Date

Refer to 8.1-2 Operational Control Contractor Management Procedure and 8.1-3 Operational Control Vendor Procedure for information regarding the use, routing and approval of this form.

Revision History

<table>
<thead>
<tr>
<th>Change</th>
<th>Date of</th>
<th>Revised By</th>
<th>Summary of Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>2/2/2015</td>
<td>Core Team</td>
<td>Updated for consistencies and issue date</td>
</tr>
<tr>
<td>002</td>
<td>3/3/2023</td>
<td>Core Team</td>
<td>Updated title of document with new number convention and updated reference to 8.1-2 and 8.1-3 procedures.</td>
</tr>
</tbody>
</table>
PART 1  GENERAL

1.01  SUMMARY

A. Section includes:
   1. Quality control and control of installation.
   2. Tolerances.
   3. References.
   4. Authority and duties of Owner's representative or inspector.
   5. Testing and inspection services.
   6. Contractor's responsibilities.

1.02  QUALITY CONTROL AND CONTROL OF INSTALLATION

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

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

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

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

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

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

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement. Provide seismic design in accordance with Section 01_81_02 - Seismic Design Criteria.

H. When specified, products will be tested and inspected at point of origin and/or at Work site:
   1. Notify Owner in writing in accordance with the notification timeframe requirements defined in other technical specifications when products will be ready for testing and inspection at point of origin.
   2. Do not construe that satisfactory tests and inspections at point of origin is final acceptance of products, or system as a whole. Satisfactory tests or inspections at point of origin do not preclude retesting or re-inspection at Work site.

I. Do not ship products which require testing and inspection at point of origin prior to testing and inspection.
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. When Manufacturers' tolerances conflict with Contract Documents, request clarification from Owner before proceeding.

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

1.04 REFERENCES


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

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

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

E. When specified reference standards conflict with Contract Documents, request clarification from Owner before proceeding.

1.05 AUTHORITY AND DUTIES OF OWNER'S REPRESENTATIVE OR INSPECTOR

A. Owner’s Project Representative employed or retained by Owner is authorized to inspect the Work for compliance with requirements of the Contract Documents. Whereas the Contract Documents refer to the term “Engineer” for notification or approval, the Contractor is also required to notify or receive approval from the Owner.

B. Inspections may extend to entire or part of the Work and to preparation, fabrication, and manufacture of products for the Work.

C. Deficiencies or defects in the Work which have been observed will be called to Contractor's attention.

D. Inspector will not:
   1. Alter or waive provisions of Contract Documents.
   2. Inspect Contractor’s means, methods, techniques, sequences, or procedures for construction.
   3. Accept portions of the Work, issue instructions contrary to requirements of Contract Documents, or act as foreman for Contractor; supervise, control, or direct Contractor’s safety precautions or programs; or inspect for safety conditions on Work site, or of persons thereon, whether Contractor’s employees or others.
E. Inspector will:
   1. Conduct on-site observations of the Work in progress to assist Owner in determining when the Work is, in general, proceeding in accordance with Contract Documents.
   2. Report to Owner whenever Inspector believes that Work is faulty, defective, does not conform to Contract Documents, or has been damaged; or whenever there is defective material or equipment; or whenever Inspector believes the Work should be uncovered for observation or requires special procedures.

1.06 TESTING AND INSPECTION SERVICES

A. In accordance with Documents 00_72_00 and 00_73_00.

B. The Owner’s independent testing firm will perform tests, inspections and other services specified in individual specification sections and as required by Owner.

C. Testing, inspections and source quality control may occur on or off project site. Perform off-site testing inspections and source quality control as required by the Contract Documents.

D. Reports will be submitted by independent testing firm to Owner and Contractor indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents. Each report shall include:
   1. Date issued.
   2. Project title and number.
   3. Testing laboratory name, address, and telephone number.
   4. Name and signature of laboratory inspector.
   5. Date and time of sampling or inspection.
   6. Record of temperature and weather conditions.
   7. Date of test.
   8. Identification of product and specification section.
   9. Location of sample or test in Project.
   10. Type of inspection or test.
   11. Results of tests and compliance with Contract Documents.
   12. Interpretation of test results, when requested by Owner.

E. Contractor shall cooperate with independent testing firm, furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested:
   1. Notify Owner and independent testing firm seven (7) days prior to expected time for operations requiring testing.
   2. Make arrangements with independent testing firm and pay for additional samples and tests required for Contractor’s use.

F. Limitations of authority of testing Laboratory: Owner’s independent testing firm or Laboratory is not authorized to:
   1. Agency or laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
   2. Agency or laboratory may not approve or accept any portion of the Work.
   3. Agency or laboratory may not assume duties of Contractor.
   4. Agency or laboratory has no authority to stop the Work.
G. Testing and employment of an independent testing firm or laboratory shall not relieve Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

H. Re-testing or re-inspection required because of non-conformance to specified requirements shall be performed by same independent testing firm. Payment for re-testing or re-inspection will be the sole responsibility of the Contractor.

I. The Owner's independent testing firm responsibilities will include:
   1. Test samples of mixes submitted by Contractor.
   2. Provide qualified personnel at site. Cooperate with Owner, Engineer, and Contractor in performance of services.
   3. Perform specified sampling and testing of products in accordance with specified standards.
   4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
   5. Promptly notify Owner and Contractor of observed irregularities or non-conformance of Work or products.
   6. Perform additional tests required by Contract Documents.
   7. Attend preconstruction meetings and progress meetings, as requested by Owner.

J. Independent testing firm individual test reports: After each test, independent testing firm will promptly submit report electronically through e-Builder to Owner and to Contractor. Include the following:
   1. Date issued.
   2. Project title and number.
   3. Name of inspector.
   4. Date and time of sampling or inspection.
   5. Identification of product and specifications section.
   6. Location in Project.
   7. Type of inspection or test.
   8. Date of test.
   9. Certified test results stamped and signed by a registered Engineer in the State of Washington, if required.
   10. Summary of conformance with Contract Documents.

1.07 CONTRACTOR'S RESPONSIBILITIES

A. Cooperate with independent testing firm or laboratory personnel and provide access to construction operations.

B. Notify Owner's Project Representative of work requiring scheduled testing in accordance with the notification timeframe requirements defined in other technical specifications or a minimum of seven (7) days in advance, whichever is earlier.

C. Furnish product test reports electronically in accordance with Section 01_31_24 - Web Based Construction Document Management.

D. Furnish incidental labor and facilities:
   1. To provide access to construction to be tested.
   2. To obtain and handle samples at work site or at source of product to be tested.
   3. To facilitate inspections and tests.
1. For all Contractor-required testing, the Contractor shall provide the services of an independent testing laboratory which complies with the requirements of ASTM E329.

1.08 COSTS

A. PAID BY THE OWNER:
   1. Special inspection and testing, as specified in this Section and Section 01_45_24.15, will be paid by the Owner. Retests and reinspection required due to defective work are not included.

B. PAID BY THE CONTRACTOR:
   1. Testing to demonstrate and confirm conformance with the Contract Documents and applicable permits and codes, with the exception of Special Inspections and associated testing for compliance with IBC, Chapter 17.
   2. Retesting and reinspections required due to defective work.
   3. Testing performed for the convenience of the Contractor.
   4. Mechanical and electrical component testing and certification.

PART 2 PRODUCTS
Not Used.

PART 3 EXECUTION
Not Used.

END OF SECTION
PART 1   GENERAL

1.01 SUMMARY

A. Section includes:
   1. Furnishing, maintaining, and removing construction facilities and temporary
      controls, including temporary utilities, construction aids, barriers and
      enclosures, security, access roads, temporary controls, project sign, field
      offices and sheds, and removal after construction.

1.02 TEMPORARY UTILITIES

A. Temporary electrical power:
   1. Provide temporary electrical service for the Contractor’s user.

B. Temporary electrical lighting:
   1. In work areas, provide temporary lighting sufficient to maintain lighting levels
      during working hours not less than lighting levels required by OSHA and state
      agency which administers OSHA regulations where Project is located.

C. Temporary heating, cooling, and ventilating:
   1. Heat and ventilate work areas to protect the Work from damage by freezing,
      high temperatures, weather, and to provide safe environment for workers.

D. Temporary water:
   1. Contractor is responsible for all costs associated with supplying water for
      construction activities.
   2. Pay for and construct facilities necessary to connect to Owner’s existing
      potable water service where available.
   3. Utilize water from a Tacoma Water fire hydrant. Contractor to acquire Hydrant
      Use Permit from Tacoma water and comply with all conditions prior to
      connection. Submit copies of all permits to the Owner.
   4. Utilize water trucks and temporary storage tanks.
   5. Contractor shall provide an approved backflow prevention device.

E. Temporary sanitary facilities:
   1. Provide and maintain self-contained portable sanitary facilities for the
      Contractor's and subcontractor's use. Facilities shall be serviced, cleaned and
      disinfected frequently. The Owner’s existing sanitary facilities shall not be
      available for Contractor’s use.
   2. Provide suitable and adequate sanitary facilities that are in compliance with
      applicable Laws and Regulations.
   3. At completion of the Work, remove sanitary facilities and leave site in neat and
      sanitary condition.

F. Temporary telephone:
1. Provide temporary telephone service, high speed internet and facsimile line service for the Contractor’s use.

G. Temporary Fire Protection:
   1. Provide and maintain fire protection equipment, including extinguishers, fire hoses, and other equipment required by law, insurance carriers, or necessary for proper fire protection during the course of the work.
   2. Use fire protection equipment only for fighting fires.
   3. Locate fire extinguishers in field offices, storage sheds, tool houses, temporary buildings, and throughout the construction site.

H. First aid:
   1. Post first aid facilities and information posters conforming to requirements of OSHA and other applicable Laws and Regulations in readily accessible locations.

1.03 CONSTRUCTION AIDS

A. Provide railings, kick plates, enclosures, safety devices, and controls required by Laws and Regulations and as required for adequate protection of life and property.

B. Use construction hoists, elevators, scaffolds, stages, shoring, and similar temporary facilities of ample size and capacity to adequately support and move loads.

C. Design temporary supports with adequate safety factor to assure adequate load bearing capability:
   1. When requested, submit design calculations by professional registered engineer in Washington prior to application of loads.
   2. Submitted design calculations are for information and record purposes only.

D. Accident prevention:
   1. Exercise precautions throughout construction for protection of persons and property.
   2. Observe safety provisions of applicable Laws and Regulations.
   3. Guard machinery and equipment, and eliminate other hazards.
   4. Make reports required by authorities having jurisdiction, and permit safety inspections of the Work.
   5. Before commencing construction work, take necessary action to comply with provisions for safety and accident prevention.

E. Barricades:
   1. Place barriers at ends of excavations and along excavations to warn pedestrian and vehicular traffic of excavations.
   2. Provide barriers with flashing lights after dark.
   3. Keep barriers in place until excavations are entirely backfilled and compacted.
   4. Barricade excavations to prevent persons from entering excavated areas in streets, roadways, parking lots, treatment plants, or other public or private areas.

F. Warning devices and barricades: Adequately identify and guard hazardous areas and conditions by visual warning devices and, where necessary, physical barriers:
   1. Devices shall conform to minimum requirements of OSHA and State agency which administers OSHA regulations where Project is located.
1.04 TEMPORARY CONTROLS

A. Noise control:
   1. Comply with City of Tacoma Noise Ordinance limiting construction noise levels. Use whisper-quiet air compressors. Use jack hammers with exhaust mufflers. Prevent noise disturbance to the public and adjacent property owners.

1.05 FIELD OFFICES AND SHEDS

A. Contractor’s field office:
   1. Maintain on Project Site weather tight space in which to keep copies of Contract Documents, progress schedule, shop drawings, and other relevant documents.
   2. Provide field office with adequate space to examine documents, and provide lighting and telephone service in that space.
   3. Have field office ready for occupancy prior to start of site work.

1.06 REMOVAL

A. Remove temporary buildings and furnishings before inspection for Final Completion or when directed.

B. Clean and repair damage caused by installation or use of temporary facilities.

C. Remove underground installations to minimum depth of 24 inches and grade to match surrounding conditions.

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

PART 2 PRODUCTS
Not Used.

PART 3 EXECUTION
Not Used.

END OF SECTION
PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Product requirements; product selection; product options and substitutions; quality assurance; delivery, handling, and storage; and manufacturer’s instructions.

1.02 DEFINITIONS

A. Execution: Inclusive of performance, workmanship, installation, erection, application, field fabrication, field quality control, and protection of installed products.

B. Products: Inclusive of material, equipment, systems, shop fabrications, mixing, source quality control.

1.03 PRODUCT REQUIREMENTS

A. Comply with Specifications and referenced standards as minimum requirements.

B. Provide products by same manufacturer when products are of similar nature, unless otherwise specified.

C. Provide identical products when products are required in quantity.

D. Provide products with interchangeable parts whenever possible.

E. Require each equipment manufacturer to have maintenance facilities meeting the following requirements and submit to Owner:
   1. Minimum 3 years operational experience.
   2. Location in continental United States.
   3. Equipment and tools capable of making repairs.
   4. Staff qualified to make repairs.
   5. Inventory of maintenance spare parts.

F. If conflicts or discrepancies are found within the specifications, the greater or more strict requirement will apply.

1.04 PRODUCT SELECTION

A. When products are specified by standard or specification designations of technical societies, organizations, or associations only, provide products that meet or exceed reference standard and Specifications.

B. When products are specified with names of manufacturers but no model numbers or catalog designations, provide:
1. Products by one of named manufacturers that meet or exceed Specifications.
2. Accepted or approved equal.

C. When products are specified with names of manufacturers and model numbers or catalog designations, provide:
   1. Products with model numbers or catalog designations by one of named manufacturers.
   2. Accepted or approved equal.

D. When products are specified with names of manufacturers, but with brand or trade names, model numbers, or catalog designations by one manufacturer only, provide:
   1. Products specified by brand or trade name, model number, or catalog designation.
   2. Products by one of named manufacturers proven in accordance with requirements for or approved equals to meet or exceed quality, appearance and performance of specified brand or trade name, model number, or catalog designation.
   3. Accepted or approved equal.

E. When Products are specified with only one manufacturer followed by "or Approved Equal," provide:
   1. Products meeting or exceeding Specifications by specified manufacturer.
   2. Accepted or approved equal.

1.05 PRODUCT OPTIONS AND SUBSTITUTIONS

A. In accordance with Document 00_73_00.

B. General: Whenever a product is specified using a name of a particular manufacturer or supplier, the specific item cited shall be understood as establishing type, function, dimension, appearance, and quality desired.

C. Formal substitution request procedure:
   1. Submit a written formal Substitution Request Form to Owner for each proposed substitution within 7 days following the effective date of the Notice to Proceed.
   2. Owner will return initial opinion and request for additional information within 14 days.
   3. Owner will notify Contractor in writing of decision to accept or reject the substitution request within 14 days of receiving required information.

D. Formal substitution request contents:
   1. Manufacturer’s literature including:
      a. Manufacturer’s name and address.
      b. Product name.
      c. Product description.
      d. Reference standards.
      e. Certified performance and test data.
      f. Operation and maintenance data.
   2. Samples, if applicable.
   3. Shop drawings, if applicable.
   4. Reference projects where the product has been successfully used:
      a. Name and address of project.
b. Point of contact name and phone number.

5. Itemized comparison of the proposed substitution with product specified including a list of significant variations:
   a. Design features.
   b. Design dimensions.
   c. Installation requirements.
   d. Operations and maintenance requirements.

6. Define impacts:
   a. Impacts to construction schedule.
   b. Impacts to other contracts.
   c. Impacts to other work or products.
   d. Impact to Contract Sum:
      1) Do not include costs under separate contracts.
      2) Do not include Engineer’s costs for redesign or revision of Contract Documents.
      3) Required license fees or royalties.
   e. Availability of maintenance services and sources of replacement materials.

7. Contractor represents the following:
   a. Contractor bears the burden of proof of the equivalency of the proposed substitution.
   b. Proposed substitution does not change the design intent and will have equal performance to the specified product.
   c. Proposed substitution meets all contract requirements and will not impact other work or products contained in the Contract Documents.
   d. Proposed substitution is equal or superior to the specified product.
   e. Contractor will provide the warranties or bonds that would be provided on the specified product on the proposed substitution.
   f. Contractor will coordinate installation of accepted substitution into the Work and will be responsible for the costs to make changes as required to the Work.
   g. Contractor waives rights to claim additional costs caused by proposed substitution which may subsequently become apparent.
   h. Contractor certifies proposed substitution will have no downstream effect on the project.
   i. Proposed substitution will not require a time extension to the schedule.

E. Substitutions will not be considered for acceptance under the following conditions:
   1. No formal substitution request is made.
   2. The substitution is simply implied or indicated on shop drawings or product data submittals.
   3. The formal substitution request is submitted by a subcontractor or supplier.

F. Substitution requests submitted after the deadline will not be considered unless the following evidence is submitted to the Owner:
   1. Proof that the specified product is unavailable for reasons beyond the control of the Contractor or for the Owner’s Benefit, as defined in Documents 00_72_00 and 00_73_00. Poor planning or scheduling by the Contractor to procure materials shall not justify a substitution request.

G. Owner’s decision on a substitution requests will be final and binding:
1. Accepted substitutions will be incorporated into the Contract Documents with a Change Order.
2. Requests for time extensions and additional costs based on submission of, acceptance of, or rejection of substitutions will not be allowed.
3. Owner shall be entitled to the cost of reimbursement from the Contractor for the substitution evaluation by the Engineer whether or not substitution is approved.

1.06 QUALITY ASSURANCE

A. Inspect conditions before executing subsequent portions of the Work. Accept responsibility for correcting unsatisfactory conditions prior to executing subsequent portions of the Work.

B. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.

1.07 DELIVERY, HANDLING, STORAGE, AND PROTECTION

A. Prepare products for shipment by:
   1. Tagging or marking products to agree with delivery schedule or shop drawings.
   2. Including complete packing lists and bills of material with each shipment.
   3. Packaging products to facilitate handling and protection against damage during transit, handling, and storage.
   4. Packing shall include Owner’s name, Project number, and address.

B. Transport products by methods that avoid product damage. Deliver products in undamaged condition in manufacturer's unopened containers or packaging.

C. Provide equipment and personnel to handle products by methods to prevent soiling or damage.

D. Upon delivery, promptly inspect shipments:
   1. Verify compliance with Contract Documents, correct quantities, and undamaged condition of products.
   2. Immediately store and protect products and materials until installed in Work.
   3. Photograph delivery and acceptance of major items.
   4. Damaged material shall be rejected with no additional time or cost provided.

E. Furnish covered, weather-protected storage structures providing a clean, dry, noncorrosive environment for all mechanical equipment, valves, architectural items, electrical and instrumentation equipment and special equipment to be incorporated into this project:
   1. Storage of equipment shall be in strict accordance with the “instructions for storage” of each equipment supplier and manufacturer including connection of heaters, placing of storage lubricants in equipment, etc.
   2. The Contractor shall furnish a copy of the manufacturer’s instructions for storage to the Owner prior to storage of all equipment and materials.
   3. Corroded, damaged, or deteriorated equipment and parts shall be replaced before acceptance of the project.
   4. The Owner will not authorize payment for equipment and materials that are not properly stored.
F. Store products with seals and legible labels intact.

G. Store moisture sensitive products in weathertight enclosures.

H. Maintain products within temperature and humidity ranges required or recommended by manufacturer.

I. Maintain storage areas at ambient temperatures recommended by manufacturer.

J. Protect painted surfaces against impact, abrasion, discoloration, and other damage. Repaint damaged painted surfaces.

K. Exterior storage of fabricated products:
   1. Place on aboveground supports that allow for drainage.
   2. Cover products subject to deterioration with impervious sheet covering.
   3. Provide ventilation to prevent condensation under covering.

L. Provide access for inspection.

M. Maintain equipment per the manufacturer’s recommendation and industry standards, including oil changes, rotation, etc. Provide a log of equipment maintenance to the Owner on a monthly basis:
   1. Rotation log shall include, as a minimum, the equipment identification, date stored, date removed from storage, copy of manufacturer’s recommended storage guidelines, date of rotation of equipment, and signature of party performing rotation.
   2. Submit sample log for approval.

N. Protection after installation:
   1. Provide substantial protections/coverings as necessary to protect installed products from damage from subsequent construction operations. Provide substantial coverings as necessary to protect partially installed products from damage from weather. Remove covering when no longer needed.

1.08 MANUFACTURER’S INSTRUCTIONS

A. Deliver, handle, store, install, erect, or apply products in accordance with manufacturer’s instructions, Contract Documents, and industry standards.

B. Periodically inspect to assure products are undamaged and maintained under required conditions.

PART 2 PRODUCTS

2.01 SPARE PARTS AND SPECIAL TOOLS

A. Contractor shall provide a single spare parts and special tools inventory list for all equipment furnished as required by the Specifications. The list shall include the following information:
   1. Equipment tag number.
   2. Equipment manufacturer.
   3. Subassembly component, if appropriate.
4. Quantity.
5. Storage location.

B. Store spare parts, maintenance products, and special tools in enclosed, weather-proof, and lighted facility during the construction period:
1. Contractor is responsible for spare parts and special tools until acceptance by Owner.
2. Protect parts subject to deterioration, such as ferrous metal items and electrical components with appropriate lubricants, desiccants, or hermetic sealing.

C. Delivery to Owner: The Contractor shall box, tag, and clearly mark items prior to delivery to Owner in accordance with the following:
1. Large items:
   a. Weight: Greater than 50 pounds.
   b. Size: Greater than 24 inches wide by 18 inches high by 36 inches long.
   c. Stored individually.
   d. Clearly labeled:
      1) Equipment tag number.
      2) Equipment manufacturer.
      3) Subassembly component, if appropriate.
2. Smaller items:
   a. Weight: Less than 50 pounds.
   b. Size: Less than 24 inches wide by 18 inches high by 36 inches long.
   c. Stored in spare parts box.
   d. Clearly labeled:
      1) Equipment tag number.
      2) Equipment manufacturer.
      3) Subassembly component, if appropriate.
3. Spare parts and special tools box:
   a. Wooden box:
      1) Size: 24 inches wide by 18 inches high by 36 inches long.
   b. Hinged wooden cover:
      1) Strap type hinges.
      2) Locking hasp.
      3) Spare parts inventory list taped to underside of cover.
   c. Clearly labeled:
      1) The words “Spare Parts and/or Special Tools.”
      2) Equipment tag number.
      3) Equipment manufacturer.

PART 3 EXECUTION

3.01 CLOSEOUT ACTIVITIES

A. Owner may request advanced delivery of spare parts and special tools:
   1. Deduct the delivered items from inventory and provide transmittal documentation.

B. Immediately prior to the date of Substantial Completion, arrange to deliver spare parts and special tools to Owner at a location on site chosen by the Owner:
1. Provide itemized list of spare parts and special tools that matches the identification tag attached to each item.
2. Owner and Engineer will review the inventory and the itemized list to confirm it is complete and in good condition prior to signing for acceptance.

3.02 ATTACHMENTS

A. Appendix A - Sample Substitution Request Form.

END OF SECTION
Substitution Request Form

Project: __________________________ Substitution Request Number: __________________________

To: __________________________ From: __________________________

Re: __________________________ Date: __________________________

Specification Title: __________________________ Description: __________________________

Section: ___________ Page: ___________ Article/Paragraph: ___________

Proposed Substitution: __________________________

Manufacturer: __________________________ Address: __________________________ Phone: __________________________

Trade Name: __________________________ Model No.: __________________________

Installer: __________________________ Address: __________________________ Phone: __________________________

History: □ New product □ 2-5 years old □ 5-10 yrs old □ More than 10 years old

Reason for not providing specified item: __________________________

Similar Installation:

Project: __________________________ Architect: __________________________

Address: __________________________ Owner: __________________________

Date Installed: __________________________

Proposed substitution affects other parts of Work: □ No □ Yes; explain __________________________

Reason for not providing specified item: __________________________

Savings to Owner for accepting substitution: __________________________ ($ ___________).

Proposed substitution changes Contract Time: □ No □ Yes [Add] [Deduct] __________________________ days.

When is material required to be on site?: __________________________

Supporting Data Attached: □ Drawings □ Product Data □ Samples □ Tests □ Reports □ ___________

October 2023 01_60_00-8 Product Requirements
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 progress schedule.
- Cost and schedule data as stated above is complete. Claims for additional costs or time 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 Engineer 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: ________________________________
Attachments: ________________________________

ENGINEER'S REVIEW AND ACTION

- Substitution accepted - Make submittals in accordance with Specification Section 01_33_00.
- Substitution accepted as noted - Make submittals in accordance with Specification Section 01_33_00
- Substitution rejected - Use specified materials.
- Substitution Request received too late - Use specified materials.

Signed by: ________________________________ Date: ________________________________

Additional Comments:
[ ] Contractor [ ] Subcontractor [ ] Supplier [ ] Manufacturer [ ] Engineer [ ]

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Field engineering provided by the Contractor to establish lines and grades for the Work.

1.02 SUBMITTALS

A. Submit as specified in Section 01_33_00 - Submittal Procedures.

B. Qualifications of the professional land surveyor or registered civil engineer in Washington that will be performing the field engineering.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.01 SURVEY REFERENCE POINTS

A. Basic reference line, a beginning point on basic reference line, and a benchmark will be provided by Owner.

B. From these reference points, establish other control and reference points as required to properly lay out the Work.

C. Locate and protect control points prior to starting site work, and preserve permanent reference points during construction:
   1. Make no changes or relocations without prior written notice.
   2. Replace Project control point, when lost or destroyed, in accordance with original survey control.

D. Set monuments for principal control points and protect them from being disturbed and displaced:
   1. Re-establish disturbed monuments.
   2. When disturbed, postpone parts of the Work that are governed by disturbed monuments until such monuments are re-established.

3.02 PROJECT SITE SURVEY REQUIREMENTS

A. Establish minimum of 2 permanent benchmarks on site referenced to data established by survey control points.
B. Record permanent benchmark locations with horizontal and vertical data on Project Record Documents.

C. Perform verifications and checking in accordance with standard surveying practice.

D. Maintain complete, accurate log of control points and survey.

E. Affix civil engineer's or professional land surveyor's signature and registration number to Record Drawings to certify accuracy of information shown.

3.03 CONSTRUCTION STAKES, LINES, AND GRADES

A. Execute the Work in accordance with the lines and grades indicated.

B. Make distances and measurements on horizontal planes, except elevations and structural dimensions.

3.04 QUALITY CONTROL

A. Accuracy of stakes, alignments, and grades may be checked randomly by Owner:
   1. Notice of when checking will be conducted will be given.
   2. When notice of checking is given, postpone parts of the Work affected by stakes, alignments, or grades to be checked until checked.
   3. Owner's check does not substitute or complement required field quality control procedures.

3.05 RECORD DOCUMENTS

A. Prepare and submit Record Documents as specified in Section 01_77_00 - Closeout Procedures.

END OF SECTION
PART 1   GENERAL

1.01 SUMMARY

A. Section includes: Contract closeout requirements including:
   1. Final cleaning.
   2. Waste disposal.
   3. Touch-up and repair.
   4. Preparation and submittal of closeout documents.
   5. Certificate of Substantial Completion.

1.02 REFERENCES

1.03 REFERENCES (NOT USED)

1.04 FINAL CLEANING

A. Perform final cleaning prior to inspections for Final Acceptance as defined in Documents 00_72_00 and 00_73_00.

B. Employ skilled workers who are experienced in cleaning operations.

C. Use cleaning materials which are recommended by manufacturers of surfaces to be cleaned.

D. Prevent scratching, discoloring, and otherwise damaging surfaces being cleaned.

E. Clean grease, mastic, adhesives, dust, dirt, stains, fingerprints, paint, blemishes, sealants, plaster, concrete, and other foreign materials from sight-exposed surfaces, and fixtures and equipment.

F. Remove non-permanent protection and labels.

G. Wax and buff hard floors, as applicable.

H. Wash and polish glass, inside and outside.

I. Removal all debris and construction materials.

J. Patch any holes, chips or defects in construction including finished surfaces.

K. Touch up painted surfaces that are soiled, chipped or otherwise flawed.

1.05 WASTE DISPOSAL

A. Arrange for and properly dispose of surplus materials, waste products, and debris off-site.
1.06 TOUCH-UP AND REPAIR

A. Touch-up or repair finished surfaces on structures, equipment, fixtures, and installations that have been damaged prior to inspection for Final Acceptance. Owner will repaint equipment or patched portions of painted or coated surfaces following repair of finished surfaces by Contractor allowing for uniform texture to entire surface.

B. Refinish or replace entire surfaces which cannot be touched-up or repaired satisfactorily.

1.07 PROJECT RECORD DOCUMENTS

A. Maintain at Project site and update weekly, available to Owner and Engineer, one consolidated hard copy of the Contract Documents, shop drawings, and other submittals in good order:
   1. Mark and record field changes and detailed information contained in submittals and change orders in accordance with Owner standards.
   2. Record actual depths, horizontal and vertical location of underground pipes, duct banks, and other buried utilities. Reference dimensions to permanent surface features.
   3. Identify specific details of conduit connections, location of existing buried features located during excavation, and the final locations of piping, equipment, electrical conduits, manholes, and pull boxes.
   4. Identify location of spare conduits including beginning, ending, and routing through pull boxes and manholes. Record spare conductors, including number and size, within spare conduits and filled conduits.
   5. Identify the final installed equipment and instrument tags.
   6. Provide schedules, lists, layout drawings, and wiring diagrams.
   7. Make annotations with erasable colored pencil conforming to the following color code:

<table>
<thead>
<tr>
<th>Annotations</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additions</td>
<td>Red</td>
</tr>
<tr>
<td>Deletions</td>
<td>Green</td>
</tr>
<tr>
<td>Comments</td>
<td>Blue</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Graphite</td>
</tr>
</tbody>
</table>

B. Maintain documents separate from those used for construction:
   1. Label documents "RECORD DOCUMENTS."

C. Keep documents current:
   1. Provide photographic records with required information at the time the material and equipment is installed and before permanently concealing.
   2. Submit photos in accordance with Section 01_32_34 – Photographic and Videographic Documentation and cross-reference to record documents.

D. Deliver record documents with transmittal letter containing date, Project title, Contractor's name and address, list of documents, and signature of Contractor.

E. During progress meetings, record documents will be reviewed to ascertain that changes have been recorded.
F. Final Schedule Submittal as specified in Section 01_32_16 - Progress Schedules and Reports.

1.08 MAINTENANCE SERVICE

A. Maintenance service as specified in technical specifications.

1.09 SUBSTANTIAL COMPLETION

A. Obtain Certificate of Occupancy for all Building permits.
B. In accordance with Documents 00_72_00 and 00_73_00, Section 6.07.
C. In accordance with Section 01_14_00 – Work Restrictions.
D. Submit AIA Document G704 Substantial Completion Certificate.

1.10 FINAL COMPLETION

A. When Contractor considers the Work is complete, submit written certification that:
   1. Work has been completed in accordance with the Contract Document.
   2. Punch list items have been completed or corrected.
   3. Work is ready for final inspection.
B. Engineer and Owner will make an inspection to verify the status of completion with reasonable promptness.
C. Should the Owner consider that the Work is incomplete or defective:
   1. Owner will promptly notify the Contractor in writing, listing the incomplete or defective work.
   2. Contractor shall take immediate steps to remedy the stated deficiencies, and send a second written certification to the Owner that the Work is complete.
   3. Engineer and Owner shall re-inspect the Work.

1.11 FINAL ADJUSTMENT OF ACCOUNTS

A. Submit a final statement of accounting to the Owner at least seven (7) days prior to final Application for Payment.
B. Statement shall reflect all adjustments to the Contract amount:
   1. The original Contract amount.
   2. Additions and deductions resulting from:
      a. Change Orders.
      b. Units installed and unit prices.
      c. Set-offs for uncorrected or incomplete Work.
      d. Set-offs for liquidated damages.
      e. Set-offs for reinspection payments.
      f. Extended engineering and/or inspection services and inspection overtime.
      g. Excessive shop drawings review cost by the Owner.
      h. Other adjustments.
   3. Total Contract amount, as adjusted.
   4. Previous payments.
   5. Remaining payment due.
C. Owner will prepare a final Change Order reflecting approved adjustments to the Contract amount which were not previously made by Change Orders.

1.12 FINAL APPLICATION FOR PAYMENT

A. Contractor shall submit the final Application for Payment reflecting the agreed upon information provided in the final statement of accounting.

PART 2 PRODUCTS
Not Used.

PART 3 EXECUTION
Not Used.

END OF SECTION
SECTION 01_78_23
OPERATION AND MAINTENANCE DATA

PART 1 GENERAL

1.01 SUMMARY
A. Section includes: Preparation and submittal of Operation and Maintenance Manuals.

1.02 GENERAL
A. Submit Operation and Maintenance Manuals as specified in technical sections.
B. Make approved manuals available at project site for use by construction personnel and Owner.

1.03 SUBMITTALS
A. Draft Operation and Maintenance Manuals:
   1. Submit prior to shipment of equipment or system to site.
   2. Shipment will be considered incomplete without the draft Operation and Maintenance Manuals.
   3. Quantity:
      a. Electronic: 5 USB flash drives.
      b. Submit PDF via e-Builder per Section 01_33_00 - Submittal Procedures.
B. Final Operation and Maintenance Manuals:
   1. Make additions and revisions in accordance with Owner's and Engineer's review comments on draft manuals.
   2. Submit approved Operation and Maintenance Manuals at least 60 days prior to Functional Testing and at least 90 days prior to Owner Training.
   3. Quantity:
      a. Electronic: 5 USB flash drives.
      b. Submit PDF via e-Builder per Section 01_33_0 - Submittal Procedures.
      c. Two (2) hard copies bound in 3 inch binders

1.04 PREPARATION
A. General requirements:
   1. Provide dimensions in English units.
   2. Assemble material, where possible, in the same order within each volume.
   3. Reduce drawings and diagrams to 8 1/2 by 11-inch size, if possible unless otherwise specified.
   4. Complete forms on computer, handwriting not acceptable.
   5. Delete items or options not provided in the supplied equipment or system.
B. Electronic requirements:
   1. File format:
      a. Entire manual in PDF format:
1) Include text and drawing information.
2) Provide a single PDF file even if the hard copy version is broken into separate binders due to being large.
   a) Revise order of Table of Contents and related documents as requested by Owner.
3) Create PDF from the native format of the document (Microsoft Word, graphics programs, drawing programs, etc.):
   a) In addition, provide copies of native files separately.
   b) If material is not available in native format and only available in paper format, remove smudges, fingerprints, and other extraneous marks before scanning to PDF format.
   c) Hard copy record drawing requirements:
      (1) Provide a single multipage PDF file of each set of the scanned drawings.
      (2) Page 1 shall be the cover of the drawing set.
   d) At file opening, display the entire cover:
      (1) Scan drawings at a minimum 300 dots per inch (DPI), black and white, Group IV Compression, unless specified otherwise.
      (2) Scan drawings with photos in the background at 600 dots per inch (DPI), black and white, Group IV Compression.
4) Pagination and appearance to match hard copy.
5) Searchable.
6) Scanned images are not acceptable.
7) Bookmarks:
   a) Bookmarks shall match the table of contents.
   b) Bookmark each section (tab) and heading.
   c) Drawings: Bookmark at a minimum, each discipline, area designation, or appropriate division.
   d) At file opening, display all levels of bookmarks as expanded.
8) Thumbnails optimized for fast web viewing.

b. Drawing requirements:
   1) Provide additional copy of drawings in AutoCAD 2022 format.
   2) Drawings shall have a white background.
   3) Drawing shapes shall not degrade when closely zoomed.
   4) Screening effects intended to de-emphasize detail in a drawing must be preserved.
   5) Delete items or options not provided in the supplied equipment or system.

2. Media:
   a. CD-ROM or DVD-ROM compatible with Microsoft Windows.
   b. Flash drive.
   c. Secure Electronic File Transfer (SEFT).
3. Label media with the following information:
   b. Equipment name.
   c. Specification Section Number.
   d. Equipment tag number.
   e. Owner's name.
   f. Project number and name.
   g. Date.
4. If multiple submittals are made together, each submittal must have its own subdirectory that is named and numbered based on the submittal number.

1.05 CONTENTS

A. Cover page:
   2. Equipment name.
   3. Specification Section Number.
   4. Equipment tag number.
   5. Owner's name.
   6. Project number and name.
   7. Date.

B. Table of Contents: General description of information provided within each tab section.

C. Equipment Summary Form: Completed form as specified in Appendix A of this Section.

D. Equipment Maintenance Summary Form: Completed form as specified in Appendix B of this Section.

E. Description of equipment function, normal operating characteristics, and limiting conditions.

F. Manufacturer's product data sheets:
   1. Where printed material covers more than 1 specific model, indicate the model number, calibrated range, and other special features.

G. Assembly, installation, alignment, adjustment, and checking instructions.

H. Storage instructions: Control diagrams:
   1. Internal and connection wiring, including logic diagrams, wiring diagrams for control panels, ladder logic for computer based systems, and connections between existing systems and new additions, and adjustments such as calibrations and set points for relays, and control or alarm contact settings.
   2. Complete set of 11-inch by 17-inch drawings of the control system.
   3. Complete set of control schematics.

I. Programming: Copies of Contractor furnished programming for VFDs, smart overloads, and automatic transfer switch.

J. Start-up procedures: Recommendations for installation, adjustment, calibration, and troubleshooting.

K. Operating procedures:
   1. Step-by-step instructions including but not limited to the following:
      a. Safety precautions.
      b. Guidelines.
      d. Entry codes.
      e. System responses.
f. Other information as needed for safe system operation and maintenance.

2. Modes:
   a. Startup.
   b. Routine and normal operation.
   c. Regulation and control.
   d. Shutdown under specified modes of operation.
   e. Emergency operating shutdown.

L. Preventative maintenance procedures:
   1. Recommended steps and schedules for maintaining equipment.
   2. Troubleshooting.

M. Lubrication information: Required lubricants and lubrication schedules.

N. Overhaul instructions: Directions for disassembly, inspection, repair and reassembly of the equipment; safety precautions; and recommended tolerances, critical bolt torques, and special tools that are required.

O. Parts list:
   1. Complete parts list for equipment including but not limited to the following information.
   2. Catalog data: Generic title and identification number of each component part of equipment.
   3. Include bearing manufacturer, model and ball or roller pass frequencies for every bearing.
   4. Availability.
   5. Service locations.

P. Spare parts list: Recommended number of parts to be stored at the site and special storage precautions.

Q. Engineering data:
   1. Drawings: Complete set of 11-inch by 17-inch equipment drawings.
   2. Exploded view or plan and section views with detailed callouts.
   3. Outline, cross-section, and assembly drawings.
   4. System drawings: Provide interconnection and wiring diagrams, plan views, panel layouts, bill of materials, etc.
   5. Packaged equipment system drawings: Provide instrumentation loop drawing, control schematic diagrams, interconnection and wiring diagrams, plan views, panel layouts, bill of materials, etc.
   6. System drawings and data sheets: Include drawings and data furnished by the Engineer and the Supplier; provide "as installed" version.
   7. Provide electrical and instrumentation schematic record drawings.

R. Test data and performance curves, when applicable.

S. Manufacturer's technical reference manuals.

T. Source (factory) Test results: Provide copies of Source Tests reports as specified in technical sections.

U. Functional Test results: After Functional Tests are completed, insert Functional Test reports as specified in technical sections.
1.06 ARCHIVAL DOCUMENTATION

A. Typically does not require updating to remain valid and should be stored in a format that preserves the document and limits one's ability to make changes.

B. Types of archival documents include the following:
   1. Record drawings.
   2. Reports.
   4. Shop drawings.
   5. Vendor Equipment O&M Manuals.
   6. Photos.
   7. Demonstration and training videos.
   8. Other.

1.07 LIVING DOCUMENTATION

A. Requires periodic updates to remain valid and should be stored in formats that are easy to update.

B. Types of living documents include the following:
   1. Facility O&M Manuals.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION
APPENDIX A
EQUIPMENT SUMMARY FORM

1. EQUIPMENT ITEM______________________________________________________________

2. MANUFACTURER _____________________________________________________________

3. EQUIPMENT IDENTIFICATION NUMBER(S)______________________________________
   (maps equipment number)

4. LOCATION OF EQUIPMENT_____________________________________________________

5. WEIGHT OF INDIVIDUAL COMPONENTS (OVER 100 POUNDS)_______________________
   __________________________________________________________
   __________________________________________________________

NAMEPLATE DATA -
   Horsepower___________________________________________________________
   Amperage___________________________________________________________
   Voltage___________________________________________________________
   Service Factor (S.F.)_______________________________________________
   Speed___________________________________________________________
   ENC Type________________________________________________________
   Capacity_________________________________________________________
   Other___________________________________________________________

7. MANUFACTURER’S LOCAL REPRESENTATIVE

   Name_______________________________________________________________
   Address___________________________________________________________
   Telephone Number_________________________________________________

8. MAINTENANCE REQUIREMENTS______________________________________________
   _________________________________________________________________
   _________________________________________________________________
   _________________________________________________________________

9. LUBRICANT LIST___________________________________________________________
   _________________________________________________________________
   _________________________________________________________________

10. SPARE PARTS (recommendations)______________________________________________
    _________________________________________________________________
    _________________________________________________________________

11. COMMENTS______________________________________________________________
APPENDIX B
EQUIPMENT MAINTENANCE SUMMARY

1. Equipment Item: ________________________________________________
2. Manufacturer: ________________________________________________
3. Serial No. (if applicable): ______________________________________
4. Manufacturer’s Order No. (if applicable): __________________________
5. Nameplate Data (horsepower, voltage, speed, etc.): __________________

6. Manufacturer’s Local Representative:
   Name: __________________________________________________________
   Address: _________________________________________________________
   Telephone: _______________________________________________________

7. Maintenance Requirements:

<table>
<thead>
<tr>
<th>Maintenance Operation</th>
<th>Frequency</th>
<th>Lubricant (if applicable)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>(List each operation</td>
<td>(List</td>
<td>(Refer by symbol to</td>
<td></td>
</tr>
<tr>
<td>required. Refer to</td>
<td>required frequency of each</td>
<td>lubricant list as</td>
<td></td>
</tr>
<tr>
<td>specific information</td>
<td>maintenance operation)</td>
<td>required)</td>
<td></td>
</tr>
<tr>
<td>in Manufacturer’s</td>
<td>(Refer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manual, if applicable)</td>
<td>by symbol to lubricant list as required)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>in Item 7 above)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. Lubricant List:

<table>
<thead>
<tr>
<th>Reference Symbol</th>
<th>Conoco Phillips</th>
<th>Exxon/Mobil</th>
<th>BP/Amoco</th>
<th>Other (List)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(List equivalent lubricants, as distributed by each manufacturer for the specific use recommended)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. Spare Parts: (Include recommendation on what spare parts should be kept on the job):
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Seismic design criteria for the following:
   1. Anchorage of mechanical and electrical equipment.

1.02 REFERENCES

A. American Society of Civil Engineers (ASCE):

1.03 SYSTEM DESCRIPTION

A. Design in accordance with the requirements of the building code as specified in Section 01_41_00 - Regulatory Requirements.

B. Design spectral acceleration at short period, $S_{DS}$: 0.862 g.

C. Design of non-structural components and their connections to structures:
   1. Component amplification factor, $a_p$: In accordance with ASCE 7, Tables 13.5-1 and 13.6-1.
   2. Component response modification factor, $R_p$: In accordance with ASCE 7, Tables 13.5-1 and 13.6-1.
   3. Component importance factor, $I_p$: Table 1:

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>$I_p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical</td>
<td>Equipment and appurtenances provided and installed under Division 26.</td>
<td>1.5</td>
</tr>
</tbody>
</table>

D. Seismic Design Category (SDC): D.

E. Design requirements: Anchorage of equipment to structures:
   1. Do not use friction to resist sliding due to seismic forces. Do not design or provide connections that use friction to resist seismic loads. Resist seismic forces through direct tension and/or shear on anchors and fasteners.
   2. Do not use more than 60 percent of the weight of the mechanical and electrical equipment for designing anchors for resisting overturning due to seismic forces.
   3. Anchoring and fastening to concrete and masonry:
      a. Provide anchors specified in Section 03_21_17 - Adhesive-Bonded Reinforcing Bars and All-Thread Rods.
      b. Use only cast-in anchors (anchor bolts or welded studs) for anchors at connections that resist seismic forces.
c. Do not use concrete anchors, flush shells, sleeve anchors, screw anchors, powder actuated fasteners, or other types of post-installed mechanical anchors unless indicated on the Drawings or accepted in writing by the Owner.

1.04 SUBMITTALS

A. Shop drawings and calculations: Complete shop drawings and seismic calculations.

B. Calculations shall be signed and stamped by a civil or structural engineer licensed in the state of Washington.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION
SECTION 03_11_07
CONCRETE FORMWORK

PART 1 GENERAL

1.01 SUMMARY
   A. Section includes: Concrete formwork.

1.02 REFERENCES
   A. American Concrete Institute (ACI):
      1. 117 - Specifications for Tolerances for Concrete Construction and Materials
         and Commentary.
   B. American Society of Civil Engineers (ASCE):
      1. 37-14 – Design Loads on Structures During Construction.

1.03 DEFINITIONS
   A. Green concrete: Concrete with less than 100 percent of the minimum specified
      compressive strength ($f'_c$).

1.04 SYSTEM DESCRIPTION
   A. Design requirements:
      1. Design of concrete forms, falsework, and shoring in accordance with ASCE
         37-14 and applicable local, state, and federal regulations.
      2. Design forms and ties to withstand concrete pressures without bulging,
         spreading, or lifting of forms.
   B. Performance requirements:
      1. Construct forms so that finished concrete conforms to shapes, lines, grades,
         and dimensions indicated on the Drawings.
      2. It is required that surface of concrete after stripping presents smooth, hard,
         and dense finish that requires minimum amount of finishing.
      3. Provide sufficient number of forms so that the work may be performed rapidly
         and present uniform appearance in form patterns and finish.
      4. Use forms that are clean and free from dirt, concrete, and other debris:
         a. Coat with form release agent if required, prior to use or reuse.

1.05 SUBMITTALS
   A. Information on proposed forming system:
      1. Submit in such detail as the Owner may require to assure himself that the
         Specifications can be achieved by use of the proposed system.
      2. Alternate combinations of plywood thickness and spacing of studs specified in
         Section 2.01 may be submitted.
1.06 QUALITY ASSURANCE

A. Qualifications of formwork manufacturers: Use only forming systems by manufacturers having a minimum of 5 years’ experience, except as otherwise specified, or accepted in writing by the Owner.

B. Regulatory requirements: Install work of this Section in accordance with local, state, and federal regulations.

PART 2 PRODUCTS

2.01 MANUFACTURED UNITS

A. Forms: Built-up plywood:
   1. Built-up plywood forms may be substituted for prefabricated forming system subject to following minimum requirements:
      a. Size and material:
         1) Use full size 4-foot by 8-foot plywood sheets, except where smaller pieces are able to cover entire area.
         2) Sheet construction: 5-ply plywood sheets, 3/4-inch nominal, made with 100 percent waterproof adhesive, and having finish surface that is coated or overlaid with surface that is impervious to water and alkaline calcium and sodium hydroxide of cement.
      b. Wales: Minimum 2-inch by 4-inch lumber.
      c. Studding and wales: Contain no loose knots and be free of warps, cups, and bows.

B. Forms: Steel or steel framed:
   1. Steel forms:
      a. Rigidly constructed and capable of being braced for minimum deflection of finish surface.
      b. Capable of providing finish surfaces that are flat without bows, cups, or dents.
   2. Steel framed plywood forms:
      a. Provide forms that are rigidly constructed and capable of being braced.
      b. Plywood paneling: 5-ply, minimum 5/8-inch nominal, made with 100 percent waterproof adhesive, and having finish surface that is coated or overlaid with surface which is impervious to water and alkaline calcium and sodium hydroxide of cement.

C. Form release agent:
   1. Effective, non-staining, bond-breaking coating compatible with form surfaces and concrete mixes used.

D. Form ties:
   1. General:
      a. Provide form ties for forming system selected that are manufactured by recognized manufacturer of concrete forming equipment.
      b. Do not use wire ties or wood spreaders of any form.
      c. Provide ties of type that accurately tie, lock, and spread forms.
d. Provide form ties of such design that when forms are removed, they locate no metal or other material within 1-1/2 inches of the surface of the concrete.
e. Do not allow holes in forms for ties to allow leakage during placement of concrete.

2. Cone-snap ties:
   a. Cone-snap ties shall form a cone shaped depression in the concrete with minimum diameter of 1 inch at the surface of the concrete and minimum depth of 1-1/2 inches.
   b. Provide neoprene waterseal washer that is located near the center of the concrete.

3. Taper ties:
   a. Neoprene plugs for taper tie holes: Size so that after they are driven, plugs are located in center third of wall thickness.

E. Incidentals:
   1. External angles:
      a. Where not otherwise indicated on the Drawings, provide with 3/4-inch bevel, formed by utilizing true dimensioned wood or solid plastic chamfer strip on walkways, slabs, walls, beams, columns, and openings.
      b. Provide 1/4-inch bevel formed by utilizing true dimensioned wood or solid plastic chamfer strip on walkways, walls, and slabs at expansion and construction joints.

PART 3 EXECUTION

3.01 EXAMINATION

A. Site verification of conditions:
   1. Do not place concrete until forms have been checked for alignment, level, and strength, and mechanical and electrical inserts or other embedded items for correct location.

3.02 INSTALLATION

A. Forms: Built-up plywood:
   1. Studding:
      a. Spaced to meet the design requirements of the formwork.
      b. Closer spacing may be required depending upon strength requirements of the forms, in order to prevent any bulging surfaces on faces of finished concrete work.
      c. Install studs perpendicular to grain of exterior plys of plywood sheets.
   2. Wales: Form wales of double lumber material with minimum size as specified in this Section.
   3. Number of form reuses: Depends upon durability of surface coating or overlay used, and ability to maintain forms in condition such that they are capable of producing concrete that meets the tolerance requirements specified herein and producing a flat, smooth, hard, dense finish on concrete when stripped.
B. Forms: Steel or steel framed:
   1. Steel forms:
      a. Adequately brace forms for minimum deflection of finish surface.
   2. Steel framed plywood forms:
      a. Rigidly construct and brace with joints fitting closely and smoothly.
      b. Number of form reuses: Depends upon durability of surface coating or overlay used.
   3. Built-up plywood forms: As specified in this Section may be used in conjunction with steel forms or steel framed plywood forms for special forming conditions such as corbels and forming around items which will project through forms.

C. Form bracing and alignment:
   1. Line and grade: Limit deviations to tolerances which will permit proper installation of structural embedded items or mechanical and electrical equipment and piping.
   2. Formwork:
      a. Securely brace, support, tie down, or otherwise hold in place to prevent movement.
      b. Make adequate provisions for uplift pressure, lateral pressure on forms, and deflection of forms.
   3. When second lift is placed on hardened concrete: Take special precautions in form work at top of old lift and bottom of new lift to prevent:
      a. Spreading and vertical or horizontal displacement of forms.
      b. Grout "bleeding" on finish concrete surfaces.
   4. Pipe stubs, anchor bolts, and other embedded items: Set in forms where required.
   5. Cracks, openings, or offsets at joints in formwork: Close those that are 1/16-inch or larger by tightening forms or by filling with acceptable crack filler.

D. Forms: Incidentals:
   1. Reentrant angles: May be left square.
   2. Level strips: Install at top of wall concrete placements to maintain true line at horizontal construction joints.
   3. Inserts:
      a. Encase pipes, anchor bolts, steps, reglets, castings, and other inserts, as indicated on the Drawings or as required, in concrete.
   4. Pipe and conduit penetrations:
      a. Install pipe and conduit in structures as indicated on the Drawings, and seal with materials as specified in Section 07_90_00 - Joint Sealants.

E. Form release agent:
   1. Apply in accordance with manufacturer’s instructions.

F. Form ties:
   1. Cone-snap ties: Tie forms together at not more than 2-foot centers vertically and horizontally.

3.03 FORM REMOVAL

A. For the purpose of determining form stripping times, the strength of concrete shall be estimated using compressive strength test results from job-cured cylinders.
1. The Contractor shall prepare and test additional concrete cylinders as required.

B. Form removal times specified herein shall be considered to be the cumulative time that the concrete is exposed to an air temperature above 50° F.

C. Keep forms in place for at least the periods indicated in the following paragraphs:
   1. Vertical forms:
      a. Keep vertical forms in place for a minimum of 24 hours after concrete is placed.
      b. For members that will be subject to self-weight and super-imposed loads, keep vertical forms in place until such time that the member strength is adequate to support the self-weight and the super-imposed loads without damage to the member and/or supported members.
      c. Vertical forms shall not be removed if the compressive strength is less than 1,500 psi.
   2. Other forms and shoring: Keep in place:
      a. Sides of footings: 24 hours minimum.
      b. Vertical sides of beams, girders, and similar members: 48 hours minimum.
      c. Bottom of suspended slabs, beams, and girders: Until concrete strength reaches the specified strength $f'_c$ or until shoring is installed.
      d. Shoring for suspended slabs, beams, and girders: Shore until concrete strength reaches the specified strength $f'_c$.
      e. Wall bracing: Brace walls until concrete strength of beams and slabs (suspended and at-grade) laterally supporting wall reaches the specified strength $f'_c$.

D. Green concrete:
   1. Loading on green concrete shall not be permitted unless it can be demonstrated to the satisfaction of the Owner by the Contractor that the loading will not affect the serviceability of the structure and/or structural members when evaluated in accordance with the provisions set forth in ASCE 37-14.

3.04 SURFACE REPAIRS AND FINISHING

A. Immediately after forms are removed, carefully examine concrete surfaces, and repair any irregularities in surfaces and finishes as specified in Section 03_30_00 - Cast-in-Place Concrete.

B. Form ties: Remove form ties from surfaces. Fill tie holes as follows:
   1. Remove form ties from surfaces.
   2. Roughen cone shaped tie hole surfaces before repair to obtain a 1/16-inch to 1/8-inch profile.
   3. Dry pack cone shaped tie holes with dry-pack mortar as specified in Section 03_60_00 - Grouting.
   4. Taper ties:
      a. After forms and taper ties are removed from wall, plug tie holes with neoprene plug as follows:
         1) Heavy sandblast and then clean tie holes.
2) After cleaning, drive neoprene plug into each of taper tie holes with steel rod. Final location of neoprene plug shall be in center third of wall thickness. Bond neoprene plug to concrete with epoxy.

3) Locate steel rod in cylindrical recess and against middle of plug during driving:
   a) At no time are plugs to be driven on flat area outside cylindrical recess.

b. Dry-pack of taper tie holes:
   1) After installing plugs in tie holes, coat tie hole surface with epoxy bonding agent and fill with dry-pack mortar as specified in Section 03_60_00 - Grouting:
      a) Place dry-pack mortar in holes in layers with thickness not exceeding tie hole diameter and heavily compact each layer.
      b) Dry-pack the outside of the hole no sooner than 7 days after the inside of the hole has been dry packed.
      c) Wall surfaces in area of dry-packed tie holes: On the water side of water containing structures and the outside of below grade walls:
         (1) Cover with minimum of 10 mils of epoxy gel.
         (2) Provide epoxy gel coating on wall surfaces that extend minimum of 2 inches past dry-pack mortar filled tie holes.
         (3) Provide finish surfaces that are free from sand streaks or other voids.

3.05 TOLERANCES:

A. Finished concrete shall conform to shapes, lines, grades, and dimensions indicated on the Drawings.

B. Construct work within the tolerances in accordance with ACI 117, except as modified in the following paragraphs or as indicated on the Drawings:
   1. General:
      a. At certain locations in the Work, tolerances required for equipment placement and operation may be more restrictive than the general tolerance requirements of this Section.
      b. Confirm equipment manufacturers’ required tolerances for location and operation of equipment that will be installed, and construct concrete to satisfy those requirements.
   2. Slabs:
      a. Slope: Uniformly sloped to drain when slope is indicated on the Drawings.
      b. Slabs indicated to be level: Have maximum vertical deviation of 1/8-inch in 10-foot horizontal length without any apparent changes in grade.
   3. Inserts and embedments:
      a. Set inserts and embedments to tolerances required for proper installation and operation of equipment or systems to which insert pertains.
      b. Maximum tolerances: As follow:

<table>
<thead>
<tr>
<th>Item</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleeves and inserts</td>
<td>Plus 1/8 Minus 1/8 inches.</td>
</tr>
<tr>
<td>Anchor bolts:</td>
<td></td>
</tr>
<tr>
<td>Projected ends</td>
<td>Plus 1/4 Minus 0.0 inches.</td>
</tr>
</tbody>
</table>
Concrete Formwork

<table>
<thead>
<tr>
<th>Item</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axial alignment</td>
<td>Not more than 2 degrees off the axis indicated on the Drawings.</td>
</tr>
<tr>
<td>Setting location</td>
<td>Plus 1/16 Minus 1/16 inches.</td>
</tr>
</tbody>
</table>

C. Remove and replace work that does not conform to required tolerances. Procedures and products employed in and resulting from such re-work shall be acceptable to the Owner.

END OF SECTION
PART 1       GENERAL

1.01       SUMMARY
A.       Section includes:
1.       Reinforcing bars:
   a.       Carbon steel.
2.       Bar supports.
3.       Tie wires.

1.02       REFERENCES
A.       American Concrete Institute (ACI):
1.       318 - Building Code Requirements for Structural Concrete and Commentary.
B.       American Iron and Steel Institute (AISI).
C.       American Welding Society (AWS):
1.       D1.4 - Structural Welding Code - Reinforcing Steel.
D.       ASTM International (ASTM):
3.       A706 - Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.
E.       Concrete Reinforcing Steel Institute (CRSI):

1.03       DEFINITIONS
A.       Architectural concrete: For purposes of this Section, architectural concrete includes the following:
1.       Concrete surfaces that will be exposed to view in the finished work.
2.       Concrete surfaces specified to receive paints or coatings.
3.       Exposed concrete in open basins, channels, and similar liquid containing structures, that is located above a line 2 feet below the normal operating water surface elevation in that structure.
B.       Bars: Reinforcement or reinforcing bars as specified in this Section.
C. Evaluation Report: Report prepared by the International Code Council – Evaluation Service (ICC-ES), or by other testing agency acceptable to the Owner and to the Building Official, that documents testing and review of a product to confirm that it complies with the requirements of designated ICC-ES Acceptance Criteria, and its acceptance for use under the Building Code specified in Section 01_41_00 - Regulatory Requirements.

D. Give away bars: Reinforcing bars that are not required by the Contract Documents, but are installed by the Contractor to provide support for the required reinforcing bars.

E. Wire supports: Metal reinforcing supports constructed of steel wire as specified. Includes individual high chairs, continuous high chairs, bolster and other similar configurations and shapes.

1.04 SYSTEM DESCRIPTION

A. The drawings contain notes describing the size and spacing of reinforcement and its placement, details of reinforcement at wall corners and intersections, and details of extra reinforcement around openings in concrete, and other related information.

1.05 SUBMITTALS

A. General:
1. Submit in accordance with Section 01_33_00 - Submittal Procedures.
2. Changes to reinforcement in Contract Documents:
   a. Indicate in a separate letter submitted with shop drawings any changes to reinforcement indicated on the Drawings or specified.
   b. Such changes will not be acceptable unless Owner has accepted them in writing.

B. Product data:
1. Bar supports:
   a. Wire bar supports:
      1) Schedule of support materials to be provided and locations of use.
   b. Precast concrete bar supports (“dobies”):
   c. Manufacturer's data indicating compression strength of concrete and confirming dimensions and thickness(es), height(s) to be provided for each location where used.

C. Shop drawings:
1. Reinforcement shop drawings:
   a. Submit drawings showing bending and placement of reinforcement required by the Contract Documents.
   b. Clearly indicate structures or portions of structures covered by each submittal:
      1) Submit reinforcement shop drawings for each structure as a complete package. Submittals addressing only a portion of a structure will be rejected and returned without review, unless such presentation is accepted by Owner in advance.
d. Use the same bar identification marks on bending detail drawings, placement drawings, and shipping tags.
e. Submittals consisting solely of reinforcing bar schedules, without accompanying placement drawings, will not be accepted.

2. Reinforcement placement drawings:
a. Clearly show placement of each bar listed in the bill of materials, including additional reinforcement at corners and openings, and other reinforcement required by details in the Contract Documents.
b. Clearly identify locations of reinforcement with coatings (e.g., galvanized or epoxy) and with yield strength other than ASTM A615, Grade 60.
c. Show splice locations.

3. Reinforcement fabrication drawings:
a. If bend types or nomenclature differs from that recommended in the CRSI Manual of Standard Practice, provide details showing bend types and dimensional designations.
b. Clearly identify reinforcement with coatings and with yield strength other than ASTM A615, Grade 60.

D. Samples (when requested by Owner):
   1. Bar supports/wire reinforcement supports: Samples of each type of chair and bolster proposed for use. Submit with letter stating where each type will be used.
   2. Precast concrete bar supports: Samples of each type of precast support proposed for use. Submit with letter stating where each will be used.

E. Test reports:
   1. Certified copy of mill test for each steel used. Show physical properties and chemical analysis:
      a. Mill test reports may be submitted as record documents at the time the reinforcement from that heat of steel is shipped to the site.
      b. Country of origin.

F. Special procedures:
   1. Welding procedures conforming to AWS D1.4 for reinforcement to be field welded:
      a. Procedures qualification record.

G. Qualifications statements:
   1. Welder qualifications and copy of card.

H. Closeout documents:
   1. Field quality control and inspection reports.
   2. Field quality assurance special inspection and testing reports.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Packing and shipping:
   1. Deliver bars bundled and tagged with identifying tags.

B. Acceptance at site:
   1. Reinforcing bars: Deliver reinforcing with grade identification marks that comply with the CRSI Manual of Practice.
1.07 SEQUENCING AND SCHEDULING

A. Bar supports:
   1. Do not place concrete until samples and product data for bar supports have been accepted by Owner.

PART 2 PRODUCTS

2.01 MATERIALS

A. Reinforcing bars:
   1. Provide reinforcement of the grades and quality specified, fabricated from new stock, free from excessive rust or scale, and free from unintended bends or other defects affecting its usefulness.
   2. Reinforcing bars:
      a. ASTM A615 Grade 60 deformed bars, including the following requirements or ASTM A706 Grade 60 deformed bars:
         1) Actual yield strength based on mil tests of reinforcement provided shall not exceed the minimum yield strength specified in this Section by more than 18,000 pounds per square inch.
         2) Ratio of actual ultimate tensile strength to actual tensile yield strength shall not be less than 1.25.
   3. Reinforcing bars designated or required to be welded:
      a. Low-alloy, ASTM A706 Grade 60, deformed bars.

B. Bar supports:
   1. Wire supports:
      a. All stainless steel bar supports:
         1) Conforming to CRSI Manual of Standard Practice recommendations for types and details, but custom fabricated entirely from stainless steel wire conforming to ASTM A493, AISI Type 316.
      b. Stainless steel protected bar supports:
         1) Conforming to CRSI Manual of Standard Practice Class 2, Type B, and consisting of bright basic wire support fabricated from cold–drawn carbon steel wire with stainless steel ends attached at the bottom of each leg.
         2) Stainless steel wire ends shall conform to ASTM A493, AISI Type 316 and shall extend at least 3/4 inch inward from the formed surface of the concrete.
      c. Bright basic wire bar supports:
   2. Deformed steel reinforcing bar supports:
      a. Fabricated of materials and to CRSI details recommended for typical reinforcement embedded in concrete and bent to dimensions required to provide specified clearances and concrete cover.
   3. Precast concrete bar supports ("dobies"):
      a. Pre-manufactured, precast concrete blocks with cast-in annealed steel wires, 16-gauge or heavier.
      b. Compression strength of concrete: Equal to or exceeding the compression strength of the surrounding concrete.
c. Block dimensions:
   1) Height to provide specified concrete cover.
   2) Footprint not less than 3 inches by 3 inches, and adequate to support the weight of the reinforcement and maintain specified concrete cover without settling into the underlying surface.

C. Tie wires:
   1. General use: Black annealed steel wire, 16-gauge or heavier.

2.02 FABRICATION

A. Shop fabrication and assembly:
   2. Bend bars cold. Use bending collars to develop the recommended bend radius.
   3. Provide bars free from defects and kinks and from bends not indicated on the Drawings.
   4. Circumferential and radiused reinforcement: Roll to the radius required for its location in the structure before installation.

PART 3  EXECUTION

3.01 EXAMINATION

A. Verification of conditions:
   1. Reinforcing bars and welded wire reinforcement:
      a. Verify that reinforcement is new stock, free from rust scale, loose mill scale, excessive rust, dirt, oil, and other coatings that will adversely affect bonding capacity when placed in the Work.

3.02 PREPARATION

A. Surface preparation:
   1. Reinforcing bars - uncoated:
      a. Clean reinforcement of concrete, dirt, oil and other coatings that will adversely affect bond before embedding bars in subsequent concrete placements.
      b. Thin coating of red rust resulting from short exposure will not be considered objectionable. Thoroughly clean bars having rust scale, loose mill scale, or thick rust coat.
      c. Partially embedded reinforcement: Remove concrete or other deleterious coatings from dowels and other projecting bars by wire brushing or sandblasting before bars are embedded in subsequent concrete placements.

3.03 INSTALLATION

A. Reinforcing bars: General:
   1. Field-cutting of reinforcing bars is not permitted.
   2. Field-bending of reinforcing bars, including straightening and rebending, is not permitted.
B. Placing reinforcing bars:
1. Accurately place bars to meet position and cover requirements indicated on the Drawings and specified. Secure bars in position.
2. Tolerances for placement and minimum concrete cover: As listed in Table 1.

<table>
<thead>
<tr>
<th>Table 1 - Reinforcement Placing Tolerances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Member</td>
</tr>
<tr>
<td>-------------------------------------------</td>
</tr>
<tr>
<td>Slabs, beams, walls and columns except as noted below:</td>
</tr>
<tr>
<td>10 inches thick and less</td>
</tr>
<tr>
<td>More than 10 inches thick</td>
</tr>
<tr>
<td>Formed soffits:</td>
</tr>
<tr>
<td>Longitudinal location of bends and ends of reinforcement:</td>
</tr>
<tr>
<td>Conditions not listed below:</td>
</tr>
<tr>
<td>At discontinuous ends of brackets and corbels</td>
</tr>
<tr>
<td>At discontinuous ends of other members:</td>
</tr>
</tbody>
</table>

Notes:
(1) + indicates "plus or minus;" - indicates "minus;" + indicates "plus."
(2) Tolerance on cover is limited as noted, but decrease in cover shall not exceed one third of the minimum cover indicated on the Drawings.

3. Spacing between bars:
a. Minimum clear spacing between bars in a layer:
   1) As indicated on the Drawings, but not less than the larger of 1.5 times the bar diameter or 1-1/2 inches.

b. Minimum clear spacing between bars in 2 or more parallel layers:
   1) Place bars in upper layers directly above bars in lower layers.
   2) Minimum spacing between layers: As indicated on the Drawings, but not less than the larger of 1.5 times the bar diameter or 1-1/2 inches.

c. Limits on minimum clear spacing between bars also applies to the clear spacing between a lap splice and the adjacent bars and/or lap splices.

4. Lap splices for bars:
a. Lap splice locations and lap splice lengths: as indicated on the Drawings. Where lap lengths are not indicated, provide in accordance with ACI 318.
b. Unless otherwise specifically indicated on the Drawings (and noted as "non-contact lap splice"), install bars at lap splices in contact with each other and fasten together with tie wire.
c. Where bars are to be lap spliced at concrete joints, ensure that bars project from the first concrete placement a length equal to or greater than minimum lap splice length indicated on the Drawings.
d. Stagger lap splices where indicated on the Drawings.
e. Where lap splice lengths are not indicated on the Drawings, provide lap splice lengths in accordance with ACI 318.
C. Reinforcing supports:
   1. Provide supports of sufficient numbers, sizes, and locations to maintain concrete cover, to prevent sagging and shifting, and to support loads during construction without displacement and without gouging or indentation into forming surfaces:
      a. Quantities and locations of supports shall not be less than those indicated in ACI SP-66 and the CRSI Manual of Standard Practice.
   2. Do not use brick, concrete masonry units, concrete spalls, rocks, wood, or similar materials for supporting reinforcement.
   3. Do not use "give away bars" that have less cover than that required by the Contract Documents. Do not adjust the location of reinforcement required by the Contract Documents to provide cover for give away bars.
   4. Provide bar supports of height required to maintain the clear concrete cover indicated on the Drawings.
   5. Provide bar supports at formed vertical faces to maintain the clear concrete cover indicated on the Drawings.
   6. Schedule of reinforcement support materials: Provide bar supports as indicated in Table 2.

<table>
<thead>
<tr>
<th>Table 2 - Reinforcement Support Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case</td>
</tr>
<tr>
<td>a. Concrete placed over earth and concrete seal slabs (&quot;mud mats&quot;).</td>
</tr>
<tr>
<td>b. Concrete placed against forms and exposed to earth, weather, frequent washdown, or groundwater in the finished work.</td>
</tr>
<tr>
<td>c. Concrete placed against forms and exposed to interior equipment/piping areas in the finished work.</td>
</tr>
<tr>
<td>d. Between mats of reinforcement, and fully embedded within a concrete member.</td>
</tr>
</tbody>
</table>

D. Tying of reinforcing:
   1. Fasten reinforcement securely in place with wire ties.
   2. Tie reinforcement at spacings sufficient to prevent shifting:
      a. Provide at least 3 ties in each bar length. (Does not apply to dowel lap splices or to bars shorter than 4 feet, unless necessary for rigidity).
   3. Tie slab bars at every intersection around perimeter of slab.
   4. Tie wall bars and slab bar intersections other than around perimeter at not less than every fourth intersection, but at not more than the spacing indicated in Table 3:

<table>
<thead>
<tr>
<th>Table 3 - Maximum Spacing of Tie Wires for Reinforcement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bar Size</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>Bars Number 5 and Smaller</td>
</tr>
<tr>
<td>Bars Number 6 through Number 9</td>
</tr>
</tbody>
</table>
Table 3 - Maximum Spacing of Tie Wires for Reinforcement

<table>
<thead>
<tr>
<th>Bar Size</th>
<th>Slab Bar Spacing (inches)</th>
<th>Wall Bar Spacing (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bars Number 10 and Number 11</td>
<td>120</td>
<td>96</td>
</tr>
</tbody>
</table>

5. After tying:
   a. Bend ends of wires inward towards the center of the concrete section. Minimum concrete cover for tie wires shall be the same as cover requirements for reinforcement.
   b. Remove tie wire clippings from inside forms before placing concrete.

E. Welding reinforcing bars:
   1. Weld reinforcing bars only where indicated on the Drawings or where acceptance is received from Owner prior to welding.
   2. Perform welding in accordance with AWS D1.4 and welding procedures accepted by Owner:
      a. Conform to requirements for minimum preheat and interpass temperatures.
   3. Submit:
      a. Welding procedures specification.
      b. Procedures qualification record.
      c. Welder qualification test record.
   4. Do not tack weld reinforcing bars except where specifically indicated on the Drawings.

3.04 FIELD QUALITY CONTROL

A. Provide quality control for the Work of this Section as specified in Section 01_45_00 - Quality Control.

B. Field inspections and testing:
   1. Submit records of inspections and testing to Owner in electronic format within 24 hours after completion.

3.05 FIELD QUALITY ASSURANCE

A. Provide quality assurance as specified in Section 01_45_00 - Quality Control.

B. Special inspections and tests:
   1. To be provided by the Owner as specified in Section 01_45_24.15 – Special Inspections, Seismic Certification, and Structural Observation.
   2. Preparation:
      a. The special inspector will review Drawings and Specification for the Work to be observed prior to conducting special inspections.
      b. The special inspector will review approved submittals and shop drawings prior to conducting special inspections.
   3. Inspections: Special inspection shall include, but is not limited to, the following items:
      a. Reinforcement: General:
         1) Type (material) and location of reinforcement supports.
         2) Bar material/steel grade and bar size.
         3) Location, placement, and spacing of bars.
4) Clear concrete cover over reinforcement.
5) Lap splice: Location and lap length. Bars within tolerances for contact (unless non-contact splice is indicated on the Drawings.).
6) Bar hooks and development lengths embedded within concrete sections as indicated on the Drawings.
7) Reinforcement tired in position and tie wire legs turned inward toward the center of the concrete section.

b. Reinforcement: Welding:
   1) Inspector qualification and inspections shall be in accordance with the requirements of AWS D1.4.
   2) Owner will provide periodic inspection for:
      a) Weldability of reinforcement other than ASTM A706.
      b) Single pass fillet welds with thickness less than or equal to 5/16 inch.
   3) Owner will provide continuous inspection for:
      a) Other welds.
      b) Welds at mechanical reinforcing bar couplers and end anchors.
   4) In addition to visual inspection, Owner may inspect reinforcing bar welds by other methods, including radiographic inspection.

4. Records of inspections:
   a. A written record of each inspection using forms acceptable to the Owner and to the Building Official will be prepared and submitted by others.
   b. Electronic copies of inspection reports will be prepared and submitted by others to the Owner within 24 hours after completion of inspections.

3.06 NON-CONFORMING WORK

A. Before placing concrete, adjust or remove and re-install reinforcement to conform to the requirements of the inspection results and Contract Documents.

END OF SECTION
SECTION 03_21_17

ADHESIVE-BONDED REINFORCING BARS AND ALL THREAD RODS IN CONCRETE

PART 1 GENERAL

1.01 SUMMARY
A. Section includes: Bonding reinforcing bars and all thread rods in concrete using adhesives.

1.02 REFERENCES
A. American Concrete Institute (ACI):
   1. 355.4 - Qualification of Post-Installed Adhesive Anchors in Concrete and Commentary.

B. American National Standards Institute (ANSI):

C. ASTM international (ASTM):

D. Concrete Reinforcing Steel Institute (CRSI).

E. ICC Evaluation Service, Inc. (ICC-ES):
   1. AC308 - Acceptance Criteria for Post-Installed Adhesive Anchors in Concrete Elements.

F. Society for Protective Coatings (SSPC):
   1. SP-1 - Solvent Cleaning.

1.03 DEFINITIONS
A. Evaluation Service Report (ESR): Report prepared by International Code Council - Evaluation Service (ICC-ES), or other testing agency acceptable to Owner, that documents testing and review of a product to confirm that it complies with the requirements of designated ICC-ES Acceptance Criteria, and to document its acceptance for use under the Building Code specified in Section 01_41_00 - Regulatory Requirements.

1.04 SUBMITTALS
A. Product data: Technical data for adhesives, including:
   1. Manufacturer's printed installation instructions (MPII).
   2. Independent laboratory test results indicating allowable loads in tension and shear for concrete of the types included in this Work, with load modification factors for temperature, spacing, edge distance, and other installation variables.
3. Handling and storage instructions.

B. Quality control submittals:
   1. Special inspection: Detailed step-by-step instructions for the special inspection procedures required by the building code specified in Section 01_41_00 - Regulatory Requirements.
   2. For each adhesive to be used, Evaluation Service Report confirming that the product complies with the requirements of AC308 for both un-cracked and cracked concrete and for use in Seismic Design Categories A through F.
   3. Installer qualifications:
      a. Submit evidence of successful completion of adhesive manufacturer's installation training program.
      b. Submit evidence of current certification for installation of inclined and overhead anchors under sustained tension loading.

C. Special inspection and testing reports:
   1. Reports of special inspections and any tests will be submitted by others, but shall be scheduled by the Contractor.

1.05 QUALITY ASSURANCE

A. Qualifications:
   1. Installation requirements:
      a. Have available at the site, and install anchors in accordance with, the adhesive manufacturer's printed installation instructions.
   2. Installer qualifications:
      a. Demonstrating successful completion of adhesive manufacturer's on-site training program for installation of adhesive-bonded anchors.
      b. Holding current certification for installation of adhesive-bonded anchors by a qualified organization acceptable to the Owner:
         1) Organizations/certification programs deemed to be qualified are:
            a) ACI-CRSI Adhesive Anchor Installer Certification Program.
            b) Adhesive anchor manufacturer's certification program, subject to acceptance by the Owner.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store and protect products as follows, unless more restrictive requirements are recommended by the manufacturer:
   1. Store adhesives and adhesive components on pallets or shelving in a covered-storage area protected from weather.
   2. Control temperature to maintain storage within manufacturer's recommended temperature range:
      a. If products have been stored at temperatures outside manufacturer's recommended range, test by methods acceptable to the Owner to confirm acceptability before installing in the Work.
   3. Dispose of products that have passed their expiration date.
PART 2 PRODUCTS

2.01 GENERAL

A. Like items of materials: Use end products of one manufacturer in order to achieve structural compatibility and singular responsibility.

B. Adhesives shall have a current Evaluation Service Report documenting testing and compliance with the requirements or ACI 355.4 and of ICC-ES AC308 for use with un-cracked concrete and with cracked concrete in Seismic Design Category D.
   1. Bond reinforcing bars and all thread rods in concrete using epoxy adhesive unless other adhesives specified are specifically indicated on the Drawings or approved in writing by the Owner.

2.02 EPOXY ADHESIVE

A. Materials:
   1. Meeting the physical requirements of ASTM C881, Type IV, Grade 3, Class B or C depending on site conditions.
   2. 2-component, 100 percent solids, insensitive to moisture.
   3. Cure temperature, pot life, and workability: Compatible with intended use and environmental conditions.

B. Packaging:
   1. Disposable, self-contained cartridge system furnished in side-by-side cartridges designed to fit into a manually or pneumatically operated caulking gun, and with resin and hardener components isolated until mixing through manufacturer's static mixing nozzle:
      a. Nozzle designed to dispense components in the proper ratio and to thoroughly blend the components for injection from the nozzle directly into prepared hole.
      b. Provide nozzle extensions as required to allow full-depth insertion and filing from the bottom of the hole.
   2. Container markings: Include manufacturer’s name, product name, batch number, mix ratio by volume, product expiration date, ANSI hazard classification, and appropriate ANSI handling precautions.

C. Manufacturers: One of the following or equal:

D. As an alternative to the epoxy adhesive systems specified herein, the Contractor may use one of the following alternative adhesive anchor systems at no additional cost to the Owner with the approval of the Owner:
2.03 ALL THREAD RODS

A. Materials: As specified in Section 05_12_00 - Structural Steel for rods, nuts and washers.

2.04 REINFORCING BARS

A. As specified in Section 03_20_00 - Concrete Reinforcing.

PART 3 EXECUTION

3.01 GENERAL

A. Execution of this work is restricted to installers who have personally completed the adhesive manufacturer's on-site training for the products to be installed, and who are personally certified through a qualified certification program described under Quality Assurance and accepted by the Owner:
   1. Do not install holes or adhesive until training is complete.

B. Perform work in strict compliance with the accepted MPII and the following instructions. Where the accepted MPII and the instructions conflict, the MPII shall prevail.

C. Install reinforcing bars and all thread rods to embedment depth, and at spacing and locations indicated on the Drawings:
   1. If embedment depth is not indicated, contact Owner for requirements.
   2. Do not install adhesive-bonded all thread rods or reinforcing bars in upwardly inclined or overhead applications unless accepted in advance by Owner.

D. OSHA regulations for the protection of workers from silica dust exposure shall be closely followed for all means and methods employed for anchor hole drilling/coring, cleaning, and installation.

3.02 PREPARATION

A. Do not begin installation of adhesive bonded anchors until:
   1. Concrete has achieved an age of at least 21 days after placement or the concrete has attained the specified compressive strength based on concrete testing of the concrete that the anchorage will be installed into.
   2. On-site training in installation of adhesive bonded anchors by manufacturer's technical representative is complete. Do not drill holes in concrete or install adhesive and embeds in holes.

B. Review manufacturer's printed installation instructions (MPII) and "conditions of use" stipulated in the Evaluation Service Report before beginning work:
   1. Bring to the attention of the adhesive manufacturer's technical representative any discrepancies between these documents, and resolve before proceeding with installation.

C. Install adhesive bonded anchors in full compliance with manufacturer's printed installation instructions using personnel who have successfully completed
D. Confirm that adhesive and substrate receiving adhesive are within manufacturer's recommended range for temperature and moisture conditions, and will remain so during the curing time for the product.

### 3.03 HOLE SIZING AND INSTALLATION

**A. Drilling holes:**
1. Determine location of reinforcing bars or other obstructions with a nondestructive indicator device, and mark locations with construction crayon on the surface of the concrete.
2. Do not damage or cut existing reinforcing bars, electrical conduits, or other items embedded in the existing concrete without prior acceptance by Owner.

**B. Hole drilling equipment:**
1. Electric or pneumatic rotary impact type with medium or light impact:
   a. Installation of anchors in cored holes is not permitted.
   b. Set drill to "rotation only" mode, or to "rotation plus hammer" mode in accordance with the manufacturer's installation instructions and the requirements of the Evaluation Service Report.
   c. Where edge distances are less than 2 inches and "rotation plus hammer" mode is permitted, use lighter impact equipment to prevent micro-cracking and concrete spalling during the drilling process.
2. Drill bits: Carbide-tipped in accordance with ANSI B212-15 unless otherwise recommended by the manufacturer or required as a "condition of use" in the Evaluation Report:
   a. Hollow drill bits with flushing air systems are preferred. Air supplied to hollow drill bits shall be free of oil, water, or other contaminants that will reduce bond.

**C. Hole diameter:** As recommended in the manufacturer's installation instructions and the Evaluation Service Report.

**D. Hole depth:** As recommended in the manufacturer's installation instructions to provide minimum effective embedment indicated on the Drawings.

**E. Obstructions in drill path:**
1. If an existing reinforcing bar or other obstruction is hit while drilling a hole, unless otherwise accepted by Owner, stop drilling. Prepare and fill the hole with dry-pack mortar. Relocate the hole to miss the obstruction and drill another hole to the required depth:
   a. Obtain Owner's acceptance of distance between abandoned and relocated holes before proceeding with the relocation.
   b. Allow dry-pack mortar to cure to a strength equal to that of the surrounding concrete before resuming drilling in the area.
   c. Epoxy grout may be substituted for dry-pack mortar when accepted by Owner.
2. Avoid drilling an excessive number of holes in an area of a structural member, which would excessively weaken the member and endanger the stability of the structure.
3. When existing reinforcing steel is encountered during drilling and only when specifically allowed by Owner and Engineer, enlarge the hole by 1/8 inch, core through the existing reinforcing steel at the larger diameter, and resume drilling at original hole diameter using pneumatic rotary impact drill.

4. Bent bar reinforcing bars: Where edge distances are critical, and interference with existing reinforcing steel is likely, if acceptable to Owner, drill hole at 10 degree (or less) angle from axis of reinforcing bar or all thread rod being installed.

F. Cleaning holes:
   1. Insert air nozzle to bottom of hole and blow out loose dust:
      a. Use compressed air that is free of oil, water, or other contaminants that will reduce bond.
      b. Provide minimum air pressure of 90 pounds per square inch for not less than 4 seconds.
   2. Using a stiff bristle brush with diameter that provides contact around the full perimeter of the hole, vigorously brush hole to dislodge compacted drilling dust:
      a. Insert brush to the bottom of the hole and withdraw using a simultaneous twisting motion.
      b. Repeat at least 4 times.
   3. Repeat the preceding steps as required to remove drilling dust or other material that will reduce bond, and in the number of cycles required by the MPII and the Evaluation Service Report.
   4. Leave prepared holes clean and dry.
   5. Protect prepared and cleaned holes from contamination and moisture until adhesive is installed.
   6. Re-clean and dry previously prepared holes if, in the opinion of the Owner, the hole has become contaminated after initial cleaning.

3.04 INSTALLATION OF ADHESIVE AND INSERTS

A. Clean and prepare inserts reinforcing bars and all thread rods:
   1. Prepare embedded length of reinforcing bars and all thread rods by cleaning to bare metal. Inserts shall be free of oil, grease, paint, dirt, mill scale, rust, or other coatings that will reduce bond.
   2. Solvent clean prepared reinforcing bars and all thread rods over the embedment length in accordance with SSPC SP-1. Provide an oil and grease free surface for bonding of adhesive to steel.

B. Fill holes with adhesive:
   1. Starting at the bottom of the hole, fill hole with adhesive inserting the reinforcing bar or all thread rod.
   2. Fill hole as nozzle is withdrawn without creating air voids.
   3. Unless otherwise indicated on the Drawings, fill hole with sufficient adhesive so that excess adhesive is extruded out of the hole when the reinforcing bar or all thread rod is inserted.
   4. Where necessary, seal hole at surface of concrete to prevent loss of adhesive during curing.
C. Installing reinforcing bars and all thread rods:
   1. Unless otherwise indicated on the Drawings, install bars and rods perpendicular to the concrete surface.
   2. Insert reinforcing bars and all thread rods into adhesive in accordance with manufacturer's recommended procedures.
   3. Confirm that insert has reached the designated embedment in the concrete, and that adhesive completely surrounds the embedded portion.
   4. Securely brace bars and all thread rods in place to prevent displacement while the adhesive cures. Bars and rods displaced during curing will be considered damaged and replacement will be required.
   5. Clean excess adhesive from the mouth of the hole.

D. Curing and loading:
   1. Provide and maintain curing conditions recommended by the adhesive manufacturer for the period required to fully cure the adhesive at the temperature of the concrete.
   2. Do not disturb or load bonded embeds until manufacturer's recommended cure time, based on temperature of the concrete, has elapsed.

3.05 POST-INSTALLATION ACTIVITIES

A. Do not bend bars or all-thread rods after bonding to the concrete, unless accepted in advance by the Owner and Engineer.

B. Attachments to all thread rods:
   1. After assemblies to be connected are placed, install nuts and washers for threaded rods as indicated on the Drawings.
   2. Draw nuts down tight, using practices specified for "snug tight" installation of bolts in steel to steel connections.

3.06 FIELD QUALITY CONTROL

A. Provide field quality control over the Work of this Section as specified in Section 01_45_00 - Quality Control.

B. Do not allow work described in this Section to be performed by individuals who do not hold the specified certifications and who have not completed the specified job site training.

C. Manufacturer's services:
   1. Before beginning installation, furnish adhesive manufacturer's technical representative to conduct on-site training in proper storage and handling of adhesive, drilling and cleaning of holes, and preparation and installation of reinforcing bars and all thread rods:
      a. Provide notice of scheduled training to Owner and to Special Inspector(s) not less than 10 working days before training occurs. Owner and Special Inspector may attend training sessions.
   2. Submit record, signed by the manufacturer's technical representative, listing Contractor's personnel who completed the training. Only qualified personnel who have completed manufacturer's on-site training shall perform installations.

D. Field special inspections and testing:
2. Results: Electronic records of inspections and testing will be prepared and submitted by others to the Owner within 24 hours after completion.

3.07 FIELD QUALITY ASSURANCE

A. Provide field quality assurance over the Work of this Section as specified in Section 01_45_00 - Quality Control.

B. Special inspections and tests:
   1. To be provided by the Owner as specified in Section 01_45_24.15 – Special Inspections, Seismic Certification, and Structural Observation.
   2. Frequency of inspections:
      a. Unless otherwise indicated on the Drawings or in this Section, provide periodic special inspection as required by the Evaluation Service Report for the product installed.
      b. Provide continuous inspection for the initial installation of each type and size of adhesive bonded reinforcing bar and all thread rod. Subsequent installations of the same anchor may be installed with periodic inspection as defined in subsequent paragraphs.
      c. Provide continuous inspection of all drilling, cleaning and bonding activities for bars and rods installed in horizontal an upwardly inclined positions.

3. Preparation:
   a. Review Drawings and Specifications for the Work to be observed.
   b. Review adhesive manufacturer’s MPII and recommended installation procedures.

4. Inspection: Periodic:
   a. Initial inspection. Provide an initial inspection for each combination of concrete and reinforcing bar strength or concrete strength and all thread rod material being installed. During initial inspection, observe the following for compliance with the installation requirements:
      1) Concrete: Class (minimum specified compressive strength) and thickness.
      2) Environment: Temperature conditions at work area, and moisture conditions of concrete and drilled hole.
      3) Holes: Locations, spacing, and edge distances; verification of drill bit compliance with requirements; cleaning equipment and procedures; cleanliness of hole. Before adhesive is placed, confirm that depth and preparation of holes conforms to the requirements of the Contract Documents, the MPII, and the "conditions of use" listed in the Evaluation Service Report.
      4) Adhesive: Product manufacturer and name; lot number and expiration date; temperature of product at installation; installation procedure. Note initial set times observed during installation.
      5) Reinforcing bars and all thread rods: Material diameter and length; steel grade and/or strength; cleaning and preparation; cleanliness at insertion; minimum effective embedment provided.
b. Subsequent inspections: Subsequent installations of the same reinforcing bars or all thread rods may be performed without the presence of the special inspector, provided that:
   1) There is no change in personnel performing the installation, the general strength and characteristics of the concrete receiving the inserts, or the reinforcing bars and all thread rods being used.
   2) For ongoing installations, the special inspector visits the site at least once for every 4 hours of work during each day of installation to observe the work for compliance with material requirements and installation procedures.

5. Inspection: Continuous:
   a. Make observations as described under "Inspection - Periodic, Initial Inspection" during all drilling, cleaning, and bonding activities for all bars and rods installed.

6. Records of inspections:
   a. A written record of each inspection using forms acceptable to the Owner and to the Building Official will be prepared and submitted by others.
   b. Electronic copies of inspection reports will be prepared and submitted by others to the Owner within 24 hours after completion of inspections.

END OF SECTION
SECTION 03_30_00

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Cast-in-place concrete.

1.02 REFERENCES

A. American Concrete Institute (ACI):
   1. 305 - Hot Weather Concreting Standard.
   2. 306 - Cold Weather Concreting Standard.
   3. 318 - Building Code Requirements for Structural Concrete and Commentary.
   4. 350 - Code Requirements for Environmental Engineering Concrete Structures and Commentary.
   5. Manual of Concrete Practice.

B. American Society of Civil Engineers (ASCE):
   1. 37-14 – Design Loads on Structures During Construction.

C. ASTM International (ASTM):
   1. C31 - Standard Practice for Making and Curing Concrete Test Specimens in the Field.
   6. C88 - Standard Test Method of Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.
27. C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
28. C856 - Standard Practice for Petrographic Examination of Hardened Concrete.
30. C1293 - Standard Test Method for Determination of Length Change of Concrete Due to Alkali-Silica Reaction.
32. D2103 - Standard Specification for Polyethylene Film and Sheeting.

1.03 DEFINITIONS

A. Alkali: Sum of sodium oxide and potassium oxide calculated as sodium oxide.


C. Cold weather: A period when for more than 3 consecutive days, the average daily outdoor temperature drops below 40 degrees Fahrenheit. The average daily temperature is the average of the highest and lowest temperatures during the period from midnight to midnight. When temperatures above 50 degrees Fahrenheit occur during more than half of any 24-hour duration, the period shall no longer be regarded as cold weather.

D. Cold weather concreting: Operations for placing, finishing, curing, and protection of concrete during cold weather.

E. Green concrete: Concrete with less than 100 percent of the specified strength.

F. Hairline crack: Crack with a crack width of less than 4 thousandths of an inch.

G. Hot weather: A period when project conditions such as low humidity, high temperature, solar radiation, and high winds, promote rapid drying of freshly placed concrete.

H. Hot weather concreting: Operations for placing, finishing, curing, and protection of concrete during hot weather.
1.04 SYSTEM DESCRIPTION

A. Performance requirements:
   1. General:
      a. Except as otherwise specified, provide concrete composed of portland cement, fly ash, fine aggregate, coarse aggregate, admixtures and water so proportioned and mixed as to produce plastic, workable mixture in accordance with requirements as specified in this Section and suitable to specific conditions of placement.
      b. Proportion materials in a manner that will secure lowest water-cementitious materials ratio that is consistent with good workability, plastic and cohesive mixture, and a mixture that is within specified slump range.
      c. Proportion fine and coarse aggregates in manner such as not to produce harshness in placing or honeycombing.
   2. Secure for every part of the Work concrete with homogeneous mixture, which when hardened will have required strength, watertightness, and durability:
      a. It is recognized that some surface hairline cracks and crazing will develop in the concrete surfaces.
      b. Repair cracks which develop in walls or slabs and repair cracks which show any signs of leakage until all leakage is stopped.

1.05 SUBMITTALS

A. Cement mill tests:
   1. Include alkali content representative of each shipment of cement for verification of compliance with specified requirements.
   2. Provide mill test reports dated not more than 90 days before the date of submittal.

B. Cold weather concreting:
   1. Procedures for the production, transportation, placement, protection, curing, and temperature monitoring for concrete during cold weather.
   2. Procedures to be implemented upon abrupt changes in weather conditions or equipment failures.

C. Concrete mixes: Full details, including mix design calculations for concrete mixes proposed for use for each class of concrete:
   1. Mix design shall be stamped and signed by a licensed civil or structural engineer licensed in the state of Washington.
   2. Include information on correction of batching for varying moisture contents of fine aggregate.
   3. Source quality test records with mix design submittal:
      a. Include calculations for required compressive strength (f'c) based on source quality test records.
   4. Drying shrinkage test data.
D. Concrete aggregate tests: Certified copies in triplicate of commercial laboratory tests not more than 90 days old of all samples of concrete aggregates:
   1. Coarse aggregate:
      a. Abrasion loss.
      b. Clay lumps and friable particles.
      c. Coal and lignite.
      d. Materials finer than 200 sieve.
      e. Reactivity.
      f. Shale and chert.
      g. Soundness.
   2. Fine aggregate:
      a. Clay lumps.
      b. Color.
      c. Decantation.
      d. Reactivity.
      e. Shale and chert.
      f. Soundness.

E. Fine or coarse aggregate batched from more than 1 bin: Analyses for each bin, and composite analysis made up from these, using proportions of materials to be used in mix.

F. Fly ash Certificate of Compliance: Identify source of fly ash and certify compliance in accordance with ASTM C618.

G. For conditions that promote rapid drying of freshly placed concrete such as low humidity, high temperature, and wind: Corrective measures for use prior to placing concrete.

H. Hot weather concreting: Procedures for production, placement, finishing, curing, protection, and temperature monitoring for concrete during hot weather and appropriate corrective measures.

I. Heating equipment for cold weather concreting: Information on type of equipment used for heating materials and new concrete in process of curing during excessively cold weather.

J. Certification:
   1. Submit certification that the ready-mix concrete supplier and concrete transport vehicles are certified per the NRMCA (National Ready Mix Concrete Association) Program for Certification of Ready Mixed Concrete Facilities.

K. Product data: Submit data completely describing products.

L. Sequence of concrete placing: Submit proposed sequence of placing concrete showing proposed beginning and ending of individual placements.

M. Sequence of placing concrete showing proposed beginning and ending of individual placements.

N. Sieve analysis: Submit sieve analyses of fine and coarse aggregates being used in triplicate at least every three (3) weeks and at any time there is significant change in grading of materials.
O. Weather monitoring: Records of:
   1. Relative humidity.
   2. Site ambient temperature.
   3. Wind speed.

P. Temperature of freshly placed concrete.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Packing and shipping:
   1. Deliver, store, and handle concrete materials in manner that prevents damage
      and inclusion of foreign substances.
   2. Deliver and store packaged materials in original containers until ready for use.
   3. Deliver aggregate to mixing site and handle in such manner that variations in
      moisture content will not interfere with steady production of concrete of
      specified degree of uniformity and slump.

B. Acceptance at site: Reject material containers or materials showing evidence of
   water or other damage.

C. Transit-mixed concrete: Transport and deliver concrete in equipment conforming to
   ASTM C94 and as specified herein.

1.07 PROJECT CONDITIONS

A. Environmental requirements:
   1. Monitoring weather conditions:
      a. Install an outdoor weather station capable of measuring and recording
         ambient temperature, wind speed, and humidity. Furnish instruments
         accurate to within two (2) degrees Fahrenheit, five (5) percent relative
         humidity, and one (1) mile per hour wind speed.
      b. Measure and record temperature of fresh concrete. Furnish and use
         sufficient number of maximum and minimum self-recording thermometers
         to adequately measure temperature of concrete.
      c. Monitor and keep records of the weather forecast starting at least
         48 hours prior to placing concrete in order to allow enough time for taking
         appropriate measures pertaining to Hot or Cold weather concreting.
   2. Hot weather concreting:
      a. Initiate evaporation control measures when concrete and air
         temperatures, relative humidity of the air, and the wind velocity have the
         capacity to evaporate water from a free surface at a rate that is equal to or
         greater than 0.2 pounds per square feet per hour. Determine evaporation
         rate using the Menzel Formula and monograph in ACI 305 3.1.3.
      b. When ambient air temperature is above 85 degrees Fahrenheit: Prior to
         placing concrete, cool forms and reinforcing steel by water cooling to
         below 90 degrees Fahrenheit.
      c. Monitor weather conditions at the site including air temperature, humidity,
         and wind speed, to assess the need for evaporation control measures
         begin monitoring site conditions no later than one (1) hour before the start
         of concrete placement. Continue to monitor site conditions at intervals of
         30 minutes until concrete curing has begun.
d. Temperature of concrete mix at time of placement: Keep temperature below 90 degrees Fahrenheit by methods which do not impair quality of concrete.

e. For conditions that promote rapid drying of freshly placed concrete such as low humidity, high temperature, and wind: Take corrective measures to minimize rapid water loss from concrete.

f. Furnish and use sufficient number of maximum and minimum self-recording thermometers to adequately measure temperature around concrete.

g. No additional time or compensation will be provided for complying with hot weather concrete provisions.

3. Cold weather concreting:

a. Concrete placed below ambient air temperature of 45 degrees Fahrenheit and falling or below 40 degrees Fahrenheit:
   1) Make provision for heating water.

b. Follow recommendations of ACI 306 for preparation, placement, and protection of concrete during cold weather.

c. If materials have been exposed to freezing temperatures to degree that any material is below 35 degrees Fahrenheit: Heat such materials.

d. Heating water, cement, or aggregate materials:
   1) Do not heat in excess of 160 degrees Fahrenheit.

e. Protection of concrete in forms:
   1) Do not remove forms from concrete when outside ambient air temperature is below 50 degrees Fahrenheit until concrete has attained its minimum specified compressive strength. Evidence of strength shall be based on by testing of cylinders stored in the field under equivalent conditions to those at the concrete structure.
   2) Protect by means of covering with tarpaulins, or other acceptable covering acceptable to Owner.
   3) Provide means for circulating warm moist air around forms in manner to maintain temperature of 50 degrees Fahrenheit for at least 5 days.

f. No additional time or compensation will be provided for complying with cold weather concrete provisions.

1.08 SEQUENCING AND SCHEDULING

A. Schedule placing of concrete in such manner as to complete any single placing operation to construction or expansion joint. No additional time will be provided avoid placing concrete during cold or hot weather conditions. Contractor shall sequence and schedule the work to meet the schedule.

PART 2 PRODUCTS

2.01 MATERIALS

A. Admixtures:
   1. General:
      a. Do not use admixtures of any type, except as specified, unless written acceptance has been obtained from the Owner.
b. Admixtures shall be compatible with concrete and other admixtures. Admixtures other than pozzolans shall be the products of a single manufacture to ensure compatibility.

c. Do not use admixtures containing chlorides calculated as chloride ion in excess of 0.5 percent by weight of cement.

d. Use in accordance with manufacturer's recommendations. Add each admixture to concrete mix separately.

2. Air entraining admixture:
   a. Provide concrete with 5 percent, within 1 percent, entrained air of evenly dispersed air bubbles at time of placement.
   b. In accordance with ASTM C260.

3. Alkali-Silica Reaction (ASR) Inhibiting Admixture:
   a. Use admixture where specified.
   b. Meet the requirements of C 494, Type S.
   c. Manufacturer: One of the following:
      1) BASF Corporation, MasterLife ASR 30.
      2) Sika Corporation, SikaControl ASR.
      3) Euclid Chemical Company, Eucon Integral ARC.
   d. Dosage rates shall be as recommended by the manufacturer.
   e. Where specified for use, other admixture dosage rates shall be adjusted as required to offset any effects that the ASR inhibiting admixture introduces. Adjustments shall be determined prior to the casting of the trial batch cylinders.
   f. Where the admixture is anticipated to cause set acceleration, a set retarder that is compatible with all of the admixtures may be used. The set retarding admixture shall be dosed at a rate recommended by the manufacturer.
   g. The mix water may need to be reduced to compensate for the addition of ASR inhibiting admixture.

4. Corrosion-inhibiting admixture:
   a. Use admixture where specified.
   b. Manufacturer: One of the following:
      1) Sika Corporation, Sika-CNI, Corrosion-Inhibiting Admixture.
      2) W.R. Grace & Company, DCI S Corrosion Inhibitor.
      3) BASF Corporation, MasterLife Cl 30, Corrosion-Inhibiting Admixture.
   c. Meet the requirements of ASTM C1582 and ASTM C494, Type C.
   d. Where specified for use, dosage rates shall be a minimum of three (3) gallons per cubic yard of concrete or as recommended by the manufacturer assuming Exposure Category W1 and C2 per ACI 318-14, Table 19.3.1.1.
   e. Where specified for use, other admixture dosage rates shall be adjusted as required to offset any effects that the corrosion-inhibiting admixture introduces. Adjustments shall be determined prior to the casting of the trial batch cylinders.
   f. Where the admixture is anticipated to cause set acceleration, a set retarder that is compatible with all of the admixtures may be used. The set retarding admixture shall be dosed at a rate recommended by the manufacturer.
   g. The mix water at the batch plant may need to be reduced to compensate for the addition of a corrosion inhibiting admixture.

h.
5. Water reducing admixture:
   a. May be used at the Contractor's option.
   b. In accordance with ASTM C494, Type A or Type D.
   c. Not contain air-entraining agents.
   d. Liquid form before adding to the concrete mix.
   e. No decrease in cement is permitted as result of use of water reducing admixture.

6. Super-plasticizers: Are not to be used without acceptance by Owner.

7. Shrinkage-reducing admixture (SRA):
   a. May be used at the Contractor's option.
   b. Shall be compatible with air entraining admixtures proposed for use.

B. Aggregate:

1. General:
   a. Provide concrete aggregates that are sound, uniformly graded, and free of deleterious material in excess of allowable amounts specified.
   b. Grade aggregate in accordance with ASTM C136 and D75.
   c. Provide unit weight of fine and coarse aggregate that produces in place concrete with weight of not less than 140 pounds per cubic foot.
   d. Do not use aggregate made from recycled materials such as crushed and screened hydraulic-cement concrete, brick, and other construction materials.

2. Fine aggregate:
   a. Provide fine aggregate for concrete or mortar consisting of clean, natural sand or of sand prepared from crushed stone or crushed gravel.
   b. Do not provide aggregate having deleterious substances in excess of following percentages by weight of contaminating substances:
      1) In no case shall total exceed percent listed.

<table>
<thead>
<tr>
<th>Item</th>
<th>Test Method</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Removed by decantation (dirt, silt, etc.)</td>
<td>ASTM C117</td>
<td>3</td>
</tr>
<tr>
<td>Shale or Chert</td>
<td>ASTM C123</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>ASTM C295*</td>
<td>1</td>
</tr>
<tr>
<td>Clay Lumps</td>
<td>ASTM C142</td>
<td>1</td>
</tr>
</tbody>
</table>

* Test Method C123 is used to identify particles in the sample lighter than 2.40 Specific Gravity. Test Method C295 is used to identify which of the lightweight particles are shale or chert. If the results of Test Method C123 are less than one (1) percent, Test Method C295 is not required.

c. Except as otherwise specified, grade fine aggregate from coarse to fine in accordance with ASTM C33.

3. Coarse aggregate:
   a. Provide coarse aggregate consisting of gravel or crushed stone made up of clean, hard, durable particles free from calcareous coatings, organic matter, or other foreign substances.
   b. Not exceeding 15 percent by weight, of thin or elongated pieces having length greater than 5 times average thickness.
   c. Deleterious substances: Not in excess of following percentages by weight, and in no case having total of all deleterious substances exceeding two (2) percent.
<table>
<thead>
<tr>
<th>Item</th>
<th>Test Method</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shale or chert</td>
<td>ASTM C123</td>
<td>1.25</td>
</tr>
<tr>
<td></td>
<td>ASTM C295*</td>
<td>1</td>
</tr>
<tr>
<td>Coal and lignite</td>
<td>ASTM C123</td>
<td>1/4</td>
</tr>
<tr>
<td>Clay lumps and friable particles</td>
<td>ASTM C142</td>
<td>1/4</td>
</tr>
<tr>
<td>Materials finer than Number 200 sieve</td>
<td>ASTM C117</td>
<td>1/2**</td>
</tr>
</tbody>
</table>

* Test Method C123 is used to identify particles in the sample lighter than 2.40 Specific Gravity. Test Method C295 is used to identify which of the lightweight particles are shale, chert, coal, or lignite. If the results of Test Method C123 are less than 1.25 percent (the minimum combined percentage of shale, chert, coal and lignite), Test Method C295 is not required.

** Except when material finer than Number 200 sieve consists of crusher dust, maximum amount shall be one (1) percent.

**d. Grading:**

1) Aggregate for Class A, C, D, and E concrete: In accordance with ASTM C33, Size Number 57, except as otherwise specified or authorized in writing by the Owner.

2) Aggregate for Class CE concrete for encasement of electrical conduits:
   a) Graded in accordance with ASTM C33, Size Number 8.

**C. Concrete sealer:**

1. Manufacturers: One of the following or equal:
   a. Euclid Chemical Co., Diamond Hard.
   b. L&M Construction Chemicals, SealHard.

**D. Conduit encasement coloring agent:**

1. Color: Red color concrete used for encasement of electrical ducts, conduits, and similar type items.

2. Manufacturers: One of the following or equal:
   a. Davis Co., #160 Brick Red.
   b. Euclid Chemical Co., Increte Division, "Colorcrete Brick Red."

3. Conduit encasement concrete: Mix into each cubic yard of concrete 5 pounds of coloring agent.

**E. Evaporation retardant:**

1. Manufacturers: One of the following or equal:
   a. BASF, MasterKure ER 50.
   b. Euclid Chemical Co., Eucobar.

**F. Fly ash:**

1. Fly ash in accordance with ASTM C618, Class F, may be used in concrete made with Type II portland cement.
2. Maximum of 15 percent by weight of fly ash to total weight of cementitious materials:
   a. The total weight of cementitious materials shall not be less than minimum cementitious materials listed in Table A.
3. Do not use in concrete made with portland-pozzolan cement.
4. Loss on ignition: Not exceed 4 percent.

G. Nonslip abrasive:
   1. Aluminum oxide abrasive size 8/16, having structure of hard aggregate that is, homogenous, nonglazing, rustproof, and unaffected by freezing, moisture, or cleaning compounds.
   2. Manufacturers: One of the following or equal:
      a. Abrasive Materials, Inc.
      b. Euclid Chemical Co., Flexolith Summer Grade.

H. Portland cement:
   1. Conform to specifications and tests in accordance with ASTM C150, Types II or III, low alkali, except as specified otherwise.
   2. Have total alkali containing not more than 0.60 percent.
   3. Exposed concrete in any individual structure: Use only one brand of portland cement.
   4. Cement for finishes or repairs: Provide cement from same source and of same type as concrete to be finished or repaired.

I. Sheet membrane for curing:
   1. Polyethylene film:
      a. In accordance with ASTM C171.
      c. Thickness: Nominal thickness of polyethylene film shall not be less than 0.0040 inches when measured in accordance with ASTM D2103. Thickness of polyethylene film at any point shall not be less than 0.0030 inches.
      d. Loss of moisture: Not exceed 0.055 grams per square centimeter of surface when tested in accordance with ASTM C156.

J. Sprayed membrane curing compound: Clear type with fugitive dye in accordance with ASTM C309, Type 1D.

K. Surface sealant system:
   1. Manufacturers: One of the following or equal:
      a. Euclid Chemical Co., Vandex Super.
      c. Xypex Chemical Corp., Xypex Concentrate.

L. Water:
   1. Water for concrete, washing aggregate, and curing concrete: Clean and free from oil and deleterious amounts of alkali, acid, organic matter, or other substances.
2. Chlorides and sulfate ions:
   a. Water for conventional reinforced concrete: Use water containing not more than 1,000 milligrams per liter of chlorides calculated as chloride ion, nor more than 1,000 milligrams per liter of sulfates calculated as sulfate ion.

2.02 EQUIPMENT

A. Mixing concrete:
   1. Mixers may be of stationary plant, paver, or truck mixer type.
   2. Provide adequate equipment and facilities for accurate measurement and control of materials and for readily changing proportions of material.
   3. Mixing equipment:
      a. Capable of combining aggregates, cementitious materials, and water within specified time into thoroughly mixed and uniform mass and discharging mixture without segregation.
      b. Maintain concrete mixing plant and equipment in good working order and operated at loads, speeds, and timing recommended by manufacturer or as specified.
      c. Proportion cementitious materials and aggregate by weight.

B. Machine mixing:
   1. Batch plant shall be capable of controlling delivery of all material to mixer within 1 percent by weight of individual material.
   2. If bulk cementitious materials are used, weigh them on separate visible scale which will accurately register scale load at any stage of weighing operation from zero to full capacity.
   3. Prevent cementitious materials from coming into contact with aggregate or with water until materials are in mixer ready for complete mixing with all mixing water.
   4. Procedure of mixing cementitious materials with sand or with sand and coarse aggregate for delivery to project site, for final mixing and addition of mixing water will not be permitted.
   5. Retempering of concrete will not be permitted.
   6. Discharge entire batch before recharging.
   7. Volume of mixed material per batch: Not exceed manufacturer's rated capacity of mixer.
   8. Mixers:
      a. Perform mixing in batch mixers of acceptable type.
      b. Equip each mixer with device for accurately measuring and indicating quantity of water entering concrete, and operating mechanism such that leakage will not occur when valves are closed.
      c. Equip each mixer with device for automatically measuring, indicating, and controlling time required for mixing:
         1) Interlock device to prevent discharge of concrete from mixer before expiration of mixing period.

C. Transit-mixed concrete:
   1. Mix and deliver in accordance with ASTM C94.
   2. Total elapsed time between addition of water at batch plant and discharging completed mix:
      a. Not to exceed 90 minutes.
3. Under conditions contributing to quick setting, total elapsed time permitted may be reduced by the Owner.
4. Equip each truck mixer with device interlocked to prevent discharge of concrete from drum before required number of turns and furnish device that is capable of counting number of revolutions of drum.
5. Continuously revolve drum after it is once started until it has completely discharged its batch:
   a. Do not add water until drum has started revolving.
   b. Right is reserved to increase required minimum number of revolutions or to decrease designated maximum number of revolutions allowed, if necessary, to obtain satisfactory mixing. The Contractor will not be entitled to additional compensation because of such increase or decrease.

D. Other types of mixers: In case of other types of mixers, mixing shall be as follows:
   1. Mix concrete until there is uniform distribution of materials, and discharge mixer completely before recharging.
   2. Neither speed nor volume loading of mixer shall exceed manufacturer’s recommendations.
   3. Continue mixing for minimum of 1-1/2 minutes after all materials are in drum, and for batches larger than 1 cubic yard increase minimum mixing time 15 seconds for each additional cubic yard or fraction thereof.

2.03 MIXES

A. Measurements of materials:
   1. Measure materials by weighing, except as otherwise specified or where other methods are specifically authorized in writing by the Owner.
   2. Furnish apparatus for weighing aggregates and cementitious materials that is suitably designed and constructed for this purpose.
   3. Accuracy of weighing devices: Furnish devices that have capability of providing successive quantities of individual material that can be measured to within 1 percent of desired amount of that material.
   4. Measuring or weighing devices: Subject to review by the Owner. Shall bear valid seal of the Sealer of Weights and Measures for the state of Washington.
   5. Weighing cementitious materials:
      a. Weigh cementitious materials separately.
      b. Cement in unbroken standard packages (sacks): Need not be weighed.
      c. Weigh bulk cementitious materials and fractional packages.
   6. Measure mixing water by volume or by weight.

B. Concrete proportions and consistency:
   1. Provide concrete that can be worked readily into corners and angles of forms and around reinforcement without excessive vibration and without permitting materials to segregate or free water to collect on surface.
   2. Prevent unnecessary or haphazard changes in consistency of concrete.
   3. Ratio of coarse aggregate to fine aggregate: Not less than 1.0 or more than 2.0 for all concrete Classes, with exception of Class CE.
   4. Aggregate:
      a. Obtain aggregate from source that is capable of providing uniform quality, moisture content, and grading during any single day’s operation.
5. Maximum concrete mix water to cementitious materials ratio, minimum cementitious materials content, and slump range: Conform to values specified in Table A in this Section.

6. Concrete batch weights: Control and adjust to secure maximum yield. At all times, maintain proportions of concrete mix within specified limits.

7. Mix modification: If required, by the Owner, modify mixture within limits set forth in this Section.

C. Concrete mixes:
   1. Proportioning of concrete mix: Proportion mixes based on required compressive strength f'\text{cr}.
   2. Mixes:
      a. Adjusting of water: After acceptance, do not change mixes without acceptance by Owner, except that at all times adjust batching of water to compensate for free moisture content of fine aggregate.
      b. Total water content of each concrete class: Not exceed those specified in Table A in this Section.
      c. Checking moisture content of fine aggregate: Furnish satisfactory means at batching plant for checking moisture content of fine aggregate.
   3. Change in mixes: Submit new mix design and perform new trial batch and test program as specified in this Section.

D. Classes of concrete:
   1. Provide concrete consisting of 5 classes: Classes A, C, D, and CE. Use where specified or indicated on the Drawings.
   2. Weight of concrete classes: Provide classes of concrete having minimum weight of 140 pounds per cubic foot.
   3. Class C concrete: Class C concrete may be used for fill for unauthorized excavation, for thrust blocks and ground anchors for piping, for bedding of pipe, and where indicated on the Drawings.
   5. Class CE concrete: Use Class CE for electrical conduit encasements.
   6. All other concrete, unless specified or otherwise indicated on the Drawings: Use Class A concrete.

<table>
<thead>
<tr>
<th>Class</th>
<th>Minimum Specified Compressive Strength f'\text{c} at 28 Days (Pounds per Square Inch)</th>
<th>Water-to-Cementitious Materials Ratio</th>
<th>Cementitious Materials per Cubic Yard of Concrete by Weight (Pounds)</th>
<th>Slump Range (Inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4,000</td>
<td>0.40 to 0.45</td>
<td>564 to 658</td>
<td>2 to 4</td>
</tr>
<tr>
<td>C</td>
<td>2,500</td>
<td>Maximum 0.62</td>
<td>Minimum 423</td>
<td>3 to 6</td>
</tr>
<tr>
<td>CE</td>
<td>2,500</td>
<td>Maximum 0.62</td>
<td>Minimum 423</td>
<td>3 to 6</td>
</tr>
<tr>
<td>D</td>
<td>5,000</td>
<td>0.40 to 0.45</td>
<td>564 to 658</td>
<td>2 to 4</td>
</tr>
</tbody>
</table>

7. Pumped concrete: Provide pumped concrete that complies with all requirements of this Section.

8. Do not place concrete with slump outside limits indicated in Table A.
9. Classes:
   a. Classes A, C, D, and CE concrete: Make with Type II low alkali portland cement.
   b. Admixtures: Provide admixtures as specified in this Section.

E. Air entraining admixture:
   1. Add agent to batch in portion of mixing water.
   2. Batch solution by means of mechanical batcher capable of accurate measurement.

F. Mitigation of alkali silica reaction:
   1. If fine or coarse aggregates are determined to be reactive in accordance with the specified test methods, the concrete mix design shall be adjusted by one of the following or combination of the following measures, subject to acceptance by the Owner:
      a. Use of Class F fly ash.
      b. Use of a lithium compound admixture.
   2. Test the revised concrete mix design in accordance with ASTM C 1567.
   3. The measured expansion of the revised concrete mix when tested in accordance with ASTM C 1567 shall not exceed 0.20 percent at 16 days from casting.
   4. When using a lithium compound admixture, the revised concrete mix design shall be tested in accordance with ASTM C 1293 and the expansion measured after two (2) years shall not exceed 0.04 percent.

2.04 SOURCE QUALITY CONTROL

A. Tests:
   1. Trial batches:
      a. After concrete mix designs have been accepted by Owner, have trial batches of the accepted Class A concrete mix designs prepared by testing laboratory acceptable to the Owner.
      b. Prepare trial batches using cementitious materials and aggregates proposed to be used for the Work.
      c. Drying shrinkage:
         1) Prepare five (5) drying shrinkage specimens in accordance with ASTM C157, except as modified in this Section.
         2) Remove drying shrinkage specimens from molds at age of 23 hours within 1 hour after trial batching, then immediately place them in water at 73 degrees Fahrenheit within three (3) degrees for at least 30 minutes and then measure specimens within 30 minutes thereafter to determine original length:
            a) Then submerge specimens in saturated limewater at 73 degrees Fahrenheit within three (3) degrees for moist curing.
         3) Make measurement to determine expansion expressed as percentage of original length at age seven (7) days:
            a) Use length at age seven (7) days as base length for drying shrinkage calculations.
         4) Immediately store specimens in humidity controlled room maintained at 73 degrees Fahrenheit within three (3) degrees and 50 percent within four (4) percent relative humidity for remainder of test.
5) Make and report measurements to determine shrinkage expressed as percentage of base length separately for 7, 14, 21, and 28 days of drying after seven (7) days of moist curing.

6) Drying shrinkage deformation:
   a) Measure drying shrinkage deformation of each specimen as difference between base length and length after drying at each test age.
   b) Measure average drying shrinkage deformation of specimens to nearest 0.0001 inch at each test age.
   c) If drying shrinkage of any specimen departs from average of test age by more than 0.0004 inch, disregard results obtained from that specimen and test another specimen.
   d) Shrinkage of trial batch concrete at 28 days drying age shall not exceed 0.040 percent maximum.

d. If trial batch tests do not meet specified requirements for drying shrinkage, change concrete mix design proportions and, if necessary, source of aggregate:
   1) Perform additional trial batches and tests until an acceptable trial batch is produced that meets requirements of this Section.

e. Perform test batches and tests required to establish trial batches and acceptability of materials without change in Contract Price.

f. Do not place concrete until the concrete mix design and trial batch have been accepted by Owner.

2. Required average compressive strength:
   a. Determine required average compressive strength \( f'_{cr} \) for selection of concrete proportions for mix design, for each class of concrete, using calculated standard deviation for its corresponding specified compressive strength \( f'_c \) in accordance with ACI 318 and ACI 350.
   b. When test records of at least 30 consecutive tests that span period of not less than 45 calendar days are available, establish standard deviation as in accordance with ACI 318 and ACI 350 and as modified in this Section.
   c. Provide test records from which to calculate standard deviation that represent materials, quality control procedures, and conditions similar to materials, quality control procedures, and conditions expected to apply in preparation of concrete for the Work.
   d. Provide test records with materials and proportions that are more restricted than those for the Work.
   e. Specified compressive strength \( f'_c \) of concrete used in test records:
      Within 1,000 pounds per square inch of that specified for the Work.
   f. When lacking adequate test records for calculation of standard deviation meeting requirements, determine required average compressive strength \( f'_{cr} \) from following Table B.

<table>
<thead>
<tr>
<th>Specified Compressive Strength ( f'_c ) (pounds per square inch)</th>
<th>Required Average Compressive Strength ( f'_{cr} ) (pounds per square inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 3,000</td>
<td>( f'_c + 1,000 )</td>
</tr>
<tr>
<td>3,000 to 5,000</td>
<td>( f'_c + 1,200 )</td>
</tr>
<tr>
<td>Over 5,000</td>
<td>( 1.10f'_c + 700 )</td>
</tr>
</tbody>
</table>

TABLE B
REQUIRED AVERAGE COMPRESSION STRENGTH
3. **Aggregate:**
   a. Testing of concrete aggregate is at Contractor's expense.
   b. Provide test reports representing samples of materials taken and tested at the following times:
      1) Not more than 60 days prior to the date on the proposed materials for concrete mixes.
      2) Not more than 60 days prior to any change in the source of aggregates, including suppliers and/or quarries.
      3) Whenever there is a significant change in aggregate quality or gradation from a previously submitted and accepted source.
   c. Sample aggregate in accordance with ASTM D75.
   d. Fine and coarse aggregates:
      1) Gradation: Test in accordance with ASTM C136. Use sieves with square openings for testing grading of aggregates.
      2) Alkali-silica reactivity:
         a) Provide fine and coarse aggregate with expansion not greater than 0.10 percent at 14 days when tested in accordance with ASTM C1260, unless the aggregate has been determined to be not deleteriously reactive based on testing in accordance with one of the following:
            (1) ASTM C227: Expansion not greater than 0.05 percent and three (3) months, and not greater than 0.10 percent at six (6) months.
            (2) ASTM C1293: Expansion not greater than 0.04 percent at one (1) year.
   e. Fine aggregate:
      1) Provide fine aggregate that does not contain strong alkali nor organic matter which gives color darker than standard color when tested in accordance with ASTM C40.
      2) Provide aggregate having soundness in accordance with ASTM C33 when tested in accordance with ASTM C88.
   f. Coarse aggregate:
      1) Soundness when tested in accordance with ASTM C88: Have loss not greater than 10 percent when tested with sodium sulfate.
      2) Abrasion Loss: Not exceed 45 percent after 500 revolutions when tested in accordance with ASTM C131.
   g. Fly ash:
      1) Sampling and testing: Sample and test fly ash in accordance with ASTM C311.
   h. Portland cement:
      1) Determination of alkali content: In accordance with ASTM C114.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

A. Liquid evaporation retardant:
   1. Under conditions that result in rapid evaporation of moisture from the surface of the concrete, immediately after the concrete has been screeded, coat the surface of the concrete with a liquid evaporation retardant.
2. Apply the evaporation retardant again after each work operation as necessary to prevent drying shrinkage cracks.
3. Conditions which result in rapid evaporation of moisture may include one or more of the following:
   a. Low humidity.
   b. Windy conditions.
   c. High temperature.

B. Surface sealant system:
   1. Apply as recommended by manufacturer published instructions.
   2. Where concrete continues to sweat or leak, apply additional coats of surface sealant until the sweating or leaks stop.

C. Joints and bonding:
   1. As far as practicable construct concrete work as monolith.
   2. Locations of construction, expansion, and other joints are indicated on the Drawings or as specified in this Section.
   3. Repair of concrete: Where it is necessary to repair concrete by bonding mortar or new concrete to concrete which has reached its initial set, first coat surface of set concrete with epoxy bonding agent as recommended by manufacturer.

D. Conveying and placing concrete:
   1. Convey concrete from mixer to place of final deposit by methods that prevent separation or loss of materials.
   2. Use equipment for chuting, pumping, and conveying concrete of such size and design as to ensure practically continuous flow of concrete at delivery end without segregation of materials.
   3. Design and use chutes and devices for conveying and depositing concrete that direct concrete vertically downward when discharged from chute or conveying device.
   4. Keep equipment for conveying concrete thoroughly clean by washing and scraping upon completion of day's placement.

E. Placing concrete:
   1. Place no concrete without prior authorization of the Owner.
   2. Do not place concrete until:
      a. Reinforcement is secure and properly fastened in its correct position and loose form ties at construction joints have been retightened.
      b. Dowels, bucks, sleeves, hangers, pipes, conduits, anchor bolts, and any other fixtures required to be embedded in concrete have been placed and adequately anchored.
      c. Forms have been cleaned and oiled as specified.
   3. Do not place concrete in which initial set has occurred, or that has been retempered.
   4. Do not place concrete during rainstorms or high velocity winds.
   5. Protect concrete placed immediately before rain to prevent water from coming in contact with such concrete or winds causing excessive drying.
   6. Keep sufficient protective covering on hand at all times for protection of concrete.
   7. After acceptance, adhere to proposed sequence of placing concrete, except when specific changes are requested and accepted by the Owner.
8. Notify the Owner in writing of readiness, not just intention, to place concrete in any portion of the work:
   a. Provide this notification in such time in advance of operations, as the Owner deems necessary to make final inspection of preparations at location of proposed concrete placing.
   b. Place forms, reinforcement, screeds, anchors, ties, and inserts in place before notification of readiness is given to the Owner.
   c. Depositing concrete:
      1) Deposit concrete at or near its final position to avoid segregation caused by rehandling or flowing.
      2) Do not deposit concrete in large quantities in one place and work along forms with vibrator or by other methods.
      3) Do not drop concrete freely into place from height greater than five (5) feet.
      4) Use tremies for placing concrete where drop is over five (5) feet.
      5) Commence placement of concrete on slopes, starting at bottom of slope.

9. Place concrete in approximately horizontal layers not to exceed 24 inches in depth and bring up evenly in all parts of forms.

10. Continue concrete placement without avoidable interruption, in continuous operation, until end of placement is reached.

11. After concrete placement begins, continue concrete placement without significant interruption. Plan and implement precautions to prevent any delay, between layers being placed, from exceeding 20 minutes.

12. If concrete is to be placed over previously placed concrete and more than 20 minutes has elapsed, spread layer of cement grout not less than 1/2 inch in thickness nor more than one (1) inch in thickness over surface before placing additional concrete.

F. Consolidating concrete:
   1. Place concrete with aid of acceptable mechanical vibrators.
   2. Thoroughly consolidate concrete around reinforcement, pipes, or other shapes built into the work.
   3. Provide sufficiently intense vibration to cause concrete to flow and settle readily into place and to visibly affect concrete over radius of at least 18 inches.
   4. Vibrators:
      a. Keep sufficient vibrators on hand at all times to vibrate concrete as placed.
      b. In addition to vibrators in actual use while concrete is being placed, have on hand minimum 1 spare vibrator in serviceable condition.
      c. Do not place concrete until it has been ascertained that all vibrating equipment, including spares, are in serviceable condition.
   5. Take special care to place concrete solidly against forms to leave no voids.
   6. Take every precaution to make concrete solid, compact, and smooth. If for any reason surfaces or interiors have voids or are in any way defective, repair such concrete in manner acceptable to the Owner.

G. Footings and slabs on grade:
   1. Do not place concrete on ground or compacted fill until subgrade is in moist condition acceptable to the Owner.
2. If necessary, sprinkle subgrade with water not less than 6 or more than 20 hours in advance of placing concrete.
3. If subgrade becomes dry prior to concrete placement, sprinkle again, without forming pools of water.
4. Do not place concrete if subgrade is muddy or soft.

H. Loading concrete:
   1. Green concrete:
      a. Loading on green concrete shall not be permitted unless it can be demonstrated to the satisfaction of the Owner and Engineer by the Contractor that the loading will not affect the serviceability of the structure and/or structural members when evaluated in accordance with the provisions set forth in ASCE 37-14.
   2. No backfill shall be placed against concrete walls, connecting slabs, or beams until the concrete has reached the specified 28-day compressive strength.
   3. Use construction methods, sequencing, and allow time for concrete to reach adequate strength to prevent overstress of the concrete structure during construction.

I. Curing concrete:
   1. General:
      a. Cure concrete by methods specified in this Section.
      b. Keep concrete continuously moist and at a temperature of at least 50 degrees Fahrenheit for minimum of 7 days after placement.
      c. Cure concrete to be painted with water or sheet membrane.
      d. Do not use sprayed membrane curing or sealing compounds on concrete surfaces that are to receive paint or upon which any material is to be bonded.
      e. Water cure or sheet membrane cure concrete slabs that are specified to be sealed by concrete sealer.
      f. Cure other concrete by water curing or sprayed membrane curing compound at the Contractor's option.
      g. Floor slabs may be cured using sheet membrane curing.
   2. Water curing:
      a. Keep surfaces of concrete being water cured constantly and visibly moist day and night for period of not less than seven (7) days.
      b. Each day forms remain in place count as one (1) day of water curing.
      c. No further curing credit will be allowed for forms in place after contact has once been broken between concrete surface and forms.
      d. Do not loosen form ties during period when concrete is being cured by leaving forms in place.
      e. Flood top of walls with water at least 3 times per day, and keep concrete surfaces moist at all times during seven (7) day curing period.
   3. Sprayed membrane curing compound:
      a. Apply curing compound to concrete surface after repairing and patching, and within one (1) hour after forms are removed.
      b. If more than one (1) hour elapses after removal of forms, do not use curing compound, but use water curing for full curing period.
      c. If surface requires repairing or painting, water cure such concrete surfaces.
      d. Do not remove curing compound from concrete in less than seven (7) days.
e. Curing compound may be removed only upon written request by Contractor and acceptance by Owner, stating what measures are to be performed to adequately cure concrete.

f. Take care to apply curing compound to construction joints. Apply to all surfaces along full profile of joints.

g. After curing period is complete, remove curing compound placed within construction joint profile by heavy sandblasting prior to placing any new concrete.

h. Contractor's Option: Instead of using curing compound for curing of construction joints, such joints may be water cured.

i. Apply curing compound by mechanical, power operated sprayer and mechanical agitator that will uniformly mix all pigment and compound.

j. Apply curing compound in at least two (2) coats.

k. Apply each coat in direction 90 degrees to preceding coat.

l. Apply curing compound in sufficient quantity so that concrete has uniform appearance and that natural color is effectively and completely concealed at time of spraying.

m. Continue to coat and recoat surfaces until specified coverage is achieved and until coating film remains on concrete surfaces.

n. Thickness and coverage of curing compound: Provide curing compound having film thickness that can be scraped from surfaces at any and all points after drying for at least 24 hours.

o. The Contractor is cautioned that method of applying curing compound specified in this Section may require more curing compound than normally suggested by manufacturer of curing compound and also more than is customary in the trade. No additional compensation will be provided for the costs of curing compound necessary to meet the specification requirements.

p. Apply amounts specified in this Section, regardless of manufacturer's recommendations or customary practice.

q. If the Contractor desires to use curing compound other than specified curing compound, coat sample areas of concrete wall with proposed curing compound and also similar adjacent area with specified compound in specified manner for comparison:

1) If proposed sample is not equal or better, in opinion of the Owner and Engineer, in all features, proposed substitution will not be allowed.

r. Prior to final acceptance of the work, remove, by sandblasting or other acceptable method, any curing compound on surfaces exposed to view, so that only natural color of finished concrete is visible uniformly over entire surface.

4. Sheet membrane curing:

a. Install sheet membrane as soon as concrete is finished and can be walked on without damage.

b. Seal joints and edges with small sand berm.

c. Keep concrete moist under sheet membrane.

J. Cold weather concreting:

1. Preparation before concreting:

a. Remove snow, ice, and frost from the surfaces, including reinforcement against which the concrete is to be placed.

b. The subgrade shall be free of frost before concrete placing begins.
c. Do not place concrete around any embedment that is at a temperature below freezing and is sufficiently massive as to cause the adjacent concrete to freeze.

2. Placement of concrete:
   a. Placement temperature:
      1) The minimum temperature of concrete immediately after placement shall be as specified in Table C.
      2) The temperature of concrete as placed shall not exceed the values shown in Table C by more than 20 degrees Fahrenheit.
   b. Protection temperature:
      1) Unless otherwise specified, the minimum temperature of concrete during the protection period shall be as shown Table C.
      2) Temperatures specified to be maintained during the protection period shall be those measured at the concrete surface, whether the surface is in contact with formwork, insulation, or air.
      3) Measure the temperature with a surface measuring device accurate to 2 degrees Fahrenheit.
      4) Measure the temperature of concrete in each placement at regular time intervals as specified in the contract documents.
   c. Termination of protection:
      1) The maximum decrease in temperature measured at the surface of the concrete in a 24-hour period shall not exceed the values listed in Table C.
      2) Do not exceed these limits until the surface temperature of the concrete is within 20 degrees Fahrenheit of the ambient temperature of surrounding temperatures.
      3) When the surface temperature of the concrete is within 20 degrees Fahrenheit of the ambient temperature, all protection may be removed.

<table>
<thead>
<tr>
<th>Least dimension of section (inches)</th>
<th>Minimum temperature of concrete as placed and to be maintained during the protection period (degrees Fahrenheit)</th>
<th>Maximum for gradual decrease in surface temperature during any 24 hour period after end of protection period (degrees Fahrenheit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 12</td>
<td>55</td>
<td>50</td>
</tr>
<tr>
<td>12 to less than 36</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>36 to 72</td>
<td>45</td>
<td>30</td>
</tr>
<tr>
<td>Greater than 72</td>
<td>40</td>
<td>20</td>
</tr>
</tbody>
</table>

3. Curing of concrete:
   a. Prevent concrete from drying during the required curing period. If water curing is used, terminate use at least 24 hours before any anticipated exposure of the concrete to freezing temperatures.

4. Protection of concrete:
   a. Combustion heaters:
      1) Combustion heaters shall not use kerosene.
      2) Vent flue gases from combustion heating units to the outside of the enclosures.
b. Overheating and drying: Place and direct heaters and ducts to avoid areas of overheating or drying of the concrete surface.
c. Maximum air temperature: During the protection period, do not expose the concrete surface to air having a temperature more than 20 degrees Fahrenheit above the values shown in Table C unless higher values are required by an accepted curing method.
d. Protection against freezing:
   1) Cure and protect concrete against damage from freezing for a minimum of 3 days, unless otherwise specified:
      a) Maintain the surface temperature of the concrete as specified in Table C.
   2) During periods not defined as cold weather, but when freezing temperatures may occur, protect concrete surfaces against freezing for the first 24 hours after placing.

3.02 FIELD QUALITY CONTROL

A. Testing of concrete:
   1. During progress of construction, the Owner will have tests made to determine whether the concrete, as being produced, complies with requirements specified. The Contractor shall be responsible for any additional concrete testing due to schedule parameters beyond those required for special inspection and testing as specified in Section 01_45_24.15 – Special Inspections, Special Tests, and Structural Observation.
   2. Tests will be performed in accordance with ASTM C31, ASTM C39, and ASTM C173.
   3. The Owner will hire a Certified Independent Laboratory who will make and deliver test cylinders to the laboratory and testing expense will be borne by the Owner.
   4. Make provisions for and furnish concrete for test specimens, and provide manual assistance to the Owner in preparing said specimens.
   5. Assume responsibility for care of and providing of curing conditions for test specimens in accordance with ASTM C31.
   6. Sampling frequency:
      a. One (1) set of test cylinders for each 150 cubic yards of each class of concrete.
      b. Minimum of one (1) set of test cylinders for each class of concrete placed.
      c. Not less than one (1) set of test cylinders for each half-day's placement.
      d. At least two (4) sets of test cylinders for each structure.

B. Compressive strength tests:
   1. A set of test cylinders shall consist of three (3) cylinder specimens, 6-inch diameter by 12 inch long.
   2. Information:
      a. Test one (1) cylinder at 3 days.
      b. Test two (2) cylinders at 7 days.
      c. Test two (2) cylinders at 14 days.
   3. Acceptance: Test two (2) sets of test cylinders at 28 days.
   4. Spare: Maintain at least one (1) cylinder as a spare for additional testing as required.
C. Slump tests:
1. Sample concrete to be tested in accordance with ASTM C172.
2. Test slump of concrete using slump cone in accordance with ASTM C143.
3. Do not use concrete that does not meet specification requirements in regards to slump:
   a. Remove such concrete from project site.
   b. Test slump at the beginning of each placement, as often as necessary to keep slump within the specified range, and when requested to do so by the Owner.

D. Air entrainment tests:
1. Test percent of entrained air in concrete at beginning of each placement, as often as necessary to keep entrained air within specified range, and when requested to do so by the Owner.
2. Do not use concrete that does not meet Specification requirements for air entrainment:
   a. Remove such concrete from project site.
3. Sample concrete to be tested in accordance with ASTM C172.
4. Test air entrainment in concrete in accordance with ASTM C173.
5. The Owner may at any time test percent of entrained air in concrete received on project site.

E. Enforcement of strength requirement:
1. Concrete is expected to reach a compressive strength ($f'_{c}$) equal to or greater than that the minimum specified in Table A.
2. Strength level of concrete will be considered acceptable if following conditions are satisfied:
   a. Averages of all sets of 3 consecutive strength test results is greater or equal to specified 28-day compressive strength($f'_{c}$).
   b. No individual strength test (average of 2 cylinders) falls below specified 28-day compressive strength ($f'_{c}$) by more than 500 pounds per square inch.
3. Non-compliant strength tests:
   a. Mark non-compliant strength test reports to highlight that they contain non-complying results and immediately forward copies of test reports to all parties on the test report distribution list.
   b. Provide treatment of non-compliant concrete at no additional cost to Owner and with no additional time added to project schedule.
   c. Initial treatment may consist of additional curing and testing of the affected concrete:
      1) Provide additional curing of concrete using means and duration acceptable to the Owner.
      2) Upon completion of the additional curing, provide additional testing designated by the Owner:
         a) Obtain and test core samples for compression strength in accordance with ASTM C42, ACI 318, and ACI 350.
         b) Provide not less than three (3) cores for each affected area. Obtain Owner’s acceptance of proposed coring locations before proceeding with that work.
         c) Submit report of compression strength testing for Owner’s review.
d) If required by the Owner, provide additional cores and obtain petrographic examination in accordance with ASTM C856. Submit report of petrographic analysis for Owner’s review.

3) If additional curing does not bring average of three (3) cores taken in affected area to at least the minimum specified compressive strength ($f'_c$), designate such concrete in affected area as defective.

3.03 ADJUSTING

A. Provide repair of defective concrete at no additional cost to Owner and with no additional time added to the project schedule.

B. Make repairs using approach and means acceptable to the Owner:
   1. Provide repairs having strength equal to or greater than specified concrete for areas involved.
   2. Do not patch, repair, or cover defective work without inspection by the Owner.
   3. Acceptable means may include, but are not limited to strengthening, repair, or removal and replacement.
   4. Concrete requiring repairs shall not be subjected to design loads or placed into service until repairs are completed and fully cured.

C. Strengthening of defective concrete:
   1. By addition of concrete.
   2. By addition of reinforcing.
   3. By addition of both concrete and reinforcing.

D. Repairs:
   1. Methods of repair:
      a. Dry pack method:
         1) Use for holes having depth nearly equal to or greater than least surface dimension of hole, for cone-bolt holes, and for narrow slots cut for repair.
         2) Smooth holes: Clean and roughen by heavy sandblasting before repair.
      b. Mortar replacement method:
         1) Use for holes too wide to dry pack and too shallow for concrete replacement.
         2) Comparatively shallow depressions, large or small, which extend no deeper than nearest surface reinforcement.
      c. Concrete replacement method:
         1) Use when holes extend entirely through concrete section or when holes are more than one (1) square foot in area and extend halfway or more through the section.
   2. Preparation of concrete for repair:
      a. Chip out and key imperfections in the work and make them ready for repair.
      b. Obtain Owner’s acceptance of surface preparation methods and of prepared surfaces prior to repair.
      c. Surfaces of set concrete to be repaired: First coat with epoxy bonding agent as specified in Section 03_63_01 - Epoxies.

E. Remove and replace defective concrete.
SECTION 03_35_29
TOOLED CONCRETE FINISHING

PART 1 GENERAL

1.01 SUMMARY
A. Section includes: Tooled concrete finishes.

1.02 DELIVERY, STORAGE, AND HANDLING
A. Packing and shipping:
1. Deliver and store packaged materials in original containers until ready for use.

PART 2 PRODUCTS
Not Used.

PART 3 EXECUTION

3.01 CONCRETE FINISHES
A. Finish horizontal concrete surfaces with one of the following finishes as indicated in the Finish Schedule after proper and adequate vibration and tamping:
   1. S4 finish: Steel trowel finish, without local depressions or high points, followed by light hairbroom finish. Do not use stiff bristle brooms or brushes. Perform brooming parallel to slab-drainage. Provide resulting finish that is rough enough to provide nonskid finish. Finish is subject to review and acceptance by the Owner.

B. Finish concrete floor surfaces to which surfacing material is applied: Finish smooth with tolerance within 1/8 inch in 10 feet in any direction from lines indicated on the Drawings.

3.02 CONCRETE FINISH SCHEDULE
A. Finish concrete surfaces as follows:
   1. S4 finish for following surfaces:
      a. Exterior walkways.
      b. Tops of exterior walls or beams which are to serve as walkways.
      c. Tops of exterior walls or beams which are to support gratings.

END OF SECTION
SECTION 03_63_01

EPOXIES

PART 1  GENERAL

1.01  SUMMARY

A. Section includes:
   1. Epoxy.
   2. Epoxy gel.
   3. Epoxy bonding agent.

1.02  REFERENCES

A. ASTM International (ASTM):
   2. C882 - Standard Test Method for Bond Strength of Epoxy-Resin Systems Used with Concrete by Slant Shear.

1.03  SYSTEM DESCRIPTION

A. Performance requirements:
   1. Provide epoxy materials that are new.
   2. Store and use products within limitations set forth by manufacturer.
   3. Perform and conduct work of this Section in neat orderly manner.

1.04  SUBMITTALS

A. General: Submit in accordance with Section 01_33_00 - Submittal Procedures.

B. Product Data: Submit manufacturer's data completely describing epoxy materials:
   1. Submit evidence of conformance to ASTM C881. Include manufacturer's designations of Type Grade, Class, and Color.
   2. Submit documentation that materials meet or exceed the specified strength and performance characteristics. Indicate test methods and test results.

C. Quality control submittals:
   1. Manufacturer's installation instructions.
PART 2 PRODUCTS

2.01 MATERIALS

A. General:
   1. Moisture tolerant, water-insensitive, two-component epoxy resin adhesive material containing 100 percent solids, and meeting or exceeding the performance properties specified when tested in accordance with the standards specified.

B. Epoxy: Low viscosity product in accordance with ASTM C881; Types I, II and IV; Grade 1; Class C:
   1. Manufacturers: One of the following or equal:
      a. BASF, MasterInject 1500.
      b. Dayton Superior, Sure Inject J56.
      c. Sika Corporation, Sikadur 35 Hi-Mod LV.
   2. Required properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Test Method</th>
<th>Required Results (“neat”)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile Strength (7-day)</td>
<td>ASTM D638</td>
<td>7,100 pounds per square inch, minimum.</td>
</tr>
<tr>
<td>Compressive Strength (7-day)</td>
<td>ASTM D695</td>
<td>11,000 pounds per square inch, minimum.</td>
</tr>
<tr>
<td>Bond Strength (2-day)</td>
<td>ASTM C882</td>
<td>1,500 pounds per square inch, minimum. Concrete failure before failure of epoxy.</td>
</tr>
<tr>
<td>Viscosity (mixed)</td>
<td></td>
<td>250-550 centipoise</td>
</tr>
</tbody>
</table>

Note: Testing results are for materials installed and cured at a temperature between 72 and 78 degrees Fahrenheit for 7 days, unless otherwise noted.

C. Epoxy gel: Non-sagging product in accordance with ASTM C881, Types I and IV, Grade 3, Class C:
   1. Manufacturers: One of the following or equal:
      a. BASF, MasterEmaco ADH 327.
      b. Dayton Superior, Sure Anchor J50.
      c. Sika Corp., Sikadur 31, Hi-Mod Gel.
   2. Required properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Test Method</th>
<th>Required Results (“neat”)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile Strength (7-day)</td>
<td>ASTM D638</td>
<td>2,000 pounds per square inch, minimum.</td>
</tr>
<tr>
<td>Compressive Yield Strength (7-day)</td>
<td>ASTM D695</td>
<td>8,000 pounds per square inch, minimum.</td>
</tr>
<tr>
<td>Bond Strength (14-day)</td>
<td>ASTM C882</td>
<td>1,500 pounds per square inch, minimum.</td>
</tr>
</tbody>
</table>

Note: Testing results are for materials installed and cured at a temperature between 72 and 78 degrees Fahrenheit for 7 days, unless otherwise noted.
D. Epoxy bonding agent: Non-sagging product in accordance with ASTM C881, Type II, Grade 2, Class C:
   1. Manufacturers: One of the following or equal:
      a. BASF, MasterEmaco ADH 326.
      b. Dayton Superior, Sure Bond J58.
      c. Sika Chemical Corp., Sikadur 32 Hi-Mod LPL.
   2. Required properties.

<table>
<thead>
<tr>
<th>Property</th>
<th>Test Method</th>
<th>Required Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile Strength (7-day)</td>
<td>ASTM D638</td>
<td>3,300 pounds per square inch, minimum.</td>
</tr>
<tr>
<td>Compressive Yield Strength (7-day)</td>
<td>ASTM D695</td>
<td>8,300 pounds per square inch, minimum.</td>
</tr>
<tr>
<td>Bond Strength (14-days)</td>
<td>ASTM C882</td>
<td>1,800 pounds per square inch, minimum. Concrete failure before failure of epoxy bonding agent.</td>
</tr>
<tr>
<td>Pot Life</td>
<td>-</td>
<td>Minimum 90 minutes at 73 degrees Fahrenheit. Minimum 60 minutes at 100 degrees Fahrenheit.</td>
</tr>
</tbody>
</table>

Note: Testing results are for materials installed and cured at a temperature between 72 and 78 degrees Fahrenheit for 7 days, unless otherwise noted.

3. If increased contact time is required for concrete placement, epoxy resin/Portland cement bonding agent as specified in Section 03_63_02 - Epoxy Resin/Portland Cement Bonding Agent may be used instead of epoxy bonding agent.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install and cure epoxy materials in accordance with manufacturer's installation instructions before the application of any supported equipment/materials.

B. Epoxy:
   1. Apply in accordance with manufacturer's installation instructions.

C. Epoxy gel:
   1. Apply in accordance with manufacturer's installation instructions.
   2. Use for vertical or overhead work shall be approved by the Owner.
   3. Epoxy gel used for vertical or overhead work may be used for horizontal work.

D. Epoxy bonding agent:
   1. Apply in accordance with manufacturer's installation instructions.
   2. Bonding agent will not be required for filling form tie holes or for normal finishing and patching of similar sized small defects.

END OF SECTION
SECTION 13_11_00
CATHODIC PROTECTION GROUNDBED INSTALLATIONS AND EQUIPMENT UPGRADES

PART 1 - GENERAL

1.1 SUMMARY

A. This Specification section defines the material and construction requirements for corrosion control upgrades associated with the City of Tacoma Commencement Bay Outfall Pipeline.

B. The work of this project generally includes:

   a. The decommissioning of two existing and installation of two new deep impressed current anode groundbeds, dimensions as shown on the project drawings. The new groundbeds will be installed over the top of and through the existing deep anode groundbeds. Field verify existing anode groundbed locations with vacuum excavation prior to drilling operations.

   b. Replacement of four pad-mounted rectifiers, each rectifier to be provided with a Remote Monitoring Unit.

   c. Routing AC power to one new rectifier, coordinate power and equipment requirements with Tacoma Public Utilities (TPU). Use existing AC power for the three remaining rectifiers.

   d. Replacement of three impressed current junction boxes (one rectifier site will not receive a junction box). Route and terminate new anode leads, existing negative connections, existing reference electrode leads, and existing test leads into new junction boxes.

   e. Installation of four semi-deep galvanic anode groundbeds, dimensions as shown on the project drawings. Field verify absence of underground utilities with vacuum excavation prior to drilling operations.

   f. Replacement of four galvanic anode junction boxes - one junction box per new galvanic anode site. Route and terminate new and existing anode leads, existing negative connections, existing reference electrode leads, and existing test leads into new junction boxes.

   g. Replacement of two bollards and coating of all existing bollards at groundbed installation sites.

C. The Contractor shall furnish and install all groundbed materials and equipment and provide all labor required to complete the work shown on the drawings and described within these specifications, and all other work items not specifically mentioned but reasonably inferred for the installation. The Contractor shall be responsible for securing all licenses, permits, and insurance certificates required for the work of this project. A copy of all licenses and permits are to be provided to the Owner within 14 days from Notice to Proceed.

1.2 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Reference Standards: This Section incorporates by reference the latest revisions of the following documents. These references are a part of this Section as specified and modified. In case of conflict between the requirements of this Section and those of a listed document, the requirements of this Section shall prevail.
1.3 QUALITY ASSURANCE

A. Qualifications:

1. Contractor: Perform all cathodic protection work with qualified, experienced personnel working under continuous, competent supervision. The supervisor or foreman shall have experience with at least three (3) deep anode groundbed installations within the last five years.

2. Drillers: Drillers shall be licensed in accordance with WAC 173-162.

1.4 SUBMITTALS

A. Approval of each item will be required prior to installation.

B. The Contractor will submit Manufacturer’s catalog cuts of the following items:

1. Rectifiers
2. Mixed metal oxide anodes, including lead wires
3. Anode centralizers
4. Coke breeze
5. Groundbed sealing materials
6. Slotted vent pipe
7. Junction boxes
8. High potential magnesium anodes, including lead wires
9. Shunts
10. Protective coating materials for bollards and junction box supports.

C. Quality Assurance Submittals:

1. AMPP (formerly NACE International) Cathodic Protection Technician. Provide the services of a currently certified AMPP Cathodic Protection Technician (CP-2), Cathodic Protection Technologist (CP-3), or Cathodic Protection Specialist (CP-4). The AMPP certified individual shall provide field observation, start-up, and testing services during the installation of the deep anode groundbed and installation of all other cathodic protection system components. The AMPP certified individual shall be on site during the installation of the anodes in the groundbed and will be required to:
   a. Oversee installation of the impressed current and galvanic anode groundbeds,
   b. Verify proper operation of the rectifiers, groundbeds, junction boxes, and remote monitoring units,
   c. Determine compliance with these Specifications,
   d. Provide cathodic protection testing as specified,
   e. Resolve field problems

2. Driller’s experience statement. Include name of individual(s) who will operate the drilling equipment and a copy of their current driller’s license. Driller must hold current certification in accordance with WAC 173-162.

3. Brief description of three similar jobs completed by the Contractor and Driller in the past five years.

4. A copy of the Driller’s logs used for deep anode installations.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect cathodic protection materials from damage during shipping and handling. Bring damaged materials to the attention of the Owner who will determine if the damaged materials are to be used, repaired, or replaced.

1.6 WELL CONSTRUCTION AND REPORTING

A. The Contractor shall perform all well decommissioning and reporting activities in accordance with WAC 173-160, 173-160-460, and other applicable WAC Sections. Submit to the Owner copies of all filings reported to the State of Washington.

B. The Contractor shall perform all well construction and reporting activities in accordance with WAC 173-160, 173-160-456, and other applicable WAC Sections. Submit to the Owner copies of all filings reported to the State of Washington.

PART 2 - MATERIALS

2.1 RECTIFIER

A. General. This project will require providing four new rectifiers. The four rectifiers will be identical and shall be supplied as described below.

B. The rectifiers shall be pedestal mounted using the manufacturers standard supports. Three rectifier units shall be mounted on existing concrete pads and one shall be installed on a new cast-in-place reinforced concrete pad.
C. Air cooled rectifier constructed on slide out racks for servicing. Rectifier to be capable of operating continuously at ambient temperature of 50° C and 110% of rated input without damage to the rectifier components.

D. AC Input: 115/230 volts, single phase, and 60 hertz. Use a suitably sized magnetic type circuit breaker mounted on the rectifier’s front panel. Rectifier to be wired for low voltage input.

E. Transformer: Two winding, insulation type, meeting the requirements of NEMA, UL, and CSA. Provide with Fine and Course secondary taps with rectifier output controlled by a minimum of 24 evenly divided steps of adjustment.

F. Rectifying Elements: Full wave bridge, silicon diode stack with efficiency filter and current-limiting devices for over-voltage and over-current protection of the stack.

G. DC Output Rating: 50 volts, 50 amps.

H. Lighting Protection: Furnish lightning protection for AC input and DC output.

I. Meters: Separate analog DC voltage and current meters. Meters shall display DC voltage and DC amperage within 2% accuracy, minimum. Field test meters for accuracy, replace inaccurate meters.

J. External Shunt: Holloway type shunt mounted on the rectifier’s front panel in series with the ammeter. Voltage and current rating of the shunt shall be clearly identified on the shunt body.

K. Enclosure: Powder coated cabinet, NEMA 3R enclosure suitable for pedestal mounting. Furnish with hinged doors on the front and both sides to allow suitable access and adequate ventilation. Provide a lockable hasp to prevent access when lock is in place.

L. Panelboard: Nonmetallic, suitable for mounting meters, shunt, circuit breaker, fuses, and output terminals. Clearly engrave or identify with a permanent marking system the polarity of the output terminals, transformer settings, meters, and fuses.

M. Convenience Outlet: Provide a 120 volt AC Ground Fault Interrupting (GFI) convenience outlet installed on the rectifier panel. Convenience outlet shall not be accessible when enclosure is shut and locked.

N. Mounting Hardware: Studs, bars, nuts, washers, and other mounting hardware shall be suitably sized brass or tin-plated copper.

O. Current Interrupter: Provide rectifier with a terminal block to accept connections for an Elecsys Watchdog Scout XP Remote Monitoring System with Current Interruption.

P. Certification of the rectifier unit by a Nationally Recognized Testing Laboratory verifying that the rectifier meets the requirements of the National Electrical Code.

Q. Nameplate: Engraved metal plate mounted on the interior side of the front door listing the manufacturer name, model number, serial number, and AC and DC input and output ratings.

R. Manufacturer: Universal Rectifiers, Inc. Rosenberg, TX or approved equal. Model number: ASAI 50 50 AA CF1NRXYZ (Z = terminal strip for Elecsys Watchdog Scout XP Remote Monitoring System).

S. All replaced rectifiers shall receive an engraved phenolic label affixed to the front face of the rectifier box with clear silicone. The label shall be 3-in x 2.5-in, black face with white engraved lettering in bold font size 18 Times New Roman text.
1. Central Treatment Plant STA 23+76 label shall read “CPRS-6632A OUTFALL CATHODIC PROTECTION RECTIFIER (STA 23+76)”.  
2. Milwaukee Way STA 81+56 label shall read “CPRS-6632B OUTFALL CATHODIC PROTECTION RECTIFIER (STA 81+56)”.  
3. Port of Tacoma STA 130+60 label shall read “CPRS-6632C OUTFALL CATHODIC PROTECTION RECTIFIER (STA 130+60)”.  
4. Port of Tacoma Marine Outfall STA 150+25 label shall read “CPRS-6632D OUTFALL CATHODIC PROTECTION RECTIFIER (STA 152+25)”.  

2.2 GPS REMOTE MONITORING AND INTERRUPTOR UNIT  
A. Elecsys Scout Remote Monitoring System. The Contractor will be responsible for mounting the remote monitoring unit box, wiring the unit to the rectifier, and commissioning the unit prior to acceptance by the Owner. The Contractor shall purchase (1) one year of service for all units and transfer all licensing and accounts to the Owner prior to Substantial Completion.  

2.3 IMPRESSED CURRENT ANODES  
A. General: The drawings indicate the quantity of impressed current anodes to be installed in the individual groundbeds. Supply anodes meeting the following requirements.  
B. Mixed Metal Oxide (MMO) Tubular Anode. MMO anode shall be a titanium tube with a crystalline electrically conductive coating. Each tubular anode shall be 1-inch in diameter and 60-inches long. Approved manufacturer: ELTECH Systems Corporation, Chardon, OH, Type Lida One, or approved equal.  
C. Each anode shall have an individual anode lead wire utilizing a #8 AWG stranded copper conductor with dual jacketed insulation consisting of 20-mil thick Halar primary insulation and 65-mil HMWPE outer insulation.  
D. Wire-to-Anode Connection: Factory installed using manufacturer’s standard and as specified herein.  

2.4 ANODE CENTRALIZERS  
A. Metal or plastic assemblies that can be securely attached to the anodes to center them in the drilled hole. Centralizers shall not block the hole or impair the installation of the anodes, anode lead wires, standpipe, vent pipe or coke breeze.  

2.5 COKE BREEZE  
A. Use lubricated, low resistance calcined petroleum coke, suitable for pumping with the following composition:  

<table>
<thead>
<tr>
<th>Property</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Carbon</td>
<td>99%, minimum</td>
</tr>
<tr>
<td>Ash</td>
<td>0.15%, maximum</td>
</tr>
<tr>
<td>Volatile Matter</td>
<td>0.02%, maximum at 950°C</td>
</tr>
<tr>
<td>Moisture</td>
<td>0.07%, maximum</td>
</tr>
<tr>
<td>Particle Size</td>
<td>Dust free with max. particle size 1.0 mm</td>
</tr>
<tr>
<td>Bulk Density</td>
<td>64 – 74 lbs/ft³</td>
</tr>
<tr>
<td>Resistivity</td>
<td>0.10 ohm-cm at 150 psi</td>
</tr>
</tbody>
</table>

B. Acceptable Materials:
1. Loresco SC-3 as manufactured by Loresco International, Hattiesburg, MS
2. Asbury No. 251 as manufactured by Asbury Carbons, Rodeo CA

2.6 GROUNDBED SEALING MATERIAL

A. Impressed Current Groundbed: Use bentonite clay for sealing the anode hole above the coke breeze column to prevent contamination of underground aquifers.

B. Galvanic Anode Groundbed: Use bentonite clay to surround the prepackaged anodes installed within the groundbed.

C. The type of bentonite clay shall be selected by the drilling contractor and must meet all Washington State Department of Ecology and Washington Administrative Code well construction standards. NOTE: If bentonite chips are to be top-loaded, the Contractor must install the chips at the rate recommended by the manufacturer (typically 3 – 4 minutes per 50 pound bag for course bentonite chip material).

2.7 STANDPIPE – IMPRESSED CURRENT GROUNDBEDS

A. Use a 1-1/4-inch diameter steel standpipe with threaded connections capable of supporting the entire weight of the anode string during hole loading.

B. Equip the standpipe with a minimum 4-inch diameter, ¼-inch thick steel end plate. Install a Tee type fitting at the bottom of the standpipe welded to the steel plate to distribute the coke breeze slurry.

C. After the loading operation is complete, remove the standpipe located above the coke breeze column from the hole. Use a reverse threaded connection or non-welded joint connection for this purpose.

2.8 VENT PIPE – IMPRESSED CURRENT GROUNDBEDS

A. Active Column: Use 1-inch diameter schedule 40 PVC pipe with 0.006-inch x 1-inch long longitudinal slot openings. The slots shall be cut parallel to the longitudinal centerline of the pipe and shall be spaced 6-inches center-to-center. Each slot shall be placed 1-inch in circumferential distance from the preceding slot. Provide a PVC plug at the bottom of the vent pipe as shown on the project drawings. Use Loresco All-Vent or approved equal.

B. Inactive Column: Use solid (non-slotted) 1-inch schedule 40 PVC pipe.

2.9 SURFACE CASING (IF REQUIRED)

A. Steel or PVC may be used for the surface casing.

1. Steel Casing (Impressed Current Groundbeds Only): ASTM A53, standard weight steel pipe. NOTE: If steel surface casing is used, it must maintain a minimum vertical separation of twenty (20) feet from the active anode column.

2. Non-Metallic Casing: PVC, nontoxic and resistant to water and soil, able to withstand installation, grouting, and operating stresses. The PVC casing will not be allowed to extend into the impressed current active anode column or below the top of the upper prepackaged galvanic anode.

2.10 IMPRESSED CURRENT JUNCTION BOX

A. New junction boxes will be provided for the Central Treatment Plant (CTP), Milwaukee Way, and Port of Tacoma rectifiers. The existing anode and structure leads will be terminated directly onto the rectifier panel at the Marine Outfall rectifier.
1. CTP – The junction box shall be minimum 18-inch x 16-inch x 8-inch deep NEMA type 4X stainless steel with padlock hasp.

2. Milwaukee Way – The junction box shall be minimum 12-inch x 10-inch x 6-inch deep NEMA type 4X stainless steel with padlock hasp.

3. Port of Tacoma – The junction box shall be minimum 14-inch x 12-inch x 6-inch deep NEMA type 4X stainless steel with padlock hasp.

B. Equip boxes with the following:
1. Solid front cover and lockable quick-release latches.

2. Phenolic, Lexan, or Micarta back panel to fit box mounting holes. Panel to be minimum ¼-inch thick.

3. Copper bus bar measuring ¼-inch thick x 1-inch wide x required length.

4. 0.01 ohm, 8 amp shunts, Holloway type JB.

5. Engraved labeling.

C. Fabricate anode junction box as shown on the project drawings.

D. Provide the following labels for the impressed current junction boxes:
1. CTP: 3-inch x 2.5-inch black phenolic label with white engraved white bold font size 18 Times New Roman text “CPTS – 6631AB OUTFALL CATHODIC PROTECTION TESTING STATION (STA 23+76)”. Phenolic label shall be installed with clear silicone to the front of the junction box face.

2. Milwaukee Way: 3-inch x 2.5-inch black phenolic label with engraved white bold font size 18 Times New Roman text “CPTS – 6631N OUTFALL CATHODIC PROTECTION TESTING STATION (STA 81+56)”. Phenolic label shall be installed with clear silicone to the front of the junction box face.

3. Port of Tacoma: 3-inch x 2.5-inch black phenolic label with engraved white bold font size 18 Times New Roman letters reading “CPTS – 6631W OUTFALL CATHODIC PROTECTION TESTING STATION (STA 130+60)”. Phenolic label shall be installed with clear silicone to the front of the junction box face.

2.11 PREPACKAGED HIGH POTENTIAL MAGNESIUM ANODES

A. The galvanic anodes shall be high potential cast magnesium.

B. The anode ingot shall be nominal 3-inches in diameter, 60-inches long, and weight 20 pounds. Prepackaged dimensions shall be nominal 5-inches in diameter, 66-inches long, and weigh 70 pounds.

C. Each anode shall be prepackaged in a mixture containing 75 percent hydrated gypsum, 20 percent bentonite, and 5 percent sodium sulfate.

D. The high potential magnesium anode shall have a nominal open circuit potential of -1.75 volts when measured against a copper-copper sulfate reference electrode.

E. Each galvanic anode groundbed will consist of ten anodes, each anode with its own lead wire routed to the junction box.

F. Lead wire: The magnesium anode lead wire shall be #10 AWG stranded copper conductor with XHHW type insulation, black. Secure lead wire to anode steel core using manufacturers standard connection method.
G. The magnesium anodes will meet the following compositional analysis:

<table>
<thead>
<tr>
<th>Element</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum, maximum</td>
<td>0.01 %</td>
</tr>
<tr>
<td>Manganese</td>
<td>0.50 – 1.3%</td>
</tr>
<tr>
<td>Silicon, maximum</td>
<td>0.05%</td>
</tr>
<tr>
<td>Copper, maximum</td>
<td>0.02%</td>
</tr>
<tr>
<td>Iron, maximum</td>
<td>0.03%</td>
</tr>
<tr>
<td>Nickel, maximum</td>
<td>0.001%</td>
</tr>
<tr>
<td>Total Other Impurities, maximum</td>
<td>0.05%</td>
</tr>
<tr>
<td>Magnesium</td>
<td>Balance</td>
</tr>
</tbody>
</table>

2.12 GALVANIC ANODE JUNCTION BOX

A. The anode junction boxes used for the galvanic anode cathodic protection systems shall be 14-inch x 12-inch x 6-inch deep NEMA type 4X stainless steel. The box shall have a solid front cover with lockable quick-release latches. Equip box with the following:

1. Phenolic, Lexan, or Micarta back panel to fit box mounting holes. Panel to be minimum ¼-inch thick.
2. Copper bus bar measuring ¼-inch thick x 1-inch wide x required length.
3. 0.01 ohm, 8 amp shunts, Holloway type JB.
4. Engraved labeling.

B. Fabricate anode junction box as shown on the project drawings.

C. Provide the following labels for the galvanic anode junction boxes:

1. STA 45+24 (Lincoln Avenue): 3-inch x 2.5-inch black phenolic label with engraved white bold font size 18 Times New Roman text “CPTS – 6631Z OUTFALL CATHODIC PROTECTION TESTING STATION (STA 45+24)”. Phenolic label shall be installed with clear silicone to the front of the junction box face.
2. STA 107+53 (South Sitcum Way): 3-inch x 2.5-inch black phenolic label with engraved white bold font size 18 Times New Roman text “CPTS – 6631R OUTFALL CATHODIC PROTECTION TESTING STATION (STA 107+53)”. Phenolic label shall be installed with clear silicone to the front of the junction box face.
3. STA 112+18 (Central Sitcum Way): 3-inch x 2.5-inch black phenolic label with engraved white bold font size 18 Times New Roman text “CPTS – 6631AA OUTFALL CATHODIC PROTECTION TESTING STATION (STA 112+18)”.  

October 2023 13110 - 8 CATHODIC PROTECTION
Phenolic label shall be installed with clear silicone to the front of the junction box face.

4. STA 117+57 (North Sitcum Way): 3-inch x 2.5-inch black phenolic label with engraved white bold font size 18 Times New Roman text “CPTS – 6631U OUTFALL CATHODIC PROTECTION TESTING STATION (STA 117+57)”. Phenolic label shall be installed with clear silicone to the front of the junction box face.

2.13 SPLICING TAPE

A. If extending the existing test leads/anode leads is necessary, each splice shall be properly covered using linerless rubber splicing tape and vinyl plastic electrical tape. Use the following materials:
   1. Scotch 130C Linerless Rubber Splicing Tape or approved equal.
   2. Scotch 33+ Vinyl Plastic Electrical Tape or approved equal.

2.14 JUNCTION BOX SUPPORTS

A. The junction box supports shall be fabricated as shown on the project drawings using 4-inch diameter schedule 40 steel pipe and ¼-inch x 1-1/2-inch x 20-inch flat bar stock. The bar stock shall be welded to the pipes with spacing that allows for mounting of the junction boxes.

B. The steel pipe shall be 5-ft long, extending 3-ft above grade.

C. Fill pipe and encase base in 3,000 PSI concrete as shown on the project drawings.

D. The junction box support rack shall be coated as described in these specifications.

2.15 CRIMP AND TERMINAL CONNECTORS

A. Use appropriately sized copper or copper alloy crimp connectors for splicing additional wire lengths onto existing leads as necessary.

B. Use pressure ring type connectors for making wire connections on the junction box panel board.

2.16 WIRE FOR EXTENDING EXISTING LEADS (IF NECESSARY)

A. If splicing of existing lead wires is necessary for proper termination, use the same AWG size and insulation type stranded copper conductor, insulation color to match existing. If insulation type is unknown, use XHHW.

2.17 CONDUIT

A. AC
   1. New AC conduit shall be rigid steel and sized in accordance with applicable local electrical requirements.

B. DC
   1. Belowground DC conduits shall be 2-inch electrical SCH 40 PVC.
   2. Aboveground DC conduits shall be rigid steel, sized for conductor quantity and sizes.
   3. The transition between metallic and PVC conduit shall take place belowground using appropriate fittings.
C. Pipe Wrap – Calpico VI-10 polyvinyl tape, 10 mil thickness.

2.18 BOLLARDS
   A. Bollards shall be fabricated using an 8-inch diameter schedule 40 steel pipe.
   B. The pipe shall be 5-ft long, extending 3-ft above grade.
   C. Fill pipe and encase base in 3,000 PSI concrete as shown on the project drawings.

2.19 SOIL ACCESS BOX (PORT OF TACOMA RECTIFIER SITE)
   A. A soil access box shall installed at the new Port of Tacoma rectifier site. It shall be a Brooks Products model 3-RT, 10-inches in diameter x 12-inch tall body.
   B. The cast iron lid shall be marked “CP TEST STATION”.

2.20 AC EQUIPMENT (PORT OF TACOMA RECTIFIER SITE)
   A. The Contractor shall procure all electrical equipment necessary to provide the required AC power to the new rectifier location. Coordinate all AC electrical work with Tacoma Public Utilities.

2.21 PROTECTIVE COATING (BOTH CONCRETE AND STEEL)
   A. Prime coat: Tnemec Series N69 Polyamidoamine epoxy or approved equal. Color shall be contrasting and lighter than topcoat color.
   B. Topcoat: Tnemec Endura-Shield II Series 1075U, or approved equal. Topcoat color shall be safety yellow.

2.22 HANGERS AND SUPPORTS
   A. All support rack, struts, channels, and connector materials shall be 304 or 316 stainless steel.

PART 3 - EXECUTION

3.1 GENERAL
   A. Drawings are diagrammatic and shall not be scaled for exact locations. Field conditions, non-interference with other utilities, and mechanical and structural features shall determine exact location.
   B. The dimensions of the new anode groundbeds are shown on the project drawings. Daily well logs must be kept and submitted to the Engineer.
   C. Conform to NFPA 70 NACE SP0169, NACE SP0572, WAC 173-160, and WAC 173-162.
   D. Nothing in the Drawings or Specifications is to be construed to permit work not conforming to minimum requirements of these standards, regulations, and codes. Where larger size or better grade materials than required by regulations and codes are specified, the Specification and Drawings shall take precedence.

3.2 ANODE GROUNDBED INSTALLATION
   A. General
      1. All drilling operations and reporting requirements shall conform to, at a minimum, the Washington State Minimum Standards for Construction and Maintenance of Wells WAC 173-160. The driller shall be registered as required per WAC 173-162. Well logs, consistent with WAC 173-160 must be kept and submitted to the Owner
and State of Washington within 14 days of drilling completion. Information that
must be included in the log are date, depth, and thickness of all formations
penetrated, tools used, depth to water in water bearing zones, and cause for any
delays. The Owner shall have access to the logs at all times. The licensed driller
shall be on site at all times during drilling activities.

2. Utilize vacuum excavation to locate utilities, or absence of utilities, prior to drilling at
any location.

3. Drilling, lowering of the anodes, coke breeze placement (for impressed current
groundbeds), and backfilling shall be completed as described in this section and
shall be observed and verified or directed as needed by the Contractor’s Certified
Cathodic Protection Technician.

4. Perform drilling and waste disposal in accordance with the methods and
procedures that comply with the rules and regulations of the state, city, county, or
other governing bodies having jurisdiction. Seal hole with groundbed sealing
material as required by Washington State well drilling regulations.

5. Take necessary precautions to prevent entrance of foreign matter into the hole,
movement of soil strata, or collapsing of the hole during the progress of the work.
Should movement of soil strata or collapse of the drilled hole interfere with proper
completion of the groundbed, recover the wires and anode strings and ream or re-
drill the hole.

6. Maintain a log describing the depth and type of geological formations encountered
during drilling.

B. Drilling

1. Approximate location of the groundbeds are shown on the project drawings. Notify
the regional One Call Center at 811 at least 2 working days, but not more than 14
days, prior to any excavation. Coordinate the final location of the groundbeds in
the field with the Owner before drilling begins.

2. Construct the hole and set casing (if required) round, straight, and plumb. It is not
the intent of these specifications to require the drilling contractor to use a casing in
order to keep the anode groundbed hole open during drilling and anode installation
operations. The manner in which the anode groundbed will be drilled (with the
exception of the described dimensions) will be at the discretion of the drilling
contractor.

3. Collect and store all drilling fluids, water, muds, and spoils in a manner to avoid any
releases. The storage vessel will be selected by the Contractor to be compatible
with the drilling method and volume of materials generated by the Contractor’s
selected drilling method. All water, drilling muds and spoils must be contained and
collected. Release of water, drilling muds, and spoils is not allowed, and the
Contractor shall bear all costs to contain and store, and for any penalties, cleanup
costs, or fines, if released.

4. For impressed current groundbeds, set surface casing (if required) prior to
completion of the first 40 feet of the hole. Casing, other that the surface casing,
shall not be installed or left in the hole unless in the driller’s estimation it is
necessary for successful completion of the hole. Plastic casing may be installed in
the Inactive Column, at the Contractor’s option, but shall not extend into the Active
Column.
a. If steel casing is installed in the Active Column, it shall be cut below the surface and the top portion jacked to provide a minimum of 20 feet of vertical separation between the upper casing section and the Active Column. Complete cutting of the steel casing before the anodes are installed is required. Jacking operations may be completed before or after installation of the anode assembly at the Contractor’s option.

b. If desired, the Contractor may elect to completely remove the upper portion of the casing above the Active Column.

C. Lowering of Anodes – Impressed Current Anodes

1. Notify the Owner three days prior to beginning this work.

2. Carefully lay out all anodes, anode cables, and vent pipe and inspect for damage. Bring damaged materials to the attention of the Owner who will determine if the damaged materials are to be used, repaired, or rejected.

3. Attach a single anode centralizer to each anode. Use steel banding material or appropriately sized steel hose clamps to make the connection.

4. Prepare to load the groundbed by assembling the various components and attach them to the steel standpipe. Securely attach anodes to the standpipe using steel banding material or appropriately sized steel hose clamps. Care shall be taken to ensure that the anodes are not damaged during this process and that the anodes are secured in such a way that they do not move. Secure the vent pipe and anode lead wires to the standpipe using a minimum of five wraps of vinyl electrical tape at five-foot intervals. Carefully lower the standpipe, with the anode string attached, into the hole. Securely attach each successive anode and other down-hole materials to the standpipe as it is lowered into the hole. Add additional joints of standpipe to the top of the string to accommodate all anodes. Ensure that the weight of the anode string is born by the standpipe and not the vent pipe or anode lead wires.

5. Provide sufficient slack in the anode wires to prevent damage during the anode and coke breeze installation.

6. Damage to anodes or cut, gouged, or scraped wire insulation will not be acceptable. No wire splices will be allowed inside the deep anode groundbed. Any damage noted to the anode or anode lead wire insulation will result in rejection of the anode. Replace the entire defective anode and lead wire at no additional cost to the Owner.

7. Fit the standpipe with a reverse-threaded coupling assembly above the top anode so the sections of standpipe above the top anode can be retrieved from the hole after the complete anode string is lowered into the hole, secured, and the coke breeze has been pumped into the groundbed. Other methods of standpipe retrieval from the inactive column must be pre-approved.

8. Locate anodes in the hole with the bottom anode labeled as No. 1 and each successive anode incrementally labeled. The bottom anode shall be placed so that it is six feet from the bottom of the groundbed hole. The remaining anodes shall be spaced eleven feet center-to-center. A six-foot layer of coke breeze shall cover the top of the upper anode.

9. If the hole is drilled with mud, the hole shall be flushed with clean water in a continuous process before the anodes are lowered until the return fluid is
sufficiently clear to allow proper installation and settlement of the anodes, vent pipe, and coke breeze.

10. Installation of the anodes and coke breeze shall be performed continuously. Lowering of the anodes and backfilling with coke breeze shall be observed by the Owner.

D. Lowering of Anodes – Galvanic Anodes

1. Notify the Owner three days prior to beginning this work.

2. Carefully lay out all anodes and anode cables and inspect for damage. Bring damaged materials to the attention of the Owner who will determine if the damaged materials are to be used, repaired, or rejected.

3. The galvanic anodes shall be lowered into the groundbed hole using a rope or non-metallic sling. Once in place, the non-metallic lowering material can be abandoned in the hole. Ensure that the lowering method does not allow the weight of the anode to be supported by the anode lead wire.

4. Locate anodes in the hole with the bottom anode labeled as No. 1 and each successive anode incrementally labeled.

E. Backfilling of Anode Hole – Impressed Current Anodes

1. Prepare to pump the hole with coke breeze by mixing several bags of coke breeze with water to form a slurry in an appropriate mixing trough. Control the ratio of the slurry to avoid too thick or too thin mixtures. To reduce the possibility of bridging, bottom loading the coke breeze will be required.

2. Using the standpipe as a pump pipe, begin pumping coke breeze at a steady, continuous rate. Mix and pump coke breeze and water in a continuous operation until the hole is filled to the correct level. Do not stop pumping until all coke breeze has been pumped into the hole.

3. Allow the coke breeze to settle for a minimum of 12 hours. Measure the hole depth to the top of the coke column by lowering a weighted tape until it contacts the top of the coke column. Top off the hole as necessary to bring the coke breeze level to the specified height as shown on the project drawings. If top loading is required to complete the coke breeze column, water shall be poured into the hole concurrently with the dry coke breeze to discourage bridging.

4. Unscrew the standpipe at the top of the coke breeze column and remove it from the hole upon completion of the coke breeze slurry installation.

5. Once the proper level of coke breeze is reached, install the bentonite clay in dry form to within 24 inches of grade. Installation of the bentonite clay should be completed as per the manufacturer’s recommendations. Use native material to fill the remaining groundbed to grade.

6. As an alternative, the Contractor will be allowed to install the coke breeze slurry using the tremie method. The Contractor shall ensure that the tremie pipe remains within the coke breeze column during the slurry installation such that bridging does not occur.

7. At all times during the progress of the work, the Contractor shall protect the groundbed in such a manner as to effectively prevent tampering or entrance of foreign matter.
F. Backfilling of Anode Hole – Galvanic Anodes
   1. After placing each prepackaged galvanic anode, insert bentonite chips into the groundbed to a level 6-inches above the top of the installed anode.
   2. Provide a 6-inch spacing between successive anodes.
   3. Install the groundbed sealing material at a rate that will not allow bridging.

G. Anode Lead Wire and Vent Pipe Routing
   1. Route anode lead wires to the junction box within conduits as depicted on the project drawings.
   2. Route the PVC vent pipe to the junction box support stand. Transition the vent pipe from PVC to rigid steel prior to the vent pipe coming above ground. Wrap all metallic conduit/pipe using pipe tape wrap with a minimum thickness of 10 mils. Apply a minimum of two half-lapped layers of pipe tape. The vent pipe shall terminate between one and two feet above grade. Install a 180-degree elbow onto the end of the vent pipe to discourage moisture ingress. Cap the vent pipe and drill four ½-inch diameter holes through the cap. Position the vent pipe such that it is pointed away from the junction box.

3.3 RECTIFIER INSTALLATION
   A. At the new CTP, Milwaukee Way, and Marine Outfall rectifier sites, the existing concrete pads will be used for pedestal mounting the new rectifiers. Use 3/8-inch stainless steel expanding anchor bolts for securing the rectifier to the pad.
   B. The Contractor may elect to use the existing conduits for conductor routing into the rectifier.
   C. If new concrete coring is completed for conduit transitions, fill the gap between conduit and concrete with mortar repair material. Apply a minimum of two half-lapped layers of pipe tape wrap to all metallic conduit in contact with concrete/mortar.
   D. At the Port of Tacoma site, coordinate with the City and the Port of Tacoma for final location of new concrete rectifier pad. The reinforced concrete pad shall be a minimum 4-ft wide by 8-ft long and 8-inches thick. Contractor may propose a different pad size based on final equipment selection. The pad will house the new rectifier, junction box, AC transformer, and rack for AC breaker. Taper the pad to allow rainwater to flow away from the installed equipment and not pool on the pad.

3.4 SOIL ACCESS BOX, PORT OF TACOMA RECTIFIER SITE
   A. Install the new Brooks model 3-RT grade-level box adjacent to the rectifier pad, flush with finished grade. The box will be used as a means of soil access for portable reference electrode placement.

3.5 REMOTE MONITORING EQUIPMENT INSTALLATION
   A. The Contractor will install the Elecsys Remote Monitoring Unit on a new or existing stand adjacent to the rectifier. If a new rack is used for support of the RMU, it shall be constructed using stainless steel materials.
   B. The Contractor will provide all wiring, including AC power and rectifier connections. All wiring to and from the remote monitor unit enclosure shall be in appropriately sized conduit.
C. Contractor to verify proper operation of all remote monitoring equipment prior to turning over to the City.

3.6 AC POWER SERVICE

A. All electrical work shall be performed by a properly licensed electrician and be completed in accordance with the National Electrical Code and Tacoma Power Standards.

B. At the new CTP, Milwaukee Way, and Marine Outfall rectifier sites, the Contractor shall provide routing of AC conduit and power from the electrical panel to the rectifier unit in a similar manner as existing conditions.

C. At the existing Port of Tacoma rectifier site, the Contractor shall connect new conduit to the existing underground AC conduit (Contractor to verify size, the original design called for 1-1/2-inch min. RS conduit) and route to the new rectifier pad location. Pull new AC conductors from the existing TPU transformer, through the SSB, to a new transformer on the rectifier pad site. Install new AC equipment and route power to the new rectifier unit. Coordinate all electrical work with Tacoma Public Utilities.

D. Secure all required electrical permits prior to starting work.

3.7 JUNCTION BOX INSTALLATION – IMPRESSED CURRENT GROUND BED

A. STA 23+76 (CTP):
   1. Replace existing junction box with new junction box.
   2. A total of two 2-inch conduits will be required to transition the anode lead wires from the groundbed to the new junction box. To reach the junction box, the existing concrete pad will need to be cut.
   3. If necessary, splice additional wire lengths onto the existing pipeline/reference electrode leads and header cables for proper termination within the junction box. Use the same AWG wire size, insulation type and color as existing. If insulation type cannot be determined, use type XHHW.
   4. Route all pipeline/reference electrode lead wires and header cables into the new junction box using either new or existing electrical PVC conduit.
   5. Terminate each anode on its corresponding shunt located in the junction box. Engrave the locations of each anode lead wire as shown on the project drawings. NOTE: Anodes are to be numbered in consecutive order starting with the bottom Anode No. 1 and moving up the groundbed sequentially. Maintain sufficient slack to keep the wires from being unduly stressed, damaged, or broken during backfill.
   6. Terminate remaining pipeline and reference electrode leads wires as shown on the project drawings.
   7. Route the positive and negative header cables from the junction box to the rectifier using the exiting conduit.

B. STA 81+56 (Milwaukee Way):
   1. Replace the existing junction box with a new junction box.
   2. If necessary, splice additional wire lengths onto the existing leads in order to properly terminate within the junction box. Use the same AWG wire size, insulation type and color as existing. If insulation type cannot be determined, use type XHHW.
3. Terminate each anode on its corresponding shunt located in the junction box, use existing anode tags for identification.

4. Terminate remaining pipeline and reference electrode leads wires as shown on the project drawings.

C. STA 130+60 (Port of Tacoma):

1. Remove and dispose of all existing aboveground cathodic protection equipment and related AC power equipment. Keep the structure and reference electrode lead wires for routing to the new junction box location.

2. Route the new anode lead wires to the new junction box as shown on the project drawings.

3. Splice additional lengths of pipeline and reference electrode leads onto the existing leads such that they can be routed to the new junction box and rectifier. Use the same AWG stranded wire size, insulation type and color as existing. New conductor insulation type shall be XHHW.

4. Terminate each anode on its corresponding shunt located in the junction box. NOTE: Anodes are to be numbered in consecutive order starting with the bottom Anode No. 1 and moving up the groundbed sequentially. Maintain sufficient slack to keep the wires from being unduly stressed, damaged, or broken during backfill.

5. Terminate remaining pipeline and reference electrode leads wires as shown on the project drawings.

6. Route a new positive header cable from the junction box to the rectifier positive terminal.

7. Splice additional cable length (same size and insulation type) onto the existing negative (structure) header cable and route to the rectifier negative terminal.

D. STA 152+25 (Marine Outfall):

1. No junction box at this location.

3.8 JUNCTION BOX INSTALLATION – GALVANIC ANODE GROUNDBED

A. STA 45+24 (Lincoln Avenue) and STA 117+57 (North Sitcum Way):

1. Use the existing junction box supports for mounting the new junction boxes. The existing supports can be adjusted to accommodate the new junction box sizing.

2. Carefully hand dig/vacuum excavate around the junction box site to expose the existing underground lead wires.

3. If necessary, splice additional wire lengths onto the existing leads in order to properly terminate within the junction box. Use the same AWG stranded wire size, insulation type and color as existing. If insulation type cannot be determined, use type XHHW.

4. Route all lead wires into the new junction boxes using electrical PVC conduit as shown on the project drawings.

5. Terminate each anode on its corresponding shunt located in the junction box. Engrave the locations of each anode lead wire as shown on the project drawings. NOTE: Anodes are to be numbered in consecutive order starting with the bottom Anode No. 1 and moving up the groundbed sequentially. Maintain sufficient slack to keep the wires from being unduly stressed, damaged, or broken during backfill.
6. At STA 45+24, relocate the anode lead wires, structure lead wires, and reference electrode lead wire from the existing 2010 installed post mounted test station to the new junction box, see photographs on drawings.

7. Terminate remaining casing, pipeline, and reference electrode leads wires as shown on the project drawings: Do not terminate the casing lead onto the shunt at this time, see System Testing for connection instructions.

B. STA 107+53 (South Sitcum Way):

1. The existing test stations at STA 107+53 include the original junction box installed within a belowground vault and the post mounted test station installed in 2010.

2. The Contractor shall install a new junction box support rack and new junction box in the vicinity shown on the project drawings. Field locate the support rack with the Owner and the Port of Tacoma.

3. Carefully hand dig/vacuum excavate around the existing junction box site to expose the existing underground and the through-vault lead wires. Remove wires, seal though-wall conduit and leave junction box in place.

4. If necessary, splice additional wire lengths onto the existing leads in order to properly terminate within the new junction box. Use the same AWG stranded wire size, insulation type and color as existing. If insulation type cannot be determined, use type XHHW.

5. Route all lead wires into the new junction boxes as shown on the project drawings.

6. Terminate each anode on its corresponding shunt located in the junction box. Engrave the locations of each anode lead wire as shown on the project drawings. NOTE: Anodes are to be numbered in consecutive order starting with the bottom Anode No. 1 and moving up the groundbed sequentially. Maintain sufficient slack to keep the wires from being unduly stressed, damaged, or broken during backfill.

7. Terminate remaining casing, pipeline, and reference electrode leads wires as shown on the project drawings: Do not terminate the casing lead onto the shunt at this time, see System Testing for connection instructions.

C. STA 112+18 (Central Sitcum Way):

1. The existing test stations at STA 112+18 is housed in a belowground box surrounded by four bollards.

2. The Contractor shall install a new junction box support rack and new junction box at the vicinity shown on the project drawings. Field locate the support rack with the Owner and the Port of Tacoma. All support rack materials shall be 304 or 316 stainless steel.

3. Install two new bollards at this location, remove and dispose of the two defective bollards shown on the project drawings. Remove and dispose of existing test station belowground vault.

4. Carefully hand dig/vacuum excavate around the existing junction box site to expose the existing underground lead wires.

5. If necessary, splice additional wire lengths onto the existing leads in order to properly terminate within the new junction box. Use the same AWG stranded wire size, insulation type and color as existing. If insulation type cannot be determined, use type XHHW.
6. Route all lead wires into the new junction boxes as shown on the project drawings.

7. Terminate each anode on its corresponding shunt located in the junction box.
   Engrave the locations of each anode lead wire as shown on the project drawings.
   NOTE: Anodes are to be numbered in consecutive order starting with the bottom
   Anode No. 1 and moving up the groundbed sequentially. Maintain sufficient slack
   to keep the wires from being unduly stressed, damaged, or broken during backfill.

8. Terminate remaining casing, pipeline, and reference electrode leads wires as
   shown on the project drawings. Do not terminate the casing lead onto the shunt at
   this time, see System Testing for connection instructions.

3.9 JUNCTION BOX SUPPORT RACK
   A. Fabricate new junction box supports racks as detailed on the project drawings.
   B. All support rack materials shall be 304 or 316 stainless steel.
   C. Coat all metallic components as described in these specifications.
   D. The pipe supports shall be inserted 2-feet into the ground and extend 3-feet above
      grade. Fill pipe with concrete and encase the foundation.

3.10 CONDUIT
   A. All AC conduit shall be rigid steel. At locations where the conduit transitions above
      ground, wrap two half-lapped layers of pipe tape over the surface, extending the tape a
      minimum of 6-inches above grade.
   B. The belowground DC conduit shall be PVC.
   C. The aboveground DC conduit shall be rigid steel. Transition from PVC to RS
      belowground using appropriate fittings. At locations where the metallic conduit
      transitions above ground, wrap two half-lapped layers of pipe tape over the surface,
      extending the tape a minimum of 6-inches above grade.

3.11 TRENCHING AND BACKFILLING
   A. Route anode lead wires from the groundbed location to the junction box using PVC
      conduit belowground and rigid steel conduit aboveground. Belowground conduit shall
      be buried a minimum of 3-feet below grade.
   B. Install warning tape 2-feet below grade and over the centerline of the conduit.
   C. Backfill soil/gravel trenches with native soil/gravel, compacting in lifts no greater than 6-
      inches.
   D. Backfill the trench in accordance with Section 40_05_04 and the drawings.

3.12 LEAD WIRE CONNECTIONS
   A. At all galvanic anode and impressed current anode sites, use the existing pipeline
      leads and casing structure leads (galvanic sites) for connection. Based upon length of
      existing cables, splicing additional length may be required. If splicing is necessary, use
      the same AWG size lead wires with same insulation type and color.
   B. Splices for extension of wires shall be completed by spirally half-lapping two layers of
      high voltage rubber splicing tape and two half-lapped layers of vinyl electrical tape over
      the damaged area. Make wire splices with suitable sized copper or copper alloy crimp
      connectors.
3.13 CONDUCTOR ROUTING
A. Install and pull conductors in accordance with applicable codes.
B. Arrange conductors neatly in the rectifier and junction boxes. Cut to proper length, remove surplus wire, and attach to the appropriate terminal as indicated.

3.14 WIRE INSULATION REPAIR
A. All wires shall be handled with care. Splices for damage to wire insulation shall be completed by spirally half-lapping two layers of high voltage rubber splicing tape and two half-lapped layers of vinyl electrical tape over the damaged area. Make wire splices with suitable sized copper or copper alloy crimp connectors.
B. No splices shall be allowed in the anode lead wires between the deep anode groundbed and the junction box.

3.15 BOLLARD INSTALLATION
A. Replace 2 defective bollards at STA 112+18. Bollards shall be inserted 2-feet into the ground and extend 3-feet above grade. Fill pipe with concrete and encase the foundation. Coat bollards as specified.

3.16 COATING OF METALLIC AND CONCRETE SURFACES
A. The new and existing junction box support racks and new steel bollards shall be provided with a new protective coating. Surface preparation for the metallic components of the rack support and bollards shall be completed in accordance with SSPC-SP 10 Near-White Metal Blast Cleaning or SSPC-SP 11 Power Tool Cleaning to Bare Metal.
B. Provide a cleaned surface with an anchor profile between 1.5 and 2.5 mils.
C. Mix and apply coatings in accordance with manufacturer’s recommendations. Do not apply coatings outside the environmental conditions described on the coating’s product data sheets.
D. Do not exceed the pot life of the coating.
E. Do not coat over surface rust or other surface contaminants.
F. For both steel and concrete surfaces:
   1. Apply prime coat of polyamidoamine epoxy at 5 – 10 mils dry film thickness.
   2. Apply top coat of UV resistance Aliphatic Acrylic Polyurethane at 3 – 5 mils dry film thickness.
G. Allow proper cure time between successive coats, do not exceed recoat window.
H. For concrete bollards, pressure wash all surfaces to remove non-tightly adhered coating material. Allow surfaces to dry and apply specified coating.

3.17 SYSTEM TESTING
A. Provide each rectifier with an Operating and Maintenance manual that describes the basic operation of the rectifier unit, general maintenance instructions, and a wiring diagram of unit. Include with the manual basic troubleshooting techniques.
B. Prior to acceptance or testing by the Owner, the Contractors Cathodic Protection Technician shall test all equipment and notify the Owner that the installation is
C. Casing Test Station Checkout:

1. Prior to connecting anode lead wires to the casing lead within the junction box, record structure-to-electrolyte potentials of all casing, pipeline, and existing stationary reference electrode lead wires in reference to a calibrated portable copper-copper sulfate reference electrode.

2. Connect all anode lead wires and calculate individual anode current output by measuring the voltage drop across the individual shunts and dividing that value by the shunt resistance.

3. After a minimum polarization period of 30 minutes, record on and instant off casing and pipeline potentials using both the installed stationary reference electrode and a calibrated portable copper-copper sulfate reference electrode.

D. Rectifier Checkout:

1. Prior to energizing rectifiers, measure depolarized potentials of test leads at all rectifier test stations. Measure potentials in reference to the installed stationary reference electrodes and a calibrated portable copper-copper sulfate reference electrode.

2. Energize individual rectifiers. Record rectifier DC Volts and DC Amps (including verification of proper polarity) at each tap setting starting at Coarse 1 Fine 1 and increasing output by one fine setting until rectifier output has reached 10 amperes. At approximately 5 and 10 amperes, record the current output of each individual anode.

3. Record rectifier output data using a calibrated high input impedance multimeter and the rectifier panel meters.

4. Test each rectifier separately, verify that all other rectifiers are off.

5. After completing rectifier checkouts, turn on and cycle all rectifiers, adjusting current output until the electrical potential of the pipeline at the rectifier test station is reading an instant off potential that is approximately 100 millivolts more electronegative than the depolarized readings using a portable copper-copper sulfate reference electrode.

6. After adjustment is complete, operate all rectifiers for a minimum of 1 hour.

7. Record synchronized on and instant off potential measurements of each pipeline lead within the junction boxes.

E. Tabulate all test results and submit report to Owner for review and acceptance.

F. All testing shall be completed in the presence of the Owner.

END OF SECTION
SECTION 26_05_00
COMMON WORK RESULTS FOR ELECTRICAL

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:
   1. General requirements applicable to all Electrical Work.
   2. General requirements for electrical submittals.

B. Interfaces to equipment, instruments, and other components:
   1. The Drawings, Specifications, and overall design are based on preliminary information furnished by various equipment manufacturers which identify a minimum scope of supply from the manufacturers. This information pertains to, but is not limited to, instruments, control devices, electrical equipment, packaged mechanical systems, and control equipment provided with mechanical systems.
   2. Provide all material and labor needed to install the actual equipment furnished, and include all costs to add any additional conduit, wiring, terminals, or other electrical hardware to the Work, which may be necessary to make a complete, functional installation based on the actual equipment furnished:
      a. Make all changes necessary to meet the manufacturer’s wiring requirements.
   3. Submit all such changes and additions to the Owner for acceptance as specified in Document 00_72_00 and Document 00_73_00.
   4. Review the complete set of Drawings and Specifications in order to ensure that all items related to the electrical power and control systems are completely accounted for. Include any such items that appear on the Drawings or in the Specifications from another discipline in the scope of Work:
      a. If a conflict between Drawings and Specifications is discovered, refer conflict to the Owner as soon as possible for resolution.

C. All electrical equipment and systems for the entire Project must comply with the requirements of the Electrical Specifications, whether referenced in the individual Equipment Specifications or not:
   1. The requirements of the Electrical Specifications apply to all Electrical Work specified in other sections.
   2. Inform all vendors supplying electrical equipment or systems of the requirements of the Electrical Specifications.
   3. Owner is not responsible for any additional costs due to the failure of Contractor to notify all subcontractors and suppliers of the Electrical Specifications requirements.

D. Contract Documents:
   1. General:
      a. The Drawings and Specifications are complementary and are to be used together in order to fully describe the Work.
2. Specifications:
   a. The General and Supplementary Conditions of the Contract Documents govern the Work.
   b. These requirements are in addition to all General Requirements.

3. Contract Drawings:
   a. The Electrical Drawings show desired locations, arrangements, and components of the Electrical Work in a diagrammatic manner.
   b. Locations of equipment, control devices, instruments, boxes, panels, etc. are approximate only; exercise professional judgment in executing the Work to ensure the best possible installation:
      1) The equipment locations and dimensions indicated on the Drawings are approximate. Use the shop drawings to determine the proper layout, foundation, and pad requirements, etc. for final installation. Coordinate with all subcontractors to ensure that all electrical equipment is compatible with other equipment and space requirements. Make changes required to accommodate differences in equipment dimensions.
      2) The Contractor has the freedom to select any of the named manufacturers identified in the individual specification sections; however, the Engineer has designed the spatial equipment layout based upon a single manufacturer and has not confirmed that every named manufacturer’s equipment fits in the allotted space. It is the Contractor’s responsibility to ensure that the equipment being furnished fits within the defined space.
   c. Installation details:
      1) The Contract Drawings include typical installation details the Contractor is to use to complete the Electrical Work. For cases where a typical detail does not apply, develop installation details that may be necessary for completing the Work, and submit these details for review by the Owner.
      2) Not all typical installation details are referenced within the Drawing set. Apply and use typical details where appropriate.

E. Alternates/Alternatives:
   1. Coordinate with Document 00_72_00 and Document 00_73_00 for substitute item provisions.

F. Changes and change orders:
   1. As specified in Document 00_72_00 and Document 00_73_00.

1.02 REFERENCES

A. Code compliance:
   1. As specified in Section 01_41_00 - Regulatory Requirements.
   2. The publications are referred to in the text by the basic designation only. The latest edition accepted by the Authority Having Jurisdiction of referenced publications in effect at the time of the bid governs.
   3. The standards listed are hereby incorporated into this Section:
      b. American Society of Civil Engineers (ASCE):
      c. ASTM International (ASTM).
d. Illuminating Engineering Society (IES).

e. Institute of Electrical and Electronics Engineers (IEEE).

f. Insulated Cable Engineers Association (ICEA).

g. International Code Council (ICC):
      a) AC 156 - Acceptance Criteria for Seismic Certification by Shake
         Table Testing of Non-Structural Components (ICC-ES AC 156).

h. International Society of Automation (ISA).

i. National Electrical Manufacturers Association (NEMA):
   1) 250 - Enclosures for Electrical Equipment (1000 V Maximum).

j. National Fire Protection Association (NFPA):
   1) 70 - National Electrical Code (NEC).

k. National Institute of Standards and Technology (NIST).

l. Underwriters’ Laboratories, Inc. (UL).

B. Compliance with laws and regulations:
   1. As specified in Document 00_72_00 and Document 00_73_00.

1.03 DEFINITIONS

A. Definitions of terms and other electrical and instrumentation considerations as set
forth by:
   1. IEEE.
   2. NETA.
   3. IES.
   4. ISA.
   5. NEC.
   6. NEMA.
   7. NFPA.
   8. NIST.

B. Specific definitions:
   1. FAT: Factory acceptance test.
   2. ICSC: Instrumentation and controls subcontractor.
   3. LCP: Local control panel: Operator interface panel that may contain an HMI,
      pilot type control devices, operator interface devices, control relays, etc. and
      does not contain a PLC or RIO.
   4. PCM: Process control module: An enclosure containing any of the following
      devices: PLC, RTU, or RIO.
   5. PCIS: Process control and instrumentation system.
   6. RTU: Remote telemetry unit: A controller typically consisting of a PLC, and a
      means for remote communications. The remote communications devices
      typically are radios, modems, etc.
   7. VCP: Vendor control panel: Control panels that are furnished with particular
      equipment by a vendor other than the ICSC. These panels may contain PLCs,
      RIO, OIT, HMI, etc.

1.04 SYSTEM DESCRIPTION

A. General requirements:
1. The Work includes everything necessary for and incidental to executing and completing the Electrical Work indicated on the Drawings and specified in the Specifications and reasonably inferable there from:
   a. The Electrical Drawings are schematic in nature; use the Structural, Architectural, Mechanical, and Civil Drawings for all dimensions and scaling purposes.
2. It is the intent of these Specifications that the entire electrical power, instrumentation, and control system be complete and operable. Provide all necessary material and labor for the complete system from source of power to final utilization equipment, including all connections, testing, calibration of equipment furnished by others as well as equipment furnished by the Contractor, whether or not specifically mentioned but which are necessary for successful operation.
3. Provide all Electrical Work, including conduit, field wiring, and connections by the electrical subcontractor under the provisions of the Electrical Specifications for all aspects of the Work.
4. Coordinate all aspects of the Work with the electrical subcontractor and other subcontractors before bidding in order to ensure that all costs associated with a complete installation are included. The Owner is not responsible for any change orders due to lack of coordination of the Work between the Contractor, the electrical subcontractor, the other subcontractors or suppliers.
5. Demolition:
   a. Where demolition is specified or indicated on the Drawings, disconnect all associated electrical equipment and render the equipment safe.
   b. Remove and dispose of all conduit, wire, electrical equipment, controls, etc. associated with the items and/or areas to be demolished as indicated on the Drawings unless otherwise indicated.
   c. Salvage electrical equipment as specified in Section 01_35_21 - Selective Alterations and Demolition.
   d. For each piece of equipment to be removed, remove all ancillary components (e.g. instruments, solenoid valves, disconnect switches, etc.).
   e. Conduit:
      1) Where conduit removal, other than associated with equipment to be removed, is indicated on the Drawings:
         a) Remove exposed conduit to the point of encasement or burial.
         b) Cut conduit flush and plug or cap encased or buried conduit.
      2) Where conduits are to remain in place and removal is not indicated on the Drawings:
         a) Cap conduit open ends.
         b) Re-label empty conduits as spare.
   f. Remove all wire back to the source for all conduits to be removed or abandoned in place.
   g. Provide new nameplates for modified electrical distribution equipment, motor control centers etc. to identify equipment and circuits that are no longer used as spares.
   h. Provide new typewritten schedules for all modified panelboards.
6. Portions of this Project involve installation in existing facilities and interfaces to existing circuits, power systems, controls, and equipment:
   a. Perform and document comprehensive and detailed field investigations of existing conditions (circuits, power systems, controls, equipment, etc.) before starting any Work. Determine all information necessary to
document, interface with, modify, upgrade, or replace existing circuits, power systems, controls, and equipment.

b. Provide and document interface with, modifications to, upgrades, or replacement of existing circuits, power systems, controls, and equipment.

7. Provide all trenching, forming, rebar, concrete, back filling, hard surface removal and replacement, for all items associated with the Electrical Work and installation:
   a. As specified in the Contract Documents.

8. Defective work:
   a. As specified in Document 00_72_00 and Document 00_73_00.

9. Utility coordination: Coordinate with the electric utilities as required by Section 26_05_03 - Utility Coordination.

B. Existing system modifications:

1. The City of Tacoma Central Treatment Plant (CTP) outfall pipeline is a 60-inch Prestressed Concrete Cylinder Pipe (PCCP) running from the CTP to the marine outfall in Commencement Bay. The piping material is primarily PCCP, but portions are steel and ductile iron. The pipeline is housed within steel casings at road and railroad crossing. The casings are electrically isolated from the outfall pipeline and have a dedicated galvanic anode cathodic protection system. The casing cathodic protection systems consists of magnesium anodes, structure connections, and a stationary reference electrode. Magnesium anode materials were added to each of the cased crossings in 2010 to provide additional current protection.

2. Four impressed current cathodic protection systems are used to provide current to the outfall pipeline. One rectifier is located at the CTP, another along Milwaukee Way, with the two remaining rectifiers located within the Port of Tacoma facility. The systems were installed in 1987.

3. CTP Rectifier Station (Sta 23+76)
   a. This rectifier provides current to a 351-feet deep anode well that includes eight (8) anodes installed in an 8-inch diameter well. The station includes a rectifier panel, terminal board junction box, and test station. The Contractor will demolish and replace this equipment at its existing location as shown on the Drawings. The new anode well shall be 375-feet deep and contain 20 anodes.

4. Milwaukee Way Rectifier Station (81+56)
   a. This rectifier provides current to a 301-foot deep anode well that includes eight (8) anodes installed in an 8-inch diameter well. The station includes a rectifier panel, utility panel, and test station. The Contractor will demolish and replace the rectifier and junction box at its existing location as shown on the Drawings. Contractor to coordinate utility shutdown and startup with Tacoma Power if needed. Re-use existing electrical service.

5. Port of Tacoma Road Rectifier Station (Sta 130+60)
   a. This rectifier provides current to a 301-foot deep anode well that includes eight (8) anodes installed in an 8-inch diameter well. The station includes a 7.5 kVA transformer, rectifier panel, utility service panel, terminal board junction box, and test station. The Contractor will demolish and replace this equipment at a new location as shown on the Drawings. The new anode well shall be 301-feet deep and contain 12 anodes.

   b. Intercept the existing feeder conduit from Tacoma Power Transformer NP2562-7728T and install a new Secondary Service Box (SSB) in accordance with Tacoma Power Standard Plan C-SV-3200. The
Contractor shall field locate the SSB in coordination with Tacoma Power and Husky Terminal. Remove the existing feeder cable and pull new cable from the transformer to new disconnect at the new rectifier station. Contractor to coordinate all utility disconnects with Tacoma Power. City of Tacoma will pay for one disconnect and one startup. Additional mobilizations by Tacoma Power will be at Contractor’s expense.

c. Intercept the existing feeder conduit from its current termination at the existing rectifier station. Install a coupling and extend the conduit in a new trench to the new rectifier station. Build new concrete pad, subsurface improvements, and conduit penetrations for the new rectifier station.

6. Mariner Outfall Rectifier Station (Sta 152+25)
a. This rectifier provides current to a 401-feet deep anode well that includes fifteen (15) anodes installed in an 8-inch diameter well. The station includes a rectifier panel, utility panel, and test station. The Contractor shall demolish and replace the rectifier at its existing location as shown on the Drawings. Contractor to coordinate utility shutdown with Tacoma Power if needed. Re-use existing electrical service and conduit. Reterminate existing leads in new rectifier.

7. Lincoln Avenue Casing
a. This location includes shallow anode ground beds, an anode test station, cabling for the casing, PCCP pipe, and groundbed. The Contractor will install new 65-feet deep galvanic anodes to replace the depleted magnesium anodes. Replace the test station and re-terminate the existing leads connected to the pipeline.

8. Sitcum Way Casing (3)
a. This location includes three shallow anode ground beds, anode test stations, cabling for the casings, PCCP pipe, and groundbeds. The Contractor will install new 65-feet deep galvanic anodes to replace the depleted magnesium anodes at all three locations. Replace the test stations and re-terminate the existing leads connected to the pipeline.

C. Operating facility:
1. As specified in Section 01_14_00 - Work Restrictions.
2. The Central Treatment Plant is an operating facility that continuously treats incoming wastewater. Portions of this facility must remain fully functional throughout the entire construction period. In consideration of this requirement, comply with the following guidelines:
a. Refer to 01_14_00 - Work Restrictions for detailed Work Sequence.
b. All outages must be of minimal duration and fully coordinated and agreed to by the Owner. Adjust the construction schedule to meet the requirements of the Owner. All changes in schedule and any needs to reschedule are included in the Work.
c. As weather and water demand conditions dictate, re-adjust the construction schedule to meet the demands placed upon Owner by its customers.
d. Coordinate the construction and power renovation, bear all costs, so that all existing facilities can continue operation throughout construction.
3. According to individual circumstances and in compliance with the Drawings, extend or replace conduit and cable connections from existing locations.
4. The standards of documentation, instrument tagging, cable and conductor ferruling, terminal identification and labeling that apply to the new installation
apply equally to the existing installation which forms part of the modified system.

1.05 SUBMITTALS

A. Furnish submittals as specified in Section 01_33_00 - Submittal Procedures and this Section.

B. General:
   1. Instruct all equipment suppliers of submittals and operation and maintenance manuals of the requirements in this Section.
   2. Furnish the submittals required by each section in the Electrical Specifications.
   3. Adhere to the wiring numbering scheme specified in Section 26_05_53 - Identification for Electrical Systems throughout the Project:
      a. Uniquely number each wire.
      b. Wire numbers must appear on all Equipment Drawings.
   4. Use equipment and instrument tags, as indicated on the Drawings and Owner’s Tag Database, for all submittals:
      a.

C. Seismic requirements:
   1. Provide electrical equipment with construction and anchorage to supporting structures designed to resist site seismic loads based on the seismic design criteria in Section 01_81_02 - Seismic Design Criteria.
   2. For equipment installed in structures designated as seismic design category C, D, E or F, prepare and submit the following:
      a. Statement of seismic qualification, and special seismic certification:
         1) “Statement of seismic qualification:” Provide manufacturer’s statement that the equipment satisfies the seismic design requirements of the building code indicated in Section 01_41_00 - Regulatory Requirements, including the requirements of ASCE 7, Chapter 13.
         2) “Special seismic certification:” Provide manufacturer’s certification that the equipment, when subjected to shake table testing in accordance with ICC-ES AC 156, meets the “Post-Test Functional Compliance Verification” requirements of ICC-ES AC 156 for “Components with Ip = 1.5.” Compliance shall include both operability and containment of hazardous materials as appropriate to the unit being tested.
      b. Substantiating test data: With seismic qualification and special seismic certification statements, submit results of testing in accordance with ICC-ES AC 156.
      c. Anchoring design calculations and details:
         1) Submit project-specific drawings and supporting calculations, prepared and sealed by a professional engineer licensed in the state of Washington, and showing details for anchoring electrical equipment to its supports and for anchoring supports provided with the equipment to the structure. Prepare calculations in accordance with the requirements of Section 01_81_02 - Seismic Design Criteria.
   3. Exemptions: A “statement of seismic qualification” and a “special seismic certification” are not required for the following equipment:
      a. Temporary or moveable equipment.
b. Equipment anchored to the structure and having a total weight of 20 pounds or less.

D. Operation and maintenance manuals:
1. As specified in Section 01_78_23 - Operation and Maintenance Data.
2. Furnish the Owner with a complete set of written operation and maintenance manuals 60 days before installation.

E. Material and equipment schedules:
1. Furnish a complete schedule and/or matrix of all materials, equipment, apparatus, and luminaries that are proposed for use:
   a. Include sizes, names of manufacturers, catalog numbers, and such other information required to identify the items.

F. Schedule of values:
1. In addition to completing all items referred to in the schedule of values, Section 01_29_77 - Applications for Payment, submit per unit material and labor costs used in developing the final bid for the electrical system, for the express purpose of pricing and cost justification for any proposed change orders. In addition to the items shown on the schedule of values, provide per unit material and labor costs for conduit and wire installation for specific types, sizes, and locations as indicated on the Drawings and Conduit Schedule. It is the responsibility of the electrical subcontractor to prove to the Owner's satisfaction that said per unit costs were used in the development of the final Bid amount.

G. Record Documents:
1. Furnish as specified in Section 01_77_00 - Closeout Procedures.
2. Provide Record Documents of all Electrical Drawings.
3. Record Drawing requirements:
   a. Update Record Drawings weekly.
   b. Record Drawings must be fully updated as a condition of the monthly progress payments.
   c. Submit Record Drawings upon completion of the Work for final review:
      1) In addition to the final hard copy Record Drawings/redlines, provide all Record Drawing redlines/changes in Adobe Acrobat PDF editor or equal as approved by Owner.
   d. Clearly and neatly show all changes including the following:
      1) All existing pipe, conduit, wire, instruments or other structures encountered or uncovered during construction.

H. Test reports:
1. As specified in Section 01_33_00 - Submittal Procedures.
2. Additional requirements for field acceptance test reports are specified in Sections 01_75_17 - Commissioning and 26_08_50 - Field Electrical Acceptance Tests.

I. Calculations:
1. Where required by specific Electrical Specifications:
   a. Because these calculations are being provided by a registered professional engineer licensed in the state of Washington, they will be
1.06 QUALITY ASSURANCE

A. Furnish all equipment listed by and bearing the label of UL or of an independent testing laboratory acceptable to the City and the Authority Having Jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. As specified in Section 01_60_00 - Product Requirements.

B. Delivery and inspection:
   1. Deliver products in undamaged condition, in manufacturer’s original container or packaging with identifying labels intact and legible. Include date of manufacture on label.

C. Special instructions:
   1. Securely attach special instructions for proper field handling, storage, and installation to each piece of equipment before packaging and shipment.

1.08 PROJECT OR SITE CONDITIONS

A. Site conditions:
   1. Provide an electrical, instrumentation and control system, including all equipment, raceways, and any other components required for a complete installation that meets the environmental conditions for the Site as specified in the General Requirements and below.
   2. Seismic load resistance:
      a. Provide electrical equipment with construction and anchorage to supporting structures designed to resist site seismic loads as specified in Section 01_81_02 - Seismic Design Criteria.
   3. Altitude, temperature and humidity:
      a. Equipment and materials for the project are to be suitable for performance in wastewater treatment plant environment and under following conditions:
         1) Outdoor temperatures: 5 to 105 degrees Fahrenheit.
         2) Site elevation: Approximately 10 feet above mean sea level.
         3) Marine environment with coastal fog and sea salt spray.
      b. Provide all electrical components and equipment fully rated for continuous operation at this altitude, with no additional derating factors applied.
      c. Provide additional temperature conditioning equipment to maintain all equipment in non-conditioned spaces subject to these ambient temperatures, with a band of 10 degrees Fahrenheit above the minimum operating temperature and 10 degrees Fahrenheit below maximum operating temperature, as determined by the equipment manufacturer’s guidelines:
         1) Provide all power conduits wiring for these devices (e.g. heaters, fans, etc.) whether indicated on the Drawings or not.
   4. Outdoor installations:
      a. Provide electrical, instrumentation and control equipment suitable for operation in the ambient conditions where the equipment is located.
      b. Provide heating, cooling, and dehumidifying devices incorporated into and included with electrical equipment, instrumentation and control panels to
maintain the enclosures within the rated environmental operating ranges as specified in this Section for the equipment:

1) Provide all wiring necessary to power these devices.

B. Provide enclosures for electrical, instrumentation and control equipment, regardless of supplier or subcontractor furnishing the equipment, that meet the requirements outlined in NEMA Standard 250 for the following types of enclosures:

1. NEMA Type 3R: Intended for indoor or outdoor use; protects the equipment inside the enclosure against ingress of solid foreign objects (falling dirt); provide a degree of protection due to the ingress of water (rain, sleet, snow).
2. NEMA Type 4: Intended for indoor or outdoor use, primarily to protect equipment from exposure to windblown dust and rain, splashing or hose directed water, ice formation and freezing.
3. NEMA Type 4X: Made from corrosion resistant materials and are intended for indoor or outdoor use, primarily to protect equipment from exposure to windblown dust and rain, splashing or hose directed water, ice formation and freezing, and corrosion. Provide specific materials as specified or indicated on the Drawings.

C. Plant area Electrical Work requirements:

1. Provide all Electrical Work in accordance with the following table, unless otherwise specifically indicated on the Drawings:

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>NEMA ENCLOSURE TYPE</th>
<th>EXPOSED CONDUIT TYPE</th>
<th>ENVIRONMENT SUPPORT MATERIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor Areas</td>
<td>3R, 4X SST</td>
<td>GRC, PCS</td>
<td>W, X 316 SST</td>
</tr>
</tbody>
</table>

2. Modify exposed conduit runs as specified in Section 26_05_33 - Conduits.

1.09 SEQUENCING (NOT USED)

1.10 SCHEDULING

A. General:

1. As specified in Sections 01_31_19 - Project Meetings.
2. Testing requirements are specified in Section 01_75_17 - Commissioning, 26_08_50 - Field Electrical Acceptance Tests, and other sections.
3. General scheduling requirements are specified in Section 01_32_16 - Progress Schedules and Reports.
4. Work restrictions and other scheduling requirements are specified in Section 01_14_00 - Work Restrictions.

1.11 WARRANTY

A. Warrant the Electrical Work as specified in Document 00_72_00 and Document 00_73_00:

1. Provide additional warranty as specified in the individual Electrical Specifications.
1.12 SYSTEM START-UP

A. Replace or modify equipment and materials that do not achieve design requirements after installation in order to attain compliance with the design requirements:
   1. Following replacement or modification, retest the system and perform additional testing to place the complete system in satisfactory operation and obtain compliance acceptance from the Owner.

1.13 OWNER’S INSTRUCTIONS (NOT USED)

1.14 MAINTENANCE

A. Before Substantial Completion, perform all maintenance activities required by any sections of the Specifications including any calibrations, final adjustments, component replacements or other routine service required before placing equipment or systems in service.

B. Furnish all spare parts as required by other sections of the Specifications.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Provide similar items of same manufacturer throughout the electrical and instrumentation portion of the Project.

B. Allowable manufacturers are specified in individual Electrical Specifications.

2.02 EXISTING PRODUCTS (NOT USED)

2.03 MATERIALS

A. Furnish all materials under this Contract that are new, free from defects, and standard products produced by manufacturers regularly engaged in the production of these products and that bear all approvals and labels as required by the Specifications.

B. Provide materials complying with the applicable industrial standard as specified in Document 00_72_00 and Document 00_73_00.

C. Stainless steel:
   1. Where stainless steel is indicated or used for any portion of the Electrical Work, provide a non-magnetic, corrosion-resistant alloy, ANSI Type 316, satin finish.
   2. Provide exposed screws of the same alloys.
   3. Provide finished material free of any burrs or sharp edges.
   4. Use only stainless steel hardware, when chemically compatible, in all areas that are or could be in contact with corrosive chemicals.
   5. Use stainless steel hardware, when chemically compatible, in all chemical areas or areas requiring NEMA Type 4X construction.
6. Do not use stainless steel in any area containing chlorine, gas or solution, chlorine products or ferric chloride.

2.04 MANUFACTURED UNITS (NOT USED)

2.05 EQUIPMENT (NOT USED)

2.06 COMPONENTS (NOT USED)

2.07 ACCESSORIES (NOT USED)

2.08 MIXES (NOT USED)

2.09 FABRICATION (NOT USED)

2.10 FINISHES (NOT USED)

2.11 SOURCE QUALITY CONTROL

A. Provide all equipment that is new, free from defects, and standard products produced by manufacturers regularly engaged in the production of these products.

PART 3 EXECUTION

3.01 EXAMINATION

A. The electrical subcontractor is required to thoroughly examine the Bid Documents and is highly encouraged to visit the site to examine the premises completely before bidding.

B. It is the electrical subcontractor’s responsibility to be fully familiar with the existing conditions and local requirements and regulations.

C. Comply with pre-bid conference requirements as specified in Document 00_72_00 and Document 00_73_00.

D. Review the site conditions and examine all shop drawings for the various items of equipment in order to determine exact routing and final terminations for all wiring and cables.

3.02 PREPARATION (NOT USED)

3.03 INSTALLATION

A. Equipment locations shown on Electrical Drawings may change due to variations in equipment size or minor changes made by others during construction:
   1. Verify all dimensions indicated on the Drawings:
      a. Actual field conditions govern all final installed locations, distances, and levels.
   2. Review all Contract Documents and approved equipment shop drawings and coordinate Work as necessary to adjust to all conditions that arise due to such changes.
3. Make minor changes in location of equipment before rough in, as directed by the Owner or Engineer.
4. Provide a complete electrical system:
   a. Install all extra conduits, cables, and interfaces as may be necessary to provide a complete and operating cathodic protection system.

B. Install the equipment in accordance with the accepted installation instructions and anchorage details to meet the seismic requirements at the Project site.

C. Cutting and patching:
   1. Perform all cutting, patching, channeling, core drilling, and fitting required for the Electrical Work, except as otherwise directed:

D. Install all conduits and equipment in such a manner as to avoid all obstructions and to preserve headroom and keep openings and passageways clear:
   1. Install all conduits and equipment in accordance with working space requirements in accordance with the NEC:
      a. This includes any panel, disconnect switch or other equipment that can be energized while open exposing live parts regardless of whether it is likely to require examination or has serviceable parts.
   2. Where the Drawings do not show dimensions for locating equipment, install equipment in the approximate locations indicated on the Drawings:
      a. Adjust equipment locations as necessary to avoid any obstruction or interferences.
   3. Where an obstruction interferes with equipment operation or safe access, relocate the equipment.
   4. Where the Drawings do not indicate the exact mounting and/or supporting method to be used, use materials and methods similar to the mounting details indicated on the Drawings.

E. Earthwork and concrete:
   1. Install all trenching, shoring, concrete, backfilling, grading, and resurfacing associated with the Electrical Work:
      a. Requirements as specified in the Contract Documents.

F. Terminations:
   1. Provide and terminate all conductors required to interconnect power, controls, instruments, panels, and all other equipment.

G. Miscellaneous installation requirements:
   1. In case of interference between electrical equipment indicated on the Drawings and the other equipment, notify the Owner as specified in Document 00_72_00 and Document 00_73_00.
   2. Provide additional manholes, vaults, or pullboxes to those shown where they are required to make a workable installation.
   3. Circuits of different service voltage:
      a. Voltage and service levels:
         1) Medium voltage: greater than 1.0 kV.
         2) Low voltage: 120 V to 480 V.
         3) Instrumentation: Less than 50 VDC.
H. Labeling:
   1. Provide all nameplates and labels as specified in Sections 26_05_53 - Identification for Electrical Systems.

I. Equipment tie-downs:
   1. Anchor all instruments, control panels, and equipment by methods that comply with seismic criteria, which apply to the Site.
   2. All control panels, VCPs, LCPs, etc., must be permanently mounted and tied down to structures in accordance with the Project seismic criteria.

3.04 ERECTION, INSTALLATION, APPLICATION, CONSTRUCTION (NOT USED)

3.05 REPAIR/RESTORATION (NOT USED)

3.06 RE-INSTALLATION (NOT USED)

3.07 COMMISSIONING

A. As specified in Section 13_11_00 Cathodic Protection Groundbed Installations and Equipment Upgrades.

B. Owner training:
   1. As specified in this Section.

C. Testing:
   1. As specified in 13_11_00 Cathodic Protection Groundbed Installations and Equipment Upgrades.

3.08 FIELD QUALITY CONTROL

A. Inspection:
   1. Allow for inspection of electrical system installation as specified in Section 01_45_00 - Quality Control.
   2. Provide any assistance necessary to support inspection activities.
   3. Owner inspections may include, but are not limited to, the following:
      a. Inspect equipment and materials for physical damage.
      b. Inspect installation for compliance with the Drawings and Specifications.
      c. Inspect installation for obstructions and adequate clearances around equipment.
      d. Inspect equipment installation for proper leveling, alignment, anchorage, and assembly.
      e. Inspect equipment nameplate data to verify compliance with design requirements.
      f. Inspect raceway installation for quality workmanship and adequate support.
      g. Inspect cable terminations.
   4. Inspection activities conducted during construction do not satisfy inspection or testing requirements specified in Section 26_08_50 - Field Electrical Acceptance Tests.

B. Field acceptance testing (Functional Testing):
   1. Notify the Owner when the Electrical Work is ready for field acceptance testing.
2. Perform the field acceptance tests as specified in Section 26_08_50 - Field Electrical Acceptance Tests.
3. Record results of the required tests along with the date of test:
   a. Use conduit identification numbers to indicate portion of circuit tested.

C. Workmanship:
   1. Leave wiring in panels, manholes, boxes, and other locations safe, neat, clean, and organized:
      a. Neatly coil and label spare wiring lengths.
      b. Shorten, re-terminate, and re-label excessive used as well as spare wire and cable lengths, as determined by the Owner.

3.09 ADJUSTING (NOT USED)

3.10 CLEANING

  A. As specified in Section 01_77_00 - Closeout Procedures.
  B. Remove all foreign material and restore all damaged finishes to the satisfaction of the Engineer and Owner.
  C. Clean and vacuum all enclosures to remove all metal filings, surplus insulation and any visible dirt, dust or other matter before energization of the equipment or system start-up:
     1. Use of compressors or air blowers for cleaning is not acceptable.
  D. As specified in other sections of the Contract Documents.

3.11 PROTECTION

  A. Protect all Work from damage or degradation until Substantial Completion.
  B. Maintain all surfaces to be painted in a clean and smooth condition.

3.12 SCHEDULES (NOT USED)

END OF SECTION
PART 1 GENERAL

1.01 SUMMARY
A. Section includes:
   1. Coordination with the utility companies to provide service.
   2. Contractor’s responsibilities for connecting to utilities and providing utility service to the facilities.
   3. Descriptions of utility services required.

1.02 REFERENCES
A. As specified in Section 26_05_00 - Common Work Results for Electrical.

1.03 DEFINITIONS
A. As specified in Section 26_05_00 - Common Work Results for Electrical.
B. Tacoma Public Utilities – Power (TPU):
   1. Distribution and Transmission (T&D) - new service design/connections.
   2. Permitting – inspections/AHJ.
C. Utility point contact:
   1. Electric utility:
      a. Name: Dan Reed.
      c. Address: 3628 South 35th Street, Tacoma WA 98409.
      d. Phone number: 253-502-8292.
      e. Email: dreed@ci.tacoma.wa.us.

1.04 SYSTEM DESCRIPTION
A. Electrical service:
   1. Provide all Work and materials and bear all costs for providing temporary construction power and the permanent electrical service, including but not limited to:
      a. All Work and materials not provided by the electric utility.
      b. Obtain all permits required by the electric utility. Permit fees will be paid by the Owner. Notify the Owner when fees are due.
      c. Coordinate utility work with requirements of Section 01_14_00 – Work Restrictions and 01_50_00 – Temporary Facilities and Controls.
   2. Provide electrical conductors, connections, and conduit indicated on the Drawings. If Drawings do not indicate conductor size and type, Contractor to determine based on equipment and materials provided by Contractor.
Contractor to perform all other Work and materials required for a complete permanent electrical service, including but not limited to the following:

a. Coordinate with TPU-Inspections to obtain permits and complete inspections for all new electrical work.

b. Coordinate with TPU-T&D to replace service to Port of Tacoma Cathodic Protection Station:
   1) Provide new services per Tacoma Power standard C-SV-3200 Customer Secondary Service, Underground Services from Padmount Transformer:
      a) All underground and site civil work to be completed by Contractor.
      b) Electrical service conduits and conductors from new rectifier pad to TPU transformer/the point of electric utility connection by Contractor.
      c) Termination kits for connections at utility transformer to be provided by Contractor. Contractor to coordinate with TPU for final installation/connections at TPU transformer:
         (1) Contractor to prepare all Owner cable for final terminations. TPU responsible for completing final terminations/connections at the TPU transformer.
   2) Provide new metering socket and all associated components per Tacoma Power standard C-MR-0005.
   3) Provide new conduit per Tacoma Power standard C-UG-1100.
   4) Existing services to Port of Tacoma Rectifier Station to remain in-place until Contractor has materials and equipment on site. Contractor to coordinate outage with Husky Terminal. Coordinate with TPU to schedule outage:
      a) Coordinate demolition of metering equipment with TPU.
   5) Provide minimum 4 weeks advance notice to TPU for scheduling any work involving TPU personnel.
      a) All other electrical work to be completed by Contractor.

c. Coordinate with TPU-T&D to disconnect and reconnect service to the Milwaukee Way Cathodic Protection Station.


B. General:
   1. Coordinate and obtain inspections and final installation approval from the serving utilities and other authorities having jurisdiction.

1.05 SUBMITTALS

A. Furnish submittals as specified in Sections 01_33_00 - Submittal Procedures and 26_05_00 - Common Work Results for Electrical.

B. Certification:
   1. Submit certification that the intended installation has been coordinated with the utility companies.
   2. Include a narrative description of the utility’s requirements and points of connection, names, and telephone numbers for contacts at the utilities.
C. Additional Requirements:
   1. Documentation and final permitting/acceptance from TPU.
   2. Final signed off permit or approval forms from TPU.

1.06 QUALITY ASSURANCE

A. As specified in Section 26_05_00 - Common Work Results for Electrical.

B. Materials and equipment used in performance of Electrical Work shall be listed or labeled by UL, or other equivalent recognized independent testing laboratory, for the class of service intended.

1.07 DELIVERY, STORAGE, AND HANDLING (NOT USED)

1.08 PROJECT OR SITE CONDITIONS

A. As specified in Section 26_05_00 - Common Work Results for Electrical.

1.09 SEQUENCING (NOT USED)

1.10 SCHEDULING

A. General:
   1. Before start of Site Work, make arrangements for temporary electrical service as required.

B. Electrical systems:
   1. Before bidding, the electrical contractor shall contact the utilities to determine the Work and materials that will be required from the Contractor so that all utility systems furnished by the Contractor will be included in the bid:
      a. All fees and permits will be paid by the Owner.
   2. Coordinate Work with Owner and Husky Terminal to minimize downtime of existing operating equipment:
      a. Notify Owner minimum 14 days before power interruptions.
      b. Coordinate downtime with Owner, Husky Terminal, and TPU.
   3. Coordinate all work activities involving TPU in advance. Provide a minimum four weeks in notice to TPU and Owner.
   4. Before commencing Work, coordinate electric service entrance requirements with local electric utility to ensure that the installation will be complete as specified in these Contract Documents:
      a. Ensure electrical characteristics and location are consistent with the design and service voltage provided by the electric utility coordinated with other trades.
      b. Arrange for utility revenue meter.
      c. Coordinate installation of metering CTs and PTs furnished by the electric utility.
      d. City will pay any charges required by the electric utility for connection and turn-on.
   5. During the construction of the Project, service for the Port of Tacoma Rectifier Station may be disconnected for the duration of the Work. The existing electrical service to the rest of the Husky Terminal site must remain fully functional in order to supply uninterrupted electrical power to the facility and its
ancillary buildings and structures. Contractor to coordinate the temporary connections with TPU.

1.11 WARRANTY
A. As specified in Section 26_05_00 - Common Work Results for Electrical.

1.12 SYSTEM START-UP
A. As specified in Section 26_05_00 - Common Work Results for Electrical.

1.13 OWNER’S INSTRUCTIONS (NOT USED)

1.14 MAINTENANCE (NOT USED)

PART 2 PRODUCTS

2.01 MANUFACTURERS (NOT USED)

2.02 EXISTING PRODUCTS (NOT USED)

2.03 MATERIALS
A. Furnish materials in accordance with the applicable requirements of the utilities and as specified in these Specifications.

2.04 MANUFACTURED UNITS (NOT USED)

2.05 EQUIPMENT
A. Furnish equipment in accordance with the applicable requirements of the utilities and as specified in these Specifications.

2.06 COMPONENTS (NOT USED)

2.07 ACCESSORIES (NOT USED)

2.08 MIXES (NOT USED)

2.09 FABRICATION (NOT USED)

2.10 FINISHES (NOT USED)

2.11 SOURCE QUALITY CONTROL (NOT USED)

PART 3 EXECUTION

3.01 EXAMINATION (NOT USED)

3.02 PREPARATION (NOT USED)
3.03 INSTALLATION
   A. As specified in Section 26_05_00 - Common Work Results for Electrical.

3.04 ERECTION, INSTALLATION, APPLICATION, CONSTRUCTION (NOT USED)

3.05 REPAIR/RESTORATION (NOT USED)

3.06 RE-INSTALLATION (NOT USED)

3.07 COMMISSIONING

3.08 FIELD QUALITY CONTROL
   A. As specified in Section 26_05_00 - Common Work Results for Electrical.

3.09 ADJUSTING (NOT USED)

3.10 CLEANING
   A. As specified in Section 26_05_00 - Common Work Results for Electrical.

3.11 PROTECTION
   A. As specified in Section 26_05_00 - Common Work Results for Electrical.

3.12 SCHEDULES (NOT USED)

END OF SECTION
SECTION 26_05_18

600-VOLT OR LESS WIRES AND CABLES

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:
   1. 600 volt class or less wire and cable.

1.02 REFERENCES

A. As specified in Section 26_05_00 - Common Work Results for Electrical.

B. ASTM International (ASTM):

C. CSA International (CSA).

D. Insulated Cable Engineers Association (ICEA):
   2. NEMA WC 57/ICEA S-73-532 - Standard for Control, Thermocouple Extension, and Instrumentation Cables.

E. National Fire Protection Association (NFPA):
   1. 72 - National Fire Alarm and Signaling Code.

F. Telecommunications Industry Association/Electronics Industry Association (TIA/EIA):
   1. 568-C.2 - Balanced Twisted-Pair Telecommunication Cabling and Components Standard.
   2. 569-B – Commercial Building Standards for Telecommunications Pathways and Spaces.

G. Underwriter's Laboratories Inc., (UL):
   1. 44 - Thermoset-Insulated Wires and Cables.
   2. 1277 - Standard for Electrical Power and Control Tray Cables with Optional Optical-Fiber Members.
   4. 1569 - Standard for Metal-Clad Cables.
   5. 2196 - Standard for Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control, and Data Cables.
   6. 2225 - Standard for Cables and Cable-Fittings for Use in Hazardous (Classified) Locations.
1.03 DEFINITIONS

A. As specified in Section 26_05_00 - Common Work Results for Electrical.

B. Specific definitions and abbreviations:
   1. AWG: American wire gauge.
   2. BCCS: Bare copper-covered steel.
   3. CPE: Chlorinated polyethylene.
   4. FEP: Fluorinated ethylene propylene.
   5. FHDPE: Foam high-density polyethylene.
   6. FPE: Foam polyethylene.
   7. OD: Outside diameter.
   8. PVC: Polyvinyl chloride.
   9. XHHW: Cross-linked high heat water resistant insulated wire.

C. Definitions of terms and other electrical considerations as set forth in the:
   1. ASTM.
   2. ICEA.

1.04 SYSTEM DESCRIPTION

A. Furnish and install the complete wire and cable system.

1.05 SUBMITTALS

A. Furnish submittals as specified in Sections 01_33_00 - Submittal Procedures and 26_05_00 - Common Work Results for Electrical.

B. Product data:
   1. Manufacturer of wire and cable.
   2. Insulation:
      a. Type.
      b. Voltage class.
   3. AWG size.
   4. Conductor material.
   5. Pulling compounds.

C. Shop drawings:
   1. Show splice locations:
      a. For each proposed splice location provide written justification describing why the splice is necessary.

D. Test reports:
   1. Submit test reports for meg-ohm tests.

E. Calculations:
   1. Submit cable pulling calculations to the Owner for review and comment for all cables that will be installed using mechanical pulling equipment. Show that the maximum cable tension and sidewall pressure will not exceed manufacturer recommended values:
      a. Provide a table showing the manufacturer’s recommended maximum cable tension and sidewall pressure for each cable type and size included in the calculations.
b. Submit the calculations to the Owner a minimum of 2 weeks before conduit installation.

1.06 QUALITY ASSURANCE
   A. As specified in Section 26_05_00 - Common Work Results for Electrical.
   B. All wires and cables shall be UL listed and labeled.

1.07 DELIVERY, STORAGE, AND HANDLING
   A. As specified in Section 26_05_00 - Common Work Results for Electrical.

1.08 PROJECT OR SITE CONDITIONS (NOT USED)

1.09 SEQUENCING (NOT USED)

1.10 SCHEDULING (NOT USED)

1.11 WARRANTY
   A. As specified in Section 26_05_00 - Common Work Results for Electrical.

1.12 SYSTEM START-UP
   A. As specified in Section 26_05_00 - Common Work Results for Electrical.

1.13 OWNER’S INSTRUCTIONS (NOT USED)

1.14 MAINTENANCE (NOT USED)

PART 2 PRODUCTS

2.01 MANUFACTURERS
   A. One of the following or equal:
      1. 600 volt class wire and cable:
         a. General Cable.
         b. Okonite Co.
         c. Southwire Co.
         d. Service Wire.
      2. Network cables:
         a. Panduit.
         b. General Cable.
         c. Belden.
         d. CommScope.

2.02 EXISTING PRODUCTS (NOT USED)

2.03 MATERIALS
   A. Conductors:
1. Copper in accordance with ASTM B3.

2.04 MANUFACTURED UNITS

A. General:
1. Provide new wires and cables manufactured within 1 year of the date of delivery to the Site.
2. Permanently mark each wire and cable with the following at 24-inch intervals:
   a. AWG size.
   b. Voltage rating.
   c. Insulation type.
   d. UL symbol.
   e. Month and year of manufacture.
   f. Manufacturer's name.
3. Identify and mark wire and cable as specified in Section 26_05_53 - Identification for Electrical Systems:
   a. Use integral color insulation for #2 AWG and smaller wire.
   b. Wrap colored tape around cable larger than #2 AWG.

B. 600 volt class wire and cable:
1. Provide AWG or kcmil sizes as indicated on the Drawings or in the Conduit Schedules:
   a. When not indicated on the Drawings, size wire as follows:
      1) In accordance with the NEC:
         a) Use 75 degree Celsius ampacity ratings.
         b) Ampacity rating after all derating factors, equal to or greater than rating of the overcurrent device.
      2) Provide #12 AWG minimum for power conductors.
      3) Provide #14 AWG minimum for control conductors.
2. Provide Class B stranding in accordance with ASTM B8:
   a. Provide Class C stranding where extra flexibility is required.
3. Insulation:
   a. XHHW-2.
   b. 90 degree Celsius rating.
4. Multiconductor cables:
   a. Number and size of conductors as indicated on the Drawings or in the Conduit Schedules.
   b. Individual conductors with XHHW-2 insulation.
   c. Overall PVC jacket.
   d. Tray cable rated.
   e. Color-coding for control wire in accordance with ICEA Method 1, E-2 in accordance with NEMA WC 57/ICEA S-73-532.
   f. Ground conductor: Insulated, green:
      1) Sized in accordance with NEC.
      2)

2.05 EQUIPMENT (NOT USED)

2.06 COMPONENTS (NOT USED)

2.07 ACCESSORIES

A. Wire ties:
1. One of the following or equal:
   b. Panduit, cable ties.

B. Wire markers:
   1. As specified in Section 26_05_53 - Identification for Electrical Systems.

2.08 MIXES (NOT USED)

2.09 FABRICATION (NOT USED)

2.10 FINISHES (NOT USED)

2.11 SOURCE QUALITY CONTROL

   A. Assembly and testing of cable shall comply with the applicable requirements of ICEA S-95-658-1999.

   B. Test Type XHHW-2 in accordance with the requirements of UL 44.

PART 3 EXECUTION

3.01 EXAMINATION (NOT USED)

3.02 PREPARATION (NOT USED)

3.03 INSTALLATION

   A. As specified in Section 26_05_00 - Common Work Results for Electrical.

   B. Color-coding:
      1. Color-coding shall be consistent throughout the facility.
      2. The following color code shall be followed for all 240/120 volt and 208/120 volt systems:
         a. Phase A: Black.
         b. Phase B: Red.
         c. Phase C: Blue.
         d. Single phase system: Black for 1 hot leg, red for the other.
         e. Neutral: White.
         f. High phase or wild leg: Orange.
         g. Equipment ground: Green.
      3. The following color code shall be followed for all 480/277 volt systems:
         b. Phase B: Orange.
         c. Phase C: Yellow.
         d. Neutral: Gray.
         e. Equipment ground: Green.
      4. The following color code shall be followed for all 120 VAC control wiring:
         a. Power: Red.
      5. The following color code shall be followed for all general purpose DC control circuits:
a. Grounded conductors: White with blue stripe.
b. Ungrounded conductors: Blue.

6. Switch legs shall be violet. 3-way switch runners shall be pink.
7. Wires in intrinsically safe circuits shall be light blue.
8. Wire colors shall be implemented in the following methods:
   a. Wires manufactured of the desired color.
   b. Continuously spiral wrap the first 6 inches of the wire from the termination point with colored tape:
      1) Colored tape shall be wrapped to overlap 1/2 of the width of the tape.

C. Install conductors only after the conduit installation is complete, and all enclosures have been vacuumed clean, and the affected conduits have been swabbed clean and dry:
   1. Install wires only in approved raceways.
   2. Do not install wire:
      a. In incomplete conduit runs.
      b. Until after the concrete work and plastering is completed.

D. Properly coat wires and cables with pulling compound before pulling into conduits:
   1. For all #4 AWG and larger, use an approved wire-pulling lubricant while cable is being installed in conduit:
      a. Ideal Products.
      b. Polywater Products.
      c. 3M Products.
      d. Greenlee Products.
      e. Or equal as recommended by cable manufacturer.
      f. Do not use oil, grease, or similar substances.

E. Cable pulling:
   1. Prevent mechanical damage to conductors during installation.
   2. For cables #1 AWG and smaller, install cables by hand.
   3. For cables larger than #1 AWG, power pulling winches may be used if they have cable tension monitoring equipment.
   4. Provide documentation that maximum cable pulling tension was no more than 75 percent of the maximum recommended level as published by the cable manufacturer. If exceeded, the Owner may, at his discretion, require replacement of the cable.
   5. Ensure cable pulling crews have all calculations and cable pulling limitations while pulling cable.
   6. Make splices or add a junction box or pullbox where required to prevent cable pulling tension or sidewall pressure from exceeding 75 percent of manufacturer’s recommendation for the specified cable size:
      a. Make splices in manholes or pull boxes only.
      b. Leave sufficient slack to make proper connections.

F. Use smooth-rolling sheaves and rollers when pulling cable into cable tray to keep pulling tension and bending radius within manufacturer’s recommendations.

G. Install and terminate all wire in accordance with manufacturer’s recommendations.
H. Neatly arrange and lace conductors in all switchboards, panelboards, pull boxes, and terminal cabinets by means of wire ties:
   1. Do not lace wires in gutter or panel channel.
   2. Install all wire ties with a flush cutting wire tie installation tool:
      a. Use a tool with an adjustable tension setting.
   3. Do not leave sharp edges on wire ties.

I. Terminate stranded conductors on equipment box lugs such that all conductor strands are confined within the lug:
   1. Use ring type lugs if box lugs are not available on the equipment.

J. Splices:
   1. Provide continuous circuits from origin to termination whenever possible:
      a. Obtain Owner’s approval prior to making any splices.
   2. Where splices are necessary because of extremely long wire or cable lengths that exceed standard manufactured lengths:
      a. Splice box NEMA rating requirements as specified in Section 26_05_00 - Common Work Results for Electrical.
      b. Make splices in labeled junction boxes for power conductors.
      c. Make splices for control and instrument conductors in terminal boxes:
         1) Provide terminal boards with setscrew pressure connectors, with spade or ring lug connectors.
   3. Power and control conductors routed in common raceways may be spliced in common junction boxes.
   4. Clearly label junction and terminal boxes containing splices with the word “SPlice LOCATED WITHIN”.
   5. Leave sufficient slack at junction boxes and termination boxes to make proper splices and connections. Do not pull splices into conduits.
   6. Install splices with compression type butt splices and insulate using a heat-shrink sleeve:
      a. In NEMA Type 4 or NEMA Type 4X areas, provide heat-shrink sleeves that are listed for submersible applications.
   7. Splices in below grade pull boxes, in any box subject to flooding, and in wet areas shall be made waterproof using:
      a. A heat shrink insulating system listed for submersible applications.
      b. Or an epoxy resin splicing kit.

K. Apply wire markers to all wires at each end after being installed in the conduit and before meg-ohm testing and termination.

L. Multi-conductor cable:
   1. Where cable is not routed in conduit with a separate ground conductor, use 1 conductor in the cable as a ground conductor:
      a) Use an internal ground conductor, if it is no smaller than as indicated on the Drawings and in accordance with NEC requirements for equipment ground conductor size.
      b) Where 2 parallel cables are used, and the internal ground conductor in each cable does not meet NEC requirements for the combined circuit, use 4-conductor cable, with one of the full-sized conductors serving as ground.

M. Wiring allowances:
1. Equipment locations may vary slightly from the drawings. Include an allowance for necessary conductors and terminations for motorized equipment, electrical outlets, fixtures, communication outlets, instruments, and devices within 10 linear feet of locations indicated on the Drawings.

2. Locations for pull boxes, manholes, and duct banks may vary slightly from the drawings. Include an allowance for necessary conductors and related materials to provide conductors to all pull boxes, manholes and duct banks within 20 linear feet of locations indicated on the Drawings.

3.04 ERECTION, INSTALLATION, APPLICATION, CONSTRUCTION (NOT USED)

3.05 REPAIR/RESTORATION (NOT USED)

3.06 RE-INSTALLATION (NOT USED)

3.07 COMMISSIONING

3.08 FIELD QUALITY CONTROL
   A. As specified in Section 26_05_00 - Common Work Results for Electrical.
   B. Grounding:
      1. As specified in Section 26_05_26 - Grounding and Bonding.

3.09 ADJUSTING (NOT USED)

3.10 CLEANING (NOT USED)

3.11 PROTECTION
   A. As specified in Section 26_05_00 - Common Work Results for Electrical.

3.12 SCHEDULES (NOT USED)

END OF SECTION
SECTION 26_05_21
LOW VOLTAGE WIRE CONNECTIONS

PART 1    GENERAL

1.01 SUMMARY

A. Section includes:
   1. Wire connecting devices.
   2. Terminations.

1.02 REFERENCES

A. As specified in Section 26_05_00 - Common Work Results for Electrical.
B. ASTM International (ASTM):
   1. D3005 - Standard Specification for Low-Temperature Resistant Vinyl Chloride
      Plastic Pressure-Sensitive Electrical Insulating Tape.
C. CSA International (CSA):
   1. C22.2 - No.197-M1983 (R2208) - PVC Insulating Tape.
D. Underwriters Laboratories, Inc. (UL):
   1. 510 - Standard for Polyvinyl Chloride, Polyethylene, and Rubber Insulating
      Tape.

1.03 DEFINITIONS

A. As specified in Section 26_05_00 - Common Work Results for Electrical.

1.04 SYSTEM DESCRIPTION

A. Provide a complete system of wiring connectors, terminators, fittings, etc. for a
   complete wiring system suitable for the cables and conductors used.

1.05 SUBMITTALS

A. Furnish submittals as specified in Sections 01_33_00 - Submittal Procedures
   and 26_05_00 - Common Work Results for Electrical.
B. Product data:
   1. Catalog cut sheets.
   2. Installation instructions.

1.06 QUALITY ASSURANCE

A. As specified in Section 26_05_00 - Common Work Results for Electrical.
B. All materials shall be UL listed.
1.07 DELIVERY, STORAGE, AND HANDLING
   A. As specified in Section 26_05_00 - Common Work Results for Electrical.

1.08 PROJECT OR SITE CONDITIONS
   A. As specified in Section 26_05_00 - Common Work Results for Electrical.

1.09 SEQUENCING (NOT USED)
1.10 SCHEDULING (NOT USED)
1.11 WARRANTY
   A. As specified in Section 26_05_00 - Common Work Results for Electrical.

1.12 SYSTEM START-UP
   A. As specified in Section 26_05_00 - Common Work Results for Electrical.

1.13 OWNER'S INSTRUCTIONS (NOT USED)
1.14 MAINTENANCE (NOT USED)

PART 2 PRODUCTS

2.01 MANUFACTURERS
   A. Manufacturers for each type of technology are specified with the equipment in this Section.

2.02 EXISTING PRODUCTS (NOT USED)

2.03 MATERIALS (NOT USED)

2.04 MANUFACTURED UNITS (NOT USED)

2.05 EQUIPMENT
   A. Control connections:
      1. Use insulated ring type wire terminators for connections to all screw terminals:
         a. With chamfered/funneled terminal barrel entry.
         b. Deep internal serrations.
         c. Long barrel design to reduce electrical resistance and increased insulator-barrel surface area to ensure that the insulator remains in contact with the barrel.
         d. Electroplated-tin copper conductor.
         e. Manufacturers: The following or equal:
            1) Thomas and Betts, Stakon.
      2. For process equipment connections work from manufacturer's drawings.

   B. Joints, splices, taps, and connections:
1. 600-volt conductors:
   a. Use solderless connectors.
   b. Use only plated copper alloy connectors or lugs:
      1) Aluminum connectors or lugs are not acceptable for copper conductors.
   c. Under those specific conditions where aluminum conductors have been allowed or are specified then the connectors for aluminum conductors shall be specifically designed for that purpose.
   d. For wire Number 10 AWG and smaller use compression splice caps, with insulating caps:
      1) Manufacturers: The following or equal:
         a) Buchanan, 2006S or 2011S, with 2007 or 2014 insulating caps.
   e. For wire Number 8 AWG and larger, use heavy duty copper compression connectors:
      1) Manufacturers: One of the following or equal:
         a) Burndy.
         b) Thomas and Betts.
   f. Heat shrink tubing:
      1) Suitable for indoors, outdoors, overhead, direct burial or submerged applications.
      2) Minimum shrink ratio: 4 to 1.
      3) Continuous operating temperature: -55 degrees Celsius to 110 degrees Celsius.
      4) Internally applied adhesive sealant.
      5) Cross-linked polyolefin:
         a) Manufacturers: One of the following or equal:
            (1) 3M, ITCSN.
            (2) Thomas & Betts, Shrink-Kon.

2. Instrumentation class cable splices:
   a. Suitable for indoor, outdoors, weather exposed, direct buried, or submersed applications.
   b. Utilizing an epoxy, polyurethane, and re-enterable compounds.
   c. For use with shielded or unshielded plastic- and rubber-jacketed, signal, control, and power cables rated up to 1 kilovolt.
   d. Two-part mold body with tongue and groove seams and built in spacer webbing.
   e. Manufacturers: The following or equal:
      1) 3M, Scotchcast 72-N.

C. Insulating tape:
   1. General purpose insulating tape:
      a. Minimum 7 mil vinyl tape.
      b. Suitable for application in an ambient of -18 degrees Celsius (0 degrees Fahrenheit).
      c. Operating range up to 105 degrees Celsius (220 degrees Fahrenheit).
      d. Flame retardant, hot- and cold- weather resistant, UV resistant.
      e. For use as a primary insulation for wire cable splices up to 600 VAC.
      f. Meeting and complying with:
         1) ASTM D3005 Type I.
         2) UL 510.
         3) CSA C22.2.
      g. Manufacturers: The following or equal:
1) 3M, Scotch Number Super 33+.

2. General-purpose color-coding tape:
   a. Minimum 7 mil vinyl tape.
   b. Suitable for application on PVC and polyethylene jacketed cables.
   c. For use indoors and outdoors in weather protected enclosures.
   d. Available with the following colors:
      1) Red.
      2) Yellow.
      3) Blue.
      4) Brown.
      5) Gray.
      6) White.
      7) Green.
      8) Orange.
      9) Violet.
   e. For use as phase identification, marking, insulating, and harnessing.
   f. Meeting and complying with:
      1) UL 510.
      2) CSA C22.2.
   g. Manufacturers: The following or equal:
      1) 3M, Scotch Number 35.

2.06 COMPONENTS (NOT USED)

2.07 ACCESSORIES (NOT USED)

2.08 MIXES (NOT USED)

2.09 FABRICATION (NOT USED)

2.10 FINISHES (NOT USED)

2.11 SOURCE QUALITY CONTROL (NOT USED)

PART 3 EXECUTION

3.01 EXAMINATION (NOT USED)

3.02 PREPARATION (NOT USED)

3.03 INSTALLATION

A. As specified in Section 26_05_00 - Common Work Results for Electrical.

B. Load connections:
   1. Connect loads to the circuits as indicated. Color-code all branch circuits as specified in Section 26_05_18 - 600-Volt or Less Wires and Cables.

C. Zero to 600-volt systems:
   1. Make all connections with the proper tool and die as specified by the device manufacturer.
   2. Use only tooling and dies manufactured by the device manufacturer.
3. Insulate all connections and splices with Scotch 33+ tape and Scotchfill, or pre-molded plastic covers, or heat shrink tubing and caps.
4. Number all power and control wires before termination.

3.04 ERECTION, INSTALLATION, APPLICATION, CONSTRUCTION (NOT USED)

3.05 REPAIR/RESTORATION (NOT USED)

3.06 RE-INSTALLATION (NOT USED)

3.07 COMMISSIONING

3.08 FIELD QUALITY CONTROL

   A. As specified in Section 26_05_00 - Common Work Results for Electrical.

3.09 ADJUSTING (NOT USED)

3.10 CLEANING (NOT USED)

3.11 PROTECTION

   A. As specified in Section 26_05_00 - Common Work Results for Electrical.

3.12 SCHEDULES (NOT USED)

   END OF SECTION
SECTION 26_05_33

CONDUITS

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:
   1. Metallic conduits.
   2. Nonmetallic conduits.
   3. Conduit bodies.
   4. Conduit fittings and accessories.
   5. Conduit installation.

1.02 REFERENCES

A. As specified in Section 26_05_00 - Common Work Results for Electrical.

B. American National Standards Institute (ANSI):
   1. C80.1 - Electrical Rigid Steel Conduit.
   2. C80.3 - Steel Electrical Metallic Tubing.
   3. C80.5 - Electrical Rigid Aluminum Conduit.
   4. C80.6 - Electrical Intermediate Metal Conduit.

C. National Electrical Manufacturer’s Association (NEMA):
   1. RN-1 - Polyvinyl Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Steel Conduit.
   2. TC2 - Electrical Polyvinyl Chloride (PVC) Conduit.
   3. TC3 - Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing.
   4. TC7 - Smooth-Wall Coilable Electrical Polyethylene Conduit.
   5. TC13 - Electrical Nonmetallic Tubing.
   6. TC14 - Reinforced Thermosetting Resin Conduit (RTRC) and Fittings.

D. Underwriters Laboratories (UL):
   1. 1 - Standard for Flexible Metal Conduit.
   2. 6 - Standard for Electrical Rigid Metal Conduit - Steel.
   3. 6A - Standard for Electrical Rigid Metal Conduit - Aluminum, Red Brass, and Stainless Steel.
   4. 360 - Standard for Liquidtight Flexible Steel Conduit.
   5. 651 - Standard for Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings.
   6. 651B - Standard for Continuous Length HDPE Conduit.
   7. 797 - Standard for Electrical Metallic Tubing - Steel.
   8. 1242 - Standard for Electrical Intermediate Metal Conduit - Steel.
   10. 1660 - Standard for Liquidtight Flexible Nonmetallic Conduit.
   11. 1684 - Standard for Reinforced Thermosetting Resin Conduit (RTRC) and Fittings.
1.03 DEFINITIONS

A. As specified in Section 26_05_00 - Common Work Results for Electrical.

B. Specific definitions and abbreviations:
   1. Conduit bodies: A separate portion of a conduit system that provides access through a removable cover to the interior of the system at a junction of 2 or more conduit sections. Includes, but not limited to, Shapes C, E, LB, T, X, etc.
   2. Conduit fitting: An accessory that primarily serves a mechanical purpose. Includes, but not limited to, bushings, locknuts, hubs, couplings, reducers, etc.
   3. GRC: Galvanized rigid steel conduit.
   4. PCS: Polyvinyl chloride (PVC) coated rigid steel conduit.
   5. PVC: Polyvinyl chloride rigid nonmetallic conduit.
   6. HDPE: High-density polyethylene conduit.
   7. SLT: Sealtight-liquidtight flexible conduit.
   8. FRD: Fiberglass-reinforced duct.

1.04 SYSTEM DESCRIPTION

A. Provide conduits, conduit bodies, fittings, junction boxes, and all necessary components, whether or not indicated on the Drawings, as required, to install a complete electrical raceway system.

1.05 SUBMITTALS

A. Furnish submittals as specified in Sections 01_33_00 - Submittal Procedures and 26_05_00 - Common Work Results for Electrical.

B. Product data:
   1. Furnish complete manufacturer’s catalog sheets for every type and size of conduit, fitting, conduit body, and accessories to be used on the Project.
   2. Furnish complete manufacturer’s recommended special tools to be used for installation if required.

C. Certified test results for PVC-coated metallic conduit showing the adhesive bond is stronger than the tensile strength of the PVC. Certifications:
   1. Furnish PVC-coated conduit manufacturer’s certification for each installer.

D. Record Documents:
   1. Incorporate all changes in conduit routing on electrical plan drawings.
   2. Dimension underground and concealed conduits from building lines.
   3. Furnish hard copy drawings and electronic files in PDF.

1.06 QUALITY ASSURANCE

A. As specified in Section 26_05_00 - Common Work Results for Electrical.

B. All conduits, conduit bodies, and fittings shall be UL listed and labeled.

C. Every installer of PVC-coated metallic conduit shall be certified by the manufacturer for installation of the conduit.
1.07 DELIVERY, STORAGE, AND HANDLING
   A. As specified in Section 26_05_00 - Common Work Results for Electrical.
   B. Do not expose non-metallic conduit to direct sunlight.
   C. Do not store conduit in direct contact with the ground.

1.08 PROJECT OR SITE CONDITIONS
   A. As specified in Section 26_05_00 - Common Work Results for Electrical.

1.09 SEQUENCING
   A. Before installing any conduit or locating any device box:
      1. Examine the complete set of Drawings and Specifications, and all applicable
         shop drawings.
      2. Verify all dimensions and space requirements and make any minor
         adjustments to the conduit system as required to avoid conflicts with the
         building structure, other equipment, or the work of other trades.

1.10 SCHEDULING (NOT USED)

1.11 WARRANTY
   A. As specified in Section 26_05_00 - Common Work Results for Electrical.

1.12 SYSTEM START-UP
   A. As specified in Section 26_05_00 - Common Work Results for Electrical.

1.13 OWNER’S INSTRUCTIONS (NOT USED)

1.14 MAINTENANCE (NOT USED)

PART 2 PRODUCTS

2.01 MANUFACTURERS
   A. Galvanized rigid steel conduit:
      1. One of the following or equal:
         a. Western Tube and Conduit.
         b. Allied Tube and Conduit.
         c. Wheatland Tube Co.
   B. Sealtight-liquidtight flexible conduit:
      1. One of the following or equal:
         a. Southwire.
         b. AFC Cable Systems.
         c. Electri-Flex Co.
         d. Anaconda.
C. Rigid nonmetallic PVC conduit:
   1. One of the following or equal:
      a. Carlon.
      b. Cantex.
      c. Triangle Conduit and Cable.

D. Conduit bodies:
   1. One of the following or equal:
      a. Crouse-Hinds.
      b. Appleton.
      c. O-Z/Gedney.
      d. Ocal, Inc.
      e. Robroy Ind.
      f. Calbond.
      g. Carlon.

E. Joint compound:
   1. The following or equal:
      a. Thomas and Betts.

F. Galvanized rigid steel conduit expansion fittings:
   1. One of the following or equal:
      a. Crouse-Hinds.
      b. Appleton.
      c. O-Z/Gedney.

G. Conduit sleeve:
   1. One of the following or equal:
      a. Crouse-Hinds.
      b. Appleton.
      c. O-Z/Gedney.

H. Conduit seals:
   1. One of the following or equal:
      a. Appleton.
      b. Crouse-Hinds.
      c. O-Z/Gedney.

I. Conduit through wall and floor seals:
   1. The following or equal:
      a. O-Z/Gedney:
         1) Type "WSK."
         2) Type “CSM.”

2.02 EXISTING PRODUCTS (NOT USED)

2.03 MATERIALS (NOT USED)

2.04 MANUFACTURED UNITS (NOT USED)

2.05 EQUIPMENT (NOT USED)
2.06 COMPONENTS

A. GRC:
1. All threads: NPT standard conduit threads with a 3/4-inch taper per foot:
   a. Running conduit threads are not acceptable.
2. Hot-dip galvanized inside and out:
   a. Ensures complete coverage and heats the zinc and steel to a temperature that ensures the zinc alloys with the steel over the entire surface.
   b. Electro-galvanizing is not acceptable.
3. Manufactured in accordance with:
   a. UL-6.
   b. ANSI C80.1.
4. Coated conduit NEMA Standard RN-1:
   a. The galvanized coating may not be disturbed or reduced in thickness during the cleaning and preparatory process.
5. Factory-bonded PVC jacket:
   a. The exterior galvanized surfaces shall be coated with primer before PVC coating to ensure a bond between the zinc substrate and the PVC coating.
   b. Nominal thickness of the exterior PVC coating shall be 0.040 inch except where part configuration or application of the piece dictates otherwise.
   c. PVC coating on conduits and associated fittings shall have no sags, blisters, lumps, or other surface defects and shall be free of holes and holidays.
   d. The PVC adhesive bond on conduits and fittings shall be greater than the tensile strength of the PVC plastic coating:
      1) Confirm bond with certified test results.
6. A urethane coating shall be uniformly and consistently applied to the interior of all conduits and fittings:
   a. Nominal thickness of 0.002 inch.
   b. Conduits having areas with thin or no coating are not acceptable.
   c. All threads shall be coated with urethane.
7. The PVC exterior and urethane interior coatings applied to the conduits shall afford sufficient flexibility to permit field bending without cracking or flaking at temperature above 30 degrees Fahrenheit (-1 degree Celsius).
   1)

B. SLT:
1. Temperature rated for use in the ambient temperature at the installed location but not less than the following:
   a. General purpose:
      1) Temperature range: -20 degrees Celsius to +80 degrees Celsius.
   b. Oil-resistant:
      1) Temperature range: -20 degrees Celsius to +60 degrees Celsius.
2. Sunlight-resistant, weatherproof, and watertight.
3. Manufactured from single strip steel, hot-dip galvanized on all 4 sides before conduit fabrication.
4. Strip steel spiral wound resulting in an interior that is smooth and clean for easy wire pulling.
5. Overall PVC jacket.
6. With integral copper ground wire, built in the core, in conduit trade sizes 1/2 inch through 1-1/4 inch.
C. PVC:
   1. Extruded from virgin PVC compound:
      a. Schedule 40 unless otherwise specified.
      b. Schedule 80 extra-heavy wall where specified.
   2. Rated for 90 degrees Celsius conductors or cable.
   3. Rated for use in direct sunlight.

D. Conduit bodies:
   1. Material consistent with conduit type:
      a. Malleable iron bodies and covers when used with Type GRC.
      b. PVC bodies and covers when used with Type PVC.
      c. PVC-coated malleable iron bodies and covers when used with Type PCS.
   2. Conduit bodies to conform to Form 8, Mark 9, or Mogul design:
      a. Mogul design conforming to NEC requirements for bending space for
         large conductors for conduit trade sizes of 1 inch and larger with
         conductors #4 AWG and larger, or where required for wire-bending space.
   3. Gasketed covers attached to bodies with stainless steel screws secured to
      threaded holes in conduit body.

2.07 ACCESSORIES

A. Connectors and fittings:
   1. Manufactured with compatible materials to the corresponding conduit.

B. Insulated throat metallic bushings:
   1. Construction:
      a. Malleable iron or zinc-plated steel when used with steel conduit.
      b. Positive metallic conduit end stop.
      c. Integrally molded non-combustible phenolic-insulated surfaces rated at
         150 degrees Celsius.
      d. Use fully insulated bushings on nonmetallic conduit system made of
         high-impact 150 degrees Celsius rated non-combustible thermosetting
         phenolic.

C. Insulated grounding bushings:
   1. Construction:
      a. Malleable iron or steel, zinc-plated, with a positive metallic end stop.
      b. Integrally molded non-combustible phenolic-insulated surfaces rated at
         150 degrees Celsius.
      c. Tin-plated copper grounding saddle for use with copper or aluminum
         conductors.

D. Electrical unions (Erickson Couplings):
   1. Construction:
      a. Malleable iron for use with steel conduit.
      b. Concrete tight, 3-piece construction.

E. SLT fittings:
   1. Construction:
      a. Malleable iron.
      b. Furnished with locknut and sealing ring.
      c. Liquidtight, raintight, oiltight.
      d. Insulated throat.
e. Furnish as straight, 45-degree elbows, and 90-degree elbows.
f. Designed to prevent sleeving:
   1) Verify complete bonding of the raceway jacket to the plastic gasket seal.
g. Equipped with grounding device to provide ground continuity irrespective of raceway core construction. Grounding device, if inserted into raceway and directly in contact with conductors, shall have rolled-over edges for sizes under 5 inches.
h. Where terminated into a threadless opening using a threaded hub fitting, a suitable moisture-resistant/oil-resistant synthetic rubber gasket shall be provided between the outside of the box or enclosure and the fitting shoulder. Gasket shall be adequately protected by and permanently bonded to a metallic retainer.

2. Corrosion-resistant and outdoor SLT fittings:
   a. Construction:
      1) PVC-coated liquidtight fittings with a bonded 0.040-inch thick PVC coating on the metal connector to form a seal around the SLT conduit.
      2) Insulated throat and an integral sealing ring.

F. Hubs for threaded attachment of steel conduit to sheet metal enclosures:
   1. Construction:
      a. Insulated throat.
      b. PVC-coated when used in corrosive areas.
      c. Bonding locknut.
      d. Recessed neoprene o-ring to ensure watertight and dusttight connector.
      e. 1/2-inch through 1-1/4-inch steel zinc electroplated.
      f. 1-1/2-inch through 6-inch malleable iron zinc plated.
   2. Usage:
      a. All conduits in damp, wet, outdoor, and corrosive areas shall use threaded hubs for connections to sheet metal enclosures.

G. PVC fittings:
   1. Shall include the following:
      a. Couplings.
      b. Terminal adapters.
      c. Female adapters.
      d. Caps.
      e. Reducer bushings.
      f. Duct couplings.
      g. End bells.
      h. Expansion couplings.
      i. Duct couplings: 5 degree.
      j. C-Type pull fittings.
      k. E-Type pull fittings.
      l. LB-Type pull fittings.
      m. LL-Type pull fittings.
      n. LR-Type pull fittings.
      o. T-Type pull fittings.
      p. X-Type pull fittings.
      q. Service entrance caps.
2. Materials:
   a. All devices shall be made of PVC, using the same materials as used for Type PVC conduit.
   b. All metal hardware shall be stainless steel.

H. Through wall and floor seals:
   1. Materials:
      a. Body: Casting of malleable or ductile iron with a hot-dip galvanized finish.
      b. Grommet: Neoprene.
      c. Pressure rings: PVC-coated steel.
      d. Disc material: PVC-coated steel.

I. Expansion/deflection couplings:
   1. Use to compensate for movement in any directions between 2 conduit ends where they connect.
   2. Shall allow movement of 3/4 inch from the normal in all directions.
   3. Shall allow angular movement for a deflection of 30 degrees from normal in any direction.
   4. Constructed to maintain electrical continuity of the conduit system.
   5. Materials:
      a. End couplings: Bronze or galvanized ductile iron.
      b. Sleeve: Neoprene.
      d. Bonding jumper: Tinned copper braid.

J. Expansion couplings:
   1. Shall allow for expansion and contraction of conduit:
      a. Permitting 8-inch movement, 4 inches in either direction.
   2. Constructed to maintain electrical continuity of the conduit system.
   3. Materials:
      a. Head: Malleable or ductile iron.
      b. Sleeve: Steel.
      c. Insulating bushing: Phenolic.
      d. Finish: Hot-dip galvanized.
      e. PVC-coated when used with Type PCS.
3.03 INSTALLATION

A. As specified in Section 26_05_00 - Common Work Results for Electrical.

B. General:
   1. Conduit routing:
      a. The electrical drawings are diagrammatic in nature:
         1) Install conduit runs as specified with schematic representation indicated on the Drawings and as specified.
         2) Modify conduit runs to suit field conditions, as accepted by the Owner:
            a) Make changes in conduit locations that are consistent with the design intent but are dimensionally different, or routing to bypass obstructions.
            b) Make changes in conduit routing due to the relocation of equipment.
         3) The electrical drawings do not indicate all required junction boxes and pull boxes:
            a) Provide junction boxes and pull boxes to facilitate wire pulling as required:
               (1) To meet cable manufacturer’s pulling tension requirements.
               (2) To limit total conduit bends between pull locations.
            b) Install junction boxes and pull boxes at locations acceptable to the Owner.
      b. The Contractor is responsible for any deviations in general location, conduit size, routing, or changes to the conduit schedule without the express written approval or direction by the Owner:
         1) The Owner is the sole source in determining whether the change is constituted as a deviation.
         2) Perform any changes resulting in additional conduits, or extra work from such deviations.
         3) Incorporate any deviations on the Record Documents.
   2. Use only tools recommended by the conduit manufacturer for assembling the conduit system.
   3. Provide adequate clearances from high-temperature surfaces for all conduit runs. Provide minimum clearances as follows:
      a. Clearance of 6 inches from surfaces 113 degrees Fahrenheit to 149 degrees Fahrenheit.
      b. Clearance of 12 inches from surfaces greater than 149 degrees Fahrenheit.
      c. Keep conduits at least 6 inches from the coverings on hot water and steam pipes, 18 inches from the coverings on flues and breechings, and 12 inches from fuel lines and gas lines.
      d. Where it is necessary to route conduits close to high-temperature surfaces, provide a high-reflectance thermal barrier between the conduit and the surface.
   4. Install conduits with total conduit bends between pull locations less than or equal to 270 degrees.
   5. Route all exposed conduits to preserve headroom, access space and work space, and to prevent tripping hazards and clearance problems:
a. Install conduit runs so that runs do not interfere with proper and safe operation of equipment and do not block or interfere with ingress or egress, including equipment-removal hatches.
b. Route conduits to avoid drains or other gravity lines. Where conflicts occur, relocate the conduit as required.

6. When installing conduits through existing slabs or walls, make provisions for locating any possible conflicting items where the conduit is to penetrate. Use tone signal or X-ray methods to make certain that no penetrations will be made into the existing conduits, reinforcing, piping, cables, post-tensioning cables, etc.

7. Plug conduits brought into pull boxes, manholes, handholes, and other openings until used to prevent entrance of moisture.

8. Install conduits through wall and floor seals where indicated on the Drawings.

9. For existing and new 2-inch and larger conduit runs, snake conduits with a conduit cleaner equipped with a cylindrical mandrel of a diameter not less than 85 percent of nominal diameter of the conduit:
a. Remove and replace conduits through which mandrel will not pass.

10. Provide all sleeves and openings required for the passage of electrical raceways or cables even when these openings or sleeves are not specifically indicated on the Drawings.

11. Install complete conduit systems before conductors are installed.

12. Provide metallic conduits terminating in transformer, switchgear, motor control center, or other equipment conduit windows with grounding bushings and ground with a minimum No. 6 AWG ground wire.

13. Underground conduits:
a. Install underground conduits, including conduit runs below slabs-on-grade in concrete-reinforced duct bank construction unless indicated on the Drawings otherwise.
b. Seal around conduit penetrations of below grade walls with a mechanical seal.

C. Conduit usage:

1. Exposed conduits:
a. Rigid conduit:
   1) Install the rigid conduit type for each location as specified in Section 26_05_00 - Common Work Results for Electrical.
   2) Minimum size: 3/4-inch.

b. Flexible conduit:
   1) Use flexible conduit for final connections between rigid conduit and motors, vibrating equipment, instruments, control equipment, or where required for equipment servicing:
      a) Use Type SLT with rigid metallic conduit.
   2) Minimum size: 3/4-inch:
      a) 1/2 when required for connection to instruments.
3) Maximum length:
   a) Fixed equipment:

<table>
<thead>
<tr>
<th>Conduit Trade Size</th>
<th>Flexible Conduit Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4</td>
<td>18</td>
</tr>
<tr>
<td>1</td>
<td>18</td>
</tr>
<tr>
<td>1-1/4</td>
<td>18</td>
</tr>
<tr>
<td>1-1/2</td>
<td>18</td>
</tr>
<tr>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td>2-1/2</td>
<td>36</td>
</tr>
<tr>
<td>3</td>
<td>36</td>
</tr>
<tr>
<td>3-1/2</td>
<td>38</td>
</tr>
<tr>
<td>4</td>
<td>40</td>
</tr>
</tbody>
</table>

   b) Removable instruments or hinged equipment:
      (1) As required to allow complete removal or full movement without disconnecting or stressing the conduit.

2. Concrete-encased and embedded conduits:
   a. Type PVC Schedule 40.
      1)
   b. Minimum size:
      1) 2-inch in duct banks unless otherwise indicated on the Drawings.
      2) 1-inch for in-slab conduits unless otherwise indicated on the Drawings.

3. Direct-buried and sand-bedded duct bank conduits:
   a. Type GRC.
   c.

4. GRC:
   a. Conduit shall be cut square and reamed before threading.

5. PVC:
   a. Conduit terminations shall be via threaded adapters into threaded hubs on the junction boxes or conduit bodies.
   b. Conduit terminations into boxes without threaded hubs shall utilize a threaded adapter and a flat neoprene washer on the outside of the box:
      1) Use a locknut on the inside of the box to tighten the adapter to the box.
   c. Route conduit to afford it the maximum physical protection:
      1) If necessary, cover conduit to afford additional protection when it cannot be shielded by the structure or machinery frames:
         a) Use Schedule 80 where exposed runs may be subject to physical damage.

D. Conduit joints and bends:
   1. General:
a. Where conduit is underground, under slabs on grade, exposed to the weather, or in NEMA Type 4 or NEMA Type 4X locations, make joints liquidtight.

b. Keep bends and offsets in conduit runs to an absolute minimum.

c. All bends shall be symmetrical.

d. The following conduit systems shall use large-radius sweep elbows:
   1) Underground conduits.
   2) Conduits containing medium-voltage cables.
   3) Conduits containing fiber optic cables.

e. Provide large-radius factory-made bends for 1-1/4-inch trade size or larger.

f. Make field bends with a radius of not less than the requirements found in the NEC:
   1) The minimum bending radius of the cable must be less than the radius of the conduit bend.
   2) Make all field bends with power bending equipment or manual benders specifically intended for the purpose:
      a) Make bends so that the conduit is not damaged and the internal diameter is not effectively reduced.
      b) For the serving utilities, make bends to meet their requirements.

g. Replace all deformed, flattened, or kinked conduit.

2. Threaded conduit:
   a. Cut threads on rigid metallic conduit with a standard conduit-cutting die that provides a 3/4-inch per foot taper and to a length such that all bare metal exposed by the threading operation is completely covered by the couplings or fittings used. In addition, cut the lengths of the thread such that all joints become secure and wrench-tight just preceding the point where the conduit ends would butt together in couplings or where conduit ends would butt into the ends or shoulders of other fittings.

   b. Thoroughly ream conduit after threads have been cut to remove burrs.

   c. Use bushings or conduit fittings at conduit terminations.

   d. On exposed conduits, repair scratches and other defects with galvanizing repair stick, Enterprise Galvanizing “Galvabar™” or CRC “Zinc It.”

   e. Coat conduit threads with an approved electrically conductive sealant and corrosion inhibitor that is not harmful to the conductor insulation:
      1) Apply to the male threads and tighten joints securely.
      2) Clean excess sealant from exposed threads after assembly.

   f. Securely tighten all threaded connections.

   g. Any exposed threaded surfaces must be cleaned and coated with a galvanizing solution so that all exposed surfaces have a galvanized protective coating.

3. PVC:
   a. Use approved solvent-weld cement specifically manufactured for the purpose. Spray-type cement is not allowed.

   b. Apply heat for bends so that conduit does not distort or discolor. Use a spring mandrel as required to ensure full inside diameter at all bends:
      1) Utilize a heater specifically for PVC conduit as recommended by the conduit manufacturer.

E. Conduit sealing and drainage:

1. Conduit drainage and sealing other than required for hazardous and classified areas:
a. Provide seal fittings with drains in vertical drops directly above grade for exterior and above-grade conduit runs that are extended below grade.
b. Provide conduit seals with drains in areas of high humidity and rapidly changing temperatures:
c. Seal one end only of all underground conduits at highest point with O-Z/Gedney sealing (non-hazardous) filling, or equal.

2. Install seals with drains at any location along conduit runs where moisture may condense or accumulate. This requirement includes, but is not limited to, the following locations: control panels, junction boxes, pullboxes, or low points of the conduit.

3. PVC-coated rigid metal systems:
a. Provide right-angle beam clamps and “U” bolts specially formed and sized to snugly fit the outside diameter of the coated conduit. Provide "U" bolts with PVC-encapsulated nuts that cover the exposed portions of the threads.
b. Securely fasten exposed conduits with Type 316 stainless steel clamps or straps.

F. Expansion or expansion/deflection fittings:
   1. General:
      a. Align expansion coupling with the conduit run to prevent binding.
      b. Follow manufacturer’s instructions to set the piston opening.
      c. Install expansion fittings across concrete expansion joints and at other locations where necessary to compensate for thermal or mechanical expansion and contraction.
      d. Furnish fittings of the same material as the conduit system.
   2. For metallic conduit, provide expansion or expansion/deflection couplings, as appropriate, where:
      a. Install expansion fittings a minimum of every 200 feet in straight conduit runs.
   3. For PVC, provide expansion or expansion/deflection couplings, as appropriate, where length change due to temperature variation exceeds 2 inches:
      a. Rigidly fix the outer barrel of the expansion coupling so it cannot move.
      b. Mount the conduit connected to the piston loosely enough to allow the conduit to move as the temperature changes.

G. Empty conduits:
   1. Provide a UV-stabilized HDPE (high density polyethylene) rope rated at 250 pounds tensile strength in each empty conduit more than 10 feet in length:
      a. UV-stabilized rope is not required for indoor locations when rope is stored indoors and kept away from UV exposure.
   2. Seal ends of all conduits with approved, manufactured conduit seals, caps, or plugs immediately after installation:
      a. Keep ends sealed until immediately before pulling conductors.

H. Miscellaneous:
   1. Provide electrical unions at all points of union between ends of rigid conduit systems that cannot otherwise be coupled:
      a. Running threads and threadless couplings are not allowed.
   2. Replace any conduits installed that the Owner determines do not meet the requirements of this Specification.
3. Provide conduit housekeeping curb around all embedded or below-grade conduits exiting or entering the slab.

3.04 ERECTION, INSTALLATION, APPLICATIONS, CONSTRUCTION (NOT USED)

3.05 REPAIR/RESTORATION

3.06 RE-INSTALLATION (NOT USED)

3.07 COMMISSIONING

3.08 FIELD QUALITY CONTROL
   A. As specified in Section 26_05_00 - Common Work Results for Electrical.

3.09 ADJUSTING (NOT USED)

3.10 CLEANING (NOT USED)

3.11 PROTECTION
   A. As specified in Section 26_05_00 - Common Work Results for Electrical.

3.12 SCHEDULES (NOT USED)

END OF SECTION
SECTION 26_08_50
FIELD ELECTRICAL ACCEPTANCE TESTS

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:
   1. Responsibilities for testing the electrical installation.
   2. Adjusting and calibration.
   3. Acceptance tests.

B. Copyright information:
   1. Some portions of this Section are copyrighted by the InterNational Electrical
      Testing Association, Inc. (NETA). See NETA publication ATS for details.

1.02 REFERENCES

A. As specified in Section 26_05_00 - Common Work Results for Electrical.

B. American National Standards Institute (ANSI).

C. ASTM International (ASTM):
   1. D877 - Standard Test Method for Dielectric Breakdown Voltage of Insulating
      Liquids Using Disk Electrodes.
   3. D924 - Standard Test Method for Dissipation Factor (or Power Factor) and
      Relative Permittivity (Dielectric Constant) of Electrical Insulating Liquids.
   4. D971 - Standard Test Method for Interfacial Tension of Oil Against Water by
      the Ring Method.
   5. D974 - Standard Test Method for Acid and Base Number by Color-Indicator
      Titration.
   6. D1298 - Standard Test Method for Density, Relative Density, or API Gravity of
      Crude Petroleum and Liquid Petroleum Products by Hydrometer Method.
      Color Scale).
      Insulating Liquids in the Field.
      Liquids Using VDE Electrodes.
  10. D2285 - Standard Test Method for Interfacial Tension of Electrical Insulating
       Oils of Petroleum Origin Against Water by the Drop Weight Method.
  11. D3612 - Standard Test Method for Analysis of Gases Dissolved in Electrical
       Insulating Oil by Gas Chromatography.

D. Institute of Electrical and Electronics Engineers (IEEE):
   1. 43 - IEEE Recommended Practice for Testing Insulation Resistance of
       Rotating Machinery.
   2. 81 - IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and
       Earth Surface Potentials of a Grounding System.
3. **95 - IEEE Recommended Practice for Insulation Testing of AC Electric Machinery (2300 V and Above) With High Direct Voltage.**
4. **421.3 - IEEE Standard for High-Potential Test Requirement for Excitation Systems for Synchronous Machines.**
5. **450 - IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications.**
6. **1106 - IEEE Recommended Practice for Installation, Maintenance, Testing, and Replacement of Vented Nickel-Cadmium Batteries for Stationary Applications.**
7. **1188 - IEEE Recommended Practice for Maintenance, Testing, and Replacement of Valve-Regulated Lead-Acid (VRLA) Batteries for Stationary Applications.**
8. **C57.13 - IEEE Standard Requirements for Instrument Transformers.**
10. **C57.13.3 - IEEE Guide for Grounding of Instrument Transformer Secondary Circuits and Cases.**
11. **C57.104 - IEEE Guide for the Interpretation of Gases Generated in Oil-Immersed Transformers.**

E. Insulated Cable Engineer’s Association (ICEA).

F. InterNational Electrical Testing Association (NETA):


H. Manufacturer’s testing recommendations and instruction manuals.

I. National Fire Protection Association (NFPA):
   1. **70 - National Electrical Code (NEC).**
   2. **110 - Standard for Emergency and Standby Power Systems.**

J. National Institute of Standards and Technology (NIST).

K. Specification sections for the electrical equipment being tested.

L. Shop drawings.

**1.03 DEFINITIONS**

A. As specified in Sections 01_75_17 - Commissioning and 26_05_00 - Common Work Results for Electrical.

B. Specific definitions:
   1. Testing laboratory: The organization performing acceptance tests.

**1.04 SYSTEM DESCRIPTION**

A. Testing of all electrical equipment installed under this Contract in accordance with the manufacturer’s requirements and as specified in this Section.
B. Conduct all tests in the presence of the Owner or the Owner’s representative:
   1. Owner will witness all visual, mechanical, and electrical tests, and inspections.

C. The testing and inspections shall verify that the equipment is operational within the tolerances required and expected by the manufacturer, and these Specifications.

D. Responsibilities:
   1. Contractor responsibilities:
      a. Ensure that all resources are made available for testing, and that all testing requirements are met.
      b. Coordinate all testing activities with the Owner/Engineer to ensure scheduling allows for testing to occur in the presence of the Owner or Owner’s representative.
   2. Electrical subcontractor responsibilities:
      a. Perform routine tests during installation.
      b. Demonstrate operation of electrical equipment.
      c. Commission the electrical installation.
      d. Provide the necessary services during testing, and provide these services to the testing laboratory, Contractor, and other subcontractors, including but not limited to:
         1) Providing electrical power as required.
         2) Operating of electrical equipment in conjunction with testing of other equipment.
         3) Activating and shutting down electrical circuits.
         4) Making and recording electrical measurements.
         5) Replacing blown fuses.
         6) Installing temporary jumpers.
   3. Testing laboratory responsibilities:
      a. Perform all acceptance tests specified in this Section.
      b. Provide all required equipment, materials, labor, and technical support during acceptance tests.

1.05 SUBMITTALS

A. Furnish submittals as specified in Sections 01_33_00 - Submittal Procedures and 26_05_00 - Common Work Results for Electrical.

B. Manufacturers’ testing procedures:
   1. Submit manufacturers’ recommended testing procedures and acceptable test results for review by the Owner prior to beginning testing.

C. Test report:
   1. Include the following:
      a. Summary of Project.
      b. Description of equipment tested.
      c. Description of tests performed.
      d. Test results.
      e. Conclusions and recommendations.
      f. Completed test forms.
      g. List of test equipment used and calibration dates.
      h. LAN cable test reports.

D. Test data records:

October 2023

26_08_50-3

Field Electrical Acceptance Tests
1. Include the following:
   a. Identification of the testing organization.
   b. Equipment identification.
   c. Nameplate data.
   d. Humidity, temperature and or other conditions that may affect the results
      of the tests and or calibrations.
   e. Dates of inspections, tests, maintenance and or calibrations.
   f. Indication of the inspections, tests, maintenance, and or calibrations to be
      performed and recorded.
   g. Expected results when calibrations are to be performed.
   h. Indication of as-found and as-left results as applicable.
   i. Indication of all test results outside specified tolerances.

E. Testing laboratory qualifications:
   1. Submit a complete resume and statement of qualifications from the proposed
      testing laboratory detailing their experiences in performing the tests specified:
      a. This statement will be used to determine whether the laboratory is
         acceptable, and shall include:
         1) Corporate history and references.
         2) Resume of individual performing test.
         3) Equipment list and test calibration data.

F. Division of responsibilities:
   1. Submit a list identifying who is responsible for performing each portion of the
      testing.

1.06 QUALITY ASSURANCE
A. As specified in Section 26_05_00 - Common Work Results for Electrical.

B. Testing laboratory qualifications:
   1. The testing laboratory may be qualified testing personnel from the electrical
      subcontractor’s staff or an independent testing company.
   2. NETA certification required.
   3. Selection of the testing laboratory and testing personnel is subject to approval
      by the Owner based on testing experience and certifications of the individuals
      and testing capabilities of the organization.

1.07 DELIVERY, STORAGE, AND PROTECTION (NOT USED)

1.08 PROJECT OR SITE CONDITIONS
   A. As specified in Section 26_05_00 - Common Work Results for Electrical.

1.09 SEQUENCING
   A. At least 30 days before commencement of the acceptance tests, submit the
      manufacturer’s complete field testing procedures to the Owner and to the testing
      laboratory, complete with expected test results, tolerances for all equipment to be
      tested, and proposed schedule for testing activities to coordinate Owner’s
      availability for witnessing of the tests.

   B. Perform testing in the following sequence:
1. Perform routine tests as the equipment and cabling is installed including:
   a. Insulation-resistance tests.
   b. Continuity tests.
   c. Rotational tests.
2. Adjusting and preliminary calibration.
3. Acceptance tests.
4. Demonstration.

1.10 SCHEDULING (NOT USED)

1.11 WARRANTY

A. As specified in Section 26_05_00 - Common Work Results for Electrical.

1.12 SYSTEM START-UP (NOT USED)

1.13 OWNER'S INSTRUCTIONS (NOT USED)

1.14 MAINTENANCE (NOT USED)

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 EXAMINATION (NOT USED)

3.02 PREPARATION

A. Test instrument calibration:
   1. Utilize a testing laboratory with a calibration program which maintains all
      applicable test instrumentation within rated accuracy:
      a. The calibrating standard shall be of better accuracy than that of the
         equipment tested.
   2. The accuracy shall be traceable to the NIST in an unbroken chain.
   3. Calibrate instruments in accordance with the following frequency schedule:
      a. Field instruments: 6 months maximum.
      b. Laboratory instruments: 12 months maximum.
      c. Leased specialty equipment where the accuracy is guaranteed by the
         lessor (such as Doble): 12 months maximum.
   4. Dated calibration labels shall be visible on all test equipment.
   5. Maintain an up-to-date instrument calibration record for each test instrument:
      a. The records shall show the date and results of each calibration or test.
   6. Maintain an up-to-date instrument calibration instruction and procedure for
      each test instrument.

B. Do not begin testing until the following conditions have been met:
   1. All instruments required are available and in proper operating condition.
   2. All required dispensable materials such as solvents, rags, and brushes are
      available.
   3. All equipment handling devices such as cranes, vehicles, chain falls and other
      lifting equipment are available or scheduled.
4. All instruction books, calibration curves, or other printed material to cover the electrical devices are available.
5. Data sheets to record all test results are available.

3.03 INSTALLATION

A. Test decal:
   1. The testing laboratory shall affix a test decal on the exterior of equipment or equipment enclosure of protective devices after performing electrical tests.
   2. The test decal shall be color coded to communicate the condition of maintenance of the protective. The color scheme for condition of maintenance of overcurrent protective devices shall be:
      a. White: electrically and mechanically acceptable.
      b. Yellow: minor deficiency not affecting fault detection and operation, but minor electrical or mechanical condition exists.
   3. The decal shall include the following information at a minimum:
      a. Testing organization.
      b. Project identifier.
      c. Test date.
      d. Technician identifier.

3.04 ERECTION, INSTALLATION, APPLICATION, CONSTRUCTION (NOT USED)

3.05 REPAIR/RESTORATION (NOT USED)

3.06 RE-INSTALLATION (NOT USED)

3.07 COMMISSIONING

A. Testing and Training Phase: Installation Testing:
   1. Also called "Field Acceptance Testing".
   2. Panelboards:
      a. Cleaning:
         1) Visually inspect panelboard for evidence of discoloration, abnormal dust accumulation, metal shards, or any other indication of overheating, wear, or other abnormal conditions prior to cleaning.
         2) Clean cabinet with a brush, vacuum cleaner, or clean, dry, lint-free rags to remove any accumulation of dust, dirt, or other foreign matter. Do not use liquids, solvents or detergents when cleaning panelboards or components.
         3) Avoid blowing dust into panelboards. Do not use a blower or compressed air.
         4) Clean Supports, terminals, and other major insulating surfaces with clean, dry, lint-free rags or soft bristled brushes.
         5) Remove dust, soot, grease, moisture, and foreign material from surface of circuit breakers.
      b. General:
         1) Compare equipment nameplate data with the Contract Documents.
         2) Check panelboard circuit schedule for accuracy.
         3) Verify appropriate anchorage, required area clearances, and correct alignment.
         4) Inspect overall general condition for physical damage. Check for broken studs and loose or damaged wires, connector, terminations,
etc. Check all bolts, nuts, washer, and pins for tightness. Tighten or use manufacture's replacement parts as required.

5) Inspect cabinets for signs of rust, corrosion, or deteriorating paint. Inspect cabinets for evidence of localized heat damage to the paint. Investigate sources of heat. Repair painted surfaces.

6) Check that covers are in place and fastened. Plug any open unused knockouts.

7) Inspect panelboard for moisture. Seal off any cracks or openings which have allowed moisture to enter the cabinet. Inspect all component devices. Replace any components that show evidence of damage from moisture.

8) Look for any recent changes in sprinklers or other plumbing that might expose indoor panelboards to a source of liquids. Eliminate sources of water, moisture, or liquids, or provide adequate barriers to protect panelboards from sources of water, moisture, or liquids.

9) Inspect panelboards and internal components for evidence of overheating, arc spatter, sooty deposits, and tracking. Investigate and correct sources of arcing or overheating. Consult the panelboard manufacturer for recommendations.

10) Verify that fuse and/or circuit breaker sizes and types correspond to record drawings, if available, as well as to the circuit breaker's address for microprocessor communications packages, if equipped.

11) Set adjustable circuit breakers in accordance with engineering coordination study supplied by Contractor.

c. Terminations, Connections, and Lugs:

1) Inspect bolted electrical connections for high resistance using one of the following methods:
   a) Use of low-resistance ohmmeter:
      (1) Compare bolted connection resistance values to values of similar connections:
         (a) Investigate values which deviate from those of similar bolted connections by more than 50 percent of the lowest value.
      b) Verify tightness of accessible bolted electrical connections by the calibrated torque wrench method:
         (1) Refer to manufacturer's instructions for proper foot-pound levels or NETA ATS tables.

2) Inspect terminations, connection, and lugs for alignment, physical damage, burns, corrosion, discoloration, flaking, heat damage, arcing, pitting, melting, deterioration, carbonization, cracks, chips, breaks, partial discharge, or moisture. Investigate and eliminate sources of any damage.

3) Follow manufacturer recommendations for cleaning, repairing, and replacing damaged parts.

4) Replace overheated connections. Tighten connections to proper to proper torque levels as specified above.

d. Conductors and raceways:

1) Inspect supply conductors and terminations for overheating, discoloration, and oxidation. Investigate and correct any deficiencies.

2) Ensure the conductors are protected within their ampcapities.

3) Visually check panelboard, cables, and raceways for proper bonding and grounding. Correct improper bonding and grounding.
4) Inspect conductors for discoloration, arcing, pitting, melting, flaking of insulation and/or metal parts. Repair or replace damaged components in accordance with manufacturer’s recommendations.
5) Inspect for frayed or broken wires. Replace or repair damaged components in accordance with manufacturer recommendations.
6) Inspect for frayed or broken wires. Replace or repair conductors as necessary.
7) Inspect conduits for moisture. Seal conduits which are a source of moisture and provide means to drain moisture away from the panelboard.

e. Circuit breakers:
1) Breakers rated less than 100 A:
   a) Operate circuit breakers several times in order to exercise the mechanisms and the contacts, and to ensure smooth operation. Do not oil or grease parts of molded case circuit breakers.
   b) Visually check circuit breakers for evidence of overheating and thermal damage. Investigate and eliminate sources of overheating.
   c) Check circuit breakers for visual defects, chipping, cracks, breaks, burns, and deterioration. Replace damaged circuit breakers.
   d) Verify correct operation of any auxiliary features such as trip and pickup indicators, zone interlocking, electrical close and trip operation, trip-free, and antipump function.
   e) Inspect interchangeable trip-unit circuit breakers for tightness of trip units.
   f) Check circuit breaker terminals and connections for tightness as specified above.
2) Breakers rated 100 A and higher:
   a) Perform visual and mechanical inspection as specified in this Section.
   b) Perform electrical tests as specified in this Section.
3) 3. Dry type transformers:
   a. Visual and mechanical inspection:
      1) Compare equipment nameplate data with the Contract Documents.
      2) Inspect physical and mechanical condition.
      3) Inspect anchorage, alignment, and grounding.
      4) Verify that resilient mounts are free and that any shipping brackets have been removed.
      5) Inspect equipment for cleanliness.
      6) Inspect bolted electrical connections for high resistance using one of the following methods:
         a) Use of low-resistance ohmmeter.
         b) Verify tightness of accessible bolted electrical connections by the calibrated torque wrench method:
            (1) Refer to manufacturer’s instructions for proper foot-pound levels or NETA ATS tables.
      7) Verify that as-left tap connections are as specified.
   b. Electrical tests:
      1) Perform resistance measurements through bolted connections with a low-resistance ohmmeter.
2) Perform insulation-resistance tests winding-to-winding and each winding-to-ground:
   a) Apply voltage in accordance with manufacturer’s published data:
      (1) Refer to NETA ATS tables in the absence of manufacturer’s published data.
3) Calculate dielectric absorption ratio or polarization index.
4) Perform turns ratio tests at all tap positions.
5) Verify correct secondary voltage, phase-to-phase and phase-to-neutral after energization and before loading.
c. Test values:
   1) Compare bolted connection resistance values to values of similar connections:
      a) Investigate values which deviate from those of similar bolted connections by more than 50 percent of the lowest value.
   2) Bolt-torque levels shall be in accordance with manufacturer’s published data:
      a) Refer to NETA ATS tables in the absence of manufacturer’s published data.
   3) Tap connections are left as found unless otherwise specified.
   4) Minimum insulation-resistance values of transformer insulation shall be in accordance with manufacturer’s published data:
      a) Refer to NETA ATS tables in the absence of manufacturer’s published data.
      b) Investigate insulation values less than the allowable minimum.
   5) The dielectric absorption ratio or polarization index shall not be less than 1.0.
   6) Turns-ratio results should not deviate more than 1/2 percent from either the adjacent coils or calculated ratio.
   7) Phase-to-phase and phase-to-neutral secondary voltages shall be in agreement with nameplate data.

4. Low voltage cables, 600 volt maximum:
   a. Visual and mechanical inspection:
      1) Compare cable data with the Drawings and Specifications.
      2) Inspect exposed sections of cable for physical damage and correct connection as indicated on the Drawings.
      3) Inspect bolted electrical connections for high resistance by one of the following methods:
         a) Use of low-resistance ohmmeter.
         b) Verify tightness of accessible bolted electrical connections by the calibrated torque wrench method:
            (1) Refer to manufacturer’s instructions for proper foot-pound levels or NETA ATS tables.
      4) Inspect compression applied connectors for correct cable match and indentation.
      5) Inspect for correct identification and arrangement.
      6) Inspect cable jacket insulation and condition.
   b. Electrical tests:
      1) Perform resistance measurements through bolted connections with a low-resistance ohmmeter.
2) Perform insulation resistance test on each conductor with respect to ground and adjacent conductors:
   a) Applied potential shall be 500 volts dc for 300 volt rated cable and 1,000 volts dc for 600 volt rated cable.
   b) Test duration shall be 1 minute.
3) Perform continuity tests to insure correct cable connection.
4) Verify uniform resistance of parallel conductors.
c. Test values:
   1) Compare bolted connection resistance values to values of similar connections:
      a) Investigate values which deviate from those of similar bolted connections by more than 50 percent of the lowest value.
   2) Insulation-resistance values shall be in accordance with manufacturer’s published data:
      a) Refer to NETA ATS tables in the absence of manufacturer’s published data.
      b) Investigate values of insulation-resistance less than the allowable minimum.
3) Cable shall exhibit continuity.
4) Deviations in resistance between parallel conductors shall be investigated.

5. Grounding systems:
   a. Visual and mechanical inspection:
      1) Inspect ground system for compliance with the Contract Documents, and the NEC.
      2) Inspect physical and mechanical condition.
      3) Inspect bolted electrical connections for high resistance using one of the following methods:
         a) Use of low-resistance ohmmeter.
         b) Verify tightness of accessible bolted electrical connections by calibrated torque wrench method:
            (1) Refer to manufacturer’s instructions for proper foot-pound levels or NETA ATS tables.
      4) Inspect anchorage.
   b. Electrical tests:
      1) Perform resistance measurements through bolted connections with a low-resistance ohmmeter.
      2) Perform fall of potential test or alternative test in accordance with IEEE 81 on the main grounding electrode or system.
      3) Perform point-to-point tests to determine the resistance between the main grounding system and all major electrical equipment frames, the system neutral and any derived neutral points.
   c. Test values:
      1) Grounding system electrical and mechanical connections shall be free of corrosion.
      2) Compare bolted connection resistance values to values of similar connections:
         a) Investigate values which deviate from those of similar bolted connections by more than 50 percent of the lowest value.
      3) Bolt-torque levels shall be in accordance with manufacturer’s published data:
a) Refer to NETA ATS tables in the absence of manufacturer’s published data.
4) The resistance between the main grounding electrode and ground shall be as specified in Section 26_05_26 - Grounding and Bonding.
5) Investigate point-to-point resistance values that exceed 0.5 ohm.

3.08 FIELD QUALITY CONTROL (NOT USED)

3.09 ADJUSTING (NOT USED)

3.10 CLEANING
   
   A. As specified in Section 26_05_00 - Common Work Results for Electrical.
   
   B. After the acceptance tests have been completed, dispose of all testing expendables, vacuum all cabinets, and sweep clean all surrounding areas.

3.11 PROTECTION
   
   A. As specified in Section 26_05_00 - Common Work Results for Electrical.

3.12 SCHEDULES (NOT USED)
   
   END OF SECTION
SECTION 31_00_00

EARTHWORK

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:
   1. Loosening, excavating, filling, grading, borrow, hauling, preparing subgrade, compacting in final location, wetting and drying, and operations pertaining to site grading for buildings, roads, and other facilities.
   2. Backfilling and compacting under and around structures.

1.02 REFERENCES

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

B. ASTM International (ASTM):
   2. D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

C. Standard Specifications: Washington State Department of Transportation (WSDOT):


F. Stormwater Pollution and Prevention Plan – City of Tacoma – Central Treatment Plant Site Specific SWPPP (January 2017 update).

1.03 DEFINITIONS

A. Backfill adjacent to structure: Backfill within volume bounded by the exterior surfaces of structure, the surface of undisturbed soil in the excavation around structure, and finish grade around structure.

B. Embankments: Dikes, levees, berms, and similar facilities.

C. Excavation: Consists of loosening, removing, loading, transporting, depositing, and compacting in final location, wet and dry materials, necessary to be removed for purposes of construction of structures, ditches, grading, roads, and such other purposes as are indicated on the Drawings.
1.04 SYSTEM DESCRIPTION

A. Performance requirements:
   1. Where mud or other soft or unstable material is encountered, remove such
      material and refill space with appropriate material where specified or indicated
      on the Drawings.
   2. Obtain acceptable import material from other sources.
   3. No extra compensation will be made for hauling of fill materials nor for water
      required for compaction.

1.05 SUBMITTALS

A. Copy of Property Owner’s Agreement allowing placement and disposal of surplus
   soil material on their off-site property.

B. Excavation plan.

C. Stormwater Pollution Prevention Plan
   1. The Contractor shall prepare a Stormwater Pollution Prevention Plan
      (SWPPP) that address Elements #1 through 13 of Minimum Requirement #2
      from Volume 1 of the City of Tacoma Surface Water Management Manual
      (SWMM) for the six (6) project locations with land disturbing (drilling, trenching,
      etc.) activities. The SWPPP is considered a “living” document that shall be
      revised to account for additional erosion control/pollution prevention BMPs as
      they become necessary and are implemented in the field during project
      construction. A copy of the most current SWPPP shall always be on-site and
      an additional copy shall be submitted to the Engineer. At the Contractor’s
      preference, revisions to the SWPPP may be forwarded to the Engineer rather
      than submitting a complete document. Revisions to the SWPPP may be kept
      on-site in a file along with the original SWPPP document

2. Erosion and Sediment Control (ESC) Lead
   a. The Contractor shall identify a ESC Lead, who meets the requirements of
      SWMM BMP C160, and the contact information for the ESC Lead shall be
      included in their Stormwater Pollution Prevention Plan (SWPPP). The
      ESC Lead shall have, for the life of the contract, a current Certified
      Erosion and Sediment Control Lead (CESCL) certificate or have a current
      Certified Professional in Erosion and Sediment Control (CPESC)
      certificate from a course approved by the Washington State Department
      of Ecology. The CESCL or CPESC shall direct implementation of the
      measures identified in the SWPPP. Implementation shall include, but is
      not limited to the following:
      1) Installing and maintaining all temporary erosion and sediment control
         Best Management Practices (BMPs) included in the SWPPP. Damaged or
         inadequate BMPs shall be corrected immediately.
      2) Inspecting all on-site erosion and sediment control BMPs at least
         once every five working days and within 24 hours of every runoff
         event. A SWPPP Inspection report or form shall be prepared for
         each inspection and shall be included in the SWPPP file. A copy of
         each SWPPP Inspection report or form shall be submitted to the
         Engineer no later than the end of the next working day following the
         inspection. The report or form shall include, but not be limited to the
         following:
a) When, where, and how BMPs were installed, maintained, modified, and removed.
b) Observations of BMP effectiveness and proper placement.
c) Recommendations for improving future BMP performance with upgraded or replacement BMPs when inspections reveal SWPPP inadequacies.
d) Approximate amount of precipitation since last inspection and when last inspection was performed.

3) Updating and maintaining a SWPPP file on site that includes, but is not limited to the following:
   a) SWPPP Inspection Reports or Forms.
   b) SWPPP narrative.
   c) Other applicable permits.

D. Test reports:
   1. Submit certified test reports of all tests specified.

1.06 QUALITY ASSURANCE

A. Contractor shall perform all work related to this Section in accordance with their approved Stormwater Pollution Prevention Plan (SWPPP).

1.07 SEQUENCING AND SCHEDULING

A. Schedule earthwork operations to meet requirements specified in this Section for excavation and uses of excavated material.

B. If necessary, stockpile excavated material in order to use it at specified locations.

C. Excavation, backfilling, and filling: Perform excavation, backfilling, and filling during construction in manner and sequence that provides drainage at all times.

PART 2 PRODUCTS

2.01 MATERIALS

A. Water for compacting: Use water from source acceptable to Owner.

B. Soil and rock materials:
   1. General:
      a. Provide backfill, gravel, sand where specified or indicated on the Drawings.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verification of conditions:
   1. Character and quantity of material:
      a. Verify character and quantity of rock, gravel, sand, silt, water, and other inorganic or organic materials to be encountered in work to be performed.
b. Determine gradation, shrinkage, and swelling of soil, and suitability of material for use intended in work to be performed.
c. Determine quantity of material, and cost thereof, required for construction of backfills, cuts, embankments, excavations, fills, and roadway fills, whether from onsite excavations or imported materials. Include in cost of work to be performed.
d. Include wasting of excess material, if required, in cost of work to be performed.

3.02 PREPARATION

A. Backfills:
   1. After trench excavation is completed, native subgrade shall be compacted to a dense and non-yielding condition. Subgrades for structures and roadways shall be evaluated for soft or yielding soil by Owner and/or their representative. If soft, yielding or otherwise unsuitable materials are revealed during evaluation that cannot be compacted to a stable and uniformly firm condition, then unsuitable soils shall be scarified with a ripper or farmer’s disc, aerated and recompacted, if practical. Otherwise remove the unsuitable soils and replace with compacted structural fill, as needed.
   2. Prior to backfilling:
      a. Clean all trash and debris from the excavation site.

3.03 INSTALLATION

A. General:
   1. Dispose of excavated materials that are not required or are unsuitable for fill and backfill in lawful manner.
   2. Dispose of surplus material on private property only when written permission agreement is furnished by owner of property. Submit copies of such agreements.
   3. Rocks, broken concrete, or other solid materials larger than 4 inches in greatest dimension: Remove from project site at no additional cost to the Owner.
   4. Stabilization of subgrade: Provide materials used, or perform work required, to stabilize subgrade so it can withstand loads that may be placed upon it by Contractor’s equipment.

B. Borrow area: There is no borrow area on Project site:
   1. Where material is required, import material from source located off Project site selected by the Contractor and subject to acceptance by the Owner.
   2. There will be no additional cost to the Owner for use of imported material.

C. Compaction:
   1. Provide specified compaction for backfills, cuts, embankments, fills, roadway fills, and other earthwork.
   2. Perform confirmation tests to verify and confirm that work has complied, and is complying at all times, with compaction requirements specified in this Section for initial compaction demonstration and field quality control testing.
   3. In-place density of compacted backfills, cuts, embankments, fills, and roadway fills determined in accordance with ASTM D6938.
4. Maximum density, laboratory compaction: Soil maximum density and optimum water content when tested in accordance with ASTM D1557. To prevent damage to structures due to backfilling operations, place backfill with equipment that does not exceed AASHTO Standard Specifications for Highway Bridges, H-20 vehicle loading, within a distance from the face of the structure of not less than 1/2 the depth of backfill. The depth of backfill is the distance between the level being compacted and the bottom of the excavation. Outside this distance, heavier compaction equipment may be used.

5. Compact to percentage of maximum dry density as follows:
   a. Backfill under and adjacent to structures, slab-on-grade, manholes and vaults: 95 percent.
   b. Backfilling voids: 95 percent.
   c. Landscaped or unimproved non-traffic yard areas: 90 percent.
   d. Under roadways, parking and storage areas, curbs, and sidewalks: 95 percent.

D. Excavation:
   2. Excavations for trenching: As specified in Section 40_05_04 - Trenching.
   3. Excavations for structures:
      a. Provide excavations conforming to dimensions and elevations indicated on the Drawings for each structure.
      b. After clearing is complete, excavate for the structure, down to the elevation indicated on the Drawings. Unless directed by Owner, do not carry excavations below elevation indicated on the Drawings.
      c. Where soil is encountered having unsuitable bearing value, Owner may direct in writing that excavation be carried to elevations below those indicated on the Drawings.
      d. Difficulty of excavation: No extra compensation will be made for removal of rock or any other material due to difficulty of excavation.
      e. Excavate to lines and grades indicated on the Drawings.
      f. Perform excavation and grading so that finish surfaces are in uniform planes with no abrupt breaks in surface.
   4. Necessary over excavation:
      a. Where it becomes necessary to excavate beyond normal lines of excavation in order to remove boulders or other interfering objects, backfill voids remaining after removal as specified in backfilling of voids below, or as acceptable to the Owner.
      b. Backfill voids with material acceptable to the Owner:
         1) With acceptance of the Owner, backfill with one of the following:
            a) Structural fill or select granular fill.
            b) Controlled low-strength material.

E. Materials for backfills, embankments, fills, and roadway fills: As specified in Section 40_05_03.
   1. Backfills:
      a. Backfill adjacent to structures, slabs, or walls: structural fill, select granular fill, and permeable ballast material unless otherwise specified or indicated on the Drawings.
      b. Backfill material under concrete structures: structural fill, select granular fill, and permeable ballast unless otherwise specified or indicated on the Drawings.
c. Extend backfill in any area under concrete structures from undisturbed soil or rock to the bottom aggregate base course material layer.

2. Fills:
   a. Material meeting the requirements of structural fill, select granular fill, or permeable ballast unless otherwise specified or indicated on the Drawings.
   b. Extend fill in any area under concrete structures from undisturbed soil or rock to the bottom aggregate base course material layer.

3. Roadway fills: One of the following, unless otherwise specified:
   a. Crushed surfacing within the pavement section as indicated on the Drawings.
   b. Structural fill or select granular material.

F. Placement:
   1. General:
      a. Lines and grades:
         1) Construct backfills, embankments, fills, and road fills, at locations and to lines and grades indicated on the Drawings.
   2. Backfills:
      a. Place loose material in successive layers that do not exceed 12 inches in depth after compaction.
      b. Bring each layer to a moisture content between optimum moisture content and 3 percent above optimum moisture content before compacting.
      c. Defective compacted backfills: Remove and recompact.
   3. Fills:
      a. Place loose material in successive layers that do not exceed 12 inches in depth after compaction.
      b. Bring each layer to a moisture content between optimum moisture content and 3 percent above optimum moisture content before compacting.
      c. Defective compacted fills: Remove and recompact.
   4. Roadway fills:
      a. Place loose material in successive layers that do not exceed 12 inches in depth after compaction.
      b. Bring each layer to a moisture content between optimum moisture content and 3 percent above optimum moisture content before compacting.
      c. Defective compacted roadway fills: Remove and recompact.

3.04 FIELD QUALITY CONTROL

A. Compliance Testing:
   1. Compliance Testing will be made by the Owner to verify that compaction is meeting requirements previously specified. The Owner’s compliance testing does not relieve the Contractor from their required confirmation that backfill and compaction efforts are at the proper density, moisture content, and is firm, stable and non-yielding:
      a. If compaction fails to meet specified requirements: Perform remedial work by one of the following methods:
         1) Remove and replace backfill at proper density and moisture content.
         2) Bring density up to specified level by means acceptable to the Owner.
      b. Compaction sequence requirements.
c. Do not perform additional earthwork of the same kind until specified degree of compaction has been demonstrated.

2. Frequency of compliance testing:
   a. All trenches in accordance with City of Tacoma Standard Plan Typical Detail SU-28.
   b. Perform testing not less than as follows:
      1) Perform one (1) test underneath each pre-cast drainage structure, vault, handhole, pad or manhole structure bedding, prior to its installation.

3. Retesting:
   a. Costs of retesting: Contractor is responsible for the costs of retesting required to confirm and verify that remedial work has brought compaction within specified requirements.

B. Tolerances:
   1. Finish grading of backfills, cuts, embankments, fills, and roadway fills:
      a. Perform fine grading under concrete structures such that finish surfaces are never above the grade or cross section indicated on the Drawings and are never more than 0.10 feet below.
      b. Provide finish surface for areas outside of structures that are within 0.10 feet of grade or cross section indicated on the Drawings.

2. Finish grading of surfaces:
   a. Reasonably smooth, compacted, and free from irregular surface changes.
   b. Provide degree of finish that is ordinarily obtainable from blade grader operations, except as otherwise specified.
   c. Uniformly grade areas that are not under concrete.
   d. Finish ditches and gutters so that they drain readily.

3.05 ADJUSTING

A. Finish grades of excavations, backfills, and fills:
   1. Repair and reestablish grades to required elevations and slopes due to any settlement or erosion that may occur from action of the elements or any other cause prior to final acceptance.

3.06 PROTECTION

A. Finish grades of backfills, cuts, excavations, and fills:
   1. Protect newly graded areas from erosion and deterioration by action of the elements.

B. Ditches and gutters:
   1. Maintain ditches and gutters free from detrimental quantities of debris that might inhibit drainage until final acceptance.

END OF SECTION
SECTION 31_50_00
EXCAVATION SUPPORT AND PROTECTION

PART 1   GENERAL

1.01 SUMMARY
A. Section includes: Requirements for designing, providing, maintaining, and removing excavation support and protection.

1.02 REFERENCES
A. American Society of Civil Engineers (ASCE):
B. Department of the Navy Naval Facilities Engineering Command (NAVFAC):
   2. Design Manual 7.3 - Soil Dynamics and Special Design Aspects.
C. United States Steel Corporation (USS):
   1. Steel Sheet Piling Design Manual.
D. Washington Administrative Code (WAC):
E. Revised Code of Washington (RCW):

1.03 DEFINITIONS
A. General Engineering Design Practice: Design performed in accordance with recent engineering literature on subject of shoring and stability of excavations from a recognized Agency, Authority or Engineering Society on the subject matter.
B. Shoring: A temporary structural system designed to support vertical faces, or nearly vertical faces, of soil or rock for purposes of excavation. Shoring includes cantilevered sheet piling, internally braced sheet piling, slurry walls, soldier piles and lagging, and other similar shoring systems. Sloping of the soil is not shoring.
C. Support levels: Level of tiebacks, wales, rackers, bottom of excavation, and other types of support.

1.04 SYSTEM DESCRIPTION
A. Provide drawings and calculations that are performed and signed by civil or structural engineer registered in State of Washington:
   1. Clearly disclose assumptions made, criteria followed, and stress values used for materials being used in design calculations.
2. Submit list of references acceptable to Owner that substantiating appropriateness of design assumptions, criteria, and stress values.

B. Design requirements:
1. General:
   a. For trench excavations 4 feet or more in depth and for trenches less than 4 feet in depth when there is potential for cave-in:
      1) Perform design pursuant to general engineering design practice and WAC/RCW regulations

C. Performance requirements:
1. General:
   a. Support faces of excavations and protect structures and improvements in vicinity of excavations from damage and loss of function due to settlement or movement of soils, alterations in ground water level caused by such excavations, and related operations.
   b. Specified provisions:
      1) Complement, but do not substitute or diminish, obligations of Contractor for furnishing of safe place of work pursuant to provisions of the Occupational Safety and Health Act of 1970 and its subsequent amendments and regulations and for protection of Work, structures, and other improvements.
      2) Represent minimum requirement for:
         a) Number and types of means needed to maintain soil stability.
         b) Strength of such required means.
         c) Methods and frequency of maintenance and observation of means used for maintaining soil stability.

2. Provide safe and stable excavations by means of sheeting, shoring, bracing, sloping, and other means and procedures, such as draining and recharging groundwater and routing and disposing of surface runoff, required to maintain stability of soils and rock.

3. Provide support for trench excavations for protection of workers from hazard of caving ground.

4. Provide shoring:
   a. Where, as result of excavation work and analysis performed pursuant to general engineering design practice, as defined in this Section:
      1) Excavated face or surrounding soil mass may be subject to slides, caving, or other types of failures.
      2) Stability and integrity of structures and other improvements may be compromised by settlement or movement of soils, or changes in soil load on structures and other improvements.
   b. For trenches 4 feet and deeper.
   c. For trenches less than 4 feet in depth, when there is potential for cave-in.

5. For safe and stable excavations, use appropriate design, construction, and maintenance procedures to minimize settlement of supported ground and to prevent damage to structures and other improvements, including:
   a. Using stiff shoring systems.
   b. Following appropriate construction sequence.
   c. Using shoring system that is tight enough to prevent soil loss through the shoring.
   d. Using shoring system that extends far enough below bottom of excavation to prevent piping, heave, or flow of soil under shoring.
e. Design for safety factor of not less than 1.50.
f. Providing surface runoff routing and discharge away from excavations.
g. Where dewatering inside shoring is necessary, recharge groundwater outside shoring as necessary to prevent settlement in area surrounding shored excavation.
h. Where sheet piling is used, use interlocking type sheets:
   1) Sheet piles shall be continuous and driven in interlock.
   2) If bottom of the excavation is located below the water table, use “ball and socket” or “thumb and finger” type interlock.
i. Not applying shoring loads to existing structures and other improvements.
j. Not changing existing soil loading on existing structures and other improvements.
k. Provide welded steel packing between soil retaining members such as sheet piles and wales and similar members when gap exceeds 1/4 inch before wales are loaded.

1.05 SUBMITTALS

A. Shop drawings and calculations:
   1. Calculations for different load, support, and other conditions that occur during the sequence of installation of shoring, construction of facilities protected by shoring, and sequence of removal of shoring.
   2. Sketches showing the condition at various stages of installation and removal of shoring.
   3. Show on plan shoring, structures, pipelines, and other improvements located near shoring.
   4. When utilities penetrate shoring, show location of penetrations and structural framing on elevation of all sides of shoring.
   5. Show details for ground support and sealing around utility penetrations.
   6. Indicate method used for installing driven shoring.

B. Detailed sequence of installation and removal of shoring:
   1. Consider effects of ground settlement in sequence of installation and removal of shoring.
   2. Provide sketches showing conditions at various stages in sequence of installation and removal of shoring.

C. Submit submittals for excavation support and protection as complete package and include all items required in this Section:
   1. Incomplete submittals will not be reviewed and will be returned for resubmittal as complete package.

1.06 SEQUENCING

A. Do not begin construction of any shoring or excavation operations until:
   1. Submittals for shoring have been accepted.
   2. Materials necessary for installation are on site.

PART 2 PRODUCTS

Not Used.
PART 3   EXECUTION

3.01 CONSTRUCTION

A. Installation of shoring:
   1. Install means for providing safe and stable excavations as indicated in
      submittals.

B. Removal of shoring:
   1. Remove shoring before completion of Work.
   2. Select shoring system and method of removal, which will minimize soil that
      sticks to shoring from creating voids and causing settlement.
   3. To prevent settlement caused by pulling shoring, fill voids with pressure
      injected grout:
      a. Inject grout starting at bottom of void and progressively fill void to grade.
      b. Minimize length of shoring removed ahead of grouting operation and limit
         time void is left ungrouted to prevent void from closing up before being
         grouted.

C. Control points:
   1. Establish control points on shoring and on structures and other improvements
      in vicinity of excavation for measurement of horizontal and vertical movement:
      a. Set control points on shoring support system:
         1) Set points at distances not exceeding 25 feet at each support level.
      2. Promptly survey control points upon completion of construction of control
         points. Submit copy of field notes with measurement.
      3. Perform horizontal and vertical survey and measurement of control points at
         least once every week:
         a. Field notes shall show current measurement and change in measurement
            from first measurement taken.
      4. Set control points on corners of existing structures and on curbs, manholes,
         and other improvements at the locations indicated on the Drawings.
      5. Provide plumb bobs with horizontal targets indicating original position of plumb
         bobs in relation to shoring at control points.

D. Maintenance:
   1. Where loss of soil occurs, plug gap in shoring and replace lost soil with fill
      material acceptable to Owner.
   2. Where measurements and observations indicate possibility of failure or
      excessive movement of excavation support, determined in accordance with
      general engineering design practice, take appropriate action immediately, and
      then notify Owner.

END OF SECTION
SECTION 32_01_15
PAVEMENT RESTORATION AND REHABILITATION

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:
   1. Resurfacing roads and paved surfaces in which surface is removed or damaged by installation of new work.

1.02 SYSTEM DESCRIPTION

A. Performance requirements:
   1. Limiting dimensions:
      a. Determine the exact lengths and dimensions of such roads, pavements, parking areas, and walks that will require removal and replacement for new work.
      b. Join existing surfaces to terminals of new surfacing in smooth juncture.

1.03 SUBMITTALS

A. Mix designs:
   1. Prior to placement of asphalt concrete, submit full details, including design and calculations for the asphalt concrete mix proposed.
   2. Submit gradation of aggregate base.
   3. Submit proposed mix design of portland cement concrete.

B. Paving Plan
   1. Submit Paving Plan identifying how the pavement lifts will be installed the Port of Tacoma site while leaving a minimum one lane road open to traffic. Multiple paving mobilizations may be needed to complete the work at this location.

PART 2 PRODUCTS

2.01 MATERIALS

A. Pavement base course: Crushed Surfacing as specified in Section 40_05_03 – Soil and Aggregate for Earthwork and indicated on the Drawings.

B. Asphalt pavement: As specified in Section 32_12_15 - Asphalitic Concrete Paving.

C. Portland cement concrete replacement material: Class A concrete as specified in Section 03_30_00 - Cast-in-Place Concrete.

2.02 EQUIPMENT

A. Roads, pavements, parking areas, and walks:
1. Equipment requirements: Good condition, capable of performing work intended in satisfactory manner.

2.03 ACCESSORIES

A. Material for painting asphalt concrete pavement: Tack coat as specified in Section 32_12_15 - Asphallic Concrete Paving.

PART 3 EXECUTION

3.01 INSTALLATION

A. Aggregate surface removal replacement:
   1. When trench cut is in aggregate surfaced areas, replace aggregate base course material with material matching existing material compacted to 95 percent of its maximum density.

B. Pavement removal and temporary asphalt replacement:
   1. Install temporary asphalt pavement or first course of permanent pavement replacement immediately following backfilling and compaction of trenches that have been cut through existing pavement.
   2. Except as otherwise provided, maintain this temporary pavement in safe and reasonably smooth condition until required permanent pavement is installed.
   3. Remove and dispose of temporary paving from project site.
   4. Where longitudinal trench is partly in pavement, replace pavement to original pavement edge, on a straight line, parallel to centerline of roadway.
   5. Where no part of longitudinal trench is in pavement, surfacing replacement shall only be required where existing surfacing materials have been removed.

C. Asphalt pavement replacement:
   1. Replace asphalt pavement to same thickness as adjacent pavement and match as nearly as possible adjacent pavement in texture, unless otherwise indicated on the Drawings.
   2. Cut existing asphalt pavements to be removed for trenches or other underground construction by wheel cutter, clay spade, or other device capable of making neat, reasonably straight and smooth cut without damaging adjacent pavement. Cutting device operation shall be subject to acceptance of Owner.
   3. Cut and trim existing pavement after placement of required crushed surfacing top and base courses and just prior to placement of asphalt concrete for pavement replacement, and paint trimmed edges with material for painting asphalt concrete pavement immediately prior to constructing new abutting asphalt pavements.
      a. Conform replacement of asphalt pavement to contour of original pavement.
   4. Final pavement shall consist of a minimum 2 inch asphaltic concrete overlay after milling of existing pavement and temporary trench pavement. Limits of mill and overlay as indicated on drawings. If contractors means and methods extend trenching beyond limits of pavement shown, then milling and overlay final pavement shall extend a minimum of 2 foot 0 inches beyond at no additional cost to the Owner.

D. Curb, gutter, and sidewalk replacement:
1. Where any concrete curb, gutter, or sidewalk has been removed or displaced, replace to nearest construction joints with new Class A curb, gutter, or sidewalk to same dimensions and finish as original construction that was removed:
   a. Provide expansion joints of same spacing and thickness as original construction.

3.02 FIELD QUALITY CONTROL

A. Tests:
   1. Asphalt concrete as specified in Section 32_12_15 - Asphalitic Concrete Paving.
   2. Concrete as specified in Section 03_30_00 - Cast-in-Place Concrete.

B. Inspection:
   1. Asphalt concrete:
      a. Lay 10-foot straightedge parallel to centerline of trench when the trenches run parallel to street, and across pavement replacement when trench crosses street at angle.
      b. Remove and correct any deviation in cut pavement replacement greater than 1/4 inch in 10 feet.
   2. Portland cement concrete replacement pavement:
      a. Lay 10-foot straightedge either across pavement replacement or longitudinal with centerline of gutter or ditch.
      b. Remove and correct any deviation in cut pavement replacement greater than 1/4 inch in 10 feet.

END OF SECTION
PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Asphalt concrete pavement on prepared subgrade or aggregate base course, and on existing pavement, to lines, grades, compacted thicknesses, and cross sections indicated on the Drawings.

1.02 REFERENCES

A. American Association of State Highway and Transportation Officials (AASHTO):
   1. Standard Specifications for Transportation Materials and Methods of Sampling and Testing:

B. ASTM International (ASTM):

C. Standard Specifications: Washington State Department of Transportation (WSDOT):

1.03 DEFINITIONS

A. Bituminous prime coat: Consist of application of hot bituminous material on previously prepared base course.

B. MSCR: Multiple Stress Creep Recovery

1.04 SYSTEM DESCRIPTION

A. Performance requirements:
   1. Compact the asphalt concrete to at least 95 percent of the density of the theoretical maximum density in accordance with ASTM D2041.
1.05 SUBMITTALS
   A. Proposed mix design and gradation of materials.
   B. Quality control submittals:

1.06 DELIVERY, STORAGE, AND HANDLING
   A. Asphalt concrete delivery:
      1. Transport the mixture from the mixing plant to the point of use in vehicles
         having tight bodies previously cleaned of all foreign materials.
      2. Treat bodies as necessary to prevent material from sticking to the bodies.
      3. Cover each load with canvas or other suitable material of sufficient size and
         thickness to protect the asphalt mixture from the weather.

1.07 PROJECT CONDITIONS
   A. Environmental requirements:
      1. Asphalt concrete:
         a. Place asphalt concrete only when surface is dry, and when atmospheric
            temperature in the shade is 40 degrees Fahrenheit and rising, or above
            50 degrees Fahrenheit if falling.
         b. Do not place asphalt concrete when weather is foggy or rainy or when
            base on which material is to be placed is in wet or frozen condition.
      2. Prime coat:
         a. Do not apply prime coat when atmospheric temperature is below
            60 degrees Fahrenheit.
         b. Apply prime coat only when base course is dry or contains moisture not in
            excess of that which will permit uniform distribution and desired
            penetration.

1.08 SEQUENCING AND SCHEDULING
   A. Prime coat:
      1. Prior to requesting Owner's acceptance for application, inspect area to be
         coated to determine its fitness to receive bituminous priming material.
      2. Do not begin application before area to be coated has been accepted for
         application by the Owner.

PART 2 PRODUCTS

2.01 MATERIALS
   A. Prime coat: Use emulsified asphalt material for prime coat conforming to
      requirements for: CRS-1, CRS-2, CRS-2P 125 195 CMS-2, CMS-2S, or CMS-2h
      and applied at the appropriate temperature and rate of by use of bituminous
      distributor.
   B. Sand: Acceptable to the Owner.
   C. Tack coat: Grade SS-1h anionic emulsion in accordance with ASTM D977.
D. Asphalt concrete materials:
   1. Asphalt cement: Conform to requirements for asphalt cement, MSCR PG58V-22 (PG 70-22) AASHTO MP1.
   2. Mineral aggregate:
      a. Consist of coarse aggregate of crushed stone or gravel composed of hard, durable particles, sand, and filler as follows:
         1) Asphalt concrete: As indicated on the Drawings, WSDOT Class 1/2" HMA overall thickness as indicated on the Drawings.
         2) Sieve in accordance with ASTM C117.
      b. Provide composite aggregate that is free from vegetable matter, lumps or balls of clay, adherent films of clay, or other matter which would prevent thorough coating of asphalt cement.
      c. Materials derived from processing demolished, or removed asphalt concrete, are not acceptable.

2.02 EQUIPMENT

A. Bituminous distributor: Designed and equipped so as to distribute bituminous material uniformly at even heat on variable widths of surface at readily determined and controlled rate with pressure range of 25 to 75 pounds per square inch.

B. Liquid asphalt distributor:
   1. Designed and operated to distribute asphaltic material in uniform spray without atomization.
   2. Equipped with bitumeter having dial registering feet of travel per minute:
      a. Locate dial so that it is visible to truck driver so that he can maintain constant speed required for application at specified rate.
   3. Equip pump with tachometer having dial registering gallons per minute passing through nozzles:
      a. Locate dial so that it is readily visible to operator.
   4. Provide means for accurately indicating temperature of asphaltic material in distributor at all times:
      a. Locate thermometer well so that it is not in contact with, or close to, heating tube.
   5. Have spray bar having normal width of application of not less than 12 feet and capable of providing for application of lesser width when necessary.
   6. Provided with hose and spray nozzle attachment for applying asphaltic material to patches and areas inaccessible to spray bar.
   7. Equipped with heating attachments and capable of circulating asphaltic material through spray bar during entire heating process.

C. Asphalt concrete mixing plants:
   1. Equipment:
      a. Use screen and storage bins at plant of sufficient capacity to furnish the necessary amount of all aggregates, when operating at the maximum capacity of the plant, with no periods of undue waiting for material:
         1) Use bins consisting of at least 2 compartments, so proportioned as to ensure adequate storage of appropriate fractions of the aggregate.
         2) Provide each compartment with an overflow pipe of such size and at such location as to prevent any backing up of material into other compartments.
      b. Dryer:
1) Designed to heat and dry the aggregate to Specification requirements and to agitate it continuously during the heating.
2) Capable of preparing aggregates at a rate equal to the full-rated capacity of the plant.
c. Dust collector:
   1) So constructed as to waste or return uniformly to the hot elevator all or any part of the material collected.
d. Mixer:
   1) Adequate capacity, with twin shafts.
e. Thermometers:
   1) Furnished for determining the temperature of the mix.
f. Weighing and measuring equipment:
   1) Weighing or volumetric measuring equipment of sufficient capacity.
   2) Devices to permit easy readjustment of any working part needing readjustment, so that the equipment will function properly and accurately.
   3) Attach scales for weighing to the bucket.
   4) Test and seal all weighing equipment by a representative of the Inspector of Weights and Measures having jurisdiction, as often as the Owner may deem necessary to ensure accuracy.
g. Tanks for storage of bituminous material:
   1) Capable of heating the material under effective and positive control at all times to temperatures within the range stipulated.

2. Asphalt concrete plant operation:
a. Mineral aggregate:
   1) Dry and heat mineral and then screen into at least 2 fractions and conveyed into separate compartments ready for proportioning and mixing.
   2) When combined with asphalt cement:
b. Aggregate:
   1) Contain not more than 2 percent moisture by weight.
   2) Be at a temperature within the range of that specified for the asphalt cement but not more than 25 degrees Fahrenheit above the temperature of the asphalt cement.
c. Combine dry aggregate in the plant in the proportionate amounts of each fraction of aggregate required to meet the specified grading:
   1) Introduce the asphalt cement into the mixer in the amount and at the temperature for the particular material being used.
   2) Continue mixing for at least 30 seconds, and for such longer period as may be necessary to coat all the particles.
d. When a continuous mixer is used, determine the mixing time by weight method using the following formula:
   1) Mixing time in seconds = Pugmill dead capacity in pounds.
   2) Pugmill output in pounds per second.
D. Asphalt-concrete-placing equipment:
   1. Use equipment for placing, spreading, shaping, and finishing asphalt concrete consisting of a self-contained power machine operating in such manner that no supplemental spreading, shaping, or finishing is required to provide surface that complies with requirements for smoothness contained in this Section:
      a. In areas inaccessible to the machine, hand spreading may be permitted.
   2. Furnish 1 self-propelled, pneumatic-tired roller, and one 8-ton (minimum), smooth-wheel tandem roller:
      a. When spreading is in excess of 100 tons per hour, furnish 1 additional roller of either type for each additional 100 tons, or fraction thereof, spread per hour.

2.03 MIXES

A. Asphalt cement:
   1. Do not mix at temperatures lower than 275 degrees Fahrenheit or higher than 325 degrees Fahrenheit.
   2. Usual amount of asphalt cement, by weight, to be added to aggregate be 5.4 to 5.8 percent of weight of mixture.

B. Asphalt concrete:
   1. Before being delivered to the site, mix aggregate with asphalt cement at the central mixing plant.
   2. Use mixing plants that are in good working order with no excessively worn parts and so equipped that:
      a. Temperatures of aggregates leaving dryer, of asphalt cement entering mixer, and of mix leaving mixer can be readily determined and positively controlled within Specification limits at all times.
      b. Weights of different sizes of aggregates and of asphalt cement as set by the Owner can be consistently introduced into the mixer.
      c. Asphalt cement can be uniformly distributed throughout the mixture with aggregate completely coated.
      d. Mixing time can be positively controlled to minimum specified.
      e. Bin samples of aggregate can be readily obtained.
      f. Provide means of calibrating weighing devices.

PART 3 EXECUTION

3.01 PREPARATION

A. Protection:
   1. Prime-coated surfaces:
      a. Maintain surfaces until succeeding layer of pavement has been placed.
      b. During this interval, protect primed surfaces against damage and repair any broken spots.

B. Surface preparation:
   1. Prime coat:
      a. Where portions of base course prepared for immediate treatment are excessively dry, sprinkle such portions lightly with water immediately in advance of prime coat application.
b. Immediately following preparation of base course, apply bituminous material by means of bituminous distributor at the temperature previously specified.

c. Apply priming material in manner that results in uniform distribution being obtained at all points of surface to be primed.

d. Following the application of prime material, allow the surface to dry for a period of not less than 48 hours without being disturbed, or for such additional period of time as may be necessary to obtain penetration into the base course and drying out or evaporation of the volatiles from prime material.

e. Spread sufficient sand on areas that show an excess of bituminous material to effectively blot up and cure the excess.

2. Base courses:

   a. Thoroughly clean base and apply prime coat before placing asphalt concrete.

   b. Thoroughly clean any existing base, surfacing, or pavement prior to placing plant-mixed surfacing.

   c. Where existing pavement is being widened or extended, cut to straight vertical face and treat with asphalt paint binder prior to paving operations.

   d. When asphalt concrete is to be applied over existing pavement and local irregularities in existing surface would result in course of more than specified thickness, bring surface of existing pavement to uniform contour by patching with asphalt concrete thoroughly tamped or rolled until it conforms with surrounding surface, and then apply tack coat.

3.02 APPLICATION

   A. At existing asphalt to be paved over: Apply tack coat at minimum rate of 0.10 gallons per square yard.

   B. Placing and compacting asphalt concrete:

      1. Placing and compacting asphalt mixture: Progress in sections generally not more than 750 linear feet in length.

      2. Spreading of mixture:

         a. Spread, shape, and finish by specified equipment.

         b. Spread each successive strip adjacent to previously spread strip.

         c. Do not compact minimum 6-inch width of each strip adjacent to new strip until after new strip has been placed.

         d. Spread as nearly continuous as possible.

         e. Laying against vertical surfaces such as gutters: Roughen and clean face of vertical surfaces as required for proper bonding and then paint with light coating of asphalt cement or emulsified asphalt.

         f. At terminations of new surface courses: Feather asphalt mixture into existing surface over such distance as may be required to produce smooth riding transition.

         g. Base-course and single-course construction: Joined by vertical butt joints, finished and rolled to smooth surface.

         h. Rolling:

            1) Perform initial or "breakdown" rolling with tandem power roller and follow spreading operation when mixture has reached temperature where it does not "pick up" on rolls.

            2) Keep rolls properly moistened but do not use surplus of water.
3) Follow initial rolling with pneumatic roller when mixture is in proper condition and when rolling does not cause undue displacement, cracking, or shoving.
4) Begin rolling at sides and progress gradually to center, lapping each preceding track until entire surface has been rolled.
5) Terminate alternate trips of roller in stops at least three feet distant from any preceding stop.
6) At any place not accessible to roller, thoroughly compact mixture with tampers and finish, if necessary, with hot iron to provide uniform layer over entire width being paved.

3. Provide finish surface having uniform texture.
4. Each layer or lift of compacted asphalt shall not exceed 3 inches.

3.03 FIELD QUALITY CONTROL

A. Placement:
   1. Place the mixture on the roads, pavements, or walks at a temperature not less than 225 degrees Fahrenheit.
   2. Do not place subsequent lifts until previous lift has cooled below 140F.

B. Tests:
   1. Provide sampling and control testing for the asphalt concrete:
      a. Type and size of the samples: Suitable to determine conformance with stability, density, thickness, compaction, and other specified requirements.
      b. Use an approved power saw or core drill for cutting samples.
      c. Furnish all tools, labor, and materials for cutting samples, testing, and replacing the pavement where samples were removed.
      d. Take a minimum of 1 sample per 200 tons of asphalt concrete placed.

C. Inspection:
   1. Asphalt concrete:
      a. Test with a 10-foot straightedge laid on the surface parallel with the centerline of the road. Variation of the surface from the testing edge of the straightedge not to exceed 1/4 inch.

END OF SECTION
PART 1  GENERAL

1.01  SUMMARY

A. Section includes: Concrete curbs, gutters, sidewalks, driveways, access ramps, and alley intersections.

1.02  SYSTEM DESCRIPTION

A. Performance requirements: Construct various types of concrete curb, gutter, sidewalk, driveways and alley intersections to dimensions and details indicated on the Drawings and Standard Plans.

1.03  SUBMITTALS

A. Product data: Submit data completely describing products.

B. Samples: Submit samples when requested.

PART 2  PRODUCTS

2.01  MATERIALS

A. Concrete: Class A, as specified in Section 03_30_00 - Cast-In-Place Concrete.

B. Curb finishing mortar: 1 part portland cement to 2 parts sand.

C. Form release material: Light oil or other releasing agent of type which does not discolor concrete or interfere with the application of finishing mortar to curb tops and faces.

D. Joint materials:
   1. Expansion: As specified in Section 03_15_00 - Concrete Accessories.

PART 3  EXECUTION

3.01  EXAMINATION

A. Verification of Conditions:
   1. Verify field conditions, including subgrade condition and interferences, before beginning construction.

3.02  PREPARATION

A. Surface preparation:
1. Subgrade:
   a. Construct and compact true to grades and lines indicated on the Drawings and requirements as specified Section 31_00_00 – Earthwork and Section 40_05_04 - Trenching.
   b. Remove soft or unsuitable material to depth of not less than 6 inches below subgrade elevation and replace with satisfactory material.
2. Forms and subgrade: Water immediately in advance of placing concrete.

3.03 INSTALLATION

A. Curbs and Gutters
   1. Construct in accordance with City of Tacoma Standard Plan SU-03 and SU-03A.

B. Sidewalks
   1. Construct in accordance with City of Tacoma Standard Plan SU-04.

C. Special techniques:
   1. Contractor's option:
      a. Construct concrete curbs and gutters by conventional use of forms, or by means of curb and gutter machine when acceptable to the Owner.
      b. When use of machines designed specifically for work of this Section are accepted by the Owner, results must be equal to or better than those produced by use of forms.
      c. Applicable requirements of construction that apply to use of forms also apply to use of machines.
      d. Discontinue use of machines when results are not satisfactory to the Owner.

D. Forms:
   1. Carefully set to line and grade and securely stake in position forms conforming to dimensions of items to be constructed.
   2. Thoroughly clean prior to each use and coat with form releasing material.

E. Expansion and weakened-plane joints:
   1. Expansion joints:
      a. Construct vertically, and at right angles to centerline of street and match joints in adjacent pavement or sidewalks.
      b. Constructed at radius points, driveways, alley entrances, and at adjoining structures.
      c. Fill joints with expansion joint filler material.
   2. Weakened-plane joints:
      a. Construct as indicated on the Drawings.
      b. Match joint locations and details in adjacent curbs, gutters, and sidewalks.

F. Concrete:
   1. Placing:
      a. Thoroughly spade concrete away from forms so that no rock pockets exist next to forms and so that no coarse aggregate will show when forms are removed.
   2. Compacting:
      a. Compact by mechanical vibrators accepted by the Owner.
b. Continue tamping or vibrating until mortar flushes to surface and coarse aggregate is below concrete surface.

3. Form removal:
   a. Front form faces: Do not remove before concrete has taken initial set and has sufficient strength to carry its own weight.
   b. Gutter and rear forms: Do not remove until concrete has hardened sufficiently to prevent damage to edges. Take special care to prevent damage.

4. Finishing and curing: Comply with requirements as specified in Section 03_35_29 - Tooled Concrete Finishing except as modified here:
   a. As soon as curb face forms are stripped, apply finishing mortar to the top and face of curb and trowel to a smooth, even finish. Finish with fine haired broom in direction of work.
   b. Where curb is installed without integral gutter, extend finish 2 inches below grade.
   c. Edge concrete at expansion joints to 1/4 inch radius.
   d. Flow lines of gutters shall be troweled smooth 4 inches out from curb face for integral curb and gutter and 4 inches on both sides of flowline for gutters without curbs.
   e. Sidewalks and ramps: Broom finish.

G. Backfilling:
   1. Unless otherwise specified, backfill behind curbs, gutters, or sidewalks with soil native to area and to lines and grades indicated on the Drawings.

3.04 FIELD QUALITY CONTROL

A. Tests:
   1. Curbs and gutters:
      a. Test face, top, back, and flow line with 10 foot straightedge or curve template longitudinally along surface.
      b. Correct deviations in excess of 1/4 inch.
   2. Gutters:
      a. Frequency of testing: When required by the Owner, where gutters have slope of 0.8 foot per 100 feet or less, or where unusual or special conditions cast doubt on capability of gutters to drain.
      b. Test method: Establish flow in length of gutter to be tested by supplying water from hydrant, tank truck, or other source.
      c. Required results:
         1) 1 hour after supply of water is shut off, inspect gutter for evidence of ponding or improper shape.
         2) In event water is found ponded in gutter to depth greater than 1/2 inch, or on adjacent asphalt pavement, correct defect or defects in manner acceptable to the Owner without additional cost to the Contract.

3.05 ADJUSTING

A. Repair portions of concrete damaged while stripping forms or, when damage is severe, replace such work at no additional cost to the Contract. Evidence of repairs shall not be noticeable in the finished product.
B. Remove and replace sections of work deficient in depth or not conforming to requirements indicated on the Drawings and specified in the Specifications at no additional cost to the Contract. Removal and replacement shall be the complete section between 2 joints.

END OF SECTION
SECTION 40_05_00.03
PIPE IDENTIFICATION

PART 1 GENERAL

1.01 SUMMARY
A. Section includes: Pipe identification including the following:
   1. Underground warning tape.

1.02 REFERENCES
A. American Society of Mechanical Engineers (ASME):

1.03 SUBMITTALS
A. Submit as specified in Section 01_33_00 - Submittal Procedures.

B. Submit following:
   1. Product data.
   2. Samples.
   3. Manufacturer's installation instructions.
   4. Submit following as specified in Section 01_77_00 - Closeout Procedures:
      a. Operation and Maintenance Data.
      b. Warranty.

PART 2 PRODUCTS

2.01 BURIED PIPELINE IDENTIFICATION
A. Underground warning tape:
   1. Manufacturer: One of the following or equal:
      a. Seton Name Plate Co.
      b. T. Christy Enterprises, Inc.
   2. Material:
      a. Polyethylene tape for prolonged underground use.
      b. Minimum tape thickness: 4 mils.
      c. Overall tape width: 6 inches.
      d. Message: “CAUTION” with the name of the service followed by “LINE BURIED BELOW,” in black lettering on colored background in accordance with approved APWA colors:
         1) Electric: Red.
         2) Water: Blue.
         3) Sewer: Green.
         4) Telephone: Orange.
         5) Gas and other services: Yellow.
      e. Aluminum backing or solid aluminum core.
PART 3 EXECUTION

3.01 EXAMINATION

A. Verify satisfactory conditions of substrate for applying identification.

B. Verify that conditions are satisfactory for installation and application of products as specified in Section 01_60_00 - Product Requirements.

3.02 BURIED PIPING IDENTIFICATION

A. Underground warning tape:
   1. Place continuous run of warning tape in pipe trench, 12 inches minimum above the pipe, and no more than 36 inches below grade for all new pipe installed.

END OF SECTION
SECTION 40_05_03
SOILS AND AGGREGATES FOR EARTHWORK

PART 1   GENERAL

1.01 SUMMARY

A. Section includes: Material requirements for soils and aggregates.

1.02 REFERENCES

A. ASTM International (ASTM):

B. Washington - Washington State Department of Transportation (WSDOT):

1.03 SUBMITTALS

A. Product data:
   1. Material source.
   2. Gradation.
   3. Testing data.

B. Quality control for aggregate base course:
   1. Test reports: Reports for tests required by Sections of WSDOT Standard Specifications.
   2. Certificates of Compliance: Certificates as required by Sections of WSDOT Standard Specifications.
1.04 DELIVERY, STORAGE, AND HANDLING

A. Storage and protection: Protect from segregation and excessive moisture during delivery, storage, and handling.

PART 2 PRODUCTS

2.01 MATERIALS

A. General:
   1. Provide material having maximum particle size not exceeding 4 inches and that is free of trash, lumber, debris, leaves, grass, roots, stumps, and other organic matter.
   2. Materials derived from processing demolished or removed asphalt concrete are not acceptable.
   3. On-site soil materials may potentially contain debris, organic matter and a significant amount of fines, and is expressly disallowed for use as structural fill under footings, slab on grades, other structures and/or in roadways:
      a. On-site soil materials are expressly disallowed for use until reviewed and accepted by the Owner.

B. Structural Fill:
   1. Material for structural fill / backfill shall be select import material consisting of sand and gravel complying with WSDOT Standard Specifications for Gravel Borrow Section 9-03.14(1). No rock fragments larger than 6”.

C. Crushed rock/permeable ballast:
   1. Material shall consist of crushed, partially crushed, or naturally occurring granular material.
   2. Comply with WSDOT Standard Specifications 9-03.9(2) for permeable ballast.

D. Crushed surfacing:
   1. Manufactured from ledge rock, talus, or gravel.
   2. Uniform in quality and substantially free from wood, roots, bark, and other extraneous material.
   3. Comply with WSDOT Standard Specification 9-03.9(3).

E. Gravel Backfill for trenches:
   1. Gravel backfill shall consist of crushed, partially crushed, or naturally occurring granular material.

F. Sand:
   1. Granular material free from wood bark and other materials.
   2. Comply with WSDOT Standard Specifications 9-03.13(1).

2.02 SOURCE QUALITY CONTROL

A. Source quality control testing shall be as required by the WSDOT Standard Specifications.
PART 3  EXECUTION

Not Used.

END OF SECTION
SECTION 40_05_04
TRENCHING

PART 1  GENERAL

1.01  SUMMARY

A. Section includes: Conduit trench excavation and trench backfill.

1.02  REFERENCES

A. ASTM International (ASTM):
   1. D1557 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft·lbf/ft$^3$).
   2. D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

B. Standard Specifications: Washington State Department of Transportation (WSDOT):


D. Stormwater Pollution and Prevention Plan – City of Tacoma – Central Treatment Plant Site Specific SWPPP (January 2017 update)

1.03  SUBMITTALS

A. As specified in Section 01_33_00 - Submittal Procedures.

B. Product data on soils and aggregates:
   1. Material source.
   2. Gradation.
   3. Test data to demonstrate compliance with this Section.
   4. Indicate intended location and use for proposed soils and aggregate.

1.04  DEFINITIONS

A. Backfill: Material placed in trench above the pipe embedment zone.

B. Bedding: Material placed under, around, and over conduit in trenches, and materials placed under ductbanks.

C. Center bedding: Material placed at the bottom of the trench directly under the center of the pipe to provide a malleable resting surface.

D. Fine grading: Material placed directly below pipes or ducts to provide support at the bottom of the trench and to bring those elements to required grades and elevations.
E. Flexible pipe: Includes steel, ductile iron, thermoplastics such as polyvinyl chloride (PVC) and high-density polyethylene (HDPE), thermosetting plastics such as fiberglass-reinforced polymer (FRP), bar-wrapped concrete cylinder pipe, and corrugated steel pipes.

F. Haunch zone: Material placed below and beside the pipe.

G. Lift: A layer of soil or aggregate material, measured before compaction.

H. Maximum density, laboratory compaction: Soil maximum density and optimum water content when tested in accordance with ASTM D1557.

I. Maximum density, field compaction: Soil density and water content when tested in accordance with ASTM D6938.

J. Pavement section: Includes pavement plus underlying courses such as base course and subgrade.

K. Pipe embedment zone: Includes bedding, fine grading, center bedding, and haunch zone.

L. Pipe foundation: Material placed at the bottom of trench to provide support.


1.05 QUALITY ASSURANCE

A. Initial compaction demonstration:
   1. Adequacy of compaction equipment and procedures: Demonstrate adequacy of compaction equipment and procedures on a single trench before proceeding with any additional backfill.
   2. Compaction sequence requirements: Until specified degree of compaction on previously specified amounts of earthwork is achieved, do not perform additional earthwork of the same kind.
   3. After satisfactory conclusion of initial compaction demonstration and at any time during construction, coordinate with Owner for compliance tests as specified under "FIELD QUALITY CONTROL."

B. Contractor shall perform all work related to this Section in accordance with their approved Stormwater Pollution Prevention Plan (SWPPP).

PART 2 PRODUCTS

2.01 MATERIALS

A. As specified in Section 40_05_03 - Soils and Aggregates for Earthwork.

B. Class C concrete: As specified in Section 03_30_00 - Cast-in-Place Concrete.
PART 3 EXECUTION

3.01 PREPARATION

A. Stabilize excavations as specified in Section 31_50_00 - Excavation Support and Protection.

3.02 DEWATERING

A. Contractor shall keep trench excavation free from water.

3.03 TRENCH EXCAVATION

A. Excavate bottom of trench to depth indicated on the Drawings.

B. Trench widths as specified in the following table:

<table>
<thead>
<tr>
<th>Buried Pipe Or Accessory</th>
<th>Minimum Trench Width</th>
<th>Maximum Trench Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical conduit</td>
<td>Provide a minimum 3” of backfill between outer edge of conduit and exposed earth</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

3.04 TRENCH BACKFILL - GENERAL

A. Trench area terminology and locations as indicated on the Drawings.

B. Place material, except CDF and concrete, in maximum 6 inch lifts, measured before compaction.

3.05 CONDUIT FOUNDATION

A. Provide trench bottom with firm and non-yielding, dry, uniform bearing surface at the grade indicated on the Drawings:
   1. Prepare conduit foundation, with any unauthorized excess excavation below elevation indicated on the Drawings, at no additional cost to Owner.

B. If bottom of trench excavation consists of soil:
   1. Native subgrade shall be compacted to a dense and non-yielding condition. If soft, yielding or otherwise unsuitable materials are revealed during evaluation that cannot be compacted to a stable and uniformly firm condition, then unsuitable soils shall be:
      a. Scarified to a depth of 6 inches below trench, aerated and recompacted.
      b. Otherwise remove the unsuitable soils and replace with compacted structural fill, as needed per paragraph 3.05.D.

C. If bottom of trench excavation consists of rock or any material that, by reason of its hardness, cannot be excavated to provide uniform bearing surface:
   1. Remove such rock or other material to a depth of not less than 4 inches below pipe embedment zone.
   2. Materials:
      a. CDF.
b. Class C concrete.

D. If bottom of trench excavation consists of unacceptable material:
   1. Remove such unacceptable material to a depth of not less than 18 inches below pipe embedment zone.

3.06 PIPE EMBEDMENT ZONE

A. General:
   1. Pipe displacement:
      a. Take necessary precautions in placement and compaction of bedding material to prevent displacement of piping.
      b. In event there is movement or floating of the piping, re-excavate, re-lay, and backfill the pipe.
   2. Depressions for joints or couplings:
      a. Excavate holes in graded trench bottom.
      b. Provide holes of sufficient width to provide ample room for grouting, banding, or welding as necessary for making joints and to ensure that pipe rests upon prepared trench bottom and not supported by any portion of the joint.

B. Rigid and flexible pipe:
   1. Fine grading:
      a. Compacted depth below bottom of pipe: 4 inch minimum.
      b. Materials and placement:
         1) Sand.
   2. Pipe Bedding:
      a. Compacted depth above top of pipe: 3 inch maximum.
      b. Materials and placement:
         1) Sand.

3.07 BACKFILL

A. Trenches in roadways, paved, and gravel areas:
   1. Backfill trench to underside of pavement of pavement section.
   2. Materials and placement:
      a. Gravel backfill for trenches compacted to 95 percent of maximum density.

B. Trenches in landscaped areas:
   1. Backfill to finished grade or to underside of topsoil layer, as applicable.
   2. Materials and placement:
      a. Gravel backfill for trenches compacted to 90 percent of maximum density.

3.08 EXCESS MATERIAL

A. Remove excess excavated material from the Project site as specified in Section 31_00_00 - Earthwork.

3.09 FIELD QUALITY CONTROL

A. Provide field quality control for the Work as specified in Section 01_45_00 - Quality Control.
B. Compliance Testing:

1. Compliance Testing will be made by the Owner to verify that compaction is meeting requirements previously specified. The Owner’s compliance testing does not relieve the Contractor from their required confirmation that backfill and compaction efforts are at the proper density, moisture content, and is firm, stable and non-yielding:
   a. If compaction fails to meet specified requirements: Perform remedial work by one of the following methods:
      1) Remove and replace backfill at proper density and moisture content.
      2) Bring density up to specified level by means acceptable to the Owner.
   b. Compaction sequence requirements:
   c. Do not perform additional earthwork of the same kind until specified degree of compaction has been demonstrated.

2. Frequency of compliance testing: In accordance with City of Tacoma Standard Plan Typical Detail SU-28:
   a. Perform testing not less than as follows:
      1) For trenches: At each test location include tests for each type of class of backfill from bedding to finish grade.

3. Retesting:
   a. Costs of retesting: Contractor is responsible for the costs of retesting required to confirm and verify that remedial work has brought compaction within specified requirements.

END OF SECTION
PART X

CITY OF TACOMA STANDARDS
NOTES:

A. When used on high side of roadways, the cross slope of the gutter shall match the cross slope of the adjacent pavement. The height of the curb shall be 6", unless otherwise shown on plans.

B. Flush with gutter pan at curb ramp entrance or 3/8" vertical lip at driveway entrance.

1. For trench crossings, curb and gutter shall be removed to a minimum 2' cut back over undisturbed soil.
2. In all projects, any remaining sections of curb and gutter less than 5' in length between the project area and the nearest control joint shall also be removed and replaced.
3. All joints shall be saw cut full depth prior to restoration and 3/8" expansion joint installed.
4. Concrete finish shall match existing.
5. Cutting wheel run-out beyond the limits of the opening shall be filled in accordance with WSDOT Standard Specification 5-05.3(8)B for cement concrete surfaces and 5-04.3(5)C for asphalt concrete surfaces.
6. Foundations shall be fully compacted prior to form placement.
7. Unsuitable foundation shall be replaced with 3/8" crushed surfacing top course.
NOTE:

Flush with gutter pan at curb ramp entrance or 3/4" vertical lip at driveway entrance.

B

NOTE:

1. For trench crossings, curb and gutter shall be removed to a minimum 2' cut back over undisturbed soil.
2. In all projects, any remaining sections of curb and gutter less than 5' in length between the project area and the nearest control joint shall also be removed and replaced.
3. All joints shall be saw cut full depth prior to restoration and 3/6" expansion joint installed.
4. Concrete finish shall match existing.
5. Cutting wheel run-out beyond the limits of the opening shall be filled in accordance with WSDOT Standard Specification 5-05.3(8)B for cement concrete surfaces and 5-04.3(5)C for asphalt concrete surfaces.
6. Foundations shall be fully compacted prior to form placement.
7. Unsuitable foundation shall be replaced with 3/6" crushed surfacing top course.

DCS
PUBLIC WORKS
TACOMA POWER

GMS
ENVIRONMENTAL SERVICES
TACOMA WATER

APPROVED FOR PUBLICATION

CITY OF TACOMA
CEMENT CONCRETE CURB AND GUTTER AND ASPHALT WEDGE CURB

STANDARD PLAN NO. SU-03A
Application

Installation requirements for commercial services from Tacoma Power overhead or underground facilities. It applies to new construction or upgrades of older services. Electrical service may be provided in the following three methods:

I. Overhead Service
II. Underground Service from Padmount Transformer
III. Underground Service from Polemount Transformer (UGP)

In This Standard

<table>
<thead>
<tr>
<th>Topic</th>
<th>See Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terms</td>
<td>1</td>
</tr>
<tr>
<td>Responsibilities &amp; Inspections</td>
<td>2</td>
</tr>
<tr>
<td>I – Overhead Service</td>
<td>3</td>
</tr>
<tr>
<td>II – Underground Service from Padmount Transformer</td>
<td>3</td>
</tr>
<tr>
<td>III – Underground Service from Polemount Transformer (UGP)</td>
<td>3-11</td>
</tr>
<tr>
<td>Limitations</td>
<td>3</td>
</tr>
<tr>
<td>Selection of Conduit from Pole to SSB</td>
<td>4</td>
</tr>
<tr>
<td>Selection of SSB</td>
<td>5</td>
</tr>
<tr>
<td>Installation of SSB (Bottomless Plastic Enclosure)</td>
<td>6-8</td>
</tr>
<tr>
<td>Installation of SSB (Precast Concrete Vault)</td>
<td>8-11</td>
</tr>
<tr>
<td>Conduit Entry</td>
<td>11</td>
</tr>
</tbody>
</table>

Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Inspector</td>
<td>Representative from Tacoma Power T&amp;D Construction Staff. A pre-construction meeting with the Construction Inspector must happen prior to any construction. Call 253-381-3023.</td>
</tr>
<tr>
<td>Electrical Inspector</td>
<td>Tacoma Power electrical inspection staff that inspect for compliance to the Tacoma Power standards, Tacoma Electrical Code, NEC, WAC and Electric Service Handbook requirements.</td>
</tr>
<tr>
<td>Electrical Secondary</td>
<td>Conduit and cables (less than 600 volts) that connect from the transformer to the SSB. Utility owned.</td>
</tr>
<tr>
<td>Electrical Service</td>
<td>Conduit and cables from the transformer to the service entrance or from the SSB to the service entrance. Customer owned.</td>
</tr>
<tr>
<td>New Services Engineer</td>
<td>Tacoma Power engineering staff that provide design, cost estimates, and coordination of the commercial secondary service project.</td>
</tr>
<tr>
<td>Secondary Service Box (SSB)</td>
<td>A plastic or concrete vault designed to contain the point of connection for the electrical service, which connects the electrical secondary cables to the electrical service cables.</td>
</tr>
</tbody>
</table>
Responsibilities and Inspections

<table>
<thead>
<tr>
<th>Construction Area</th>
<th>Responsibility</th>
<th>Inspection by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location of SSB</td>
<td>The <em>New Services Engineer</em> will work with the <em>customer’s electrical contractor</em> to determine the location of the SSB on the customer’s property.</td>
<td>Construction Inspector</td>
</tr>
<tr>
<td>Installation of SSB</td>
<td>The <em>customer’s electrical contractor</em> will install the SSB per this standard under the direction of the <em>New Services Engineer</em>.</td>
<td>Construction Inspector</td>
</tr>
<tr>
<td>Work in Road Right-of-Way</td>
<td>The <em>customer’s electrical contractor</em> will be responsible for installing conduit in the road right-of-way per the requirements of the permitting agency. Permits to cut and restore the road and any other work in the road right-of-way must be obtained before work in the right-of-way can begin. A copy of the approved permit must be on site while the roadwork is being done.</td>
<td>Construction Inspector</td>
</tr>
<tr>
<td>Installation of Electrical Secondary Conduit and Pole Conduit Riser</td>
<td>The <em>customer’s electrical contractor</em> will install conduit from the SSB to the pole and a portion of the conduit riser on the pole according to Customer Requirements Standard C-UG-1200, “Pole Conduit Riser”.</td>
<td>Construction Inspector</td>
</tr>
<tr>
<td>Completion of the Pole Conduit Riser</td>
<td><strong>Tacoma Power T&amp;D Construction Staff</strong></td>
<td>Not needed</td>
</tr>
<tr>
<td>Electrical Secondary Cables &amp; Connections</td>
<td><strong>Tacoma Power T&amp;D Construction Staff</strong> will:</td>
<td>Not needed</td>
</tr>
<tr>
<td></td>
<td>• install the electrical secondary cables from the pole to the SSB or from the padmount transformer to the SSB.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• make all connections at the SSB, at the pole and/or at the padmount transformer.</td>
<td></td>
</tr>
<tr>
<td>Electrical Service</td>
<td>The <em>customer’s electrical contractor</em> will install the electrical service.</td>
<td>Electrical Inspector</td>
</tr>
</tbody>
</table>
I – Overhead Service

An overhead service drop may be provided for services of up to 400A (the New Services Engineer will determine if a 600A service can be furnished) provided that it meets all criteria of the overhead service drop. Contact New Services Engineer for information.

II – Underground Service from Padmount Transformer

Underground service from a padmount transformer requires the installation of a primary underground system.

- Contact New Services Engineer.
- Pre-construction meeting with the Construction Inspector must happen prior to any construction.
- If the New Services Engineer determines an SSB is to be installed, see section “Selection of SSB” with Table 1 and Table 2 to help determine the size of SSB necessary per the size of electrical service.

III – Underground Service from Polemount Transformer (UGP)

In areas with an existing overhead electrical system, an underground service from a polemount transformer (UGP) may be provided for services in accordance with the limitations in the table below.

- Contact New Services Engineer
- Pre-construction meeting with the Construction Inspector must happen prior to any construction.

Limitations

<table>
<thead>
<tr>
<th>Limitation</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Service Panel Size</td>
<td>• Single Phase: 400A</td>
</tr>
<tr>
<td></td>
<td>• Three Phase: Contact New Services Engineer</td>
</tr>
<tr>
<td>Maximum Cable Size</td>
<td>See section “Selection of SSB” with Table 1 and Table 2, unless approved by</td>
</tr>
<tr>
<td></td>
<td>New Services Engineer</td>
</tr>
<tr>
<td>Minimum Wire Size</td>
<td>#10 AWG</td>
</tr>
<tr>
<td>Maximum Distance from Pole to SSB</td>
<td>200 feet</td>
</tr>
<tr>
<td>Maximum Number of Conduit Bends from Pole</td>
<td>270° (degrees) of bends / elbows, including the 90° pole conduit riser</td>
</tr>
<tr>
<td></td>
<td>elbow on the pole and the 90° conduit elbow into a bottomless plastic SSB</td>
</tr>
<tr>
<td></td>
<td>(if applicable)</td>
</tr>
</tbody>
</table>
Underground Service from Polemount Transformer (UGP) (continued)

Selection of Conduit From Pole to SSB

The size and number of conduits required for the electrical secondary are listed below:

<table>
<thead>
<tr>
<th>Size of Service Panel</th>
<th>Conduit (Quantity and Size)</th>
<th>Three Phase Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 200A</td>
<td>1 – 2.5&quot; [1]</td>
<td>Contact New Services Engineer</td>
</tr>
<tr>
<td>300A to 400A</td>
<td>1 – 4&quot; [1]</td>
<td></td>
</tr>
</tbody>
</table>

[1] Typical installation, but needs to be confirmed with New Services Engineer

Figure 1 Typical Installation of UGP
Underground Service from Polemount Transformer (UGP) (continued)

Selection of SSB

The following tables will provide guidelines on how to select the type and size of SSB. In any case, the customer’s electrical contractor shall coordinate with the New Services Engineer on the type and size of the SSB to be used on the project.

- Bottomless plastic enclosure SSBs shall not be located in driveways, areas subject to vehicular loading, or in the public right-of-way.
- All precast concrete SSBs can be located in areas not subject to any vehicular loading, off-street or incidental traffic areas, or in the public right-of-way.
- All precast concrete SSBs shall have a non-skid type cover (see standard C-UG-2000, Customer Requirements, Precast Concrete Vaults Approved Vendors).
- All conduit quantities in Tables 1 and 2 are the sum total of electrical service and electrical secondary cables from customer and Tacoma Power respectively.

Table 1 – SSB Selection for Bottomless Plastic Enclosures (No Vehicular Loading)

<table>
<thead>
<tr>
<th>Tacoma Power Description</th>
<th>Total Conduit (Quantity and Size)</th>
<th>Cables (Max. Size)</th>
<th>Manufacturer and Model #</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSB (Small)</td>
<td>2 – 2.5” only</td>
<td>250 kcmil</td>
<td>PenCell # PE20GS500 PenCell # PE20PL517BK3</td>
<td>24” x 30” Bottom, 14.5” x 22.5” Top, 15” Deep</td>
</tr>
<tr>
<td>SSB (Large)</td>
<td>6 – 2.5” max or 4 – 4” max</td>
<td>350 kcmil</td>
<td>PenCell # PE30GSI01 PenCell # PE30PL505BK3</td>
<td>25.5” x 38.5” Bottom, 20” x 33” Top, 16” Deep</td>
</tr>
</tbody>
</table>

Table 2 – SSB Selection for Precast Concrete Vaults (Off-Street, Incidental Traffic)

<table>
<thead>
<tr>
<th>Tacoma Power Description</th>
<th>Total Conduit (Quantity and Size)</th>
<th>Cables (Maximum Size)</th>
<th>Manufacturer and Model #</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>233 Vault</td>
<td>6 – 2.5” max or 4 – 4” max</td>
<td>350 kcmil</td>
<td>See C-UG-2000 “Customer Requirements, Precast Concrete Vaults Approved Vendors” for Manufacturer and Model # and A-UG-1150 “Precast Concrete Vaults” for Dimensions</td>
<td></td>
</tr>
<tr>
<td>444 Vault</td>
<td>6 – 4” max</td>
<td>500 kcmil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>554 Vault</td>
<td>8 – 4” max</td>
<td>500 kcmil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>774 Vault</td>
<td>8 conduit max</td>
<td>750 kcmil</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If electrical service size exceeds 8 runs of 750 kcmil, New Services Engineer will determine quantity and size of SSBs or the use of a secondary service cabinet (see standard A-UG-1600, Secondary Service Cabinet)
<table>
<thead>
<tr>
<th>Step</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Call <em>Construction Inspector</em> for pre-construction meeting prior to any construction.</td>
</tr>
</tbody>
</table>
| 2    | Establish location and final grade for the SSB and install SSB.  
- Select size of SSB per Table 1.  
  - SSB covers shall have “Tacoma Power” embossed on them for identification purposes.  
- **Bottomless SSBs shall not be located in driveways, areas subject to vehicular loading, or in the public right-of-way.**  
- SSBs shall not be placed in a depression or in low areas that would tend to fill with water or silt.  
- SSBs shall not be placed in front of any padmount transformer.  
- Ensure there are no rocks between SSB base and cover to avoid damage to the cover.  
- The top of the SSB cover shall be:  
  - 2 inches above final grade in landscaped areas.  
  - flush with final grade in paved areas. |
| 3    | Establish location of and install pole conduit riser per standard C-UG-1200 “Customer Requirements, Pole Conduit Riser”. |
| 4    | Dig trench from the SSB to the service entrance and to the pole.  
- Dig service and secondary trenches to the same side of the SSB, property side of SSB preferred.  
- On private property, the trench shall be deep enough to maintain a minimum of **24 inches** of cover over the conduit.  
- In road right-of-way, the trench shall be deep enough to maintain a minimum of **36 inches** of cover over the conduit.  
- Permits from local governmental agency must be obtained before any work in the road right-of-way can begin and a copy of the approved permit on site while the road work is being done.  
- The trench must be deep enough at the SSB so the conduit elbow(s) can be terminated vertically within the SSB.  
- The trench should be dug as straight as possible and the trench bed leveled and free of rocks larger than 2 inches diameter.  
  **Note:** Permanent structures are never to be constructed or moved on top of buried Tacoma Power conduit or cable. |
| 5    | Install conduit from SSB to the service entrance and to the pole.  
- **From pole to SSB**, conduit shall be 2.5” or 4” Sch. 40 gray PVC with factory elbows/bends only.  
- Excavate beneath the SSB and insert the 90° conduit elbows.  
- All conduit must be at the same end of the SSB and grouped closely together (property side of the SSB preferred).  
- Conduit ends shall extend vertically 2 inches above the bottom of the SSB.  
- Identify conduit ends with customer building address.  
- Place (Do Not Glue) bell ends on the conduit ends inside SSB. |
# Customer Requirements
## Commercial Secondary Service

### Underground Service from Polemount Transformer (UGP) (continued)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Installation of SSB (Bottomless Plastic Enclosure) (continued)</strong></td>
<td><strong>Inspections for conduit (BEFORE Backfill) are as follows:</strong></td>
</tr>
</tbody>
</table>
| **6** | From the service entrance to the SSB – inspection and approval by the **Electrical Inspector.**  
| | From the pole to the SSB, including the SSB – inspection and approval by the **Construction Inspector.** |
| **7** | Backfill the trench and proof the conduits: |
| | Per the requirements of any permits and site requirements of Tacoma Power and others. |
| | Use available clean material. |
| | Pieces of scrap cable and other construction items must not be buried in the trench. |
| | Large rocks must be removed and if native soil is rock, sand bedding may be required. |
| | Tamp the soil, leaving a slight mound to allow for settling. |
| | **After final grade is established,** the customer/contractor will be required to prove electrical secondary conduit integrity using a Tacoma Power approved mandrel and with the **Construction Inspector** present. |
| | After swabbing the electrical secondary conduits clean and proving that the conduits are free from debris and obstructions, the customer/contractor shall leave a silicone-coated nylon pull tape, or Tacoma Power approved equivalent, marked in feet and secured at both ends of each conduit. |
| **8** | Pull in electrical service cables from the service entrance to the SSB. |
| | Leave 4 feet minimum of cable, measured from the top of the SSB, inside the SSB. |
| | Seal electrical service conduits at SSB with a product approved for the purpose of preventing water entrance into the conduits. |
| | Ensure any parallel cables have matching phase tapes. |
| | Identify cables with customer building address. |
| **9** | Ensure the following has been done: |
| | All applicable fees are paid. |
| | All right-of-way and easement issues are resolved (if any). |
| | All inspections have been passed. |
| **10** | Tacoma Power **T&D Construction Staff** will: |
| | Complete the pole conduit riser. |
| | Pull in electrical secondary cables from the pole to the SSB. |
| | Energize the service. |
Installation of SSB (Precast Concrete Vault)

<table>
<thead>
<tr>
<th>Step</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Call <em>Construction Inspector</em> for pre-construction meeting prior to any construction.</td>
</tr>
</tbody>
</table>
| 2 | Establish location and final grade for the SSB and install the SSB.  
  - Select size of SSB per Table 2.  
    - SSB covers shall have “Tacoma Power” embossed on them for identification purposes.  
    - Concrete SSBs are to be located in areas rated for off-street/incidental (unintentional) traffic locations only.  
  - SSBs shall not be placed in a depression or in low areas that would tend to fill with water or silt.  
  - SSBs shall not be placed in front of any padmount transformer.  
  - The top of the SSB cover shall be:  
    - 6 inches above final grade in landscaped areas.  
    - flush with final grade in paved areas. |
### Underground Service from Polemount Transformer (UGP) (continued)

<table>
<thead>
<tr>
<th></th>
<th>Establish location of and install pole conduit riser per standard C-UG-1200 &quot;Customer Requirements, Pole Conduit Riser&quot;.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Dig trench from the SSB to the service entrance and to the pole.</td>
</tr>
<tr>
<td></td>
<td>• On private property, the trench shall be deep enough to maintain a minimum of <strong>24 inches</strong> of cover over the conduit.</td>
</tr>
<tr>
<td></td>
<td>• In road right-of-way, the trench shall be deep enough to maintain a minimum of <strong>36 inches</strong> of cover over the conduit.</td>
</tr>
<tr>
<td></td>
<td>• Permits from local governmental agency must be obtained before any work in the road right-of-way can begin and a copy of the approved permit on site while the road work is being done.</td>
</tr>
<tr>
<td></td>
<td>• The trench should be dug as straight as possible and the trench bed leveled and free of rocks larger than 2 inches diameter. Note: Permanent structures are never to be constructed or moved on top of buried Tacoma Power conduit or cable.</td>
</tr>
<tr>
<td>4</td>
<td>Install conduit from SSB to the service entrance and to the pole (see Figure 3).</td>
</tr>
<tr>
<td></td>
<td>• From pole to SSB, conduit shall be 2.5&quot; or 4&quot; Sch. 40 gray PVC with factory bends/elbows only.</td>
</tr>
<tr>
<td></td>
<td>• Install conduit 4 inches minimum into the SSB perpendicular to the vault wall.</td>
</tr>
<tr>
<td></td>
<td>• Identify conduit ends with customer building address.</td>
</tr>
<tr>
<td></td>
<td>• Place (Do Not Glue) bell ends on the conduit ends inside SSB</td>
</tr>
<tr>
<td></td>
<td>• Grout around knockouts.</td>
</tr>
<tr>
<td>5</td>
<td>Inspections for conduit (BEFORE Backfill) are as follows:</td>
</tr>
<tr>
<td></td>
<td>• From the service entrance to the SSB – inspection and approval by the Electrical Inspector.</td>
</tr>
<tr>
<td></td>
<td>• From the pole to the SSB, including the SSB – inspection and approval by the Construction Inspector.</td>
</tr>
<tr>
<td>6</td>
<td>Backfill the SSB excavation as shown below:</td>
</tr>
<tr>
<td></td>
<td>Clean fill as directed by the Construction Inspector</td>
</tr>
<tr>
<td></td>
<td>Vault base 9” min. of 5/8” minus crushed rock well compacted and extending 12” min. beyond the edge of the vault in all directions.</td>
</tr>
</tbody>
</table>
### Installation of SSB (Precast Concrete Vault) (continued)

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 8    | Backfill the trench and proof the conduits.  
* Per the requirements of any permits and site requirements of Tacoma Power and others.  
* Use available clean material.  
* Pieces of scrap cable and other construction items must not be buried in the trench.  
* Large rocks must be removed and if native soil is rock, sand bedding may be required.  
* Tamp the soil, leaving a slight mound to allow for settling.  
* After final grade is established, the customer/contractor will be required to prove electrical secondary conduit integrity using a Tacoma Power approved mandrel and with the Construction Inspector present.  
* After swabbing the electrical secondary conduits clean and proving that the conduits are free from debris and obstructions, the customer/contractor shall leave a silicone-coated nylon pull tape, or Tacoma Power approved equivalent, marked in feet and secured at both ends of each conduit. |
| 9    | Pull in electrical service cables from the SSB to the service entrance.  
* Leave the following minimum length of each service cable, measured from the top of the SSB, inside the SSB:  
  o 233 or 554 vault – 10 feet of cable  
  o 774 vault – 15 feet of cable  
* Seal electrical service conduits at SSB with a product approved for the purpose of preventing water entrance into the conduits.  
* Ensure any parallel cables have matching phase tapes.  
* Identify cables with customer building address. |
| 10   | Ensure the following has been done:  
* All applicable fees are paid.  
* All right-of-way and easement issues are resolved (if any).  
* All inspections have been passed. |
| 12   | Tacoma Power T&D Construction Staff will:  
* Complete the pole conduit riser.  
* Pull in electrical secondary cables from the pole to the vault.  
* Energize the service. |
Figure 3  Typical Installation of SSB (Precast Concrete Vault)

Conduit Entry

Conduit entering the vault shall consistently enter the left side knockouts on all sides. This is for the training of cable in the vault in the same direction. The Construction Inspector may approve exceptions on a site-by-site basis only. In any case, the service conduit entry and the secondary conduit entry shall allow all cables to be trained in the same clockwise or counter-clockwise direction (See Figure 3).
TRAFFIC CONTROL

HANDBOOK

MUST MAINTAIN PEDESTRIAN AND DISABILITY ACCESS AT ALL TIMES

City of Tacoma
Department of Public Works
Last updated: 2/5/21
INTRODUCTION

This manual is intended for use by any person, firm or corporation, public or private, when involved in construction, maintenance or any activity that alters the normal flow of traffic, vehicular or pedestrian, on any City right-of-way.


Authority to establish local rules regarding channelization and traffic control is permitted by Washington Administrative Code (WAC) 308.330.265.

Unless specifically addressed in this manual, when the term “should” is used in the MUTCD to describe a condition or method for traffic control, it means that if that suggestion is not used an equally effective method will be used. It does not eliminate the responsibility to address the situation.

This manual does not prohibit the use of additional traffic control or warning devices as long as the minimum conditions are met.

PERMITS

A permit must first be obtained from the Public Works Department by any person, firm or corporation working in City right-of-way that alters the normal flow of traffic or makes any public place dangerous.

Provisions for obtaining a permit are outlined in Tacoma Municipal Code Chapter 10.22.

All applications for permits must have a comprehensive traffic control plan attached for review by the Traffic Engineer. Permits will not be issued unless the Traffic Engineer has approved the traffic control plan.

MUNICIPAL AGENCIES

Municipal agencies and Utilities are not required to obtain a permit for routine maintenance and repairs, but must notify the Traffic Engineer a minimum of 72 hours in advance if the following conditions apply:

1. Closing any street (see attached street closure requirements).
2. Altering or detouring traffic during commute hours on arterial streets (7 a.m. – 9 a.m. and 4 p.m. – 6 p.m.).
3. The activity or obstruction will be in place for more than 8 hours.
4. The activity or obstruction is during the hours of darkness.
5. The activity reduces traffic on arterial streets to less than one lane in each direction.

GENERAL RULES

The following list of rules must be followed while involved in construction, maintenance or other activity in City right of way unless specifically addressed by the Traffic Engineer.

1. All traffic control devices must meet the requirements established by the Manual on Uniform Traffic Control Devices.
2. No activity will be placed in such a way as to detour, slow or alter traffic flow during peak commute hours. These times are generally from 7 a.m.–9 a.m. and 3:30 p.m.–6 p.m. The Traffic Engineer may allow an exception with prior approval.

3. An approved traffic control plan must be on-site and accessible for inspection at all times by law enforcement or inspectors.

4. Traffic control plans and activities must include the following components:
   a. Advanced Warning Area: Signs and other devices inform drivers of what to expect.
   b. Transition Area: Channelization devices move traffic from the normal flow to the desired path.
   c. Activity Area: Area where the work takes place.
   d. Buffer Space: Area used to separate traffic from the work activity area and provides recovery space for an errant vehicle.
   e. Termination Area: Area used to return traffic to the normal path.

5. Pedestrian and disability access must be maintained throughout the period of time construction is underway. This does not just apply to the final product, but accessibility must be maintained during the actual construction. Safe, clearly marked routes must be maintained through or around the construction activity at all times. The use of temporary walkways with width, slope, and cross-slope compliant to the maximum extent feasible shall be incorporated on the job site. Surfaces must be firm, stable, and slip resistant. Channeling and barricading must be used to separate pedestrians from traffic. Adequate barricading must be addressed to prevent visually impaired pedestrians from entering work zones. Alternate pedestrian circulation routes with appropriate signage that can be accessed by people who use mobility aids (wheelchairs, walkers, scooters, etc.) The alternate circulation path shall have a minimum width of 5 feet and parallel the disrupted pedestrian access route when practicable. Barricades and channelizing devices shall be continuous, stable, non-flexible, and shall consist of a wall, fence, or enclosure specified in section 6F of the MUTCD. A solid toe rail should be attached such that the bottom edge is 6 inches maximum above the walkway surface. The top rail shall be parallel to the toe rail and shall be located 36 inches minimum and 42 inches maximum above the walkway surface. If drums, cones, or tubular markers are used to channelize pedestrians, they shall be located such that there are no gaps between the bases of the devices in order to create a continuous bottom, and the height of each individual device shall be no less than 36 inches.

6. Persons in charge of maintaining or establishing traffic control and channelization must have a certified flagger control card in their possession and must be on the site at all times or be represented by another knowledgeable, certified person.

7. A flagger cannot be used to direct traffic through a signalized intersection against the signal indications. When flaggers are used near signalized intersections, care will be used to clear the intersection of traffic before the signal change.

8. In some situations, Signal modifications may be used to support the traffic control plan. The traffic Signal Shop shall make all modifications, and all modifications must be approved by the Traffic Engineer.

9. A uniformed police officer is required to direct traffic through a signalized intersection against the signal indications.

10. Police officers may also be required during activities for traffic calming if speeds are high, pedestrian or vehicular traffic volume is extremely high, or during emergencies.

11. To minimize the disruption to access to adjacent properties, and to Pierce Transit operations, the lane closure area shall be limited to that area of active work and necessary for appropriate lane closure tapers. The Contractor shall stage work to maintain access to and egress from all properties at all times. An approved traffic control plan and permit shall be posted on the job site for review by City officials. Construction Inspectors shall ensure the approved traffic
control plan is on site at all times. Any approved Traffic control plans the Contractor doesn't follow are in violation of the Standard Specifications which are included in the contract. It is the inspector's job to have them comply or Stop work. Jobs having permits only and not following the approved Traffic Control plan is a violation of Tacoma Municipal Code 10.22.080. The work can be stopped or a violation infraction can be imposed.

12. When parking lanes are closed due to construction, “no parking” portables will be installed at least 72 hours in advance of the closure in unrestricted areas and 48 hours in advance in time restricted areas. The message on the portables shall establish the date and hours for no parking.

13. During emergencies where life, property or public safety is in danger, conditions listed may be changed. Traffic control will be addressed along with the initial response. (See attached page for emergency contact numbers.)

14. The Traffic Engineer may allow reduced speed limits in construction area zones. Request for speed reduction must be included in the traffic control plan.

15. All signs and cones shall be removed from the right-of-way when traffic control is not in effect.

16. The contractor may be required to discontinue work if possible conflict exists with special events such as parades, sporting events, miscellaneous rallies, and large public meetings. Information concerning such events can usually be obtained from the City Clerks Office, tel. (253) 591-5171.

17. Maintenance of 2-way traffic on arterial streets at all times except on one-way streets. Additional width for facilitating traffic flow may be obtained by prohibiting on-street parking adjacent to the work zone.

18. No work shall be scheduled on streets or sidewalks within the City of Tacoma Business Districts from Thanksgiving Day through New Year's Day.

19. All traffic control devices used at night, particularly signs, barricades and channelizing devices, must have Type C steady burn lights. Requests to reduce the number of lights used on channelizing devices must be specifically detailed on the approved traffic control plan.

20. Any use of steel plates by contractor shall be for overnight purposes only and shall be used over weekends with prior approval by City or its inspector. They may not be used on steep grades, 8 percent or greater, they must have asphalt ramps/wedges around the plates and a non-skid surface at all times. All plates must be pinned down and the City of Tacoma may require combinations of plates to be welded together. Warning signs must be appropriately placed to caution motorists of upcoming steel plates. Steel plates are not allowed if snow is expected or if there is a potential for snow. The Inspector must review and approve all steel plate placements prior to leaving the job site. If located in the pedestrian path, they shall comply with ADA standards.

Failure to comply with the provisions of this manual is a traffic infraction and, notwithstanding any fines or penalties levied against the person, firm or corporation involved, if a safety hazard exists, the work may be ordered stopped and the obstruction cleared by the person, firm or corporation responsible or by the City at that responsible party’s expense.

http://www.cityoftacoma.org/
http://wspwit01.ci.tacoma.wa.us/govME/Admin/Inte/StartPage/default.aspx
http://wspwit01.ci.tacoma.wa.us/download/PDF/Traffic_Control_Handbook.pdf
Special Traffic Requirements

The contractor shall notify the following departments three (3) working days prior to any street closure.
Pierce Transit requires five (5) working days prior to any route detours.

<table>
<thead>
<tr>
<th>Department</th>
<th>Phone</th>
<th>Fax</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Engineering</td>
<td>591-5305</td>
<td>591-5533</td>
<td><a href="mailto:trafficcontrolplans@cityoftacoma.org">trafficcontrolplans@cityoftacoma.org</a></td>
</tr>
<tr>
<td>Tacoma Fire Department</td>
<td>591-5775</td>
<td>591-5034</td>
<td><a href="mailto:dutyofficer@cityoftacoma.org">dutyofficer@cityoftacoma.org</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><a href="mailto:tacomairedpartment@cityoftacoma.org">tacomairedpartment@cityoftacoma.org</a></td>
</tr>
<tr>
<td>Tacoma Police –Ops</td>
<td>591-5932</td>
<td>594-7842</td>
<td><a href="mailto:TacomaPoliceEvents@cityoftacoma.org">TacomaPoliceEvents@cityoftacoma.org</a></td>
</tr>
<tr>
<td>LESA</td>
<td>798-4721 Opt #3</td>
<td>798-2708</td>
<td><a href="mailto:commsupsb@southsound911.org">commsupsb@southsound911.org</a></td>
</tr>
<tr>
<td>Sound Transit Link</td>
<td>206-370-5674</td>
<td></td>
<td><a href="mailto:Denise.Ahuna@soundtransit.org">Denise.Ahuna@soundtransit.org</a></td>
</tr>
<tr>
<td>Pierce Transit Service Impacts</td>
<td>377-5027</td>
<td>589-6364 or 589-6367</td>
<td><a href="mailto:serviceimpacts@piercetransit.org">serviceimpacts@piercetransit.org</a> <a href="mailto:mdavilla@piercetransit.org">mdavilla@piercetransit.org</a></td>
</tr>
<tr>
<td>Pierce Transit Events Coordinator</td>
<td>581-8001</td>
<td>984-8161</td>
<td><a href="mailto:bnelson@piercetransit.org">bnelson@piercetransit.org</a></td>
</tr>
<tr>
<td>Public Works/Signal and Streetlighting</td>
<td>591-5287</td>
<td>593-7745</td>
<td><a href="mailto:gytotter@cityoftacoma.org">gytotter@cityoftacoma.org</a></td>
</tr>
<tr>
<td>Public Works/Street Ops</td>
<td>591-5495</td>
<td>591-5302</td>
<td><a href="mailto:streetoperations@cityoftacoma.org">streetoperations@cityoftacoma.org</a></td>
</tr>
<tr>
<td>School Trans Office</td>
<td>571-1853</td>
<td>571-1932</td>
<td><a href="mailto:transportation@tacoma.k12.wa.us">transportation@tacoma.k12.wa.us</a></td>
</tr>
<tr>
<td>First Students</td>
<td>272-7799</td>
<td></td>
<td><a href="mailto:Elizabeth.Anderson@firstgroup.com">Elizabeth.Anderson@firstgroup.com</a></td>
</tr>
<tr>
<td>Chief Leschi Schools</td>
<td>445-4000</td>
<td></td>
<td><a href="mailto:Cindy.Hanson@leschischools.org">Cindy.Hanson@leschischools.org</a></td>
</tr>
<tr>
<td>UWT Facilities Services</td>
<td>692-5700</td>
<td>692-5705</td>
<td><a href="mailto:facility@uw.edu">facility@uw.edu</a></td>
</tr>
<tr>
<td>Off-Duty Police Officer</td>
<td>591-5932</td>
<td></td>
<td><a href="mailto:TacomaPoliceEvents@cityoftacoma.org">TacomaPoliceEvents@cityoftacoma.org</a></td>
</tr>
<tr>
<td>Tacoma Refuse</td>
<td>591-5544</td>
<td>591-5547</td>
<td><a href="mailto:rcollections@cityoftacoma.org">rcollections@cityoftacoma.org</a></td>
</tr>
<tr>
<td>Tacoma First</td>
<td>311 (city limits)</td>
<td></td>
<td><a href="mailto:csc@cityoftacoma.org">csc@cityoftacoma.org</a></td>
</tr>
</tbody>
</table>

Include the following information when notifying the above departments.

- Name of street to be closed & the extent of the closure (between which two roads).
- Stipulate whether or not the area is to be open to local traffic & emergency vehicles.
- State the date(s) & hour(s) the closure will be in effect.
- Give the reason for the closure.
- Provide detour information.
- State who/which firm is performing the work.
- Provide the name and telephone number of a contact person.

Recommended Publications

As a contractor you will have many opportunities for setting up traffic control. To comply with national standards, we recommend having the MUTCD (Manual on Uniform Traffic Control Devices) for future reference.

To order hard copies or CD versions of the MUTCD please go to one of the links below:
- American Association of State Highway Organizations at: https://bookstore.transportation.org/
- Institute of Traffic Engineers at: http://www.ite.org/bookstore/index.asp
Things to Think About

Before the traffic control plan is drawn, visit the site and look for special circumstances that may be unique to the area. For example, work being done on the sidewalk may be a hazard if someone walks out a door into your wet cement or a tool may fall on someone's head if someone is in a lift washing windows. Call Pierce Transit if you need to do work at a bus stop. Transit requires five (5) days notice for route detours. Transit will inform citizens and move or temporarily close the stop. Keep in mind that pedestrians need 5' of unobstructed walking area. If roadwork needs to be done on an arterial street, traffic control devices shall be removed during peak hour traffic (7am to 9am and 4pm to 6pm). For further information see our TRAFFIC CONTROL HANDBOOK.

http://www.cityoftacoma.org/
http://wspwit01.ci.tacoma.wa.us/govME/Admin/Inter/StartPage/default.aspx
http://wspwit01.ci.tacoma.wa.us/download/PDF/Traffic_Control_Handbook.pdf
EXmple Traffic Control Plans

Introduction (Read First)

Permits / General Rules
Special Traffic Requirements

Sample Setup Drawings

Non-Arterial Road Closures
Single Lane Non-Arterial with A Flagger
CBD Right Lane Closure
Shoulder Work with Minor Encroachment
Two Lane Road with Center Closure
Two-Way Lane Shift with Parking
Right Lane Closure
Right Lane Closure at Intersection
Left Lane Closure At Intersection
One Way Street Multi-Lane Closure
Four Lane Road – Two Lane Closure
Five Lane Road Multi-Lane Closure
Traffic Control for Lane Shifting - 5 Lane
Roundabout Traffic Control with Flaggers

Short Duration Work – Under 60 Mins

Lane Closure at Intersection
Mid-Block Lane Closure
Center Lane Closure at Intersection
Inside Lane Closure at Intersection

Pedestrians & Miscellaneous

Traffic Control Recommendations for Truck Crossings
Traffic Control for Portable Dumpsters
Traffic Control for Moving Van
Bypass Walkway for Pedestrians
Bypass Ramps for Pedestrians
Curb Ramp Pedestrian Control
Sidewalk Closures
Sidewalk Closure with Parking Closure

Survey Crews

Survey Two Lane Arterial Intersection
Survey Two Lane Arterial Mid Block
Survey Multi-Lane Arterial

Create Your Own Plan

Blank Two Lane Road
Blank Two Lane Road with Center Turn Lane
Blank Two Lane Road with Two Intersections
Blank Two Lane Road with Two Intersections and Parking
Blank Two Lane Road with Four Intersections and Parking
Blank Four Lane Road with Two Intersections
Blank Four Lane Road with Two Intersections and Parking
Blank Five Lane Road
SINGLE LANE NON-ARTERIAL WITH FLAGGER

START TRAFFIC CONTROL SET UP DATE: ___________ OFF PEAK 9:00 AM WEEKDAYS
MUST BE OUT OF THE ROAD BY DATE: ___________ OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY
START TRAFFIC CONTROL SET UP DATE & TIME:
MUST BE OUT OF THE ROAD BY DATE & TIME:

MERGING TAPER LENGTHS FOR CONE PATTERN
(All minimums)

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

Number of Channelization Devices (cones)
Offset cones 1 foot maximum.

Note 1: Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc. as per "Manual On Uniform Traffic Control Devices" at all times. Streets and walkways shall be kept clear of debris dropped or tracked by vehicles entering or exiting the work site. Failure to comply will result in stop work order and/or citation.

Note 2: No work shall be scheduled on streets or walkways within the city of Tacoma business districts from Thanksgiving Day through New Year's Day.

Note 3: Sign spacing. Urban low speed 25-30 mph signs must be placed 100 apart. Urban high speed 30-40 mph signs must be placed 300 apart.
TWO WAY LANE SHIFT WITH PARKING

- APPROVED BY: __________________________ DATE: ____________
- APPROVED WITH CONDITIONS BY: __________________________

START TRAFFIC CONTROL SET UP DATE: ____________ OFF PEAK 9:00 AM WEEKDAYS
MUST BE OUT OF THE ROAD BY DATE: ____________ OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY
START TRAFFIC CONTROL SET UP DATE & TIME: __________________________
MUST BE OUT OF THE ROAD BY DATE & TIME: __________________________

MERGING TAPER LENGTHS FOR CONE PATTERN (All minimums)

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
</tr>
<tr>
<td></td>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
</tr>
<tr>
<td></td>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
</tr>
<tr>
<td></td>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
</tr>
<tr>
<td></td>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
</tr>
</tbody>
</table>

NUMBER OF CHANNELIZATION DEVICES (CONES)

Offset cones 1 foot maximum.

NOTE 1: Maintain clear access and protected work areas at all times. Provide and maintain barricades, signs, lights, etc. as per "Manual on Uniform Traffic Control Devices" at all times. Streets and sidewalks shall be clear of debris dropped or tracked by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.

NOTE 2: No work shall be scheduled on streets or sidewalks within the city of Tacoma business districts from Thanksgiving Day through New Year's Day.

NOTE 3: Sign spacing. Urban low speed 25-30 mph signs must be placed 100' apart. Urban high speed 30-40 mph signs must be placed 300' apart.
ONE WAY
MULTI-LANE
CLOSURE

☐ APPROVED BY:
☐ APPROVED WITH CONDITIONS BY: ___________________________ DATE: __________

START TRAFFIC CONTROL SET UP DATE: __________ OFF PEAK 9:00 AM WEEKDAYS
MUST BE OUT OF THE ROAD BY DATE: __________ OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY
START TRAFFIC CONTROL SET UP DATE & TIME: ___________________________ DATE: __________
MUST BE OUT OF THE ROAD BY DATE & TIME: ___________________________ DATE: __________

MERGING TAPER LENGTHS
FOR CONE PATTERN
(All minimums)

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

OFFSET CONES 1 FOOT MAXIMUM.

NOTE 1: MAINTAIN LOCAL ACCESS AND PROTECTED WALKWAYS AT ALL TIMES. PROVIDE AND MAINTAIN BARRIERS, SIGNS, LAMPS, ETC., AS PER "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AT ALL TIMES. STREETS AND WALKWAYS SHALL BE KEPT CLEAR OF DEBRIS DROPPED OR TRACKED BY VEHICLES ENTERING OR EXITING THE WORK SITE. FAILURE TO COMPLY WILL RESULT IN A STOP WORK ORDER AND/OR CITATION.

NOTE 2: NO WORK SHALL BE SCHEDULED ON STREETS OR WALKWAYS WITHIN THE CITY OF TACOMA BUSINESS DISTRICTS FROM THANKSGIVING DAY THROUGH NEW YEAR'S DAY.

NOTE 3: SIGN SPACING: URBAN LOW SPEED 25-30 MPH SIGNS MUST BE PLACED 100 APART. URBAN HIGH SPEED 35-40 MPH SIGNS MUST BE PLACED 50' APART.
TWO LANE CENTER CLOSURE

☐ APPROVED BY: ________________________________ DATE: ________________________________
☐ APPROVED WITH CONDITIONS BY: ________________________________ DATE: ________________________________

START TRAFFIC CONTROL SET UP DATE: __________ OFF PEAK 9:00 AM WEEKDAYS
MUST BE OUT OF THE ROAD BY DATE: __________ OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY
START TRAFFIC CONTROL SET UP DATE & TIME: ________________________________
MUST BE OUT OF THE ROAD BY DATE & TIME: ________________________________

MERGING TAPER LENGTHS
FOR CONE PATTERN
(All minimums)

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

NUMBER OF CHANNELIZATION DEVICES (CONES)
Offset cones 1 foot maximum.

NOTE 1: Maintain legal access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc. as per Manual on Uniform Traffic Control Devices* at all times. Streets and walkways shall be kept clear of debris dropped or tracked by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.

NOTE 2: No work shall be scheduled on streets or walkways within the city of Tacoma business districts from Thanksgiving Day through New Year’s Day.

NOTE 3: Sign spacing: Urban low speed 25-30 MPH signs must be placed 100 feet apart. Urban high speed 35-40 MPH signs must be placed 300 feet apart.
FOUR LANE ROAD
TWO LANE CLOSURE
ARterial STREET

☐ APPROVED BY: ___________________________ DATE: ___________________________

☐ APPROVED WITH CONDITIONS BY: ___________________________ DATE: ___________________________

START TRAFFIC CONTROL SET UP DATE: _______ OFF PEAK 9:00 AM WEEKDAYS

MUST BE OUT OF THE ROAD BY DATE: _______ OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY

START TRAFFIC CONTROL SET UP DATE & TIME:

MUST BE OUT OF THE ROAD BY DATE & TIME:

MERGING TAPER LENGTHS
FOR CONE PATTERN
(ALL minimum)

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>12'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>14'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>16'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
</tbody>
</table>

NUMBER OF CHANNELIZATION DEVICES (CONES)

Offset cones 1 foot maximum.

NOTE 1: Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc. as per "Manual on Uniform Traffic Control Devices" at all times. Streets and walkways shall be kept clear of debris dropped or tracked by vehicles entering or existing the work site. Failure to comply will result in a stop work order and/or citation.

NOTE 2: All work shall be scheduled on streets and walkways within the city of Tacoma business districts from Thanksgiving day through New Year's day.

NOTE 3: Sign spacing: Urban low speed 25-30 MPH signs must be placed 100' apart. Urban high speed 35-40 MPH signs must be placed 350' apart.
FIVE LANE ROAD MULTILANE CLOSURE

☐ APPROVED BY: ☐ APPROVED WITH CONDITIONS BY: ___________________________ DATE: ___________________________

START TRAFFIC CONTROL SET UP DATE: ___________ OFF PEAK 9:00 AM WEEKDAYS

MUST BE OUT OF THE ROAD BY DATE: ___________ OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY
START TRAFFIC CONTROL SET UP DATE & TIME: ___________________________

MUST BE OUT OF THE ROAD BY DATE & TIME: ___________________________

---

MERGING TAPER LENGTHS FOR CONE PATTERN
(All minimums)

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

NUMBER OF CHANNELIZATION DEVICES (CONES)

Offset cones 1 foot maximum.

---

**Note 1:** Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc. as per "Manual on Uniform Traffic Control Devices" at all times. Streets and walkways shall be kept clear of debris dropped or tracked by vehicles entering or exiting the work zone. Failure to comply will result in a stop work order and/or citation.

**Note 2:** No work shall be scheduled on streets or walkways within the City of Tucson business districts from Thanksgiving day through New Year's Day.

**Note 3:** Sign Spacing: Urban low speed 25-30 MPH signs must be placed 100' apart. Urban high speed 35-40 MPH signs must be placed 300' apart.
CBD
RIGHT LANE CLOSURE

□ APPROVED BY:
□ APPROVED WITH CONDITIONS BY: ___________________________ DATE: ___________________________

START TRAFFIC CONTROL SET UP DATE: _______ OFF PEAK 9:00 AM WEEKDAYS
MUST BE OUT OF THE ROAD BY DATE: _______ OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY
START TRAFFIC CONTROL SET UP DATE & TIME:
MUST BE OUT OF THE ROAD BY DATE & TIME:

Merging Taper Lengths for Cone Pattern
(All minimums)

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

Offset cones 1 foot maximum.

Note 1: Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc. as per "Manual on Uniform Traffic Control Devices" at all times. Streets and walkways shall be kept clear of debris dropped or tracked by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.

Note 2: No work shall be scheduled on streets or walkways within the City of Indiana Business Districts from Thanksgiving Day through New Year's Day.

Note 3: Sign spacing. Urban low speed 25-30 MPH signs must be placed 100' apart. Urban high speed 35-40 MPH signs must be placed 350' apart.
LEFT LANE CLOSURE AT INTERSECTION

- APPROVED BY: __________________________ DATE: __________
- APPROVED WITH CONDITIONS BY: __________________________ DATE: __________

START TRAFFIC CONTROL SET UP DATE: __________ OFF PEAK 9:00 AM WEEKDAYS
MUST BE OUT OF THE ROAD BY DATE: __________ OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY
START TRAFFIC CONTROL SET UP DATE & TIME: __________________________
MUST BE OUT OF THE ROAD BY DATE & TIME: __________________________

MERGING TAPER LENGTHS FOR CONE PATTERN
(All minimums)

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

NUMBER OF CHANNELIZATION DEVICES (CONES): Offset cones 1 foot maximum.

NOTE 1: Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc. as per "Manual of Uniform Traffic Control Devices" at all times. Streets and walkways shall be kept clear of debris or material or traffic by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.

NOTE 2: No work shall be scheduled on streets or walkways within the City of Tustin business districts from Thanksgiving Day through New Year's Day.

NOTE 3: Sign spacing: Urban low speed 25-30 MPH signs must be placed 120' apart. Urban high speed 35-40 MPH signs must be placed 350' apart.
Note: At night, signage and barricades must be Type C steady burn lights. A contractor may close a nonarterial street to through traffic, provided that local access is maintained at all times with a minimum of a 20' wide access lane. Road Work Ahead signs may be eliminated on non-arterial streets.

NON-ARTERIAL ROAD CLOSURES

☐ APPROVED BY:
☐ APPROVED WITH CONDITIONS BY: ____________________________ DATE: ___________________________

START TRAFFIC CONTROL SET UP DATE: OFF PEAK 9:00 AM WEEKDAYS
MUST BE OUT OF THE ROAD BY DATE: OFF PEAK 3:30 PM WEEKDAYS
EVENING AND WEEKENDS ONLY
START TRAFFIC CONTROL SET UP DATE & TIME: ____________________________
MUST BE OUT OF THE ROAD BY DATE & TIME: ____________________________

MERGING TAPER LENGTHS FOR CONE PATTERN
(All minimums)

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8’</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10’</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12’</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14’</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16’</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

Note 1: Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc., as per "Manual on Uniform Traffic Control Devices" at all times. Streets and walkways shall be kept clear of debris dropped or tracked by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.

Note 2: No work shall be scheduled on streets or walkways within the city of Tacoma business districts from Thanksgiving Day through New Year's Day.

Note 3: Sign spacing: Urban low speed 25-30 mph signs must be placed 100' apart. Urban high speed 35-40 mph signs must be placed 350' apart.
RIGHT LANE CLOSURE AT INTERSECTION

☐ APPROVED BY:
☐ APPROVED WITH CONDITIONS BY: _____________________________ DATE: _____________

START TRAFFIC CONTROL SET UP DATE: ___________ OFF PEAK 9:00 AM WEEKDAYS
MUST BE OUT OF THE ROAD BY DATE: ___________ OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY
START TRAFFIC CONTROL SET UP DATE & TIME: ____________________________
MUST BE OUT OF THE ROAD BY DATE & TIME: ____________________________

### MERGING TAPER LENGTHS FOR CONE PATTERN (All minimums)

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

**LANE WIDTH**

**NUMBER OF CHANNELIZATION DEVICES (CONES)**

Offset cones 1 foot maximum.

**NOTE 1:** Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc., as per "Manual on Uniform Traffic Control Devices" at all times. Streets and walkways shall be kept clear of debris dropped or tracked by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.

**NOTE 2:** No work shall be scheduled on streets or walkways within the city of urban business districts from Thanksgiving Day through New Year's Day.

**NOTE 3:** Sign spacing: urban low speed 25-30 MPH signs must be placed 150' apart. Urban high speed 35-40 MPH signs must be placed 350' apart.
RIGHT LANE CLOSURE

☐ APPROVED BY:
☐ APPROVED WITH CONDITIONS BY: ___________________________ DATE: ___________________________

START TRAFFIC CONTROL SET UP DATE: ___________ OFF PEAK 9:00 AM WEEKDAYS
MUST BE OUT OF THE ROAD BY DATE: ___________ OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY
START TRAFFIC CONTROL SET UP DATE & TIME: ___________________________
MUST BE OUT OF THE ROAD BY DATE & TIME: ___________________________

MERGING TAPER LENGTHS
FOR CONE PATTERN
(All minimums)

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

OFFSET CONES 1 FOOT MAXIMUM

NUMBER OF CHANNELIZATION DEVICES (CONES)

NOTE 1: MAINTAIN LOCAL ACCESS AND PROTECTED WALKWAYS AT ALL TIMES. PROVIDE AND MAINTAIN BARRIERS, SIGNS, LIGHTS, ETC. AS PER "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AT ALL TIMES. STREETS AND WALKWAYS SHALL BE KEPT CLEAR OF DEBRIS DROPPED OR TRAPPED BY VEHICLES ENTERING OR EXITING THE WORK SITE. FAILURE TO COMPLY WILL RESULT IN A STOP WORK ORDER AND/OR CITATION.

NOTE 2: NO WORK SHALL BE SCHEDULED ON STREETS OR WALKWAYS WITHIN THE CITY OF INDIAN BUSINESS DISTRICTS FROM THANKSGIVING DAY THROUGH NEW YEAR'S DAY.

NOTE 3: SIGN SPACING. URBAN LOW SPEED 25-30 MPH SIGNS MUST BE PLACED 100' APART. URBAN HIGH SPEED 35-40 MPH SIGNS MUST BE PLACED 150' APART.
### Traffic Control

**Rolling Closure**

- **Approved By:**
- **Approved With Conditions By:** __________________________ Date: __________________

**Start Traffic Control Set Up Date:** ___ Off Peak 9:00 AM Weekdays

**Must Be Out Of The Road By Date:** ___ Off Peak 3:30 PM Weekdays

**Evening And Weekends Only**

**Start Traffic Control Set Up Date & Time:** __________________________

**Must Be Out Of The Road By Date & Time:** __________________________

### Merging Taper Lengths

**For Cone Pattern**

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>26</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>56</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

**Number of Channelization Devices (Cones):**

- Offset cones 1 foot maximum

---

**Note 1:** Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc. as per Manual on Uniform Traffic Control Devices at all times. Streets and walkways shall be kept clear of debris. Obstructions or trapped by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.

**Note 2:** No work shall be scheduled on streets or walkways within the City of Iowa Business Districts from Thanksgiving Day through New Year’s Day.

**Note 3:** Sign Spacing: Urban Low Speed 25-30 MPH signs must be placed 100’ apart. Urban High Speed 35-40 MPH signs must be placed 300’ apart.
RESIDENTIAL STREETS ONLY
(not appropriate for alleys)

- Post NO PARKING signs at least 24 hrs in advance if needed.
- Keep sidewalk open
- Provide spotter for peds
- No more than 5 days

FOR SHOULDER WORK OR PARKING AREA ONLY.
IF NOT APPLICABLE, SUBMIT A TCP FOR REVIEW.

☐ APPROVED WITH CONDITIONS BY:______________________ DATE:____________________

START TRAFFIC CONTROL SET UP DATE:________OFF PEAK 9:00 AM WEEKDAYS
MUST BE OUT OF THE ROAD BY DATE:____________OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY
START TRAFFIC CONTROL SET UP DATE & TIME:
MUST BE OUT OF THE ROAD BY DATE & TIME:

<table>
<thead>
<tr>
<th>MERGING TAPER LENGTHS FOR CONE PATTERN (All minimums)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPH</td>
</tr>
<tr>
<td>-----</td>
</tr>
<tr>
<td>8'</td>
</tr>
<tr>
<td>10'</td>
</tr>
<tr>
<td>12'</td>
</tr>
<tr>
<td>14'</td>
</tr>
<tr>
<td>16'</td>
</tr>
</tbody>
</table>

NUMBER OF CHANNELIZATION DEVICES (Cones):

Offset cones 1 foot maximum.

NOTE 1: Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc. as per "Manual of Uniform Traffic Control Devices" at all times. Streets and walkways shall be kept clear of debris dropped or tracked by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.

NOTE 2: No work shall be scheduled on streets or walkways within the City of Island Business District from Thanksgiving Day through New Year's Day.

NOTE 3: Sign spacing: Urban low speed 25-30 MPH signs must be placed 100' apart. Urban high speed 35-40 MPH signs must be placed 150' apart.
SAMPLE SETUP

**SIWALK CLOSURE**

- **Approved By:**
- **Approved With Conditions By:**
- **Date:**

**Start Traffic Control Set Up Date:**
- **Off Peak 9:00 AM Weekdays**

**Must Be Out Of The Road By Date:**
- **Off Peak 3:30 PM Weekdays**

**Evening And Weekends Only**

**Start Traffic Control Set Up Date & Time:**

**Must Be Out Of The Road By Date & Time:**

**Merging Taper Lengths**

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

**Number of Channelization Devices (Cones):**

- **Offset cones 1 foot maximum.**

**Notes:**
1. Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc. as per "Manual on Uniform Traffic Control Devices" at all times. Streets and walkways shall be kept clear of debris dropped or tracked by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.
2. No work shall be scheduled on streets or walkways within the city of Tacoma business districts from Thanksgiving Day through New Year's Day.
Note: At night, signage and barricades must be Type C steady burn lights. A contractor may close a nonarterial street to through traffic, provided that local access is maintained at all times with a minimum of a 20' wide access lane. Road Work Ahead signs may be eliminated on non-arterial streets.

NON-ARTERIAL ROAD CLOSURES

☐ APPROVED BY:
☐ APPROVED WITH CONDITIONS BY:_________________________ DATE:_________________________

START TRAFFIC CONTROL SET UP DATE: OFF PEAK 9:00 AM WEEKDAYS
MUST BE OUT OF THE ROAD BY DATE: OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY
START TRAFFIC CONTROL SET UP DATE & TIME:_________________________
MUST BE OUT OF THE ROAD BY DATE & TIME:_________________________

MERGING TAPER LENGTHS FOR CONE PATTERN
(All minimums)

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

NUMBER OF CHANNELIZATION DEVICES <(CONES)>
Offset cones 1 foot maximum.

NOTE 1: MAINTAIN LOCAL ACCESS AND PROTECTED WALKWAYS AT ALL TIMES. PROVIDE AND MAINTAIN BARRIERS, SIGNS, LIGHTS, ETC., AS PER "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AT ALL TIMES. STREETS AND WALKWAYS SHALL BE KEPT CLEAR OF DEBRIS DROPPED OR TRACKED BY VEHICLES ENTERING OR EXITING THE WORK SITE. FAILURE TO COMPLY WILL RESULT IN A STOP WORK ORDER AND/OR CITATION.

NOTE 2: NO WORK SHALL BE SCHEDULED ON STREETS OR WALKWAYS WITHIN THE CITY OF TACOMA BUSINESS DISTRICTS FROM THANKSGIVING DAY THROUGH NEW YEAR'S DAY.

NOTE 3: SIGN SPACING: URBAN LOW SPEED 25-30 MPH SIGNS MUST BE PLACED 100' APART. URBAN HIGH SPEED 35-40 MPH SIGNS MUST BE PLACED 350' APART.
ALLEYS ONLY
(not approved for arterial or residential streets)
- Applicant MUST print and add streetnames to the plan specific to the site
- Post NO PARKING signs at, least 24 hrs in advance if needed.
- Keep open at night and when not in construction (plate/fill/etc)
- Must notify adjacent property owners and provide access.
- Must contact Refuse and coordinate access or gather all containers and locate where appropriate for pick-up.
- Keep open at night and when not in construction

ALLEY CLOSURE ONLY.
IF NOT APPLICABLE, SUBMIT A TCP FOR REVIEW.

☐ APPROVED WITH CONDITIONS BY: ________________________ DATE: ________________

START TRAFFIC CONTROL SET UP DATE: TBD OFF PEAK 9:00 AM WEEKDAYS
MUST BE OUT OF THE ROAD BY DATE: OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY
START TRAFFIC CONTROL SET UP DATE & TIME: ____________________________
MUST BE OUT OF THE ROAD BY DATE & TIME: ____________________________

MERGING TAPER LENGTHS FOR CONE PATTERN
(All minimums)

<table>
<thead>
<tr>
<th>LANE WIDTH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8’</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10’</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12’</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14’</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16’</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

NUMBER OF CHANNELIZATION DEVICES (CONES)
Offset cones 1 foot maximum.

NOTE 1: Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc., as per "Manual on Uniform Traffic Control Devices" at all times. Streets and walkways shall be kept clear of debris dropped or tracked by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.

NOTE 2: No work shall be scheduled on streets or walkways within the City of Tacoma business districts from Thanksgiving Day through New Year's Day.

NOTE 3: Sign spacing: Urban low speed 25-30 MPH signs must be placed 100' apart. Urban high speed 35-40 MPH signs must be placed 350' apart.
**Sidewalk Closure**

- **Type 2 Barricades** shall be placed across the full width of the closed sidewalk.
- **Sidewalk Closed**
- **1x6 in. High Board** attached to barricade. See Std. Plan for details.
- **Sidewalk Surface**

#### Merging Taper Lengths for Cone Pattern

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8’</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10’</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12’</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14’</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16’</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

**Number of Channelization Devices (Cones)**

<table>
<thead>
<tr>
<th>LANE WIDTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFFSET CONES 1 foot maximum</td>
</tr>
</tbody>
</table>

**Note 1:** Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc., as per "Traffic Control Devices" at all times. Streets and walkways shall be kept clear of debris dropped or tracked by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.

**Note 2:** No work shall be scheduled on streets or walkways within the city of Tacoma Business District from Thanksgiving Day through New Year's Day.

**Note 3:** Sign spacing. Urban low speed 25-30 MPH signs must be placed 100’ apart. Urban high speed 35-40 MPH signs must be placed 150’ apart.
**SIDEWALK/PARKING CLOSURE**

- Approved by: ____________________ Date: ____________

Start traffic control set up date: ________ Off Peak 9:00 AM Weekdays

Must be out of the road by date: ________ Off Peak 3:30 PM Weekdays

**EVENING AND WEEKENDS ONLY**

Start traffic control set up date & time: ____________________

Must be out of the road by date & time: ____________________

---

**MERGING TAPER LENGTHS FOR CONE PATTERN**

(All minimums)

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

Number of channelization devices (cones): Offset cones 1 foot maximum.

---

**NOTE 1:** Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc. as per "Manual on Uniform Traffic Control Devices" at all times. Streets and walkways shall be kept clear of debris dropped or trashed by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.

**NOTE 2:** No work shall be scheduled on streets or walkways within the City of Tacoma business districts from Thanksgiving Day through New Year's Day.

**NOTE 3:** Sign spacing: urban low speed 25-30 MPH signs must be placed 100' apart. Urban high speed 35-40 MPH signs must be placed 350' apart.
A LIGHTED BARRICADE OR REFLECTIVE TAPE SHALL BE INSTALLED ON THE LEADING EDGE OF THE DUMPSTER.

TRAFFIC CONTROL FOR A PORTABLE DUMPSTER

☐ APPROVED BY:
☐ APPROVED WITH CONDITIONS BY: ___________________________ DATE: ___________________________

START TRAFFIC CONTROL SET UP DATE: ___________ OFF PEAK 9:00 AM WEEKDAYS
MUST BE OUT OF THE ROAD BY DATE: ___________ OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY
START TRAFFIC CONTROL SET UP DATE & TIME: ___________________________
MUST BE OUT OF THE ROAD BY DATE & TIME: ___________________________

MERGING TAPER LENGTHS FOR CONE PATTERN
(All minimums)

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

NUMBER OF CHANNELIZATION DEVICES (CONES)

Offset cones 1 foot maximum.

NOTE 1: Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc. as per Manual on Uniform Traffic Control Devices at all times. Streets and walkways shall be kept clear of debris dropped or tracked by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.

NOTE 2: No work shall be scheduled on streets or walkways within the city of Tacoma business districts from Thanksgiving Day through New Year's Day.

NOTE 3: Sign Spacing: Urban low speed 25-30 MPH signs must be placed 100' apart. Urban high speed 35-40 MPH signs must be placed 300' apart.
TRAFFIC CONTROL RECOMMENDATIONS FOR TRUCK CROSSING

☑ APPROVED BY: ___________________________ DATE: __________
☑ APPROVED WITH CONDITIONS BY: ___________________________ DATE: __________

START TRAFFIC CONTROL SET UP DATE: __________ OFF PEAK 9:00 AM WEEKDAYS
MUST BE OUT OF THE ROAD BY DATE: __________ OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY
START TRAFFIC CONTROL SET UP DATE & TIME: ___________________________ DATE: __________
MUST BE OUT OF THE ROAD BY DATE & TIME: ___________________________ DATE: __________

Note 1: Maintain legal access and protected walkways at all times. Provide and maintain barriers, signs, lights, etc., as per "Manual on Uniform Traffic Control Devices" at all times. Streets and walkways shall be kept clear of debris dropped or tracked by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.

Note 2: No work shall be scheduled on streets or walkways within the city of Tacoma business districts from Thanksgiving Day through New Year's Day.

Note 3: Sign spacing: Urban low speed 25-30 MPH signs must be placed 100' apart. Urban high speed 35-40 MPH signs must be placed 300' apart.

MERGING TAPER LENGTHS FOR CONE PATTERN
(All minimums)

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

Number of channelization devices (cones): __________

Offset cones 1 foot maximum.
NOTE:
PEDESTRIAN WALKWAYS SHALL BE A MINIMUM OF 5 FEET WIDE.

TOE RAIL ON RAMP ENTRANCE AND BARRICADE TOE RAIL SHALL HAVE NO GAPS AND BE PARALLEL.

SEE BYPASS RAMP DETAIL FOR PROPER CONSTRUCTION OF RAMP TO ALLOW FOR PEDESTRIAN AND DISABILITY ACCESS.

BYPASS WALKWAY FOR PEDESTRIANS

☐ APPROVED BY: ____________________________ DATE: ____________________________

☐ APPROVED WITH CONDITIONS BY: ____________________________ DATE: ____________________________

START TRAFFIC CONTROL SET UP DATE: ___________ OFF PEAK 9:00 AM WEEKDAYS

MUST BE OUT OF THE ROAD BY DATE: ___________ OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY

START TRAFFIC CONTROL SET UP DATE & TIME: ____________________________

MUST BE OUT OF THE ROAD BY DATE & TIME: ____________________________

MERGING TAPER LENGTHS FOR CONE PATTERN
(All Minimums)

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>12'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>14'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>16'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
</tbody>
</table>

Number of Channelization Devices (Cones)

Offset cones 1 foot maximum.

Note 1: Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc. as per "Manual on Uniform Traffic Control Devices" at all times. Streets and walkways shall be kept clear of debris dropped or tracked by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.

Note 2: No work shall be scheduled on streets or walkways within the City of Indiana business districts from Thanksgiving Day through New Year’s Day.

Note 3: Sign spacings: Urban low speed 25-30 MPH signs must be placed 100' apart. Urban high speed 35-40 MPH signs must be placed 300' apart.
NOTES:
1. CONTROLS SHOWN ARE FOR PEDESTRIAN TRAFFIC ONLY.
2. MAINTAIN A MINIMUM OF 48" FOR A PEDESTRIAN PATH.
3. CONTACT AND COORDINATE IMPACTED TRANSIT AGENCIES PRIOR TO IMPLEMENTING ANY CLOSURES.
4. SEE SHEET TC-52 FOR TEMPORARY PEDESTRIAN RAMP DETAILS.
5. ADA PEDESTRIAN FACILITIES MUST BE MAINTAINED.
RAMP LANDING SHALL BE 1" X 5' X 5' (MIN) AND FLUSH WITH THE TOP OF THE CURB

RAMP SHALL BE 1" X 5' X 6' (MIN) AND HAVE A 600 POUND LOAD CAPACITY MIN.

NOTES:
1. CONTACT AND COORDINATE IMPACTED TRANSIT AGENCIES PRIOR TO IMPLEMENTING ANY CLOSURES.
2. ADA ACCOMMODATIONS MUST BE ADDRESSED AND CONSIDERED FOR ALL WORK OPERATIONS. EXISTING ADA FACILITIES MUST BE MAINTAINED.

ALLOW FOR STORM DRAINAGE IN GUTTER LINE

PEDESTRIAN BYPASS RAMPS
FOR TEMPORARY TRAFFIC CONTROL
MINIMUM STANDARDS

APPROVED BY: ___________________________ DATE: __________
APPROVED WITH CONDITIONS BY: ___________________________ DATE: __________

START TRAFFIC CONTROL SET UP DATE: _______ OFF PEAK 9:00 AM WEEKDAYS
MUST BE OUT OF THE ROAD BY DATE: _______ OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY
START TRAFFIC CONTROL SET UP DATE & TIME: ___________________________
MUST BE OUT OF THE ROAD BY DATE & TIME: ___________________________

MERGING TAPER LENGTHS
FOR CONE PATTERN
(All minimums)

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

NUMBER OF CHANNELIZATION DEVICES (CONES)
Offset cones 1 foot maximum.

NOTE 1: MAINTAIN LOCAL ACCESS AND PROTECTED WALKWAYS AT ALL TIMES. PROVIDE AND MAINTAIN BARRIERS, SIGNS, LIGHTS, ETC. AS PER "MANUAL ON TEMPORARY TRAFFIC CONTROL DEVICES" AT ALL TIMES. STREETS AND WALKWAYS SHALL BE KEPT CLEAR OF DEBRIS DROPPED OR TRASHED BY VEHICLES ENTERING OR EXITING THE WORK SITE. FAILURE TO COMPLY WILL RESULT IN A STOP WORK ORDER AND/OR CITATION.

NOTE 2: NO WORK SHALL BE SCHEDULED ON STREETS OR WALKWAYS WITHIN THE CITY OF INDIAN BUSINESS DISTRICTS FROM THANKSGIVING DAY THROUGH NEW YEAR'S DAY.

NOTE 3: SIGN SPACING: URBAN LOW SPEED 25-30 MPH SIGNS MUST BE PLACED 120' APART. URBAN HIGH SPEED 35-40 MPH SIGNS MUST BE PLACED 350' APART.
LEGEND
1. Night work requires additional roadway lighting at flagging stations. Refer to WSDOT Standard Specifications for additional details.
2. Protective vehicle recommended — may be a work vehicle.
3. Each roundabout location is unique and the traffic control must be developed to meet the specific conditions of the location and the work operation.
4. If the work and all work vehicles are off of the travel lanes and island apron, a single Road Work Ahead sign per approach is all that is required. Refer to additional guidance in the MUTCD manual for further information.
5. Consider an additional flagger in center island to assist traffic movement through roundabout or additional signing as appropriate.

TYPICAL ROUNDBOUT
TRAFFIC CONTROL
WITH FLAGGERS

☐ APPROVED BY:
☐ APPROVED WITH CONDITIONS BY: ________________________ DATE: ______________

START TRAFFIC CONTROL SET UP DATE: __________ OFF PEAK 9:00 AM WEEKDAYS
MUST BE OUT OF THE ROAD BY DATE: __________ OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY
START TRAFFIC CONTROL SET UP DATE & TIME:
MUST BE OUT OF THE ROAD BY DATE & TIME:

MERGING TAPER LENGTHS
FOR CONE PATTERN
(All minimums)

<table>
<thead>
<tr>
<th>MPH</th>
<th>8'</th>
<th>10'</th>
<th>12'</th>
<th>14'</th>
<th>16'</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>14</td>
<td>38</td>
<td>45</td>
<td>53</td>
<td>60</td>
</tr>
<tr>
<td>15</td>
<td>30</td>
<td>67</td>
<td>80</td>
<td>94</td>
<td>107</td>
</tr>
<tr>
<td>20</td>
<td>54</td>
<td>105</td>
<td>125</td>
<td>146</td>
<td>167</td>
</tr>
<tr>
<td>25</td>
<td>84</td>
<td>150</td>
<td>180</td>
<td>210</td>
<td>240</td>
</tr>
<tr>
<td>30</td>
<td>120</td>
<td>204</td>
<td>245</td>
<td>286</td>
<td>327</td>
</tr>
<tr>
<td>35</td>
<td>164</td>
<td>204</td>
<td>245</td>
<td>286</td>
<td>327</td>
</tr>
<tr>
<td>40</td>
<td>214</td>
<td>267</td>
<td>320</td>
<td>374</td>
<td>427</td>
</tr>
</tbody>
</table>

NOTE 1: Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc., as per "Manual on Uniform Traffic Control Devices" at all times. Streets and walkways shall be kept clear of debris dropped or tracked by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.

NOTE 2: No work shall be scheduled on streets or walkways within the city of Tacoma business districts from Thanksgiving Day through New Year's Day.

NOTE 3: Sign spacing. Urban low speed 25-30 mph signs must be placed '100' apart. Urban high speed 35-40 mph signs must be placed '350' apart.
A flagger must be with the surveyor to direct turning traffic with the signal indications.

SURVEY
TWO LANE ARTERIAL INTERSECTION

☐ APPROVED BY: ___________________________ DATE: ___________________________

☐ APPROVED WITH CONDITIONS BY: ___________________________ DATE: ___________________________

START TRAFFIC CONTROL SET UP DATE: ____________ OFF PEAK 9:00 AM WEEKDAYS

MUST BE OUT OF THE ROAD BY DATE: ____________ OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY

START TRAFFIC CONTROL SET UP DATE & TIME:

MUST BE OUT OF THE ROAD BY DATE & TIME:

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

NUMBER OF CHANNELIZATION DEVICES (CONES)

Offset cones 1 foot maximum.

Note 1: Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc. as per "Manual on Uniform Traffic Control Devices" at all times. Streets and walkways shall be kept clear of debris dropped or tracked by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.

Note 2: No work shall be scheduled on streets or walkways within the City of Iowa Business Districts from Thanksgiving Day through New Year's Day.

Note 3: Sign Spacing: Urban Low Speed 25-30 MPH signs must be placed 100' apart. Urban High Speed 35-40 MPH signs must be placed 350' apart.
Flagger or vehicle with arrow board to protect survey equipment operator in nonpeak traffic.

Survey multi-lane arterial

Start traffic control set up date: ________ off peak 9:00 AM weekdays
Must be out of the road by date: ________ off peak 3:30 PM weekdays

Evening and weekends only
Start traffic control set up date & time: _____________________________
Must be out of the road by date & time: _____________________________

Merging taper lengths for cone pattern (all minimums)

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

Number of channelization devices (cones)

Offset cones 1 foot maximum.

Note 1: Maintain legal access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc., as per "Manual on Uniform Traffic Control Devices" at all times. Streets and walkways shall be kept clear of debris dropped or tracked by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.

Note 2: No work shall be scheduled on streets or walkways within the city of Tacoma business districts from Thanksgiving Day through New Year's Day.

Note 3: Sign spacing: Urban low speed 25-30 MPH signs must be placed 100' apart. Urban high speed 30-40 MPH signs must be placed 300' apart.
Workers must be protected by vehicle equipped with auxiliary beacons/strobes and a high visibility illuminated arrow device.

CENTER LANE CLOSURE AT INTERSECTION UNDER 60 MINUTES

☐ APPROVED BY:
☐ APPROVED WITH CONDITIONS BY: __________________________ DATE: __________________

START TRAFFIC CONTROL SET UP DATE: ________ Off Peak 9:00 AM Weekdays
MUST BE OUT OF THE ROAD BY DATE: ________ Off Peak 3:30 PM Weekdays

EVENING AND WEEKENDS ONLY
START TRAFFIC CONTROL SET UP DATE & TIME: __________________________
MUST BE OUT OF THE ROAD BY DATE & TIME: __________________________

MERGING TAPER LENGTHS FOR CONE PATTERN
(All minimums)

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>160</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

OFFSET CONES 1 foot maximum.

NOTE 1: Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc. as per "Manual on Uniform Traffic Control Devices" at all times. Streets and walkways shall be kept clear of debris, dropped or tracked by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.

NOTE 2: No work shall be scheduled on streets or walkways within the city of Indiana business districts from Thanksgiving Day through New Year's Day.

NOTE 3: Sign spacing: Urban low speed 25-30 MPH signs must be placed 100' apart. Urban high speed 35-40 MPH signs must be placed 150' apart.
Nose cones for truck optional.

Workers must be protected by vehicle equipped with auxiliary beacons/strobes and a high visibility illuminated arrow device.

INSIDE LANE CLOSURE AT INTERSECTION UNDER 60 MINUTES

☐ APPROVED BY:
☐ APPROVED WITH CONDITIONS BY: ___________________________ DATE: ______________

START TRAFFIC CONTROL SET UP DATE: _______ OFF PEAK 9:00 AM WEEKDAYS

MUST BE OUT OF THE ROAD BY DATE: _______ OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY

START TRAFFIC CONTROL SET UP DATE & TIME: ___________________________

MUST BE OUT OF THE ROAD BY DATE & TIME: ___________________________

MERGING TAPER LENGTHS FOR CONE PATTERN

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

LANE WIDTH

NUMBER OF CHANNELIZATION DEVICES (CONES)

OFFSET CONES 1 FOOT MAXIMUM

Note 1: Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc., as per “Manual on Uniform Traffic Control Devices” at all times. Streets and walkways shall be kept clear of debris dropped or tracked by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.

Note 2: All work shall be scheduled on streets or walkways within the city of Tacoma business districts from Thanksgiving Day through New Year’s Day.

Note 3: Sign Spacing: Urban low speed 25–30 MPH signs must be placed 100’ apart. Urban high speed 35–40 MPH signs must be placed 350’ apart.
LANE CLOSURE AT INTERSECTION UNDER 60 MINUTES

☐ APPROVED BY: ________________________________
☐ APPROVED WITH CONDITIONS BY: ________________________________ DATE: ________________________________

START TRAFFIC CONTROL SET UP DATE: ___________ OFF PEAK 9:00 AM WEEKDAYS
MUST BE OUT OF THE ROAD BY DATE: ___________ OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY
START TRAFFIC CONTROL SET UP DATE & TIME: ________________________________
MUST BE OUT OF THE ROAD BY DATE & TIME: ________________________________

MERGING TAPER LENGTHS FOR CONE PATTERN
(All minimums)

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

NUMBER OF CHANNELIZATION DEVICES (CONES)

Offset cones 1 foot maximum

NOTE 1: Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc. as per Manual on Uniform Traffic Control Devices at all times. Streets and walkways shall be kept clear of debris dropped or tracked by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.

NOTE 2: No work shall be scheduled on streets or walkways within the city of Indiana business districts from Thanksgiving Day through New Year's Day.

NOTE 3: Sign spacing. Urban low speed 25-30 mph signs must be placed 150' apart. Urban high speed 35-40 mph signs must be placed 350' apart.

Workers must be protected by vehicle equipped with auxiliary beacons/strobes and a high visibility illuminated arrow device.
Workers must be protected by vehicle equipped with auxiliary beacons/strobes and a high visibility illuminated arrow device.

**MID-BLOCK LANE CLOSURE UNDER 60 MINUTES**

☐ APPROVED BY:  
☐ APPROVED WITH CONDITIONS BY: ___________________________ DATE: ___________________________

START TRAFFIC CONTROL SET UP DATE:_______ OFF PEAK 9:00 AM WEEKDAYS

MUST BE OUT OF THE ROAD BY DATE:_________ OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY

START TRAFFIC CONTROL SET UP DATE & TIME:

MUST BE OUT OF THE ROAD BY DATE & TIME:

<table>
<thead>
<tr>
<th>LANE WIDTH</th>
<th>8'</th>
<th>10'</th>
<th>12'</th>
<th>14'</th>
<th>16'</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPH</td>
<td>14</td>
<td>17</td>
<td>20</td>
<td>24</td>
<td>27</td>
</tr>
<tr>
<td>15</td>
<td>30</td>
<td>38</td>
<td>45</td>
<td>53</td>
<td>60</td>
</tr>
<tr>
<td>20</td>
<td>54</td>
<td>67</td>
<td>80</td>
<td>94</td>
<td>107</td>
</tr>
<tr>
<td>25</td>
<td>84</td>
<td>105</td>
<td>125</td>
<td>146</td>
<td>167</td>
</tr>
<tr>
<td>30</td>
<td>120</td>
<td>150</td>
<td>180</td>
<td>210</td>
<td>240</td>
</tr>
<tr>
<td>35</td>
<td>164</td>
<td>204</td>
<td>245</td>
<td>286</td>
<td>327</td>
</tr>
<tr>
<td>40</td>
<td>214</td>
<td>267</td>
<td>320</td>
<td>374</td>
<td>427</td>
</tr>
</tbody>
</table>

MERGING TAPER LENGTHS FOR CONE PATTERN  
(All minimums)

OFFSET CONES 1 FOOT MAXIMUM

**NOTE 1:** Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc. as per "Manual on Uniform Traffic Control Devices" at all times. Streets and walkways shall be kept clear of debris dropped or tracked by vehicles entering or exiting the work site. Failure to comply will result in A stop work order and/or citation.

**NOTE 2:** No work shall be scheduled on streets or walkways within the City of Indiana business districts from Thanksgiving Day through New Year’s Day.

**NOTE 3:** Sign spacing: Urban low speed 25-30 MPH signs must be placed 100’ apart. Urban high speed 35-40 MPH signs must be placed 150’ apart.
Traffic Control Recommendations

☑ Approved by:
☑ Approved with Conditions by: ____________________________ Date: ____________

Start Traffic Control Set Up Date: ____________ Off Peak 9:00 AM Weekdays

Must be Out of the Road by Date: ____________ Off Peak 3:30 PM Weekdays

Evening and Weekends Only
Start Traffic Control Set Up Date & Time: ____________________________

Must be Out of the Road by Date & Time: ____________________________

Merging Taper Lengths
For Cone Pattern
(All minimums)

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

Offset cones 1 foot maximum.

Note 1: Maintain local access and protected walkways at all times. Provide and maintain barriers, signs, lights, etc. as per "Manual on Uniform Traffic Control Devices" at all times. Streets and walkways shall be kept clear of debris dropped or tracked by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.

Note 2: No work shall be scheduled on streets or walkways within the city of Indiana business districts from Thanksgiving Day through New Year's Day.

Note 3: Sign Spacing. Urban low speed 25-30 MPH signs must be placed 100' apart. Urban high speed 35-40 MPH signs must be placed 300' apart.
<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

**Traffic Control Recommendations**

- **Approved By:**
- **Approved With Conditions By:**
- **Date:**

**Start Traffic Control Set Up Date:**
- **Off Peak 9:00 AM Weekdays:**
- **Must Be Out Of The Road By Date:**
- **Off Peak 3:30 PM Weekdays:**

**Evening And Weekends Only**
- **Start Traffic Control Set Up Date & Time:**
- **Must Be Out Of The Road By Date & Time:**

---

**Merging Taper Lengths For Cone Pattern**

<table>
<thead>
<tr>
<th>Lane Width</th>
<th>Offset Cones 1 foot maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note 1:** Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc., as per the Manual on Uniform Traffic Control Devices at all times. Streets and walkways shall be kept clear of debris dropped or tracked by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.

**Note 2:** No work shall be scheduled on streets or walkways within the City of Indiana business districts from Thanksgiving Day through New Year's Day.

**Note 3:** Sign Spacing: Urban low speed 25-30 MPH signs must be placed 100' apart. Urban high speed 35-40 MPH signs must be placed 300' apart.
SAMPLE SETUP

TRAFFIC CONTROL
RECOMMENDATIONS

☐ APPROVED BY: ___________________________ DATE: __________

☐ APPROVED WITH CONDITIONS BY: ___________________________ DATE: __________

START TRAFFIC CONTROL SETUP DATE: __________ OFF PEAK 9:00 AM WEEKDAYS

MUST BE OUT OF THE ROAD BY DATE: __________ OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY

START TRAFFIC CONTROL SETUP DATE & TIME: __________

MUST BE OUT OF THE ROAD BY DATE & TIME: __________

MERGING TAPER LENGTHS
FOR CONE PATTERN

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

NUMBER OF CHANNELIZATION DEVICES (CONES)

Offset cones 1 foot maximum.

NOTE 1: Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc. as per "Manual of Uniform Traffic Control Devices" at all times. Streets and walkways shall be kept clean of debris dropped or tracked by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.

NOTE 2: No work shall be scheduled on streets or walkways within the city of Tucumcari business districts from Thanksgiving Day through New Year's Day.

TRAFFIC CONTROL RECOMMENDATIONS

☐ APPROVED BY:
☐ APPROVED WITH CONDITIONS BY: __________________________ DATE: __________________________

START TRAFFIC CONTROL SET UP DATE: ___________ OFF PEAK 9:00 AM WEEKDAYS

MUST BE OUT OF THE ROAD BY DATE: ___________ OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY

START TRAFFIC CONTROL SET UP DATE & TIME: __________________________

MUST BE OUT OF THE ROAD BY DATE & TIME: __________________________

NOTE 1: MAINTAIN LOCAL ACCESS AND PROTECTED WALKWAYS AT ALL TIMES. PROVIDE AND MAINTAIN BARRIERS, SIGNS, LIGHTS, ETC. AS PER "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AT ALL TIMES. STREETS AND WALKWAYS SHALL BE KEPT CLEAR OF DEBRIS DROPPED OR TRACKED BY VEHICLES ENTERING OR EXITING THE WORK SITE. FAILURE TO COMPLY WILL RESULT IN A STOP WORK ORDER AND/OR CITATION.

NOTE 2: NO WORK SHALL BE SCHEDULED ON STREETS OR WALKWAYS WITHIN THE CITY OF OCEANA BUSINESS DISTRICTS FROM THANKSGIVING DAY THROUGH NEW YEAR'S DAY.

NOTE 3: SIGN SPACING. URBAN LOW SPEED 25-30 MPH SIGNS MUST BE PLACED 100' APART. URBAN HIGH SPEED 35-40 MPH SIGNS MUST BE PLACED 300' APART.
SAMPLE SETUP

PARKING LANE

TRAFFIC CONTROL RECOMMENDATIONS

☐ APPROVED BY:
☐ APPROVED WITH CONDITIONS BY: ___________________ DATE: ___________

START TRAFFIC CONTROL SET UP DATE: ___________ OFF PEAK 9:00 AM WEEKDAYS

MUST BE OUT OF THE ROAD BY DATE: ___________ OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY

START TRAFFIC CONTROL SET UP DATE & TIME:

MUST BE OUT OF THE ROAD BY DATE & TIME:

MERGING TAPER LENGTHS FOR CONE PATTERN
(All minimums)

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

NUMBER OF CHANNELIZATION DEVICES (CONES)

Offset cones 1 foot maximum.

NOTE 1: Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc. as per "Manual on Uniform Traffic Control Devices" at all times. Streets and walkways shall be kept clear of debris dropped or tracked by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.

NOTE 2: No work shall be scheduled on streets or walkways within the city of Madison business districts from Thanksgiving Day through New Year’s Day.

Traffic Control Recommendations

☐ Approved by:
☐ Approved with conditions by: __________________________ DATE: ________________

Start Traffic Control Set up Date: ______ Off Peak 9:00 AM Weekdays

Must Be Out of the Road by Date: ______ Off Peak 3:30 PM Weekdays

Evening and Weekends Only
Start Traffic Control Set up Date & Time: __________________________

Must Be Out of the Road by Date & Time: __________________________

Merging Taper Lengths for Cone Pattern
(All minimums)

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

Note 1: Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc. as per "Manual on Uniform Traffic Control Devices" at all times. Streets and walkways shall be kept clear of debris dropped or tracked by vehicles entering or leaving the work site. Failure to comply will result in a stop work order and/or citation.

Note 2: No work shall be scheduled on streets or walkways within the City of [City Name] business districts from Thanksgiving Day through New Year's Day.

Note 3: Sign spacing: Urban low speed 25-30 MPH signs must be placed 120' apart. Urban high speed 35-40 MPH signs must be placed 350' apart.
TRAFFIC CONTROL RECOMMENDATIONS

☐ APPROVED BY:
☐ APPROVED WITH CONDITIONS BY: __________________________ DATE:__________________________

START TRAFFIC CONTROL SET UP DATE: ____________ OFF PEAK 9:00 AM WEEKDAYS
MUST BE OUT OF THE ROAD BY DATE: ____________ OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY
START TRAFFIC CONTROL SET UP DATE & TIME:
MUST BE OUT OF THE ROAD BY DATE & TIME:

MERGING TAPER LENGTHS
FOR CONE PATTERN
(All minimums)

<table>
<thead>
<tr>
<th>MPH</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>8'</td>
<td>14</td>
<td>30</td>
<td>54</td>
<td>84</td>
<td>120</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>10'</td>
<td>17</td>
<td>38</td>
<td>67</td>
<td>105</td>
<td>150</td>
<td>204</td>
<td>267</td>
</tr>
<tr>
<td>12'</td>
<td>20</td>
<td>45</td>
<td>80</td>
<td>125</td>
<td>180</td>
<td>245</td>
<td>320</td>
</tr>
<tr>
<td>14'</td>
<td>24</td>
<td>53</td>
<td>94</td>
<td>146</td>
<td>210</td>
<td>286</td>
<td>374</td>
</tr>
<tr>
<td>16'</td>
<td>27</td>
<td>60</td>
<td>107</td>
<td>167</td>
<td>240</td>
<td>327</td>
<td>427</td>
</tr>
</tbody>
</table>

NUMBER OF CHANNELIZATION DEVICES (CONES)

Offset cones 1 foot maximum.

NOTE 1: Maintain local access and protected walkways at all times. Provide and maintain barricades, signs, lights, etc. as per Manual on Uniform Traffic Control Devices at all times. Streets and walkways shall be kept clear of debris dropped or tracked by vehicles entering or exiting the work site. Failure to comply will result in a stop work order and/or citation.

NOTE 2: No work shall be scheduled on streets or walkways within the city of Tacoma business districts from Thanksgiving Day through New Year’s Day.

PART XI

REFERENCE DOCUMENTS
**DETAILED**

**TYPICAL PILE CAP**

- **Plan View**:
  - Pile Cap with dimensions and details for a Typical Pile Cap.

- **Cut-Off Details**:
  - Pile Cut-Off at 90° to Grade.
  - Notes on reinforcement and detailing.

- **Build-Up Details**:
  - Pile Build-Up at 90° to Grade.

- **Lifting Detail**:
  - Lifting dimensions and details.

- **Section Details**:
  - Sections indicating reinforcement and detailing.

**NOTE**:
- All dimensions are in feet and inches.
- All reinforcement details are per the American Concrete Institute (ACI) and American Society of Civil Engineers (ASCE) guidelines.
- All materials are to be in accordance with the applicable codes and standards.

---

**DEPARTMENT OF PUBLIC WORKS**

**CENTRAL TREATMENT PLANT IMPROVEMENTS**

**COMMENCEMENT DAY ABOVE DETAIL**

---

**ENGINEER**

**ARCHITECT**

**CONSTRUCTION MANAGER**

**DESIGNER**

**CONTRACTOR**

---

**SCALE**

**SHEET**

**DATE**

**REVISION**
NOTES:

1. ALL WORK INVOLVED IN THE CONSTRUCTION OF THE THRUST BLOCK SHALL CONFORM TO THE PROJECT SPECIFICATIONS, EXCEPT WHERE NOTED.

2. BACKFILL MATERIAL SHALL BE AS SPECIFIED IN TECHNICAL SPECIAL PROVISION 6.05. FOUNDATION MATERIAL SHALL BE AS SPECIFIED IN TECHNICAL SPECIAL PROVISION 6.06. COMPACTION SHALL BE AS SPECIFIED IN TECHNICAL SPECIAL PROVISION 6.07.

3. PILING SHALL BE 70 TON, CAST-IN-PLACE PILES, CONFORMING TO THE WSDOT/APWA 1984 STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION AND TO THE PROJECT SPECIFICATIONS. THE CLOSED END STEEL PIPE USED FOR THE PILING SHALL BE DRIVEN TO 48 TONS WORKING CAPACITY AND A MINIMUM TIP ELEVATION OF -15.0 FEET, OR AS DIRECTED BY THE ENGINEER.

4. CONCRETE FOR THE SLAB SHALL BE CLASS 'C', AS DEFINED IN TECHNICAL SPECIAL PROVISION 4.15. CONCRETE FOR THE THRUST BLOCK AND THE ENCASEMENT OF THE 30" 0 PIPE SHALL BE CLASS 'D', EXCEPT THAT MAXIMUM SIZE OF COARSE AGGREGATE SHALL BE 1-1/2 INCHES. BOTH MIXES SHALL BE PROPORTIONED SUCH THAT THE CONCRETE WILL FLOW UNDER THE 30" 0 AND 60" 0 PIPES AND WILL COMPLETELY FILL ALL SPACES.
NEW SLUDGE PUMP (ST~)
PRIMARY SETTLING TANK UNIT II


TUNNEL
RAW SLUDGE PUMP
ST~ PRIMARY SETTLING TANK UNIT I

NOTE:
Cover All Exposed Steel With Cement Mortar Placed In Field. Min. Thickness 1 Inch.

OVERVIEW PLAN STA. 18'-0" TO 21'-0"

SCALE 1"=15'

1. All work shall conform to the Project Plans and Specifications except as shown in these details.
2. Pipe work shall be rigid metal, type 316 stainless steel, or equivalent.
3. Contractor shall furnish all fittings, valves, gaskets, and couplings, approved by the Engineer.
4. Contractor shall provide all necessary software for the new system.

Sample Line From Sample Tap
Core Wall - Provide Link Seal
New Sample Pump In Pump Sta. Lower Level
Boll To 2" Wide Concrete Ledge. Locate In Field.

SAMPLE PIPE SCHEMATIC FLOW DIAGRAM

SCALE 1"=15'

NOTE:
Cover All Exposed Steel With Cement Mortar Placed In Field. Min. Thickness 1 Inch.

OVERVIEW PLAN STA. 18'-0" TO 21'-0"

SCALE 1"=15'

NOTE:
Cover All Exposed Steel With Cement Mortar Placed In Field. Min. Thickness 1 Inch.

SAMPLE TAP CONNECTION DETAIL

N.T.S.
NOTES:

- A SETUP OF DRAWINGS IS TO ILLUSTRATE LOCATION OF DREDGED MATERIAL DISPOSAL SITE. DRAWS ON THE ATTACHED SHEET 1 & 2 PROVIDE MORE GENERAL INFORMATION. RESULTS OF BORING CORE TESTS ARE EXPECTED TO EASY FROM TIME BEFORE THE PLANT. SCALED BORING INTERLATER IN SUITABLE SKETCH IN CORE LOGS TO BE PROVIDED ON THE ATTACHED SHEET. THE SITE MAY OCCUR IN SUITABLE DEPT HEML ON THE SHEET.

- THE CONTRACTOR SHALL TAKE INTO CONSIDERATION THAT THE EXISTING SITE MAY BE DISCONTINUED AND A NEW DISPOSAL SITE ESTABLISHED APPROXIMATELY 3,000 TO 5,000 FEET NORTHWEST OF THE EXISTING SITE. THIS MOVE MAY OCCUR IN JULY 1987, AT WHICH TIME ALL OUTSIDE MINTS AVAIL THE NEW SITE.