City of Tacoma
Environmental Services Department

SPECIFICATION NO.
ES20-0305F

UPPER BUCKLEY WATER QUALITY PROJECT

Project Nos.
Surface Water – ENV-03031-19
Wastewater – ENV-04018-07
Public Works – PWK-00438-27
Water – WTR-00604-01-10

Funded in part by the Washington State Department of Ecology
No. WQC-2019-TacoES-00130
CITY OF TACOMA
ENVIRONMENTAL SERVICES DEPARTMENT

REQUEST FOR BIDS, SPECIAL PROVISIONS, BID PROPOSAL AND CONTRACT

FOR

SPECIFICATION NO.
ES20-0305F

UPPER BUCKLEY WATER QUALITY PROJECT

PROJECT NOs.
Surface Water – ENV-03031-19
Wastewater – ENV-04018-07
Public Works – PWK-00438-27
Water – WTR-00604-01-10

Mallory Wilde, P.E.
Parametrix
1019 39th Ave SE #100
Puyallup, WA 98374
REQUEST FOR BIDS, SPECIAL PROVISIONS, BID PROPOSAL AND CONTRACT FOR

UPPER BUCKLEY WATER QUALITY PROJECT

SPECIFICATION NO. ES20-0305F

CERTIFICATION

Prepared by Mallory Kristine Wilde, PE,
All sections except Section 6-02

Prepared by Daniel J. McIntier, PE
Section 6-02, Structural, only

Prepared by Andrew Williams Stevens, PE
Section 6-02, Hydraulics, only

Checked by John L. Wright III, PE
All sections except Section 6-02

Checked by Michael B. Pyszka, PE
Section 6-02, Structural only

Checked by Jennifer Elise Murphy, PE
Section 6-02, Hydraulics, only

Approved by Mallory Kristine Wilde, PE
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Submittal Deadline: 11:00 a.m., Pacific Time, Tuesday, November 9th, 2021

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, bids@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.

Submittal Delivery: Sealed submittals will be received as follows:

<table>
<thead>
<tr>
<th>By Email:</th>
<th><a href="mailto:bids@cityoftacoma.org">bids@cityoftacoma.org</a></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maximum file size: 35 MB. Multiple emails may be sent for each submittal</td>
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<tr>
<th>By Carrier:</th>
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<tbody>
<tr>
<td>If possible, please include a flash drive of your full submittal.</td>
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</table>

City of Tacoma Procurement & Payables Division
Tacoma Public Utilities
3628 S 35th Street
Tacoma, WA 98409

<table>
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<tr>
<th>In Person:</th>
</tr>
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<tbody>
<tr>
<td>If possible, please include a flash drive of your full submittal.</td>
</tr>
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</table>

City of Tacoma Procurement & Payables Division
Tacoma Public Utilities Administration Building North
Guard House (east side of main building
3628 S 35th Street
Tacoma, WA 98409

<table>
<thead>
<tr>
<th>By Mail:</th>
</tr>
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<tbody>
<tr>
<td>If possible, please include a flash drive of your full submittal.</td>
</tr>
</tbody>
</table>

City of Tacoma Procurement & Payables Division
Tacoma Public Utilities
PO Box 11007
Tacoma, WA 98411-0007

Bid Opening: Held virtually each Tuesday at 11AM. Attend via this link or call 1 (253) 215 8782. Submittals in response to a RFB will be recorded as received. As soon as possible 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-bid meeting will be held virtually from 11:00 am - 12:30 pm on November 1st, 2021 to answer questions regarding the project in general as well as the Equity in Contracting (EIC) and Local Employment and Apprenticeship Training Program (LEAP) requirements included in the Contract. Prospective bidders are strongly urged to attend this meeting. You can join the meeting by visiting https://zoom.us/join and entering: Meeting ID: 958 5753 5467 with Password: 236558.
**Project Scope:** This Contract shall generally consist of the improvement of N Junett Street between N 14th Street and N 16th Street and N 16th Street between Buckley Gulch and N Pine Street and includes, but is not limited to, demolition and reconstruction of the roadway with hot mix asphalt, cement concrete pavement, cement concrete curbs and gutters, cement concrete curb ramps, cement concrete driveways, catch basins, storm drainage manholes, stormwater bypass structure, stormwater pretreatment manhole, stormwater treatment facility, secant pile manhole, 750 linear feet of 48-inch storm sewer pipe, 60 linear feet of 8-inch sanitary sewer repair, and landscape restoration all in accordance with the Contract Plans, these Contract Provisions, and the Standard Specifications.

**Estimate:** $6,678,000

**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. For more information, visit our Minimum Employment Standards Paid Sick Leave webpage.

**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 Gail Himes at ghimes@cityoftacoma.org, or by calling her collect at 253-591-5785.

**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 Tina Eide, Senior Buyer by email to teide@cityoftacoma.org.

**Protest Policy:** City of Tacoma protest policy, located at 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.
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.

Bidders on City of Tacoma contracts are required to meet the stated EIC requirements. Bids will be evaluated on an individual basis to determine EIC compliance. A bidder 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 bidder or by identified subcontractors. All SBE goals may be met by using DBEs or SBEs from the OMWBE list. Contact the EIC Office at (253) 591-5075 if there are questions about this requirement.

It is the bidder's responsibility to ensure that their firm or identified subcontractors are certified by the State of Washington's Office of Minority and Women Business Enterprises 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 at 253-591-5075 between 8 AM and 4:30 PM, Monday through Friday.

A list of OMWBE certified firms for Pierce, King, Lewis, Mason and Grays Harbor counties, is available on the following web site address: www.omwbe.diversitycompliance.com.

The Equity in Contracting (EIC) forms included in these bid documents must be fully and accurately completed (including attachments) and included with bid submittals. Failure to include the required forms will result in the submittal being rejected as nonresponsive.
SPECIAL REMINDER TO ALL BIDDERS

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

1. This project has been deemed to be an essential project by the City of Tacoma and it is anticipated that the contract will be operational during the COVID-19 outbreak. Therefore, the contractor shall complete a health and safety plan describing how the contractor will complete the work while combating the COVID-19 spread (social distancing practices) and what Personal Protective Equipment (PPE) will be in place.

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 before the bid is submitted:

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**: The Bid Bond must be executed by the person legally authorized to sign the bid, and must be properly signed by the representatives of the surety company unless the bid is accompanied by a certified check. If Bid Bond is furnished, the form furnished by the City must be followed; no variations from the language thereof will be accepted. The amount of the Bid Bond must be not less than 5% of the total amount bid.

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

6. **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.

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

7. **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. The City of Tacoma shall solely determine if a Bidder meets the minimum experience requirements. This is a condition of award of the Contract.
8. **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.

Bidders shall meet the percent sub-contracting requirements listed on the EIC Requirement Form to be considered responsive. Bidders unable to meet the percent sub-contracting requirements shall submit an Application of Waiver of EIC Requirements, the Equity in Contracting Utilization Form, and any required attachments with the Bid in accordance with the Equity in Contracting Regulations Manual located in PART III of these Specifications.

**FAILURE TO COMPLETE AND SUBMIT EIC FORMS WITH THE BID SUBMITTAL PACKAGE MAY RESULT IN THE BID BEING DECLARED NON-RESPONSIVE AND REJECTED.**

**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.
LEAP Goals:

1. Local Employment Utilization Goal – 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 economically distressed areas of the Tacoma Public Utilities service area.

2. Apprentice Utilization Goal - Prime contractor is required to ensure that 15 percent of the labor hours worked on the project are performed by apprentices who reside in the Tacoma Public Utilities service area.

NOTE: The two goals can be satisfied concurrently if the prime contractor utilizes individuals who simultaneously meet the requirements of both goals, such as an apprentice who resides in an economically distressed area of the Tacoma Public Utilities service area.
CITY OF TACOMA
FINANCE/PURCHASING DIVISION
SPECIAL NOTICE TO BIDDERS

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 chapter 18.27 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;
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 Small Business Enterprise and Local Employment and Apprenticeship 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.
WASHINGTON STATE DEPARTMENT OF ECOLOGY FUNDING STATEMENT

It is anticipated that this project will be funded in part by the Washington State Department of Ecology. Neither the State of Washington nor any of its departments or employees are, or shall be, a party to this Contract or any subcontract resulting from this solicitation for bids.

Bidders shall be aware that the Department of Ecology Specifications insert provided in Appendix G is made part of this Contract. The Department of Ecology encourages all bidders to utilize certified minority-owned and women-owned businesses to the extent possible in the performance of this Contract. Bidders shall refer to the Department of Ecology Specifications Insert and note that all bidders must provide a list of MBE/WBE subcontractors they intend to use during the project. The list must be provided with the bid package.
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-03031-19, ENV-04018-07, PWK-00438-27 and WTR-00604-01-10 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.

3. Washington State Department of Revenue Rules 170 and 171 shall apply as shown in the Proposal and per Section 1-07.2 of the WSDOT State Amendments to the Standard Specifications. Items marked with a * signifies both rules may apply.

SCHEDULE A: ROADWAY IMPROVEMENTS (Rule 171)

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<th>ITEM DESCRIPTION</th>
<th>ESTIMATED QUANTITY</th>
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<td>Project Red Line Drawings</td>
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<td>Lump Sum</td>
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<tr>
<td>R2.*</td>
<td>SPCC Plan</td>
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<td>1-07.15(1)</td>
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<tr>
<td>R3.*</td>
<td>Mobilization</td>
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<td>Lump Sum</td>
<td>$ __________</td>
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<td></td>
<td>1-09.7</td>
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<td>Project Temporary Traffic Control</td>
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<td>$ __________</td>
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<td>R5.</td>
<td>Clearing and Grubbing</td>
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<td>2-01</td>
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Contractor’s Name: __________________________________________
Specification No. ES20-0305F
Page 1 of 14
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<th>TOTAL AMOUNT</th>
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<td>Special Tree Protection</td>
<td>1 Each</td>
<td>$ _________</td>
<td>$ _________</td>
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<tr>
<td>R7. 2-02</td>
<td>Removal of Structures and Obstructions</td>
<td>1 Lump Sum</td>
<td>$ _________</td>
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<tr>
<td>R8. 2-02</td>
<td>Pothole Existing Utility</td>
<td>18 Each</td>
<td>$ _________</td>
<td>$ _________</td>
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<tr>
<td>R9. 2-02</td>
<td>Abandon Piezometer</td>
<td>1 Each</td>
<td>$ _________</td>
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<td>R10. 2-03</td>
<td>Unsuitable Foundation Excavation Incl. Haul</td>
<td>150 Cu. Yd.</td>
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<td>$ _________</td>
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<td>R11. 2-03</td>
<td>Roadway Excavation, Incl. Haul</td>
<td>1,450 Cu. Yd.</td>
<td>$ _________</td>
<td>$ _________</td>
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<tr>
<td>R12. 2-13</td>
<td>Remove Tree, Class 0</td>
<td>15 Each</td>
<td>$ _________</td>
<td>$ _________</td>
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<td>R13. 2-13</td>
<td>Remove Tree, Class I</td>
<td>7 Each</td>
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<tr>
<td>R14. 2-13</td>
<td>Remove Tree, Class II</td>
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<td>R15. 2-13</td>
<td>Remove Tree, Class III</td>
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<td>R16. 2-13</td>
<td>Remove Stump</td>
<td>3 Each</td>
<td>$ _________</td>
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<tr>
<td>R17. 2-13</td>
<td>Remove Shrub</td>
<td>32 Each</td>
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<tr>
<td>R18. 2-14</td>
<td>Remove Existing Pavement, Type I, Class A4</td>
<td>700 Sq. Yd.</td>
<td>$ _________</td>
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<td>R19. 2-14</td>
<td>Remove Existing Pavement, Type II, Class A4</td>
<td>1,950 Sq. Yd.</td>
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<td>Remove Existing Pavement, Type II, Class C6</td>
<td>1,700 Sq. Yd.</td>
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<td>R21. 2-15</td>
<td>Remove Curb</td>
<td>440 Lin. Ft.</td>
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<tr>
<th>ITEM NO.</th>
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<th>TOTAL AMOUNT</th>
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<td>R22. 2-15</td>
<td>Remove Extruded/Precast Curb</td>
<td>110 Lin. Ft.</td>
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<td>R23. 4-04</td>
<td>Crushed Surfacing Top Course</td>
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<td>R24. 4-04</td>
<td>Crushed Surfacing Base Course</td>
<td>1,175 Ton</td>
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<td>R25. 5-04</td>
<td>Fiber Reinforced HMA Cl. 1/2&quot; PG 58H-22</td>
<td>360 Ton</td>
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<td>R26. 5-04</td>
<td>Cold Plant Mix for Temporary Pavement Patch</td>
<td>130 Ton</td>
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<td>Cement Conc. Pavement, 8-Inch Section</td>
<td>1,200 Sq. Yd.</td>
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<td>R28.* 8-01</td>
<td>Erosion/Water Pollution Control</td>
<td>1 Force Account</td>
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<td>R29.* 8-01</td>
<td>Stormwater Pollution Prevention Plan (SWPPP)</td>
<td>1 Lump Sum</td>
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<td>NPDES Construction Stormwater General Permit</td>
<td>1 Lump Sum</td>
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<td>Inlet Protection</td>
<td>28 Each</td>
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<td>R32. 8-01</td>
<td>High Visibility Fence</td>
<td>150 Lin. Ft.</td>
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<td>Soil Amendment</td>
<td>70 Cu. Yd.</td>
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<td>Landscape Restoration</td>
<td>1 Lump Sum</td>
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<td>R35. 8-02</td>
<td>Topsoil Type A</td>
<td>340 Cu. Yd.</td>
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<td>R36. 8-02</td>
<td>Plant Selection Paperback Maple, 2 In. Cal., B&amp;B</td>
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<td>R37. 8-02</td>
<td>Plant Selection Autumn Brilliance Serviceberry, 2 In.</td>
<td>8 Each</td>
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<td>R38.</td>
<td>Plant Selection Vanessa Persian Ironwood, 2 In. Cal., B&amp;B</td>
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<td>R39.</td>
<td>Plant Selection Japanese Tree Lilac, 2 In. Cal., B&amp;B</td>
<td>5 Each</td>
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<td>R40.</td>
<td>Plant Selection City Sprite Zelkova, 2 In. Cal., B&amp;B</td>
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<td>R41.</td>
<td>Plant Selection Golden Japanese Cedar, 10' Ht., B&amp;B</td>
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<td>$__________</td>
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<td>R42.</td>
<td>Plant Selection Thuja Occidentalis 'Emerald', 10' Ht., B&amp;B</td>
<td>21 Each</td>
<td>$__________</td>
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<td>R43.</td>
<td>Plant Selection Shore Pine, 8' Ht., B&amp;B</td>
<td>7 Each</td>
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<td>R44.</td>
<td>Plant Selection Douglas Fir, 8' Ht., B&amp;B</td>
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<td>R45.</td>
<td>Plant Selection Garry Oak, 8' Ht., B&amp;B</td>
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<td>R46.</td>
<td>Plant Selection Western Red Cedar, 8 Ft. Ht., B&amp;B</td>
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<td>R47.</td>
<td>Plant Selection Western Serviceberry, No. 2 Cont</td>
<td>10 Each</td>
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<td>R48.</td>
<td>Plant Selection Beaked Hazelnut, No. 2 Cont</td>
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<td>R49.</td>
<td>Plant Selection Oceanspray, No. 2 Cont</td>
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<td>R50.</td>
<td>Plant Selection Oso-berry, No. 2 Cont</td>
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<td>R51.</td>
<td>Plant Selection Mock Orange, No. 2 Cont</td>
<td>20 Each</td>
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<td>R52.</td>
<td>Plant Selection Pacific Rhododendron, No. 2 Cont</td>
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<td>R53.</td>
<td>Plant Selection Red Flowering Currant, No. 2 Cont</td>
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<td>R54.</td>
<td>Plant Selection Tall Oregon Grape, No. 2 Cont</td>
<td>60 Each</td>
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<td>R55.</td>
<td>Plant Selection Shrubby Cinquefoil, No. 2 Cont</td>
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<td>R56.</td>
<td>Plant Selection Nootka Rose, No. 2 Cont</td>
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<td>R57.</td>
<td>Plant Selection Snowberry, No. 2 Cont</td>
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<td>R58.</td>
<td>Plant Selection Evergreen Huckleberry, No. 5 Cont</td>
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<td>R59.</td>
<td>Plant Selection Kinnikinnick, No. 1 Cont</td>
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<td>Plant Selection Beach Strawberry, No. 1 Cont</td>
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<td>Plant Selection Salal, No. 1 Cont</td>
<td>75 Each</td>
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<td>R62.</td>
<td>Plant Selection Creeping Oregon Grape, No. 1 Cont</td>
<td>75 Each</td>
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<td>R63.</td>
<td>Plant Selection Western Sword Fern, No. 1 Cont</td>
<td>50 Each</td>
<td>$_________</td>
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<td>R64.</td>
<td>Bark or Wood Chip Mulch</td>
<td>90 Cu. Yd.</td>
<td>$_________</td>
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<td>R65.</td>
<td>Root Barrier – 18 In.</td>
<td>440 Lin. Ft.</td>
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<td>R66.</td>
<td>Tree Watering Bag</td>
<td>47 Each</td>
<td>$_________</td>
<td>$_________</td>
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<td>R67.</td>
<td>Restoration of Irrigation System</td>
<td>1 Lump Sum</td>
<td>$_________</td>
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<td>R68.</td>
<td>Cement Conc. Traffic Curb and Gutter</td>
<td>1,240 Lin. Ft.</td>
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<td>R70.</td>
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<td>R71.</td>
<td>Poured Monument</td>
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<td>R72.</td>
<td>Single 6 Ft. Chain Link Gate</td>
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<td>Cement Conc. Sidewalk</td>
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<td>R74.</td>
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<td>R76.</td>
<td>Garden Walk</td>
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<td>R78.</td>
<td>Permanent Signing</td>
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## SCHEDULE B: STORM SEWER IMPROVEMENTS (Rule 171)

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<td>S81. 2-09</td>
<td>Shoring or Extra Excavation Class B</td>
<td>21,000 Sq. Ft.</td>
<td>$_________</td>
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<td>Shoring or Extra Excavation Class A – Stormwater Treatment Facility</td>
<td>1 Lump Sum</td>
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<td>S83. 2-09</td>
<td>Structure Excavation Class B Incl. Haul</td>
<td>5,000 Cu. Yd.</td>
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<td>Structure Excavation Class A Incl. Haul</td>
<td>5,800 Cu. Yd.</td>
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<td>Resolution of Utility Conflicts</td>
<td>1 Force Account</td>
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<td>S86. 2-16</td>
<td>Remove Catch Basin</td>
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<td>S87. 2-16</td>
<td>Remove Manhole</td>
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<td>S88. 2-17</td>
<td>Settlement and Vibration Monitoring</td>
<td>1 Lump Sum</td>
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<td>Secant Pile Manhole</td>
<td>1 Lump Sum</td>
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<td>S90. 6-16</td>
<td>Removing Soldier Pile Shaft Obstructions</td>
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<td>S91. 7-05</td>
<td>Ex SDMH#5 Manhole Vent Installation</td>
<td>1 Lump Sum</td>
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<td>S92. 7-05</td>
<td>Catch Basin Type 1</td>
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<td>S93. 7-05</td>
<td>Catch Basin Type 2 48 In. Diam.</td>
<td>2 Each</td>
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<td>S94. 7-05</td>
<td>Manhole 48-In. Diam. Type 1</td>
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<td>$_________</td>
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<td>S95. 7-05</td>
<td>Manhole 60-In. Diam. Type 1</td>
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<td>S96. 7-05</td>
<td>Manhole 84-In. Diam. Type 2</td>
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<td>S97. 7-05</td>
<td>Manhole Additional Height 48-In. Diam. Type 1</td>
<td>9 Lin. Ft.</td>
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<td>S98. 7-05</td>
<td>Manhole Additional Height 84-In. Diam. Type 2</td>
<td>49 Lin. Ft.</td>
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<td>S99. 7-05</td>
<td>Adjust Existing Manhole, Furnish New Frame and Cover</td>
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<td>S100. 7-05</td>
<td>Abandon Existing Manhole</td>
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<td>Abandon Existing Catch Basin</td>
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<td>S102. 7-05</td>
<td>Reconnect Existing Sewer Pipe, 8-In. Diam. To New Structure</td>
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<td>S103. 7-05</td>
<td>Reconnect Existing Sewer Pipe, 12-In. Diam. To New Structure</td>
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<td>Reconnect Existing Sewer Pipe, 24-In. Diam. To New Structure</td>
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<td>S106. 7-05</td>
<td>Stormwater Bypass Structure</td>
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<td>S107. 7-05</td>
<td>Stormwater Treatment Manhole</td>
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<td>$__________</td>
</tr>
<tr>
<td>S108. 7-05</td>
<td>Stormwater Treatment Facility</td>
<td>1 Lump Sum</td>
<td>$__________</td>
<td>$__________</td>
</tr>
<tr>
<td>S109. 7-08</td>
<td>Plugging Existing Pipe</td>
<td>6 Each</td>
<td>$__________</td>
<td>$__________</td>
</tr>
<tr>
<td>S110. 7-08</td>
<td>CDF for Pipe Abandonment</td>
<td>75 Cu. Yd.</td>
<td>$__________</td>
<td>$__________</td>
</tr>
</tbody>
</table>

Contractor's Name: ________________________________
Specification No. ES20-0305F
Page 8 of 14
<table>
<thead>
<tr>
<th>ITEM NO.</th>
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<th>UNIT PRICE</th>
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</tr>
</thead>
<tbody>
<tr>
<td>S111. 7-08</td>
<td>Temporary Storm Sewer Bypass</td>
<td>1</td>
<td>Lump Sum</td>
<td></td>
</tr>
<tr>
<td>S112. 7-08</td>
<td>Temporary Storm Sewer Bypass Plan</td>
<td>1</td>
<td>Lump Sum</td>
<td></td>
</tr>
<tr>
<td>S113. 7-17</td>
<td>PVC Storm Sewer Pipe 12 In. Diam.</td>
<td>490</td>
<td>Lin. Ft.</td>
<td></td>
</tr>
<tr>
<td>S114. 7-17</td>
<td>PVC Storm Sewer Pipe 24-In. Diam.</td>
<td>87</td>
<td>Lin. Ft.</td>
<td></td>
</tr>
<tr>
<td>S115. 7-17</td>
<td>Ductile Iron Storm Sewer Pipe 12 In. Diam.</td>
<td>99</td>
<td>Lin. Ft.</td>
<td></td>
</tr>
<tr>
<td>S116. 7-17</td>
<td>Steel Rib Rein. Polyethylene Storm Sewer Pipe 48 In. Diam.</td>
<td>734</td>
<td>Lin. Ft.</td>
<td></td>
</tr>
<tr>
<td>S117. 7-17</td>
<td>Steel Storm Sewer Pipe 34 In. Diam.</td>
<td>12</td>
<td>Lin. Ft.</td>
<td></td>
</tr>
<tr>
<td>S118. 7-17</td>
<td>Testing Sewer Pipe</td>
<td>1,410</td>
<td>Lin. Ft.</td>
<td></td>
</tr>
<tr>
<td>S119. 7-17</td>
<td>Removal and Replacement of Unsuitable Material</td>
<td>3,800</td>
<td>Cu. Yd.</td>
<td></td>
</tr>
</tbody>
</table>
# SCHEDULE C: WASTEWATER SEWER IMPROVEMENTS (Rule 170)

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM DESCRIPTION</th>
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<th>UNIT PRICE</th>
<th>TOTAL AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>WW120. 2-09</td>
<td>Shoring or Extra Excavation Class B</td>
<td>3,700 Sq. Ft.</td>
<td>$__________</td>
<td>$__________</td>
</tr>
<tr>
<td>WW121. 2-09</td>
<td>Structure Excavation Class B Incl. Haul</td>
<td>450 Cu. Yd.</td>
<td>$__________</td>
<td>$__________</td>
</tr>
<tr>
<td>WW122. 7-05</td>
<td>Manhole 48-In. Diam., Type I Each</td>
<td>1 Each</td>
<td>$__________</td>
<td>$__________</td>
</tr>
<tr>
<td>WW123. 7-05</td>
<td>Manhole 54-In. Diam., Type I Each</td>
<td>1 Each</td>
<td>$__________</td>
<td>$__________</td>
</tr>
<tr>
<td>WW124. 7-05</td>
<td>Manhole Additional Height 48-In. Diam. Type I Lin. Ft.</td>
<td>15 Lin. Ft.</td>
<td>$__________</td>
<td>$__________</td>
</tr>
<tr>
<td>WW125. 7-05</td>
<td>Manhole Additional Height 54-In. Diam. Type I Lin. Ft.</td>
<td>15 Lin. Ft.</td>
<td>$__________</td>
<td>$__________</td>
</tr>
<tr>
<td>WW126. 7-05</td>
<td>Connect New Sewer Pipe 8-In. Diam. to Existing Structure Each</td>
<td>1 Each</td>
<td>$__________</td>
<td>$__________</td>
</tr>
<tr>
<td>WW127. 7-05</td>
<td>Reconnect Existing Sewer Pipe 24-In. Diam. to New Structure Each</td>
<td>2 Each</td>
<td>$__________</td>
<td>$__________</td>
</tr>
<tr>
<td>WW128. 7-08</td>
<td>Plugging Existing Pipe Each</td>
<td>2 Each</td>
<td>$__________</td>
<td>$__________</td>
</tr>
<tr>
<td>WW129. 7-08</td>
<td>Temporary Sanitary Sewer Bypass Lump Sum</td>
<td>1 Lump Sum</td>
<td>$__________</td>
<td>$__________</td>
</tr>
<tr>
<td>WW130. 7-08</td>
<td>Temporary Sanitary Sewer Bypass Plan Lump Sum</td>
<td>1 Lump Sum</td>
<td>$__________</td>
<td>$__________</td>
</tr>
<tr>
<td>WW131. 7-08</td>
<td>CDF for Pipe Abandonment Cu. Yd.</td>
<td>1 Cu. Yd.</td>
<td>$__________</td>
<td>$__________</td>
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<tr>
<td>WW132. 7-17</td>
<td>PVC Sanitary Sewer Pipe 8-In. Diam. Lin. Ft.</td>
<td>170 Lin. Ft.</td>
<td>$__________</td>
<td>$__________</td>
</tr>
<tr>
<td>WW133. 7-17</td>
<td>PVC Sanitary Sewer Pipe 6-In. Diam. Lin. Ft.</td>
<td>57 Lin. Ft.</td>
<td>$__________</td>
<td>$__________</td>
</tr>
<tr>
<td>WW134. 7-17</td>
<td>Testing Sewer Pipe Lin. Ft.</td>
<td>227 Lin. Ft.</td>
<td>$__________</td>
<td>$__________</td>
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<td>ITEM NO.</td>
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</tr>
<tr>
<td>WW135. 7-17</td>
<td>Removal and Replacement of Unsuitable Material</td>
<td>450 Cu. Yd.</td>
<td>$_________</td>
<td>$_________</td>
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<tr>
<td>WW136. 7-19</td>
<td>Sewer Cleanout</td>
<td>3 Each</td>
<td>$_________</td>
<td>$_________</td>
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**SCHEDULE D: WATER MAIN IMPROVEMENTS (Rule 170)**

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<th>UNIT PRICE</th>
<th>TOTAL AMOUNT</th>
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</thead>
<tbody>
<tr>
<td>W137. 1-09</td>
<td>Force Account</td>
<td>1 Force Account</td>
<td>Estimated</td>
<td>$60,000</td>
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<tr>
<td>W138. 2-02</td>
<td>Removal/Disposal of existing asphalt, concrete sidewalk/curbing &amp; concrete pavement. Includes all thicknesses and combinations</td>
<td>265 Sq. Yd.</td>
<td>$_________</td>
<td>$_________</td>
</tr>
<tr>
<td>W139. 5-04</td>
<td>Temporary HMA Class ½” PG58-22, 2-inch minimum depth, installed &amp; removed</td>
<td>265 Sq. Yd.</td>
<td>$_________</td>
<td>$_________</td>
</tr>
<tr>
<td>W140. 5-04</td>
<td>HMA Cl ½” PG58-22 pavement for permanent trench patch -6 in Depth</td>
<td>10 Ton</td>
<td>$_________</td>
<td>$_________</td>
</tr>
<tr>
<td>W141. 7-04</td>
<td>Crushed Surfacing Top Course for trench backfill</td>
<td>617 Ton</td>
<td>$_________</td>
<td>$_________</td>
</tr>
<tr>
<td>W142. 7-09</td>
<td>Storm, Sanitary, Side Sewer Restoration</td>
<td>8 Each</td>
<td>$_________</td>
<td>$_________</td>
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<tr>
<td>W143. 7-09</td>
<td>Trench Excavation &amp; Disposal</td>
<td>362 Cu. Yd.</td>
<td>$_________</td>
<td>$_________</td>
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<tr>
<td>W144. 7-09</td>
<td>Trench Shoring</td>
<td>756 Lin. Ft.</td>
<td>$_________</td>
<td>$_________</td>
</tr>
<tr>
<td>W145. 7-09</td>
<td>6-inch Ductile Iron Pipe, Push-On Joint, ANSI/AWWA, C151, Special Class Thickness No. 52, to furnish, lay and test</td>
<td>832 Lin. Ft.</td>
<td>$_________</td>
<td>$_________</td>
</tr>
<tr>
<td>ITEM NO.</td>
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</tr>
<tr>
<td>W146.</td>
<td>6-inch Ductile Iron Tee, 3-B, M.J., installed</td>
<td>3 Each</td>
<td>$_________</td>
<td>$_________</td>
</tr>
<tr>
<td>W147.</td>
<td>6-inch Ductile Iron Ell, M.J., 45°, installed.</td>
<td>12 Each</td>
<td>$_________</td>
<td>$_________</td>
</tr>
<tr>
<td>W148.</td>
<td>6-inch Ductile Iron Ell, M.J., 22 1/2°, installed.</td>
<td>2 Each</td>
<td>$_________</td>
<td>$_________</td>
</tr>
<tr>
<td>W149.</td>
<td>6-inch Ductile Iron Ell, M.J., 11 1/4°, installed.</td>
<td>2 Each</td>
<td>$_________</td>
<td>$_________</td>
</tr>
<tr>
<td>W150.</td>
<td>6-inch Ductile Iron Solid Sleeve (Long Pattern) M.J., installed.</td>
<td>1 Each</td>
<td>$_________</td>
<td>$_________</td>
</tr>
<tr>
<td>W151.</td>
<td>6-inch Transition Coupling with 7-inch center ring, epoxy coating, and stainless steel bolts, A.C. to D.I., installed</td>
<td>5 Each</td>
<td>$_________</td>
<td>$_________</td>
</tr>
<tr>
<td>W152.</td>
<td>6-inch Romac End Cap Coupling D.I. to C.I., installed and removed</td>
<td>2 Each</td>
<td>$_________</td>
<td>$_________</td>
</tr>
<tr>
<td>W153.</td>
<td>6-inch Ductile Iron Cap, M.J., tapped 2&quot;, installed and removed</td>
<td>8 Each</td>
<td>$_________</td>
<td>$_________</td>
</tr>
<tr>
<td>W154.</td>
<td>6-inch Ductile Iron Plug, M.J., tapped 2&quot;, installed and removed</td>
<td>1 Each</td>
<td>$_________</td>
<td>$_________</td>
</tr>
<tr>
<td>W155.</td>
<td>6-inch Ductile Iron Plug, M.J., installed</td>
<td>1 Each</td>
<td>$_________</td>
<td>$_________</td>
</tr>
<tr>
<td>W156.</td>
<td>Temporary 2-inch Blow-Off Assembly, installed and removed</td>
<td>11 Each</td>
<td>$_________</td>
<td>$_________</td>
</tr>
<tr>
<td>W157.</td>
<td>6-inch Mechanical Joint Restraining Glands</td>
<td>52 Each</td>
<td>$_________</td>
<td>$_________</td>
</tr>
<tr>
<td>W158.</td>
<td>Concrete Thrust Anchor, installed.</td>
<td>17 Each</td>
<td>$_________</td>
<td>$_________</td>
</tr>
<tr>
<td>W159.</td>
<td>Temporary Concrete Thrust Anchor, installed and removed</td>
<td>11 Each</td>
<td>$_________</td>
<td>$_________</td>
</tr>
<tr>
<td>W160.</td>
<td>Trench Compaction Test (as directed by the Inspector)</td>
<td>13 Each</td>
<td>$_________</td>
<td>$_________</td>
</tr>
<tr>
<td>ITEM NO.</td>
<td>ITEM DESCRIPTION</td>
<td>ESTIMATED QUANTITY</td>
<td>UNIT PRICE</td>
<td>TOTAL AMOUNT</td>
</tr>
<tr>
<td>---------</td>
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<td>------------</td>
<td>--------------</td>
</tr>
<tr>
<td>W161. 7-09</td>
<td>Test Holes</td>
<td>1</td>
<td>Lump Sum</td>
<td>$___________</td>
</tr>
<tr>
<td>W162. 7-12</td>
<td>6-inch Gate Valve, M.J., ANSI/AWWA, C509/515, with C.I. Valve Box</td>
<td>5</td>
<td>Each</td>
<td>$___________</td>
</tr>
<tr>
<td>W163. 7-14</td>
<td>6-inch Hydrant, M.J., 4.5-ft bury, with 4-inch Tacoma Standard Threads &amp; 5-inch Quick Coupling</td>
<td>2</td>
<td>Each</td>
<td>$___________</td>
</tr>
<tr>
<td>W164. 8-01</td>
<td>Street cleaning with Self-propelled Pickup and Vacuum Street Sweeper Equipment.</td>
<td>15</td>
<td>HR</td>
<td>$___________</td>
</tr>
</tbody>
</table>
SCHEDULE A: ROADWAY IMPROVEMENTS (R) (Rule 171)

Base Bid (Subtotal Items Nos. R1 – R80) $ ____________ (1)

ROADWAY IMPROVEMENTS TOTAL $ ____________ (2)

SCHEDULE B: STORM SEWER IMPROVEMENTS (S) (Rule 171)

Base Bid (Subtotal Items Nos. S81 – S119) $ ____________ (3)

STORM SEWER IMPROVEMENTS TOTAL $ ____________ (4)

SCHEDULE C: WASTEWATER SEWER IMPROVEMENTS (WW) (Rule 170)

Base Bid (Subtotal Items Nos. WW120 - WW136) $ ____________ (5)

10.3% Sales Tax (Items Nos. WW120 – WW136) $ ____________ (6)

WASTEWATER SEWER IMPROVEMENTS TOTAL $ ____________ (7)

SCHEDULE D: WATER MAIN IMPROVEMENTS (W) (Rule 170)

Base Bid (Subtotal Items Nos. W137-W164) $ ____________ (8)

10.3% Sales Tax (Items Nos. W137-W164) $ ____________ (9)

WATER MAIN IMPROVEMENTS TOTAL $ ____________ (10)

TOTAL BASE BID (1) + (3) + (5) + (8) (not including sales tax) Rule 170

$ ____________________

Contractor’s Name: _______________________________________________________
Specification No. ES20-0305F
Page 14 of 14
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. ES20-0305F
UPPER BUCKLEY WATER QUALITY PROJECT

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

________________________
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.)

________________________
E-Mail Address for Communications

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: __________________________

__________, 20_____  

Received return of deposit in the sum of $ ____________________________

____________________

Form No. SPEC-090A   Revised: 08/2004
Certification of Compliance with Wage Payment Statutes

The bidder hereby certifies that, within the three-year period immediately preceding the bid solicitation date October 26, 2021, 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.
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: __________________________

☐ Not Applicable

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: ________________

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?

☐ Yes ☐ No
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 bids@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 bids@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>
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</table>
Statement of Qualifications

Statement Of Qualifications for Secant Pile Manhole Contractor

This form shall be completed in its entirety and submitted with the bid for all workers including any relief personnel if needed for a second shift. (Use additional copies of this form, if necessary, to show all required experience). **Failure to submit and meet the requirements as stated in Section 1-02.1 of the Special Provisions shall be grounds for rejection of the Bid.**

The City of Tacoma will be the sole judge in determining if the prospective Contractor meets the minimum experience requirements.

**Contractor:**

Name: __________________________________________
Address: ________________________________________
Phone: ___________________________ Contact Person: __________________________

List three or more successfully completed projects completed within the last 10 years where the Contractor performing the work has successfully installed a secant or tangent wall system with drilled shafts similar to the size, length, and type to be installed on this project. The Contractor shall provide relevant details describing equipment and methods used, details pertaining to any difficulties encountered, and how the difficulties were overcome with a description attached to this Statement of Qualifications. The Contractor shall include the complete contact information for at least one reference for each project cited:

#1 Project Name: __________________________________________
   Owner: ___________________________ Contact Person: __________________________
   Secant pile diameter, number of piles, and pile depth: __________________________
   Completion Date: __________________________

#2 Project Name: __________________________________________
   Owner: ___________________________ Contact Person: __________________________
   Secant pile diameter, number of piles, and pile depth: __________________________
   Completion Date: __________________________

#3 Project Name: __________________________________________
   Owner: ___________________________ Contact Person: __________________________
   Secant pile diameter, number of piles, and pile depth: __________________________
   Completion Date: __________________________

#4 Project Name: __________________________________________
   Owner: ___________________________ Contact Person: __________________________
   Secant pile diameter, number of piles, and pile depth: __________________________
   Completion Date: __________________________
**Superintendent/On-Site Supervisor:**

Name: 
Address: 
Phone: 

List two or more projects with a record of successful installation of a secant or tangent pile wall system in the last 10 years:

#1 Project Name: 
Owner: 
Name of Contractor Employed By: 
Secant pile diameter, number of piles, and pile depth: 
Completion Date: 

#2 Project Name: 
Owner: 
Name of Contractor Employed By: 
Secant pile diameter, number of piles, and pile depth: 
Completion Date: 

#3 Project Name: 
Owner: 
Name of Contractor Employed By: 
Secant pile diameter, number of piles, and pile depth: 
Completion Date: 

**Drilling Operator:**

The drilling operator shall have a minimum of 2 years of experience installing secant and/or tangent pile wall systems, or drilled shaft foundations with similar diameters and lengths, and in similar ground conditions using a technology similar to that proposed for this work.

Name: 
Address: 
Phone: 

Describe secant and/or tangent pile wall or drilled shaft experience (minimum 2 year requirement): 

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________
List two or more projects with a record of successful installation of a secant or tangent pile wall system in the last 10 years:

#1 Project Name: ________________________________
Owner: ___________________________ Contact Person: ________________________________
Name of Contractor Employed By: ________________________________
Secant pile diameter, number of piles, and pile depth: ________________________________

Completion Date: ________________________________

#2 Project Name: ________________________________
Owner: ___________________________ Contact Person: ________________________________
Name of Contractor Employed By: ________________________________
Secant pile diameter, number of piles, and pile depth: ________________________________

Completion Date: ________________________________

#3 Project Name: ________________________________
Owner: ___________________________ Contact Person: ________________________________
Name of Contractor Employed By: ________________________________
Secant pile diameter, number of piles, and pile depth: ________________________________

Completion Date: ________________________________
Statement of Qualifications for Stormwater Treatment Facility Contractor

This form shall be completed in its entirety and submitted with the bid for all workers including any relief personnel if needed for a second shift. (Use additional copies of this form, if necessary, to show all required experience). **Failure to submit and meet the requirements as stated in Section 1-02.1 of the Special Provisions shall be grounds for rejection of the Bid.**

The City of Tacoma will be the sole judge in determining if the prospective Contractor meets the minimum experience requirements.

**Contractor:**

Name: ____________________________  Address: ____________________________

Phone: ____________________________  Contact Person: ____________________________

List two or more successfully completed projects completed within the last 10 years where the Contractor performing the work has successfully installed a belowground cast-in-place structure similar to the size and depth to be installed on this project. The Contractor shall provide relevant details describing equipment and methods used, details pertaining to any difficulties encountered, and how the difficulties were overcome with a description attached to this Statement of Qualifications. The Contractor shall include the complete contact information for at least one reference for each project cited:

#1 Project Name: ____________________________

Owner: ____________________________  Contact Person: ____________________________

Size of structure and depth: ____________________________

Shoring Method: ____________________________

Completion Date: ____________________________

#2 Project Name: ____________________________

Owner: ____________________________  Contact Person: ____________________________

Size of structure and depth: ____________________________

Shoring Method: ____________________________

Completion Date: ____________________________

#3 Project Name: ____________________________

Owner: ____________________________  Contact Person: ____________________________

Size of structure and depth: ____________________________

Shoring Method: ____________________________

Completion Date: ____________________________

#4 Project Name: ____________________________

Owner: ____________________________  Contact Person: ____________________________

Size of structure and depth: ____________________________

Shoring Method: ____________________________

Completion Date: ____________________________
Superintendent/On-Site Supervisor:

Name: ____________________________________________
Address: _________________________________________
Phone: __________________________________________

List two or more projects with a record of successful installation of a belowground cast-in-place structure in the last 10 years:

#1 Project Name: ____________________________________________
   Owner: __________________ Contact Person: __________________
   Name of Contractor Employed By: ____________________________
   Size of structure and depth: _________________________________
   Shoring Method: __________________________________________
   Completion Date: _________________________________________

#2 Project Name: ____________________________________________
   Owner: __________________ Contact Person: __________________
   Name of Contractor Employed By: ____________________________
   Size of structure and depth: _________________________________
   Shoring Method: __________________________________________
   Completion Date: _________________________________________

#3 Project Name: ____________________________________________
   Owner: __________________ Contact Person: __________________
   Name of Contractor Employed By: ____________________________
   Size of structure and depth: _________________________________
   Shoring Method: __________________________________________
   Completion Date: _________________________________________
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 insure 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.

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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/SBE: Spec # ENV-03031-19-01
Date of Record: 09/03/2021

*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.
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 firms approved by the City of Tacoma Equity in Contracting Program as Certified Businesses.
- It is the prime contractor’s responsibility to check the certification status of the firms intended to be utilized prior to the submittal deadline.

Bidder’s Name: ____________________________
Address: ____________________________ City/State/Zip: ____________________________
Spec. No. _________________ Base Bid $ ____________________________

Complete company names and phone numbers are required to verify your usage of qualifying firms.

<table>
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<tr>
<th>Company Name and Certification Number(s)</th>
<th>MBE, WBE, or SBE (Write all that apply)</th>
<th>NAICS code(s)</th>
<th>Contractor Bid Amount (100%)</th>
<th>Material Supplier Bid Amount (20%)</th>
<th>Estimated MBE Usage Dollar Amount</th>
<th>Estimated WBE Usage Dollar Amount</th>
<th>Estimated SBE Usage Dollar Amount</th>
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<th>i. MBE Utilization %</th>
<th>j. WBE Utilization %</th>
<th>k. SBE Utilization %</th>
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By signing and submitting this form the bidder certifies that the EIC firms 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/SBE/FORMS revised April 2021
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 deductive selected by the City. Also, please refer to Items #10-12 below.

2. Column “a” – List all EIC companies that you will be awarding a contract to if you are the successful bidder.

3. Column "b" – Identify if this firm is being utilized as an MBE, WBE, or SBE. (Firms may count towards multiple requirements)

4. Column "c" – List the appropriate NAICS code for the scope of work, services, or materials/supplies for each contractor.

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

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

8. 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.

9. 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.

10. 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.

11. Block “i” – The percent 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 = EIC usage as a percent of the Base Bid.)

12. Block “j” – The percent 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 = EIC usage as a percent of the Base Bid.)
13. Block “k” – The percent 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 = EIC usage as a percent of the Base Bid.)

It is the prime contractor’s responsibility to check the status of EIC contractors prior to bid opening. Call the EIC Office at 253- 591-5075 for additional information.
CONTRACT

Resolution No.
Contract No.

This Contract is made and entered into effective this _____ day of ,20____, (“Effective Date”) by and between the City of Tacoma, a Municipal Corporation of the State of Washington (“City”), and legal name of Supplier including type of business entity (“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”:

2. Contractor’s submittal (or specifically described portions thereof) dated November 9, 2021 submitted in response to Specification No. ES20-0305F and Upper Buckley Water Quality Project.
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. 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
   2. List remaining Contract Documents in applicable controlling order.

III. The Contract terminates on xxxxx. {May remove if not applicable}

IV. The total price to be paid by City for Contracts full and complete performance hereunder may not exceed: $ ______, plus any applicable taxes.

V. 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.

VI. 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.

VII. 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.

VIII. Contractor acknowledges, and by signing this Contract agrees, that the Indemnification provisions set forth in the controlling Contract Documents, including the Industrial Insurance immunity waiver (if
applicable), are totally and fully part of this Contract and, within the context of the competitive bidding laws, have been mutually negotiated by the Parties hereto.

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.

X. 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, as of the Effective Date stated above, which shall be Effective Date for bonding purposes as applicable.

CITY OF TACOMA: CONTRACTOR:
By: By:

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

Director of Finance: ________________________________________________________________

City Attorney (approved as to form): ________________________________________________

Approved By: ___________________________________________________________________

Approved By: ___________________________________________________________________

Approved By: ___________________________________________________________________

Approved By: ___________________________________________________________________

Approved By: ___________________________________________________________________

Approved By: ___________________________________________________________________

Approved By: ___________________________________________________________________

Approved By: ___________________________________________________________________

Approved By: ___________________________________________________________________

Approved By: _____________________
PAYMENT BOND
TO THE CITY OF TACOMA

That we, the undersigned,

as principal, and 

as a surety, are jointly and severally held and firmly bound to the CITY OF TACOMA, in the penal sum of, $__________, 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.

Specification Title:

Contract No.

(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: Enter Vendor Legal Name

_____________________________________________________
By: ____________________________________________

Surety:

_____________________________________________________
By: ____________________________________________
By: ____________________________________________

Agent’s Name: ______________________________________

Agent’s Address: ___________________________________
PERFORMANCE BOND
TO THE CITY OF TACOMA

Resolution No.

Bond No.

That we, the undersigned, ____________________________
as principal, and ____________________________
as a surety, are jointly and severally held and firmly bound to the CITY OF TACOMA, in the penal sum of $ ____________________________ , 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.

Specification Title:

Contract No.

(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 or 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: Enter Vendor Legal Name

______________________________________________

By: ____________________________

Surety:

______________________________________________

By: ____________________________

Agent’s Name: ____________________________

Agent’s Address: ____________________________
GENERAL RELEASE TO THE CITY OF TACOMA

The undersigned, named as the contractor for ____________
Project / Spec. #: ____________
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

SPECIAL PROVISIONS
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INTRODUCTION

(******)

The following special provisions shall be used in conjunction with the "2020 Standard Specifications for Road, Bridge and Municipal Construction" and "Standard Plans for Road, Bridge, and Municipal Construction" as prepared by the Washington State Department of Transportation (WSDOT). State Standard Specifications are available through WSDOT, by calling (360) 705-7430, emailing engrpubs@wsdot.wa.gov, or may be downloaded, free of charge, from this location on the WSDOT home page:
http://www.wsdot.wa.gov/Publications/Manuals/M41-10.htm

These Special Provisions are made up of both General Special Provisions (GSPs) from various sources, which may have project-specific fill-ins; and project-specific Special Provisions. Each Provision either supplements, modifies, or replaces the comparable Standard Specification, or is a new Provision. The deletion, amendment, alteration, or addition to any subsection or portion of the Standard Specifications is meant to pertain only to that particular portion of the section, and in no way should it be interpreted that the balance of the section does not apply.

The GSPs are labeled under the headers of each GSP, with the date of the GSP and its source, as follows:

(May 18, 2007 APWA GSP)
(August 7, 2006 WSDOT GSP)
(April 2, 2007 Tacoma GSP)

The project specific Special Provisions are labeled under the headers of each Special Provision as follows:

(******)

A pre-bid meeting will be held virtually from 11:00 am - 12:30 pm on November 1st, 2021 to answer questions regarding the project in general as well as the Equity in Contracting (EIC) and Local Employment and Apprenticeship Training Program (LEAP) requirements included in the Contract. Prospective bidders are strongly urged to attend this meeting. You can join the meeting by visiting https://zoom.us/join and entering:
Meeting ID: 958 5753 5467 with Password: 236558.
DESCRIPTION OF WORK

(******)

This Contract shall generally consist of the improvement of N Junett Street between N 14th Street and N 16th Street and N 16th Street between Buckley Gulch and N Pine Street and includes, but is not limited to, demolition and reconstruction of the roadway with hot mix asphalt, cement concrete pavement, cement concrete curbs and gutters, cement concrete curb ramps, cement concrete driveways, catch basins, storm drainage manholes, stormwater bypass structure, stormwater pretreatment manhole, stormwater treatment facility, secant pile manhole, 750 linear feet of 48-inch storm sewer pipe, 60 linear feet of 8-inch sanitary sewer repair, and landscape restoration all in accordance with the Contract Plans, these Contract Provisions, and the Standard Specifications.

END OF SECTION
1-01  DEFINITIONS AND TERMS

1-01.3 Definitions
(January 4, 2016  APWA GSP)

Delete the heading Completion Dates and the three paragraphs that follow it, and replace them with the following:

Dates

*Bid Opening Date*
The date on which the Contracting Agency publicly opens and reads the Bids.

*Award Date*
The date of the formal decision of the Contracting Agency to accept the lowest responsible and responsive Bidder for the Work.

*Contract Execution Date*
The date the Contracting Agency officially binds the Agency to the Contract.

*Notice to Proceed Date*
The date stated in the Notice to Proceed on which the Contract time begins.

*Substantial Completion Date*
The day the Engineer determines the Contracting Agency has full and unrestricted use and benefit of the facilities, both from the operational and safety standpoint, any remaining traffic disruptions will be rare and brief, and only minor incidental work, replacement of temporary substitute facilities, plant establishment periods, or correction or repair remains for the Physical Completion of the total Contract.

*Physical Completion Date*
The day all of the Work is physically completed on the project. All documentation required by the Contract and required by law does not necessarily need to be furnished by the Contractor by this date.

*Completion Date*
The day all the Work specified in the Contract is completed and all the obligations of the Contractor under the contract are fulfilled by the Contractor. All documentation required by the Contract and required by law must be furnished by the Contractor before establishment of this date.

*Final Acceptance Date*
The date on which the Contracting Agency accepts the Work as complete.

Supplement this Section with the following:

All references in the Standard Specifications, Amendments, or WSDOT General Special Provisions, to the terms “Department of Transportation”, “Washington State Transportation Commission”, “Commission”, “Secretary of Transportation”, “Secretary”, “Headquarters”, and “State Treasurer” shall be revised to read “Contracting Agency”.

All references to the terms “State” or “state” shall be revised to read “Contracting Agency” unless the reference is to an administrative agency of the State of Washington, a State statute or regulation, or the context reasonably indicates otherwise.
All references to “State Materials Laboratory” shall be revised to read “Contracting Agency designated location”.

All references to “final contract voucher certification” shall be interpreted to mean the Contracting Agency form(s) by which final payment is authorized, and final completion and acceptance granted.

**Additive**

A supplemental unit of work or group of bid items, identified separately in the Bid Proposal, which may, at the discretion of the Contracting Agency, be awarded in addition to the base bid.

**Alternate**

One of two or more units of work or groups of bid items, identified separately in the Bid Proposal, from which the Contracting Agency may make a choice between different methods or material of construction for performing the same work.

**Business Day**

A business day is any day from Monday through Friday except holidays as listed in Section 1-08.5.

**Contract Bond**

The definition in the Standard Specifications for “Contract Bond” applies to whatever bond form(s) are required by the Contract Documents, which may be a combination of a Payment Bond and a Performance Bond.

**Contract Documents**

See definition for “Contract”.

**Contract Time**

The period of time established by the terms and conditions of the Contract within which the Work must be physically completed.

**Notice of Award**

The written notice from the Contracting Agency to the successful Bidder signifying the Contracting Agency’s acceptance of the Bid Proposal.

**Notice to Proceed**

The written notice from the Contracting Agency or Engineer to the Contractor authorizing and directing the Contractor to proceed with the Work and establishing the date on which the Contract time begins.

**Traffic**

Both vehicular and non-vehicular traffic, such as pedestrians, bicyclists, wheelchairs, and equestrian traffic.

*This section is supplemented with the following:*

*(April 15, 2020 Tacoma GSP)*

All references to the acronym UDBE” shall be revised to read “DBE/EIC.”
All references in the Standard Specifications to the term “Proposal Bond” shall be revised to read “Bid Bond.”

**Base Bid**
The summation of Bid Item amounts (extensions) in the Bid Forms, excluding Additives, Alternates, Deductives, Force Accounts, and taxes collected separately pursuant to Section 1-07.2.

**Calendar Day**
The time period of 24 hours measured from midnight to the next midnight, including weekends and holidays.

**Change Order**
A written order to the Contractor, issued by the Contracting Agency after execution of the contract, authorizing an addition, deletion, or other revision in the Work, within the scope of the Contract Documents, and establishing the basis of payment and time adjustments, if any, for the Work affected by the change.

**Day**
Unless otherwise specified, a calendar day.

**Deductive**
A supplemental unit of work or group of Bid Items, identified separately in the Bid, which may, at the discretion of the Contract Agency, be deducted from the Base Bid should the Contract Agency choose not to Award the total Base Bid.

**Grand Total Price**
The Grand Total Price of the Contract will include the Base Bid, Additives, Alternates, Deductives, Force Accounts, and taxes collected separately pursuant to Section 1-07.2.

**Standard Specifications**
Divisions One through Nine of the specified edition of the WSDOT “Standard Specifications for Road, Bridge, and Municipal Construction.”
1-02  BID PROCEDURES AND CONDITIONS

1-02.1 Qualifications of Bidder
(January 24, 2011 APWA GSP)

Before award of a public works contract, a bidder must meet at least the minimum qualifications of RCW 39.04.350(1) to be considered a responsible bidder and qualified to be awarded a public works project.

Add the following new section:

1-02.1(1) Statement of Qualifications
(******)

In addition, the Contracting Agency has established project specific supplemental criteria, in accordance with RCW 39.04.350(2), for determining Bidder qualifications. These criteria are contained in the Statement of Qualifications form included in the Contract Documents. Failure to submit this form and meet the requirements as shown on the Statement of Qualifications form shall be grounds for rejection of the bid.

Prospective bidders shall demonstrate to the satisfaction of the Contracting Agency that the Bidder and its subcontractors are qualified to perform the work under this Contract and that the Bidder is therefore a responsible bidder. To be responsible, the Bidder and its subcontractors must demonstrate an appropriate level of experience, technical competence, and successful past performance. The information requested in the Statement of Qualifications will assist the Contracting Agency in making such a determination.

1-02.2 Plans and Specifications
(June 27, 2011 APWA GSP)

Delete this section and replace it with the following:

Information as to where Bid Documents can be obtained or reviewed can be found in the Call for Bids (Advertisement for Bids) for the work.

After award of the contract, plans and specifications will be issued to the Contractor at no cost as detailed below:

<table>
<thead>
<tr>
<th>To Prime Contractor</th>
<th>No. of Sets</th>
<th>Basis of Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced plans (11&quot; x 17&quot;)</td>
<td>6</td>
<td>Furnished automatically upon award.</td>
</tr>
<tr>
<td>Contract Provisions</td>
<td>6</td>
<td>Furnished automatically upon award.</td>
</tr>
</tbody>
</table>
Large plans (e.g., 22” x 34”)  2  Furnished only upon request.

Additional plans and Contract Provisions may be obtained by the Contractor from the source stated in the Call for Bids, at the Contractor’s own expense.

1-02.4(1) General
(June 24, 2021 APWA GSP Option B)

The first sentence of the seventh paragraph, beginning with “Any prospective Bidder desiring…”, is revised to read:

Any prospective Bidder desiring an explanation or interpretation of the Bid Documents, shall request the explanation or interpretation in writing 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.

1-02.4(2) Subsurface Information
(March 8, 2013 APWA GSP)

The second sentence in the first paragraph is revised to read:

The Summary of Geotechnical Conditions and the boring logs, if and when included as an appendix to the Special Provisions, shall be considered as part of the Contract.

1-02.5 Proposal Forms
(July 31, 2017 APWA GSP)

Delete this section and replace it with the following:

The Proposal Form will identify the project and its location and describe the work. It will also list estimated quantities, units of measurement, the items of work, and the materials to be furnished at the unit bid prices. The bidder shall complete spaces on the proposal form that call for, but are not limited to, unit prices; extensions; summations; the total bid amount; signatures; date; and, where applicable, retail sales taxes and acknowledgment of addenda; the bidder’s name, address, telephone number, and signature; the bidder’s UDBE/DBE/M/WBE commitment, if applicable; a State of Washington Contractor’s Registration Number; and a Business License Number, if applicable. Bids shall be completed by typing or shall be printed in ink by hand, preferably in black ink. The required certifications are included as part of the Proposal Form.

The Contracting Agency reserves the right to arrange the proposal forms with alternates and additives, if such be to the advantage of the Contracting Agency. The bidder shall bid on all alternates and additives set forth in the Proposal Form unless otherwise specified.
1-02.6 Preparation of Proposal
(December 10, 2020 APWA GSP, Option B)

Supplement the second paragraph with the following:

4. If a minimum bid amount has been established for any item, the unit or lump sum price must equal or exceed the minimum amount stated.

5. Any correction to a bid made by interlineation, alteration, or erasure, shall be initialed by the signer of the bid.

Delete the last two paragraphs, and replace them with the following:

The Bidder shall submit with their Bid a completed Contractor Certification Wage Law Compliance form, provided by the Contracting Agency. Failure to return this certification as part of the Bid Proposal package will make this Bid Nonresponsive and ineligible for Award. A Contractor Certification of Wage Law Compliance form is included in the Proposal Forms.

The Bidder shall make no stipulation on the Bid Form, nor qualify the bid in any manner.

A bid by a corporation shall be executed in the corporate name, by the president or a vice president (or other corporate officer accompanied by evidence of authority to sign).

A bid by a partnership shall be executed in the partnership name, and signed by a partner. A copy of the partnership agreement shall be submitted with the Bid Form if any UDBE requirements are to be satisfied through such an agreement.

A bid by a joint venture shall be executed in the joint venture name and signed by a member of the joint venture. A copy of the joint venture agreement shall be submitted with the Bid Form if any UDBE requirements are to be satisfied through such an agreement.

The fourth paragraph is revised to read:
(October 18, 2013 Tacoma GSP)

The bidder shall submit the following completed forms:
City of Tacoma – Equity in Contracting Utilization Form

1-02.7 Bid Deposit
(April 1, 2012 Tacoma GSP)

Delete this section and replace it with the following:

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 a form acceptable to the Contracting Agency 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 a Bid Bond is furnished, the form furnished by the Contracting Agency must be followed. No variations from the language thereof will be accepted.

If submitting your bid electronically, a scanned version of the original bid bond must accompany your electronic bid submittal. The original bid bond shall be sent to the Contracting Agency and postmarked no later than the day of bid opening.

Original bid bonds will be delivered to:

City of Tacoma Procurement & Payables Division
Tacoma Public Utilities
P.O. Box 11007
Tacoma, WA 98411-0007

1-02.9 Delivery of Proposal
(April 1, 2018 Tacoma GSP)

Delete this section and replace it with the following:

Each Proposal shall be submitted in a sealed envelope, with the Project Name and Project Number as stated in the Call for Bids clearly marked on the outside of the envelope, or as otherwise required in the Bid Documents, to ensure proper handling and delivery.

Electronic Proposals shall be submitted to the City via email to bids@cityoftacoma.org, with the Project Name as stated in the Call for Bids noted on the subject line of the email, or as otherwise required in the Bid Documents, to ensure proper handling and delivery. All electronic documents shall be in PDF format.

The Bidder shall submit to the Contracting Agency a signed “Certification of Compliance with Wage Payment Statutes” document where the Bidder under penalty of perjury verifies that the Bidder is in compliance with responsible bidder criteria in RCW 39.04.350 subsection (1) (g), as required per Section 1-02.14. The “Certification of Compliance with Wage Payment Statutes” document shall be received with the Bid Proposal.

1-02.10 Withdrawing, Revising, or Supplementing Proposal
(March 16, 2016 Tacoma GSP)

Delete this section and replace it with the following:

After submitting a Bid Proposal to the Contracting Agency, the Bidder may withdraw, revise, or supplement it if:

1. The Bidder submits a written request signed by an authorized person, and
2. The Contracting Agency receives the request before the time set for receipt of Proposals.
3. The revised or supplemented Bid Proposal (if any) is received by the Contracting Agency before the time set for receipt of Bid Proposals.
The original Bid Proposal may be supplemented, or revised and resubmitted as the official Bid Proposal if the Contracting Agency receives it before the time set for receipt of Proposals.

1-02.13 Irregular Proposals
(October 18, 2013 Tacoma GSP)
Delete this section and replace it with the following:

1. A proposal will be considered irregular and will be rejected if:
   a. The Bidder is not prequalified when so required;
   b. The authorized proposal form furnished by the Contracting Agency is not used or is altered;
   c. The completed proposal form contains any unauthorized additions, deletions, alternate Bids, or conditions;
   d. The Bidder adds provisions reserving the right to reject or accept the award, or enter into the Contract;
   e. A price per unit cannot be determined from the Bid Proposal;
   f. The Proposal form is not properly executed;
   g. The Bidder fails to submit or properly complete a Subcontractor list, if applicable, as required in Section 1-02.6;
   h. The bidder fails to submit or properly complete the EIC forms as required in Section 1-02.6;
   i. The Bid Proposal does not constitute a definite and unqualified offer to meet the material terms of the Bid invitation; or
   j. More than one proposal is submitted for the same project from a Bidder under the same or different names.

2. A Proposal may be considered irregular and may be reject if:
   a. The Proposal does not include a unit price for every Bid item;
   b. Any of the unit prices are excessively unbalanced (either above or below the amount of a reasonable Bid) to the potential detriment of the Contracting Agency;
   c. Receipt of Addenda is not acknowledged;
   d. A member of a joint venture or partnership and the joint venture or partnership submit Proposals for the same project (in such an instance, both Bids may be rejected); or
   e. If Proposal form entries are not made in ink.

1-02.14 Disqualification of Bidders
(October 18, 2013 Tacoma GSP)
Delete this section and replace it with the following:

A Bidder will be deemed not responsible if:

1. the Bidder does not meet the mandatory bidder responsibility criteria in RCW 39.04.350(1), as amended; or
2. evidence of collusion exists with any other Bidder or potential Bidder. Participants in collusion will be restricted from submitting further bids; or
3. the Bidder, in the opinion of the Contracting Agency, is not qualified for the work or to the full extent of the bid, or to the extent that the bid exceeds the authorized prequalification amount as may have been determined by a prequalification of the Bidder; or
4. an unsatisfactory performance record exists based on past or current
   Contracting Agency work or for work done for others, as judged from the
   standpoint of conduct of the work; workmanship; or progress; affirmative
   action; equal employment opportunity practices; termination for cause; or
   Disadvantaged Business Enterprise, Minority Business Enterprise, or
   Women’s Business Enterprise utilization; or
5. there is uncompleted work (Contracting Agency or otherwise) which in the
   opinion of the Contracting Agency might hinder or prevent the prompt
   completion of the work bid upon; or
6. the Bidder failed to settle bills for labor or materials on past or current
   contracts, unless there are extenuating circumstances acceptable to the
   Contracting Agency; or
7. the Bidder has failed to complete a written public contract or has been
   convicted of a crime arising from a previous public contract, unless there are
   extenuating circumstances acceptable to the Contracting Agency; or
8. the Bidder is unable, financially or otherwise, to perform the work, in the
   opinion of the Contracting Agency; or
9. there are any other reasons deemed proper by the Contracting Agency; or
10. the Bidder fails to meet the Project-specific supplemental bidder responsibility
    criteria listed in the Special Notice to Bidders; or
11. The bidder fails to meet the EIC requirements as described in Section 1-02.6.

As evidence that the Bidder meets the bidder responsibility criteria above, the apparent
two lowest Bidders must submit to the Contracting Agency within 24 hours of the bid
submittal deadline, documentation (sufficient in the sole judgment of the Contracting
Agency) demonstrating compliance with all applicable responsibility criteria, including all
documentation specifically listed in the supplemental criteria. The Contracting Agency
reserves the right to request such documentation from other Bidders as well, and to
request further documentation as needed to assess bidder responsibility.

The basis for evaluation of Bidder compliance with these supplemental criteria shall be
any documents or facts obtained by Contracting Agency (whether from the Bidder or
third parties) which any reasonable owner would rely on for determining such
compliance, including but not limited to: (i) financial, historical, or operational data from
the Bidder; (ii) information obtained directly by the Contracting Agency from owners for
whom the Bidder has worked, or other public agencies or private enterprises; and
(iii) any additional information obtained by the Contracting Agency which is believed to
be relevant to the matter.

If the Contracting Agency determines the Bidder does not meet the bidder responsibility
criteria above and is therefore not a responsible Bidder, the Contracting Agency shall
notify the Bidder in writing, with the reasons for its determination. If the Bidder disagrees
with this determination, it may appeal the determination within 24 hours of receipt of the
Contracting Agency’s determination by presenting its appeal to the Contracting Agency.
The Contracting Agency will consider the appeal before issuing its final determination. If
the final determination affirms that the Bidder is not responsible, the Contracting Agency
will not execute a contract with any other Bidder until at least two business days after the
Bidder determined to be not responsible has received the final determination.
1-02.15 Pre Award Information  
(August 14, 2013 APWA GSP)  

Revise this section to read:

Before awarding any contract, the Contracting Agency may require one or more of these items or actions of the apparent lowest responsible bidder:

1. A complete statement of the origin, composition, and manufacture of any or all materials to be used,
2. Samples of these materials for quality and fitness tests,
3. A progress schedule (in a form the Contracting Agency requires) showing the order of and time required for the various phases of the work,
4. A breakdown of costs assigned to any bid item,
5. Attendance at a conference with the Engineer or representatives of the Engineer,
6. Obtain, and furnish a copy of, a business license to do business in the city or county where the work is located.
7. Any other information or action taken that is deemed necessary to ensure that the bidder is the lowest responsible bidder.

END OF SECTION
1-03 AWARD AND EXECUTION OF CONTRACT

1-03.1 Consideration of Bids
(January 23, 2006 APWA GSP)

Revise the first paragraph to read:

After opening and reading proposals, the Contracting Agency will check them for correctness of extensions of the prices per unit and the total price. If a discrepancy exists between the price per unit and the extended amount of any bid item, the price per unit will control. If a minimum bid amount has been established for any item and the bidder’s unit or lump sum price is less than the minimum specified amount, the Contracting Agency will unilaterally revise the unit or lump sum price, to the minimum specified amount and recalculate the extension. The total of extensions, corrected where necessary, including sales taxes where applicable and such additives and/or alternates as selected by the Contracting Agency, will be used by the Contracting Agency for award purposes and to fix the Awarded Contract Price amount and the amount of the contract bond.

1-03.2 Award of Contract
(March 27, 2003 Tacoma GSP)

All references to 45 calendar days shall be revised to read 60 calendar days.

1-03.3 Execution of Contract
(October 1, 2005 APWA GSP)

Revise this section to read:

Copies of the Contract Provisions, including the unsigned Form of Contract, will be available for signature by the successful bidder on the first business day following award. The number of copies to be executed by the Contractor will be determined by the Contracting Agency.

Within 10 calendar days after the award date, the successful bidder shall return the signed Contracting Agency-prepared contract, an insurance certification as required by Section 1-07.18, and a satisfactory bond as required by law and Section 1-03.4. Before execution of the contract by the Contracting Agency, the successful bidder shall provide any pre-award information the Contracting Agency may require under Section 1-02.15.

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.

If the bidder experiences circumstances beyond their control that prevents return of the contract documents within the calendar days after the award date stated above, the Contracting Agency may grant up to a maximum of 10 additional calendar days for return of the documents, provided the Contracting Agency deems the circumstances warrant it.
Delete the first paragraph and replace it with the following:

The successful bidder shall provide executed payment and performance bond(s) for the full contract amount. The bond may be a combined payment and performance bond; or be separate payment and performance bonds. In the case of separate payment and performance bonds, each shall be for the full contract amount. The bond(s) shall:

1. Be on Contracting Agency-furnished form(s);
2. Be signed by an approved surety (or sureties) that:
   a. Is registered with the Washington State Insurance Commissioner, and
   b. Appears on the current Authorized Insurance List in the State of Washington published by the Office of the Insurance Commissioner,
3. Guarantee that the Contractor will perform and comply with all obligations, duties, and conditions under the Contract, including but not limited to the duty and obligation to indemnify, defend, and protect the Contracting Agency against all losses and claims related directly or indirectly from any failure:
   a. Of the Contractor (or any of the employees, subcontractors, or lower tier subcontractors of the Contractor) to faithfully perform and comply with all contract obligations, conditions, and duties, or
   b. Of the Contractor (or the subcontractors or lower tier subcontractors of the Contractor) to pay all laborers, mechanics, subcontractors, lower tier subcontractors, material person, or any other person who provides supplies or provisions for carrying out the work;
4. Be conditioned upon the payment of taxes, increases, and penalties incurred on the project under titles 50, 51, and 82 RCW; and
5. Be accompanied by a power of attorney for the Surety's officer empowered to sign the bond; and
6. Be signed by an officer of the Contractor empowered to sign official statements (sole proprietor or partner). If the Contractor is a corporation, the bond(s) must be signed by the president or vice president, unless accompanied by written proof of the authority of the individual signing the bond(s) to bind the corporation (i.e., corporate resolution, power of attorney, or a letter to such effect signed by the president or vice president).

Failure to return the insurance certification and bond with the signed contract as required in Section 1-03.3, or failure to provide Equity In Contracting (EIC) information if required in the contract, or failure or refusal to sign the Contract, or failure to register as a contractor in the state of Washington shall result in forfeiture of the bid bond or deposit of this Bidder.

END OF SECTION
1-04  SCOPE OF THE WORK

1-04.2 Coordination of Contract Documents, Plans, Special Provisions, Specifications, and Addenda
(December 10, 2020  APWA GSP)

Revise the second paragraph to read:

Any inconsistency in the parts of the contract shall be resolved by following this order of precedence (e.g., 1 presiding over 2, 2 over 3, 3 over 4, and so forth):

1. Addenda,
2. Proposal Form,
3. Special Provisions,
4. Contract Plans,
5. Standard Specifications,
6. Contracting Agency's Standard Plans or Details (if any), and
7. WSDOT Standard Plans for Road, Bridge, and Municipal Construction.

1-04.6 Variation in Estimated Quantities
(May 25, 2006 APWA GSP)

This section is supplemented with the following:

The quantities for Pothole Existing Utility Unsuitable Foundation Excavation Incl. Haul, Cold Plant Mix for Temporary Pavement Patch, Crushed Surfacing Base Course, Trail Border Cobbles, CDF for Pipe Abandonment, and Removal and Replacement of Unsuitable Material have been entered into the Proposal only to provide a common proposal for bidders. Actual quantities will be determined in the field as the work progresses, and will be paid at the original bid price, regardless of final quantity. These bid items shall not be subject to the provisions of 1-04.6 of the Standard Specifications.

END OF SECTION
1-05 CONTROL OF WORK

1-05.3 Working Drawings
(January 6, 2015 Tacoma GSP)

This section is deleted in its entirety and replaced with the following:

1-05.3 Submittals

The Contractor shall not install materials or equipment, which requires submittals, until reviewed by the Contracting Agency. Late submissions by the Contractor shall not be cause for time extension.

Submittals shall be made per Bid Item, rather than per material. The Contractor shall be responsible for ensuring that each submittal includes cut sheets and/or other information for all pertinent materials necessary to complete the work for each Bid Item. It is understood that producing submittals for each Bid Item may require multiple submittals of common materials that are associated with more than one Bid Item. The Contractor shall also be responsible for producing submittals that may only be associated with a Specification Section, not a particular Bid Item.

The Contractor shall submit electronic copies of each submittal required by the Contract Documents through the Contracting Agency’s web-based project management software, e-Builder® (see Section 1-05.19), unless otherwise required in these Special Provisions. This includes, but is not limited to:

- Shop Drawings/Plans
- Product Data
- Samples
- Reports
- Material Submittals (Ref. 1-06)
- Progress Schedules (Ref. 1-08.3)
- Guarantees/Warranties (Ref. 1-05.10)

Physical samples shall be delivered with a hardcopy transmittal of the e-Builder® submittal.

The Engineer will return reviewed submittals through the e-Builder® web-based project management software for the Contractor’s use.

1-05.3(1) Submittal Schedule

In conformance with Section 1-08.3, the progress schedule shall be submitted and reviewed prior to commencing any work. No delay claim shall be entertained for Contractor’s failure to comply.

No claim will be allowed for damages or extension of time resulting from rejection of a submittal or the requirement of resubmittals as outlined by this section.

The Engineer’s review will be completed as quickly as possible, but may require up to ten (10) working days from the date the submittals or resubmittals are received until they...
are sent to the Contractor. If more than ten (10) working days are required for the Engineer’s review of any individual submittal or resubmittal, an extension of time will be considered in accordance with Section 1-08.8.

1-05.3(2) Submittal Procedures

Contractor submittals shall be in accordance with the following:

The Contractor shall thoroughly review each submittal for dimensions, quantities, and details of the material or item shown. The Contractor shall review each submittal and note any errors, omissions, or deviations with the Contract Documents. The Contractor shall accept full responsibility for the completeness of each submittal.

Each submittal shall have a unique number assigned to it (via e-Builder®). On each page, indicate the page number, and total number of pages in each submittal.

Each submittal shall indicate the following:

1. The intended use of the item in the work;
2. Clearly indicate only applicable items on any catalog cut sheets;
3. The current revision, issue number, and data shall be indicated on all drawings and other descriptive data.
4. Description of Submittal.
5. Related Specification Section and/or plan sheet.
6. Each material submittal shall clearly indicate the name and address of all suppliers, processors, distributors, and/or producers from which the Contractor directly purchased each material.

When submitting product data, the Contractor shall modify drawings to delete any information not applicable to the project and add information that is applicable to the project. The Contractor shall mark copies of printed material to clearly identify the pertinent materials, products or models.

Samples submitted shall be of sufficient size and quantity to clearly illustrate functional characteristics of product or material and full range of colors available. Field samples and mock-ups, where required, shall be erected at the project site where directed by the Engineer.

The Contractor shall notify the Engineer, in writing at time of submission, of deviations in submittals from requirements of the contract documents.

The City shall not be responsible for delays in reviewing submittals not submitted in accordance with these specifications.

1-05.3(3) Engineer’s Review of Submittals

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 documents.
Review of a separate item does not constitute review of an assembly in which the item functions.

When the submittal or resubmittal is marked “REVIEWED” no further correspondence is required. When the submittal is marked “REVIEWED WITH COMMENTS” the Contractor shall comply with any comments on the return submittal.

**1-05.3(4) Resubmittals**

When a submittal is marked “REVISE AND RESUBMIT” or “REJECTED,” the Contractor shall make the corrections as noted and instructed by the Engineer and resubmit via e-Builder®. The Contractor shall not install material or equipment that has received a review status of “REVISE AND RESUBMIT” or REJECTED.

When corrected copies are resubmitted, the Contractor shall in writing direct specific attention to all revisions and shall list separately any revision made other than those called for by the Engineer on previous submittals. e-Builder® will assign the resubmittal number of the original submittal followed by a revision number (1, 2, etc.) to indicate the sequence of the resubmittal.

Each submittal shall have a unique number assigned to it (via e-Builder®).

The Contractor shall revise returned submittals as required and resubmit until final review is obtained. Any associated progress delay due to the Contractor’s need to revise and resubmit is the Contractor’s sole responsibility.

The Contractor shall verify that all exceptions previously noted by the Engineer have been accounted for.

**1-05.3(5) Submittal Requirements by Section**

The following is a general summary of submittal requirements. This summary is not inclusive of all submittal requirements and does not relieve the Contractor of their responsibility to provide submittals as noted in subsequent sections of the specifications. The Contractor shall review each bid item and individual section in the applicable provisions or specifications, as noted below, for specific requirements.

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1-05.3(6) Project Red Line Drawings

The Contractor shall submit Project Red Line Drawings in accordance with the following.

Red line drawings refer to those documents maintained and annotated by the Contractor during construction and is defined as, a neatly and legibly marked set of Contract drawings showing any changes made to the original details of work.

The Contractor shall maintain drawings in good condition; protect from deterioration and keep in a clean, dry, and secure location. The Project Red Line Drawings shall not be used for construction purposes.

The Contractor shall provide to the City, access to Project Red Line Drawings at all times during normal working hours.

Red line drawings shall be updated on a continuous basis. The Contractor shall bring the up-to-date drawings to a monthly “red line review” meeting where the Engineer will verify the maintenance of the Project Red Line Drawings as part of the condition precedent to approving the monthly progress payment disbursement process. Monthly progress payments to the Contractor may not be processed, if red line information for the involved work to date has not been accurately recorded on the Project Red Line Drawings.

At the completion of the construction work, prior to pre-final payment, all Project Red Line Drawings shall be submitted to the Engineer.

A. Project Red Line Drawings:

Do not permanently conceal any work until required information has been recorded. Mark drawings to show the actual installation where the installation varies from the work as originally shown on the Contract drawings or indicated in the Contract specifications. Give particular attention to information on concealed elements that would be difficult to measure and record at a later date.

1. Changes and information shall be clearly drawn, described and shown technically correct.
2. Mark drawings with red erasable pencil.
3. Record data as soon as possible after obtaining it.
5. Keep accurate measurements of horizontal and vertical locations of underground services and utilities.
6. Mark any changes made where installation varies from that shown originally, such as, in materials, equipments, locations, alignments, elevations, and any other dimensions of the work.
7. For any work not demolished, abated, or salvaged, cross out and appropriately annotate “Not Complete”.
8. Indicate revisions to drawings with a “cloud” drawn around the revision and note date the revision(s) was made.
9. Note Request For Change (RFC), Request For Information (RFI), and similar identification, where applicable.
B. Format:

Identify and date each print; include the designation “PROJECT RED LINE DRAWINGS” in a prominent location.

1. Prints: Organize Red Line Drawings into manageable sets. Include identification on cover sheets.

2. Identify cover sheets as follows:
   - Specification No.
   - Project Name
   - Date
   - “PROJECT RED LINE DRAWINGS”
   - Name of Engineer
   - Name of Contractor


The lump sum Contract price for “Project Red Line Drawings” shall be full pay for all costs associated with, including but not limited to, documenting, revising, updating, maintaining, and submitting red line drawings at the completion of construction work.

1-05.3(8) Clarifications

Clarifications of the Contract intent shall be submitted via a Request for Information (RFI) using e-Builder® as described in Section 1-05.19 of the Special Provisions. The Contractor shall provide a clear and concise clarification question, specific project document reference such as plan detail number or specification number, proposed solution to the clarification question, and provide any supporting documentation necessary to understand the clarification question.

Request for Information responses provided by the Contracting Agency shall be incorporated into the Project Red-Line Drawings, if resulting in a change to the Contract Plans.

Request for Information responses provided by the Contracting Agency shall not be construed to be a change to the Contract Documents.

1-05.4 Conformity With and Deviations from Plans and Stakes

Supplement this section with the following:

Roadway and Utility Surveys
(July 23, 2015 APWA GSP, Option 1)

The Engineer shall furnish to the Contractor one time only all principal lines, grades, and measurements the Engineer deems necessary for completion of the work. These shall generally consist of one initial set of:

1. Slope stakes for establishing grading;

2. Curb grade stakes;
3. Centerline finish grade stakes for pavement sections wider than 25 feet; and
4. Offset points to establish line and grade for underground utilities such as water, sewers, and storm drains.

On alley construction projects with minor grade changes, the Engineer shall provide only offset hubs on one side of the alley to establish the alignment and grade.

Supplement this section with the following:

Bridge and Structure Surveys
(July 23, 2015 APWA GSP, Option 2)

For all structural work such as bridges and retaining walls, the Contractor shall retain as a part of Contractor’s organization an experienced team of surveyors.

The Contractor shall provide all surveys required to complete the structure, except the following primary survey control which will be provided by the Engineer:

1. Centerline or offsets to centerline of the structure.
2. Stations of abutments and pier centerlines.
3. A sufficient number of bench marks for levels to enable the Contractor to set grades at reasonably short distances.
4. Monuments and control points as shown in the Plans.

The Contractor shall establish all secondary survey controls, both horizontal and vertical, as necessary to assure proper placement of all project elements based on the primary control points provided by the Engineer. Survey work shall be within the following tolerances:

Stationing ± 0.01 foot
Alignment ± 0.01 foot (between successive points)
Superstructure Elevations ± 0.01 foot (from plan elevations)
Substructure Elevations ± 0.05 foot (from plan elevations)

During the progress of the work, the Contractor shall make available to the Engineer all field books including survey information, footing elevations, cross sections and quantities.

The Contractor shall be fully responsible for the close coordination of field locations and measurements with appropriate dimensions of structural members being fabricated.

1-05.7 Removal of Defective and Unauthorized Work
(October 1, 2005 APWA GSP)

Supplement this section with the following:

If the Contractor fails to remedy defective or unauthorized work within the time specified in a written notice from the Engineer, or fails to perform any part of the work required by the Contract Documents, the Engineer may correct and remedy such work as may be
identified in the written notice, with Contracting Agency forces or by such other means as the Contracting Agency may deem necessary.

If the Contractor fails to comply with a written order to remedy what the Engineer determines to be an emergency situation, the Engineer may have the defective and unauthorized work corrected immediately, have the rejected work removed and replaced, or have work the Contractor refuses to perform completed by using Contracting Agency or other forces. An emergency situation is any situation when, in the opinion of the Engineer, a delay in its remedy could be potentially unsafe, or might cause serious risk of loss or damage to the public.

Direct or indirect costs incurred by the Contracting Agency attributable to correcting and remedying defective or unauthorized work, or work the Contractor failed or refused to perform, shall be paid by the Contractor. Payment will be deducted by the Engineer from monies due, or to become due, the Contractor. Such direct and indirect costs shall include in particular, but without limitation, compensation for additional professional services required, and costs for repair and replacement of work of others destroyed or damaged by correction, removal, or replacement of the Contractor’s unauthorized work.

No adjustment in Contract time or compensation will be allowed because of the delay in the performance of the work attributable to the exercise of the Contracting Agency’s rights provided by this Section.

The rights exercised under the provisions of this section shall not diminish the Contracting Agency’s right to pursue any other avenue for additional remedy or damages with respect to the Contractor’s failure to perform the work as required.

1-05.11 Final Inspection
Delete this section and replace it with the following:

1-05.11 Final Inspections and Operational Testing
(October 1, 2005 APWA GSP)

1-05.11(1) Substantial Completion Date

When the Contractor considers the work to be substantially complete, the Contractor shall so notify the Engineer and request the Engineer establish the Substantial Completion Date. The Contractor’s request shall list the specific items of work that remain to be completed in order to reach physical completion. The Engineer will schedule an inspection of the work with the Contractor to determine the status of completion. The Engineer may also establish the Substantial Completion Date unilaterally.

If, after this inspection, the Engineer concurs with the Contractor that the work is substantially complete and ready for its intended use, the Engineer, by written notice to the Contractor, will set the Substantial Completion Date. If, after this inspection the Engineer does not consider the work substantially complete and ready for its intended use, the Engineer will, by written notice, so notify the Contractor giving the reasons therefore.
Upon receipt of written notice concurring in or denying substantial completion, whichever is applicable, the Contractor shall pursue vigorously, diligently and without unauthorized interruption, the work necessary to reach Substantial and Physical Completion. The Contractor shall provide the Engineer with a revised schedule indicating when the Contractor expects to reach substantial and physical completion of the work.

The above process shall be repeated until the Engineer establishes the Substantial Completion Date and the Contractor considers the work physically complete and ready for final inspection.

1-05.11(2) Final Inspection and Physical Completion Date

When the Contractor considers the work physically complete and ready for final inspection, the Contractor by written notice, shall request the Engineer to schedule a final inspection. The Engineer will set a date for final inspection. The Engineer and the Contractor will then make a final inspection and the Engineer will notify the Contractor in writing of all particulars in which the final inspection reveals the work incomplete or unacceptable. The Contractor shall immediately take such corrective measures as are necessary to remedy the listed deficiencies. Corrective work shall be pursued vigorously, diligently, and without interruption until physical completion of the listed deficiencies. This process will continue until the Engineer is satisfied the listed deficiencies have been corrected.

If action to correct the listed deficiencies is not initiated within 7 days after receipt of the written notice listing the deficiencies, the Engineer may, upon written notice to the Contractor, take whatever steps are necessary to correct those deficiencies pursuant to Section 1-05.7.

The Contractor will not be allowed an extension of contract time because of a delay in the performance of the work attributable to the exercise of the Engineer’s right hereunder.

Upon correction of all deficiencies, the Engineer will notify the Contractor and the Contracting Agency, in writing, of the date upon which the work was considered physically complete. That date shall constitute the Physical Completion Date of the Contract, but shall not imply acceptance of the work or that all the obligations of the Contractor under the contract have been fulfilled.

1-05.11(3) Operational Testing

It is the intent of the Contracting Agency to have at the Physical Completion Date a complete and operable system. Therefore when the work involves the installation of machinery or other mechanical equipment; street lighting, electrical distribution or signal systems; irrigation systems; buildings; or other similar work it may be desirable for the Engineer to have the Contractor operate and test the work for a period of time after final inspection but prior to the physical completion date. Whenever items of work are listed in the Contract Provisions for operational testing they shall be fully tested under operating conditions for the time period specified to ensure their acceptability prior to the Physical Completion Date. During and following the test period, the Contractor shall correct any items of workmanship, materials, or equipment which prove faulty, or that are not in first class operating condition. Equipment, electrical controls, meters, or other devices and
equipment to be tested during this period shall be tested under the observation of the
Engineer, so that the Engineer may determine their suitability for the purpose for which
they were installed. The Physical Completion Date cannot be established until testing
and corrections have been completed to the satisfaction of the Engineer.

The costs for power, gas, labor, material, supplies, and everything else needed to
successfully complete operational testing, shall be included in the unit Contract prices
related to the system being tested, unless specifically set forth otherwise in the proposal.

Operational and test periods, when required by the Engineer, shall not affect a
manufacturer’s guaranties or warranties furnished under the terms of the Contract.

1-05.12 Final Acceptance
Add the following new section:

1-05.12(1) One-Year Guarantee Period
(March 8, 2013 APWA GSP)

The Contractor shall return to the project and repair or replace all defects in
workmanship and material discovered within one year after Final Acceptance of the
Work. The Contractor shall start work to remedy any such defects within 7 calendar
days of receiving Contracting Agency’s written notice of a defect, and shall complete
such work within the time stated in the Contracting Agency’s notice. In case of an
emergency, where damage may result from delay or where loss of services may result,
such corrections may be made by the Contracting Agency’s own forces or another
Contractor, in which case the cost of corrections shall be paid by the Contractor. In the
event the Contractor does not accomplish corrections within the time specified, the work
will be otherwise accomplished and the cost of same shall be paid by the Contractor.

When corrections of defects are made, the Contractor shall then be responsible for
correcting all defects in workmanship and materials in the corrected work for one year
after acceptance of the corrections by Contracting Agency.

This guarantee is supplemental to and does not limit or affect the requirements that the
Contractor’s work comply with the requirements of the Contract or any other legal rights
or remedies of the Contracting Agency.

1-05.13 Superintendents, Labor and Equipment of Contractor
(August 14, 2013 APWA GSP)

Delete the sixth and seventh paragraphs of this section.

1-05.15 Method of Serving Notices
(March 25, 2009 APWA GSP)
Revise the second paragraph to read:

All correspondence from the Contractor shall be directed to the Project Engineer. All
correspondence from the Contractor constituting any notification, notice of protest, notice
of dispute, or other correspondence constituting notification required to be furnished
under the Contract, must be in paper format, hand delivered or sent via mail delivery
service to the Project Engineer’s office. Electronic copies such as e-mails or
electronically delivered copies of correspondence will not constitute such notice and will
not comply with the requirements of the Contract.
Add the following new section:

1-05.16 Water and Power
(October 1, 2005 APWA GSP)

The Contractor shall make necessary arrangements, and shall bear the costs for power and water necessary for the performance of the work, unless the Contract includes power and water as a pay item.

Add the following new section:

1-05.19 Project Management Communications
(March 16, 2018 Tacoma GSP)

1-05.19(1) Summary

The Contractor shall use the Internet web based project management communications tool, e-Builder® ASP software, and protocols included in that software during this project. The use of project management communications as herein described does not replace or change any contractual responsibilities of the participants.

User registration, electronic and computer equipment, and internet connections are the responsibility of each project participant.

Nothing in this specification or the subsequent communications supersedes the parties’ obligations and rights for copyright or document ownership as established by the Contract Documents. The use of CAD files, processes, or design information distributed in this system is intended only for the project specified herein.

1-05.19(2) Training & Support

A group training session scheduled by the Contracting Agency will be provided for the Contractor at a City of Tacoma training facility. The training session duration is generally 4 hours. The Contractor’s e-Builder® users are required to attend the scheduled training sessions that they are assigned to. Requests for specific scheduled classes will be on a first come first served basis by availability.

1-05.19(3) Authorized Users

Access to the web site will be by individuals who are licensed users.

1. The City will provide the Contractor with up to four licensed user accounts for the duration of the project. The sharing of user accounts is prohibited.
2. Additional licensed user accounts may be purchased from e-Builder®.
3. Authorized users will be contacted via e-mail with a temporary user password. The user shall update the required information at their first log-in and be responsible for proper password protection.
4. Only entities with a direct Contract with the Contracting Agency will be allowed to be an authorized user.
1-05.19(4) Communications

The use of fax, email and courier communication for this project is discouraged in favor of using e-Builder® to send messages. Communication functions are as follows:

1. Document Integrity and Revisions: Documents, comments, drawings and other data posted to the system remain a permanent component of the project. The originator, time and date are recorded for each document submitted to the system. Submitting a new document or record with a unique ID, originator, and time stamp is the method used to make modifications or corrections.

2. Document Security: The system provides a method for communication of documents. Documents allow security group assignment to respect the contractual parties’ communication with the exception that the Contracting Agency Administrative Users have access to everything. **DO NOT POST PRIVATE OR CONFIDENTIAL ITEMS IN THE DATABASE.**

3. Notifications and Distribution: Document distribution to project members may be accomplished both within the e-Builder® system and via email depending on user settings. Project document distribution to parties outside of the project communication system may be accomplished by secure email of outgoing documents and attachments, readable by a standard email client.

4. Except for paper documents which require original signatures and large format documents (greater than 11 x 17 inches), all other documents shall be submitted by transmission in electronic form to the e-Builder® web site by licensed users.
   a. Large format documents may be transmitted by hardcopy and electronically via e-Builder® as otherwise agreed, or as otherwise noted in the specifications.
   b. Electronic processes and document types that shall be managed via e-Builder® include, but are not limited to:
      i. Request for Information (RFI)
      ii. Change Order (CO)
      iii. Submittals
      iv. Transmittals, including record of documents and materials delivered in hard copy
      v. Meeting Minutes
      vi. Application for Payments
      vii. Review Comments
      viii. Inspector’s Daily Field Reports (IDR)
      ix. Construction Photographs
      x. Drawings
      xi. Supplemental Sketches
      xii. Schedules
      xiii. Specifications
      xiv. Inspection Reports
      xv. Survey Requests
      xvi. TV Inspection Requests

1-05.19(5) Record Keeping

1. The Contracting Agency, their representatives, and the Contractor shall respond to electronic documents received from e-Builder® and consider them as if received in paper document form.
2. The Contracting Agency, their representatives, and the Contractor reserve the right to reply or respond through e-Build@® to documents actually received in paper document form.

3. The following are examples of paper documents which may require an original signature:
   a. Contract
   b. Change Orders
   c. Application & Certificates for Payment
   d. Force Account and Protested Force Account forms

1-05.19(6) Minimum Equipment Requirements

In addition to other requirements specified in this Section, the Contractor shall be responsible for providing suitable computers, necessary software and internet access to utilize e-Build@®. Furthermore, Microsoft Word, Microsoft Excel, and Adobe Acrobat Reader (compatible with current versions) are required. Contact e-Build@® for any additional equipment requirements and support at the following website: http://www.e-builder.net/services/support.

No separate payment will be made for the use of e-Build@®, as this will be considered incidental to the Contract. All costs incurred to carry out the requirements of utilizing and maintaining e-Build@®, including but not limited to, labor, training, equipment, and required software are the sole responsibility of the Contractor.

END OF SECTION
1-06 CONTROL OF MATERIAL

1-06.1 Approval of Materials Prior To Use
(September 15, 2010 Tacoma GSP)
The first sentence is revised to read:

All materials and equipment shall be submitted for review in accordance with
Section 1-05.3 of these special provisions.

For aggregates, the Contractor shall notify the Engineer of all proposed aggregates.
The Contractor shall use the Aggregate Source Approval (ASA) Database.

All equipment, materials, and articles incorporated into the permanent Work:

1. Shall be new, unless the Special Provisions or Standard Specifications permit
   otherwise;
2. Shall meet the requirements of the Contract and be approved by the Engineer;
3. May be inspected or tested at any time during their preparation and use; and
4. Shall not be used in the Work if they become unfit after being previously
   approved.

1-06.1(1) Qualified Products List (QPL)
This section is revised in its entirety to read:

QPLs are not accepted by the City.

1-06.1(2) Request for Approval of Material (RAM)
This section is deleted in its entirety:

END OF SECTION
1-07 LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC

1-07.1 Laws to be Observed

(October 1, 2005 APWA GSP)

Supplement this section with the following:

In cases of conflict between different safety regulations, the more stringent regulation shall apply.

The Washington State Department of Labor and Industries shall be the sole and paramount administrative agency responsible for the administration of the provisions of the Washington Industrial Safety and Health Act of 1973 (WISHA).

The Contractor shall maintain at the project site office, or other well known place at the project site, all articles necessary for providing first aid to the injured. The Contractor shall establish, publish, and make known to all employees, procedures for ensuring immediate removal to a hospital, or doctor’s care, persons, including employees, who may have been injured on the project site. Employees should not be permitted to work on the project site before the Contractor has established and made known procedures for removal of injured persons to a hospital or a doctor’s care.

The Contractor shall have sole responsibility for the safety, efficiency, and adequacy of the Contractor’s plant, appliances, and methods, and for any damage or injury resulting from their failure, or improper maintenance, use, or operation. The Contractor shall be solely and completely responsible for the conditions of the project site, including safety for all persons and property in the performance of the work. This requirement shall apply continuously, and not be limited to normal working hours. The required or implied duty of the Engineer to conduct construction review of the Contractor’s performance does not, and shall not, be intended to include review and adequacy of the Contractor’s safety measures in, on, or near the project site.

(* *****)

COVID-19 Health and Safety Plan

In response to COVID-19, the Contractor shall prepare a project specific COVID-19 health and safety plan (CHSP) in conformance with Section 1-07.4(2) as supplemented in these specifications, COVID-19 Health and Safety Plan (CHSP).

1-07.2 State Taxes

(January 6, 2015 TACOMA GSP)

Supplement this section with the following:

Washington State Department of Revenue Rules 170 and 171 shall apply as shown in the Proposal and per Section 1-07.2 of the WSDOT and APWA Standard Specifications for Road, Bridge, and Municipal Construction.
1-07.4 Sanitation

1-07.4(2) Health Hazards

(******)

Supplement this section with the following:

COVID-19 Health and Safety Plan (CHSP)

The Contractor shall prepare a project specific COVID-19 health and safety plan (CHSP). The CHSP shall be prepared and submitted as a Type 2 Working Drawing prior to beginning physical Work. The CHSP shall be based on the most current State and Federal requirements. If the State or Federal requirements are revised, the CHSP shall be updated as necessary to conform to the current requirements.

The Contractor shall update and resubmit the CHSP as the work progresses and new activities appear on the look ahead schedule required under Section 1-08.3(2)D. If the conditions change on the project, or a particular activity, the Contractor shall update and resubmit the CHSP. Work on any activity shall cease if conditions prevent full compliance with the CHSP.

The CHSP shall address the health and safety of all people associated with the project including State workers in the field, Contractor personnel, consultants, project staff, subcontractors, suppliers and anyone on the project site, staging areas, or yards.

COVID-19 Health and Safety Plan (CHSP) Inspection

The Contractor shall grant full and unrestricted access to the Engineer for CHSP Inspections. The Engineer (or designee) will conduct periodic compliance inspections on the project site, staging areas, or yards to verify that any ongoing work activity is following the CHSP plan. If the Engineer becomes aware of a noncompliance incident either through a site inspection or other means, the Contractor will be notified immediately (within 1 hour). The Contractor shall immediately remedy the noncompliance incident or suspend all or part of the associated work activity. The Contractor shall satisfy the Engineer that the noncompliance incident has been corrected before the suspension will end.

1-07.9 Wages

1-07.9(5) Required Documents
(March 1, 2004 Tacoma GSP)

The first sentence of the third paragraph is revised to read:

Weekly certified payrolls shall be submitted for the Contractor and all lower tier subcontractors or agents.

This section is supplemented with the following:

Where fringe benefits are paid in cash, certified payrolls shall include the fringe benefit dollar amount paid to each employee for each employee classification.
Where fringe benefits are paid into approved plans, funds, or programs, the amount of
the fringe benefits shall be identified in the “Benefit Distribution” section of the Certified
Payroll Affirmation form.

1-07.15 Temporary Water Pollution Prevention
(March 23, 2010 Tacoma GSP)
This section is supplemented with the following:

Stormwater or dewatering water that has come in contact with concrete rubble, concrete
pours, or cement treated soils shall be maintained to pH 8.5 or less before it is allowed
to enter waters of the State or the City stormwater system. If pH exceeds 8.5, the
Contractor shall immediately discontinue work and initiate treatment according to the
plan to lower the pH. Work may resume, with treatment, once the pH of the stormwater
is 8.5 or less or it can be demonstrated that the runoff will not reach surface waters or
the City stormwater system.

High pH process water shall not be discharged to waters of the State or the City
stormwater system. Unless specific measures are identified in the Special Provisions,
high pH water may be infiltrated, dispersed in vegetation or compost, or discharged to a
sanitary sewer system. Disposal shall be in accordance with the City of Tacoma Surface
Water Management Manual or to City wastewater system with proper approval. Water
being infiltrated or dispersed shall have no chance of discharging directly to waters of
the State or the City stormwater system, including wetlands or conveyances that
indirectly lead to waters of the State. High pH process water shall be treated to within a
range of 6.5 to 8.5 pH units prior to infiltration to ensure the discharge does not cause a
violation of groundwater quality standards. If water is discharged to the sanitary sewer,
the Contractor shall provide a copy of permits and requirements for placing the material
into a sanitary sewer system prior to beginning the work. Process water may be
collected and disposed of by the Contractor off the project site. The Contractor shall
provide a copy of the permit for an approved waste site for the disposal of the process
water prior to the start of work that generates the process water. A Special Approved
Discharge permit shall be required for all discharges to the sanitary sewer system.

(******)
This section is supplemented with the following:

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.
Any actions that potentially allow a discharge to state waters must have prior approval of
the Washington State Department of Ecology.

1-07.15(1) Spill Prevention, Control, and Countermeasures Plan
(February 9, 2011 Tacoma GSP)
This section is revised to read:

The Contractor shall prepare a project-specific spill prevention, control, and
countermeasures plan (SPCC Plan) that will be used for the duration of the project. The
Contractor shall submit the plan to the Project Engineer no later than the date of the
preconstruction conference. No on-site construction activities may commence until the Contracting Agency accepts an SPCC Plan for the project.

The SPCC Plan shall address all fuels, petroleum products, hazardous materials, and other materials as defined in Chapter 447 of the WSDOT Environmental Procedures Manual (M 31-11). Occupational safety and health requirements that may pertain to SPCC Plan implementation are contained in, but not limited to, WAC 296-824 and WAC 296-843.

**Implementation Requirements**

The SPCC Plan shall be updated by the Contractor throughout project construction so that the written plan reflects actual site conditions and practices. The Contractor shall update the SPCC Plan at least annually and maintain a copy of the updated SPCC Plan on the project site. All project employees shall be trained in spill prevention and containment, and they shall know where the SPCC Plan and spill response kits are located and have immediate access to them.

If hazardous materials are encountered or spilled during construction, the Contractor shall do everything possible to control and contain the material until appropriate measures can be taken. The Contractor shall supply and maintain spill response kits of appropriate size within close proximity to hazardous materials and equipment.

The Contractor shall implement the spill prevention measures identified in the SPCC Plan before performing any of the following:

1. Placing materials or equipment in staging or storage areas.
2. Refueling, washing, or maintaining equipment.

**SPCC Plan Element Requirements**

The SPCC Plan shall set forth the following information in the following order:

1. **Responsible Personnel**
   Identify the name(s), title(s), and contact information, including a 24/7 emergency contact number, for the personnel responsible for implementing and updating the plan, including all spill responders.

2. **Spill Reporting**
   List the names and telephone numbers of the Federal, State, and local agencies the Contractor shall notify in the event of a spill. The City of Tacoma contact will be the Wastewater Treatment Plant Operations number at 253.591.5595 and the City Source Control Spill Response number at 253.502.2222.

3. **Project and Site Information**
   Describe the following items:
   A. The project Work.
   B. The site location and boundaries.
C. The drainage pathways from the site, including both stormwater and sanitary conveyance pathways.

D. Nearby waterways and sensitive areas and their distances from the site.

4. Potential Spill Sources

Describe each of the following for all potentially hazardous materials brought or generated on-site (including materials used for equipment operation, refueling, maintenance, or cleaning):

A. Name of material and its intended use.

B. Estimated maximum amount on-site at any one time.

C. Location(s) (including any equipment used below the ordinary high water line) where the material will be staged, used, and stored and the distance(s) from nearby waterways and sensitive areas.

D. Decontamination location and procedure for equipment that comes into contact with the material.

E. Disposal procedures.

F. Include a Safety Data Sheet (SDS) for each potentially hazardous material.

5. Pre-Existing Contamination

Describe any pre-existing contamination and contaminant sources (such as buried pipes or tanks) in the project area that are described in the Contract documents. Identify equipment and work practices that will be used to prevent the release of contamination.

6. Spill Prevention and Response Training

Describe how and when all personnel (including refueling Contractors and Subcontractors) will be trained in spill prevention, containment, and response in accordance with the Plan. Describe how and when all spill responders will be trained in accordance with WAC 296-824.

7. Spill Prevention

Describe the following items:

A. Spill response kit contents and location(s).

B. Security measures for potential spill sources.

C. Secondary containment practices and structures for all containers to handle the maximum volume of potential spill of hazardous materials.

D. Methods used to prevent stormwater from contacting hazardous materials.

E. Site inspection procedures and frequency.

F. Equipment and structure maintenance practices.

G. Daily inspection and cleanup procedures that ensure all equipment used below the ordinary high water line is free of all external petroleum-based products.

H. Refueling procedures for equipment that cannot be moved from below the ordinary high water line.

8. Spill Response

Outline the response procedures the Contractor will follow for each scenario listed below. Include a description of the actions the Contractor shall take and the specific on-site spill response equipment that shall be used to assess the spill,
secure the area, contain and eliminate the spill source, and clean up and dispose
of spilled and contaminated material.

Response procedures shall be outlined in the Spill Response section and shall
include notification to the City of Tacoma Wastewater Treatment Plant
Operations number at 253.591.5595 and the City Source Control Spill Response
number at 253.502.2222.

A. A spill of each type of hazardous material at each location identified in 4,
above.
B. Stormwater that has come into contact with hazardous materials.
C. Drainage pathways from the site, including both stormwater and sanitary
conveyance pathways.
D. A release or spill of any unknown pre-existing contamination and contaminant
sources (such as buried pipes or tanks) encountered during project Work.
E. A spill occurring during Work with equipment used below the ordinary high
water line.

If the Contractor will use a Subcontractor for spill response, provide contact
information for the Subcontractor under item 1 (above), identify when the
Subcontractor will be used, and describe actions the Contractor shall take while
waiting for the Subcontractor to respond.

9. Project Site Map
Provide a map showing the following items:

1. Site location and boundaries.
2. Site access roads.
3. Drainage pathways from the site.
4. Nearby waterways and sensitive areas.
5. Hazardous materials, equipment, and decontamination areas identified in 4,
above.
6. Pre-existing contamination or contaminant sources described in 5, above.
7. Spill prevention and response equipment described in 7 and 8, above.

10. Spill Report Forms
Provide a copy of the spill report form(s) that the Contractor will use in the event
of a release or spill.

Payment
Payment will be made in accordance with Section 1-04.1 for the following Bid item when
it is included in the Proposal:

"SPCC Plan," lump sum.

When the written SPCC Plan is accepted by the Contracting Agency, the Contractor
shall receive 50-percent of the lump sum Contract price for the plan.

The remaining 50-percent of the lump sum price will be paid after the materials and
equipment called for in the plan are mobilized to the project.
The lump sum payment for “SPCC Plan” shall be full pay for:

1. All costs associated with creating the accepted SPCC Plan.

2. All costs associated with providing and maintaining the on-site spill prevention equipment described in the accepted SPCC Plan.

3. All costs associated with providing and maintaining the on-site standby spill response equipment and materials described in the accepted SPCC Plan.

4. All costs associated with implementing the spill prevention measures identified in the accepted SPCC Plan.

5. All costs associated with updating the SPCC Plan as required by this Specification.

As to other costs associated with releases or spills, the Contractor may request payment as provided for in the Contract. No payment shall be made if the release or spill was caused by or resulted from the Contractor’s operations, negligence, or omissions.

1-07.16 Protection and Restoration of Property

1-07.16(1) Private/Public Property
(January 13, 2011 Tacoma GSP)
This section is supplemented with the following:

Stockpiling in City of Tacoma right-of-way or on existing or new improvements shall not occur unless approved by the Engineer. All stockpile sites shall be restored to as good or better condition.

The Contractor shall contact all property owners and tenants in the vicinity of this project, via newsletter/mailing, a minimum of one (1) week prior to start of construction. The Contractor shall submit a draft of the property owner notification prior to posting/mailing.

The newsletter/mailing shall advise the owners and tenants of the construction schedule and indicate the Contractor’s name, contact person, and telephone numbers.

1-07.16(2) Vegetation Protection and Restoration
(August 2, 2010 WSDOT GSP, Option 1)
Section 1-07.16(2) is supplemented with the following:

Vegetation and soil protection zones for trees shall extend out from the trunk to a distance of 1 foot radius for each inch of trunk diameter at breast height.

Vegetation and soil protection zones for shrubs shall extend out from the stems at ground level to twice the radius of the shrub.

Vegetation and soil protection zones for herbaceous vegetation shall extend to encompass the diameter of the plant as measured from the outer edge of the plant.
This section is supplemented with the following:

Special Tree Protection measures as noted on the Plans shall meet the requirements of Section 2-01.3(3).

1-07.17 Utilities and Similar Facilities

The first paragraph is supplemented with the following:

Public and private utilities or their Contractors will furnish all work necessary to adjust, relocate, replace, or construct their facilities unless otherwise provided for in the Plans or these Special Provisions. Such adjustment, relocations, replacement, or construction will be done within the time for performance of this project. The Contractor shall coordinate their work with such adjustment, relocation, or replacement of utility work. This may require the Contractor to phase their work in a manner that will allow for the utility work.

The Contractor shall coordinate their work with all utilities and other organizations, which have to adjust or revise their facilities within the project area. These may include, but are not limited to:

- City of Tacoma Light Division, Contact: Dave West, phone: (253) 502-8044
- City of Tacoma Water Division, Contact: Kimberly Baard, phone: (253) 396-3317, Troy Saghafi, phone: (253) 502-8746
- City of Tacoma Traffic Division, Signal/Streetlight Shop, phone: (253) 591-5287
- CLICK! Network, Contact: Ken Mathes, phone: (253) 502-8851
- Puget Sound Energy, Contact: Mike Klapperich, Electric, phone: (253) 313-3790 OR Amber Uhls, Gas, phone: (253) 476-6137
- Lumen, Contact: Robert Bair, phone: (253) 831-2059
- Comcast, Contact: Todd Gallant, phone: (253) 878-4955
- AT&T Broadband Information Services, Contact: Dan McGeough, phone: (425) 896-9830
- Level 3 Communications, Level3NetworkRelocations@Level3.com
- One-Number Locator Service “One Call System” telephone 1-800-424-5555
- Verizon, Contact: David Lacombe, phone: (206) 305-5366
- MCI Metro Utility, Contact: Brad Landis, phone: (425) 229-3123

If the Contractor plans to excavate or trench within ten (10) feet of any utility pole or other electric or water utility structure owned by the City of Tacoma, the Contractor shall contact the City of Tacoma, Department of Public Utilities, Field Coordinator, telephone number 502-8044, and arrange for an inspection before proceeding. The Contractor shall perform, at the Contractor's expense, such additional work as is required to protect the pole or structure from subsidence. The Contractor may be directed to suspend work at the site of any such excavation until such utility structures are adequately protected.

If the Contractor plans to excavate or trench within ten (10) feet of any structure owned by Lumen, the Contractor shall contact Robert Bair with Lumen, telephone number 253-831-2059, at least 20 days prior to planned work in the vicinity of the utility and arrange for an inspection before proceeding. The Contractor shall perform, at the
Contractor’s expense, such additional work as is required to protect the structure from subsidence. The Contractor may be directed to suspend work at the site of any such excavation until such utility structures are adequately protected.

Garbage, recycling, and yard waste pick up within the project limits is on Tuesdays.

1-07.18 Public Liability and Property Damage Insurance
Delete this section in its entirety, and replace it with the following:

1-07.18 Insurance
(December 17, 2019 Tacoma GSP)

During the course and performance of the services herein specified, the contractor will maintain the insurance coverage in the amounts and in the manner specified in the City of Tacoma Insurance Requirements as is applicable to the services and deliverables provided under this contract. The City of Tacoma Insurance Requirements document is fully incorporated herein and can be found in Appendix B in these specifications.

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

1-07.18(5)K Professional Liability
(January 4, 2016 APWA GSP)

The Contractor and/or its Subcontractor(s) and/or its design consultant providing construction management, value engineering, or any other design-related non-construction professional services shall provide evidence of Professional Liability insurance covering professional errors and omissions.

Such policy shall provide the following minimum limits:

$1,000,000 per claim and annual aggregate

If the scope of such design-related professional services includes work related to pollution conditions, the Professional Liability insurance shall include coverage for Environmental Professional Liability.

If insurance is on a claims made form, its retroactive date, and that of all subsequent renewals, shall be no later than the effective date of this Contract.
1-07.23 Public Convenience and Safety

1-07.23(1) Construction under Traffic

(*****)

This section is supplemented with the following:

The following special traffic requirements shall be adhered to during all phases of construction:

North 15th Street shall remain fully open to all vehicular and all pedestrian traffic at all times with the following exceptions:

- Single-lane closures maintaining two-way traffic flow will be allowed between the hours of 7 a.m. and 6 p.m. on weekdays with the approval of the Engineer. The Contractor will be responsible for coordinating this work with the Engineer for approval. To minimize disruption to Pierce Transit operations and access to adjacent properties, the 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.

- The Contractor shall coordinate disruptions to Pierce Transit at least five (5) working days prior to impacts to and/or closure of North 15th Street.

- A road closure and detour of North 15th Street may be allowed with a directional closure preferred to a full closure, and for a period of time as approved by the Engineer and with the following time limits:
  - Full or directional road closures for North 15th Street at the intersection of North Junett Street, for a maximum cumulative duration of 1 week per closure. The Contractor shall provide an arterial-based detour route during closures and shall maintain local access to affected properties at all times.
  - AT NO TIME shall the intersection of North 15th Street and North Junett Street be closed to vehicular traffic at the same time that the portion of North Junett Street between the North 15th Street alley and North 16th Street or North 14th Street is fully closed. Contractor is responsible for staging work such that these road closures do not conflict and such that access to and egress from all properties is maintained at all times.

North 14th Street shall remain fully open to all vehicular and pedestrian traffic at all times with the following exceptions:

- Single-lane closures maintaining two-way traffic flow will be allowed between the hours of 7 a.m. and 6 p.m. on weekdays with the approval of the Engineer. The Contractor will be responsible for coordinating this work with the Engineer for approval. To minimize disruption to access to adjacent properties, the 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.
Road closure and detour of North 14th Street may be allowed for a period of time as approved by the Engineer and with the following time limits:

- Road closure for North 14th Street at the intersection of North Junett Street, for a maximum cumulative duration of 2 weeks per closure. The Contractor shall provide a detour route during closures and shall maintain local access to affected properties at all times.

- AT NO TIME shall the intersection of North 14th Street and North Junett Street be closed to vehicular traffic at the same time that any portion of North Junett Street or North 15th Street is fully closed (or partially closed if the combination makes property access impossible or confusing). Contractor is responsible for staging work such that these road closures do not conflict.

North Junett Street and North 16th Street shall remain fully open to all vehicular and all pedestrian traffic at all times with the following exceptions:

- Single-lane closures maintaining two-way traffic along North Junett Street and North 16th Street will be allowed between the hours of 7 a.m. and 6 p.m. on weekdays with the approval of the Engineer. The Contractor will be responsible for coordinating this work with the Engineer for approval. To minimize disruption of access to adjacent properties, the 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.

- Road closures and detours may be allowed as approved by the Engineer and with the following time limits:

  - A road closure for a single period of time for North Junett Street between the North 15th Street alley and North 16th Street along the Community Garden frontage, for a maximum duration of 40 weeks. The Contractor shall provide a detour route during closures and shall maintain local access to affected properties at all times.

  - A road closure for a single period of time for North 16th Street between North Junett and North Pine Streets associated with sanitary sewer construction, for a maximum duration of 1 week. The Contractor shall provide a detour route during closures and shall maintain local access to affected properties at all times.

  - A road closure (with local access provisions) of North Junett Street between North 14th Street and North 15th Street for the project duration to facilitate contractor working/equipment space. The occupation of the roadway segment requires a contractor-obtained permit (see further details below) and shall only be issued for the extent and duration needed for Contractor operations and shall be reduced in extents as space needs change based on the progression of the project work. The Contractor shall provide a detour route during closure and shall maintain local access to affected properties at all times.
For the extended closure duration of North Junett Street described above, the Contractor shall apply for a Roadway Occupancy Permit at www.tacomapermits.org. With these closures, the Contractor shall also:

- Maintain alley to alley access for vehicles traversing North Junett Street at all times.
- Control unintended access to/from the Contractor-controlled areas of North Junett Street at all times.
- Maintain unencumbered access to all sidewalks and associated planting strips along North Junett Street by static work equipment/materials.
- As part of the permitting process, Tacoma Fire, Tacoma Police, Tacoma Refuse Collection, and each property owner affected by the roadway occupancy will need a coordinated outreach to inform of the proposed conditions and to determine access needs and potential special provisions.
- Have a contingency plan in place for utilizing a reduced area of the roadway segment if the Contracting Agency determines there is a need to reopen a direction of traffic (with or without on-street parking) for an extended period.

AT NO TIME shall North Junett Street between the North 15th Street alley and North 16th Street be closed to vehicular traffic at the same time that any portion of North 15th Street or North 16th Street is fully closed (or partially closed if the combination makes property access impossible or confusing). Contractor is responsible for staging work such that these road closures do not conflict and such that access to and egress from all properties is maintained at all times.

Safe pedestrian access shall be provided to the Community Garden at all times via the existing gate along North Junett Street or (when Contractor's operations block use of this gate) via a temporary gate to be provided by the Contractor and installed along the North 15th Street alley at the location as shown on the Plans. Additionally, a safe pedestrian access—meeting or exceeding the accessibility conditions of the existing access/access route—shall be provided at all times through the project area. All lane closures shall be coordinated with the adjacent businesses, other contractors working within the project vicinity, local transit agencies and the City.

The Contractor shall provide adequate access to the Community Garden to receive Tagro deliveries in March. This delivery shall be coordinated with the Community Garden coordinators at least twenty-four (24) hours in advance. Contact information for the Junett Community Garden coordinators is Junettgarden@gmail.com.

Where, in the opinion of the Engineer, parking is a hazard to through traffic or to the construction work, parking may be restricted either entirely or during the time when it creates a hazard. Signs for restricting parking shall be approved by the City and placed by the Contractor at least seventy-two (72) hours in advance. The Contractor shall be responsible for and shall maintain all such signs. The replacement of signs restricting parking shall be as approved by the Engineer.
The Contractor shall notify all property owners and tenants of detours, street and alley closures, or other restrictions that may interfere with their access. Notification shall be at least five (5) days in advance.

Emergency traffic, such as police, fire, and disaster units, shall be provided access at all times. In addition, the Contractor shall coordinate Contractor activities with all disposal firms and transit bus service that may be operating in the project area.

If street closures or lane restrictions, not provided for in the Specifications, are allowed subsequent to award of the contract, an equitable adjustment of the Contract amount shall be negotiated.

It is the intent of the Contract to effectively prevent the deposition of debris on streets in areas of public traffic or where such debris may be transported into a drainage system. When construction operations are such that debris from the work is deposited on the streets, the Contractor shall, at a minimum, remove on a daily basis any deposits or debris which may accumulate on the roadway surface. Should daily removal be insufficient to keep the streets clean, the Contractor shall perform removal operations on a more frequent basis. If the Engineer determines that a more frequent cleaning is impractical or if the Contractor fails to keep the streets free from deposits and debris resulting from the work, the Contractor shall, upon order of the Engineer, provide facilities for and remove all deposits from the tires or between wheels before trucks or other equipment will be allowed to travel over paved streets. Should the Contractor fail or refuse to clean the streets in question, or the trucks or equipment in question, the Engineer may order the work suspended at the Contractor’s risk until compliance with Contractor’s obligations is assured, or the Engineer may order the streets in question cleaned by others and such costs incurred by the City in achieving compliance with these contract requirements, including cleaning of the streets, shall be deducted from moneys due or to become due the Contractor on monthly estimate. The Contractor shall have no claim for delay or additional costs should the Engineer choose to suspend the Contractor’s work until compliance is achieved.

Permissible haul routes for the project have been identified and are provided in Appendix J Haul Route Options.

*The fifth paragraph of this section is supplemented with the following:*

An all-weather, functional roadway shall consist of a minimum four inch (4”) layer of crushed surfacing base material to be provided and maintained on all roadway areas disturbed by construction and used to maintain vehicular traffic as required by these Special Provisions.

The unit Contract price for "Crushed Surfacing Base Course," per ton, as listed in the Proposal shall be full pay for all labor, equipment, and materials required to furnish, place, compact, and grade the material necessary to maintain an all-weather functional roadway.

The Proposal quantity for "Crushed Surfacing Base Course" is intended to provide for the additional material necessary to maintain an all-weather, functional roadway as described above and is an estimate only.
The sixth paragraph of this section is supplemented with the following:

Trenches backfilled with CDF shall be protected from traffic with steel plates. The plates shall remain in place for 24-hours after placement of the CDF or until CDF is compacted or hardened to prevent rutting by construction equipment or traffic.

1-07.23(2) Construction and Maintenance of Detours

(* *****)

This section is supplemented with the following:

Detour signing during any allowed road closures shall be in accordance with Detour Plans, when included in the Contract Documents. When plans are not included in the Contract Documents, the Contractor shall submit plans for detours in accordance with the “Manual on Uniform Traffic Control Devices (MUTCD)”. In addition, where the Contractor believes an alternate plan will safely and adequately maintain vehicular and pedestrian traffic, the Contractor may submit alternate plans to those for traffic control and detours required by MUTCD or contract documents. Such alternate plans must comply with the MUTCD and shall be in writing and submitted to the Engineer at least fifteen (15) days in advance of their intended use. In general, detouring of arterial traffic must be accomplished on streets designated as City Arterials. Detouring of arterial traffic on non-arterial streets will not be allowed. The acceptance of any alternate plan shall be entirely at the discretion of the Engineer and the Contractor shall have no claim by reason of a plan being rejected or modified, nor shall there be any additional payment by reason of using a substitute plan.

The Contractor shall notify the Engineer five (5) working days in advance of implementation of any street closures/detours allowed under the Contract. Advance notice signing shall be placed a minimum of five (5) working days prior to implementation of any street closure/detour.

A minimum of five (5) working days prior to any street closure, the Contractor shall notify all entities below:

Tacoma Fire Dept. (253-591-5775)
Tacoma Police Dept. (253-591-5932)
LESA Communications Center (253-798-4721 - Opt.#2)
Tacoma Public Schools Transportation Office (253-571-1853)
Pierce Transit (253-581-8001)
Tacoma Environmental Services Solid Waste (253-591-5544)
Tacoma Public Works Engineering Division (253-591-5500)
Tacoma Public Works Streets and Grounds (253-591-5495)

1-07.24 Rights of Way

(July 23, 2015  APWA GSP)

Delete this section and replace it with the following:

Street Right of Way lines, limits of easements, and limits of construction permits are indicated in the Plans. The Contractor’s construction activities shall be confined within these limits, unless arrangements for use of private property are made.
Generally, the Contracting Agency will have obtained, prior to bid opening, all rights of way and easements, both permanent and temporary, necessary for carrying out the work. Exceptions to this are noted in the Bid Documents or will be brought to the Contractor’s attention by a duly issued Addendum.

Whenever any of the work is accomplished on or through property other than public Right of Way, the Contractor shall meet and fulfill all covenants and stipulations of any easement agreement obtained by the Contracting Agency from the owner of the private property. Copies of the easement agreements may be included in the Contract Provisions or made available to the Contractor as soon as practical after they have been obtained by the Engineer.

Whenever easements or rights of entry have not been acquired prior to advertising, these areas are so noted in the Plans. The Contractor shall not proceed with any portion of the work in areas where right of way, easements or rights of entry have not been acquired until the Engineer certifies to the Contractor that the right of way or easement is available or that the right of entry has been received. If the Contractor is delayed due to acts of omission on the part of the Contracting Agency in obtaining easements, rights of entry or right of way, the Contractor will be entitled to an extension of time. The Contractor agrees that such delay shall not be a breach of contract.

Each property owner shall be given 48 hours notice prior to entry by the Contractor. This includes entry onto easements and private property where private improvements must be adjusted.

The Contractor shall be responsible for providing, without expense or liability to the Contracting Agency, any additional land and access thereto that the Contractor may desire for temporary construction facilities, storage of materials, or other Contractor needs. However, before using any private property, whether adjoining the work or not, the Contractor shall file with the Engineer a written permission of the private property owner, and, upon vacating the premises, a written release from the property owner of each property disturbed or otherwise interfered with by reasons of construction pursued under this contract. The statement shall be signed by the private property owner, or proper authority acting for the owner of the private property affected, stating that permission has been granted to use the property and all necessary permits have been obtained or, in the case of a release, that the restoration of the property has been satisfactorily accomplished. The statement shall include the parcel number, address, and date of signature. Written releases must be filed with the Engineer before the Completion Date will be established.
Add the following new sections:

1-07.28 Third Party Beneficiary
(******)

All parties agree that the State of Washington shall be and is hereby named as an express third-party beneficiary of this contract, with full rights as such.

1-07.29 State Interest Exclusion Clause

It is anticipated that this project will be funded in part by the Washington State Department of Ecology. Neither the State of Washington nor any of its departments or employees are, or shall be, a party to this contract or any subcontract.

END OF SECTION
1-08 PROSECUTION AND PROGRESS

Add the following new section:
1-08.0 Preliminary Matters
(May 25, 2006 APWA GSP)

1-08.0(1) Preconstruction Conference
(October 10, 2008 APWA GSP)

Prior to the Contractor beginning the work, a preconstruction conference will be held between the Contractor, the Engineer and such other interested parties as may be invited. The purpose of the preconstruction conference will be:

1. To review the initial progress schedule;
2. To establish a working understanding among the various parties associated or affected by the work;
3. To establish and review procedures for progress payment, notifications, approvals, submittals, etc.;
4. To establish normal working hours for the work;
5. To review safety standards and traffic control; and
6. To discuss such other related items as may be pertinent to the work.

The Contractor shall prepare and submit at the preconstruction conference the following:

1. A breakdown of all lump sum items;
2. A preliminary schedule of working drawing submittals; and
3. A list of material sources for approval if applicable.

Add the following new section
1-08.0(2) Hours of Work
(March 3, 2008 Tacoma GSP)

Except in the case of emergency or unless otherwise approved by the Contracting Agency, the normal straight time working hours for the contract shall be any consecutive 8-hour period between 7:00 a.m. and 6:00 p.m. of a working day with a maximum 1-hour lunch break and a 5-day work week. The normal straight time 8-hour working period for the contract shall be established at the preconstruction conference or prior to the Contractor commencing the work.

If a Contractor desires to perform work on holidays, Saturdays, Sundays, or before 7:00 a.m. or after 6:00 p.m. on any day, the Contractor shall apply in writing to the Engineer for permission to work such times. Permission to work longer than an 8-hour period between 7:00 a.m. and 6:00 p.m. is not required. Such requests shall be submitted to the Engineer no later than noon on the working day prior to the day for which the Contractor is requesting permission to work.

Permission to work between the hours of 9:00 p.m. and 7:00 a.m. during weekdays and between the hours of 9:00 p.m. and 9:00 a.m. on weekends or holidays may also be subject to noise control requirements. Approval to continue work during these hours may be revoked at any time the Contractor exceeds the Contracting Agency’s noise control regulations or complaints are received from the public or adjoining property owners regarding the noise from the Contractor’s operations. The Contractor shall have no claim for damages or delays should such permission be revoked for these reasons.
Permission to work Saturdays, Sundays, holidays or other than the agreed upon normal straight time working hours Monday through Friday may be given subject to certain other conditions set forth by the Contracting Agency or Engineer. These conditions may include but are not limited: requiring the Engineer or such assistants as the Engineer may deem necessary to be present during the work; requiring the Contractor to reimburse the Contracting Agency for the costs in excess of straight-time costs for Contracting Agency employees who worked during such times, on non Federal aid projects; considering the work performed on Saturdays and holidays as working days with regards to the contract time; and considering multiple work shifts as multiple working days with respect to contract time even though the multiple shifts occur in a single 24-hour period. Assistants may include, but are not limited to, survey crews; personnel from the Contracting Agency’s material testing lab; inspectors; and other Contracting Agency employees when in the opinion of the Engineer, such work necessitates their presence.

Add the following new section:

1-08.0(3) Reimbursement for Overtime Work of Contracting Agency Employees (September 29, 2009 Tacoma GSP)

Where the Contractor elects to work on a Saturday, Sunday, or holiday, or longer than an 8-hour work shift on a regular working day, as defined in the Standard Specifications, such work shall be considered as overtime work. On all such overtime work, city staff may be required at the discretion of the Engineer. In such case, the Contracting Agency may deduct from amounts due or to become due to the Contractor for the costs in excess of the straight-time costs for employees of the Contracting Agency required to work overtime hours.

The Contractor by these specifications does hereby authorize the Engineer to deduct such costs from the amount due or to become due to the Contractor.

1-08.1 Subcontracting (September 29, 2009 Tacoma GSP)

The eighth paragraph is revised to read:

On all projects funded with Contracting Agency funds only, the Contractor shall certify to the actual amounts paid Disadvantaged, Minority, or Women’s Business Enterprise firms that were used as subcontractors, lower tier subcontractors, manufacturers, regular dealers, or service providers on the contract. This certification shall be submitted to the Engineer, on the form provided by the Engineer, 20 calendar days after physical completion of the contract.

1-08.1 Subcontracting (May 30, 2019 APWA GSP, Option B)

Delete the ninth paragraph, beginning with “On all projects, the Contractor shall certify…”
1-08.4 Prosecution of Work
Delete this section and replace it with the following:

1-08.4 Notice to Proceed and Prosecution of Work
(July 23, 2015 APWA GSP)

Notice to Proceed will be given after the contract has been executed and the contract
bond and evidence of insurance have been approved and filed by the Contracting
Agency. The Contractor shall not commence with the work until the Notice to Proceed
has been given by the Engineer. The Contractor shall commence construction activities
on the project site within ten days of the Notice to Proceed Date, unless otherwise
approved in writing. The Contractor shall diligently pursue the work to the physical
completion date within the time specified in the contract. Voluntary shutdown or slowing
of operations by the Contractor shall not relieve the Contractor of the responsibility to
complete the work within the time(s) specified in the contract.

When shown in the Plans, the first order of work shall be the installation of high visibility
fencing to delineate all areas for protection or restoration, as described in the Contract.
Installation of high visibility fencing adjacent to the roadway shall occur after the
placement of all necessary signs and traffic control devices in accordance with 1-10.1(2).
Upon construction of the fencing, the Contractor shall request the Engineer to inspect
the fence. No other work shall be performed on the site until the Contracting Agency has
accepted the installation of high visibility fencing, as described in the Contract.

(***)
Section 1-08.4 is supplemented with the following:

Unless otherwise approved by the Contracting Agency, ground disturbing activities near
the Junett Community Garden to the north of the line defined as “50 foot setback from
top of slope” as shown on the Plans shall only occur during the dry season between April
1 and October 31 of any year during the life of the project.

1-08.5 Time for Completion
(March 16, 2016 Tacoma GSP)
Revise the third and fourth paragraphs to read:

Contract time shall begin on the first working day following the Notice to Proceed Date.

Each working day shall be charged to the contract as it occurs, until the contract work is
physically complete. If substantial completion has been granted and all the authorized
working days have been used, charging of working days will cease. Each week the
Engineer will provide the Contractor a statement that shows the number of working days:
(1) charged to the contract the week before; (2) specified for the physical completion of
the contract; and (3) remaining for the physical completion of the contract. The
statement will also show the nonworking days and any partial or whole day the Engineer
declares as unworkable. Within 10 calendar days after the date of each statement, the
Contractor shall file a written protest of any alleged discrepancies in it. To be considered
by the Engineer, the protest shall be in sufficient detail to enable the Engineer to
ascertain the basis and amount of time disputed. By not filing such detailed protest in
that period, the Contractor shall be deemed as having accepted the statement as
correct. If the Contractor is approved to work 10 hours a day and 4 days a week (a
4-10 schedule) and the fifth day of the week in which a 4-10 shift is worked would ordinarily be charged as a working day then the fifth day of that week will be charged as a working day whether or not the Contractor works on that day.

Revise the sixth paragraph to read:

The Engineer will give the Contractor written notice of the completion date of the contract after all the Contractor’s obligations under the contract have been performed by the Contractor. The following events must occur before the Completion Date can be established:

1. The physical work on the project must be complete; and
2. The Contractor must furnish all documentation required by the contract and required by law, to allow the Contracting Agency to process final acceptance of the contract. The following documents must be received by the Project Engineer prior to establishing a completion date:
   a. Certified Payrolls (per Section 1-07.9(5)).
   b. Material Acceptance Certification Documents
   c. Reports of Amounts Credited as EIC Participation, as required by the Contract Provisions.
   d. Final Contract Voucher Certification
   e. Copies of the approved “Affidavit of Prevailing Wages Paid” for the Contractor and all Subcontractors
   f. Property owner releases per Section 1-07.24

This section is supplemented with the following:
(March 1, 2004 Tacoma GSP)

This project shall be physically completed within 300 working days.

1-08.9 Liquidated Damages

(******)

Revise the fourth paragraph to read:

When the Contract Work has progressed to Substantial Completion as defined in the Contract, the Engineer may determine that the work is Substantially Complete. The Engineer will notify the Contractor in writing of the Substantial Completion Date. For overruns in Contract time occurring after the date so established, the formula for liquidated damages shown above will not apply. 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 actual Physical Completion Date of all the Contract Work. The Contractor shall complete the remaining Work as promptly as possible. Upon request by the Project Engineer, the Contractor shall furnish a written schedule for completing the physical Work on the Contract.

END OF SECTION
1-09 MEASUREMENT AND PAYMENT

1-09.2 Weighing Equipment

1-09.2(1) General Requirements for Weighing Equipment
(July 23, 2015 APWA GSP, Option 1)

Revise the third paragraph to read:

Scale Operations – “Contractor-provided scale operations” are defined as operations
where a scale is set up by the Contractor specifically for the project and most, if not all,
material weighed on the scale is utilized for Contract Work. In this situation, the
Contractor shall provide, set up, and maintain the scales necessary to perform this
Work. The Contracting Agency will provide a person to operate the project scale, write
tickets, perform scale checks and prepare reports.

1-09.2(1) General Requirements for Weighing Equipment
(July 23, 2015 APWA GSP, Option 2)

Revise item 4 of the fifth paragraph to read:

4. Test results and scale weight records for each day’s hauling operations are
provided to the Engineer daily. Reporting shall utilize WSDOT form 422-027,
Scaleman’s Daily Report, unless the printed ticket contains the same information
that is on the Scaleman’s Daily Report Form. The scale operator must provide
AM and/or PM tare weights for each truck on the printed ticket.

1-09.6 Force Account
(October 10, 2008 APWA GSP)

Supplement this Section with the following:

The Contracting Agency has estimated and included in the Proposal, dollar amounts for
all items to be paid per force account, only to provide a common proposal for Bidders.
All such dollar amounts are to become a part of Contractor's total bid. However, the
Contracting Agency does not warrant expressly or by implication, that the actual amount
of work will correspond with those estimates. Payment will be made on the basis of the
amount of work actually authorized by Engineer.

(January 13, 2011 Tacoma GSP)
Item #3 of this Section is supplemented with the following:

The Contractor shall submit a comprehensive summary list of all equipment anticipated
to be used on the project and their associated AGC/WSDOT Equipment Rental Rates.
The list shall include the contractor’s equipment number, make, model, year, operation
rate, standby rate, applicable attachments and any other applicable information
necessary to determine the applicable rates in accordance with this section. In addition,
the contractor shall submit an Equipment Watch rate sheet (www.equipmentwatch.com)
for each piece of equipment in the summary list. Access to the Equipment Watch web
site is available at the City’s Construction Management Office.
Delete the first four paragraphs and replace them with the following:

The basis of payment will be the actual quantities of Work performed according to the Contract and as specified for payment.

The Contractor shall submit a breakdown of the cost of lump sum bid items at the Preconstruction Conference, to enable the Project Engineer to determine the Work performed on a monthly basis. A breakdown is not required for lump sum items that include a basis for incremental payments as part of the respective Specification. Absent a lump sum breakdown, the Project Engineer will make a determination based on information available. The Project Engineer’s determination of the cost of work shall be final.

Progress payments for completed work and material on hand will be based upon progress estimates prepared by the Engineer. A progress estimate cutoff date will be established at the preconstruction conference.

The initial progress estimate will be made not later than 30 days after the Contractor commences the work, and successive progress estimates will be made every month thereafter until the Completion Date. Progress estimates made during progress of the work are tentative, and made only for the purpose of determining progress payments. The progress estimates are subject to change at any time prior to the calculation of the final payment.

The value of the progress estimate will be the sum of the following:

1. Unit Price Items in the Bid Form — the approximate quantity of acceptable units of work completed multiplied by the unit price.
2. Lump Sum Items in the Bid Form — based on the approved Contractor’s lump sum breakdown for that item, or absent such a breakdown, based on the Engineer’s determination.
3. Materials on Hand — 100 percent of invoiced cost of material delivered to Job site or other storage area approved by the Engineer.
4. Change Orders — entitlement for approved extra cost or completed extra work as determined by the Engineer.

Progress payments will be made in accordance with the progress estimate less:

1. Retainage per Section 1-09.9(1), on non FHWA-funded projects;
2. The amount of progress payments previously made; and
3. Funds withheld by the Contracting Agency for disbursement in accordance with the Contract Documents.

Progress payments for work performed shall not be evidence of acceptable performance or an admission by the Contracting Agency that any work has been satisfactorily completed. The determination of payments under the contract will be final in accordance with Section 1-05.1.
This section is supplemented with the following:
(January 6, 2015 Tacoma GSP)

Breakdowns of all lump sum items shall be provided for all lump sum items and shall include all costs for labor, equipment, materials, and taxes (as applicable) associated with the lump sum item. Washington State Department of Revenue Rules 170 and 171 apply to lump sum items per Section 1-07.2 of the WSDOT State Amendments to the Standard Specifications.

Stockpiled Material - The point of acceptance of stockpiled material for payment and quality shall be at the time of incorporation into the contract.

1-09.9(1) Retainage
(May 10, 2006 Tacoma GSP)
The fourth paragraph is supplemented with the following:

6. A “General Release to the City of Tacoma” is on file with the Contracting Agency.
7. A release has been obtained from the City of Tacoma’s City Clerk’s Office.

1-09.13 Claims Resolution

1-09.13(3) Claims $250,000 or Less

1-09.13(3)A Administration of Arbitration
(November 30, 2018 APWA GSP)
Revise the third paragraph to read:

The Contracting Agency and the Contractor mutually agree to be bound by the decision of the arbitrator, and judgment upon the award rendered by the arbitrator may be entered in the Superior Court of the county in which the Contracting Agency’s headquarters is located, provided that where claims subject to arbitration are asserted against a county, RCW 36.01.050 shall control venue and jurisdiction of the Superior Court. The decision of the arbitrator and the specific basis for the decision shall be in writing. The arbitrator shall use the Contract as a basis for decisions.

END OF SECTION
1-10 TEMPORARY TRAFFIC CONTROL

1-10.1 General

1-10.1(2) Description

(*******)

The first sentence of the fourth paragraph is revised to read:

The Contractor shall keep lanes open to traffic at all times except when Work requires
closure(s) that have been requested and approved in accordance with Section 1-10.2(2).

The third sentence of the fourth paragraph is revised to read:

Approved lane closures shall be for the minimum time required to complete the Work.

This section is supplemented with the following:

Existing signs shall not be removed until the Contractor has provided for temporary
measures sufficient to safeguard and direct traffic after existing signs have been
removed. Preservation of temporary traffic control and street name signs shall be the
sole responsibility of the Contractor.

As the work progresses and permits, temporarily relocated and/or removed traffic signs
shall be reset in their permanent location. Permanent signs and other traffic control
devices damaged or lost by the Contractor shall be replaced or repaired at the
Contractor’s expense.

1-10.2 Traffic Control Management

1-10.2(1) General

(January 3, 2017 WSDOT GSP, Option 1)

Section 1-10.2(1) is supplemented with the following:

Only training with WSDOT TCS card and WSDOT training curriculum is recognized in
the State of Washington. The Traffic Control Supervisor shall be certified by one of the
following:

The Northwest Laborers-Employers Training Trust
27055 Ohio Ave.
Kingston, WA 98346
(360) 297-3035

Evergreen Safety Council
12545 135th Ave. NE
Kirkland, WA 98034-8709
1-800-521-0778
The American Traffic Safety Services Association
15 Riverside Parkway, Suite 100
Fredericksburg, Virginia 22406-1022
Training Dept. Toll Free (877) 642-4637
Phone: (540) 368-1701

1-10.3 Traffic Control Labor, Procedures, and Devices

1-10.3(3) Traffic Control Devices

1-10.3(3)A Construction Signs
(January 11, 2006 Tacoma GSP)
The fifth paragraph is revised to read:
Signs, posts, or supports that are lost, stolen, damaged, destroyed, or which the
Engineer deems to be unacceptable while their use is required on the project shall be
replaced by the Contractor at their expense.

1-10.3(3)C Portable Changeable Message Sign
(August 4, 2010 Tacoma GSP)
This section is supplemented with the following:
Portable Changeable Message Signs shall be required on arterials streets where
construction occurs for durations longer than seven (7) calendar days. Signs shall be
solar charged and programmable. Signs shall be provided a minimum of seven (7)
calendar days prior to construction and remain through the duration of the construction
on the arterial street. Signs shall be provided on each end of the arterial street
construction zone notifying oncoming traffic of the construction conditions. All costs
associated with providing and maintain the signs for the required duration shall be
included in the proposal item, “Project Temporary Traffic Control”, per lump sum.

(******)
To prevent a hacker from getting access to the Portable Change Message Signs
(PCMS), the contractor is required to change the default password and to take other
appropriate measures for field access to message control features on the PCMS. In
addition, the contractor shall verify the PCMS control box, if any, is secured and locked
from tampering during the daily review of the work zone set up and conditions of the
traffic control devices.

1-10.4 Measurement

1-10.4(2) Item Bids with Lump Sum for Incidentals
(January 11, 2006 Tacoma GSP)
This section is supplemented with the following:
No unit of measure will apply to the position of traffic control manager and it will be
considered included in other unit contract prices in the Bid Proposal.
Section 1-10.5(1) is supplemented with the following:

Costs for layout, installation, removal, and transport of project identification signs, including Department of Ecology project identification signs, shall be included with the Contract lump sum price for “Project Temporary Traffic Control”. This Bid item shall also constitute full compensation for all labor, tools, equipment, and materials necessary and incidental to providing traffic and pedestrian control as required throughout the project duration in compliance with the MUTCD including, but not limited to, temporary illumination, reflective signage, barricades, lights, traffic cones, and temporary pavement markings. Provide flaggers and a Traffic Control Supervisor during all periods of construction activities and include all costs associated with preparing and receiving approval for the Traffic Control Plans, including all revisions and updates necessary throughout the duration of the project. The lump sum cost also includes all payment for obtaining and maintaining traffic control permits and shall be included in the lump sum Bid item “Project Temporary Traffic Control”.  

END OF SECTION
Add the following new section:

1.11 CONSTRUCTION QUALITY ASSURANCE PLAN

1.11.1 Description

The below outlines the documentation of construction quality best practices related to construction.

1.11.2 Submittal Requirements

The Construction Quality Assurance Plan shall be submitted prior to start of construction.

1.11.3 Construction Requirements

1.11.3(1) Construction Quality Assurance Plan

The Contractor shall establish, implement, and maintain a formal Construction Quality Assurance Plan (QAP). The QAP must address the following quality control elements:

- Construction schedule with a summary of planned construction activities, their sequence, interrelationships, durations and terminations.
- Description of the construction management organization, management procedures, lines of communication and responsibility.
- Description of anticipated quality control testing that includes type of test, frequency and who will perform tests.
- Description of change order process that includes who will initiate change orders, as well as who will review, negotiate, and approve change orders.
- Description of technical records handling methodology that includes where plans and specifications, as-built drawings, field orders and change orders will be kept.
- Description of the construction inspection program that includes inspection responsibility, anticipated inspection frequency, deficiency resolution, and inspector qualifications.

A template is available in Appendix I Construction Quality Assurance Plan in these Special Provisions.

1.11.4 Measurement

Developing an approved “Construction Quality Assurance Plan” and implementing said plan will not be measured for separate payment.

1.11.5 Payment

All costs for developing the approved plans as specified above and implementing said plans shall be included in “Mobilization” and no additional compensation will be made.

END OF SECTION
2-01 CLEARING, GRUBBING, AND ROADSIDE CLEANUP
(******)

2-01.1 Description
The first sentence of the first paragraph is revised to read:
The Contractor shall clear, grub, and cleanup those areas contained within the
“Clearing & Grubbing” limits indicated on the Plans.

This section is supplemented with the following:

This Work shall also include Special Tree Protection measures for retaining specific
trees as identified for protection on the Plans.

2-01.2 Disposal of Usable Material and Debris
The second paragraph is revised to read:
The Contractor shall dispose of all debris in accordance with Section 2-01.2(2).

2-01.3 Construction Requirements

2-01.3(1) Clearing
This section is revised to read:

1. Fell trees only within the area to be cleared.
2. Close-cut parallel to the slope of the ground all stumps to be left in the cleared
   area outside the slope stakes.
3. Close cut all stumps that will be buried by fills 5 feet or less in depth.
4. Follow these requirements for all stumps that will be buried by fills deeper than
   5 feet from the top, side, or end surface of the embankment or any structure and
   are in a location that will not be terraced as described in Section 2-03.3(14):
   a. Close-cut stumps under 18 inches in diameter.
   b. Trim stumps that exceed 18 inches in diameter to no more than 12 inches
      above original ground level.
5. Leave standing any trees or native growth indicated by the Engineer.
6. Trim all trees to be left standing to the height specified by the Engineer, with a
   minimum height of eight (8) feet above sidewalk and fourteen (14) feet above the
   roadway surface. Neatly cut all limbs close to the tree trunk.
7. Thin clumps of native growth as the Engineer may direct.
8. Protect, by fencing if necessary, all trees or native growth from any damage
   caused by construction operations.

2-01.3(2) Grubbing
Item e. is revised to read:
Upon which embankments will be placed, except stumps may be close-cut or trimmed
as allowed in Section 2-01.3(1) item 4.
2-01.3(3) Vacant

Section 2-01.3(3), including title, is revised to read as follows:

2-01.3(3) Special Tree Protection

Trees which shall require Special Tree Protection and which shall be retained and which require arborist monitoring by a Certified Arborist have been identified on the Plans. For these trees, a Tree Protection Zone (TPZ) has been defined on the Plans. Work within the TPZ must be approved and monitored at all times by the Certified Project Arborist.

Tree protection for these trees shall consist of a 6-foot chain link fence installed at the limits of the TPZ as approved by the Certified Project Arborist. Fence posts shall be installed per City of Tacoma Standard Plan LS-09. Where work is planned within the TPZ, install fencing at the edge of TPZ and move to limits of disturbance at the time that the work within the TPZ is planned to occur. Where trees are protected at the edge of the project boundary, construction limits fencing shall be incorporated as the boundary of tree protection fencing.

Silt fencing within the TPZ of retained trees shall be installed in a manner that does not sever roots. No parking, foot traffic, materials storage or dumping (including excavated soils) is allowed within the TPZ.

Heavy machinery shall remain outside of the TPZ. Access to the TPZ requires approval by the Owner. If the Certified Project Arborist allows, heavy machinery shall only enter the TPZ if soils are protected from the additional load. Acceptable methods of soil protection from heavy machinery include applying ¾ inch plywood over 4 to 6 inches of wood chip mulch over the entire ground surface to be accessed by the heavy machinery. All wood chip mulch placed within the TPZ shall be kept 1 foot away from the base of trees and 6 inches from retained understory vegetation. Wood chip mulch placed in TPZ shall meet the requirements of Section 9-14.5(3).

Contractor shall retain existing paved surfaces within or at the edge of the TPZ for as long as possible. Hardscape removal within the TPZ shall be completed in a manner that does not require machinery to traverse newly exposed soil. Where equipment must traverse the newly exposed soil, all soil protection methods and arborist monitoring requirements within this section apply.

Excavation within the TPZ shall use alternative methods such as pneumatic air excavation or hand digging. If heavy machinery is used within the TPZ, the Contractor shall use flat front buckets. When roots are encountered within the TPZ, the Contractor shall stop all excavation and cleanly sever roots using a sharp saw. Contractor shall not fracture or break roots with excavation equipment. All root severing shall be observed by the Certified Project Arborist. Upon root severing or exposure of roots, the Contractor shall immediately cover the root with soil or mulch and maintain root moisture. The Contractor shall water the roots to maintain a moist condition until the area is back filled.

Fill within the TPZ shall be limited to 1-foot depth maximum of uncompacted well-draining soil. In areas where fill is required, the Certified Project Arborist must review for acceptance. All fill materials must be kept 1-foot at a minimum away from the trunks of trees.
Pruning of trees to be retained for construction or safety clearance shall be done in accordance with American National Standards Institute ANSI-A300 2017 Standard Practices for Pruning. Pruning of trees to remain shall be monitored by the Certified Arborist.

The Certified Project Arborist shall be on site and monitor all ground disturbing work at the edge of or within the TPZ as noted on the Plans. The Certified Project Arborist shall at a minimum have an International Society of Arboriculture (ISA) Certification and ISA Tree Risk Assessment Qualification. Contractor shall provide two (2) weeks advance notice to arborist prior to working within the designated TPZ. All costs for arborist monitoring will be supplied by the Contracting Agency. Contact information for the Certified Project Arborist is:

- Tree Solutions, Contact: Joseph Sutton-Holcomb, phone: (253) 528-4370

2-01.4 Measurement

*This section is supplemented with the following:*

Special Tree Protection will be measured per each tree to be protected and retained.

No separate measurement for payment will be made for all other tree protection as identified on the Plans.

No separate measurement for payment will be made for trimming and cleanup but shall instead be incidental to other items in the Proposal.

2-01.5 Payment

*This section is supplemented with the following:*

“Special Tree Protection”, per each.

The unit Contract price for “Special Tree Protection” per each shall be full payment for all labor, tools, equipment, materials, and permitting necessary to install chain link fence around the TPZ, soil protection methods, wood chip mulch, alternative methods of excavation around existing roots, root severing, mulch, backfill, special root protection methods, and all other work necessary to protect trees to be retained in accordance with these Special Provisions.

END OF SECTION
2-02 REMOVAL OF STRUCTURES AND OBSTRUCTIONS

(******)

2-02.1 Description

This section is supplemented with the following:

The Work included in “Removal of Structures and Obstructions” shall include removal of all structures and obstructions that require removal for completion of the project and that are not included in other bid items, including but not limited to:

- Removing and retaining concrete paver path at 1414 N Junett street.
- Removing and retaining brick path, fence, stone wall and landscaping elements at 1502 N Junett Street.
- Removing existing planter at approximately STA 18+00 LT.
- Removing existing planter at approximately STA 18+60 RT.
- Removing, retaining, and reinstalling existing trail border cobble along Community Garden trail and as shown on the Plans.
- Removing existing luminaire at approximately STA 20+15 LT.
- Removing existing planter at approximately STA 18+60 LT.
- Removing existing planter at approximately STA 18+60 RT.
- Removing existing bollards and split rail fence along Community Garden frontage.
- Removing and retaining rockery wall at STA 21+00 RT.
- Removing fence barricade from STA 20+97 to STA 21+28 LT.
- Removing and planter box at approximately STA 21+90 LT.
- Removing railroad ties from approximately STA 22+13 LT to STA 22+90 LT.
- Removing rockery border at approximately STA 24+25 RT.
- Removing and retaining chain link fence along Community Garden frontage.
- Removing and replacing existing irrigation system in kind as shown on the Plans.

2-02.3 Construction Requirements

2-02.3(3) Removal of Pavement, Sidewalks, Curbs, and Gutters

This section is deleted.

2-02.3(4) Pothole Existing Utility

Add the following new section:

Locations of known possible utility crossings between the planned improvements and existing utilities are shown on the Plans based on available records provided during the design phase of this project. Based on the actual location of utility markings, it may be necessary to uncover existing utilities and determine their exact location.

After completion of field marking of the existing utilities, the Contractor shall determine if an existing utility may be in conflict with the planned improvements. Should a conflict seem likely, the Contractor shall notify the City. If the City concurs or after review of field markings determines a conflict is likely, the Contractor will be directed to expose the location of the subject utility (pothole). When potholing is required by the City, the Contractor shall expose the location of the existing utility and record the size of pipe and horizontal and vertical location on the Contractor's Record Drawings. Upon receipt of this information, the Engineer will determine if a conflict exists.
2-02.3(5) Removal of Piezometers

Add the following new section:

The Contractor shall abandon all borings with piezometers installed as part of the geotechnical investigations for this project. The locations of the piezometers are listed in the Geotechnical Data Report and shown on the Plans.

The borings with piezometers shall be abandoned in accordance with Department of Ecology requirements and Washington Administrative Code 173-160-460.

2-02.4 Vacant

Section 2-02.4, including title, is modified to read as follows:

2-02.4 Measurement

This section is supplemented with the following:

No specific unit of measure will apply to the lump sum item “Removal of Structure and Obstruction”.

“Pothole Existing Utility” will be measured per each.

Borings with piezometers to be abandoned will be measured per each.

2-02.5 Payment

This section is supplemented with the following:

“Removal of Structure and Obstruction”, per lump sum.

The unit contract price for “Removal of Structure and Obstruction” shall be full compensation for all labor, tools, equipment, and materials necessary to remove, haul, and dispose of the material off-site at a Contractor-obtained legal disposal site, or retain items and reinstall as noted on the Plans and as directed by the Engineer. In addition, all backfill and compaction of backfill, as defined in the Plans and these Specifications needed to fill the void left after the removal shall be included in the lump sum cost for “Removal of Structure and Obstruction.”

“Pothole Existing Utility”, per each.

The unit contract price for “Pothole Existing Utility” per each shall be full compensation for all labor, tools, equipment, and materials necessary to expose the locations of existing utilities, record vertical and horizontal locations, backfill, and compact excavated areas per City guidelines. This unit price shall also include the cost for rescheduling work as required to allow the Engineer to issue any design modifications as may be required.

“Abandon Piezometer”, per each.

The unit Contract price for “Abandon Piezometer” shall be full payment for all labor, equipment, materials, and permitting necessary to abandon the piezometers in accordance with these Special Provisions.

END OF SECTION
2-03 ROADWAY EXCAVATION AND EMBANKMENT
(*****)

2-03.1 Description
The last sentence of the first paragraph is deleted.

2-03.3 Construction Requirements

2-03.3(5) Slope Treatment
This section is deleted.

2-03.3(14) Embankment Construction

2-03.3(14)C Compacting Earth Embankments
This section is supplemented with the following:

Contractor shall use Method C unless otherwise approved by the Engineer.

2-03.3(14)E Unsuitable Foundation Excavation
This section is supplemented with the following:

Following roadway excavation and/or clearing and grubbing to expose the subgrade, unsuitable foundation material shall be removed from the subgrade and the void shall be backfilled and compacted with crushed surfacing base course as directed by the Engineer to provide an unyielding base for roadway embankment.

Subgrade is defined as native soils located below existing pavements, roadway surfacing, roadway excavation, and/or vegetated surfaces, including any duff layer.

2-03.3(19) Removal of Pavement, Sidewalks, Curbs, and Gutters
This section is deleted.

END OF SECTION
2-07 WATERING
(August 3, 2009 Tacoma GSP)

2-07.3 Construction Requirements
The last sentence of the first paragraph is revised to read:
The Engineer may direct that the Contractor apply water during non-working hours such as evenings, weekends, or recognized holidays.

Section 2-07.3 is supplemented with the following:

2-07.3(1) Water Supplied from Hydrants
There is no guarantee that all fire hydrants will be available for use for cleaning, lining, or any other construction activities associated with this project. Prior to construction activities, it shall be the Contractor’s responsibility to verify which hydrants will be available by contacting Tacoma Water. The Contractor shall use only those hydrants designated by Tacoma Water.

Water supplied from hydrants governed by Tacoma Water shall be used in strict compliance with the “Operating Procedures for the use of Water Division Hydrants” available at the Tacoma Water Permit Counter.

The Contractor shall obtain a Hydrant Permit prior to start of work by contacting the Water Permit Counter at (253) 502-8247, 2nd floor, Tacoma Public Utilities, Administrative Building, 3628 South 35th Street, Tacoma, WA 98409. A copy of the approved Hydrant Permit shall be submitted to the Engineer.

Contractor personnel shall be in possession of a valid Tacoma Public Utilities Hydrant Certification Card prior to obtaining a permit. If necessary, contractor personnel shall undergo training to receive the required certification. Contact the Water Permit Counter to set up training as necessary.

END OF SECTION
2-09  STRUCTURE EXCAVATION
(******)

2-09.3 Construction Requirements
Section 2-09.3 is supplemented with the following:

Shoring shall be constructed with provisions made to allow the Inspector to enter the
shored trench at any time.

2-09.3(1)  General Requirements

2-09.3(1)D  Disposal of Excavated Material
Section 2-09.3(1)D is supplemented with the following:

All unsuitable material removed as structure excavation shall be disposed of off-site at a
legal disposal site.

2-09.3(4) Construction Requirements, Structure Excavation, Class B
Add the following new section:

2-09.3(4)A  Resolution of Utility Conflicts

In the event that a conflict arises between the proposed improvements and an existing
utility, the Resolution of Utility Conflicts item will compensate the Contractor for standby
time and additional work in the following manner:

Standby time resulting from existing utility conflicts: Standby time is defined as time the
Contractor is unable to proceed with progression of a specific work item (i.e. storm
drainage, underground utility installation etc.) due to conflicts with existing facilities and
shall only be utilized for each agreed upon conflict.

However, payment for standby time shall be limited to:

For each agreed upon conflict, a maximum of four (4) hours of standby time will be paid
for actual delay of labor and equipment due to a utility conflict. The Contractor shall be
responsible to adjust his work schedule and/or reassign his work forces and equipment
to other areas of work to minimize standby time.

If the conflict is resolved within one (1) hour of notification to the Engineer, no standby
time will be paid.

Additional work required to resolve utility conflicts will be paid for at the unit bid prices for
the associated work. Work that can be measured and paid for at the unit contract prices
shall not be identified as force account work. This work includes but is not limited to:

1. Storm drainage manhole, pipe, vault, and conduit realignments of line and/or
grade for the storm drain, to avoid existing utility conflicts.
2. Additional storm drainage manholes, pipe, vaults, and conduit required by a
change in alignment, and/or grade, not exceeding the limits set in Section 1-04.4
of the Standard Specifications.
3. Sanitary sewer and water lines, vaults, and fittings for realignments of line and/or
grade to avoid existing utility conflicts.
2-09.4 Measurement

This section is supplemented with the following:

Longitudinal Limits – For all storm and sanitary sewers, the longitudinal measurement will be from center of manhole to center of manhole or to the inside face of catch basins and similar type structures.

The fourth paragraph is revised to read:

There will be no specific unit of measure for the excavation required for manholes, catch basins, grate inlets, and drop inlets.

2-09.5 Payment

The pay item for “Structure Excavation Class B Incl. Haul” is supplemented with the following:

“Structure Excavation Class B Incl. Haul”, per cubic yard.

The unit Contract price for “Structure Excavation Class B Incl. Haul” per cubic yard shall be full payment for all excavation, removal of water; storing, protecting and re-handling of suitable backfill material; backfilling of the trench, compaction of backfill, and all other work necessary for the construction of the sewer trench.

The pay item for “Structure Excavation Class A Incl. Haul” is supplemented with the following:

“Structure Excavation Class A Incl. Haul”, per cubic yard.

The unit Contract price for “Structure Excavation Class A Incl. Haul” per cubic yard shall be full payment for all excavation, removal of water; storing, protecting and re-handling of suitable backfill material; and all other work necessary for the construction of the stormwater treatment facility.

This section is supplemented with the following:

“Resolution of Utility Conflicts”, per force account.

Payment for “Resolution of Utility Conflicts” shall be made by force account as provided in Section 1-09.6. Utility conflicts due to the Contractor’s actions or operations shall be resolved by the Contractor at no expense to the Contracting Agency. To provide a common proposal for all bidders, the Contracting Agency has entered an amount in the proposal for “Resolution of Utility Conflicts” to become a part of the total bid by the Contractor.

“Shoring or Extra Excavation Cl. A – Stormwater Treatment Facility”, per lump sum.

The lump sum Contract price shall be full pay for all shoring or extra excavation required to install the Stormwater Treatment Facility to the lines and grades as detailed in the Plans and as specified in the Standard Specifications.

END OF SECTION
Add the following new section:

2-13 VEGETATION REMOVAL

(******)

2-13.1 Description

This Work shall consist of the removal and disposal of vegetation identified on the Plans.

2-13.2 Definition of Vegetation

A “tree” is defined as any self-supporting, woody perennial plant having a main stem (trunk) and which normally attains a height of at least ten (10) feet at maturity, usually with one (1) main stem or trunk and many branches.

A “shrub” is defined as any woody perennial plant which normally attains a height of less than ten (10) feet at maturity and which can be construed to have some landscape value.

2-13.3 Construction Requirements

All stumps not identified for removal shall be close-cut parallel to the slope of the ground.

All stumps identified for stump grinding shall be ground to eight inches below final grade.

Disposal of all debris shall be in accordance with Section 2-01.2(2).

2-13.4 Measurement

Trees shall be classified by the measured circumference at a point four and one-half (4-1/2) feet above average ground level. Trees that have several stems at the four and one-half (4-1/2) foot height will be considered a tree clump. The largest diameter single stem will be measured and will dictate the class rating. Only the largest, single stem in the clump will be utilized for measurement and payment.

Stumps shall be classified by the measured circumference at the highest point of the stump above the average ground level or a point four and one-half (4-1/2) feet above the average ground level, whichever is less.

Trees and stumps will be classified as follows:

<table>
<thead>
<tr>
<th>Classification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 0</td>
<td>Less than 12 inches</td>
</tr>
<tr>
<td>Class I</td>
<td>12 inches up to but not including 36 inches</td>
</tr>
<tr>
<td>Class II</td>
<td>36 inches up to but not including 72 inches</td>
</tr>
<tr>
<td>Class III</td>
<td>72 inches up to but not including 127 inches</td>
</tr>
<tr>
<td>Class IV</td>
<td>127 inches or more (Tree height greater than 30 feet)</td>
</tr>
<tr>
<td>Class V</td>
<td>127 inches or more (Tree height of 30 feet or less)</td>
</tr>
</tbody>
</table>

Remove Tree and Remove Stump will be measured per each for each class.

Remove Shrub will be measured per each.
2-13.5 Payment

Payment will be made for the following Bid items when they are included in the Proposal:

“Remove Tree, Class___”, per each

“Remove Stump”, per each

“Remove Shrub”, per each

The unit Contract price shall be full pay to remove and dispose of the vegetative matter.

The unit Contract price for “Remove Tree, Class 0” and “Remove Tree, Class I” shall include the removal of the stump.

END OF SECTION
Add the following new section:

2-14 PAVEMENT REMOVAL
(March 17, 2003 Tacoma GSP)

2-14.1 Description

The Work described in this section includes the removal and disposal of pavement surfaces identified on the Plans or as marked in the field.

2-14.2 Pavement Classification

Removal of pavement will be according to type and class based on composition and thickness, as defined below:

Type I

Pavement removal where all or portions of the existing pavement is being removed in conjunction with street construction or any other removal not described below for Type II or Type III.

Type II

Pavement removal required for the placing of utilities at greater and varying depths, such as sewers.

Type III

Pavement removal required for narrow and shallow utility cuts in order to install light cables, conduits and similar shallow utilities.

Class A2

Class A2 pavement removal shall apply to the removal of asphalt concrete, bituminous road surfacing, multiple lift bituminous surface treatments or any combination of these components having an average thickness of two inches or less.

Class A4

Class A4 pavement removal shall apply to the removal of asphalt concrete, bituminous road surfacing, multiple lift bituminous surface treatments or any combination of these components having an average thickness between two inches and four inches.

Class A8

Class A8 pavement removal shall apply to the removal of asphalt concrete, bituminous road surfacing, multiple lift bituminous surface treatments or any combination of these components having an average thickness between four inches and eight inches.

Class C6

Class C6 pavement removal shall apply to all non-reinforced cement concrete pavements or slabs having an average thickness of six inches or less. After the curbs and pavement have been constructed, the Contractor may be required to remove additional sidewalk necessary to provide proper connections and grades, as determined by the Engineer.

Class C12

Class C12 pavement removal shall apply to all non-reinforced cement concrete pavements or slabs having an average thickness of between 6 inches and 12 inches.
Class CA  Class CA pavement removal shall apply to all pavements that have a wearing surface of asphalt concrete upon a cement concrete pavement or, cement concrete base, and for which the total combined thickness of the pavement averages between six inches and twelve inches.

Class H  Class H pavement removal shall apply to early type pavement of a cement concrete base with a brick or cobblestone surface and potentially an additional layer of asphalt concrete pavement for which the total combined thickness of the pavement averages between ten inches and twenty inches.

2-14.3 Construction Requirements

All final meetlines shall be sawcut.

Where monolithic cement concrete pavement and curb are being removed, the curb removal shall be considered as pavement removal, and the measurement for payment will be to the back of the curb.

The removal of existing street improvements shall be conducted in such a manner as not to damage utilities and any portion of the improvement that is to remain in place. Any deviation in this matter will obligate the Contractor, at no expense to the Contracting Agency, to repair, replace, or otherwise make proper restoration to the satisfaction of the Engineer.

In the event a pavement averages more than the maximum thickness specified for its class, an additional payment will be made to cover the extra thickness removed by a proportional conversion into additional square yards.

2-14.4 Measurement

Pavement removal will be measured per square yard.

Type I pavement removal will be measured in its original position through the use of survey techniques.

2-14.5 Payment

Payment will be made for the following Bid items when they are included in the Proposal:

“Remove Existing Pavement, Type ___Class___”, per square yard

All costs associated with saw cutting meet lines shall be included in the unit Contract price for pavement removal.

END OF SECTION
Add the following new section:

2-15  CURB AND CURB AND GUTTER REMOVAL
(March 17, 2003 Tacoma GSP)

2-15.1 Description

The Work described in this section includes the complete removal and disposal of curbs and curb and gutter identified on the Plans or as marked in the field.

2-15.2 Curb Classification

Removal of curb and/or curb and gutter will be based on composition, as defined below:

**Integral Curb** - Integral curb shall consist of curb that is constructed monolithic with the adjacent cement concrete pavement.

**Curb** - Curb may consist of cement concrete curb, granite curb, or any other combination of rigid material that extends below the pavement surface elevation.

**Extruded/Precast Curb** - Extruded or precast curb may consist of asphalt or concrete extruded or precast curb that is installed on a pavement surface.

**Curb and Gutter** - Curb and gutter may be cement concrete, or a cement concrete curb with a brick gutter on a cement concrete base, or other combination of rigid material.

2-15.3 Construction Requirements

Integral curb removal shall consist of the removal of the curb and the integral base section under the curb. The removal shall be accomplished by sawcutting along the face of the curb.

The removal of the curb and/or curb and gutter shall be conducted in such a manner as not to damage utilities and any portion of the improvement that is to remain in place. Any deviation in this matter will obligate the Contractor, at no expense to the Contracting Agency, to repair, replace, or otherwise make proper restoration to the satisfaction of the Engineer.

2-15.4 Measurement

Curb and curb and gutter removal will be measured per linear foot.

2-15.5 Payment

Payment will be made for the following Bid items when they are included in the Proposal:

“Remove Curb”, per linear foot
“Remove Extruded/Precast Curb”, per linear foot

All costs associated with saw cutting necessary for the removal of curb and/or curb and gutter shall be included in the unit Contract price for removal.

END OF SECTION
Add the following new section:

2-16 REMOVAL OF CATCH BASINS, MANHOLES, CURB INLETS, ETC.
(March 17, 2003 Tacoma GSP)

2-16.1 Description
The Work described in this section includes the complete removal and disposal of catch basins, manholes, and curb inlets as identified on the Plans.

2-16.2 Vacant

2-16.3 Construction Requirements
Where the structures are removed, the excavation shall be backfilled with native material if deemed suitable by the Engineer or imported backfill material.

Material determined by the Engineer to be unsuitable at the time of excavation shall be removed and replaced with imported backfill material. Payment will be made at the unit contract price of the item in the proposal, or as extra work under Section 1-04.4 if not included as an item in the proposal.

All pipe openings shall be plugged in accordance with 7-08.3(4).

The removal of the structures shall be conducted in such a manner as not to damage utilities and any portion of the improvement that is to remain in place. Any deviation in this matter will obligate the Contractor, at no expense to the Contracting Agency, to repair, replace, or otherwise make proper restoration to the satisfaction of the Engineer.

2-16.4 Measurement
The removal of catch basins, manholes, and curb inlets will be measured per each.

2-16.5 Payment
Payment will be made for the following Bid items when they are included in the Proposal:

"Remove Catch Basin", per each

"Remove Manhole", per each

All costs associated with the placement and compaction of the backfill material shall be included in the unit Contract price for removal.

END OF SECTION
Add the following new section:

2-17 SETTLEMENT AND VIBRATION MONITORING

(******)

2-17.1 Description

This Work consists of developing and implementing a settlement and vibration monitoring plan for the project.

2-17.2 Vacant

2-17.3 Construction Requirements

2-17.3(1) Settlement Monitoring Plan

Prior to beginning construction, the Contractor shall develop and submit a Settlement Monitoring Plan for all structures within 75 ft of any vibration-inducing activity and obtain acceptance by the Engineer for the method, installation, and details of the Settlement Monitoring Plan. The Settlement Monitoring Plan shall be signed and stamped by a professional Engineer licensed in the State of Washington. Vibration-inducing activities include, but are not limited to, construction drilling, soil compaction, and excavation. The Settlement Monitoring Plan shall include the following:

1. The qualifications of the individual(s) responsible for settlement monitoring.

2. Descriptions of equipment to be used for settlement monitoring.

3. A detailed plan of locations for monitoring vertical and horizontal displacements. The plan shall also include the locations of survey benchmarks to be used in settlement monitoring.


5. Methods for protecting monitoring points from damage or vandalism.

6. Methods and frequency for baseline and follow-up measurements.

7. Descriptions of monitoring report content and format.

8. Description of the vertical and horizontal accuracy of settlement monitoring measurements.

9. Descriptions of action levels for movement of structures and a Corrective Action Plan to be implemented in the event of unacceptable movement.

2-17.3(2) Pre-Construction Condition Survey

Prior to beginning construction, the Contractor shall conduct a Pre-Construction Condition Survey to provide a baseline for the pre-construction condition of nearby
structures including, but not limited to: any building foundations, driveways, sidewalks, roadway surfaces, or retaining walls within 75 ft of any planned vibration-inducing activity.

A detailed examination shall be performed at each structure that is to be monitored. The detailed examination shall provide adequate numbers of photographs of each building exterior and interior to document the pre-construction condition of the structure and include all cracks, sticking doors and windows, and areas of structural distress. The Contractor shall be responsible for obtaining Right of Entry permission from the building owners.

Documentation of cracks, sticking doors and windows, and areas of structural distress shall include to-scale drawings indicating the location and orientation of existing cracks and structural distress. Documentation of cracks shall include nominal crack width. During the Pre-Construction Condition Survey, 2-dimensional crack measurement templates, such as Avongard or similar, shall be placed at critical and representative locations. Crack measurements shall be taken at least twice before start of construction. The Contractor shall notify the City a minimum of five working days prior to completing Pre-Construction Condition Survey inspections to allow the City’s representative to be present during inspections.

The settlement monitoring points described above shall be maintained by the Contractor and surveyed by a Washington State Licensed land surveyor hired by the Contractor. To establish baseline conditions prior to beginning construction activities, the settlement monitoring points shall be measured two times.

2-17.3(3) Settlement Monitoring and Reporting

During vibration-inducing construction activities, monitoring points shall be measured in accordance with the Settlement Monitoring Plan, as approved by the Engineer. At a minimum, all monitoring points shall be measured weekly.

Settlement Monitoring Reports shall be provided to the Engineer within one day of measurement. The Engineer shall be notified immediately if displacements occur or if cracks, sags, or other damage is evident in adjacent structures.

Settlement Monitoring Reports shall include all data recorded in the 24-hour period, as well as all previously recorded data to facilitate review and analysis of data trends. At a minimum, settlement monitoring data shall include reading dates, initial elevations and/or coordinates, current elevations and/or coordinates, displacement compared to initial measurements, and descriptions of construction activities at the time of the readings.

Settlement monitoring points shall be measured for a minimum of 4 weeks following the completion of construction.

2-17.3(4) Vibration Monitoring Plan

Prior to beginning construction, the Contractor shall develop and submit a Vibration Monitoring Plan for all structures within 75 ft of any vibration-inducing activity and obtain acceptance by the Engineer for the method, installation, and details of the Vibration Monitoring Plan. The Vibration Monitoring Plan shall be signed and stamped by a
professional Engineer licensed in the State of Washington. Vibration-inducing activities include, but are not limited to, construction drilling, soil compaction, and excavation. The Vibration Monitoring Plan shall include the following:

1. Construction methods and equipment that the Contractor chooses to use to achieve low project vibration levels.

2. Appropriate Peak Particle Velocity (PPV) thresholds for all structures to be monitored for vibrations.

3. A Corrective Action Plan, including alternative construction methods and equipment that will be used if the PPV threshold is reached or exceeded.

4. Detailed description(s) of the vibration monitoring system(s) and if necessary, catalog cuts of monitoring equipment that will be used; how the equipment will be calibrated and re-calibrated, if necessary during the life of the project; description and schematics if necessary of how the independent components will function as a system.

5. Identification of the individual, and their contact information, designated to oversee the vibration monitoring system(s); and the daily recording activities required in this specification. A brief description of qualifications or resume of the individual is also required.

6. A description of how site monitoring equipment will be deployed to continuously record vibration events during construction activity. Depending on the equipment deployed and method chosen for networking, it is possible there will need to be both electrical power and telecommunications connections available at multiple locations. The Vibration Monitoring Plan shall address how the Contractor will provide utility service to the equipment, protect the equipment from potential vandalism and the elements, and monitor the overall system’s day-to-day operation.

7. Details for establishing and deploying an alarm system to announce immediate shut down of all site activities if a vibration event occurs that exceeds the PPV threshold. The alarm system shall provide emails and/or text messages to pre-determined City and Contractor personnel in the event of an exceedance.

8. A protocol for the identification of the activity or equipment that caused the PPV threshold to be exceeded.

9. Description of the process that will be used to verify that the equipment will function as planned before starting work and the process that will be used to verify (daily) that the equipment remains in calibrated working order.

10. A detailed protocol including responsible parties to be notified if an exceedance occurs. This includes but is not limited to the construction superintendent and the Engineer.

11. Daily activity log of vibration activity to ensure the identification of the cause of any vibration event. A daily log shall be maintained either in written or electronic form.
2-17.3(5) Vibration Limits

After a thorough conditions evaluation, the Contractor shall propose in the Vibration Monitoring Plan appropriate PPV limits for the monitored structures. The PPV limit proposed by the Contractor shall be determined by a qualified expert in the field of vibration monitoring. In no case shall the PPV level exceed 2.0 inches per second (ips). To ensure the PPV limit is not exceeded, an alert threshold shall be implemented to signal any vibration event that equals 80 percent of the PPV limit.

2-17.3(6) Monitoring and Reporting

During vibration-inducing construction activities, monitoring points shall be measured in accordance with the Vibration Monitoring Plan, as approved by the Engineer. Vibration monitoring data shall be recorded continuously. No site work shall begin until all monitoring equipment is deployed and verified to be operating in accordance with factory recommendations and specifications.

Vibration Monitoring Reports shall be provided to the Engineer daily. The Engineer shall be notified immediately if displacements occur or if cracks, sags, or other damage is evident in adjacent structures. The Engineer shall also be notified if the PPV limits for the monitored structures are exceeded.

2-17.3(7) Post-Construction Condition Survey

Upon completion of construction, the Contractor shall perform a Post-Construction Condition Survey and analysis at the designated structures to determine if any structural changes occurred during the construction activity.

The Contractor shall notify the City a minimum of five working days prior to completing Post-Construction Condition Survey inspections to allow the City’s representative to be present during inspections.

Crack measurement templates shall be measured once upon completion of construction activities, prior to removal.

The Contractor shall provide the Engineer with a copy of all post-construction survey reports, daily log summaries for all settlement, vibration, and crack monitors, and analysis documents comparing pre- and post-structural condition prior to total project completion.

2-17.3(8) Removal of Monitoring Points

Upon completion of the settlement and vibration monitoring programs, the Contractor shall remove all associated equipment and restore the monitoring locations to pre-construction conditions.
2-17.3(9) Contractor Damage

The Contractor shall be responsible for limiting damage to and repairing damages to nearby structures and site features because of construction efforts, at no expense to the City. Repair of structures includes but is not limited to jacking of foundations and repair of concrete surfacing.

2-17.4 Measurement

Settlement and Vibration Monitoring will not be measured but will be paid for on a lump sum basis.

2-17.5 Payment

Payment will be made for the following Bid item:

“Settlement and Vibration Monitoring”, lump sum.

The lump sum Contract price for “Settlement and Vibration Monitoring” shall be full pay for performing all Work as specified. There will be no compensation for delays as the result of exceeding the PPV threshold or delays from faulty or damaged monitoring equipment. There will be no compensation for adjustment of construction activities or equipment to reduce the vibration levels to less than the maximum PPV, should an exceedance occur.

END OF SECTION
3-04 ACCEPTANCE OF AGGREGATE
(April 1, 2012 Tacoma GSP)

3-04.1 Description
The first and third paragraphs are deleted.
The fourth paragraph is revised to read:
Nonstatistical evaluation will be used for the acceptance of aggregate materials.

3-04.3 Construction Requirements

3-04.3(1) General
The first sentence is revised to read:
For the purpose of acceptance sampling and testing, all test results obtained for a material type will be evaluated collectively.

3-04.3(4) Testing Results
This section is replaced with the following:
The results of all acceptance testing will be provided by the City’s Project Engineer within 3 working day of testing.

3-04.3(6) Statistical Evaluation
This section is deleted:

END OF SECTION
4-04 BALLAST AND CRUSHED SURFACING
(March 17, 2003 Tacoma GSP)

4-04.5 Payment
This section is supplemented with the following:

All costs for labor, equipment, and materials required to furnish, place, and compact the crushed surfacing top course for all asphalt concrete approaches and non-paved approaches shall be included in the unit Contract price for “Crushed Surfacing Top Course”, per ton.

END OF SECTION
5-02 BITUMINOUS SURFACE TREATMENT
(March 3, 2008 Tacoma GSP)

5-02.3 Construction Requirements

5-02.3(1) Equipment

The third sentence of the third paragraph is revised to read:

Each roller shall not weigh less than 8-tons and shall be capable of providing constant contact pressure.

END OF SECTION
5-04 HOT MIX ASPHALT  
(April 1, 2018 Tacoma GSP)  
This section is revised according to the following overriding provisions:

Nonstatistical or test point evaluation shall be the method for HMA compaction acceptance for all HMA pavement, except where visual or commercial evaluation is specified. Visual evaluation shall be considered synonymous with commercial evaluation. The Contracting Agency will not be required to perform any acceptance by statistical evaluation.

All references to “statistical” are revised to read “nonstatistical”, and “nonstatistical” evaluation shall be considered synonymous with “test point” evaluation. Thus, all Specifications for test procedures, methods, construction requirements, and requirements for evaluation and acceptance shall apply to the Work with the following exceptions:

- The Contracting Agency shall not be required to perform statistical analysis of any acceptance test results.
- Quantities for sublots and lots shall be as determined by the Engineer. If test results are found not to be within specification requirements, additional testing as needed to determine a CPF may be performed.
- The Contracting Agency shall not be required to make price adjustments based on pay factors and composite pay factors.

5-04.1 Description  
(******)  
This section is supplemented with the following:

HMA pavement may also consist of fiber reinforcement evenly distributed throughout the approved mix.

5-04.2 Materials  
5-04.2(1) How to Get an HMA Mix Design on the QPL  
(April 1, 2018 Tacoma GSP)  
For Subsection 5-04.2(1) the term “Contracting Agency” is revised to read “WSDOT”.

Add this new section:
5-04.2(1)D Fiber Reinforced HMA  
(******)

Fiber reinforcement shall consist of Aramid fibers and polyolefin fibers, with the polyolefin fibers intended to keep the Aramid fibers together until incorporation into the HMA mix. Once incorporated into the mix and during the HMA production process polyolefin fibers will melt and/or become plastically deformed allowing Aramid fibers to separate.

Aramid fibers shall meet the following requirements:

<table>
<thead>
<tr>
<th>Property</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>¾” (19mm)</td>
</tr>
<tr>
<td>Form</td>
<td>Monofilament</td>
</tr>
<tr>
<td>Acid/Alkali Resistance</td>
<td>Inert</td>
</tr>
</tbody>
</table>
5-04.2(2) Mix Design – Obtaining Project Approval

(April 1, 2018 Tacoma GSP)

This section is revised to read:

The Contractor shall submit each HMA mix design to the Contracting Agency on WSDOT Form 350-042. The Contractor shall provide a mix design based upon 3 million ESALs.

No paving shall begin prior to the HMA mix design acceptance by the Engineer for the Job Mix Formula (JMF) that will be used for the same paving. The Contracting Agency will evaluate HMA mix design submittals according to Visual Evaluation per Table 1. The mix design will be the initial JMF for the class of HMA. The Contractor may request a change in the JMF. Any adjustments to the JMF will require the approval of the Project Engineer and must be made in accordance with Section 9-03.8(7).

Mix designs for HMA shall have the aggregate structure and asphalt binder content determined in accordance with WSDOT Standard Operating Procedure 732 and meet the requirements of Sections 9-03.8(2) and 9-03.8(6). The Contractor shall determine anti-strip additive requirements for the HMA and submit laboratory test data for anti-stripping and rutting in accordance with the following options:

- Hamburg Wheel track Test and Section 9-03.8(2), or
- Tensile Strength Ratio (TSR) Test per AASHTO T 283, or
- Previous WSDOT Lab mix design verification test data and stripping evaluation, per the Engineer's discretion and as stated below.

With the HMA mix design submittal the Contractor shall provide one of the following mix design verification certifications for Contracting Agency review:

- The WSDOT Mix Design Evaluation Report from the current WSDOT QPL, or one of the mix design verification certifications listed below.
- The proposed HMA mix design on WSDOT Form 350-042 with the seal and certification (stamp & signature) of a valid licensed Washington State Professional Engineer.**
- The Mix Design Report for the proposed HMA mix design developed by a qualified City or County laboratory that is within one year of the approval date.**

**The mix design shall be performed by a lab accredited by a national authority such as Laboratory Accreditation Bureau, L-A-B for Construction Materials Testing, The Construction Materials Engineering Council (CMEC's) ISO 17025 or AASHTO Accreditation Program (AAP) and shall supply evidence of participation in the AASHTO resource proficiency sample program.
At the discretion of the Engineer, the Contracting Agency may accept verified mix designs older than 12 months from the original verification date with a certification from the Contractor that the materials and sources are the same as those shown on the original mix design.

For the use of Commercial HMA, the Contractor shall select a class of HMA and design level of Equivalent Single Axle Loads (ESALs) appropriate for the required use. Commercial HMA can be accepted by a Contractor certificate of compliance letter stating the material meets the HMA requirements defined in the Contract.

5-04.2(2)B Using HMA Additives
(April 1, 2018 Tacoma GSP)
This section is revised to read:

The Contractor may, at the Contractor’s discretion, elect to use additives that reduce the optimum mixing temperature or serve as a compaction aid for producing HMA. Additives include organic additives, chemical additives and foaming processes. The use of Additives is subject to the following:

- Do not use additives that reduce the mixing temperature in the production of High RAP/Any RAS mixtures.
- Before using additives, obtain the Engineer’s approval using WSDOT Form 350-076 to describe the proposed additive and process.

5-04.3 Construction Requirements

5-04.3(2) Paving Under Traffic
(April 1, 2018 Tacoma GSP)
The second paragraph is supplemented with the following:

No traffic shall be allowed on any newly placed pavement without the approval of the Engineer.

5-04.3(3) Equipment

5-04.3(3)C Pavers
(April 1, 2018 Tacoma GSP)
The second paragraph is deleted.

5-04.3(3)D Material Transfer Device or Material Transfer Vehicle
(April 1, 2018 Tacoma GSP)
The first paragraph is revised to read:

A Material Transfer Device/Vehicle (MTD/V) shall not be used unless specific paving areas are specified below. A MTD/V shall only be used according to this special provision for the following paving areas:

None.
5-04.3(4) Preparation of Existing Paved Surfaces

5-04.3(4)C Pavement Repair
(April 1, 2018 Tacoma GSP)

This section is revised to read:

Pavement repair shall be in accordance with the City of Tacoma Right-of-Way Restoration Policy found at:


Pavement repair consists of asphalt concrete saw-cutting, removing asphalt concrete pavement, removing crushed surfacing and subgrade, and installing Construction Geotextile for Separation, placing crushed surfacing top course over the Construction Geotextile, and HMA in accordance with the Contract or as directed by the Engineer.

Pavement repair excavation may also be performed by the use of a milling machine of a type that has operated successfully on work comparable with that to be done under the Contract and shall be approved by the Engineer prior to use. If a milling machine is used for excavation, the excavation shall be as directed by the Engineer.

In all types of excavation, after the removal of the asphalt, the base material will be evaluated by the Engineer to determine if it is suitable. If the base is determined not to be suitable, the Contractor shall remove the base material and restore the sub-grade in accordance with Section 2-06 and the Plans, regardless of the method used for excavation.

Estimated plan quantities for pavement repair are approximate and are provided for bidding purposes only. The actual dimensions to be used will be verified by the Engineer at the time of construction. Contrary to Section 1-04.6, no changes to the unit prices bid for the various items will be permitted due to any increase or decrease in the amount of pavement repair.

Payment for pavement repair shall be by the unit Bid prices according to the Contract for all materials, labor, and equipment required to complete the pavement repair. Items not included in the Proposal shall be paid for according to Section 1-04.1(2).

5-04.3(6) Mixing
(Aug 1, 2020 Tacoma GSP)

The first paragraph is revised to read:

The asphalt supplier shall add any recycling agent and anti-stripping additive to the liquid asphalt binder prior to shipment to the asphalt mixing plant, when the mix design includes these additives. The Contractor shall submit the anti-stripping additive amount and the manufacturer’s certification, together with the HMA mix design submittal in accordance with Section 5-04.2. Paving shall not begin before the anti-stripping additive submittal is accepted by the Engineer.
5-04.3(8) Aggregate Acceptance Prior to Incorporation in HMA
(Aug 1, 2020 Tacoma GSP)
This section is revised to read:

Sample aggregate in accordance with Section 3-04 prior to being incorporated into HMA.
The Contracting Agency shall evaluate the aggregate according to Special Provision 3-04. Aggregate contributed from RAP or RAS shall not be evaluated under Section 3-04.
The combined aggregate bulk specific gravity (Gs) blend as shown on the HMA Mix Design report or evaluation report per Special Provision 5-04.2(2) will be used for VMA calculations. The Contracting Agency shall not be required to perform a Gs test.

5-04.3(9) HMA Mixture Acceptance
(April 1, 2018 Tacoma GSP)
The first paragraph is revised to read:
The Contracting Agency will evaluate the HMA mixture by nonstatistical or visual evaluation as determined from the criteria in Table 7 or as determined by the Engineer.

5-04.3(9)A Test Sections
(April 1, 2018 Tacoma GSP)
The first paragraph is revised to read:
At the start of paving, if requested by the Contractor, a compaction test section shall be constructed as directed by the Engineer to determine the compactibility of the mix design. Compactibility shall be based on the ability of the mix to attain the specified minimum density (91 percent of the maximum density determined by WSDOT SOP 729, and FOP for AASHTO T 209).
Following determination of compactibility, the Contractor is responsible for the control of the compaction effort. If the Contractor does not request a test section, the mix will be considered compactible. See also Section 5-04.3(10)C2.
The Contractor shall also construct a test section when requested by the Engineer. Test sections that are in complete compliance with the requirements of Section 5-04 can be incorporated into the Work, and shall be included in the quantities for related Bid Items; otherwise, the Contractor shall remove the defective pavement in failed test sections as determined by the Engineer and at no cost to the Contracting Agency. The Contracting Agency will only pay for HMA pavement that is accepted and incorporated into the project at the discretion of the Engineer. See also Section 5-04.3(10)C2.
The second paragraph is revised to read:
The purpose of a test section is to determine whether or not the Contractor's mix design and production processes will produce HMA meeting the Contract requirements related to mixture. Construct HMA mixture test sections at the beginning of paving, using at least 100 tons and a maximum of 800 tons or as specified by the Engineer. Each test section shall be constructed in one continuous operation.
For HMA in a structural application, sampling and testing for total project quantities less
than 400 tons is at the discretion of the engineer. For HMA used in a structural
application and with a total project quantity less than 800 tons but more than 400 tons, a
minimum of one acceptance test shall be performed:

i. If test results are found to be within specification requirements, additional testing
will be at the engineer’s discretion.

ii. If test results are found not to be within specification requirements, additional
testing as needed to determine a CPF shall be performed.

iii. For a mixture lot in progress with a mixture CPF less than 0.75, a new mixture lot
will begin at the Contractor’s request after the Engineer is satisfied that material
conforming to the Specifications can be produced. See also Section 5-

iv. If, before completing a mixture lot, the Contractor requests a change to the JMF
which is approved by the Engineer, the mixture produced in that lot after the
approved change will be evaluated on the basis of the changed JMF, and the
mixture produced in that lot before the approved change will be evaluated on the
basis of the unchanged JMF; however, the mixture before and after the change
will be evaluated in the same lot. Acceptance of subsequent mixture lots will be
evaluated on the basis of the changed JMF.

The Contracting Agency will endeavor to provide written notification (via email to the
Contractor’s designee) of acceptance test results within 24 hours of the sample being
made available to the Contracting Agency. However, the Contractor agrees:

1. Quality control, defined as the system used by the Contractor to monitor, assess,
and adjust its production processes to ensure that the final HMA mixture will
meet the specified level of quality, is the sole responsibility of the Contractor.

2. The Contractor has no right to rely on any testing performed by the Contracting
Agency, nor does the Contractor have any right to rely on timely notification by
the Contracting Agency of the Contracting Agency’s test results (or statistical
analysis thereof), for any part of quality control and/or for making changes or
correction to any aspect of the HMA mixture.
3. The Contractor shall make no claim for untimely notification by the Contracting Agency of the Contracting Agency's test results (or statistical analysis thereof).

5-04.3(10) HMA Compaction Acceptance

5-04.3(10)B HMA Compaction – Cyclic Density
(April 1, 2018 Tacoma GSP)
This section is deleted.

5-04.3(10)C HMA Compaction Acceptance – Statistical Evaluation

5-04.3(10)C1 HMA Compaction Statistical Evaluation – Lots and Sublots
(April 1, 2018 Tacoma GSP)
This section is deleted.

5-04.3(10)C2 HMA Compaction Statistical Evaluation – Acceptance Testing
(April 1, 2018 Tacoma GSP)
The title of this section is revised to read:
5-04.3(10)C2 HMA Compaction Nonstatistical Evaluation – Acceptance Testing

The second paragraph is revised to read:

Compaction tests will be performed at a minimum of 5 various locations, as determined by the Engineer, for each 400 tons placed. The locations will be determined by the stratified random sampling procedure conforming to WSDOT Test Method T 716. For an area in progress with a CPF less than 0.75, a new compaction sequence will begin at the Contractor’s request after the Project Engineer is satisfied that material conforming to the Specifications can be produced. The Compaction Test Procedures will be provided to the Contractor by the Contracting Agency at the Pre-Construction Conference or a Pre-Paving Meeting, prior to the placement of HMA material on site.

This section is supplemented with the following:

Cores may be used as an addition to the nuclear density gauge tests. When cores are taken by the Engineer at the request of the Contractor, the request shall be made by noon of the first working day following placement of the mix. The Engineer shall be reimbursed for the coring expenses.

The Engineer will inform the Contractor of field compaction test results as work is being performed. Formal Test Report(s) will be provided to the Contractor within 3 Working Days.

HMA for preleveling shall be compacted to the satisfaction of the Engineer.

Add this new section
5-04.3(17) Fiber Reinforced HMA
(******)

Fiber reinforcement shall be added to the approved HMA mix at a rate of 1 pound of fiber per 1 ton of HMA.
Fiber shall be added to the HMA mix through specialized equipment that can accurately proportion and/or meter, by weight, the proper amount per batch for batch plants, or continuously and in a steady uniform manner for drum plants. Alternatively, upon approval of the engineer, fiber may be added manually using pre-weighed dissolvable bags.

Specialized equipment shall be of the type and capable of controlling the weight of fibers added as recommended by the fiber manufacturer.

Fiber shall be mixed with the HMA in accordance with the fiber manufacturer’s recommendations.

5-04.4 Measurement

The first paragraph is revised to read:

HMA Cl. ___ PG ___, Fiber Reinforced HMA ___ Cl. ___ PG ___, and Commercial HMA will be measured by the ton in accordance with Section 1-09.2, with no deduction being made for the weight of asphalt binder, blending sand, mineral filler, anti-stripping additive, or any other component of the mixture; and the measurement shall include asphalt wedge curbs and thickened edges in accordance with the Plans or as directed by the Engineer. If the Contractor elects to remove and replace mix as allowed in Section 5-04.3(11), the material removed will not be measured.

The second paragraph is revised to read:

No specific unit of measure will apply to roadway cores, which shall be included in the measurements for the HMA items that are included in the Proposal.

No specific unit of measure will apply to anti-stripping additive, which shall be included in the measurements for the HMA items that are included in the Proposal.

5-04.5 Payment

Pay items for “Job Mix Compliance Price Adjustment” and “Compaction Price Adjustment” are deleted.

This section is supplemented with the following:

“Fiber Reinforced HMA Cl. ___ PG __”, per ton.

The unit Contract price per ton for “Fiber Reinforced HMA Cl. ___ PG ___” shall be full payment for all costs incurred to carry out the requirements of Section 5-04, including coring and testing, and shall include fiber reinforcement anti-stripping additive, asphalt wedge curbs, thickened edges, curb drains and connections to existing roof drains in accordance with the Contract. Any costs that are already included in other Bid items in the Proposal shall not be included in the unit Contract prices per ton for these HMA Bid items.
“Cold Plant Mix for Temporary Pavement Patch”, per ton.

The unit Contract price for “Cold Plant Mix for Temporary Pavement Patch” shall be full pay for all labor, equipment, and materials required to furnish and install; maintain; and remove and dispose of the temporary patch.

Temporary pavement patches placed between October 1st and March 31st shall be HMA Cl. 1/2” PG 58H-22.

END OF SECTION
5-05  CEMENT CONCRETE PAVEMENT
(June 16, 2016 Tacoma GSP)

5-05.1 Description
This section is supplemented with the following:

All concrete pavement restoration shall be performed in accordance with the City of

5-05.3 Construction Requirements

5-05.3(1) Concrete Mix Design for Paving
The sixth paragraph is supplemented with the following:

The submittal for the concrete mix design shall provide the following: the date, the
amount of materials (i.e. cement, sand, aggregates, water), the type and amount of each
admixture, and the designated 28-day compressive strength specific to the mix design
being submitted. The design compressive strength shall be a minimum of 4,000 psi.

5-05.3(4) Measuring and Batching Materials

5-05.3(4)A Acceptance of Portland Cement or Blended Hydraulic Cement Concrete
Pavement
This section is supplemented with the following:

Acceptance of concrete will be on a non-statistical acceptance only.

The first, second, third and fourth paragraphs are deleted.

5-05.3(8) Joints
The second paragraph is revised to read:

The Contractor shall submit a concrete panel jointing plan in accordance with the Plans
and these Specifications. When a concrete panel jointing plan is included in the Plans,
the Contractor may adopt or submit a revised jointing plan in accordance with Standard
Plans and the Specifications at the Contractor’s own expense. The Contractor’s jointing
plan shall be approved in writing by the Engineer before the start of concrete paving.

When new pavement abuts existing pavement, the locations of the joints in the new
pavement shall match with the joints in the existing pavement unless otherwise
approved by the Engineer.

5-05.3(11) Finishing
The third paragraph is revised to read:

In advance of curing operations, the pavement shall receive an initial texturing followed
by final finishing. Initial texturing shall be performed with a burlap drag or broom device,
creating striations in the same orientation as the final finish. The concrete roadway
surface shall be finished with a transverse tining finish. Where integral concrete curbs
are constructed, the roadway surface finish shall end 12 inches from the flowline.
The fourth paragraph is revised to read:

Burlap drags, brooms and tine devices may be installed on self-propelled equipment having external alignment control. When texturing the pavement with burlap, the area of burlap in contact with the pavement shall be maintained constant at all times. Broom and tine devices shall be provided with positive elevation control. Downward pressure on pavement surface shall be maintained at all times during texturing so as to achieve uniform texturing without measurable variations in pavement profile. If self-propelled texturing machines are used, these shall be operated so that travel speed during texturing is maintained constant. Failure of the texturing equipment to perform according to this section shall constitute cause for stopping placement of concrete until the equipment deficiency or malfunction is corrected.

The fifth paragraph is revised to read:

The surface finish shall be as shown per Plans and in accordance with these Special Provisions. The Engineer may specify either transverse tining, or longitudinal tining, or a heavy broom finish for any part of the project. Transverse tining is the standard concrete finish.

The seventh paragraph is revised to read:

Test Panel:

At the start of concrete pavement construction, the Contractor shall first finish a textured concrete test panel and the Engineer shall give approval of the achieved finish according to this section prior to further concrete pavement construction. If the test panel is rejected by the Engineer, the Contractor shall remove and replace the test panel at no additional cost to the Contracting Agency. The Contractor can designate one of the project panels as a test panel or create a sacrificial test panel on site of at least four feet by eight feet.

Project panels not meeting the characteristics of the test panel shall be removed and replaced at no additional cost to the Contracting Agency.

The eighth through tenth paragraphs are deleted.

5-05.3(12) Surface Smoothness

The section is revised to read:

The Contractor shall measure surface smoothness with a 10-foot straightedge as directed by the Engineer. The finished grade surface shall not vary more than 1/8 inch from the bottom edge of a 10-foot straightedge placed on the surface parallel to the centerline. Perpendicular to the centerline, the finished grade surface shall not vary more than 1/4 inch from the bottom edge of a 10-foot straightedge laid across any lane.

The completed surface shall be of uniform texture, smooth, shall conform to Plans as to crown and grade, and shall be free from defects of all kinds. Corrective work shall be as directed by the Engineer; and the Contractor shall complete corrective work at no additional expense, including traffic control, to the City of Tacoma.
5-05.3(14) Cold Weather Work

This section is supplemented with the following:

The following additional requirements for placing concrete shall be in effect from November 1 to April 1:

- Engineer shall be notified at least 24 hours prior to placement of concrete.
- All concrete placement shall be completed no later than 2:00 p.m. each day.
- Where forms have been placed and the subgrade has been subjected to frost, no concrete shall be placed until the ground is completely thawed. At that time, the forms shall be adjusted and subgrade repaired as determined by the Engineer.

5-05.4 Measurement

This section is revised to read:

Measurement for cement concrete pavement and concrete base pavement shall be by the square yard for the pavement completed and accepted according to Section 5-05 and the Plans, including the area underneath curbs. No deduction will be made for castings in pavement.

5-05.5 Payment

This section is revised to read:

Payment will be made for each of the following Bid items that are included in the Proposal:

"Cement Conc. Pavement, ___-Inch Section", per square yard.

The unit Contract price per square yard for “Cement Conc. Pavement, ___-Inch Section” shall be full payment for all costs incurred to carry out the requirements of Section 5-05 and the Plans.

END OF SECTION
6-02 CONCRETE STRUCTURES
(******)

6-02.1 Description
This section is supplemented with the following:

This item of work shall consist of furnishing all materials, labor, tools, equipment, 
services and incidentals necessary to construct the secant piles in accordance with the 
Plans, Standard Specifications, and these special provisions.

Work shall also include the painting of the structure with an epoxy lining following the 
erection of the structure to leave an undamaged coating. This work consists of surface 
preparation, furnishing and applying epoxy paint lining, and cleaning up after lining is 
completed.

All coatings shall be mixed and applied in strict compliance with the epoxy lining 
manufacturer’s printed instructions, which are incorporated into these specifications by 
reference. This includes the various kinds and amounts of thinners and primers 
recommended by the coatings manufacturer to be used.

Add the following new section:
6-02.1(A) Definitions

Bearing Stratum
The soil or rock stratum that carries the load transferred to it by a secant/tangent pile.

Casing Method
A method of construction in which a temporary casing is used to advance and 
support the sides of the borehole during the construction of the secant/tangent pile, 
including the placement of the reinforcing steel and the concrete. Natural mineral or 
polymer drilling fluid may or may not be used in conjunction with this method.

Drilling Fluid
The drilling fluid can be composed of natural mineral materials (i.e., processed clay 
materials such as bentonite or attapulgite), can be composed of synthetic materials 
(e.g., polymers or acrylamides), or can be a blend. See also: Slurry.

Dry Method
A method of construction in which a borehole is advanced without the use of slurry or 
water (as a stabilizing fluid) during the construction of the secant/tangent pile, 
including the placement of the reinforcing steel and the concrete. A temporary steel 
casing may be used.

External Bracing
A system of horizontal and/or inclined structural members connected to the vertical 
structural members (i.e., secant or tangent piles) used to increase lateral stability of 
the earth retention system.

Firm/Firm Secant Piles
Primary and secondary piles are backfilled with unreinforced, weak or lean concrete. 
Secondary piles can be reinforced as required by design.
**Fully Cased**
A method of construction that occurs when a temporary steel casing is used to support the borehole fully during the construction of a secant or tangent pile. The casing is installed (during, before, or after excavation depending on ground or other environmental conditions) and then is extracted after placement of the steel reinforcement and concrete.

**Ground Anchor (Tieback)**
A system used to transfer tensile loads to the ground (i.e., soil and/or rock) and to provide active lateral support to an earth retention system. The components of a ground anchor include the pre-stressing steel tendon, grout, centralizers, bond breaker, anchorage, and corrosion protection. Ground anchors are most often pre-stressed to limit the deformation of the earth retention system.

**Ground Surface**
The level at which the tooling for the construction of the secant or tangent pile wall first enters the ground. The ground surface is not necessarily the same elevation as the working platform and/or the top of the guidewalls.

**Guidewall**
A reinforced concrete template that is formed in the ground prior to the start of the construction of the secant pile walls. The guidewall provides restraint to the position and verticality of the secant/tangent piles, and aids in the support of the reinforcing steel, casing extractors, etc. during the placement of concrete.

**Hard/Hard Secant Piles**
The concrete in each primary and secondary pile has the same compressive strength, which is a higher strength structural grade concrete. Secondary piles are typically reinforced, and primary piles typically unreinforced.

**Inspection**
The observation of construction, equipment, materials, and actual subsurface conditions that enables the Geotechnical Engineer to render a professional opinion on the expected performance of the constructed work and on the Contractor's conformance to the Contract Documents.

**Mineral Slurry**
Slurry in which the principal ingredient, by weight or activity, is finely divided clay and/or other minerals.

**Obstruction**
A naturally occurring or man-made object(s) in the ground that impedes or prevents the advancement of the borehole or the installation of the secant/tangent pile.

**Pig**
A device inserted into a tremie pipe that is used to separate fresh, fluid concrete from the fluid(s) within the borehole excavation.
**Polymer**  
Water-dispersible or water-soluble water thickening compound formed from two or more polymeric compounds. Suitable polymers may potentially be synthetic, natural, modified natural, or combinations or grafts.

**Polymer Slurry**  
Slurry, in which the principal ingredient, by weight or activity, is water-soluble or water-dispersible polymers.

**Primary Pile**  
The initial vertical pile, usually unreinforced (but can be reinforced for some applications), typically constructed using rotary drilling methods (including oscillator methods), which serves as soil support between the secondary, reinforced piles.

**Qualification**  
The Contractor intending to perform the construction of the Work must have had prior experience successfully installing secant or tangent wall systems. The requirements vary based on the difficulty of the specific project. The contractor qualification requirements are typically defined within the project specific specifications.

**Seating**  
The act of installing a steel casing whereby its entire circumference is in complete contact with the underlying soil/rock formation.

**Secant Pile Wall**  
An earth retention system consisting of contiguous, interlocking/overlapping vertical piles (e.g., drilled shafts, columns, etc.). A secant pile wall is constructed by installing concrete or cement/bentonite grout primary vertical piles (with or without steel reinforcement) at prescribed intervals. Secondary vertical piles are then installed in between and slightly overlapping the primary piles, wherein reinforcing steel is inserted and the secondary piles are filled with the appropriate concrete mix. The reinforcement is composed of a steel reinforcing cage. Typically, the primary and secondary piles are of the same diameter. In non-water retaining designs, often the unreinforced piles (primary piles) are only drilled to 1-2 feet below the excavation level while the reinforced secondary piles have a deeper toe for wall stability.

**Secondary Pile**  
A vertical reinforced concrete pile, typically constructed using rotary drilling methods (including oscillator methods), which serves as the support for the proposed earth retention system and can be used for vertical loading (e.g., when the secant wall is used as an abutment, as support for the superstructure, etc.).

**Slurry**  
A drilling fluid used to stabilize and support sides and bottom of the borehole during the construction of the secant/tangent piles. The slurry mixture provides hydrostatic pressure that supports the sides and bottom of the borehole, lubricates and cools the drill tools, and aides in cleaning or removing the cuttings from the borehole. For this type of construction, the slurry is mainly comprised of water, clay materials (e.g., bentonite or attapulgite), polymeric materials, and/or acrylamides.
**Slurry Displacement Method**
Method of drilling and concreting, whereby controlled slurry consisting of water with or without additives such as bentonite, attapulgite, or polymer is used to stabilize the borehole. The slurry may be used to stabilize an uncased drilled borehole, or to allow acceptable concrete placement when water seepage into the borehole is excessive.

**Surface Casing**
Temporary casing that is installed to prevent the sloughing of soil near the surface of a borehole.

**Temporary Casing**
This refers to a steel pipe that may be used to advance the borehole by supporting the sides of a borehole during the drilling and installation of the secant/tangent pile. The casing may be used to construct the primary and/or secondary piles, and typically provides a more consistent finished product. The casing is extracted during concreting.

**Tremie Method**
A method used to place concrete by gravity into the borehole where water and/or slurry are typically present. Concrete is placed through a conduit (i.e., steel pipe or tube) into the bottom of the borehole, and the concreting operation continues until the borehole is completely filled from the bottom up. A significant head of fresh concrete (e.g., 5 to 10 feet “above fluid level in the shaft”) is constantly maintained, inside and above the tip of the tremie, ensuring upward displacement of slurry and water to prevent intermixing or dilution of fresh concrete with soil, water, and/or slurry. The tremie or tube is smooth and clean both inside and out, and typically has a minimum inside diameter (ID) of 10 inches. The pump tube typically has a minimum ID of 5 inches.

**Wet Method**
A method of construction, in which a borehole is advanced with the use of slurry or water during the construction of the secant/tangent pile, including the placement of the reinforcing steel and the concrete. The slurry or water is used also as a stabilizing fluid to support the sides of the borehole and to counteract hydrostatic conditions. A temporary steel casing may be used also with this method.

**Work**
This includes all of the activities associated with the installation of cantilevered, braced, and/or anchored secant and/or tangent pile earth retention systems.

**Working platform**
A surface that safely supports the construction equipment and personnel. The working platform also includes any ramps, access paths, and roads.
6-02.2 Materials
This section is supplemented with the following:

Secant pile manhole access hatch shall be 36” x 48” angle frame, H-20 double door hatch, occasional traffic as manufactured by U.S.F. Fabrication, Inc or approved equal.
Hatch shall meet the following requirements;

1. Material: Aluminum
2. Finish: Mill
3. Frame: ¼” material with integral anchoring system
   a. All parts of the frame coming in contact with concrete shall be coated with bituminous paint
4. Loading: H-20
5. Hardware: 316 stainless steel nuts and bolts
6. 316 stainless steel automatic hold open arm
7. Watertight slamlock
8. Lift assist: Springs
9. Recessed lift handle
10. 316 stainless steel hinge with tamper proof bolts
11. Maximum 1/2” diameter slotted holes.
12. Ten year warranty

Floor mount sleeve davit base materials shown in the Plans consist of Floor Mount Cast-in-Place Sleeve Davit Base (Model # 8512828) manufactured by 3M DBI-SALA, or Engineer approved equal. All floor mount sleeve steel elements shall be 304 stainless steel. Sleeve cap material shall be Heavy Duty Sleeve Cap (Model # 8510827) manufactured by 3M DBI-SALA, or Engineer approved equal. Materials for cement concrete mounting base footing shall be per Section 5.05.3. unless otherwise shown. Concrete footing shall have a 28-day compressive strength of 4,000 psi. Reinforcing steel shall be ASTM A615 Grade 60.

Add the following new section:
6-02.2(1) Concrete Structure

Water shall be potable, and shall be in accordance with the slurry requirements provided herein.
Concrete used in the construction of the guidewalls shall have a minimum 28-day compressive strength of 3,000 psi and shall conform to the requirements of Section 6-02 of the Standard Specifications.

Primary vertical piles shall have a minimum 28-day compressive strength of 4,000 psi and shall conform to the requirements of Section 6-02 of the Standard Specifications.

Secondary piles shall have a minimum 28-day compressive strength of 5,000 psi, and shall conform to the requirements of Section 6-02 of the Standard Specifications.

Bar reinforcement shall conform to the requirements of Section 6-02 of the Standard Specification.

Non-corrosive centralizers and spacers that facilitate proper alignment of the steel reinforcement shall be used in the Work.

The temporary casing shall be steel, rigid, smooth, clean, and capable of withstanding all handling, installation, and extraction stresses. The temporary casing shall be capable of withstanding the pressures exerted by the infill concrete, groundwater, and the surrounding soil and/or rock. The outside diameter (OD) of the temporary casing shall be at least the required size of the vertical pile. The temporary casing shall be of sufficient length (partial or full length of pile) to provide temporary support to achieve the required length for each secant/tangent pile within the Work. If segmental casing is used, the segments shall be connected by using flush-bolted, reasonably watertight, casing joints.

Slurry shall conform to one of the following:

1. Mineral Slurry
   Mineral slurries shall be used in conformance with the manufacturer's recommendations and the quality control plan specified in Section 6-02.3(8)B2 of this specification. The mineral slurry shall conform to the following requirements:

<table>
<thead>
<tr>
<th>Property</th>
<th>Test</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density (pcf)</td>
<td>Mud Weight (Density) API 13B-1, Section 1</td>
<td>63 to 75</td>
</tr>
<tr>
<td>Viscosity (seconds/quart)</td>
<td>Marsh Funnel and Cup API 13B-1, Section 2.2</td>
<td>26 to 50</td>
</tr>
<tr>
<td>pH</td>
<td>Glass Electrode, pH Meter, or pH Paper</td>
<td>8 to 11</td>
</tr>
<tr>
<td>Sand Content (percent)</td>
<td>Sand API 13B-1, Section 5</td>
<td>4.0 (max)</td>
</tr>
</tbody>
</table>
     1. Prior to final cleaning
     2. Immediately prior to placing concrete

2.7
2. Synthetic Slurries
Synthetic slurries shall be used in conformance with the manufacturer’s recommendations and the quality control plan specified in Section 6-02.3(8)B2 of this specification. The synthetic slurry shall conform to the following requirements:

<table>
<thead>
<tr>
<th>Property</th>
<th>Test</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density (pcf)</td>
<td>Mud Weight (Density)</td>
<td>64 (max)</td>
</tr>
<tr>
<td>Viscosity (seconds/quart)</td>
<td>Marsh Funnel and Cup</td>
<td>32 to 135</td>
</tr>
<tr>
<td>pH</td>
<td>Glass Electrode, pH Meter, or pH Paper</td>
<td>6 to 11.5</td>
</tr>
<tr>
<td>Sand Content (percent)</td>
<td>Sand API 13B-1, Section 5</td>
<td>1.0 (max)</td>
</tr>
<tr>
<td>3. Prior to final cleaning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Immediately prior to placing concrete</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

At the time of testing, the temperature of the slurry shall be at least 40°F.

3. Water Slurry
Water, with or without site soils, may be used as slurry when casing is used along the entire length of the drilled hole. The use of water slurry without full-length casing may only be used with the approval of the Engineer. The water slurry shall conform to the following requirements:

<table>
<thead>
<tr>
<th>Property</th>
<th>Test</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density (pcf)</td>
<td>Mud Weight (Density)</td>
<td>65 (max)</td>
</tr>
<tr>
<td>Sand Content (percent)</td>
<td>Sand API 13B-1, Section 5</td>
<td>1.0 (max)</td>
</tr>
</tbody>
</table>

At the time of testing, the temperature of the slurry shall be at least 40°F.

The components comprising the external bracing steel used in conjunction with the Work shall conform to Section 6-03 of the Project Specifications.

Structure hatch for Secant Pile Manhole shall be 4’x4’ CHS2 H-20 Rated Aluminum Access Hatch (product number H48481901) as manufactured by East Jordan Iron Works, or Engineer approved equal.

Floor mount sleeve davit base shall comply with Section 7-05.
Add the following new section:

6-02.2(2) Paint Systems

Paint materials that are acceptable and recognized as equivalent products are Sherwin Williams, Tnemec paints, and Raven Lining System Inc.

Manhole Interior Epoxy Coatings – Following surface preparation the following coatings systems may be applied, per manufacturer’s recommendations:

1. Raven Lining System Inc
   a. Raven 405
   b. Color light blue
   c. Manhole interior 90 – 120 mils total

2. Sherwin Williams
   a. Dura-Plate 6100
   b. Color off white
   c. Manhole interior 80-100 mils total

3. A penetrating primer shall be used per the manufacturer’s recommendations which shall be applied in single coat of 5-10 mils

6-02.3 Construction Requirements

6-02.3(8) Vacant

Section 6-02.3(8), including title, is revised to read as follows:

6-02.3(8) Secant Pile Manhole

6-02.3(8)A Quality Assurance

The Engineer intends to perform Quality Assurance Inspection. By its inspection, the Engineer intends only to verify the quality of that Work. This inspection shall not relieve the Contractor of any responsibility for identifying and replacing defective material and workmanship.

6-02.3(8)A1 Secant/Tangent Pile Construction Tolerances

1. Secant/Tangent Pile Diameter
   The allowable tolerance for the minimum diameter of the drilled shaft is 1 inch smaller than the diameter shown on the Plans. The allowable tolerance for the maximum diameter of the drilled shaft is 6 inches larger than the diameter shown on the Plans.

2. Horizontal Positioning
At cut-off level, the maximum permitted deviation from the center of shaft shown on the drawings shall be one-inch in any direction.

3. Verticality
The maximum permitted deviation of the finished drilled shaft from the vertical at any level is 1 in 100 (1%). The Contractor shall demonstrate to the satisfaction of the Engineer the pile verticality is within the allowable tolerance.

During drilling or excavation of the borehole, the Contractor shall make frequent checks on the plumbness, alignment, and dimensions of the borehole. Any deviation exceeding the allowable tolerances shall be corrected with a procedure approved by the Engineer.

4. Steel Reinforcement
Placement tolerances of the steel reinforcing shall conform to the stated tolerances in Section 6-02.3(24)C of the Standard Specifications.

5. Overpours, Cavities and Overbreaks
To account for potential voids, cavities, overbreaks, obstructions, soft soil layers, etc., an additional tolerance of plus 6 inches (+6") shall be allowed for concrete protrusions beyond the intended face of the secant or tangent pile wall. The Contractor shall be responsible to remove, by means accepted by the Engineer, concrete protrusions beyond the acceptable limits specified herein.

6-02.3(8)A2 Secant/Tangent Pile Pre-Construction Conference
At least five working days prior to the Contractor beginning any secant/tangent pile related construction work at the site, a pre-construction conference shall be held to discuss construction procedures, personnel, and equipment to be used, and other details of the approved secant/tangent pile installation plan as specified in Section 6-02.3(8)B2 of this specification. Those attending shall include:

1. Contractor Representatives - The superintendent, on site supervisors, and all foremen responsible for excavating the boreholes, placing the casing and slurry (as applicable), placing the steel reinforcement, and placing the concrete. If synthetic slurry is used to construct the secant/tangent piles, the slurry manufacturer’s representative or approved Contractor employees trained in the use of the synthetic slurry shall attend also.

2. Contracting Agency Representatives - The Project Engineer, designer, key inspection personnel, representatives from the Contracting Agency Construction Office and Project Geotechnical Engineer.

If the Contractor proposes a significant revision to the approved secant/tangent pile installation plan, as determined by the Engineer, an additional conference shall be held before any additional secant/tangent pile construction operations are performed.

6-02.3(8)B Submittals
Submittals shall be in accordance with the requirements set in Section 1-05.3 unless otherwise noted.
The following items shall be submitted:

1. Paint manufacturer’s Color Chips for final color selections at least 21 working days before painting is scheduled to commence.

2. Technical data sheets on each product to be used, including ASTM test results indicating the product conforms to and is suitable for its intended use at least 21 working days before painting is scheduled to commence.

3. Material Safety Data Sheets (MSDS) for each product that will be brought to the project site at least 21-working days before painting is scheduled to commence.

Materials containing lead, chromium oxide or isocyanate are specifically prohibited, and will not be allowed for these applications.

6-02.3(8)B1 Construction Experience

The proposed Work shall be accomplished by Contractors and skilled workers thoroughly experienced in the necessary crafts and having relevant experience with the anticipated subsurface materials, water conditions, installation equipment, drilled shaft dimensions, and any special techniques required. Approval of the Contractor, its personnel, equipment, methods, etc. is subject to satisfactory field performance. Documentation containing satisfactory proof of compliance shall be submitted by the Contractor to the Contracting Agency per Section 1-02.1.

Work shall not be started on any secant/tangent pile until the Contractor’s qualifications and field personnel qualifications are approved by the Engineer. The Engineer may suspend the secant/tangent pile construction if the Contractor substitutes unapproved personnel. The Contractor shall be fully liable for the additional costs resulting from the suspension of work, and no adjustments in contract time resulting from the suspension of work shall be allowed.

6-02.3(8)B2 Secant/Tangent Pile Installation Plan

The Contractor shall submit a secant/tangent pile installation narrative for approval by the Engineer. The Engineer shall evaluate the secant/tangent pile installation plan for conformance with the Plans and Specifications.

In preparing the narrative, the Contractor shall reference the available subsurface data provided in the contract geotechnical report prepared for this project. This narrative shall provide at least the following information:

1. Proposed overall construction operation sequence including procedures and methods to be used to ensure the adjacent or nearby structures and utilities are protected during the execution of the Work.

2. Procedures and methods to be used to safeguard against loss of slurry, concrete, and/or grout into waterways, sewers, project areas, and protected areas. The proposed procedures shall be in full compliance with all local, state, and federal environmental regulations.
3. The proposed construction procedures, sequencing and methods for installing any ground anchors and/or bracing, including the procedures for anchor drilling; reinforcement and grout placement; anchor testing or pre-loading; and inspection.

4. The proposed construction procedure, sequencing, and methods for installing the 24-inch PVC and 48-inch SRPE pipes. Details of the method(s) to be used to ensure the stability of the secant pile work completed at the time of the installation of the pipes.

5. Drawings (e.g., plans, elevations, section views, etc.) and/or methods to describe the various activities required to complete the guidewall templates including dimensions, concrete strength, reinforcement, and formwork in accordance with the specifications.

6. Description, size, and capacities of proposed equipment, including but not limited to cranes, drills, oscillators, rotators, augers, bailing buckets, final cleaning equipment, and slurry handling equipment. The narrative shall describe why the equipment was selected and describe equipment suitability to the anticipated site conditions and work methods. The narrative shall include a project history of the drilling equipment demonstrating the successful use of the equipment on drilled shafts of equal or greater size/length in similar soil/rock conditions. The narrative shall also include details of borehole excavation and cleanout methods.

7. Details of the method(s) to be used to ensure stability (e.g., prevention of caving, bottom heave, etc. using temporary casing, slurry, or other means) of the drilled shaft during excavation (including pauses and stoppages during excavation) and during concrete placement.

8. Detailed procedures for mixing, using, and maintaining the slurry shall be provided. A detailed mix design (including all additives and their specific purpose in the slurry mix) and a discussion of its suitability to the anticipated subsurface conditions shall be provided for the proposed slurry.

The submittal shall include a detailed plan for quality control of the selected slurry to ensure conformance with the slurry manufacturer’s recommendations and these specifications. The quality control narrative shall include the test methods to be performed and the minimum and/or maximum property requirements, which must be met to ensure the slurry functions as intended for the anticipated subsurface conditions and drilled shaft construction methods. At a minimum, the slurry quality control plan shall include the following tests:

<table>
<thead>
<tr>
<th>Property</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>Mud Weight (Density)</td>
</tr>
<tr>
<td></td>
<td>API 13B-1, Section 1</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Marsh Funnel and Cup</td>
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<tr>
<td></td>
<td>API 13B-1, Section 2.2</td>
</tr>
<tr>
<td>pH</td>
<td>Glass Electrode, pH Meter, or pH Paper</td>
</tr>
<tr>
<td>Sand Content</td>
<td>Sand API 13B-1, Section 5</td>
</tr>
</tbody>
</table>
9. Details of the concrete placement, including proposed operational procedures for pumping methods shall be provided. For a drilled shaft, the Contractor shall provide a sample uniform yield form to be used for plotting the approximate volume of concrete placed versus the depth of secant/tangent pile (except for concrete placement in the dry).

10. When drilled shafts are constructed in the wet, the submittal shall include descriptions of provisions for dewatering and flooding.

11. Description and details of the storage and disposal plan for excavated material, and drilling slurry (if applicable).

12. Reinforcing steel shop drawings, details of reinforcement placement, including bracing, centering, lifting methods, and the method to assure the reinforcement position is maintained during construction. The plan for the reinforcing steel cage assembly and installation shall include:

   a. Procedure and sequence for the assembly of the steel reinforcing bar cage.

   b. The tie pattern, tie types, and tie wire gages for all ties on permanent reinforcing and temporary bracing.

   c. Number and location of primary handling steel reinforcing bars to be used during lifting operations.

   d. Type and location of all steel reinforcing bar splices.

   e. Cage weight and location of the center of gravity.

   f. Quantity and location of pick points used for lifting for installation and for transport (if assembled off-site).

   g. Crane charts and a description and/or catalog cuts for all spreaders, blocks, sheaves, and chokers used to equalize or control lifting loads.

   h. The sequence and minimum inclination angle at which intermediate belly rigging lines (if used) are released.

   i. Pick point loads at 0, 45, 60, and 90 degrees, and at all intermediate stages of inclination where rigging lines are engaged or slackened.

13. Remediation and/or corrective measures to be implemented for secant/tangent piles that may be out of tolerance (vertical, horizontal, and/or rotational). Provide a mitigation procedure for concrete segregation, tremie pipe breaks, etc. In addition, if used, provide remediation and/or corrective measures to be implemented for ground anchors that fail to sustain the required design and test loading.
6-02.3(8)B3 Slurry Technical Assistance

If slurry other than water slurry is used to construct the secant/tangent piles, the Contractor shall provide or arrange for technical assistance to ensure the slurry is properly stored, prepared, and used according to the manufacturer’s recommendations.

The Contractor shall submit the following to the Engineer for informational purposes only:

1. The name and current phone number of the slurry manufacturer’s technical representative assigned to the project and the frequency of scheduled visits to the project site by the slurry manufacturer’s representative. At a minimum, the slurry manufacturer’s technical representative shall be on site for the installation of the first three secant/tangent piles.

2. The name(s) of the Contractor’s personnel assigned to the project and trained by the slurry manufacturer in the proper use of the slurry. The submittal shall include a signed training certification letter from the slurry manufacturer for each trained Contractor’s employee listed, including the date of the training.

Work shall not begin until all the required submittals have been approved in writing by the Engineer. All procedural approvals given by the Engineer shall be subject to trial in the field and shall not relieve the Contractor of the responsibility to complete satisfactorily the work.

6-02.3(8)C Records, Inspections and Documentation

6-02.3(8)C1 Work Records

A copy of the work record of all activities performed during each workday shall be submitted to the Engineer within 24 hours of that day’s work being completed. All unanticipated drilling and/or installation conditions encountered shall be included in the work record.

6-02.3(8)C2 Inspection

Quality control (QC) shall be performed by the Contractor performing the work. Quality assurance (QA), including observation and testing, shall be performed by the Engineer or by one of his/her subcontractors. Quality control and quality assurance shall be per Section 6-02 of the Standard Specifications.

6-02.3(8)D Drilled Shaft Installation Methods

6-02.3(8)D1 General

Only the method(s) submitted to, reviewed by, and accepted by the Engineer may be used to construct the Work. In addition, depending upon the subsurface conditions encountered and/or Contractor performance during installation, the construction methods, equipment, personnel, etc. detailed in the Contractor’s installation plan may need to be revised, as determined during consultation with the Engineer, at any time during the installation of the Work.
The design and construction of the guidewalls shall be the responsibility of the Contractor and shall take into account the actual site and ground conditions and equipment to be used on site to ensure stability and avoid under-cutting as appropriate. Guidewalls shall be constructed using reinforced concrete or of other suitable materials. The minimum depth of the guidewall shall be three feet and the minimum shoulder width shall be 12 inches.

In all cases, the Contractor shall demonstrate by experience, calculation, and monitoring on site that adjacent piles shall remain interlocked to the final excavation depth.

The use of full-length temporary casing may be necessary for the installation of the secant/tangent piles on the project. The use of permanent casing in conjunction with this work is not permitted. The Contractor must ensure that the installation/extraction of the temporary casing, if applicable, and the placement of the concrete produce durable secant or tangent pile walls free of defects.

The Contractor shall maintain a daily log of the construction of the secant/tangent pile wall system. The construction log shall include information pertaining to the method of installation, secant/tangent pile installation sequence and designation, borehole diameter and depth, equipment, machinery, tooling, drilling fluids, ground surface elevation, groundwater elevation, description of soil/rock/materials removed from borehole, obstructions, difficulties encountered, etc. The Contractor shall submit the construction logs to the Engineer for review, as stated in Section 6-02.3(8)C1, “Work Records,” within these specifications.

6-02.3(8)D2 Dry Method

The Dry Method refers to the installation of drilled shafts using open borehole drilling or excavation where the borehole stability is ensured and is not suspect, the existing groundwater table can be controlled, and stability against bottom heave and/or blowout in the bottom of the excavation is not an issue. This method is only applicable at sites in which all of the following apply:

1. The groundwater table and subsurface conditions are suitable to permit construction of the drilled shafts in a relatively dry excavation. A “relatively dry” excavation is one in which the infiltration rate of the groundwater does not exceed 12 inches of water in one hour. Construction operations shall be performed to ensure less than 3 inches of water is present at the bottom of the borehole excavation at the time of the concrete is placed.

2. Where the sides and bottom of the borehole remain stable without any caving, sloughing, or swelling.

3. Where the sides and bottom of the borehole can be visually inspected prior to placing the reinforcing steel and concrete.

6-02.3(8)D3 Cased Method

The Cased Method refers to the installation of drilled shafts using temporary casing where the stability of the excavated borehole may be suspect and/or the effects of the
existing groundwater cannot be controlled. The temporary casing shall be installed and extracted using overhead, rotary drive equipment, or hydraulic oscillating equipment. The installation or removal of the temporary casing by impact driving or vibratory means is not permitted.

Concrete shall be placed using the tremie method. The temporary casing shall be removed while the concrete is still workable (i.e., before the concrete sets). As the casing is extracted, a minimum head of 5 to 10 feet of fresh concrete shall be maintained within the casing, which balances all external hydraulic pressures and allows all water and fluids within the casing to be displaced upward without contaminating the fresh concrete. The temporary casing shall be extracted at a slow, uniform rate along the centerline or longitudinal axis of the casing and drilled shaft.

**6-02.3(8)D4 Wet Method**

The Wet Method refers to the installation of drilled shafts using slurry, other drilling fluid(s), or water to ensure sidewall stability of the borehole and/or to prevent bottom heave. If required, temporary casing may be used in conjunction with the wet method. A minimum positive head of 10 feet of fluid (i.e., slurry, other drilling fluid, or water) shall be maintained above the highest level of the groundwater table to avoid bottom heave and/or blowout in the bottom of the excavation.

During excavation and concrete placement, the slurry within the borehole shall conform to the requirements detailed herein. The slurry shall be pre-mixed and allowed to hydrate prior to being placed into the borehole excavation. Any method in which slurry is to be prepared and mixed within the borehole excavation is not permitted. An adequate quantity of slurry tanks shall be provided by the Contractor to ensure an ample supply of slurry is prepared and available during the construction and installation of each drilled shaft. Slurry pits are not permitted without prior written approval from the Engineer.

When applicable, a slurry circulation system composed of shakers, de-silters, de-sanders, centrifuges, pumps, etc. shall be provided to maintain adequate slurry operations. The Contractor shall provide appropriate means to ensure adequate agitation and circulation of the slurry while it is within the borehole. The slurry mix and properties shall be adjusted to ensure proper use and intended function of the slurry. To ensure proper slurry performance, the slurry shall not remain un-agitated for more than 4 hours. For drilled shafts designed to resist axial loading in side shear, the sides of the borehole shall be scraped to remove any filter cake that may have formed when using mineral slurry that has not been agitated or circulated for more than 4 hours.

The wet method dictates cleaning and/or circulation (or complete replacement) of the slurry, and a final cleaning of the borehole excavation by means of a bailing bucket, air lift, submersible pump, or other devices prior to the placement of the reinforcement and concrete. Immediately prior to the placement of the reinforcement and/or concrete, samples of the slurry shall be taken from the bottom, a distance of 2 shaft diameters from the bottom, at quarter points along the length, and at a depth of 10 feet from the top of the borehole using an approved slurry sampling tool. If the slurry does not conform to the specifications, the borehole must be cleaned and the slurry must be re-circulated and/or flushed with clean, fresh slurry until subsequent tests reveal that the slurry is within the tolerances contained in the specification.
6-02.3(8)D5 Placement of Steel Reinforcement and Spacers

Steel reinforcement, including rebar cages, shall be prepared and fabricated to the dimensioning and layout detailed in the contract documents. The steel reinforcement shall be fabricated, lifted, and installed in accordance with the approved Contractor fabrication and lifting plan submittal(s). Reinforcing steel cages shall be wire tied as required, to prevent any distortion or racking during lifting and placement. The Contractor shall perform the lifting and placement of the reinforcing in such a manner to ensure the safety of all persons and equipment on and adjacent to the project site.

As detailed on the contract plans, the Contractor shall use the appropriate methods to ensure the reinforcing steel is centered, has the proper cover, and is properly oriented (i.e., has not distorted). Spacers and centralizers shall be used at sufficient intervals not exceeding 10 feet along the length of the reinforcement cage or the steel beam section. A minimum of 4 spacers shall be evenly spaced around the circumference of any reinforcement cage such that the maximum distance between adjacent spacers around the circumference is 30 inches. The first spacers shall be placed 1.5 feet from the bottom of the drilled shaft with successive spacers at maximum intervals of 10 feet along the length of the drilled shaft. The spacers shall be sized to ensure conformance with the minimum clearance required between the borehole wall and the steel reinforcement, as shown on the contract plans.

6-02.3(8)D6 Placement of Concrete

Concrete shall be placed within 3 hours after excavation to ensure proper depth, cleanliness, etc. unless otherwise directed by the Engineer. If the concrete cannot be (or is not) placed within the allotted time, the borehole must be re-inspected and reapproved by the Engineer prior to the placement of concrete. Immediately prior to the placement of the concrete, a check of bottom cleanliness and depth measurements shall be made using a weighted tape or other methods approved by the Engineer. If it is shown that more than three inches of debris or loose soil has accumulated on the bottom of the borehole, the borehole shall be cleaned using appropriate and approved means.

The placement of concrete shall be performed such that the elapsed time from the beginning to completion of concrete placement is kept as short as possible. The duration of concrete placement is dependent upon several variables (e.g., diameter and depth of borehole, distance to concrete plant, etc.); therefore, the duration can be estimated only on a per job basis. For drilled shafts constructed using the Wet Method, it is advisable to use a retarding agent in the concrete mix, with the contractor determining the specific dosage rates for each pour. The placement of concrete shall continue in such a manner to ensure the concrete mix remains in a workable, plastic state throughout the entire concrete placement.

For drilled shafts constructed using the Dry Method, or where temporary casing results in a dry shaft, concrete may be placed using tremie or pumping methods.

For drilled shafts constructed using the Casing or Wet Method, concrete shall be placed using the tremie, pumping, or another method approved by the Engineer. Placement of concrete using the free-fall method is not permitted in conjunction with the Wet Method. At the lowermost end of the tremie pipe, a plug or similar device (e.g., a one-way flap
valve, a pig, etc.) shall be required to separate the fresh concrete from the fluid in the hole until pumping begins.

In conjunction with the Dry, Cased, or Wet Method, concrete pumps and tremie lines may be used for the placement of concrete under self-weight pressure. The steel tremie lines shall have a minimum ID of 10 inches for a gravity system, and a minimum ID of 5 inches ID for a pumped tremie system, and must guide the concrete to the discharge point at the center of the borehole excavation. The pump lines may be flexible, but the segments and joints of the pump lines shall be connected together using watertight fittings and connections. Concrete placement shall not commence until the discharge orifice of the tremie line is located at the base of the borehole excavation.

To maintain a proper seal and to avoid the sudden jumping of the pump line out of the poured concrete, the discharge orifice of the tremie line shall be maintained at least 10 feet below the uppermost surface of the fluid concrete already placed. The concrete shall be placed from the bottom of the borehole to the top surface in one continuous operation. The placement of concrete shall continue until over pouring is visible at the top of the drilled shaft, and until fresh, dark gray colored concrete is easily discernible from the slurry or drilling fluid. The use of cold joints within the secant/tangent pile is not permitted.

6-02.3(8)E Secant and Tangent Pile Wall Installation

6-02.3(8)E1 Guidewalls

Unless explicitly stated otherwise in the contract documents, the use, design, and construction of guidewalls is a contractor means-and-methods constructability issue. The design and construction of the guidewalls is the responsibility of the Contractor. During the construction of the drilled shafts, guidewalls may be utilized to aid in the proper positioning and alignment of the tangent and/or secant pile wall system to ensure conformance with the specified tolerances.

6-02.3(8)E2 Drilled Shafts

The drilled shafts shall be constructed using Dry Method, Cased Method, or Wet Method, as described above, to the depths and dimensions indicated on the contract plans. The boreholes shall be advanced in accordance with the construction method used and to the depths and dimensions indicated in the contract plans. In addition, the drilling of the borehole shall be performed in such a manner not to cause excessive disturbance or settlement to the surrounding ground surface and/or not to cause distress to any adjacent structures. During the drilling of the borehole, placement of the reinforcement, and placement of the concrete, the Contractor shall ensure the specified tolerances are maintained. The Contractor shall correct all deviations exceeding the allowable tolerances using the procedures approved by the Engineer. Handling and disposal of drill spoil and waste materials shall be performed in accordance with the methods and procedures approved by the Engineer.
6-02.3(8)E3 Obstructions

When obstructions are encountered, the Contractor shall notify the Engineer promptly. An obstruction is defined as a specific object (including, but not limited to, boulders, logs, and man-made objects) encountered during the shaft excavation operation, which prevents or hinders the advance of the shaft excavation. The obstruction may require the Contractor to utilize tooling in order to advance past the obstruction. The tooling includes, but is not limited to, conventional rock augers, core barrels, chisels, breakers, and/or air rotary percussive tools operating at normal power, torque, and down thrust. Additionally, the need for increasing the diameter of the drilled shaft may be required to advance past the obstruction(s) if other conventional methods are not successful. The Contractor shall utilize whatever equipment, tooling, and methods he/she deems necessary whenever obstructions are encountered. When efforts to advance past the obstruction to the design shaft tip elevation result in the rate of advance of the shaft drilling equipment being significantly reduced relative to the rate of advance for the rest of the shaft excavation, then the Contractor shall remove the obstruction under the provisions of Section 6-16.5. The method of removal of such obstructions, and the continuation of excavation shall be as proposed by the Contractor and accepted by the Engineer.

Payment for removing obstructions as defined above will be made for the changes in shaft construction methods necessary to remove the obstruction. The Contractor and the Engineer shall evaluate the effort made and reach agreement on the equipment and employees utilized, and the number of hours involved for each. Once these cost items and their duration have been agreed upon, the payment amount will be determined using the rate and markup methods specified in Section 1-09.6.

6-02.3(8)E4 Sequencing and Construction of Primary and Secondary Secant/Tangent Piles

The installation of the primary and secondary secant/tangent piles shall be sequenced and constructed in accordance with the following:

1. To prevent communication between boreholes and/or to prevent flow of freshly placed concrete, concrete set must be verified prior to drilling within ten feet or three shaft diameters (3D), whichever is less, from an adjacent drilled shaft.

2. For secant pile walls, the drilling of a secondary drilled shaft shall be performed before the concrete/grout in the primary drilled shaft has achieved full strength. That is, the secondary secant/tangent pile should be drilled and excavated as soon as the concrete/grout within the adjacent primary secant/tangent piles achieves 50% of design strength to resist damage and deformation but has not achieved too much strength to prevent or hinder the drilling of the secondary secant/tangent pile.

3. For secant pile walls, the secondary drilled shafts shall be constructed within the allowable tolerances to provide the required overlap between adjacent secant piles, as shown on the Plans.
6-02.3(8)E5 Placement of Steel Reinforcement and Concrete

The steel reinforcement, where required, and concrete shall be placed in accordance with the approved methods, as detailed within Section 6-02.3(8)D, “Drilled Shaft Installation Methods.”

6-02.3(8)F Quality Control – Inspection and Monitoring

6-02.3(8)F1 Dimensions and Alignment of Borehole

The Contractor shall verify and log the dimensions and alignment of each borehole excavation. Prior to the start of construction, the Contractor shall submit to the Engineer, for informational purposes, the procedures (including any equipment and tooling) that shall be followed to verify the dimensions and alignment of each borehole excavation. If requested, the Contractor shall provide the Engineer with a copy of each verification log.

6-02.3(8)F2 Depth of Borehole Excavation

With the Engineer present, the Contractor shall verify and log the final depth of each borehole excavation.

6-02.3(8)F3 Cleanliness of Bottom of Borehole

The Contractor shall ensure that the bottom of each borehole excavation has less than 3- inches of sediment or debris present immediately prior to the placement of the steel reinforcement and prior to the placement of concrete.

6-02.3(8)F4 Slurry Testing

Throughout the construction of the drilled shafts, testing of the slurry shall be performed in accordance with the approved submittals.

6-02.3(8)F5 Steel Reinforcement

The steel reinforcement, including rebar cages and steel beam sections, shall be fabricated, lifted, and installed in accordance with the approved Contractor fabrication and lifting plan submittal(s) and in such a manner to ensure the safety of all persons, structures, and equipment on and adjacent to the project site. The Contractor shall ensure and verify that the reinforcing steel is centered, has the proper cover, and is properly oriented (i.e., has not distorted).

6-02.3(8)G Allowable Thru Wall Seepage for Cut-Off Wall Systems

In addition to their earth retention function, secant pile walls may also serve as groundwater cut-off walls that retain and prevent the seepage of subsurface groundwater from behind the wall from entering the excavation through the joints between adjacent vertical pile elements. Groundwater seepage through the joints or exposed face of the secant pile wall shall be limited to be less than visible and measurable flow, or as specified by the Engineer.
Slight moisture on the exposed face of the secant pile wall, as evidenced by damp and
darker colored concrete, shall be acceptable. Unacceptable seepage is defined as a
regular steady drip or accumulated wetness observed running down the exposed face of
the secant pile wall.

As the face of the secant pile wall is excavated and exposed, the Contractor shall repair
any cracks, joints, or other defects in the exposed wall face where seepage exceeds the
allowable limits, as defined above. All exposed secant pile wall areas that exhibit
unacceptable seepage, as determined by the Engineer, shall be repaired by the
Contractor to seal or lower the seepage through the wall to conform to the acceptable
limits specified herein.

The Contractor shall submit the method of repair to the Engineer for review and approval
prior to commencing repairs. All repairs shall be made prior to the installation of any
additional temporary or permanent facing, including shotcrete, cast-in-place reinforced
concrete, and/or precast concrete panels. Out of tolerance repairs to the secant pile wall,
if necessary and/or required by the Engineer, shall be made by the Contractor, and shall
not be measured for payment.

6-02.3(8)H Remediation and Repair

Repairs to the secant/tangent pile wall system due to out of tolerance, if necessary
and/or required by the Engineer, shall be made by the Contractor in accordance with
approved submittals, at no additional cost to the Contracting Agency.

6-02.3(8)I Epoxy Coating for Secant Pile Manhole

Coating product shall be applied to all secant pile manhole interior surfaces, to the limits
as shown on the Plans.

The epoxy coating product’s physical properties shall be substantiated through submittal
of accredited third party testing results and shall be representative of the actual field
applied product and cure mechanism(s) to be employed in the field.

The Epoxy coating shall be spray applied to interior surfaces of the secant pile manhole.

The secant pile interior coating applicator must be specifically approved and licensed by
the epoxy coating system manufacturer.

6-02.3(8)I1 Epoxy Coating System Application Equipment

The Epoxy coating system application equipment shall be specifically designed, or
approved for use by manufacturer of the selected and specified epoxy coating.

6-02.3(8)I2 Prequalification for Epoxy Coating Applicator

The following document shall be submitted at the pre-construction meeting:

1. Applicator Qualifications

   a. Manufacturer certification that applicator has been trained in the handling,
mixing and application of the products to be used.
b. Applicator must provide written documentation of having installed a minimum of 20,000 sf of plural component spray applied epoxy coating the same or similar to that specified within the last 2 years.

c. Applicator must provide three references with name, address, and telephone number.

2. Equipment Requirements

a. Application equipment must be approved in writing by manufacturer technical service group.

3. Proof of any necessary federal, state, or local permits or licenses necessary for the project.

6-02.3(8)3 Painting Quality Assurance

Coating applicators shall conform to the quality control procedures consistent with applicable ASTM, NACE and SSPC standards and the protective coating manufacturer’s recommendations.

Coating applicators shall provide materials for each application from the same manufacturer or as recommended by the paint manufacturer. Applicators shall not use materials of different manufacturers over one another, except for shop prime coats and primers applied under other section of these specifications.

Field quality control: Coating thickness will be measured in the following ways, as determined by the Owner’s Representative:

1. Visual Inspection: Show-through of substrate or a previously applied coat will be ground for rejection.

2. Dry film thickness on steel and galvanized substrates will be measured with a calibrated magnetic or electromagnetic nondestructive testing apparatus. Dry film thickness testing on non-magnetic substrates will be measured using an eddy current gage.

3. The Tooke Gage (a destructive tool) will be used to settle difference of measurements between the Owner and Contractor. The Contractor will be responsible for performing repairs at no cost to the Owner after measurement are taken.

4. Coverage of paint coatings shall be periodically checked with a wet film gauge during application.

5. Coverage rates for concrete surfaces will be determined by a count of empty containers. Contractor shall remove or permanently deface labels of empty containers after counting by Owner’s Representative. Contractor shall subsequently remove empty, counted containers from the jobsite.
6-02.3(8)I4 Paint Material Delivery, Storage, and Handling

Materials are to be kept dry, protected from weather, and stored under cover.

Protective coating materials are to be stored between 50 degrees F and 90 degrees F.
Do not store near flame, heat, or strong oxidants.

Protective coating materials are to be handled according to their material safety data sheets.

6-02.3(8)I5 Surface Preparation

Contractor shall perform preparation and cleaning procedures in strict accordance with the approved paint manufacturer’s instructions and as herein specified, for each particular substrate condition. In addition:

1. Surface preparation requirements specific to the epoxy coating systems must achieve a clean and sound substrate in accordance with Society for Protective Coating (SSPC)-SP13 / National Association of Corrosion Engineers (NACE) No. 6 “Surface Preparation of Concrete” and ICRI 310.2R.
   a. An ICRI profile of CSP 5-6 shall be achieved.

2. High pressure water cleaning or water jetting at 3,500 psi, and/or pre-approved dry or wet abrasive blasting is required to achieve acceptable surface preparation free of all foreign material, laitance, oils, grease, incompatible existing coatings, waxes, form release, curing compounds, efflorescence, sealers, salts, and/or other contaminants.

3. Surface preparation shall yield a pH of 7 or higher.

4. No surface water or active leaks are to be present. Prepared concrete surfaces shall be tested for residual moisture after cleaning and drying, and prior to the application of the coating. Drying may be required with force air and/or dry heat to achieve moisture levels below 80 percent prior to coating.

5. When grease and oil are present within the structure, an approved detergent or degreaser may be used integrally with the high pressure cleaning water if conditions dictate.

Contractor shall remove all hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be finish painted, or provide surface applied protection prior to surface preparation and coating operations.

Contractor shall clean surfaces to be painted before applying coatings or surface treatments. Remove oil and grease prior to mechanical cleaning.

Contractor shall schedule the cleaning and painting so that contaminants from the cleaning process will not fall onto wet, newly coated surfaces.
Concrete surfaces to be painted shall be cleaned of all dust, form oil, curing compounds, and other foreign matter to achieve a contaminant free surface.

**6-02.3(8)6 Active Leak Control Procedure**

In the event active leakage is found, the Contractor shall submit to the Owner’s Representative leakage control procedure and materials used.

Active leak control materials are to be utilized to stop running water, infiltration, and other water stop needs.

All active leak control materials must be compatible with other specified topcoating and repair material and the final topcoat of the structural epoxy system.

1. Chemical grout (Sealant)
   a. Chemical grout material used for grouting active leaks shall be injection hydrophobic polyurethane or equal
   b. While being injected, the chemical sealant must be able to react/perform in the presence of water.
   c. The cured material must withstand submergence in water, without degradation.
   d. The resultant sealant formation must be impervious to water penetration.
   e. The final sealant must withstand freeze-thaw and wet-dry cycles without causing adverse changes to the sealant.
   f. The final sealant formation must not be biodegradable

2. The following acceptable materials are to be utilized in leak control: Avanti, Deneef, and Sealboss.

**6-02.3(8)7 Concrete Repair and Resurface Methods**

During the secant pile installation, large aggregate may be cast and reflected on the surface of each of the piles that must be removed and the surface profile smoothed. Large holes/voids left in the surface profile shall be repaired/resurfaced following the requirements specified herein. Final surface profile shall be in accordance with epoxy manufacturer recommendations and meet the requirements in Section 6-02.3(8)5.

Prior to application of paint, all loose, cracked, and corroded materials shall be removed from the application area, exposing a sound substrate.

Contractor shall use repair products to fill voids, structurally reinforce, and/or rebuild surfaces necessary to produce a relatively smooth surface prior to the application of the
epoxy coating system. Repair materials must be compatible with the specified coatings and shall be applied in accordance with manufacturer’s recommendations.

1. Repair products must be approved by epoxy coating manufacturers.

2. Contractor shall mix, apply, and allow for proper curing in accordance with the manufacturer’s recommendations.

The secant pile manhole shall be resurfaced as follows:

1. Concrete surface must be sound and contaminant free with a surface profile equivalent to a minimum of concrete surface profile (CSP) 5 in accordance with the International Concrete Repair Institute (ICRI) before applying resurface materials.

2. Resurfacing thicknesses for existing structures, the thickness shall range between 1/4 inch and 1/2 inch.

3. Materials
   a. The epoxy-modified-mortar shall exhibit excellent thin-section toughness and applied as low as 1/16 inch thickness, and capable of build-up up to 1 inch.
   b. The epoxy-modified-mortar can be applied by hand and/or wet-shot spray applied.
   c. The epoxy-modified-mortar shall not require any further preparation or conditioning within 36 hours (at 77 degrees F) to accept structural epoxy topcoat applications.
   d. One of the following acceptable materials is to be used in concrete resurface: Epoxytec, Mortartex Ceramico, Sherwin Williams: Duraplate 2300, or approved equal.

Should the Contractor encounter exposed reinforcing bars within the secant pile manhole, the exposed bars must be cleaned, treated with rust inhibiting primer in accordance with the primer manufacturer, and encapsulated/patched with high density mortar.

The following materials may be used in the repair of exposed reinforcing bars;

1. Rust inhibiting primer must be epoxy-based, rust inhibiting primer designed for rapid curing, and for steel applications.

2. One of the following acceptable materials is to be utilized in concrete repair: Epoxytec A1 Primecoat, Sherwin Williams Primer, or approved equal
6-02.3(8)8 Inspection and Examination

Prior to placement of any repair or coating material, the surface shall be inspected by the material applicator to ensure that the surface conditions are correct by the type of repair and the product/material being used as specified herein. Applicator shall notify Owner of any noticeable disparity in the surfaces which may interfere with the proper preparation or application of the repair mortar and protective coating.

Installation of the repair material or protective coating shall not commence until the concrete substrate has properly cured in accordance with these specifications.

6-02.3(8)9 General Application

Contractor shall apply coatings in accordance with each manufacturer’s printed directions. Contractor shall use applicators and techniques best suited for the type of material being applied. Do not exceed manufacturer’s recommended coverage per gallon.

Apply additional coats when undercoats, stains, or other conditions show through the finish coating, until the paint film is of uniform finish color and appearance. Unless otherwise specified in a coating manufacturer’s printed instruction, the minimum drying time between coats shall be 24 hours.

Each coat of material shall be inspected and accepted by the Owner before applying succeeding coats; otherwise, no credit for each coat applied will be given, and Contractor will assume re-coat responsibilities and no additional cost to the Owner.

Application requirements specific to specified and selected epoxy coating system:

1. The spray equipment shall be specifically designed to accurately ratio and apply the specified protective coatings materials and shall be regularly maintained and in proper working order.

2. Coating material shall be spray applied in a one-coat, multi-pass operation to a dry film thickness as specified in section 7-06.2(2).

3. The applicator shall collect samples for thickness testing at six instances during coating application by spraying the material to the same thickness specified on a non-stick polyethylene sheet.

4. The coating shall be visually inspected to be free of sharp protrusions, sags, dimpling, or curtaining exceeding 5 percent of the surface area. The surface shall be smooth and free from visual flaws.

5. The Owner may retain the services of an independent testing company to perform holiday testing and pull testing. The Contractor will be responsible for providing access for the independent tester, and will be responsible for correcting any and all defects discovered during the independent testing.

6. Touch up and repair work shall be done as required and strictly follow the manufacturer’s recommended procedures.
6-02.3(8) I10 Independent Inspection for Coating

Final inspection includes high voltage holiday detection, adhesion testing and final DFT will be performed by an independent inspection firm hired by the Contractor. Final inspection must be completed with an Owner’s Representative present.

All adhesion test locations shall be repaired by the Contractor at no cost to the Owner.

All detected holidays shall be repaired according to the coating product(s) manufacturer’s recommendations.

All areas required for repair shall be re-stested following cure of the repair material(s).

6-02.3(8) I11 Repair of Defective Work

Where the painted surface exhibits a defective paint film through its finished coat, all layers of primer and paint shall be removed down to the bare material.

The Contractor will be responsible for correcting any and all defects discovered during the testing at no cost to the Owner.

6-02.3(8) I12 Warranty

A Contractor shall warrant all work against defects in materials and workmanship for a period of 2 years, unless otherwise noted, from the date of final acceptance of the project.

The Contractor shall, within a reasonable time after receipt of written notice thereof repair defects in materials or workmanship which may develop during said 2-year period, and any damage to other work caused by such defects or the repairing of same, at their own expense and without cost to the City.

6-02.4 Measurement

This section is supplemented with the following:

No specific unit of measure will apply to the lump sum item “Secant Pile Manhole”.

6-02.5 Payment

This section is supplemented with the following:

"Secant Pile Manhole", per lump sum

The lump sum Contract price for “Secant Pile Manhole” shall be full compensation for all labor, equipment, tooling, materials, and incidentals necessary to complete the installation of all primary and secondary piles of the secant/tangent pile wall system. Payment shall include full compensation for the installation and/or removal of guidewalls, full depth temporary casing, and temporary working surfaces; for slurry and/or other drilling fluids; for the clearing and/or removal of known surface obstructions; for the removal of out of tolerance concrete due to oversizing, over pouring, blowouts, and/or protrusions from the face of the drilled piles; drilling the boreholes for the drilled piles; for the handling and disposal of drill spoil, slurry, other drilling fluids, and waste concrete; for excavation, hauling, and disposal of all excavated material. for the fabrication, spacers and centralizers, lifting, positioning, and placement of the pile reinforcement; for the furnishing
and placement of all necessary concrete and grout; for performing and providing monitoring and quality control services; and for providing all required documentation. Payment shall be in full compensation for connection to new pipes, connection to existing pipes, shoring, and methods used to maintain stability of the secant pile manhole during pipe installation, water tight couplings, adjustment risers, disposal of excess backfill material, cleaning, access ladder, access hatch, top slab, compression rings, tremie seal and bottom slab, epoxy coating, and fiber reinforced grout.

END OF SECTION
This section is deleted. The requirements of Section 7-17 shall apply to storm sewers.
7-05 MANHOLES, INLETS, CATCH BASINS, AND DRYWELLS

7-05.1 Description

This section is supplemented with the following:

All references to sanitary sewers shall be construed to also mean storm sewers.

This Work shall also include furnishing and installing a prefabricated stormwater bypass structure, stormwater treatment manhole, and cast-in-place stormwater treatment facility of the types and sizes designated in accordance with the Plans.

This Work shall also include vent pipe installation in Existing SDMH#5 in accordance with the Plans and these Special Provisions.

This Work shall also include furnishing and installing floor mount sleeve davit bases, sleeve caps, and cement concrete mounting base footings in accordance with the Plans.

7-05.2 Materials

This section is supplemented with the following:

Material for a foundation beneath the structures shall be crushed surfacing top course per Section 9.03.9(3).

The Stormwater Treatment Facility shall have a cast-in-place base, walls and top slab with precast concrete manhole riser sections, riser slabs and grade rings as detailed in Appendix D and as detailed in the Plans. For cast-in-place concrete structure structural design details and calculations, see Appendix D to the Specifications. Materials for cement concrete base, walls, and top slab shall be per Section 6-02 unless otherwise shown. Cement concrete shall have a 28-day compressive strength of 4,000 psi.

Reinforcing steel shall be ASTM A615 Grade 60. Internal Stormwater Treatment Facility components shall be provided by Contech and shall be StormFilter components as detailed in the Plans. Structure hatches for Stormwater Treatment Facility shall be 4’x4’ and 4’x6’ CHS2 H-20 Rated Aluminum Access Hatches (product numbers H48481901 and H48721901) as manufactured by East Jordan Iron Works, or Engineer approved equal.

Floor mount sleeve davit base materials shown in the Plans consist of Floor Mount Cast-in-Place Sleeve Davit Base (Model # 8512828) manufactured by 3M DBI-SALA, or Engineer approved equal. All floor mount sleeve steel elements shall be 304 stainless steel. Sleeve cap material shall be Heavy Duty Sleeve Cap (Model # 8510827) manufactured by 3M DBI-SALA, or Engineer approved equal. Materials for cement concrete mounting base footing shall be per Section 5.05.3. unless otherwise shown. Concrete footing shall have a 28-day compressive strength of 4,000 psi. Reinforcing steel shall be ASTM A615 Grade 60.

The Stormwater Treatment Manhole shall be a precast CDS Stormwater Treatment manhole structure as manufactured by Contech and as detailed in the Plans. Structure hatch shall have HS-20 loading and shall be of the size and type as detailed in the Plans.
The Stormwater Bypass Structure shall be a precast StormGate Stormwater Bypass Structure as manufactured by Contech and as detailed in the Plans. Structure hatch shall have HS-20 loading and shall be of the size and type as detailed in the Plans.

Ex SDMH#5 Manhole Vent Installation grout to fill annular space shall be Grout Type 4 for Multipurpose Applications in accordance with 9-20.3(4). Manhole frame and grated cover for Ex SDMH#5 shall meet the material requirements set in standard plan SU-22. Grates shall be a maximum ½" opening width. Frame shall be grey iron conforming to the requirements of ASSHTO M 105, grade 30B. Cover shall be ductile iron conforming to ASTM A 536, grade 80-55-06. Manhole frame and cover shall be R-1774 and R-2425, respectively, as manufactured by Neenah Foundary or approved equal. Vent pipe and fitting materials shall be solid wall PVC per 9-30.1(5)A. Steel pipe shall be per 9-30.1(4)A and conform to AWWA C200.

7-05.3 Construction Requirements
The first sentence of the eleventh paragraph is revised to read:

A flexible pipe-to-manhole connector shall be used in all connections of rigid and thermoplastic pipes with the exception of the DuroMaxx pipe to new and existing precast concrete manholes or structures, secant pile manhole, and cast-in-place stormwater treatment facility to provide a watertight joint between the pipe and the manhole, unless otherwise directed by the Engineer. The connector shall be “Kor-N-Seal” with “Wedge Korband” (Type I or II as required for pipe diameter), manufactured by NPC, Inc., Milford, New Hampshire, or Engineer approved equal. The connectors shall be installed in accordance with the manufacturer’s recommendations.

All DuroMaxx pipe-to-manhole connections shall be grouted and water tight. Mortar shall conform to the requirements of Section 9-20.4(3).

This section supplemented with the following:

Unless otherwise directed by the Engineer, vaults, catch basins, and manholes, and stormwater treatment facility devices constructed with precast base sections or cast-in-place sections shall be placed to grade upon 12 inches of crushed surfacing top course. All costs associated with this item shall be included in the various unit prices bid for the structure to be constructed.

All floor mount cast in place sleeve davit bases shall be mounted flush in a concrete footing 3.25 feet by 3.25 feet square with a depth of 12 inches per the Plans. The mounting bases must be capable of withstanding a 90,000 in-lbs moment and a 5,000 lb vertical load. Each floor mount sleeve davit base shall be plugged with a heavy duty sleeve cap upon completion of construction.

Backfill for manholes, inlets, catch basins and drywells and extra excavation area backfill material shall meet the requirements of Section 9-03.19 for Bank Run Gravel for Trench Backfill from STA 20+28 to STA 20+93 and STA 401+20 to STA 401+90 and shall meet the requirements of Section 9-03.12(2) for Gravel Backfill for Walls from STA 13+00 to STA 20+28 and STA 20+93 to STA 24+49. Recycled concrete shall not be used for backfill or extra excavation area backfill.
Backfill for Stormwater Treatment Facility, Stormwater Treatment Manhole, and Stormwater Bypass Structure shall be done in accordance with the provisions of Section 2-09 and shall meet the requirements of Section 9-03.19 for Bank Run Gravel for Trench Backfill.

7-05.3(1) Adjusting Manholes and Catch Basins to Grade.

This section is revised to read:

7-05.3(1) Adjusting Utility Structures to Grade

Where shown in the Plans or where directed by the Engineer, utility structures shall be adjusted to grade as staked or as otherwise designated by the Engineer.

The materials and methods of construction shall conform to the requirements specified in Section 7-05.3 and Standard Plan No. SU-25. The finished structure shall conform to the requirements of the standard plan for the specific structure.

7-05.3(2) Abandon Existing Manholes

The first sentence is revised to read:

Where it is required that an existing manhole or catch basin be abandoned, the Structure shall be broken down to a depth of at least 4 feet below the revised surface elevation, all connections plugged, and the manhole filled with Controlled Density Fill per Section 2-09.3(1)E.

7-05.3(3) Connections to Existing Manholes

The first sentence is revised to read:

The Contractor shall inspect the existing manholes in the field to verify invert elevations and the scope of work necessary to make the connection(s) prior to construction.

Add the following new sections:

7-05.3(5) Stormwater Bypass Structure

The stormwater bypass structure shall be installed in accordance with Manufacturer’s recommendations. The Contractor shall provide shop drawings for the structure for review by the Engineer prior to procuring the system. Engineer shall have up to 10 working days for review and acceptance of shop drawings prior to procurement/installation.

All inlet and outlet pipe connections shall be made per Section 7-05.3. Contractor shall grout interior walls per manufacturer’s recommendations.

At project completion, weirs shall be set to elevation specified in the Plans and Contractor shall leave end sealed at all joints with silicone sealant. Sealant shall be worked into joints from both sides.
7-05.3(6) Stormwater Treatment Manhole

The stormwater treatment manhole shall be installed in accordance with Manufacturer's recommendations. The Contractor shall provide shop drawings for the structure for review by the Engineer prior to procuring the system. Engineer shall have up to 10 working days for review and acceptance of shop drawings prior to procurement/installation.

All inlet and outlet pipe connections shall be made per Section 7-05.3.

During installation, the contractor shall exercise care in the storage and handling of the Stormwater Treatment Manhole components prior to and during installation. Any repair or replacement costs associated with events occurring after delivery is accepted and unloading has commenced shall be borne by the Contractor.

The manufacturer shall provide the contractor installation instructions and offer on-site guidance during the important stages of the installation as identified by the manufacturer at no additional expense to the Contracting Agency. A minimum of 72 hours' notice shall be provided to the manufacturer prior to their performance of the services included under this subsection. No delays will be granted for Contractor coordination with manufacturer.

The contractor shall fill all voids associated with lifting provisions provided by the manufacturer. These voids shall be filled with non-shrinking grout providing a finished surface consistent with adjacent surfaces. The contractor shall trim all protruding lifting provisions flush with the adjacent concrete surface in a manner, which leaves no sharp points or edges.

The contractor shall removal all loose material and pooling water from the Stormwater Treatment Manhole prior to the transfer of operational responsibility to the Owner.

7-05.3(7) Stormwater Treatment Facility

The internal components of the stormwater treatment facility shall be installed in accordance with Manufacturer's recommendations. The Contractor shall provide shop drawings for the structure for review by the Engineer prior to procuring the system. Engineer shall have up to 20 working days for review and acceptance of shop drawings prior to procurement/installation.

The Cast-in-Place base, walls and top slab of the Stormwater Treatment Facility shall be constructed in accordance with the Cast-In-Place Water Quality Facility Structural Design details and calculations included in Appendix D and in accordance with the construction requirements per 6-02. Testing and acceptance of cast-in-place stormwater treatment facility shall also be completed in accordance with Section 6-02. Installation of reinforcement shall be per 6-02.3(24).

All inlet and outlet pipe connections shall be made in accordance with Section 7-05.3.

The Contractor shall be responsible for installing the filter cartridges as provided by the Manufacturer. The Contractor shall take appropriate action to protect the cartridges from sediment and other debris during construction and until final inspection of the facility. Filter cartridges shall not be placed in operation until the structure is clean and free of
debris and the project site is stabilized. The project site includes any surface that
contributes storm drainage to the system. All impermeable surfaces shall be clean and
free of dirt and debris prior to filter cartridge installation. The Contractor shall work with
the manufacturer to assist with system activation and/or inspect the system for proper
installation once site is clean and stabilized. The manufacturer shall provide the
contractor installation instructions and offer on-site guidance during the important stages
of the installation as identified by the manufacturer at no additional expense to the
Contracting Agency. A minimum of 72 hours’ notice shall be provided to the
manufacturer prior to their performance of the services included under this subsection.
No delays will be granted for Contractor coordination with manufacturer.

Backfilling of the Stormwater Treatment Facility shall be accomplished in such a manner
that the facility will not be damaged by impact or overloading. Backfill above the
Stormwater Treatment Facility shall be placed in accordance with Section 2-03.3(14)C.
Backfill shall be placed in horizontal layers no more than 8-inches thick and compacted
to 90-percent maximum density. All compaction shall be in accordance with the
Compaction Control Test of Section 2-03.3(14)D. Excavated material approved by the
Engineer for use as backfill shall be free of organic material, frozen lumps, wood, rocks,
or pavement chunks. Material larger than 6-inches in maximum dimension shall not be
used as backfill. Material determined by the Engineer to be unsuitable for backfill at the
time of excavation shall be removed and replaced with imported backfill material meeting
the requirements of this Section. Material determined to be suitable for backfill at the
time of excavation shall be stockpiled and used for backfill material. If the stockpiled
material becomes unsuitable, the Contractor shall furnish suitable material in an amount
equal to that, which became unsuitable, at no expense to the Contracting Agency.

7-05.3(7) A Construction Experience

The proposed Work shall be accomplished by Contractors and skilled workers
thoroughly experienced in the necessary crafts and having relevant experience with the
anticipated subsurface materials, water conditions, installation equipment, cast-in-place
concrete structures, and any special techniques required. Approval of the Contractor, its
personnel, equipment, methods, etc. is subject to satisfactory field performance.
Documentation containing satisfactory proof of compliance shall be submitted by the
Contractor to the Contracting Agency prior to Award of Contract per Section 1-02.1.

Work shall not be started on the Stormwater Treatment Facility until the Contractor’s
qualifications and field personnel qualifications are approved by the Engineer. The
Engineer may suspend the Stormwater Treatment Facility construction if the Contractor
substitutes unapproved personnel. The Contractor shall be fully liable for the additional
costs resulting from the suspension of work, and no adjustments in contract time
resulting from the suspension of work shall be allowed.

7-05.3(8) Existing SDMH#5 Vent Installation

The Steel Storm Sewer Pipe 34 In. Diam. shall have the 20-inch connection cut prior to
installing within the existing 36-inch diameter concrete pipe. The 34-inch to 20-inch steel
pipe weld shall be completed per AWS D1.1 Structural Welding Code.
Prior to installation of the PVC reducer, Contractor shall provide isolation within the channel of the existing SDMH#5 to prevent the leaking of the grout into the secant pile manhole and the existing 36-inch pipe.

Contractor shall provide bell and spigot SDR 35 PVC pipe for the 10-inch ventilation piping within the existing SDMH#5 to allow for a tight seal between the PVC reducer and pipe segments.

Contractor shall monitor within the 34-inch during the installation of the grout within SDMH#5 for signs of grout infiltration into the new PVC and/or steel piping and existing downstream piping system. Should any grout infiltrate into the new PVC and/or steel piping, grout shall be removed and any leaks in the pipe connections shall be sealed at no additional expense to the Contracting Agency.

7-05.4 Measurement

The sixth paragraph is revised to read:

Connections to existing structures will be measured per each.

This section is supplemented with the following:

Reconnecting existing sewer pipes to new manhole structures will be measured per each.

No separate measurement for payment will be made for reshaping an existing base in an existing structure to provide a channel equivalent to that specified in the Plans but shall instead be included in the cost for “Connect New Sewer Pipe ___-In. Diam. to Existing Structure.”

No measurement will be made for hatches, solid lids, combination inlets, or other grates when called for in the Plans. The costs for hatches, lids, grates, and combination inlets shall be included in other bid items included in the Proposal.

“Stormwater Bypass Structure” and “Stormwater Treatment Manhole” will be measured per each.

No specific unit of measure will apply to the lump sum items “Stormwater Treatment Facility” or “Ex SDMH#5 Manhole Vent Installation.”.

7-05.5 Payment

The first paragraph is supplemented with the following:

The unit Contract price for “Manhole____” shall be full pay for all work required to furnish and install the new manhole to finished grade, including, but not limited to, excavating for, furnishing backfill, compaction of backfill, connection of new pipe(s), channeling, covers, frames, ladders, steps, and handholds, as applicable per Standard Plans.

The unit Contract price for “Catch Basin____” shall be full pay for all work required to furnish and install the new catch basin to finished grade, including, but not limited to,
excavating for, furnishing backfill, compaction of backfill, connection of new pipe(s), frame, cover, as applicable per Standard Plans.

The pay item for “Connection to Drainage Structure” is revised to read:

“Connect New Sewer Pipe ___-In. Diam. to Existing Structure”, per each

This section is supplemented with the following:

“Abandon Existing Catch Basin”, per each.

“Abandon Existing Manhole”, per each.

The unit Contract price per each for “Abandon Existing Catch Basin” and “Abandon Existing Manhole” shall be full pay for all costs associated with abandoning the existing structure in place, including but not limited to, excavation, removal, haul, furnish and place backfill, controlled density fill, plugging existing pipe connections, compacting, surfacing, and restoration.

“Reconnect Existing Sewer Pipe, ___-In. Diam., to New Structure”, per each.

The unit Contract price per each shall be full pay for all labor, equipment and materials necessary to reconnect the existing sewer pipe to the new structure as specified in Section 7-05.3.

“Adjust Existing Manhole, Furnish New Frame and Cover”, per each.

The unit Contract price per each for “Adjust Existing Manhole, Furnish New Frame and Cover” shall be full pay for all costs associated with adjusting the frame and cover to finished grade, including but not limited to, excavating, furnish and place backfill, furnishing and installing the new frame and cover, compacting, surfacing, and restoration.

“Stormwater Bypass Structure”, per each.

“Stormwater Treatment Facility”, per lump sum.

The lump sum price for “Stormwater Treatment Facility” shall be full compensation for furnishing all labor, tools, materials, and equipment necessary for complete installation of the facility, including but not limited to, foundation and crushed surfacing backfill material, internal components, compaction, connection to new pipes, water tight connections, adjustment risers, disposal of excess backfill material, frame, and grate regardless of type, grout and cleaning, training, and testing.
couplings, adjustment risers, floor mount sleeve davit bases, cement concrete davit mounting footings, disposal of excess backfill material, frame and grate regardless of type, grout, cleaning, training and testing.

“Ex SDMH#5 Manhole Vent Installation”, per lump sum.

The lump sum price for “Ex SDMH#5 Manhole Vent Installation” shall be full compensation for furnishing all labor, tools, materials, and equipment necessary for complete installation of the vent pipe within the existing manhole and connection to existing downstream pipe as detailed on the Plans, including but not limited to, excavation, backfill material, compaction, vent pipe, connection to new pipes, connection to existing pipes, abandonment of existing pipes, couplings, fittings, adjustment risers, pre-cast concrete slab, disposal of excess backfill material, frame and grate regardless of type, and grout.

END OF SECTION
7-07  CLEANING EXISTING DRAINAGE STRUCTURES
(March 23, 2010 Tacoma GSP)

7-07.3 Construction Requirements

Item three of paragraph two is revised to read:

3. If sediment and water from structures does not meet the conditions described in 1 or 2 above, the Contractor shall collect and dispose of all water used and all debris generated in cleaning operations. No cleaning water or debris shall be flushed downstream beyond the limits of the work.

END OF SECTION
7-08  GENERAL PIPE INSTALLATION REQUIREMENTS
(******)
7-08.3 Construction Requirements

7-08.3(1) Excavation and Preparation of Trench

7-08.3(1)A Trenches
The tenth paragraph of this section is deleted. All dewatering requirements are found in Section 8-01.3(1)C.

7-08.3(1)C Bedding the Pipe
This section is supplemented with the following:

Pipe bedding for sanitary and storm sewers shall be in accordance with City of Tacoma Standard Plan No. SU-16.

7-08.3(2) Laying Pipe

7-08.3(2)F Plugs and Connections
This section is supplemented with the following:

Rigid Couplings, manufactured by Romac Industries, Inc., or Engineer approved equal, shall be used at any pipe joint in which bell and spigot or fused joints are not used. Flexible couplings are not permitted, except for side sewer installation.

7-08.3(2)G Jointing of Dissimilar Pipe
This section is revised to read:

Dissimilar pipe shall be joined by use of rigid couplings manufactured by Romac Industries, Inc., or Engineer approved equal, except for side sewer installation.

7-08.3(3) Backfilling
The second paragraph is revised to read:

Pipe zone bedding shall be in accordance with City of Tacoma Standard Plan No. SU-16 and Section 9-03.9(3) for Crushed Surfacing Top Course. Backfill above pipe zone and extra excavation area backfill material shall meet the requirements of Section 9-03.19 for Bank Run Gravel for Trench Backfill from STA 20+28 to STA 20+93 and STA 401+20 to STA 401+90 and shall meet the requirements of Section 9-03.12(2) for Gravel Backfill for Walls from STA 13+00 to STA 20+28 and STA 20+93 to STA 24+49. Recycled concrete shall not be used for pipe zone bedding, pipe zone backfill, backfill above pipe zone, and extra excavation area backfill.

The fourth paragraph is revised to read:

Backfill above the pipe zone shall be accomplished in such a manner that the pipe will not be shifted out of position nor damaged by impact or overloading. If pipe is being placed in a new embankment, backfill above the pipe zone shall be placed in accordance with Section 2-03.3(14)C. Backfill above the pipe zone shall be placed in horizontal layers no more than 8-inches thick and compacted to 95-percent maximum
density. All compaction shall be in accordance with the Compaction Control Test of
Section 2-03.3(14)D. Material excavated from the trench approved by the Engineer for
use as trench backfill shall be free of all organic material, frozen lumps, wood, rocks, or
any pavement chunks which measure larger than 6-inches in maximum dimension.
Material determined by the Engineer to be unsuitable for backfill at the time of
evacuation shall be removed and replaced with imported backfill material meeting the
requirements of this Section. Material determined to be suitable for backfill at the time of
evacuation shall be stockpiled and used for backfill material. If the stockpiled material
becomes unsuitable, the Contractor shall furnish suitable material in an amount equal to
that, which became unsuitable, at no expense to the Contracting Agency.

7-08.3(4) Plugging Existing Pipe
This section is supplemented with the following:

When abandoning a pipe at a connection to an existing structure to remain, the structure
wall and pipe opening shall be filled such that a smooth structure interior wall remains
upon completion of the pipe abandonment and plugging of existing pipe.

Add the following new sections:
7-08.3(5) Temporary Bypass Pumping

7-08.3(5)A General Requirements

The Contractor shall design, operate, and install a bypass pumping system to maintain
operation of the existing sewer systems throughout the duration of the project without
any interruption of sewer service. The Contractor shall divert all flows around each
segment of the pipe designated for replacement. This diversion shall consist of pumping
flow from an upstream manhole and discharging it to a manhole downstream of
the replacement operation. After the pipe replacement work is completed and accepted
by the Contracting Agency, flow shall be returned to the reconstructed sewer. The area
affected by the bypass operation shall be fully restored.

Flow from the bypass system shall be discharged into the same system downstream of
the work unless prior approval is obtained from the Engineer to utilize a nearby pipe
network. The Engineer will determine if the nearby system has capacity to receive the
additional bypass flow.

To determine locations of upstream and downstream manholes for bypass purposes,
Bidders may view pipe networks on the City of Tacoma GIS map
at [https://tmap.cityoftacoma.org/](https://tmap.cityoftacoma.org/). Pipe networks are viewable by navigating to the
intersection/street, selecting the Layer list icon in the upper right corner, and checking
the box adjacent to either the Wastewater Network or Stormwater Network, as
applicable.

Bypass pumping shall be done in such a manner as not to damage private or public
property, or create a nuisance or public menace. The pumped sewage
or stormwater shall be in enclosed hoses or pipes that are adequately protected from
traffic, and shall be redirected into the appropriate sewer system. The discharge of
sewage to private property, city streets, sidewalks, storm sewer, or any location other
than an approved sanitary sewer is prohibited. The Contractor shall be liable for all
cleanup, damages, and resultant fines should the Contractor’s operation cause any 
backups, overflows, or property damage.

The Contractor shall be required to test the bypass pumping system in the presence of 
The Engineer prior to taking any sewer system out of service.

Silenced pumps shall be used in all areas of night time work to minimize noise disruption 
and meet the noise control requirements of Tacoma Municipal Code Chapter 8.122.

The Contractor shall use hard pipe to bypass sewers 12-inches in diameter or 
greater. The Contractor shall not block any driveways or intersections, but shall bury the 
pipe to allow continuous access through intersections and driveways.

The Contractor may use lay-flat hose to bypass storm and sanitary sewers that are less 
than 12 inches in diameter. The Contractor shall ensure that sewage spills do not occur 
with the use of lay flat hoses. If sewage spills occur, the Contractor will be required to 
use hard pipe for all sanitary sewers.

7-08.3(5)B Backup Equipment and Monitoring

Bypass pumping shall be scheduled for continuous operation with back-up pumps, 
generators, and other equipment available on-site at all times for periods of maintenance 
and refueling or failure of the primary bypass pump(s). The Contractor shall provide 
experienced monitoring personnel on site at all times to verify the bypass pumping 
system remains functional. These individuals shall have the experience to operate and 
maintain the bypass system to ensure there is continuous operation of the bypass 
system.

7-08.3(5)C Flow for Bypass System Design

The Contractor’s bypass operation shall be sized to handle, at a minimum, the full pipe 
capacity in each subject line removed from service. If flow conditions are greater than 
full pipe, the Contractor may elect to wait for flow conditions to subside prior to removing 
the subject line from service. Working days may be adjusted per Specification 1-08.5. Once the Contractor removes a section of line from service they are responsible to 
bypass any and all flow in the system during construction, even in the event the system 
surcharges and exceeds the full pipe capacity, until the line is returned to service.

7-08.3(5)D Bypass Pumping Plan

The Contractor shall submit a Bypass Pumping Plans for each location included in this 
Contract in accordance with Section 1-05. The Contractor’s plan for bypass pumping 
shall be reviewed by the Contracting Agency before the Contractor will be allowed to 
commence bypass pumping. The review of the bypassing system and equipment by the 
Engineer shall in no way relieve the Contractor of his responsibility and public liability.

At a minimum, the bypass pumping plan for each location shall include the following:

1. Location of pumps and generators
2. Method, type, and size of plugs
3. Size, material, location, and method of installation of suction piping
4. Size, material, location, and method of installation of discharge piping
5. Bypass pump sizes, capacity, number of each to be on site
6. For pipes sized 12-inches and greater (excluding catch basins), calculations of
   static lift, friction losses, and flow velocity, including pump performance curves
   showing pump operating range
7. Power generator and standby size and location
8. Method of noise control for pumps and generators to comply with the City’s noise
   ordinance, Tacoma Municipal Code Chapter 8.122 if necessary
9. Calculations for selection of bypass pumping pipe sizes
10. Method of protecting discharge manholes from erosion or damage
11. All backup equipment including pumps, hoses, generators, and pipe
12. Contractor’s 24-hour emergency contact name and phone number
13. Description of proposed contingency plan and clean up method for any spills that
    may occur.
14. Temporary traffic control plan to be in place for duration of temporary bypass
    pumping as necessary.

7-08.3(6) Abandon Existing Pipe

If construction of the new sewer pipe does not result in the removal of the existing pipe
due to differing alignments, then the existing pipe shall be abandoned in place as shown
in the Plans. The Contractor shall plug all pipe branches, stubs, or other open ends of
the pipe to be abandoned and fill with CDF. The Contractor shall submit a Pipe
Abandonment Plan in accordance with Section 1-05.3 describing the proposed methods
for filling the pipes with CDF, specifically addressing how the pipes will be filled in a
manner that will prevent air pockets from being left in the abandoned pipe. The CDF mix
design shall meet the requirements of Section 2-09.3(1)E.

If the pipes to be abandoned are removed and disposed of during construction of the
new sewers, all costs for the removal and disposal shall be included in the unit contract
price for “Structure Excavation, Class B,” at per cubic yard.

7-08.4 Measurement

This section is supplemented with the following:

No specific measurement shall apply to the lump sum item “Temporary ___ Sewer
Bypass”.

No specific measurement shall apply to the lump sum item “Temporary ___ Sewer
Bypass Plan”.

Abandonment of existing sewer pipes will be measured by the cubic yard of CDF
necessary to fill the existing pipes.

7-08.5 Payment

This section is supplemented with the following:

“Temporary ___ Sewer Bypass”, per lump sum.

The lump sum Contract prices for “Temporary ___ Sewer Bypass” shall be full payment
for labor, equipment, and materials, including but not limited to, personnel, fuel,
monitoring, power, pumps, piping, emergency stand-by equipment, trenching, surface
restoration costs, and all other work necessary to maintain uninterrupted storm and
sanitary sewer services by bypassing the applicable sewer system flows.

"Temporary ___ Sewer Bypass Plan", per lump sum

The lump sum Contract price for “Temporary ___ Sewer Bypass Plan” shall be full pay
for all costs, including but not limited to, preparing, submitting, revising, and resubmitting
revisions for the Temporary Bypass Plan.

“CDF for Pipe Abandonment”, per cubic yard.

The unit Contract price for “CDF for Pipe Abandonment” shall be full payment for all
labor, materials, and equipment necessary to abandon the sewer pipes.

END OF SECTION
7-17  SANITARY SEWERS
(March 4, 2014 Tacoma GSP)

7-17.1 Description
This section is supplemented with the following:

All references to sanitary sewer shall also mean storm sewers.

7-17.2 Materials
The first paragraph is revised to read:

Pipe materials used for storm and sanitary sewers shall be as shown on plans. All references to PVC shall mean Solid Wall PVC Sewer Pipe. Profile Wall PVC will not be permitted.

This section is supplemented with the following:

Polyvinyl Chloride (PVC) Pressure Pipe (4-inches and over) 9-30.1(5)A

(******)
This section is supplemented with the following:

Ductile iron pipe shall conform to Section 9-30.1(1) and shall be Class 52 minimum.

Steel rib reinforced polyethylene storm sewer pipe shall conform to Section 9-05.22 and shall be DuroMaxx pipe as manufactured by Contech.

Steel pipe shall be per 9-30.1(4)A and conform to AWWA C200 and be field cement-mortar lined in accordance with AWWA C602. Cement mortar shall be a minimum of ¼” thickness.

Steel pipe welded fittings and joints shall conform to AWWA C206. Linings and coatings for all fittings shall be the same as specified for the adjacent pipe.

7-17.3 Construction Requirements

7-17.3(2) Cleaning and Testing

7-17.3(2)A General
The first paragraph is revised to read:

Sewers and appurtenances shall be cleaned and tested after backfilling by either exfiltration or low-pressure air method at the option of the Contractor, except where the ground water table is such that the Engineer may require the infiltration test.

7-17.3(2)H Television Inspection
This section is revised to read:

The Contractor shall hire a third-party television inspection company to perform television inspection services on all new full segments and partial segments of sanitary and storm sewer mains and side sewers, including the connection point between new
and existing pipes, and newly constructed manholes. The inspection video and
associated database file shall be submitted for review and final acceptance of the
pipes prior to paving where paving occurs over sewers, or prior to final acceptance in
non-paved areas, and allowing for any review timeframes as described below.

The Contractor shall provide the Contracting Agency 72 hours of advance notice so that
the Engineer may be present during the inspection if so elected. The video shall be
submitted for review which may take up to five (5) working days. If more than five (5)
working days are required for the Engineer’s review of the videos, an extension of
time will be considered in accordance with 1-08.8. At a minimum, the video files shall
meet the technical requirements of 7-17.3(3). No claim will be allowed for damages, or
extensions of time resulting from the rejection of a video due to not meeting the technical
requirements or construction defects identified in the video.

CCTV inspection work shall be completed by certified National Association of Sewer
Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP)
trained operator(s) using established PACP coding and observations. Coding and
observation results shall be recorded and presented on a per asset basis, manhole to
manhole. A pipe asset is defined as one continuous pipe from the upstream manhole to
the downstream manhole. Footage shall be recorded with the starting and ending points
being the center of the manholes, with the exception that if partial segments are
constructed in this Contract, including side sewers, the inspection only needs to show all
new work up to and including the connection to the existing pipe. The camera operator
shall also pan around and record the inside of each manhole constructed in this
project at the start and end of each inspection. The television camera shall have a
resolution of 700 lines minimum and shall have a source of illumination attached to it.

The video files shall be recorded and submitted in MPEG-2 format and include
an unmodified NASSCO-PACP Certified Access Database conducted entirely in digital
format with electronic reference to the survey which is intended to be imported into the
City’s viewing software, GraniteNet. The PACP database shall include the City’s SAP
pipe segment ID. No other file format will be accepted unless approved by the City.

All videos and database files shall be submitted via the Internet web-based project
management communications tool, e-Builder software.

The Contractor shall provide video identifying the pipe segment by manhole numbers
and pipe segment number. The inspection shall identify all connections, general
conditions of the sewer pipelines, problem areas, location of all connections or problem
areas by linear footage, and observations concerning the condition of the pipe joints. The
camera system used shall be capable of travelling up to 500 linear feet.

Although newly constructed, the sewers will likely be in service with flow present during
inspections. The lens shall remain clean and clear for the duration of the CCTV
inspection. Should the lens become soiled, or fogged, or otherwise impaired to any
degree that impedes the ability to clearly see the condition of the pipe, the inspection
shall be halted to clean and clear the lens. No additional compensation will be made for
re-inspections required by the City due to soiled, fogged, or otherwise impaired camera
lenses.
The Contractor shall maintain sufficient light levels within the main to allow for visual inspection of the pipe walls for a minimum of four feet for all pipe sizes. Additionally, the Contractor shall make certain that the light levels are not so bright that visual inspection is impeded.

Each individual video inspection shall also include the associated video inspection report for that segment which shall include the following information:

- Date of Inspection
- Main segment number (SAP)
- Upstream and Downstream Manhole Numbers (SAP)
- Street Location
- Setup (Normal or Reverse Flow)
- Pipe size and material
- Status (Active or Inactive) of all side sewers
- Location, length, and depth of water of sags
- Location and description of all other defects

The CCTV Inspection shall be a continuous, unedited video and shall include the following information:

- Date of Inspection
- Main segment number
- Upstream and downstream manhole numbers
- Current distance along the mainline

In addition, the Contractor shall perform wastewater side sewer inspections where they exist via a mainline camera with a lateral launching setup. The lateral launch camera shall be capable of extending at least 30 feet from the main into side sewers and shall include an on-screen footage counter. The quality of the side sewer inspection shall meet the same requirements as the mainline camera. The lateral launch camera shall be self-leveling and shall also include a sonde transmitter to locate the side sewer in the event of a defect.

The Contractor shall bear all costs incurred in correcting any deficiencies found during television inspection including the cost of any additional television inspection that may be required by the Engineer to verify the correction of said deficiency.

The Contractor shall be responsible for all costs incurred in any television inspection performed solely for the benefit of the Contractor.

7-17.4 Measurement

This section is supplemented with the following:

Removal and replacement of unsuitable, contaminated and non-contaminated, backfill material will be determined by the cubic yard in place, based on a neat line measurement per this section and Section 2-09. Any removal and replacement of unsuitable material outside neat line measurement shall be incidental to the Bid item.

Horizontal Limits: The horizontal limits shall be as defined in Section 2-09.4.

Longitudinal Limits: The longitudinal limits shall be as defined in Section 2-09.4.
Lower Limits: The lower limits shall be the top of the pipe zone as shown on Standard Plan No. SU-16.

Upper Limits: The upper limits shall be the subgrade elevation of the proposed roadway section or pavement patch section.

All costs associated with the disposal of material located above the upper limits shall be included in the unit contract price for other items of work, unless a proposal item is included for this specific item of work.

Pipe zone limits are as defined in Standard Plan SU-16 and as detailed on the Plans.

No specific unit of measurement will apply for Contractor provided Television Inspection. All costs shall be included in the per foot price of pipe installed.

7-17.5 Payment
The first paragraph is supplemented with the following:

“PVC Storm Sewer Pipe ___ In. Diam.”, per linear foot.

“Steel Rib Reinf. Polyethylene Storm Sewer Pipe ___ In. Diam.”, per linear foot.

“Ductile Iron Storm Sewer Pipe ___ In. Diam.”, per linear foot.

“Steel Storm Sewer Pipe ___ In. Diam.”, per linear foot.

The second paragraph is revised to read:

The unit Contract price per linear foot for sewer pipe of the kind and size specified shall be full pay for the furnishing, hauling, and assembling in place the complete installation, including but not limited to, disposal of material excavated within the pipe zone, furnishing and installing pipe bedding and backfill material within the pipe zone, and all wyes, tees, special fitting, joint materials, performing and submitting television inspection videos and reports, and other appurtenances necessary for the completion of the installation to the required line and grade, unless proposal items are included for these specific items of work. No payment shall be made for pipe that has been installed, but not television inspected.

The pay item “Removal and Replacement of Unsuitable Material” is revised to read:

“Removal and Replacement of Unsuitable Material”, per cubic yard.

The unit Contract price per cubic yard for “Removal and Replacement of Unsuitable Material” shall be full pay for all work required to haul and dispose of the unsuitable material as specified in Section 7-08.3(1)A and the furnishing of suitable backfill material as specified in Section 7-08.3(3).

For the purpose of providing a common proposal for bidders, the proposal quantity for “Removal and Replacement of Unsuitable Material” is based on removal and replacement of all backfill material.
7-18 SIDE SEWERS
(March 4, 2014 Tacoma GSP)

7-18.1 Description
This section is supplemented with the following:

The Contractor shall remove and replace existing side sewers as defined on the Plans and reconnect the existing side sewer. The location of the side sewer at the main is estimated based on a TV inspection of the main and may vary in either direction. The actual location at the point of reconnection is unknown.

7-18.3(1) General
This section is supplemented with the following:

The Contractor shall use solid wall PVC pipe meeting the requirements of Section 9-05.12(1) for all side sewers located 10 feet or more from a water service. If the side sewer is located within 10 feet of a water service, the Contractor shall use solid wall PVC pressure pipe meeting the requirements of Section 9-30.1(5)A. If the side sewer crosses above a water main, the side sewer shall be encased per the Department of Ecology Criteria for Sewage Works Design (Orange Book) Section C1-9.1.4A. Any encasement of side sewers shall be paid for under force account per Section 1-09.6.

7-18.4 Measurement
This section is supplemented with the following:

Measurement for payment shall be by the linear foot of pipe installed, and shall be along the pipe invert, through tees, wyes and other fittings, from the centerline of the main to the centerline of the cleanout.

7-18.5 Payment
The second paragraph is revised to read:

The unit Contract price per linear foot for sewer pipe of the various kind and size specified shall be full pay for furnishing, hauling and assembling in place the completed installation including all wyes, tees, special fittings, joint materials, bedding material, and end pipe marker, and any other items necessary for the completion of the installation, unless Proposal items are included for these specific items of Work.

END OF SECTION
7-19 SEWER CLEANOUTS
(May 13, 2009 Tacoma GSP)

7-19.3 Construction Requirements
The third sentence of the first paragraph is deleted.
The fourth sentence of the third paragraph is deleted.

7-19.5 Payment
The third paragraph is revised to read:
The unit Contract price for “Sewer Cleanout” shall be full pay for furnishing and placing
the wye, pipe, pipe bends, pipe plug, castings, and collar as specified herein and as
shown on Standard Plan SU-24.

END OF SECTION
8-01  EROSION CONTROL AND WATER POLLUTION CONTROL
(*****)

8-01.1 Description
This section is supplemented with the following:

The City of Tacoma Stormwater Management Manual is available on the City’s website
at www.cityoftacoma.org/stormwatermanual.

The City of Tacoma will be issued a Washington State Department of Ecology NPDES
Construction Stormwater General Permit for this project prior to Contractor commencing
work.

This Work also consists of administration and compliance with the requirements of this
permit for this project. A copy of this permit will be provided to the contractor prior to
commencing work, see Appendix H of these Special Provisions.

8-01.3 Construction Requirements

8-01.3(1) General
This section is supplemented with the following:

The Contractor shall perform all work in compliance with the NPDES Construction
Stormwater General Permit issued for this project.

The permit shall be transferred to the Contractor prior to issuance of a Notice to Proceed
and terminated upon completion of the project per the following:

1. The City will provide the Contractor with a Transfer of Coverage form prior to
   issuing a Notice to Proceed.
2. The Contractor shall sign and return the Transfer of Coverage form to the City.
3. The City will process the transfer and pay any associated transfer fees to the
   Washington State Department of Ecology.
4. Once the transfer is complete and a Notice to Proceed has been issued, the
   Contractor is responsible for performing all work in compliance with the permit
   and the plans and specifications.
5. The Contractor shall pay any renewal fees if the need for permit renewal is
   caused by contractor, otherwise the City will pay all renewal fees.
6. Upon Physical Completion of the Work the Contractor shall submit a Notice of
   Termination to the Washington State Department of Ecology and provide the
   City documentation that the termination is effective.

8-01.3(1)A Submittals
This section is revised to read:

The Contractor shall prepare and implement a project-specific Construction Stormwater
Pollution Prevention Plan (SWPPP) in accordance with the City of Tacoma Stormwater
Management Manual (SWMM), Volume 2. The SWPPP is a document that describes
the potential for pollution problems on a construction site and explains and illustrates the
measures to be taken on the construction site to control those problems.
The Construction SWPPP shall be prepared as a stand-alone document consisting of
two sections: Section 1) Construction SWPPP Narrative and Section 2) Temporary
Erosion and Sediment Control (TESC) Plans.

The Contracting Agency has prepared the Construction Stormwater Pollution Prevention
Plan Checklist to aid the Contractor in development of the SWPPP. This checklist
provides the Contractor with a tool to determine if all the major items are included in the
Construction SWPPP and on the TESC Plans and can be found in Volume 2, Chapter 2
of the SWMM. Contractors are encouraged to complete and submit this checklist with
the Construction SWPPP.

The Department of Ecology has prepared a SWPPP template that can be used for
projects in the City of Tacoma. The template can be found on Ecology’s website at:
The Contractor developing the SWPPP must ensure that all references are appropriate
for the City of Tacoma.

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
and TESC Plan shall remain on-site at all times and an additional copy shall be
forwarded to the Engineer. At the Contractor’s preference, revisions to the SWPPP and
TESC Plan may be forwarded to the Engineer rather than submitting a complete
document. Revisions to the SWPPP and TESC Plan may be kept on-site in a file along
with the original SWPPP document.

The Contractor shall provide Stormwater Pollution Prevention Plan inspection reports or
forms per 8-01.3(1) B to the Project Engineer no later than the end of the next working
day following the inspection.

8-01.3(1)B Erosion and Sediment Control (ESC) Lead
This section is revised to read:

The Contractor shall identify the ESC Lead at the Preconstruction Meeting and the
contact information for the ESC Lead shall be added to the Stormwater Pollution
Prevention Plan (SWPPP) Report and the Temporary Erosion and Sediment Control
(TESC) Plan Sheet. The ESC Lead shall maintain, for the life of the contract, a current
Certified Erosion and Sediment Control Lead (CESCL) certificate or maintain 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 be listed on the Emergency Contact List required under
Section 1-05.13(1).

The CESCL or CPESC shall direct implementation of the measures identified in the
SWPPP and as shown on the TESC plan. 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 and as shown on the
TESC plan. Damaged or inadequate BMPs shall be corrected as needed to
assure continued performance of their intended function in accordance with BMP
specifications and Permit requirements.

2. Performing monitoring as required by the NPDES Construction Stormwater
   General Permit.

3. Inspecting all on-site erosion and sediment control BMPs at least once every
calendar week and within 24 hours of any discharge from the site. 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.

4. 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. National Pollutant Discharge Elimination System Construction Stormwater
      General Permit (Notice of Intent).
   d. All documentation and correspondence related to the NPDES Construction
      Stormwater General Permit.
   e. Other applicable permits.

Upon request, the file shall be provided to the Engineer for review.

8-01.3(1)C Water Management

This section is revised to read:

General. The Contractor is responsible for keeping all excavations free from standing
water during construction and disposing of the water in a manner that will not cause
pollution, injury to public or private property, or cause a nuisance to the public. Surface
water flowing toward, into, or within excavations shall be controlled to prevent sloughing
of excavation walls, boils, uplift, and heave in the excavation, and to eliminate
interference with orderly progress of construction. The control of water shall be such that
softening of the bottom of excavations, or formation of “quick” conditions or “boils” during
excavation, shall not occur. The Contractor is responsible for all foundation material
required due to lack of dewatering efforts.

Recent soil boring logs with approximate groundwater elevations are included in
Appendix C of these Special Provisions.

All “normal trench dewatering” work associated with maintaining a trench or excavation
area suitable for pipeline and Stormwater Treatment Facility construction will be
incidental and included in the other items of work. “Normal trench dewatering” is defined
as dewatering methods occurring in or directly adjacent to the trench, including trash
pumps, sump pumps, or other methods in excavated areas. Normal trench dewatering
does not include a dewatering system, such as well points, well screens, or deep wells.

8-01.3(2) Temporary Seeding and Mulching

8-01.3(2)B Temporary Seeding
The first paragraph is supplemented with the following:

Temporary seeding with “Temporary Erosion Control Seed Mix” shall meet the following:

<table>
<thead>
<tr>
<th>Type of Seed</th>
<th>% by Weight</th>
</tr>
</thead>
</table>
| Chewings or Annual Bluegrass
  Festuca rubra var. commutate or Poa anna         | 40          |
| Perennial Rye
  Lolium perenne                                     | 50          |
| Redtop or Colonial Bentgrass
  Agrostis alba or Agrostis tenuis                   | 5           |
| White Dutch Clover
  Trifolium repens                                   | 5           |

The rate of application shall be 120 lbs. per acre.
The fourth paragraph is supplemented with the following:

Seed shall be distributed uniformly over the designated area. Half of the seed shall be
sown with the sower moving in one direction, and the remainder with the sower moving
at right angles to the first sowing.

8-01.3(2)D Mulching
The first paragraph is supplemented with the following:

Moderate-Term Mulch shall be applied at a rate of 3,500 lbs. per acre.

8-01.3(2)E Tackifiers
This section is supplemented with the following:

Organic Tackifier shall be applied at a rate per manufacturer’s instructions.

8-01.3(8) Street Cleaning
The third paragraph is revised to read:

Street washing with water shall not be permitted.

8-01.3(9) Sediment Control Barriers

8-01.3(9)D Inlet Protection
Replace the third paragraph of this section with the following:

When the depth of accumulated sediment and debris reaches approximately 1/3 the
height of an internal device or 1/3 the height of the external device (or less when so
specified by the manufacturer), or as designated by the Engineer, the sediment and
debris shall be removed and disposed of per SWMM BMP C220 or as specified on the Plans or within the SWPPP.

*The section is supplemented with the following:*

Only bag-type filters are allowed for use in the public right of way.

**8-01.4 Measurement**

*This section is supplemented with the following:*

No specific unit of measurement shall apply to the lump sum item “Stormwater Pollution Prevention Plan (SWPPP)”.

No specific unit of measurement shall apply to the lump sum item “NPDES Construction Stormwater General Permit”.

No measurement will be made for “normal trench dewatering”.

**8-01.5 Payment**

*The pay item “Erosion/Water Pollution Control”, by force account as provided in Section 1-09.6 is revised to read:*

Installation, maintenance, and removal of erosion and water pollution control devices including removal and disposal of sediment, stabilization and rehabilitation of soil disturbed by these activities and any additional Work deemed necessary by the Engineer to control erosion and water pollution will be paid by force account in accordance with Section 1-09.6. Directing implementation by ESC Lead of the measures identified in the SWPPP, shown on the TESC plan, and all other work as included in Section 8-01.3(1)B shall be paid by force account as provided in Section 1-09.6.

*This section is supplemented with the following:*

“Stormwater Pollution Prevention Plan (SWPPP)”, per lump sum. The lump sum contract price for “Stormwater Pollution Prevention Plan (SWPPP)” shall be full pay for all costs, including but not limited to, preparing, submitting, revising, and resubmitting revisions for the Stormwater Pollution Prevention Plan.

“NPDES Construction Stormwater General Permit”, per lump sum. The lump sum contract price for “NPDES Construction Stormwater General Permit” shall be full pay for all costs, including but not limited to, transfer of coverage, sampling, monitoring, reporting, coordinating, inspecting, materials and labor, and all fees and any other expenses necessary to fully comply with the requirements of the Permit up to and including termination of the Permit and completion of the Work. The lump sum price shall also include all costs necessary to supply the City of Tacoma with all information as necessary to ensure compliance with the permit.

No payment will be made for “normal trench dewatering”.

**END OF SECTION**
8-02 ROADSIDE RESTORATION
(******)

8-02.1 Description
This section is supplemented with the following:

The Work included in “Landscape Restoration” shall include restoration of all landscaped areas outside of the “Critical Area Limits” as shown on the Plans. “Landscape Restoration” shall also include reinstallation of all private property landscaping elements that were removed and retained per Section 2-02 necessary to restore surface areas and that are not included in other bid items, including but not limited to:

- Reinstalling concrete paver path at 1414 N Junett Street.
- Reinstalling brick path, fence, stone wall and landscaping elements at 1502 N Junett Street.
- Reinstalling existing trail border cobble along Community Garden trail and as shown on the Plans.
- Reinstalling existing chain link fence along Community Garden frontage.
- Reinstalling planter box at approximately STA 21+90 LT.

8-02.2 Materials
This section is supplemented with the following:

Root Barrier

Root barrier shall be rigid-type root barrier module panels and shall be at least 75 percent recycled polypropylene or high-impact polystyrene with added ultraviolet inhibitors. Material shall have 0.060-inch to 0.075-inch wall thickness, 18-inch height. Panels shall have reinforcing ribs 1/2-inch deep, raised vertical ribs running perpendicular to sheet, 6 inches on center.

Tree Watering Bag

The Tree Watering Bag materials shall be Treegator® Original or approved equal.

8-02.3 Construction Requirements
This section is supplemented with the following:

Root Barrier

The Contractor shall stake location for approval of the Engineer before proceeding with installation. Assemble the appropriate number of root barrier panels as required in the Plans. Trench immediately adjacent to hardscape to the appropriate depth for installation of specified root barrier so that top of barrier is 1/2 inch to 1 inch (12.7 mm to 25.4 mm) above finished soil grade. Place root barrier in trench, vertical ribs facing toward planting area and tree roots. Where possible, use pavement edge as a guide for root barrier alignment. Backfill adjacent planting soil against the root barrier to promote clean fit to hardscape. Fill to finish grade.
Tree Watering Bag

The Contractor shall install one Tree Watering Bag per tree as shown on the plans. Install Tree Watering Bag in accordance with manufacturer’s instructions.

8-02.3(5) Roadside Seeding, Lawn and Planting Area Preparation

This section is supplemented with the following:

All grades shall be maintained in the areas to be planted in a true and even condition. The contractor shall be careful not to disturb any of the existing or cut slopes. Where final grades have not been established, the areas shall be finish graded and all surfaces left in an even and compacted condition. The finished grade shall be such that after planting, the grade shall be flush with adjoining surfaces; positive drainage shall also be maintained.

8-02.3(6) Mulch and Amendments

This section is supplemented with the following:

Recycled/compost material in accordance with Section 9-14.5(8) shall be blended with the specified topsoil at a ratio of 1/1 by volume.

8-02.3(8) Planting

8-02.3(8)C Pruning, Staking, Guying, and Wrapping

This section is supplemented with the following:

Crossed or rubbing branches shall be removed providing the natural shape of the tree is preserved. Under no circumstances shall pruning be done prior to inspection and approval of plants by the Engineer. All cuts shall be made flush with the parent stem leaving no stubs. Pruning cuts shall be made in a manner to favor the earliest possible covering of the wound by callus growth. Cuts that produce large wounds and weaken the tree will not be acceptable.

Top growth removal to compensate for root loss shall not exceed one-third (1/3) of the top growth unless otherwise specified or directed by the Engineer. Cuts created 3/4 inch in diameter shall be treated with an approved tree wound dressing. All pruning shall produce a clean cut without bruising or tearing the bark and shall be in living wood where the wood can properly heal over.

Evergreens shall not be pruned, except to remove injured branches. The use of pole shears and/or hedge shears for pruning deciduous and evergreen trees will not be permitted. All trimmings and other debris left over from the planting operations shall be collected and disposed of off the site.

All evergreen trees and deciduous trees over 15 feet in height shall be guyed with three wires or cables.

All deciduous and evergreen trees shall be staked the same day of planting.
8-02.3(10) Lawn Installation

8-02.3(10)A Dates and Conditions for Lawn Installation
The second paragraph is supplemented with the following:

Where no irrigation system is to be installed, the lawn shall be placed during the following period only:

March 1st – June 30th
September 1st - October 25

8-02.3(10)B Lawn Seeding and Sodding
The first paragraph is supplemented with the following:

Lawn Installation with “Low-Growing Turf Seed Mix” shall meet the following:

<table>
<thead>
<tr>
<th>Type of Seed</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dwarf Tall Fescue (several varieties) Festuca arundinacea var.</td>
<td>45</td>
</tr>
<tr>
<td>Dwarf Perennial Rye (Barclay) Lolium perenne var. Barclay</td>
<td>30</td>
</tr>
<tr>
<td>Red Fescue Festuca rubra</td>
<td>20</td>
</tr>
<tr>
<td>Colonial Bentgrass Agrostis tenuis</td>
<td>5</td>
</tr>
</tbody>
</table>

The rate of application shall be 120 lbs per acre.

The third paragraph is supplemented with the following:

Topsoil shall be tilled in accordance with City of Tacoma Standard Plan GSI-01b. On sloped areas, the sod strips shall be laid perpendicular to the flow of water.

8-02.3(10)C Lawn Establishment
This section is supplemented with the following:

Lawn that is replaced shall be of the same mixture and grade as the surviving lawn.

8-02.3(11) Mulch

8-02.3(11)B Bark or Woodchip Mulch
The second sentence of the third paragraph is revised to read:

Mulch shall be feathered to plant material trunks, stems, canes, or root collars, and level with the top of junction and valve boxes, curbs and pavement edges.

This section is supplemented with the following:

Bark or wood chip mulch in accordance with Section 9-14.5(3) shall be applied to a depth of 4 inches at the location indicated on the Plans or as directed by the Engineer.
8-02.3(13) Plant Establishment

This section is revised to read:

The Contractor shall maintain the planting areas and all plants planted within the project limits to ensure the resumption and continued growth of the planted material until physical completion of the contract.

Maintenance shall include, but not be limited to, labor and materials necessary for removal of foreign, dead, or rejected plant material, maintaining a weed-free condition, and the replacement of all unsatisfactory plant material planted under the contract.

Planting dates for replacement plant material will be approved by the Engineer.

The Contractor shall meet with the Engineer for the purpose of joint inspection of the project once installation has been completed and thereafter on a periodic “as needed” basis as determined by the Engineer, until the physical completion date of the contract.

All conditions unsatisfactory to the Engineer shall be corrected by the Contractor within a ten-day period immediately following the inspection. Failure to comply with corrective steps as outlined by the Engineer shall constitute justification of the Contracting Agency to take corrective steps and to deduct all costs thereof from any monies due the Contractor.

The Contractor shall replace all plants stolen or damaged by the acts of others until the physical completion date of the contract.

8-02.3(14) Plant Replacement

This section is revised to read:

The Contractor shall provide the Contracting Agency a one (1) year non pro-rated, full labor and materials warranty for all planted material. The warranty shall cause the Contractor to remove and replace all rejected plant material during the warranty period.

The warranty period shall begin at the date of physical completion of the contract and end one calendar year from that date.

The Contractor shall be responsible for growing or providing enough plants for replacement of all plant material rejected during the warranty period. All rejected plant material shall be replaced at dates approved by the Engineer.

All replacement plants shall be of the same species and quality as the plants they replace. Plants may vary in size reflecting one season of growth should the Contractor elect to hold plant material under nursery conditions for an additional year to serve as replacement plants.

Replacement plants will be subject to the original warranty provision as stated above.
8-02.4 Measurement
The first paragraph is revised to read:
Topsoil, mulch and soil amendments will be measured by the cubic yard in the haul conveyance at the point of delivery.
This section is supplemented with the following:
Irrigation water used to establish vegetation will be considered included in the cost of plants.
“Root Barrier – 18 In.” will be measured per linear foot.
“Tree Watering Bag” will be measured per each.
No specific unit of measure will apply to the lump sum item “Landscape Restoration”.

8-02.5 Payment
The pay item for “Plant Selection” is revised to read:
“Plant Selection ___”, per each.
Payment for “Plant Selection ___” shall be full pay for all materials, labor, tools, equipment and supplies necessary for weed control within planting areas, planting area preparation, fine grading, planting, cultivating, and clean-up for the particular items called for in the Plans until the physical completion date of the contract. A one (1) year plant warranty shall be included in the unit contract price.

Paragraphs 7 through 18, pertaining to partial payment, are deleted.
The pay unit of square yards will be used in lieu of acres.
The following pay items are revised to read:
“Topsoil Type__”, per cubic yard
The unit contract price per cubic yard for “Topsoil Type ___” shall be full pay for providing the source of material for Topsoil Type A, for pre-exca vation weed control, excavating, loading, hauling, intermediate windrow ing, stockpiling, weed control on stockpiles or windrows, and removal, placing, spreading, processing, cultivating, and compacting topsoil Type A.
“Soil Amendment”, per cubic yard.
The unit contract price per cubic yard for “Soil Amendment” shall be full pay for furnishing and incorporating the soil amendment into the existing soil.
“Bark or Wood Chip Mulch”, per cubic yard.
The unit contract price per cubic yard for “Bark of Wood Chip Mulch” shall be full pay for furnishing and spreading the compost onto the existing soil.
This section is supplemented with the following:

The lump sum contract price for “Landscape Restoration” shall include any restoration of landscape (and associated items not covered under a bid item) necessary to restore surface areas outside the “Critical Area Limits” as shown on the Plans where pavement has been removed or where excavation has occurred in construction of storm, sewer, and side sewers, pavement, sidewalks and curb ramps. Payment for “Landscape Restoration” shall be full pay for all materials, labor, tools, equipment and supplies necessary for complete restoration and necessary for weed control within planting areas, seeding, fertilizing and mulching, soil amendment, installation of bark or wood chip mulch, installation of topsoil, planting area preparation, fine grading, planting, cultivating, and clean-up for the particular items called for in the Plans until the physical completion date of the contract. Any restoration needed due to damage or disturbance caused by Contractor beyond the limits of work shall be performed at the Contractor’s expense. Payment for “Plant Selection ___” shall be covered under separate bid items.

“Root Barrier – 18 In.”, per linear foot.

The unit contract price per linear foot for “Root Barrier – 18 In.” shall be full pay for all labor, tools, materials, and equipment necessary to furnish the materials, install, and place the root barrier as shown in the Plans.

“Tree Watering Bag”, per each.

The unit contract price per each for “Tree Watering Bag” shall be full pay for furnishing and installing the bags where shown on plans.

END OF SECTION
8-03  IRRIGATION SYSTEMS
(*******)

8-03.1 Description
This section is supplemented with the following:

Work involves partial demolition and restoration of existing irrigation system.

8-03.2 Materials
This section is supplemented with the following:

The contractor shall replace and restore all equipment required to provide a fully functioning irrigation system within the area shown in the Plans and as required to reconnect the adjacent Community Garden water supply. That irrigation equipment shall include, but not be limited to:

- Schedule 40 and schedule 80 mainline pipe
- Polyvinyl chloride (PVC) schedule 40 pipe and fittings for solvent welded irrigation laterals. Size pipe so that water flowing within pipes does not exceed 5 feet per second.
- Plasticized aluminum pipe location identification direct-bury tape
- Schedule 40 steel triple swing joints using schedule 80 PVC threaded fittings
- Irrigation sleeves under any paved areas size with the internal diameter twice combined outer diameters of the pipes within
- Existing double check backflow prevention device with Certification of proper function
- Pressure reducing valves if required for proper sprinkler function
- Manual valves
- Pop-up sprinkler heads with built-in pressure regulation, matched precipitation rate, flow adjustment screws, and screens under nozzles
- Automatic control valves normally closed
- Control wire

Salvaged equipment can be reused only with approval of Engineer. Reuse of backflow prevention equipment can only occur if equipment meets current local agency standards.

8-03.3 Construction Requirements
This section is supplemented with the following:

The Contractor shall restore the irrigation system to full function in the area shown in the plans and water supply shall be restored to the adjacent garden irrigation system.

8-03.3(1) Layout of Irrigation System
This section is supplemented with the following:

Restoration of the system shall include preparation and submittal of an irrigation restoration work plan for approval of Engineer prior to start of demolition work in the area. The plan shall include the following:

- Documentation of all existing irrigation equipment locations and layout showing irrigation equipment that will be removed as part of the project.
• Restoration design shall show locations for sprinkler heads, piping, valves, and sleeve locations to irrigate planting and lawn areas and to reconnect supply lines to the adjacent gardens.

Irrigation heads shall be laid out with head-to-head coverage such that 90 percent of the diameter distance of the sprinkler heads throw for the irrigation area. Sprinkler heads shall be laid out to limit overspray to paved areas and other areas where irrigation is not desired to not exceed 5 percent of the total irrigation system volumetric flow.

8-03.4 Vacant
This section, including title, is replaced with the following:

8-03.4 Measurement

No specific unit of measure will apply to the lump sum item “Restoration of Irrigation System”.

8-03.5 Payment
This section is replaced with the following:

“Restoration of Irrigation System”, lump sum.

All costs for furnishing and installing irrigation system equipment and components where indicated and as detailed in the Plans, all costs of initial inspections and tests performed on cross connection control devices and electrical wire testing during the life of the Contract and As Built Plans shall be included in the lump sum price for the complete irrigation system as shown in the Plans or as otherwise approved by the Engineer.

As the irrigation system is installed, the payment schedule will be as follows:

Payment will be made in proportion to the amount of Work performed up to 10 percent of the unit Contract price for restoration of irrigation system when the irrigation restoration work plan is submitted and approved. Payment shall be increased to 90 percent of the unit Contract price for restoration of irrigation system when the irrigation system is completed, tested, inspected, and fully operational. Payment shall be increased to 100 percent of the unit Contract price upon completion and acceptance of initial planting and submittal of As Built Plans.
8-04 CURBS, GUTTERS, AND SPILLWAYS
(******)

8-04.3 Construction Requirements

8-04.3(1) Cement Concrete Curbs, Gutters, and Spillways

The first paragraph is revised to read:

Cement concrete curb, curb and gutters, gutters, and spillways shall be constructed with air entrained concrete Class 3000 conforming to the requirements of Section 6-02.

Section 8-04.3 Construction Requirements is supplemented with the following new section:

8-04.3(6) Cold Weather Work

The following additional requirements for placing concrete shall be in effect from November 1 to April 1:

- The Engineer shall be notified at least 24 hours prior to placement of concrete.
- All concrete placement shall be completed no later than 2:00 p.m. each day.
- Where forms have been placed and the subgrade has been subjected to frost, no concrete shall be placed until the ground is completely thawed. At that time, the forms shall be adjusted and subgrade repaired as determined by the Engineer.

END OF SECTION
8-06  CEMENT CONCRETE DRIVEWAY ENTRANCES
(*****)

8-06.3 Construction Requirements
The first paragraph is revised to read:
Cement concrete driveway approaches shall be constructed with Class 4000 concrete conforming to the requirements of Section 6-02. Contractor shall utilize high early strength concrete as necessary to open driveways as quickly as possible following concrete pour.

This section is supplemented with the following sub-section:

8-06.3(1) Cold Weather Work
The following additional requirements for placing concrete shall be in effect from November 1 to April 1:
- The Engineer shall be notified at least 24 hours prior to placement of concrete.
- All concrete placement shall be completed no later than 2:00 p.m. each day.
- Where forms have been placed and the subgrade has been subjected to frost, no concrete shall be placed until the ground is completely thawed. At that time, the forms shall be adjusted and subgrade repaired as determined by the Engineer.

8-06.5 Payment
The third paragraph is revised to read:
Excavation required for the construction of the driveway entrance, including costs associated with excavating such as haul and disposal, shall be included in the unit Contract price for “Cement Conc. Driveway Entrance Type__” regardless of depth.

END OF SECTION
8-13  MONUMENT CASES
(March 17, 2003 Tacoma GSP)

This section is revised to read:

8-13  MONUMENTS

8-13.1 Description

This Work shall consist of constructing monuments in accordance with the Standard Plan and these Specifications, in conformity with the lines and locations shown in the Plans or as staked by the Engineer.

8-13.2 Materials

Concrete shall be Class 3000 in accordance with the requirements of Section 6-02. ‘Ready Mix’ bag concrete shall not be used.

Bronze markers will be supplied by the Contracting Agency on City funded projects.

8-13.3 Construction Requirements

The Contractor shall construct the poured monument in accordance with the City of Tacoma Standard Plan SU-01.

8-13.4 Measurement

Measurement of the poured monument will be per each.

8-13.5 Payment

Payment will be made for the following Bid item when included in the Proposal:

“Poured Monument”, per each.

The unit Contract price per each for “Poured Monument” shall be full pay for all labor, equipment, and materials required to furnish and install the monument, including the removal of existing monuments and necessary pavement removal to accommodate the installation in accordance with the standard plan and specifications.

END OF SECTION
8-14 CEMENT CONCRETE SIDEWALKS
(******)

8-14.1 Description
This section supplemented with the following:

This Work consists of constructing Garden Walks in accordance with the details shown
in the Plans and these Specifications and in conformity to the lines and grades shown in
the Plans or as established by the Engineer.

8-14.3 Construction Requirements

8-14.3(3) Placing and Finishing Concrete
The fourth paragraph is revised to read:

Curb ramps shall be of the type specified in the Plans. The detectable warning pattern
shall have the truncated dome shape shown in the Standard Plans.

8-14.3(4) Curing
The second sentence is revised to read:

Curing shall be in accordance with Section 5-05.3(13).

Section 8-14.3 is supplemented with the following new section:

8-14.3(6) Cold Weather Work
The following additional requirements for placing concrete shall be in effect from
November 1 to April 1:

- The Engineer shall be notified at least 24 hours prior to placement of concrete.
- All concrete placement shall be completed no later than 2:00 p.m. each day.
- Where forms have been placed and the subgrade has been subjected to frost, no
cement concrete shall be placed until the ground is completely thawed. At that time, the
forms shall be adjusted and subgrade repaired as determined by the Engineer.

8-14.4 Measurement
Section 8-14.4 is supplemented with the following:

Detectable warning surfaces will not be measured separately for payment.

Garden walks will be measured by the square yard of finished surface.

8-14.5 Payment
The sixth paragraph is revised to read:

Excavation required for the construction of the sidewalk, garden walk or curb ramp,
including costs associated with excavating such as haul and disposal, shall be included
in the unit contract price for “Garden Walk”, “Cement Conc. Sidewalk” and/or “Cement
Conc. Curb Ramp Type ___” regardless of depth.
Section 8-14.5 is supplemented with the following:

No payment will be made for detectable warning surfaces called for in the plans and/or standard plans. Payment for detectable warning surfaces shall be included in other related bid items included in the proposal.

“Garden Walk”, per square yard.

The unit Contract price per square yard for “Garden Walk” shall be full pay for installing the garden walk as specified.

END OF SECTION
8-15 RIP RAP

(******)

8-15.1 Description
Section 8-15.1 is supplemented with the following:

This work consists of furnishing and placing trail border cobble beyond that which is removed and replaced from the existing trail as shown on the Plans.

8-15.2 Materials
Section 8-15.2 is supplemented with the following:

Trail Border Cobble shall be in accordance with Section 9-03.11(2) Streambed Cobbles – 8 In.

8-15.4 Measurement
Section 8-15.4 is supplemented with the following:

Measurement for “Trail Border Cobble” will be by the cubic yard of material actually placed.

8-15.5 Payment
Section 8-15.5 is supplemented with the following:

“Trail Border Cobble”, per cubic yard.

The unit contract price per cubic yard for “Trail Border Cobble” shall be full pay for all labor, tools, material, and equipment necessary to place streambed cobbles along trail border as shown on the Plans.

Pay for removing, retaining and replacing existing trail border material shall be paid per Section 2-02 and 8-02.

END OF SECTION
8-21 PERMANENT SIGNING
(******)

8-21.1 Description
Section 8-21.1 is supplemented with the following:
The Work shall include removing existing signs and posts, installing new signs and posts, and re-installing existing signs in accordance with the Plans and as directed by the Engineer.

8-21.5 Payment
Section 8-21.5 is supplemented with the following:
The lump sum contract price for “Permanent Signing” shall include all costs for removal of existing signs and posts, installation of new signs and posts, and re-installation of existing signs.

END OF SECTION
8-22 PAVEMENT MARKING

(******)

8-22.2 Materials
This section is supplemented with the following:

“Plastic Crosswalk Line” shall be hot applied thermoplastic. The applied markings shall be very durable, oil and grease impervious, and provide immediate and continuing retro-reflectivity meeting the requirements of Section 9-34.3(2).

8-22.3 Construction Requirements

8-22.3(3) Marking Application

8-22.3(3)E Installation
This section is supplemented with the following for applying Type B material:

Effective Performance Life: When properly applied, in accordance with manufacturer’s instructions, the preformed marking materials shall be neat and durable. The markings shall remain skid resistant and show no lifting, shrinkage, tearing, roll back, or other signs of poor adhesion.

Packaging: The flexible preformed marking material, for use as transverse or bike symbols as well as legends, shall be available in flat form material up to a maximum of 2-foot width by 4-foot length. The material shall be packed in suitable cartons clearly labeled for ease of identifying the contents. Packaging shall not use plastic liners within to separate material from itself. Product packaging shall identify part number and mil thickness.

Material Replacement Provisions: Any properly applied preformed marking materials that shall smear or soften independent of pavement movement or condition within a period of one year from date of application shall be replaced by the supplier.

Installation: The preformed marking materials shall be applied in accordance with the manufacturer’s recommendations on clean and dry surfaces. New Portland concrete cement surfaces must be sandblasted to entirely remove curing compound. Marking configuration shall be in accordance with the “Manual on Uniform Traffic Control Devices,” where applicable.

New Surfaces: Preformed marking materials specified for newly paved asphalt road surfaces shall be capable of being applied as the original permanent marking on the day the surface is paved.

Fusion: The preformed marking materials shall be fusible to the pavement by means of a propane torch recommended by the manufacturer.

Technical Services: The supplier shall provide technical services as may be required.
8-22.3(4) Tolerances for Lines
The allowable tolerance for “Length of Line” is revised to read:

Length of Line: The longitudinal accumulative error within a 32-foot length of skip stripe shall not exceed plus or minus 1 inch.

8-22.4 Measurement
The last sentence of the sixth paragraph is revised to read:

Crosswalk lines will be measured by the linear foot of marking installed.

8-22.5 Payment
This section is supplemented with the following:

“Plastic Crosswalk Line”, per linear foot.
Add the following new section:

8-30 BOLLARDS
(******)

8-30.1 Description

This work shall consist of furnishing and installing removable bollards in accordance with the Plans, Standard Plans, and these Specifications, at the locations shown in the Plans or as staked by the Engineer.

8-30.3 Construction Requirements

Bollards shall be constructed in accordance with the Standard Plans.

Bollards shall not vary more than 1/2 inch in 30 inches from a vertical plane.

Bollard posts and the exposed parts of the base assembly shall be painted in accordance with Section 6-07.3(11) for galvanized surfaces. The top coat shall match SAE AMS Standard 595, Color No. 33538 Traffic Signal Yellow.

8-30.4 Measurement

Measurement for removable bollards will be by the unit for each type of bollard furnished and installed.

8-30.5 Payment

Payment will be made for the following bid items when included in the proposal:

“Removable Bollard”, per each.

END OF SECTION
9-03 AGGREGATES
(September 20, 2018 Tacoma GSP)

9-03.1 Aggregates for Concrete
The title of Section 9-03.1 is revised to read as follows:

9-03.1 Aggregates for Portland Cement Concrete

9-03.1(1) General Requirements
(June 16, 2016 Tacoma GSP)
The seventh paragraph is deleted.

9-03.21 Recycled Material

9-03.21(1) General Requirements
(Jun 16, 2016 Tacoma GSP)
This section is supplemented with the following:

Recycled materials will only be permitted upon approval of the Engineer. Recycled concrete shall not be permitted for use as pipe zone backfill, backfill above pipe zone, and extra excavation area backfill material.

END OF SECTION
**9-14 EROSION CONTROL AND ROADSIDE PLANTING**

(******)

9-14.2 Topsoil

9-14.2(1) Topsoil Type A

*This section is supplemented with the following:*

Topsoil Type A shall meet the following:

<table>
<thead>
<tr>
<th>Component</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td>greater than 0.05 mm to less than 2mm – 30-40% by volume</td>
</tr>
<tr>
<td>Compost</td>
<td>50% by volume</td>
</tr>
<tr>
<td>Silt</td>
<td>greater than 0.002 mm to less than 0.05 mm - maximum of 20%¹</td>
</tr>
<tr>
<td>Clay</td>
<td>less than 0.002 mm - maximum of 10%¹</td>
</tr>
<tr>
<td>Organic Content</td>
<td>Percent of dry weight – 20% Minimum</td>
</tr>
<tr>
<td>Acidity (pH)</td>
<td>5.5 to 7.5</td>
</tr>
</tbody>
</table>

¹ Clay and Silt combined - no greater than 20%

The Contractor shall send a minimum of one representative sample of Topsoil Type A to an approved testing laboratory for fertility testing analysis 30 days prior to use on the project site. All testing shall be done in accordance with the current version of the Methods of Soil Analysis published by the Soil Science Society of America. The soil fertility test analysis and report shall include the following:

- **Extractable analysis**: nitrate nitrogen, ammonium nitrogen, phosphorus, potassium, calcium, magnesium, copper, zinc, manganese and iron.
- **Saturation extract values**: calcium, magnesium, potassium, sodium, boron, sulfate, pH, lime content, salinity and sodium adsorption ratio (SAR).

The Contractor shall be responsible for adding fertilizers and additives as recommended by the testing laboratory reports. All cost associated with fertility testing and adding fertilizers and additives to the topsoil shall be the responsibility of the Contractor.

**END OF SECTION**
9-28 SIGNING MATERIALS AND FABRICATION
(April 1, 2012 Tacoma GSP)

9-28.1 General

The second sentence of the first paragraph is hereby revised to read:

Permanent signs which measure 36 inches or less on a side and are to be mounted on a single post shall be constructed of single 0.080-inch aluminum panels.

The third sentence of the first paragraph is hereby revised to read:

Sign overlay panels shall be 0.050-inch aluminum panels.

9-28.9 Fiberglass Reinforced Plastic Signs

This section is deleted in its entirety.

END OF SECTION

END OF SPECIAL PROVISIONS
APPENDIX A

CITY OF TACOMA

AND

WSDOT STANDARD PLANS
NOTES:
1. The contractor will provide necessary control points required during preliminary spotting for striping, stop lines, legends, crosswalks, traffic arrows, and signs. Crosswalk bars typically align with lane lines and mid-lane, placed to avoid wheel path. Crosswalk bars shall be parallel to the lanes’ direction of travel.
2. Partial length crosswalk bars are not allowed. A single bar, as opposed to the double bar pattern may be used when space is limited adjacent to gutter, curb or intersecting crosswalk.
3. Typical stop line width is 12”.
4. Stop line placement may require adjustment to account for signal detection equipment.
NOTES:
1. Planting includes removal of stakes one year after installation.
2. Shape soil surface to provide 4' dia watering ring.
3. Tree clearance shall be per STD PLAN LS-02.
4. See STD PLAN LS-03 for tree well dimension detail.
5. Root barriers shall be an injection molded or extruded modular component made of high density polypropylene or polyethylene plastic. 18" depth x 10' length root barrier is required along edge of roadways, curbs, driveways, trails, sidewalks, or other structures where root ball is within 4 feet. Install root barrier for newly planted trees only.

MULCH TREE PIT MIN 5'-0" LENGTH AND FULL PLANTING STRIP WIDTH BETWEEN CURB AND SIDEWALK. FOR PLANTING STRIPS LESS THAN 6'-0" WIDE; PROVIDE 5'-0" DIA MULCH RING, FOR PLANTING STRIPS WIDER THAN 6'-0".

"CHAINLOCK" OR EQUAL TREE TIE MATERIAL (1" SEID) NAIL OR STAPLE TREE TIE MATERIAL TO STAKE TO HOLD VERTICALLY. LOOP EACH TIE AROUND HALF TREE LOOSELY TO PROVIDE 1" SLACK FOR TRUNK GROWTH

3'-4" (SETTLED) ARBORIST WOOD CHIP MULCH DEPTH, TAPERED AT TRUNK

TOP OF ROOT BARRIER 1" ABOVE FINISH GRADE

18" DEEP LINEAR ROOT BARRIER PLACE PRIOR TO PLACEMENT OF NEW PAVEMENT TO PREVENT UNDERMINING

ROUGHEN SIDES OF PLANTING PIT TO MAXIMIZE EXCAVATED AREA WITHOUT UNDERMINING ADJACENT PAVING/CURB

REMOVE ALL WIRE, STRINGS AND BURLAP MATERIAL FROM ROOTBALL

UNDISTURBED SUBGRADE (PROVIDES FIRM BASE SO ROOTBALL WILL NOT SINK)

MIN WIDTH OF TREE PIT = 2 TIMES ROOTBALL DIAMETER

MULCH AREA TO BE CLEAR OF GRASS, WEEDS ETC.

TREE TIE ATTACHMENT TO TRUNK NO GREATER THAN 1/3 TREE HEIGHT

STAKE TREE WITH (2) TREATED 2'0 ROT RESISTANT DWELLED WOOD TREE STAKES 6'-0" TO 8'-0" IN LENGTH LOCATED OUTSIDE OF ROOT MASS

SET TOP OF ROOT CROWN 2" ABOVE ADJACENT CURB & SIDEWALK GRADE

DRIVE STAKE OUTSIDE OF ROOT MASS EDGE

PLANTING SOIL LEVEL 1" BELOW ADJACENT PAVED SURFACE

STD. CURB AND GUTTER

TREE PIT DEPTH = ROOTBALL DEPTH (MEASURE BEFORE DIGGING TO AVOID OVEREXCAVATION)

DRIVE STAKES 6" TO 1'-0" INTO UNDISTURBED SOIL BELOW ROOTBALL

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

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STREET TREE PLANTING

STANDARD PLAN NO. LS-01
NOTES:

1. Street trees shall have a trunk free of branches up to the height listed below when planted:
   A. Small trees, whose mature height is 15 to 25 feet, shall have a trunk free of branches up to a minimum of 4 feet.
   B. Conifer/evergreen trees shall have a trunk free of branches up to a minimum of 2 feet.
   C. Trees with ascending branches (examples - Ulmus Americana and Zelkova Serrata) may be branched 1 foot or More below the standard height and still provide proper clearance when planted.
   D. All other trees shall have a trunk free of branches up to a minimum of 6 feet.

2. Street trees shall not be less than 1.5 inches in caliper for broadleaf trees or 6 feet in height for evergreen/conifers.

3. For minimum unpaved planting area dimensions refer to tree well dimension detail, STANDARD PLAN NO. LS-03.

4. The accessible portion of the sidewalk must be a minimum of 5 feet and be free of obstructions.

MINIMUM TREE SETBACKS (AT PLANTING):

Centerline of tree to centerline of:
Street corner (extension of outside face of curb) 25'-0"
Stop or yield sign 25'-0"
Utility pole 15'-0"
Other traffic control sign 5'-0"

Centerline of tree to edge of:
Driveway 5'-0"
Face of curb 2'-0"
Pavement 2'-0"

Edge of tree to edge of:
Utility worker access lids 5'-0"
Gas shutoff valves 5'-0"
Fire hydrant & hydrant branch 10'-0"
Water meter, water service & water mains 5'-0"
Storm inlet, curb, & manhole 5'-0"
Storm/sanitary service connections & mains 5'-0"

MINIMUM TREE CLEARANCES (AT MATURITY):

Lowest branch to surface of:
Streets 14'-0"
Sidewalks 8'-0"

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STREET TREE CLEARANCE
STANDARD PLAN NO. LS-02
**TREE SIZE:**

Trees are categorized as small, medium or large based on the canopy factor, which takes into account the trees' mature height, crown spread, and growth rate. The following formula shall be used to determine the canopy factor:

\[(\text{MATURE HEIGHT IN FEET}) \times (\text{MATURE WIDTH IN FEET}) \times (\text{GROWTH RATE}) \times (0.01) = \text{CANOPY FACTOR}\]

The growth rate number is 1 for slow-growing trees, 2 for moderately growing trees, and 3 for fast-growing trees.

Tree size categories are as follows:

A. LARGE TREES = Canopy factor greater than 90
B. MEDIUM TREES = Canopy factor from 40-90
C. SMALL TREES = Canopy factor less than 40

---

**SMALL TREES**

24 SQUARE FEET MIN UNPAVED PLANTING AREA

**MEDIUM TREES**

40 SQUARE FEET MIN UNPAVED PLANTING AREA

**LARGE TREES**

60 SQUARE FEET MIN UNPAVED PLANTING AREA
B&B OR CONTAINERIZED SHRUB (TYP)

SET ALL PLANTS AT NURSERY LEVEL

3"-4" (SETTLED) ARBORIST WOOD CHIP
MULCH DEPTH, TAPERED AT TRUNK

REMOVE ALL WIRE, STRINGS, CONTAINERS AND BURLAP MATERIAL FROM ROOT BALL

FINISH GRADE

REUSED AND AMENDED SITE SOIL. SEE STD PLAN NO. LS-12 SOIL AMENDMENT AND DEPTH

UNDISTURBED SUBGRADE (PROVIDES FIRM BASE SO ROOTBALL WILL NOT SINK)

MIN WIDTH OF PIT = 2 TIMES ROOTBALL DIAMETER

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DEPARTMENT OF PUBLIC WORKS

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SHRUB PLANTING

CITY ENGINEER

DATE

STANDARD PLAN NO. LS-05
TYPICAL GROUNDCOVER PLANTED AT NURSERY LEVEL FINISH GRADE
MIN 2" (SETTLED) ARBORIST WOOD CHIP MULCH, DEPTH TAPERED UNDER GROUNDCOVER
AMENDED SOIL, SEE STD PLAN NO. LS-12 SOIL AMENDMENT AND DEPTH SCARIFIED SUBGRADE

ELEVATION

SPECIFIED SPACING
SEE LANDSCAPE PLAN

PLAN

SPECIFIED SPACING
SEE LANDSCAPE PLAN

SPECIFIED SPACING
SEE LANDSCAPE PLAN

<table>
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<tr>
<th>PLANT SPACING (INCHES)</th>
<th>PLANTS NEEDED TO FILL 100 SF</th>
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<tr>
<td>8</td>
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<td>36</td>
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<td>48</td>
<td>7</td>
</tr>
</tbody>
</table>

TYPICAL PLANT QUANTITY NEEDED TO FILL 100 SF

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

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GROUNDCOVER PLANTING
STANDARD PLAN NO. LS-06

CITY ENGINEER DATE
**ZONE A (CRITICAL ROOT ZONE)**
The Critical Root Zone is the area under a tree measuring 1 foot of radius per 1 inch of diameter at breast height (DBH) from the trunk outwards and 24 inches in depth. For example: for a 10 inch dbh tree, the Critical Root Zone is located at least 10 feet out from the trunk and 24 inches deep.

**RESTRICTIONS**
1. No disturbance allowed without site-specific inspection and approval of methods to minimize root damage.
2. If roots larger than 2” in dia. are encountered, inspection and approval is required before proceeding trenching/excavation work.
3. Tunneling is required to install lines 3’-0” below grade or deeper.

**ZONE B (DRIP LINE)**
The Drip Line is the area below the tree in which the boundary is designated by the edge of the tree’s crown.

**RESTRICTIONS**
1. Operation of heavy equipment and/or stockpiling of materials subject to approval. *Surface protection measures required*
2. Trenching permitted as follows:
   - Excavation by hand or with a hand-driven trencher may be required
   - Minimize trench width to the extent possible
   - No disturbance permitted within ZONE A
   - Maintain 2/3 or more of ZONE B in an undisturbed condition
3. Tunneling may be required for trenches deeper than 3’-0”

**ZONE C (FEEDER ROOT ZONE)**
The Feeder Root Zone is the area under a tree measuring 2 feet of radius per 1 inch of DBH from the trunk outwards and 24 inches in depth. For example: for a ten inch diameter tree, the Critical Root Zone is located at least 20 feet out from the trunk and 24 inches deep.

**RESTRICTIONS**
1. Operation of heavy equipment and/or stockpiling of materials subject to approval. *Surface protection measures required*
2. Trenching permitted as follows:
   - Excavation by hand or WITH hand-driven trencher maybe required
   - Minimize trench width to the extent possible
   - Maintain 2/3 or more of ZONE C in an undisturbed condition

**SURFACE PROTECTION MEASURES**
1. Wood chip mulch layer, 6”-12” depth; or
2. 4” wood chip mulch layer under 3/4” plywood; or
3. 4” gravel over staked geotextile fabric
4. 4” wood chip mulch layer under steel plates;
5. 4” wood chip mulch layer under logging road mats

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**CITY OF TACOMA**
**DEPARTMENT OF PUBLIC WORKS**

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**CITY ENGINEER**

**DATE**

**TREE PROTECTION DURING CONSTRUCTION**

**STANDARD PLAN NO.**

LS-08
TREE PROTECTION ZONE (TPZ)
The Tree Protection Zone is an arborist defined area surrounding the trunk intended to protect the roots and soil to ensure future tree health and safety.

The location of the Tree Protection Zone is at the edge of the Critical Root Zone OR Drip Line, whichever is greater, or area as defined by the project's arborist.

For Critical Root Zone and Drip Line measurements see TREE PROTECTION DURING CONSTRUCTION STANDARD PLAN NO. LS-08.

TREE PROTECTION FENCING

1. Erect readily visible six-foot (6'-0") high chain link fencing at the edge of the Tree Protection Zone, and at the boundary of any open space tracts or conservation easements that abut the construction site except where, due to space restrictions, a specific distance is specified by the project's arborist.

2. Fencing shall be secured 6 foot metal posts with movable footings located above ground. metal posts shall not be more than 10 feet apart.

3. Fencing shall be flush with the initial undisturbed grade.

4. Signs shall be attached to the fencing stating that the tree is designated for protection and the area inside the fencing is a TPZ, which is not to be disturbed unless prior approval has been obtained from the city and/or the project's arborist.

5. Maintain the fencing in place until the city authorizes removal or a final certificate of occupancy is issued, whichever occurs first.

6. Ensure that any landscaping done in the TPZ, subsequent to the removal of the fencing, shall be accomplished with light machinery or hand labor.

7. No construction activity shall occur within the TPZ, including but not limited to:
   - Dumping or storage of materials such as building supplies, soil, waste items, and
   - Storage of vehicles or equipment
NOTES:
All soil areas disturbed or compacted during construction, and not covered by buildings or pavement, shall be amended with compost as described below.

1. Subsoil should be scarified (loosened) 4 inches below amended layer, to produce 12-inch depth of un-compacted soil, except where scarification would damage tree roots or as determined by the engineer.

2. Compost shall be tilled in to 8 inch depth into existing soil, or place 8 inches of compost-amended soil, per soil specification.

3. Turf areas shall receive 1.75 inches of compost tilled in to 8-inch depth, or may substitute 8" of imported soil containing 20-25% compost by volume. Then plant grass seed or sod per specification.

4. Planting beds shall receive 3 inches of compost tilled in to 8-inch depth, or may substitute 8" of imported soil containing 35-40% compost by volume. Mulch after planting, with 2-4 inches of arborist wood chip mulch or approved equal.

5. SETBACKS: To prevent uneven settling, do not compost-amend soils within 3 feet of utility infrastructures (poles, vaults, meters etc.) within one foot of pavement edge, curbs and sidewalks soil should be compacted to approximately 90% proctor to ensure a firm surface.

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

APPROVED FOR PUBLICATION

SOIL AMENDMENT AND DEPTH

STANDARD PLAN NO. LS-12
NOTES:

1. Concrete base shall be poured in place. Hand mixed concrete is prohibited. Concrete base need not be formed.

2. Notice to surveyors: any monument set in the City of Tacoma must bear the land surveyor number of the surveyor setting the monument. Monuments set as part of an approved plat are exempt.

3. The surveyor is to supply the City of Tacoma with a copy of the calculations used to determine all monument positions before the monuments are set.

4. Brass marker for City of Tacoma funded projects will be supplied by the City, all other brass markers to be supplied by the contractor.

5. Monument must be magnetically locatable.

6. Prior to removing or destroying a monument, the surveyor or engineer shall apply for a permit from the Department of Natural Resources in accordance with WAC 332-120.
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 3/4" vertical lip at driveway entrance.

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Cement Concrete Traffic Curb & Gutter

Integral Cement Concrete Traffic Curb

Cement Concrete Valley Gutter

Type "C" Mountable Cement Concrete Curb & Gutter

Type "D" Mountable Cement Concrete Curb & Gutter

NOTES:

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.

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REVIEWS BY: GMS

PUBLIC WORKS

ENVIRONMENTAL SERVICES

TACOMA POWER

TACOMA WATER

APPROVED FOR PUBLICATION

CITY ENGINEER

DATE

CITY OF TACOMA

CEMENT CONCRETE CURB AND GUTTER

STANDARD PLAN NO. SU-03
NOTE:

Flush with gutter pan at curb ramp entrance or ¾" vertical lip at driveway entrance.

Type "C" Mountable Integral Cement Concrete Curb

Type "D" Mountable Integral Cement Concrete Curb

HMA Wedge Curb Downhill Side of Full Street Warp

Cement Concrete Pedestrian Curb

Cement Concrete Traffic Curb

NOTES:

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 ¾" 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 ¾" crushed surfacing top course.

Reviewed by GMS

Public Works

Environmental Services

Tacoma Power

Tacoma Water

Approved for Publication

City Engineer

Date

City of Tacoma

Cement Concrete Curb and Gutter and Asphalt Wedge Curb

Standard Plan No. SU-03A
NOTES:
1. Sidewalks shall be designed and constructed in accordance with 2010 ADA Standards, 28 CFR, Part 35 and as supplemented by the Public Right of Way Accessibility Guidelines (PROWAG). City of Tacoma prefers sidewalk cross slopes to be designed to a maximum of 1.5% and a minimum of 1.0%.
2. When placing walk adjacent to existing curb and gutter, curb and gutter will be repaired as necessary before placing concrete forms for walk.
3. Stakeing is required where no curb is present.
4. Thickened edge shall be constructed using cement concrete on all radii. All other locations shall be backfilled and compacted.
5. Combination walk shall be 7 min. on all commercial sites and arterial streets. Combination walk shall be a minimum of 9' on non arterial streets. Dimensions are from back of curb to back of walk. See contract plans for width and placement of sidewalk.
6. All expansion joints shall be full depth with 3/8" premolded joint filler.
7. All joints shall be cleaned and edged. External edges shall be 3/8" radius. Internal joints shall be 1/2" radius.
8. All soft and yielding foundation material shall be removed and replaced with crushed surfacing top course (CSTC) per Section 9-03.9(3) of the WSDOT Standard Specifications.
9. All sidewalk shall be replaced to the nearest expansion or contraction joint. All joints shall be saw cut full depth prior to restoration and 3/8" expansion joint installed. 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.
10. For sidewalks within the North Slope Historical District area use Standard Plan HD-NS03. See Standard Plan HD-NS01 for North Slope Historic District site map.

TOP SURFACE SHALL BE BROOMED IN THE SAME DIRECTION AS THE EXPANSION JOINT

4" SHINER AROUND 15' PANEL 3/4" EXPANSION JOINT

3/4" EXPANSION JOINT TO MATCH CURB JOINTS NOT TO EXCEED 15'

CITY OF TACOMA
CEMENT CONCRETE SIDEWALK
STANDARD PLAN NO. SU-04

REVIEWED BY
DCS
PUBLIC WORKS
N/A
TACOMA POWER

ENVIROMENTAL SERVICES
N/A
TACOMA WATER

APPROVED FOR PUBLICATION
CITY ENGINEER
DATE

STANDARD PLAN NO. SU-03 OR AS SPECIFIED IN PLANS
CEMENT CONCRETE TRAFFIC CURB & GUTTER SEE STANDARD PLAN NO. SU-04 OR AS SPECIFIED IN PLANS
GENERAL NOTES:

1. Provide a separate directional curb ramp for each marked or unmarked crosswalk. Directional curb ramps are preferred over 45 degree ramps. Curb ramp location shall be placed within the width of the associated crosswalk, or as shown on the Contract Plans. The curb ramp centerline shall be parallel to the direction of the crossing. Forty-five (45) degree curb ramps shall be installed only after approval by the City’s ADA Coordinator or the Street Operations Division Manager.

2. Where “GRADE BREAK” is called out, the entire length of the grade break between the two adjacent surface planes shall be flush and perpendicular to the direction of travel. There shall be no vertical discontinuity between the base of curb ramp and gutter line.

3. Do not place grates, junction boxes, access covers, or other appurtenances in front of the curb ramp or on any part of the curb ramp or turning space. Placement on or in front of ramp flares is allowed.


5. A thickened edge shall be constructed to full depth of adjacent curb along entire curb radius.

6. For sidewalk and curb ramps within the North Slope Historical District area see North Slope Historic District Site Map, HD-NS01. Apply Lamp Black 1lb. per cubic yard of cement concrete or as required for discoloration in accordance with ASTM D209-81 Standard Specifications for Lamp Black pigment.

7. The running slope of a curb ramp shall not exceed 8.3% but does not require the ramp length to exceed 15 feet to avoid chasing the slope indefinitely when connecting to steep grades.

8. Curb ramp, turning space and flares shall receive a broom finish, see WSDOT Standard Specifications 8-14.

9. Return curbs, (pedestrian curbs), may only be used with landscaping or railing. Return curbs, (pedestrian curbs), shall not be used to prevent pedestrians from crossing streets.

10. All curb ramp designs shall be stamped by a Washington State licensed Professional Engineer. If meeting the current design standards is not possible, curb ramps shall be constructed to the maximum extent feasible as indicated by an Engineer's note on the stamped drawings. Rationale supporting the design variance shall be provided by the Engineer and shall include a description of the scope of work, the site-specific factors affecting compliance, and the measures implemented to improve compliance.

11. Pedestrian traffic should be aligned to the receiving curb ramp. The existing curb ramps shall be evaluated using criteria in the City's Curb Ramp Installation Matrix.

12. Consult the City's Curb Ramp Installation Matrix and the Right Of Way Restoration Policy for additional requirements.

13. Conduit for APS equipment shall be installed during curb ramp construction at all signalized intersections and at intersections where signalization is anticipated within the next 6 years. Coordinate with Public Works - Engineering, Traffic Section.

14. A Pedestrian Accessibility Control Plan shall be developed in conjunction with each project-specific Temporary Traffic Control Plan for all work in the ROW.

15. Pedestrian traffic shall NOT be directed behind the stop bar.

16. Curb ramp alignment should be consistent with crosswalk alignment.

17. Curb ramp shall be 5' minimum in width.

18. Catch basins shall be located upstream of curb ramps outside of flare/wing for new construction or when performing storm sewer upgrades.

19. For constructability purposes, the City recommends designing to less than the maximum allowable slopes.
NOTES:
1. The Detectable Warning Surface shall extend the full width of the curb ramp (exclusive of flares) or the turning area.
2. The rows of truncated domes in a Detectable Warning Surface shall be parallel with the direction of wheelchair travel.
4. If a curb is not present, place the Detectable Warning Surface at the edge of the pavement.
5. The Detectable Warning Pattern shall be installed using Vanguard ADA Systems, ADA Solutions, or Armor-Tile "Cast in Place Systems," manufactured by Engineering Plastics Inc., or approved equal. Concrete shall be blocked out as required for the installation of the Detectable Warning Pattern material.
6. The Detectable Warning Pattern area shall be yellow and shall match the color of Federal Standard 595a, color number 33538.

TRUNCATED DOME DETAILS
TRUNCATED DOME SPACING

SECTION DETAIL A-A
TRUNCATED DOME
NOTES:

1. The Detectable Warning Surface shall extend the full width of the curb ramp (exclusive of flares) or the turning space.
2. The edge of the Detectable Warning Surface shall be placed along the back of the curb line unless otherwise noted.
3. The Detectable Warning Surface shall be within 2" (max.) of the edge of the ramp.
4. The rows of truncated domes in the Detectable Warning Surface shall be parallel with the direction of travel.
6. If a curb is not present, place the Detectable Warning Surface at the edge of the pavement.
7. The Detectable Warning Pattern shall be installed using Vanguard ADA Systems, or Armor-Tile "Cast in Place Systems" as manufactured by Engineering Plastics Inc., or approved equal. Concrete shall be blocked out as required for the installation of the Detectable Warning Pattern material. See Standard Plan SU-05G for additional information.
8. The Detectable Warning Pattern area shall be yellow and shall match the color of Federal Standard 595a, Color Number 33538 unless otherwise noted.
NOTES:
1. The clearance between the face of curb and any obstruction, except mail boxes, shall be a minimum of 1'-6". The front of a mail box shall be 6" to 8" from the face of curb.
2. Sidewalk cafes, artwork, poles, ramps, etc., may not reduce the width of the sidewalk to less than 5' for residential streets and 7' for arterial streets and commercial areas, excluding the curb width.
3. All obstructions shall meet requirements for cane detection. See City of Tacoma Design Manual Chapter 12.
4. The following criteria shall only be used in rare circumstance when an obstruction cannot be relocated and does not allow the minimum required sidewalk width:
   a) If the sidewalk is new or replacement construction and the sidewalk cannot meet the minimum clearance requirements due to an existing obstruction then a maximum extent feasible (MEF) is required and shall be included in the Plans. Rational supporting the MEF shall be provided by the Engineer and shall include a description of the scope of work, the site-specific factors affecting compliance, and the measures implemented to improve compliance.
   b) When placing a new obstruction in an existing sidewalk and the minimum clearance requirements cannot be met, a variance shall be submitted and approved by the City's Traffic Section prior to construction.
5. See Tacoma's Design Manual Chapter 8, Pedestrian Facilities, for additional information on Pedestrian Access Routes (PARs).
NOTES:

1. Type 1 access shall be used at driveways where the planting strip width is 5' or greater.

2. Standard Concrete shall be a minimum compressive strength of 3,000 PSI.

3. All joints shall be cleaned & edged. External joints to the driveway shall be 1/2" radius. Internal joints to the driveway shall be 1/4" radius.

4. Driveways wider or narrower than shown on this plan require approval of the Director of Public Works.

5. Standard concrete driveway section shall be a brushed finish in a transverse direction to the center line of driveway.

6. Driveways wider than 20' require a center line expansion joint.

7. All expansion or isolation joints shall be full depth.

8. When trenching through a driveway access:
   a. If driveway is 20' or less in width, a full driveway replacement is required.
   b. If driveway is greater than 20' in width, a minimum 2' wide cut back over undisturbed soil is required and replacement shall extend to the nearest control joint.

9. All joints shall be cut full depth prior to restoration and 3/8" expansion joint installed. Cutting wheel run-out beyond the limits of the opening shall be filled in accordance with WSDOT Standard Specification 5-05.3(3)B for cement concrete surfaces and 5-04.3(5)C for asphalt concrete surfaces.

10. Transition panel from new access to sidewalk shall be a minimum of 5 feet.

11. For driveway entrances within the North Slope Historical District area use Standard Plan HD-NS02. See Standard Plan HD-NS01 for map of Historical District area limits.

12. Permeable surfacing may be allowed for driveway entrances. Refer to Standard Plans PD-01 and PD-02 as applicable. Do not compact subgrade for permeable surfacing and refer to APWA GSP 2-06.3(3) Subgrade for Permeable Pavements. A soils report is required and modeling may be necessary per SWMM BMP L633.


15. A 1-1/4" Ø PVC Sch. 80 Conduit shall be installed as shown, per TMC 10.14.070. Conduit shall be buried 24 inches below finished grade.

NOTE: DESIGNED SECTION REQUIRED FOR PERMEABLE SURFACING. SEE NOTES 12 AND 13.

STANDARD CONCRETE SECTION DETAIL A-A

#4 GRADE 60 REBAR EACH SIDE. 6" ON CENTER. 3" CLEARANCE EACH CONCRETE FACE

¾" LIP WITH ¾" R

¾" EXPANSION JOINT

1/2" EXPANSION JOINT

6" (MIN) RESIDENTIAL
8" (MIN) COMMERCIAL

CRUSHED SURFACING

COMPACTED SUBGRADE

CRUSHED SURFACING TOP COURSE, 2" DEPTH

Roadway Pavement disturbed during construction of driveway shall be restored in accordance with standard plans SU-14 or SU-15.

CITY OF TACOMA
CEMENT CONCRETE
ACCESS
TYPE 1

STANDARD PLAN NO. SU-07

REVIEWED BY
PUBLIC WORKS
NA
TACOMA POWER
ENVIRONMENTAL SERVICES
NA
TACOMA WATER
APPROVED FOR PUBLICATION

CITY ENGINEER
DATE

4/26/10
NOTES:

1. Use the following as a guide of when each Entrance or Access Type should be used:
   1.a. Cement Concrete Driveway Entrances Type 1 (Entrances) or Accesses Type 1 (Accesses) shall be used at driveways where the planting strip is 5' or greater.
   1.b. Cement Concrete Driveway Entrances Type 2 (Entrances) or Access Type 2 (Accesses) shall be used at driveways and alleys where the planting strip is less than 5' wide.
   1.c. Cement Concrete Driveway Entrances Type 3 (Entrances) or Accesses Type 3 (Accesses) shall be used at alleys where the planting strip is 5' wide or greater.

2. Standard Concrete shall be a minimum compressive strength of 3,000 PSI.

3. Concrete Joints:
   3.a. All joints shall be cleaned & edged.
   3.b. All expansion or isolation joints shall be full depth.
   3.c. External joints to the driveway shall be 1/2" radius. Internal joints to the driveway shall be 1/4" radius.
   3.d. All joints shall be saw cut full depth prior to restoration and 3/8" expansion joint installed. Cutting wheel run-out beyond the limits of the opening shall be filled in accordance with WSDOT Standard Specification 6-05.3(8)B for cement concrete surfaces and 6-04.3(5)(C) for asphalt concrete surfaces.

4. Entrances and Accesses wider or narrower than shown on this plan require approval of the Director of Public Works.

5. Entrances and Accesses shall have a brushed finish in a transverse direction to the center line of Entrance or Access.

6. Entrances or Accesses wider than 20' require a center line expansion joint.

7. When trenching through an Entrance or Access:
   7.a. If Entrance or Access is 20' or less in width, full replacement is required.
   7.b. If Entrance or Access is greater than 20' in width, a minimum 2' wide cut back over undisturbed soil is required and replacement shall extend to the nearest control joint.

8. Transition panel from new Entrance or Access to sidewalk shall be a minimum of 5 feet.

9. For Entrances or Accesses within the North Slope Historical District area use Standard Plan HD-NS02. See Standard Plan HD-NS01 for map of Historical District area limits.

10. Permeable surfacing may be allowed for Entrances or Accesses. Refer to Standard Plans PD-01 and PD-02 as applicable. Do not compact subgrade for permeable surfacing and refer to APWA GSP 2-06.3(3) Subgrade for Permeable Pavements. A soils report is required and modeling may be necessary per SWMM BMP L63.


13. A 2" 2 PVC Sch. 80 Pipe with capped ends shall be installed as shown, per TMC 10.14.070. Pipe shall be buried 24 inches below finished grade and have a pull string and location wire per WSDOT 9-29.3(2)A4.

14. Detectable Warning Surface shall be placed at alleys if the ADT is greater than 700, in the downtown area, located near a high pedestrian volume area, or where there are sight distance concerns. The detectable warning pattern, if needed, shall be placed the full width of the sidewalk in accordance with City of Tacoma Standard Plan SU-05A.

15. When an existing entrance or access does not meet current ADA standards as defined by the City of Tacoma's Design Manual, the entire entrance or access shall be replaced to current ADA standards.
FOR SIDEWALK WIDTHS, SEE STANDARD PLAN SU-04 AND CONTRACT PLANS, OR MATCH EXISTING, (TYP.)

EX. SIDEWALK, TYP.

3/8" FULL DEPTH EXPANSION JOINT (TYP.) ISOLATION JOINT FOR PERVIOUS CONCRETE (TYP.)

TRANSITION PANEL, 5' MIN

DRIVEWAY WIDTH NON SINGLE FAMILY RESIDENCE / DUPLEX / TRIPLEX 24' MIN. TO 30' MAX
DRIVEWAY WIDTH SINGLE FAMILY RESIDENCE / DUPLEX / TRIPLEX 14' MIN. TO 20' MAX

TRANSITION PANEL, 5' MIN

2" PIPE, SEE NOTES 12 AND 13 ON SU-07A

#4 GRADE 60 REBAR EACH SIDE, 6" ON CENTER, 3" CLEARANCE EACH CONCRETE FACE

3/4" LIP WITH 3/4" R

3/8" EXPANSION JOINT

VARIABLE

6" (MIN) RESIDENTIAL 8" (MIN) COMMERCIAL

1 - 2% (MAX)

CRUSHED SURFACING

COMPACTED SUBGRADE

CRUSHED SURFACING TOP COURSE, 2" DEPTH

NOTE: DESIGNED SECTION REQUIRED FOR PERMEABLE SURFACING. SEE NOTES 10 AND 11 ON SU-07A.

STANDARD CONCRETE SECTION DETAIL A-A

NTS

REVIEWED BY

APPROVED FOR PUBLICATION

CITY OF TACOMA
CEMENT CONCRETE DRIVEWAY ENTRANCE AND ACCESS TYPE 1

STANDARD PLAN NO. SU-07B

PUBLIC WORKS

ENVIRONMENTAL SERVICES

TACOMA WATER
1/2" GALVANIZED EYE BOLT WI/ WASH AND NUT. RECESS NUT AND PEEN BOLT THREADS.

1/8" MIN. THICKNESS GALVANIZED STEEL. INTERIOR SIDE DIMENSIONS 1/2" GREATER THAN POST DIMENSIONS.

CLASS 3000 CONCRETE

500# MIN. TEST GALVANIZED CHAIN ANCHORED IN CONCRETE
ANCHOR WITH 6"x3/8" STEEL ROD

3/8" MIN. DRAIN PIPE

30" MIN. DRAIN PIPE

NOTES:
1. Timber shall be douglas fir, dense construction grade, and shall be pressure treated.
2. Steel tube shall conform to ASTM A53 or ASTM A53 Grade A.
4. All steel parts shall be galvanized.

REMOVABLE BOLLARD

PAINT TOP 5" WHITE

1" CHAMFER (4 SIDES)

1 1/2"

3/4"

8"x8" S4S x 4'-0"

8"x8" S4S x 5'-6"

3/4"

2 1/2"

3 1/2"

3 1/2"

24"

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

APPROVED FOR PUBLICATION

CITY ENGINEER

BOLLARD DETAILS

STANDARD PLAN NO. SU-12
1. All pavement restoration work shall also meet the requirements of the City of Tacoma's Right of Way Restoration Policy.

2. Temporary Surface Restoration:
   - Arterials, industrial areas and/or roads with bus traffic: Temporary patches shall be compacted and leveled to a minimum of 3-inches of hot-mix asphalt (HMA).
   - Residuals and alleys: Temporary patches shall be compacted and leveled to a minimum of 2-inches of either HMA or cold-mix asphalt. Temporary patches between October 1st and March 31st shall be made with HMA unless otherwise approved.

3. All permanent final patches shall be rectangular in shape and constructed parallel and perpendicular to the road centerline.

4. Where existing pavement defects are in close proximity to the new cut, the inspector may require additional pavement removal to eliminate the pavement defect.

5. The final cut edge of paved surfaces shall be smooth and straight, consistent with grinding or saw cutting devices. No jagged, broken or undermined edges are allowed. 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. Permanent Panel Replacement:
   - Arterials, industrial areas and/or roads with bus traffic:
     100% panel replacement is required for all affected panels. Monolithic curbs will be poured at time of panel replacement.
   - Residential and Alleys: Panels cut greater than ¼ the panel length, width, or total area, including the 2-foot cut back, will require 100% panel replacement. Panels cut less than ¼ the panel length, width, or total area, including the 2-foot cut back will require 50% panel replacement. Three-piece panels are not acceptable and will require 100% panel replacement.

7. For municipal capital improvement projects, cement concrete base pavement shall be in accordance with WSDOT Standard Specification 5-05 for cement concrete pavement. For non-municipal capital improvement projects, concrete shall be a minimum compressive strength of 4,000 PSI.

8. Dowel in accordance with WSDOT Standard Plan A-60.10-00 for arterials, industrial areas, and/or roads with bus traffic. In residential streets the dowel bars may be reduced to 1-inch in diameter. In lieu of dowels, full panel replacement is acceptable.
NOTES:
1. Provide uniform support under barrel and provide pockets in bedding for pipe bells.
2. Hand tamp under haunches.
3. Trench width shall be as specified in Section 2-09.4 of the WSDOT Standard Specifications.
4. Pipe zone backfill and backfill above pipe zone shall meet the material requirements of WSDOT Standard Specification Section 9-03.12(2) for gravel backfill for walls.
5. All trenches shall be compacted in accordance with SU-28.
6. Pipe zone bedding shall meet the material requirements of WSDOT Standard Specification Section 9-03.9(3) for crushedsurfacing top course.
NOTES:

1. For details showing grade ring, ladder, steps, handholds and top slabs, see Standard Plan No. SU-21.

2. Non-reinforced concrete in channel and shelf shall be Class 3000. All precast concrete shall be Class 4000.

3. Rubber gaskets shall be used in tongue and groove joints of pre-cast sections.

4. A flexible pipe-to-manhole connector shall be employed in all connections of rigid and flexible pipes to new precast concrete manholes. The connector shall be "Kor-N-Seal" with "Wedge Korband" manufactured by NPC, Inc., or approved equal.

5. Base reinforcing steel shall be per manufacturer's recommendation.

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SEPARATE CAST IN PLACE BASE

SEPARATE PRECAST BASE

APPROVED FOR PUBLICATION

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

CITY ENGINEER

MANHOLE-TYPE 1
48", 54" AND 60"

STANDARD PLAN NO. SU-17
NOTES:

1. For details showing grade ring, ladder, steps, handholds and top slabs, see Standard Plan No. SU-21.
2. Non-reinforced concrete in channel and shelf shall be Class 3000. All precast concrete shall be Class 4000.
3. Rubber gaskets shall be used in tongue and groove joints of pre-cast sections.
4. A flexible pipe-to-manhole connector shall be employed in all connections of rigid and flexible pipes to new precast concrete manholes. The connector shall be "Kor-N-Seal" with "Wedge Korband" manufactured by NPC, Inc., or approved equal.
5. Base reinforcing steel shall be per manufacturer's recommendation.

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CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

APPROVED FOR PUBLICATION

CITY ENGINEER

MANHOLE-TYPE 2
72" AND GREATER

STANDARD PLAN NO. SU-18
NOTE:
As an acceptable alternate to rebar, wire mesh having a minimum area of 0.12 square inches per foot may be used for adjustment sections.
NOTES:
1. Covers shall have the word "SANITARY" in 2 inch raised letters when used with sanitary sewer installations, or "STORM" when installed with storm sewers. All covers shall have the words "CITY OF TACOMA" in 1-1/2 inch raised letters and the words "CONFINED SPACE" in 1-inch raised letters.
2. Lids must be interchangeable, any lid shall fit any and all frames.
3. Frame and cover shall be designed for H-20 loading.
4. Frame shall be grey-iron conforming to the requirements of AASHTO M 105, grade 30B.
5. Covers shall be ductile iron conforming to ASTM A 536, grade 80-55-06.
6. Per WSDOT Standard Specification 9-05.15, metal castings shall not be dipped, painted, welded, plugged, or repaired.

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

APPROVED FOR PUBLICATION

MANHOLE FRAME AND COVER

STANDARD PLAN NO. SU-22
SANITARY SEWER MAIN
CROSS SECTION

NOTES:
1. Romac style "CB" sewer saddle or approved equal.
2. Core drill sewer main.
3. Portions of the City's sanitary sewer system have been lined.
   If a lined pipe is encountered during connection of the new
   side sewer, the Construction Division shall be contacted at
   (253) 591-5760 for further instructions.
4. Sewer laterals shall not extend beyond the interior wall of the
   sanitary sewer main.
CAST IRON FRAME AND COVER, SEE DETAIL
MATCH EXISTING GRADE

12" Ø PVC PIPE,
SDR 35

6" PVC PIPE
CLEANOUT RISER

6" PVC PIPE

TO MAIN
SIDE SEWER

SEE STANDARD BEDDING DETAIL

CLEANOUT DETAIL
NOT TO SCALE

NOTE:
When no curb and gutter or
sidewalk exist, locate cleanout
in future planting strip.

FRAME AND COVER DETAIL
NOT TO SCALE

STANDARD CLEANOUT LOCATION
NOT TO SCALE

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

APPROVED FOR PUBLICATION

SIDE SEWER CLEANOUT
AND COVER DETAIL

STANDARD PLAN NO. SU-24
PROGRESSION OF WORK

PRIOR TO EXCAVATING OR RESURFACING:
Contractor shall:
Remove frame and risers to a depth 8-inches below subgrade.
Install steel protective plate in accordance with Detail A.
Reference the location of the utility structure.

CONSTRUCTION OF SURFACING:
Gravel surfacing:
Install base materials and gravel over protective steel plate.
Asphalt surfacing:
Install base materials and asphalt over protective steel plate.
Concrete surfacing:
Adjust frame and grate to final grade prior to placing concrete surfacing.

UPON COMPLETION OF SURFACING:
The asphalt concrete pavement or gravel surfacing shall be removed in a neat circle in accordance with Detail B.
The location of the asphalt or gravel removal shall be based upon the reference location established by the Contractor.
Crushed surfacing and base materials shall be removed and disposed of to allow the removal of the steel protective plate.
The structure shall be adjusted to finish grade utilizing the same methods of construction as specified for new construction in Section 7-05.
For hot mix asphalt, the area shall then be backfilled with Class 3000 cement concrete to an elevation of 3 to 4 inches below the finished pavement surface. 24-hours after placing the concrete, HMA pavement Cl. 3/8" PG 64-22 shall be placed in accordance with Standard Plan No. SU-15.
For non-paved surfaces, the area shall be backfilled with Class 3000 cement concrete to an elevation of 3 to 4 inches below the top of the casting and then backfilled with crushed surfacing top course and compacted.

NOTE:
All general provisions, construction and warranty requirements of the Right of Way Restoration Policy will be followed.

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

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CITY ENGINEER

UTILITY ADJUSTMENT

STANDARD PLAN NO. SU-25
ABBREVIATIONS

F.C. ...... FACE OF CURB
C.G. ...... CURB GRADE
F.L. ...... FLOW LINE
F.WALL... FACE OF WALL
SH.GR. ... SHOULDER GRADE
C.B. ...... CATCH BASIN
M.H. ...... MAN HOLE
L.H. ...... LAMP HOLE
S.G. ...... SUBGRADE
B.G. ...... BALLAST GRADE
CR.R.GR. CRUSHED ROCK GRADE
P.C. ...... POINT OF CURVATURE
P.T. ...... POINT OF TANGENCY
V.G. ...... VERTICAL CURVE
E.P. ...... EDGE OF PAVING

* DESIGNATES DISTANCE FROM GUARD STAKE TO GRADE OR LINE HUB. (OPTIONAL)

LINE & GRADE POINT

CURBS

SLOPE STAKES

STAKES SHALL HAVE STATIONS ON BACK SIDE

LINE POINTS

GUTTER GRADE
GRADE POINTS

LINE & GRADE POINTS FOR WALKS - WHICHEVER SIDE IS STAKED

ALLEY SLABS

WALKS

SIDE OR BACK

SEWERS

WALLS

APPROVED FOR PUBLICATION

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

STANDARD PROCEDURE
FOR MARKING
CONSTRUCTION STAKES

CITY ENGINEER

DATE

STANDARD PLAN NO.  SU-26

Jamee Pomery 12 Jan 2009
NOTES:
1. The existing pavement shall be cut full depth with an eight inch diameter core drill. The subbase material shall be removed using a vacuum excavator, keeping the excavation as minimal as possible.
2. Backfill the excavation with a six inch cushion of crushed rock over the utility then place the remaining void with CDF or compacted CSTC.
3. For asphalt concrete streets, repair the cored pavement section with HMA Class 1/2" PG 64-22 and seal the joint.
4. For cement concrete pavement streets, replace the cored section with Class 6000 cement concrete.
5. If excavation is larger than 8" core, restoration shall comply with the Right of Way Restoration Policy.
## Compaction Testing Requirements

<table>
<thead>
<tr>
<th>Depth</th>
<th>Vertical</th>
<th>Horizontal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface (below HMA)</td>
<td>N/A</td>
<td>1 test every 150 linear feet of trench or minimum 2 per trench</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 test for 150 square feet for isolated patches</td>
</tr>
<tr>
<td>1 to 4 feet (or min. 18 in. above pipe)</td>
<td>1 every 12 inches</td>
<td>Same as for surface</td>
</tr>
<tr>
<td>&gt; 4 feet to bottom of trench</td>
<td>No specific requirement - may be required by COT inspector for verification of compaction</td>
<td></td>
</tr>
</tbody>
</table>

A. Testing shall be performed by a certified independent testing laboratory or a certified tester as approved by the City's construction division. The cost of testing is the responsibility of the permittee. Tests shall be completed and reports identifying the project number submitted to the construction division within 48 hours of tests.

B. Only one compaction test will be required for multiple trenches within a 150 SF area provided compaction procedures are the same.

C. Each lift shall be compacted to 95% modified proctor density, as verified by compaction testing, before proceeding to the next lift. COT inspector may require excavation and removal of soil where compaction is in question.

### Notes:

1. Compact backfill material in max. 12 in. lifts. Compact backfill material to 95% max. modified proctor density (ASTM 1557) except directly over pipe, hand tamp only.

2. Native backfill will require laboratory testing to determine max. modified proctor density. Imported backfill will require submittal of proctor test results from supplier.

3. See WSDOT Standard Specification Section 2-09.3(1)E for material requirements on "Controlled Density Fill" (CDF). CDF may be used for trenches less than 24 in. wide or as approved by the City Engineer. CDF shall be vibrated/compacted.
NOTE:
1. The intent of this design is to facilitate the compaction of hot mix asphalt pavement adjacent to a drainage structure.
2. The centerline of the drainage structure may differ from the centerline of the frame and grate.
NOTES:
1. Surface mounting of sign posts, especially within traffic islands or medians, is only allowable with special authorization from the city's traffic engineering group. (Exception: Surface mounting of flexible post object markers within islands or medians is permitted).
2. If finished ground line is a hard surface, then compacted native backfill material shall be concrete with the top of foundation being smooth, dense, and uniform to finished ground line.

SIGN SUPPORT DETAIL
FOR STEEL SIGN POST

BASE PLATE DETAIL FOR
STEEL SIGN POST SURFACE MOUNTING
(SEE NOTE 1)
NOTES:
Class 3000 cement concrete shall be placed, 1 1/2" min, below the finished pavement surface.

24-hours after placing the cement collar, HMA Class 3" PG 64-22 shall be placed in accordance with Standard Plan SU-15.

If the valve chamber being adjusted belongs to Tacoma Water, the Contractor shall contact Tacoma Water, Operations, at 253-502-8742 for final inspection.
CONCRETE BASE

SECTION A

PLAN VIEW

RISER RING

SECTION B

CONCRETE BASE

SECTION C

SECTION D

MONUMENT CASE AND COVER

STANDARD PLAN A-10.30-00

SHEET 1 OF 1 SHEET

NOTE:
1. Dimensions may vary according to manufacturer.
2. Base to be placed on a well compacted foundation.
3. Monument case to be installed by contractor.

APPROXIMATE WEIGHTS

<table>
<thead>
<tr>
<th></th>
<th>CASE</th>
<th>COVER</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>80 LBS</td>
<td>18 LBS</td>
<td>98 LBS</td>
</tr>
</tbody>
</table>

SOIL: Pasco Bakotich III 10-05-07

NOTE: THIS PLAN IS NOT A LEGAL ENGINEERING DOCUMENT BUT AN ELECTRONIC DUPLICATE. THE ORIGINAL, SIGNED BY THE ENGINEER AND APPROVED FOR PUBLICATION, IS KEPT ON FILE AT THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION. A COPY MAY BE OBTAINED UPON REQUEST.
### Notes

1. As acceptable alternatives to the rebar shown in the PRECAST BASE SECTION, fibers (placed according to the Standard Specifications), or wire mesh having a minimum area of 0.12 square inches per foot shall be used with the minimum required rebar shown in the ALTERNATIVE PRECAST BASE SECTION. Wire mesh shall not be placed in the knockouts.

2. The knockout diameter shall not be greater than 20" (in). Knockouts shall have a wall thickness of 2" (in) minimum to 2.5" (in) maximum. Provide a 1.5" (in) minimum gap between the knockout wall and the outside of the pipe. After the pipe is installed, fill the gap with joint mortar in accordance with Standard Specification Section 9-04.3.

3. The maximum depth from the finished grade to the lowest pipe invert shall be 5' (ft).

4. The frame and grate may be installed with the flange down, or integrally cast into the adjustment section with flange up.

5. The Precast Base Section may have a rounded floor, and the walls may be sloped at a rate of 1:24 or steeper.

6. The opening shall be measured at the top of the Precast Base Section.

7. All pickup holes shall be grouted full after the basin has been placed.
NOTES

1. No steps are required when height is 4" or less.
2. The bottom of the precast catch basin may be sloped to facilitate cleaning.
3. The rectangular frame and grate may be installed with the flange up or down. The frame may be cast into the adjustment section.
4. Knockouts shall have a wall thickness of 2" (in) minimum to 2.5" (in) maximum. Provide a 1.5" (in) minimum gap between the knockout wall and the outside of the pipe. After the pipe is installed, fill the gap with joint mortar in accordance with Standard Specification Section 9-04.3.

<table>
<thead>
<tr>
<th>CATCH BASIN DIMENSIONS</th>
<th>MIN. WALL THICKNESS</th>
<th>MIN. BASE THICKNESS</th>
<th>MAXIMUM KNOCKOUT SIZE</th>
<th>MINIMUM DISTANCE BETWEEN KNOCKOUTS</th>
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<tr>
<td>CATCH BASIN DIAMETER</td>
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<tr>
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<td>144&quot;</td>
<td>12&quot;</td>
<td>12&quot;</td>
<td>108&quot;</td>
<td>12&quot;</td>
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<table>
<thead>
<tr>
<th>PIPE ALLOWANCES</th>
<th>PIPE MATERIAL WITH MAXIMUM INSIDE DIAMETER</th>
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<tbody>
<tr>
<td>CATCH BASIN DIAMETER</td>
<td>CONCRETE</td>
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<tr>
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<td>66&quot;</td>
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<tr>
<td>144&quot;</td>
<td>78&quot;</td>
</tr>
</tbody>
</table>

1. Corrugated Polyethylene Storm Sewer Pipe
2. (See Standard Specification Section 9-05.20)
3. (See Standard Specification Section 9-05.12(1))
4. (See Standard Specification Section 9-05.12(2))
5. Polypropylene Pipe (See Standard Specification Section 9-05.24)
NOTES

1. This inlet requires the precast catch basin unit to be rotated 90 degrees so that the narrow side is parallel to the curb line. When calculating offsets from curb to centerline (CL) of the precast catch basin, please note that the CL of the grate is not the CL of the precast catch basin. See Section A.

2. The dimensions of the frame and hood may vary slightly among different manufacturers. The frame may have cast features intended to support a debris guard. Hood units may be mounted inside or outside of the frame. The methods for fastening the safety bar/debris guard rod to the hood may vary. The hood may include casting lugs. The top of the hood may be cast with a pattern.

3. Attach the hood to the frame with two 3/4" (in) x 2" (in) hex head bolts, nuts, and oversize washers. The washers shall have diameters adequate to ensure full bearing across the slots.

4. Bolt-down capability is required on all frames, grates, and covers, unless specified otherwise in the Contract. Provide two holes in the frame that are vertically aligned with the grate or cover slots. The frame shall accept the 304 Stainless Steel (S.S.) 5/8" (in) - 11 NC x 2" (in) allen head cap screw by being tapped, or other approved mechanism. Location of bolt-down holes varies by manufacturer. See BOLT-DOWN DETAIL, Standard Plan B-30.10.

5. Only ductile iron Vaned Grates shall be used. See Standard Plans B-30.30 and B-30.40 for grate details. Refer to Standard Specification Section 9-05.15(2) for additional requirements.

6. This plan is intended to show the installation details of a manufactured product. This plan is not intended to show the specific details necessary to fabricate the castings depicted in this drawing.
NOTE

1. This frame is designed to accommodate 20" (in) x 24" (in) grates or covers as shown on Standard Plans B-30.20, B-30.30, B-30.40, and B-30.50.

2. Bolt-down capability is required on all frames, grates, and covers, unless specified otherwise in the Contract. Provide 2 holes in the frame that are vertically aligned with the grate or cover slots. The frame shall accept the 304 Stainless Steel (S.S.) 5/8" (in) - 11 NC x 2" (in) allen head cap screw by being tapped, or other approved mechanism. Location of bolt-down holes varies by manufacturer.

3. Refer to Standard Specification Section 9-06.15 and 9-06.15(2) for additional requirements.

RECTANGULAR FRAME (REVERSIBLE)

TOP

SECTION

ISOMETRIC VIEW SHOWING THE VARIATIONS
1. Bolt-down capability is required on all frames, grates, and covers, unless specified otherwise in the Contract. Provide 2 holes in the frame that are vertically aligned with the grate or cover slots. The frame shall accept the 304 Stainless Steel (S.S.) 5/8" (38 mm) x 11 NC x 2" (51 mm) Allen head cap screw by being tapped, or other approved mechanism. Location of bolt-down holes varies by manufacturer.

2. Refer to Standard Specification Section 9-05.15 and 9-05.16(2) for additional requirements.

3. For frame details, see Standard Plan B-30.10.

NOTES
NOTES

1. Bolt-down capability is required on all frames, grates, and covers, unless specified otherwise in the Contract. Provide 2 holes in the frame that are vertically aligned with the grate or cover slots. The frame shall accept the 304 Stainless Steel (S.S.) 5/8" (in) - 11 NC x 2" (in) allen head cap screw by being tapped, or other approved mechanism. Location of bolt-down holes varies by manufacturer.

2. Refer to Standard Specification Section 8-05.15, and 9-05.15(2) for additional requirements.

3. For frame details, see Standard Plan B-30.10.

RECTANGULAR
BI-DIRECTIONAL
VANED GRATE

STANDARD PLAN B-30.40-03

ISOMETRIC
1. Ladder rungs for manholes and catch basins shall meet the requirements of AASHTO M 199.

TYPICAL ORIENTATION FOR ACCESS AND STEPS

RECTANGULAR ADJUSTMENT SECTION

- As an acceptable alternative to rebar, wire mesh having a minimum area of 0.12 square inches per foot may be used for adjustment sections.

CIRCULAR ADJUSTMENT SECTION

For rectangular and circular adjustment sections, approved alternate material compositions are acceptable in lieu of precast concrete designs.

THREE #5 BARS @ 7" (IN) SPACING

ONE #3 BAR HOOP FOR 2", 4", OR 6" (IN)

TWO #3 BAR HOOPS FOR 8" (IN)

FOUR #3 BAR HOOPS FOR 12" (IN)

24" (IN) DIAM., 48" (IN) Diam.,
OR 54" (IN) Diam., OPENING

NOTE

2" (TYP.)

2 1/2" MAX.

6" MIN.

10" MAX.

(TYP.)

48" (IN), 54", or 60" (IN) FLAT SLAB TOP

4" MIN., 6" MAX.

24" MIN.

24" (IN) Diam., 48" (IN) Diam.,
OR 54" (IN) Diam., OPENING

2" (TYP.)

2 1/2" MAX.

1/2" MIN.

8" MIN.

6" MAX.

(TYP.)

20" (IN) x 24" (IN), OR
42" (IN) x 24" (IN)

RECTANGULAR OPENING

2" (TYP.)

2 1/2" MAX.

11/2" MIN.

8" MIN.

6" MAX.

(TYP.)

24" (IN) Diam., 48" (IN) Diam.,
OR 54" (IN) Diam., OPENING

84" (IN) or 96" (IN) FLAT SLAB TOP

72" (IN) FLAT SLAB TOP

ONE #3 BAR HOOP FOR 2", 4", OR 6" (IN)

TWO #3 BAR HOOPS FOR 8" (IN)

FOUR #3 BAR HOOPS FOR 12" (IN)

20" (IN) x 24" (IN), OR
42" (IN) x 24" (IN)

RECTANGULAR OPENING

ECCENTRIC CONE SECTION

MISCELLANEOUS DETAILS FOR DRAINAGE STRUCTURES

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
NOTES
1. Size the Below Inlet Grate Device (BIGD) for the storm water structure it will service.
2. The BIGD shall have a built-in high-flow relief system (overflow bypass).
3. The retrieval system shall allow removal of the BIGD without spilling the collected materials.
4. Perform maintenance in accordance with Standard Specification 5-01.3(15).

STORM DRAIN INLET PROTECTION
STANDARD PLAN I-40.20-00

SIZE THE BELOW INLET GRATE DEVICE (BIGD) FOR THE STORM WATER STRUCTURE IT WILL SERVE.

THE BIGD SHALL HAVE A BUILT-IN HIGH-FLOW RELIEF SYSTEM (OVERFLOW BYPASS).

THE RETRIEVAL SYSTEM SHALL ALLOW REMOVAL OF THE BIGD WITHOUT SPILLING THE COLLECTED MATERIALS.

PERFORM MAINTENANCE IN ACCORDANCE WITH STANDARD SPECIFICATION 5-01.3(15).
NOTES
1. All concrete post bases shall be 12" dia. minimum diameter.
2. Along the top and bottom, using HOG Rings, fasten the Chain Link Fence Fabric to the Tension Wire within the limits of the first ful fabric weave.
3. Details are illustrative and shall not limit hardware design or post selection of any particular fence type.
4. Fencing shall be used for security and boundary delineation only.

CHAIN LINK FENCE TYPES 3 AND 4
STANDARD PLAN L-20.10-03
SHEET 1 OF 2 SHEETS

POST AND RAIL SPECIFICATIONS

<table>
<thead>
<tr>
<th>POST</th>
<th>PIPE</th>
<th>ROLL FORMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>END, CORNER, OR PULL POST</td>
<td>2-1/2&quot; DIA</td>
<td>Y</td>
</tr>
<tr>
<td>LINE OR BRACE POST</td>
<td>2&quot;</td>
<td>Z</td>
</tr>
</tbody>
</table>

FABRIC LOOP = 2 SIDES
1. Materials shall meet the requirements of Standard Specification 9-16.
APPENDIX B

CITY OF TACOMA INSURANCE REQUIREMENTS
The Contractor (Contractor) shall maintain at least the minimum insurance set forth below. By requiring such minimum insurance, the City of Tacoma shall not be deemed or construed to have assessed the risk that may be applicable to Contractor under this Contract. Contractor shall assess its own risks and, if it deems appropriate and/or prudent, maintain greater limits and/or broader coverage.

1. GENERAL REQUIREMENTS

The following General Requirements apply to Contractor and to Subcontractor(s) of every tier performing services and/or activities pursuant to the terms of this Contract. Contractor acknowledges and agrees to the following insurance requirements applicable to Contractor and Contractor’s Subcontractor(s):

1.1. City of Tacoma reserves the right to approve or reject the insurance provided based upon the insurer, terms and coverage, the Certificate of Insurance, and/or endorsements.

1.2. Contractor shall not begin work under the Contract until the required insurance has been obtained and approved by City of Tacoma.

1.3. Contractor shall keep this insurance in force during the entire term of the Contract and for Thirty (30) calendar days after completion of all work required by the Contract, unless otherwise provided herein.

1.4. Insurance policies required under this Contract that name “City of Tacoma” as Additional Insured shall:
   1.4.1. Be considered primary and non-contributory for all claims.
   1.4.2. Contain a “Separation of Insured provision and a “Waiver of Subrogation” clause in favor of City of Tacoma.

1.5. Section 1.4 above does not apply to contracts for purchasing supplies only.

1.6. Verification of coverage shall include:
   1.6.1. An ACORD certificate or equivalent.
   1.6.2. Copies of all endorsements naming the City of Tacoma as additional insured and showing the policy number.
   1.6.3. A notation of coverage enhancements on the Certificate of Insurance shall not satisfy these requirements – actual endorsements must be submitted.

1.7. Liability insurance policies, with the exception of Professional Liability and Workers’ Compensation, shall name the City of Tacoma and its officers, elected officials, employees, agents, and authorized volunteers as additional insured.
   1.7.1. No specific person or department should be identified as the additional insured.
   1.7.2. All references on certificates of insurance and endorsements shall be listed as “City of Tacoma”.
   1.7.3. The City of Tacoma shall be additional insured for both ongoing and completed operations using Insurance Services Office (ISO) form CG 20 10 04 13 and CG 20
1.8. Contractor shall provide a Certificate of Insurance for each policy of insurance meeting the requirements set forth herein when Contractor provides the signed Contract for the work to City of Tacoma. Contractor shall provide copies of any applicable Additional Insured, Waiver of Subrogation, and Primary and Non-contributory endorsements. Contract or Permit number and the City Department must be shown on the Certificate of Insurance.

1.9. Insurance limits shown below may be written with an excess policy that follows the form of an underlying primary liability policy or an excess policy providing the required limit.

1.10. Liability insurance policies shall be written on an “occurrence” form, except for Professional Liability/Errors and Omissions, Pollution Liability, and Cyber/Privacy and Security.

1.11. If coverage is approved and purchased on a “Claims-Made” basis, Contractor warrants continuation of coverage, either through policy renewals or by the purchase of an extended reporting period endorsement as set forth below.

1.12. The insurance must be written by companies licensed or authorized in the State of Washington pursuant to RCW 48 with an (A-) VII or higher in the A.M. Best's Key Rating Guide www.ambest.com.

1.13. Contractor shall provide City of Tacoma notice of any cancellation or non-renewal of this required insurance within Thirty (30) calendar days.

1.14. Contractor shall not allow any insurance to be cancelled or lapse during any term of this Contract, otherwise it shall constitute a material breach of the Contract, upon which City of Tacoma may, after giving Five (5) business day notice to Contractor to correct the breach, immediately terminate the Contract or, at its discretion, procure or renew such insurance and pay any and all premiums in connection therewith; with any sums so expended to be repaid to City of Tacoma by Contractor upon demand, or at the sole discretion of City of Tacoma, offset against funds due Contractor from City of Tacoma.

1.15. 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.

1.16. 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 has changed.
1.17. All costs for insurance shall be incidental to and included in the unit or lump sum prices of the Contract and no additional payment will be made by City of Tacoma to Contractor.

1.18. 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).

1.19. Failure by City of Tacoma to identify a deficiency in the insurance documentation provided by Contractor or failure of City of Tacoma 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.

1.20. If Contractor is a State of Washington or local government and is self-insured for any of the above insurance requirements, a certification of self-insurance shall be attached hereto and be incorporated by reference and shall constitute compliance with this Section.

2. CONTRACTOR

As used herein, "Contractor" shall be the Supplier(s) entering a Contract with City of Tacoma, whether designated as a Supplier, Contractor, Vendor, Proposer, Bidder, Respondent, Seller, Merchant, Service Provider, or otherwise.

3. SUBCONTRACTORS

It is Contractor’s responsibility to ensure that each subcontractor obtain and maintain adequate liability insurance coverage. Contractor shall provide evidence of such insurance upon City of Tacoma’s request.

4. 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.

4.1 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. The Commercial General Liability Insurance policy shall be written on an Insurance Services Office form CG 00 01 04 13 or its equivalent. Products and Completed Operations shall be maintained for a period of three years following Substantial Completion of the Work related to performing construction services.

This policy shall include product liability especially when a Contract solely is for purchasing supplies. The Commercial General Liability policy shall be endorsed to include:

4.1.1 A per project aggregate policy limit, using ISO form CG 25 03 05 09 or an equivalent endorsement.

4.1.2

4.2 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
4.3 Workers’ Compensation
4.3.1 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. The Contractor must comply with their domicile State Industrial Insurance laws if it is outside the State of Washington.

4.4 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.

4.5 Professional Liability Insurance or Errors and Omissions
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.
If the policy limit includes the payment of claims or defense costs, from the policy limit, the per claim limit shall be Two Million Dollars ($2,000,000).
If the scope of such design-related professional services includes work related to pollution conditions, the Professional Liability policy shall include Pollution Liability coverage.
If provided on a “claims-made” basis, such coverage shall be maintained by policy renewals or an extended reporting period endorsement for not less than three years following the end of the Contract.

4.6 Excess or Umbrella Liability Insurance
Contractor shall provide Excess or Umbrella Liability Insurance with limits not less than Ten Million Dollars ($10,000,000) 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.

4.7 Pollution Liability Insurance
Contractor shall maintain a Pollution Liability or Environmental Liability Insurance providing coverage, including investigation and defense costs, for bodily injury and property damage, including loss of use of damaged property or of property that has been physically damaged or destroyed.
Such coverage shall provide both on-site and off-site cleanup costs and 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 with limits not less than One Million Dollars ($1,000,000) each occurrence and Two Million Dollars ($2,000,000) aggregate.
This policy shall include Environmental Resource Damage coverage and Hazardous Substance Removal. If such coverage is provided on a “claims-made” basis, the following additional conditions must be met:

4.7.1 The policy must contain no retroactive date, or the retroactive date must precede the commencement date of this Contract.
4.7.2 The extended reporting period (tail) must be purchased to cover a minimum of Six (6) years beyond completion of work.
4.8 **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.
APPENDIX C

SUMMARY OF GEOTECHNICAL CONDITIONS
Geotechnical Engineering Report
Upper Buckley Water Quality Project
Tacoma, Washington

May 10, 2021

Prepared for

Parametrix, Inc.
1019 39th Ave. SE, Suite 100
Puyallup, Washington 98374

City of Tacoma
326 East D Street
Tacoma, Washington 98421
Geotechnical Engineering Report
Upper Buckley Water Quality Project
Tacoma, Washington

This document was prepared by, or under the direct supervision of, the undersigned, whose seal is affixed below.

Name: Sean Gertz, PE
Washington/No. 20100325

Date: May 10, 2021

Document prepared by: Sean Gertz, PE
Project Manager

Document reviewed by: Steven R. Wright, PE
Quality Reviewer

Date: May 10, 2021
Project No.: 0193081.010.011
File path: P:\193\081.010\R\Signature Page.docx
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ACRONYMS AND ABBREVIATIONS

AASHTO ......................................................... American Association of State Highway and Transportation Officials
bgs .................................................................................................................................. below ground surface
BMP ................................................................. best management practice
City ......................................................................................................................... City of Tacoma
CSTC ....................................................................................................................... Crushed Surfacing Top Course
FS ......................................................................................................................... factor of safety
ft .................................................................................................................................. foot/feet
LAI ........................................................................................................................... Landau Associates, Inc.
mg/kg ....................................................................................................................... milligrams per kilogram
MTCA ..................................................................................................................... Model Toxics Control Act
ND ............................................................................................................................. not detected
NL .............................................................................................................................. not listed
PCB ........................................................................................................................ polychlorinated biphenyl
pcf ........................................................................................................................... pounds per cubic foot
PGA ......................................................................................................................... peak ground acceleration
psf ........................................................................................................................... pounds per square foot
ROW ....................................................................................................................... right-of-way
SDG ........................................................................................................................ sample delivery group
SDMH ..................................................................................................................... storm drain manhole
TMC ........................................................................................................................ Tacoma Municipal Code
USGS ....................................................................................................................... US Geological Survey
WSDOT ................................................................. Washington State Department of Transportation
XRF ........................................................................................................................... x-ray fluorescence
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1.0 INTRODUCTION

This report summarizes the results of geotechnical engineering services conducted by Landau Associates, Inc. (LAI) for the City of Tacoma’s (City) proposed Upper Buckley Water Quality project in Tacoma, Washington. The general project location is shown on the Vicinity Map (Figure 1). The general configuration of the project alignment is shown on the Site and Exploration Plans (Figure 2a and 2b).

This report has been prepared based on LAI’s discussions with Parametrix; a base map of the project alignment provided by Parametrix; data collected during LAI’s field investigation; LAI’s familiarity with geologic conditions within the vicinity of the project area; and LAI’s experience on similar projects.

1.1 Project Description

LAI understands that the City proposes to replace approximately 750 linear feet of aging 36-inch diameter storm sewer pipe with a new 48-inch diameter storm sewer pipe. The existing storm sewer line is not entirely within the City’s right-of-way (ROW); however, the new storm sewer will run beneath North Junett Street between North 14th Street and North 16th Street. To construct the replacement storm drains, it will be necessary to realign existing sanitary sewer lines in the vicinity of Buckley Gulch, along North 16th Street. The project also includes a regional stormwater treatment vault near the intersection of North Junett Street and North 16th Street and multiple manholes along the length of the storm sewer alignment. The maximum excavation depth for the proposed replacement storm drains and sanitary sewer lines is anticipated to be approximately 26.5 feet (ft). The stormwater continuous deflective separation pretreatment unit, to be installed upstream of the proposed water quality vault, will have an excavation depth of approximately 35 ft.

The project also includes construction of a new secant pile utility structure to replace an existing manhole in the vicinity of Buckley Gulch, along North 16th Street. The new secant pile structure will be used to connect the new and existing storm drains into an existing 36-inch diameter storm drain. The new secant pile structure will have an inner diameter of 10 ft and extend approximately 50 ft below ground surface (bgs).

1.2 Scope of Services

Parametrix retained LAI to provide geotechnical engineering and environmental sampling services to support design of the project. Services were provided in accordance with the scope outlined in the subconsultant agreement between Parametrix and LAI, dated January 21, 2020; Amendment No. 1, dated July 28, 2020; and Amendment No.2, dated January 21, 2021. LAI’s scope of services included the following tasks:

- Compiling and reviewing geologic and geotechnical information for the project area.
- Developing an exploration plan.
• Developing a traffic control plan.
• Obtaining an ROW Use Permit from the City and providing the necessary traffic control personnel and devices when working within the City’s ROW.
• Arranging for underground utility location prior to performing field activities.
• Advancing five exploratory borings, including one monitoring well installation, to characterize soil and groundwater conditions along the project alignment.
• Collecting representative soil samples at selected depth intervals.
• Logging the exploratory borings and recording pertinent information, including soil sample depths, stratigraphy, soil engineering characteristics, and groundwater occurrence.
• Collecting groundwater data from the monitoring well on two occasions during the wet season.
• Advancing three borings 1.5 ft bgs and collecting environmental samples at locations designated by the City.
• Conducting geotechnical and environmental laboratory testing programs.
• Reviewing the results of arsenic and lead testing completed by the City and polychlorinated biphenyl (PCB) testing conducted by LAI.
• Conducting a reconnaissance of the steep slope directly to the north of the project alignment.
• Performing geotechnical engineering analyses and evaluating data derived from the subsurface investigation and laboratory testing program.
• Completing an alternatives analysis of three shoring/construction methods for the proposed manhole excavation and developing geotechnical recommendations for seismic design parameters, static and dynamic lateral earth pressures, side friction values (to resist vertical loads following construction), and measures for resisting buoyant forces acting on the base of the excavation.
• Developing geotechnical engineering conclusions and recommendations to support design and construction of the proposed storm drainage improvements.
• Preparing and submitting this written report summarizing LAI’s findings, conclusions, and recommendations for the project. This report includes:
  – a site plan showing the locations of the borings completed along the project alignment.
  – results of the laboratory testing program and logs of the exploratory borings completed along the project alignment.
  – a discussion of the near-surface soil and groundwater conditions observed along the project alignment.
  – a review of environmental sample results for possible soil end-use evaluation.
  – an assessment of geologic hazards, in general accordance with Section 13.11.700 of the Tacoma Municipal Code (TMC).
  – an evaluation of the moisture sensitivity of the soils along the project alignment.
− conclusions regarding the anticipated need to dewater temporary excavations and a discussion related to dewatering methods that could be used if dewatering is required.
− recommendations related to trench excavation and temporary shoring, including recommended soil parameters for use in design of temporary shoring systems.
− recommendations related to maximum allowable slopes for temporary excavations.
− recommendations for pipe foundation support, pipe bedding, and initial backfill materials.
− an evaluation of the suitability of excavated soil for use as trench backfill.
− trench backfill compaction criteria.
− a discussion of the results of polychlorinated biphenyl testing and contaminated soils in the vicinity of the community garden.
− a discussion of subgrade support and preparation for underground utility vaults.
− recommendations pertaining to uplift and buoyancy forces acting on underground utility vaults.
− recommendations pertaining to design and construction of the new secant pile manhole structure.
− recommendations for monitoring and testing during construction.
2.0 SITE CONDITIONS

This section discusses the general geologic setting of the project area and describes the surface and subsurface conditions observed along the project alignment at the time of LAI’s field investigation. Interpretations of the site conditions are based on the results of LAI’s review of available information, and the results of LAI’s site reconnaissance, subsurface explorations, and laboratory testing.

2.1 Geologic Setting

General geologic information for the project area was obtained from the Geologic Map of the Tacoma 1:100,000-Scale Quadrangle, Washington (Schuster 2015), published by the US Geological Survey. According to this source, the project alignment is underlain by glacial till deposits. This unit typically consists of a dense, poorly sorted mixture of clay, silt, sand, and gravel that often contains cobbles and boulders. This unit typically exhibits relatively low permeability, as it has been deposited and compacted by glacial movement.

Though fill was not shown in the vicinity of the project alignment on the above-referenced geologic map, a significant quantity of undocumented fill was observed in LAI’s explorations along the project alignment.

2.2 Surface Conditions

The project area predominately consists of a residential neighborhood where structures are primarily single-family homes. The proposed project alignment generally extends along North Junett Street from the intersection with North 14th Street at the south to North 16th Street to the north. The project alignment is generally flat; however, Buckley Gulch is located immediately to the north. The inclination of Buckley Gulch is up to 133 percent, with a vertical relief of about 35 ft. According to the TMC, Buckley Gulch is classified as an Erosion Hazard Area and a Landslide Hazard Area.

2.3 Subsurface Soil Conditions

Subsurface conditions along the project alignment were initially explored on April 16 and 17, 2020; and subsequently on February 1 and 2, 2021. The exploration program consisted of advancing and sampling five exploratory borings (B-1 through B-5) at the approximate locations illustrated on Figures 2a and 2b. The exploratory borings were advanced to depths ranging from about 31.5 to 61.5 ft bgs. A discussion of field exploration procedures, together with summary logs of the exploratory borings, is presented in Appendix A. A discussion of laboratory test procedures and the test results are presented in Appendix B. Photographic logs of the core runs from borings B-4 and B-5 are presented in Appendix C.

Subsurface conditions along the alignment were characterized by borings B-1 through B-5. The subsurface conditions at the location of boring B-1 consisted of approximately 30 ft of soft to medium stiff or very loose to loose fill, underlain by very dense glacial till extending to the maximum depth
explored. At this location, the fill was observed to consist of sand with variable gravel and silt content and silt with variable gravel and sand content, and the glacial till was observed to consist of very dense gravelly sand with silt to silty, gravelly sand.

Subsurface conditions at the location of boring B-2 were observed to consist of approximately 25 ft of very loose to medium dense or soft fill, underlain by very dense glacial till extending to the maximum depth explored. The fill at this location was generally observed to consist of sand with variable gravel and silt content and silt with variable gravel and sand content and the glacial till was observed to consist of sandy gravel and sand with gravel.

Subsurface conditions at the location of boring B-3 were observed to consist of approximately 15 ft of loose to medium dense or medium stiff fill, underlain by very dense glacial till extending to the maximum depth explored. The fill at this location was generally observed to consist of sand with variable gravel and silt content and silt with variable gravel and sand content, and the glacial till was observed to consist of sand with variable amounts of silt and gravel and very sandy gravel with trace silt.

Subsurface conditions at the location of boring B-4 were observed to consist of approximately 38 ft of very loose to medium dense or stiff fill, underlain by dense to very dense glacial till extending to the maximum depth explored. The fill at this location was generally observed to consist of sand with variable amounts of gravel, cobbles, and silt; and silt with variable amounts of sand, gravel, and cobbles; and the glacial till was observed to consist of sand with variable amounts of silt and gravel.

Subsurface conditions at the location of boring B-5 were observed to consist of approximately 42.5 ft of loose to dense or medium stiff to very stiff fill, underlain by dense to very dense glacial till extending to the maximum depth explored. The fill at this location was generally observed to consist of sand with variable amounts of gravel, cobbles, and silt; and silt with variable amounts of sand, gravel, and cobbles; and the glacial till was observed to consist of fine to medium and fine to coarse sand.

2.4 Environmental Soil Conditions

The proposed project alignment is located in an area that may have been impacted by windblown deposits of arsenic and lead from the former American Smelting and Refining Corporation plant (Ecology 2019). Based on the location of the project, the City collected eight soil samples and used a portable x-ray fluorescence (XRF) meter to take field measurements for arsenic and lead. Field measurements were collected at four locations at 6 and 12 inches bgs. The XRF measurements indicate that the highest recorded arsenic (14 milligrams per kilogram; mg/kg) and lead (130 mg/kg) concentrations were below the Model Toxic Control Act (MTCA) Method A cleanup levels for unrestricted land use. The City’s arsenic and lead field measurements are summarized below.
Table 1. Arsenic and Lead Soil Test Results

<table>
<thead>
<tr>
<th>Sample Location</th>
<th>Sample Depth (inches bgs)</th>
<th>Sample Date</th>
<th>Total Metals (mg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Arsenic</td>
</tr>
<tr>
<td>1414 N. Junett St.</td>
<td>6</td>
<td>10/17/2019</td>
<td>ND</td>
</tr>
<tr>
<td>1414 N. Junett St.</td>
<td>12</td>
<td>10/17/2019</td>
<td>ND</td>
</tr>
<tr>
<td>1308 N. Junett St.</td>
<td>6</td>
<td>10/17/2019</td>
<td>ND</td>
</tr>
<tr>
<td>1308 N. Junett St.</td>
<td>12</td>
<td>10/17/2019</td>
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</tr>
<tr>
<td>1520 N. Junett St.</td>
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<td>1520 N. Junett St.</td>
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<tr>
<td>2914 N. 16th St.</td>
<td>6</td>
<td>10/17/2019</td>
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<tr>
<td>2914 N. 16th St.</td>
<td>12</td>
<td>10/17/2019</td>
<td>ND</td>
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<tr>
<td><strong>MTCA Method A Cleanup Level for Unrestricted Uses:</strong></td>
<td></td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

ND = not detected

Given the historical land uses of the Junett Community Garden parcel, soil samples were collected and analyzed for PCBs. On August 6, 2020, LAI collected three soil samples along the City ROW, near the Junett Community Garden property. Decontaminated shovels and trowels were used to excavate three borings to 1.5 ft below grade. The approximate locations of the explorations are shown on Figures 2a and 2b. Equipment was decontaminated between sampling locations using tap water and Alconox soap, followed by a tap water rinse and a distilled water rinse. Soil samples were placed in laboratory-provided jars and submitted to Eurofins analytical laboratory, where they were evaluated for PCBs using U.S. Environmental Protection Agency method 8082A. Analytical results indicate that PCB compounds were not detected at concentrations greater than the laboratory reporting limit and were below the MTCA Method A cleanup level for unrestricted land use. The laboratory data report is included in Appendix B. Analytical results are summarized in Table 2.

Table 2. Polychlorinated Biphenyls Soil Test Results

<table>
<thead>
<tr>
<th>Analyte</th>
<th>MTCA Method A Cleanup Level for Unrestricted Uses</th>
<th>Sample ID, Lab SDG, Sample Date</th>
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</thead>
<tbody>
<tr>
<td></td>
<td><strong>LAIHH01(0-1.5)</strong></td>
<td><strong>LAIHH02(0-1.5)</strong></td>
</tr>
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**Polychlorinated Biphenyls (mg/kg; SW-846 8082A)**

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<tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>0.021 U</td>
<td>0.021 U</td>
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<tr>
<td>Aroclor 1016</td>
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### Analyte | MTCA Method A Cleanup Level for Unrestricted Uses | Sample ID, Lab SDG, Sample Date |
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<td></td>
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<td>8/6/2020</td>
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<tr>
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<tr>
<td>Total PCBs</td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MTCA = Model Toxics Control Act  
NL = not listed  
SDG = sample delivery group  
U = The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

### 2.5 Groundwater Conditions

At the time of LAI's mid-April 2020 geotechnical field investigation, groundwater was not observed in exploratory borings B-1 through B-3. However, groundwater was observed in exploratory borings B-4 and B-5 during LAI's early-February 2021 subsequent field exploration program. Additionally, a piezometer was installed in boring B-5 to monitor groundwater levels in the vicinity of the new secant pile manhole structure over time. Groundwater levels observed during the February 2021 explorations and subsequent site visits are presented in Table 3.

#### Table 3. Observed Groundwater Conditions

<table>
<thead>
<tr>
<th>Location</th>
<th>Date</th>
<th>Depth to Groundwater (ft bgs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-4</td>
<td>At Time of Drilling - 2/2/2021</td>
<td>55</td>
</tr>
<tr>
<td>B-5</td>
<td>At Time of Drilling - 2/1/2021</td>
<td>60</td>
</tr>
<tr>
<td>B-5</td>
<td>2/9/2021</td>
<td>60</td>
</tr>
<tr>
<td>B-5</td>
<td>2/24/2021</td>
<td>60.3</td>
</tr>
</tbody>
</table>

bgs = below ground surface  
ft = feet

The groundwater conditions reported herein are for the specific locations and dates indicated, and therefore, may not necessarily be indicative of other locations and/or times. Furthermore, it is anticipated that groundwater conditions along the project alignment will vary depending on local subsurface conditions, the weather, and other factors. It is likely that the highest groundwater levels will occur in the winter/spring months.
3.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the field exploration, laboratory testing, and engineering analyses performed, it is LAI’s opinion that subsurface conditions along the project alignment are suitable for the proposed Upper Buckley Water Quality project, provided the recommendations contained herein are incorporated into the project design. The following sections present geotechnical conclusions and recommendations related to geologic hazards, fill placement and compaction, reuse of site soils, wet weather earthwork, temporary construction dewatering; trenching and excavation support, pipe foundation support, pipe bedding and trench backfill, underground utility vaults, and the new secant pile manhole structure.

3.1 Geologic Hazards

As previously described, Buckley Gulch borders the northern portion of the project alignment and is classified by the TMC as both an Erosion Hazard Area and a Landslide Hazard Area. LAI understands that the current design involves installing sanitary sewer lines, a new water line, storm sewer lines, a new storm sewer manhole, and a new sanitary sewer manhole at the top of the slope; however, no construction activities will extend down the slope. Based on a review of the 90 percent design drawings prepared by Parametrix, it is understood that the proposed storm line will be located approximately 12 ft from the top of the slope, and that proposed new storm drain manholes #4 and #5A will be located approximately 37.5 and 27.5 ft from the top of the slope, respectively. It is also understood that the proposed new sanitary sewer manhole SSMH #3 will be located approximately 9 ft from the top of the slope. The maximum depth of the temporary excavations needed to install these structures is anticipated to range from approximately 20 to 47 ft.

To evaluate the above-described geologic hazards, LAI performed slope stability modeling on a critical cross section of the assumed temporary excavation geometry passing through Buckley Gulch at the northern end of the project alignment. The assumed geometry generally consisted of a 25 ft-deep excavation, approximately 8 ft wide, where the center line of the excavation was approximately 11 ft from the top of the slope. The effect of construction equipment loading was modeled by placing a surcharge load consistent with a Hitachi 650 excavator on the upslope side of the excavation. Any benefit gained from temporary shoring was neglected for the purpose of the slope stability analysis described herein; however, depending on design specifics, some types of temporary shoring systems such as soldier pile shoring could increase overall global stability if structural wall elements pass through the critical failure surface.

Stability of the critical cross section was modeled using the limit-equilibrium method in Rocscience Slide 2018 under static conditions. Pseudo-static conditions were not evaluated because standard engineering practice does not consider seismic events for temporary conditions. Slopes are typically considered to be stable under static loading conditions if the calculated factor of safety (FS) is 1.3 or greater. LAI first conducted slope stability analysis on the pre-construction condition of the slope to
establish a baseline FS for the critical cross section. The resulting FS for the pre-construction condition under static loading conditions was found to be approximately 1.1. LAI then analyzed the stability of the same critical cross section, accounting for assumed excavation geometry and construction equipment surcharge loading. The results of this analysis indicated that the minimum FS under construction conditions was also approximately 1.1, suggesting no change in slope stability due to the proposed construction activities.

It is important to note that the slope stability modeling discussed herein is based on an assumed excavation geometry and that excavation geometry is typically a responsibility of the Contractor. Therefore, the excavation geometry used during construction may vary from what has been assumed in this analysis and as a result, the performance of the slope may vary. Because excavation geometry is typically the responsibility of the Contractor, it should also be the Contractor’s responsibility to ensure that their construction methods maintain stability of the slope.

During LAI’s geotechnical field investigation, a reconnaissance was conducted within Buckley Gulch. Select photographs from the reconnaissance are presented in Appendix D of this report. During this reconnaissance, no groundwater seeps or scars were observed; however, several ‘pistol-butt’ shaped trees were observed within the gulch. ‘Pistol-butt’ trees are formed as a result of gradual downslope movement of soil on a slope. This movement of soil, which is referred to as soil creep, causes the tree to rotate downslope. As the tree grows, it compensates for this rotation in an attempt to remain upright, thereby resulting in a curve in the tree near the ground surface.

Based on the results of the slope stability analysis and observations made at the site, the proposed storm drainage, sanitary sewer, and water main improvements are feasible from a slope stability perspective. However, due to the proximity to critical areas, appropriate Best Management Practices (BMPs) should be employed and the overall impact to the slope should be minimized wherever possible. Additionally, it is understood that the City’s Standard Plans specify the use of Gravel Backfill for Walls, per Section 9-03.12(2) of the Washington State Department of Transportation’s 2020 Standard Specifications for Road, Bridge, and Municipal Construction (WSDOT 2020 Standard Specifications) for trench backfill. This material is generally considered to be relatively permeable, and if used as trench backfill, it would likely transmit water along the sewer alignment. To avoid the risk of the sewer trench introducing new water seepage to the slope, LAI recommends that trench backfill instead meet the gradational requirements of Bank Run Gravel for Trench Backfill per Section 9-03.19 of the WSDOT 2020 Standard Specifications, as described in subsequent sections of this report. To limit potential disturbance to the slope, LAI recommends that no construction equipment or stockpiles be allowed within 5 ft of the top of the slope.

As noted above, the northern end of the project alignment is considered to be an erosion hazard area. As a result, there is potential for erosion during construction of the project. To limit the potential for erosion, clearing and grubbing of vegetation should be limited to the footprint of the proposed storm drainage improvements, and removal of natural vegetation along the slope should be minimized.
It is recommended that a geotechnical engineer be contacted for review of the construction erosion and sediment control plan to evaluate its consistency with design practices and LAI’s recommendations for the project. It is LAI’s opinion that the site erosion hazard can be minimized through BMPs, such as limiting disturbance of the ground surface and the use of straw wattles and/or interceptor drains. Because some of the onsite soils are moisture sensitive, and the risk of erosion will increase during wet weather construction, earthwork and grading should be limited to the dry season (typically July through early October). Project specifications should include requirements to ensure the Contractor properly protects exposed soils.

### 3.2 Seismic Design Considerations

The Pacific Northwest is seismically active, and the project area could be subject to ground shaking from a moderate to major earthquake. Consequently, earthquake shaking should be anticipated during the design life of the proposed replacement manhole structure. LAI understands that the design team intends to design the replacement manhole structure to resist earthquake loading.

To estimate lateral forces on project components, LAI recommends the seismic design parameters presented in Table 4. These parameters were obtained from the United States Geological Survey (USGS; accessed March 2021) seismic design maps for a seismic event with a 7 percent probability of exceedance in a 75-year period, consistent with the American Association of State Highway and Transportation Officials’ (AASHTO) LRFD Bridge Design Specifications (2017).

**Table 4. Seismic Design Parameters**

<table>
<thead>
<tr>
<th>Site Class = D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Ground Acceleration (g) = 0.41</td>
</tr>
<tr>
<td>Spectral response acceleration at short periods (Ss) = 0.903</td>
</tr>
<tr>
<td>Spectral response acceleration at 1-second periods (Si) = 0.308</td>
</tr>
<tr>
<td>Site coefficient (Fa) = 1.139</td>
</tr>
<tr>
<td>Site coefficient (Fv) = 1.783</td>
</tr>
<tr>
<td>Peak ground acceleration coefficient (FPGA) = 1.09</td>
</tr>
</tbody>
</table>

- Fa, Fv = acceleration (0.2-second period) and velocity (1.0-second period) site coefficients, respectively
- FPGA = peak ground acceleration coefficient
- g = force of gravity
- PGA = peak ground acceleration
- SS, S1 = 0.2-second and 1.0-second period spectral accelerations, respectively

### 3.3 Utility Construction

The following sections provide geotechnical recommendations for design and construction of new underground sewers. The following recommendations are based on LAI’s understanding that the depth of the proposed storm sewer ranges from about 7 to 47 ft bgs.
3.3.1 Fill Placement and Compaction

Utility construction should be accomplished in accordance with the City’s Standard Plans SU-16 and SU-28 (City of Tacoma Public Works Department 2016) with the exception noted above (see Section 3.1). Additionally, engineered fill materials, except Crushed Surfacing Top Course (CSTC) used for pipe zone bedding, should be placed and compacted in accordance with Section 2-03.3(14)C, Method C of the WSDOT 2020 Standard Specifications. CSTC used for pipe zone bedding should be placed and compacted in accordance with the requirements in Section 7-08.3(1)C of the WSDOT 2020 Standard Specifications. The maximum dry density and optimum moisture content may also be determined by the ASTM International (ASTM) D1557 test procedure (modified Proctor).

3.3.2 Reuse of Site Soils

Based on the results of the environmental testing, there are no limitations on reuse of site soil from an environmental regulations perspective; however, the following physical characteristics should be considered. Soil generated from onsite cuts and/or excavations is expected to consist primarily of fill or glacial till as described in Section 2.3 of this report. Some of the fill soils observed at the site are considered to be moisture sensitive due to their relatively high fines (that portion passing the US Standard No. 200 sieve) content. Because of the relatively high fines content of the fill soil, it will likely be difficult to compact this material to the required density during periods of wet weather. Fill soils at the site are not considered suitable for reuse. If onsite soil is reused, it should meet the gradational requirements for the intended purpose.

Highly organic site soils should not be reused during utility construction. Soil generated from cuts and/or excavations along the project alignment that is not suitable for use as fill (either due to organic content or moisture sensitivity) should be disposed of at an offsite location or placed in landscaped areas along the project alignment where several inches of post-construction settlement would be tolerable.

3.3.3 Wet Weather Earthwork

As described above, much of the on-site soil is considered to be moisture sensitive. Earthwork during wet weather may be difficult and could result in excessive soil disturbance and subgrade damage. It should be the responsibility of the Contractor to prevent excessive erosion and ground destabilization during all earthwork activities. If earthwork is performed during wet weather, the Contractor may need to place granular fill to provide a stable working platform. Furthermore, when performing earthwork during wet weather, the amount of fines allowed in granular fill and structural fill should be limited to 5 percent or less, by dry weight, based on the fraction passing the 3/4-inch sieve. In addition, if fill is to be placed or earthwork is performed in wet weather or under wet conditions, the Contractor should:

- Perform earthwork in small areas to minimize subgrade disturbance and exposure to additional moisture.
• Place fill material immediately following excavation and subgrade preparation.
• Implement surface water control measures to prevent run-on into excavations and fill soil stockpiles.
• Remove wet surficial soil prior to commencing fill placement daily.
• Seal the exposed ground surface by compacting with a plate compactor or other appropriate equipment at the end of every working day.

3.3.4 Temporary Construction Dewatering

Based on the observed groundwater conditions as described in Section 2.5, temporary construction dewatering is not anticipated to be necessary. However, depending on the locations and depths of proposed excavations, the depth to groundwater at the time of the excavations, and the presence of perched groundwater, it is possible that some temporary construction dewatering could be needed.

If groundwater is encountered, open sump pumping from the excavation may be sufficient where the groundwater table is located at or below the depth of excavation, provided the excavation walls remain stable. Wells or well points may be necessary where excavations extend below the groundwater table and/or the excavation walls become unstable. Well points are a viable option to lower groundwater to a depth of about 17 ft below the pump elevation. The Contractor should be responsible for the design, installation, monitoring, and maintenance of any required dewatering system(s). If wells or well points are necessary, the Contractor should be required to submit a dewatering plan prepared by a registered professional engineer or hydrogeologist for review by the City’s design team prior to implementation.

3.3.5 Trenching and Excavation Support

It is anticipated that excavations for the proposed storm sewer will be generally in either very loose to medium dense fill or very dense glacial till. A heavy-duty hydraulic excavator with sufficient reach should be able to excavate the trenches to the depths planned. Cobbles and debris were observed in the exploratory borings. The Contractor should be prepared to handle and dispose of such oversized material if encountered. Additionally, the Contractor should be prepared to handle construction debris (bricks, concrete, wood, etc.) within the existing fill and boulders in the glacial till. The final trench bottom should be firm and free of loose and disturbed soil. It is recommended that a smooth-bladed bucket be used to clean the trench bottom of loose and/or disturbed soil prior to placing the bedding material.

Actual excavation configurations and maintenance of safe working conditions, including temporary excavation stability, should be the responsibility of the Contractor. All applicable local, state, and federal safety codes should be followed. Temporary excavations in excess of 4 ft should be shored or sloped in accordance with Safety Standards for Construction Work Part N, Washington Administrative Code 296-155-657. In the absence of groundwater seepage, the fill expected at the project site would be classified as a Type C soil whereas the glacial till expected at the project site would be classified as
a Type B soil per Safety Standards for Construction Work Part N. The prescriptive maximum allowable excavation slope for soil Types B and C Soil is 1 horizontal to 1 vertical (1H:1V) and 1½H:1V, respectively. In areas where groundwater flow is present, an unstable condition may develop, requiring flatter slopes, temporary shoring, and/or dewatering. Trench boxes should provide suitable support for shallow excavations in fill and glacial till, provided the groundwater level is below the base of the excavation and settlement sensitive structures or utilities are not situated immediately adjacent to the excavation. Where a trench box is used to support excavations, one or both sides of the trench are likely to cave against the box. The caving may extend out on either side of the trench for a distance approximately equal to the depth of the trench. Additional bracing or sheeting may be required where the near edge of the trench will be closer than about 1.5 times the trench depth to settlement-sensitive structures or utilities.

Excavations that will be open for an extended period of time (e.g., treatment facility and manhole excavations) may require a temporary shoring system (such as sheet piles or soldier piles and timber lagging), or the excavation slopes could be laid back if the excavation is properly dewatered and there is sufficient space to do so. If used, the temporary shoring system should be designed by a structural engineer licensed in the state of Washington. Additionally, temporary shoring systems should be designed and constructed to support lateral loads exerted by the retained soil mass and any surcharge loads from construction equipment, construction materials, or stockpiled soil should be included in the shoring design. The soil parameters presented in Table 5 should be used to design the above-described temporary shoring systems.

Table 5. Recommended Soils Parameters for Design of Temporary Shoring

<table>
<thead>
<tr>
<th>Soil Unit</th>
<th>Moist Unit Weight (pcf)</th>
<th>Cohesion (psf)</th>
<th>Internal Angle of Friction (degrees)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fill</td>
<td>120</td>
<td>0</td>
<td>32</td>
</tr>
<tr>
<td>Glacial Till</td>
<td>140</td>
<td>0</td>
<td>40</td>
</tr>
</tbody>
</table>

pcf = pounds per cubic foot
psf = pounds per square foot

The temporary shoring design should be submitted to the City’s design team for review prior to construction.

In August 2020, Applied Professional Services performed utility pothole excavations along the project alignment using vacuum excavation technology. During pothole excavations at the intersection of North Junett Street and North 15th Street, caving soils were reportedly first encountered at 7 to 8 ft bgs. The soil conditions observed by Applied Professional Services during the pothole excavations are consistent with LAI’s understanding of soil conditions at the site and do not affect the recommendations presented above.
3.3.6 Pipe Foundation Support

Based on the subsurface conditions observed in the explorations, soils at the bottom of the proposed utility trenches are anticipated to consist primarily of soft to medium stiff/very loose to medium dense fill and very dense glacial till. These soil types should provide adequate foundation support for the proposed storm sewer, provided the soil remains in a relatively undisturbed condition, the trench is properly dewatered, and the upper 1 ft of foundation soil is compacted to a relative density of at least 95 percent of the maximum dry density, as described in Section 3.3.1 of this report.

It is anticipated that the soil at the trench bottom could be easily disturbed by construction activities, and in a disturbed condition will generally provide poor foundation support for the new storm sewer. If the trench bottom becomes disturbed due to excavation and/or foot traffic during installation of the pipe, the trench bottom may need to be overexcavated to expose undisturbed foundation soil. Unsuitable foundation material should be removed and replaced with CSTC in accordance with Section 7-08.3(1)A of the WSDOT 2020 Standard Specifications.

3.3.7 Pipe Bedding and Trench Backfill

To provide uniform support of buried utility pipes, the pipe should be bedded in accordance with Section 7-08 of the WSDOT 2020 Standard Specifications and backfilled with Bank Run Gravel for Trench Backfill, per Section 9-03.19 of the WSDOT 2020 Standard Specifications. Pipe zone backfill should be in accordance with Section 7-08.3(3) of the WSDOT 2020 Standard Specifications and the City’s Standard Plan SU-16.

As noted in Section 3.3.2 of this report, fill soils are considered moisture sensitive and are not recommended for reuse as trench backfill. Granular native site soils may be reused as trench backfill, provided they are free of deleterious materials, such as organics and rubbish. Additionally, native soils used for backfill within utility trenches should meet gradational requirements of the intended purpose, per the City’s Standard Plans SU-16 and SU-28 and the WSDOT 2020 Standard Specifications. Coarse gravel, cobbles, and debris are likely to be present in the site soils given the geologic setting. As a result, some effort (i.e., screening or manual picking) may be required by the Contractor to process some of the onsite soils to meet the specified gradational requirements.

If an insufficient amount of onsite soil is available for use as trench backfill, import fill consisting of Bank Run Gravel for Trench Backfill, per Section 9-03.19 of the WSDOT 2020 Standard Specifications should be utilized for trench backfill, per the recommendations presented in Section 3.3.1.

Backfilling of trenches should be in accordance with the City’s Standard Plans SU-16 and SU-28 and Section 7-08.3(3) of the WSDOT 2020 Standard Specifications. Trench backfill should be placed in 6- to 8-inch loose lifts and compacted to a relative density of at least 95 percent of the maximum dry density. Determination of the maximum dry density should be in accordance with the requirements of Section 2-03.3(14)D of the WSDOT 2020 Standard Specifications. Alternatively, the maximum dry
density may be determined using ASTM Test Method D 1557 (modified Proctor). Flooding and/or jetting of backfill should not be used as a means to consolidate or compact trench backfill. Hand-operated compaction equipment, or other approved methods, should be used to compact the first 18 inches of trench backfill above the pipe.

3.3.8 Underground Utility Vaults

The subgrade soils beneath the proposed treatment system components are anticipated to consist of soft to medium stiff/very loose to medium dense fill or very dense glacial till. The subgrade soil is expected to provide adequate foundation support, provided the upper 2 inches of foundation soil is removed and replaced with CSTC to create a levelling course. The upper 12 inches of foundation soil should be compacted to 95 percent of the maximum dry density, as described in Section 3.3.1 of this report. If subgrade soil is disturbed during construction, and the upper 12 inches cannot be compacted to at least 95 percent of the maximum dry density, the soil should be removed and replaced with CSTC, per Section 7-08.3(1)A of the WSDOT 2020 Standard Specifications.

Buried utility structures are subjected to upward buoyancy forces when the groundwater level around the structure is higher than the fluid level inside the structure. As described in Section 2.5 of this report, groundwater was observed at depths ranging from 55 to 60.3 ft bgs, which is well below the anticipated depths of deep utility structures; therefore, buoyancy forces are not anticipated to be a concern.

Lateral earth pressures against the proposed deep utilities will depend upon the type of backfill, degree of wall restraint, method of backfill placement, degree of backfill compaction, drainage provisions, and magnitude and location of any adjacent surcharge loads. At-rest soil pressure is exerted on a subsurface structure or wall when it is restrained against rotation. In contrast, active soil pressure will be exerted on a subsurface structure or wall if its top is allowed to rotate or yield a distance of roughly 0.001 times its height or greater.

For this project, the walls of the proposed utility structures are assumed to be restrained against rotation and these structures will have level backfill. As such, these below grade structures should be designed for a horizontal at-rest equivalent fluid density of 55 pounds per cubic foot (pcf). This value assumes that the backfill placed around the utility structures will consist of properly compacted Bank Run Gravel for Trench Backfill, that there are no adjacent surcharge loads, and that hydrostatic pressures will not act on the utility structures. If the utility structures will be subjected to the influence of surcharge loading within a horizontal distance equal to or less than the depth of the structure, the structure should be designed for the additional horizontal pressure. The additional lateral earth pressure from surcharge loads can be estimated as a uniform pressure distribution equal to 43 percent of the surcharge pressure. At a minimum, a uniform vertical surcharge pressure of 250 psf is recommended to account for typical traffic surcharge loads when designing underground utility vaults.
### 3.3.9 Secant Pile Manhole Structure

LAI understands that it will be necessary to construct a new storm drain manhole #5A to meet the hydraulic capacity demands of the proposed storm drainage system upgrades. The proposed new manhole structure will have an inside diameter of approximately 10 ft and will extend to a depth of approximately 50 ft. LAI initially reviewed various methods for shaft construction of the new manhole structure, including sunken caisson, secant piles, soldier piles, ground freezing, and other contractor-designed shoring systems. Many of these methods were determined to be infeasible, uneconomical, or would have too great of an impact on the residential setting. Based on discussions with the City and Parametrix, LAI understands that the preferred construction method is a secant pile structure.

Secant pile wall construction involves augering vertical boreholes, using a combination of casing or slurry to support the side walls, installing reinforcement, and placing concrete in the borehole. This process is repeated and sequenced such that two primary boreholes are installed with less than one pile diameter between them. After these primary boreholes are completed, a secondary borehole is augered between the two primary boreholes. Typically, the secondary piles receive reinforcement, while the primary piles are unreinforced. After the secant piles are installed, the soil on the inside of the secant piles is excavated, and a tremie slab is constructed at the base of the shaft.

#### 3.3.9.1 Soil Conditions

As described in Section 2.3, soils in the vicinity of the proposed secant pile structure are anticipated to consist of 38 to 42.5 ft of very loose to dense or medium stiff to very stiff fill, consisting of sand with variable amounts of gravel, cobbles, and silt; and silt with variable amounts of sand, gravel, and cobbles. The fill was observed to be underlain by dense to very dense glacial till, consisting of sand with variable amounts of silt and gravel. Exploratory borings in the vicinity of the new secant pile structure encountered brick debris. Given the geologic setting, debris could also consist of concrete and wood, and should be anticipated during construction of the secant pile structure. Cobble and boulders should also be anticipated during construction. LAI recommends that the cost estimate includes a contingency to account for potential obstructions. A geologic cross section at the location of the proposed secant pile structure is presented on Figure 3.

#### 3.3.9.2 Lateral Earth Pressures

The method of shaft construction, the type and properties of the shaft, groundwater conditions, and the properties of the soil surrounding the shaft will all affect lateral pressures on the shaft structure. The earth pressures exerted on the shaft structure are also affected by surcharge loads and seismicity. The proposed secant pile shaft will be constructed as a compression ring structure and is assumed to be rigid such that soil will not be able to yield enough to mobilize active earth pressure conditions. In this circumstance, lateral earth pressures somewhat less than at-rest earth pressures are anticipated. The earth pressures presented in Figure 4, which conservatively assumes at-rest earth pressures will develop, can be used to design the secant pile structure.
3.3.9.3 Bottom Seal

Shaft-like utility structures typically include a tremie seal consisting of unreinforced concrete or a soil plug consisting of native soil to resist hydrostatic pressures against the base of the shaft. As noted previously, groundwater was observed at a depth of about 55 to 60 ft in the vicinity of the proposed shaft structure. LAI observed groundwater conditions at the proposed shaft location on three occasions over a relatively short period of time. Because of the short duration of groundwater monitoring that was performed, there is risk that a high groundwater condition may occur beyond what was observed. While groundwater was not observed within the anticipated depth of the shaft structure, LAI recommends a seal be constructed at the base of the shaft to provide a factor of safety in the event that groundwater conditions are greater than those observed. LAI understands that the design team intends to construct a 36-inch-thick reinforced concrete slab at the bottom of the shaft structure. The secant piles will extend at least 2 ft below the bottom slab to create a soil plug beneath the slab. The 2-ft soil plug, combined with a 3-ft-thick bottom slab, is anticipated to be equivalent to the buoyant forces resulting from a groundwater elevation of about 11.5 ft above the bottom of the soil plug. To achieve a groundwater elevation 11.5 ft above the bottom of the soil plug, the observed groundwater elevation would need to increase by approximately 16.5 ft. Based on LAI’s observations and experience at the site, it is not anticipated that groundwater conditions will exceed this condition.

3.3.9.4 Construction Considerations

Failure to maintain verticality and overlap tolerances can result in gaps between the secant piles, resulting in groundwater (if present) seeping through the walls of the structure. Following excavation of the shaft interior, the secant piles should be inspected, and contract documents should include provisions for sealing any gaps that are identified. Sealing gaps will also help prevent soil from entering the shaft.

As described previously, the proposed secant pile structure will be installed within fill soils and glacial till. Various construction debris such as bricks, concrete, and wood are likely to be encountered within the fill soils. Cobbles and boulders may be encountered in both the fill soils and the native glacial till. The Contractor should be prepared to drill through these obstructions. Additionally, the fill soils are not anticipated to have adequate standup time to allow open-hole drilling, therefore the Contractor should be prepared to use casing or slurry to keep the hole open during drilling.

Because the secondary secant piles are installed by augering partially through previously installed primary piles, proper timing is crucial to ensure that the freshly placed concrete has not set up to the point where it becomes difficult to auger through. Augering through concrete that has been allowed too much time to set up can result in significant construction delays, as well as challenges meeting verticality and overlap tolerances.
4.0 REVIEW OF DOCUMENTS AND CONSTRUCTION OBSERVATIONS

It is recommended that LAI be retained to review the geotechnical-related portions of the project plans and specifications to confirm they are consistent with the recommendations presented in this report. It is also recommended that LAI be retained to provide monitoring, testing, and consultation services during construction to confirm that the conditions encountered are consistent with those indicated by the explorations described herein, to provide recommendations should conditions be revealed during construction that differ from those anticipated, and to evaluate whether geotechnical-related construction activities comply with project plans/specifications and the recommendations contained in this report.
5.0 USE OF THIS REPORT

LAI prepared this report for the exclusive use of Parametrix and the City of Tacoma for specific application to the design of the proposed Upper Buckley Water Quality project in Tacoma, Washington. Use of this report by others or for other projects is at the user’s sole risk. Within the limitations of scope, schedule, and budget, LAI’s services have been conducted in accordance with generally accepted practices of the geotechnical engineering profession; no other warranty, express or implied, is made as to the professional advice included in this report.

The conclusions and recommendations contained in this report are based in part upon the subsurface data obtained from the explorations completed for this study. There may be some variation in subsurface soil and groundwater conditions along the project alignment, and the nature and extent of the variations may not become evident until construction. Accordingly, a contingency for unanticipated conditions should be included in the construction budget and schedule.

If variations in subsurface conditions are encountered during construction, LAI should be notified for review of the recommendations in this report, and revision of such if necessary. If there is a substantial lapse of time between submission of this report and the start of construction, or if conditions change due to construction operations at or adjacent to the project alignment, LAI should review this report to determine the applicability of the conclusions and recommendations contained herein.
6.0 REFERENCES


NOTES
1. THE PURPOSE OF THIS SHEET IS TO PRESENT INFORMATION ON SOIL AND GROUNDWATER CONDITIONS IN THE VICINITY OF SDMH #5A.
2. GEOLOGIC CROSS SECTION HAS BEEN INTERPRETED FROM PROJECT FIELD DATA. VARIATIONS BETWEEN THIS CROSS SECTION AND ACTUAL CONDITIONS MAY EXIST.
3. SP: POORLY GRADED SAND; GRAVELLY SAND; LITTLE OR NO FINES. SP-SM: POORLY GRADED SAND OR GRAVELLY SAND WITH AN ESTIMATED 5-15% FINES. SM: SILTY SAND, SAND/SILT MIXTURE(S). ML: INORGANIC SILT AND VERY FINE SAND; ROCK FLOUR; SILTY OR CLAYEY FINE SAND OR CLAYEY Silt WITH SLIGHT PLASTICITY.
4. THIS GEOLOGIC PROFILE WAS PREPARED USING STORM DRAIN PROFILES PREPARED BY PARAMETRIX, DATED APRIL 2021 AND WATER MAIN PROFILES PREPARED BY TACOMA PUBLIC UTILITIES, DATED MAY 2021.

Source: Parametrix 2021; Tacoma Public Utilities 2021

Legend
- Project Exploration Designation
- Offset Distance in Feet and Direction
- Top of Exploration
- Unified Soils Classification Symbol (see Note 3)
- Standard Penetration Test Sample Blow Count
- Inferred Geologic Contact
- Bottom of Exploration
- Depth of Exploration

Geologic Profile A-A'
Vertical Scale in Feet: 1"=20'

Scale in Feet
0 20 40
Notes
1) When calculating lateral earth pressures, Landau Associates assumed that a secant pile compression ring structure would be used.
2) All earth pressures are in terms of pounds per square foot, with dimensions in feet.
3) Landau Associates has assumed that the compression ring will be rigid, and at-rest conditions will develop on the compression ring.
4) The secant pile manhole structure should be designed to resist the sum of the lateral earth pressures, lateral component of surcharge loads, and seismic earth pressures.
5) Landau Associates has assumed that the water table will be located below the base of the compression ring structure and that hydrostatic pressure will not develop on the compression ring structure.
Field Explorations
APPENDIX A
FIELD EXPLORATIONS

Site subsurface conditions were explored on April 16 and 17, 2020 and on February 1 and 2, 2021. Holocene Drilling, Inc., subcontracted by Landau Associates, Inc. (LAI), advanced five geotechnical borings (B-1 through B-5) 31.5 to 61.5 feet below ground surface. Borings B-1 through B-3 were advanced using the hollow-stem auger drilling technique, and borings B-4 and B-5 were advanced using the Rotosonic technique. Approximate exploration locations are shown on Figure 2. The ground surface elevation at each location was not determined.

The field exploration program was coordinated and monitored by LAI personnel, who also obtained representative soil samples, maintained a detailed record of the subsurface soil and groundwater conditions observed, and described the soil encountered by visual and textural examination. Each representative soil type was described using the soil classification system shown on Figure A-1, in general accordance with ASTM International standard test method D2488, *Standard Recommended Practice for Description of Soils (Visual-Manual Procedure)*. Summary boring logs are presented on Figures A-2 through A-6. The stratigraphic contacts shown on the logs represent the approximate boundaries between soil types; actual transitions may be more gradual. The soil and groundwater conditions depicted are for the specific dates and locations indicated and may not be representative of other locations and/or times.

Disturbed soil samples were obtained from the borings at select intervals, using a 1.5-inch-inside-diameter split-spoon sampler. A 140-pound automatic hammer, falling approximately 30 inches, was used to drive the sampler 18 inches (or a portion thereof) into the undisturbed soil. The number of blows required to drive the sampler for the final 12 inches of soil penetration (or a portion thereof) is noted on the boring logs, adjacent to the appropriate sample notation.

Samples were transported to LAI's soils laboratory for further examination and testing. Test results are included in Appendix B.

Upon completion of drilling and sampling, boring B-5 was completed with a groundwater monitoring well. The other boreholes were decommissioned in general accordance with the requirements in Chapter 173-160 of the Washington Administrative Code.
Soil Classification System

<table>
<thead>
<tr>
<th>MAJOR DIVISIONS</th>
<th>GRAPHIC SYMBOL</th>
<th>USCS LETTER SYMBOL</th>
<th>TYPICAL DESCRIPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRAVEL AND GRAVELLY SOIL (More than 50% of coarse fraction retained on No. 4 sieve)</td>
<td>CLEAN GRAVEL</td>
<td>GW</td>
<td>Well-graded gravel; gravel/sand mixture(s); little or no fines</td>
</tr>
<tr>
<td></td>
<td>GRAVEL WITH FINES (Appreciable amount of fines)</td>
<td>GP</td>
<td>Poorly graded gravel; gravel/sand mixture(s); little or no fines</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GM</td>
<td>Silty gravel; gravel/sand/silt mixture(s)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GC</td>
<td>Clayey gravel; gravel/sand/clay mixture(s)</td>
</tr>
<tr>
<td>SAND AND SANDY SOIL (More than 50% of coarse fraction passed through No. 4 sieve)</td>
<td>CLEAN SAND</td>
<td>SW</td>
<td>Well-graded sand; gravelly sand; little or no fines</td>
</tr>
<tr>
<td></td>
<td>SAND WITH FINES (Appreciable amount of fines)</td>
<td>SM</td>
<td>Silty sand; sand/silt mixture(s)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SC</td>
<td>Clayey sand; sand/clay mixture(s)</td>
</tr>
<tr>
<td>SILT AND CLAY (Liquid limit less than 50)</td>
<td>ML</td>
<td>CH</td>
<td>Inorganic silt and very fine sand; rock flour; silty or clayey fine sand or clayey silt with slight plasticity</td>
</tr>
<tr>
<td></td>
<td>CL</td>
<td>OL</td>
<td>Inorganic clay of low to medium plasticity; gravelly clay; sandy clay; silty clay; lean clay</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Organic silt; organic, silty clay of low plasticity</td>
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<td>SILT AND CLAY (Liquid limit greater than 50)</td>
<td>MH</td>
<td>OH</td>
<td>Inorganic clay of high plasticity; fat clay</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Organic clay of medium to high plasticity; organic silt</td>
</tr>
<tr>
<td>HIGHLY ORGANIC SOIL</td>
<td>PT</td>
<td></td>
<td>Peat; humus; swamp soil with high organic content</td>
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</tbody>
</table>

Other Materials

<table>
<thead>
<tr>
<th>GRAPHIC SYMBOL</th>
<th>LETTER SYMBOL</th>
<th>TYPICAL DESCRIPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAVEMENT</td>
<td>AC or PC</td>
<td>Asphalt concrete pavement or Portland cement pavement</td>
</tr>
<tr>
<td>ROCK</td>
<td>RK</td>
<td>Rock (See Rock Classification)</td>
</tr>
<tr>
<td>WOOD</td>
<td>WD</td>
<td>Wood, lumber, wood chips</td>
</tr>
<tr>
<td>DEBRIS</td>
<td>DB</td>
<td>Construction debris, garbage</td>
</tr>
</tbody>
</table>

Notes:
1. USCS letter symbols correspond to symbols used by the Unified Soil Classification System and ASTM classification methods. Dual letter symbols (e.g., SP-SM for sand or gravel) indicate soil with an estimated 5-15% fines. Multiple letter symbols (e.g., ML/CL) indicate borderline or multiple soil classifications.

2. Soil descriptions are based on the general approach presented in the Standard Practice for Description and Identification of Soils (Visual-Manual Procedure), outlined in ASTM D 2488. Where laboratory index testing has been conducted, soil classifications are based on the Standard Test Method for Classification of Soils for Engineering Purposes, as outlined in ASTM D 2487.

3. Soil description terminology is based on visual estimates (in the absence of laboratory test data) of the percentages of each soil type and is defined as follows:
   - Primary Constituent: > 50% - "GRAVEL," "SAND," "SILT," "CLAY,” etc.
   - Secondary Constituents: > 30% and < 50% - "very gravelly," "very sandy," "very silty," etc.
   - > 15% and < 30% - "gravelly," "sandy," "silty," etc.
   - Additional Constituents: > 5% and < 15% - "with gravel," "with sand," "with silt," etc.

4. Soil density or consistency descriptions are based on judgement using a combination of sampler penetration blow counts, drilling or excavating conditions, field tests, and laboratory tests, as appropriate.

Drilling and Sampling Key

<table>
<thead>
<tr>
<th>sampler type</th>
<th>SAMPLE NUMBER &amp; INTERVAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>a</td>
<td>3.25-inch O.D., 2.42-inch I.D. Split Spoon</td>
</tr>
<tr>
<td>b</td>
<td>2.00-inch O.D., 1.50-inch I.D. Split Spoon</td>
</tr>
<tr>
<td>c</td>
<td>Shelby Tube</td>
</tr>
<tr>
<td>d</td>
<td>Grab Sample</td>
</tr>
<tr>
<td>e</td>
<td>Single-Tube Core Barrel</td>
</tr>
<tr>
<td>f</td>
<td>Double-Tube Core Barrel</td>
</tr>
<tr>
<td>g</td>
<td>2.50-inch O.D., 2.00-inch I.D. WSDOT</td>
</tr>
<tr>
<td>h</td>
<td>3.00-inch O.D., 2.375-inch I.D. Mod. California</td>
</tr>
<tr>
<td>i</td>
<td>Other - See text if applicable</td>
</tr>
<tr>
<td>1</td>
<td>300-lb Hammer, 30-inch Drop</td>
</tr>
<tr>
<td>2</td>
<td>140-lb Hammer, 30-inch Drop</td>
</tr>
<tr>
<td>3</td>
<td>Pushed</td>
</tr>
<tr>
<td>4</td>
<td>Vibrocore (Rotosonic/Geoprobe)</td>
</tr>
<tr>
<td>5</td>
<td>Other - See text if applicable</td>
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</table>

Field and Lab Test Data

<table>
<thead>
<tr>
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<th>Description</th>
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<tbody>
<tr>
<td>PID</td>
<td>100</td>
</tr>
<tr>
<td>W</td>
<td>10</td>
</tr>
<tr>
<td>D</td>
<td>120</td>
</tr>
<tr>
<td>-200</td>
<td>60</td>
</tr>
<tr>
<td>GS</td>
<td>Grain Size - See separate figure for data</td>
</tr>
<tr>
<td>AL</td>
<td>Atterberg Limits - See separate figure for data</td>
</tr>
<tr>
<td>GT</td>
<td>Other Geotechnical Testing</td>
</tr>
<tr>
<td>CA</td>
<td>Chemical Analysis</td>
</tr>
</tbody>
</table>

Groundwater

| Approximate water level at time of drilling (ATD) |
| Approximate water level at time after drilling/excavation/well |

Upper Buckley Water Quality Project
Tacoma, Washington

Soil Classification System and Key
### Sample Data

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Sample Number &amp; Interval</th>
<th>Sampler Type</th>
<th>Blows/Foot</th>
<th>Test Data</th>
<th>Graphic Symbol</th>
<th>USCS Symbol</th>
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<tbody>
<tr>
<td>0</td>
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<td></td>
</tr>
<tr>
<td>3</td>
<td>S-1</td>
<td>b2</td>
<td>3</td>
<td>W = 13</td>
<td></td>
<td>PC</td>
</tr>
<tr>
<td>4</td>
<td>S-2</td>
<td>b2</td>
<td>4</td>
<td></td>
<td></td>
<td>ME</td>
</tr>
<tr>
<td>6</td>
<td>S-3</td>
<td>b2</td>
<td>6</td>
<td></td>
<td></td>
<td>(FILL)</td>
</tr>
<tr>
<td>4</td>
<td>S-4</td>
<td>b2</td>
<td>4</td>
<td>W = 16</td>
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<td>GS</td>
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<td>S-5</td>
<td>b2</td>
<td>5</td>
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<td>8</td>
<td>S-6</td>
<td>b2</td>
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<td>6</td>
<td>S-7</td>
<td>b2</td>
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<td>76</td>
<td>S-8</td>
<td>b2</td>
<td>76</td>
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</tbody>
</table>

### Soil Profile

**Drilling Method:** Hollow-Stem Auger  
**Ground Elevation (ft):** Not Determined  
**Logged By:** BCS  
**Date:** 04/16/20

1. Stratigraphic contacts are based on field interpretations and are approximate.  
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.  
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

---

**Notes:**

- Portland cement concrete pavement (6-inch thickness)  
- Brown Silt with sand, trace gravel, and organics (soft, moist)  
- Trace brick debris  
- Brown, silty SAND with gravel and organics (very loose, moist)  
- Grades to very silty  
- Brown Silt with sand, organics, and trace gravel (medium stiff, moist)  
- Grades to sandy Silt with gravel  
- Brown, silty, gravelly SAND (very dense, moist)  
- Gray, gravelly, fine to coarse SAND with silt (very dense, moist)
**B-1**

**SAMPLE DATA**

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Elevation</th>
<th>Sample Number &amp; Interval</th>
<th>Sampler Type</th>
<th>Blows/foot</th>
<th>Test Data</th>
<th>Graphic Symbol</th>
<th>USCS Symbol</th>
<th>Logged By</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td></td>
<td>S-9</td>
<td>b2</td>
<td>50/4</td>
<td></td>
<td></td>
<td></td>
<td>BCS</td>
<td>04/16/20</td>
</tr>
</tbody>
</table>

Boring Completed 04/16/20
Total Depth of Boring = 36.0 ft.

**SOIL PROFILE**

<table>
<thead>
<tr>
<th>Moisture Content (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic</td>
</tr>
<tr>
<td>20</td>
</tr>
<tr>
<td>40</td>
</tr>
<tr>
<td>60</td>
</tr>
<tr>
<td>80</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Groundwater</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Observed</td>
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</tbody>
</table>

**Notes:**
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

**Upper Buckley Water Quality Project**
Tacoma, Washington

**Log of Boring B-1**

**Figure A-2** (2 of 2)
Notes: 1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.
Notes:

1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.
SAMPLE DATA

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Elevation (ft)</th>
<th>Sample Number &amp; Interval</th>
<th>Sampler Type</th>
<th>Blows/foot</th>
<th>Test Data</th>
<th>Graphic Symbol</th>
<th>USCS Symbol</th>
<th>Ground Elevation (ft)</th>
<th>Moisture Content (%)</th>
<th>Groundwater</th>
</tr>
</thead>
<tbody>
<tr>
<td>50/6</td>
<td>S-9</td>
<td>b2</td>
<td></td>
<td>W = 4</td>
<td>GP</td>
<td>Gray, very sandy GRAVEL with trace silt (very dense, moist to wet)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>S-10</td>
<td>b2</td>
<td></td>
<td>42</td>
<td>SP</td>
<td>Tan, fine to medium SAND with trace silt (very dense, moist to wet)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>69</td>
<td>S-11</td>
<td>b2</td>
<td></td>
<td>69</td>
<td></td>
<td>-grades to gravelly and gray</td>
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<tr>
<td>75</td>
<td>S-12</td>
<td>b2</td>
<td></td>
<td>75</td>
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<td>-grades to with trace gravel</td>
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<tr>
<td>86</td>
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</tbody>
</table>

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

Boring Completed 04/17/20
Total Depth of Boring = 61.5 ft.
### Sample Data

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Sample Number &amp; Interval</th>
<th>Sampler Type</th>
<th>Bows/Foot</th>
<th>Test Data</th>
<th>Graphic Symbol</th>
<th>USCS Symbol</th>
<th>Ground Elevation (ft)</th>
<th>Drilling Method</th>
<th>Groundwater</th>
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</tbody>
</table>

**Notes:**
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

---

### Soil Profile

**Upper Buckley Water Quality Project**

**Tacoma, Washington**

**Log of Boring B-4**

**Figure**

**A-5**

(1 of 2)
Notes:  
1. Stratigraphic contacts are based on field interpretations and are approximate.  
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.  
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.
Notes: 1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.
Boring Completed 02/01/21
Total Depth of Boring = 61.5 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.
Laboratory Soil Testing
APPENDIX B
LABORATORY SOIL TESTING

Soil samples were transported to Landau Associates, Inc.'s geotechnical laboratory for physical property testing and to Eurofins’ (formerly TestAmerica) laboratory for environmental analysis. Physical property tests were performed in accordance with the ASTM International (ASTM) standard test methods noted below.

Natural Moisture Content
Natural moisture content determinations were performed on select soil samples in accordance with ASTM standard test method D2216, Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass. The natural moisture content is shown as W = xx (i.e., percentage of dry weight) in the “Test Data” column on the summary logs in Appendix A.

Grain Size Analysis
Grain size analyses were performed in accordance with ASTM standard test method D422, Standard Test Method for Particle-Size Analysis of Soils. Samples selected for grain size analysis are designated with a “GS” in the “Test Data” column on the summary logs in Appendix A. The results of the grain size analyses are presented on Figures B-1 through B-3.

Polychlorinated Biphenyl Analysis
Soil samples were submitted to Eurofins, where they were analyzed for polychlorinated biphenyls using U.S. Environmental Protection Agency Method 8082A. The Eurofins’ laboratory package is included in Appendix B.
The provided image contains a grain size distribution chart with corresponding data for different soil types and their descriptions. The chart includes a logarithmic scale for percent finer by weight and grain size in millimeters.

### Soil Descriptions

**Cobbles**

- **Symbol**: ●
- **Exploration Number**: B-1
- **Sample Number**: S-4
- **Depth (ft)**: 10.0
- **Natural Moisture (%)**: 16
- **Soil Description**: Brown, silty SAND with gravel and organics
- **Unified Soil Classification**: SM

**Gravel**

- **Symbol**: ❌
- **Exploration Number**: B-2
- **Sample Number**: S-4
- **Depth (ft)**: 10.0
- **Natural Moisture (%)**: 10
- **Soil Description**: Brown, gravelly SAND with trace silt, glass, and brick debris
- **Unified Soil Classification**: SP

**Sand**

- **Symbol**: ▲
- **Exploration Number**: B-3
- **Sample Number**: S-4
- **Depth (ft)**: 10.0
- **Natural Moisture (%)**: 5
- **Soil Description**: Tan, fine to medium SAND with gravel and silt
- **Unified Soil Classification**: SP-SM

- **Symbol**: ★
- **Exploration Number**: B-4
- **Sample Number**: S-1
- **Depth (ft)**: 2.5
- **Natural Moisture (%)**: 11
- **Soil Description**: Silty, gravelly SAND
- **Unified Soil Classification**: SM

- **Symbol**: ❄
- **Exploration Number**: B-4
- **Sample Number**: S-3
- **Depth (ft)**: 7.5
- **Natural Moisture (%)**: 19
- **Soil Description**: Gravelly, silty SAND
- **Unified Soil Classification**: SM

### Conclusion

The chart illustrates the grain size distribution for various soil types, with specific exploration numbers, sample numbers, depths, natural moisture percentages, and soil descriptions. The unified soil classifications are also provided for each entry.
U.S. Sieve Opening in Inches

U.S. Sieve Numbers

Hydrometer

Percent Finer by Weight

Grain Size in Millimeters

Cobbles

Gravel

Sand

Silt or Clay

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Exploration Number</th>
<th>Sample Number</th>
<th>Depth (ft)</th>
<th>Natural Moisture (%)</th>
<th>Soil Description</th>
<th>Unified Soil Classification</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>B-5</td>
<td>S-4</td>
<td>10.0</td>
<td>13</td>
<td>Very gravelly, silty SAND</td>
<td>SM</td>
</tr>
<tr>
<td></td>
<td>B-5</td>
<td>S-5</td>
<td>15.0</td>
<td>14</td>
<td>Silty, gravelly SAND</td>
<td>SM</td>
</tr>
<tr>
<td></td>
<td>B-5</td>
<td>S-6</td>
<td>20.0</td>
<td>13</td>
<td>Silty, gravelly SAND</td>
<td>SM</td>
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<tr>
<td></td>
<td>B-5</td>
<td>S-8</td>
<td>30.0</td>
<td>16</td>
<td>Silty SAND with gravel</td>
<td>SM</td>
</tr>
<tr>
<td></td>
<td>B-5</td>
<td>S-10</td>
<td>40.0</td>
<td>14</td>
<td>Gravelly, silty SAND</td>
<td>SM</td>
</tr>
</tbody>
</table>

Upper Buckley Water Quality Project
Tacoma, WA

Grain Size Distribution

Figure B-3
ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-96596-1
Client Project/Site: Upper Buckley Storm Improvement

For:
Landau & Associates, Inc.
130 Second Ave South
Edmonds, Washington 98020

Attn: Chris Kimmel

Authorized for release by:
8/19/2020 4:54:05 PM
Sheri Cruz, Project Manager I
(253)922-2310
Sheri.Cruz@Eurofinsus.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.
# Table of Contents

- Cover Page .......................................................... 1
- Table of Contents .................................................. 2
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- Chain of Custody ................................................... 6
- Receipt Checklists .................................................. 7
- Client Sample Results ............................................. 8
- QC Sample Results ................................................ 11
- Chronicle ............................................................. 12
- Certification Summary ............................................ 13
Job ID: 580-96596-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative
580-96596-1

Comments
No additional comments.

Receipt
The samples were received on 8/8/2020 2:30 PM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 23.8° C.

Receipt Exceptions
The following samples were received at the laboratory outside the required temperature criteria: LAIHH01(0-1.5) (580-96596-1), LAIHH02(0-1.5) (580-96596-2) and LAIHH03(0-1.5) (580-96596-3). The sample(s) is considered acceptable since it was collected and submitted to the laboratory on the same day and there is evidence that the chilling process has begun.

GC Semi VOA
Method 8082A: The continuing calibration verification (CCV) associated with 580-335723 recovered high and outside the control limits for PCB-1016, PCB-1260, PCB-1242 and DCE Decachlorobiphenyl on one column. Results are confirmed on both columns and reported from the passing column. The associated samples are: LAIHH01(0-1.5) (580-96596-1), LAIHH02(0-1.5) (580-96596-2), LAIHH03(0-1.5) (580-96596-3), (CCV 580-335723/19), (CCV 580-335723/31), (CCV 580-335723/6) and (CCVIS 580-335723/3).

Method 8082A: The following samples required a mercury clean-up to reduce matrix interferences caused by sulfur: LAIHH01(0-1.5) (580-96596-1), LAIHH02(0-1.5) (580-96596-2), LAIHH03(0-1.5) (580-96596-3), (LCS 580-335317/3-A) and (MB 580-335317/1-A).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td>%R</td>
<td>Percent Recovery</td>
</tr>
<tr>
<td>CFL</td>
<td>Contains Free Liquid</td>
</tr>
<tr>
<td>CFU</td>
<td>Colony Forming Unit</td>
</tr>
<tr>
<td>CNF</td>
<td>Contains No Free Liquid</td>
</tr>
<tr>
<td>DER</td>
<td>Duplicate Error Ratio (normalized absolute difference)</td>
</tr>
<tr>
<td>Dil Fac</td>
<td>Dilution Factor</td>
</tr>
<tr>
<td>DL</td>
<td>Detection Limit (DoD/DOE)</td>
</tr>
<tr>
<td>DL, RA, RE, IN</td>
<td>Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample</td>
</tr>
<tr>
<td>DLC</td>
<td>Decision Level Concentration (Radiochemistry)</td>
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<tr>
<td>EDL</td>
<td>Estimated Detection Limit (Dioxin)</td>
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<tr>
<td>LOD</td>
<td>Limit of Detection (DoD/DOE)</td>
</tr>
<tr>
<td>LOQ</td>
<td>Limit of Quantitation (DoD/DOE)</td>
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<tr>
<td>MCL</td>
<td>EPA recommended &quot;Maximum Contaminant Level&quot;</td>
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<tr>
<td>MDA</td>
<td>Minimum Detectable Activity (Radiochemistry)</td>
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<tr>
<td>MDC</td>
<td>Minimum Detectable Concentration (Radiochemistry)</td>
</tr>
<tr>
<td>MDL</td>
<td>Method Detection Limit</td>
</tr>
<tr>
<td>ML</td>
<td>Minimum Level (Dioxin)</td>
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<tr>
<td>MPN</td>
<td>Most Probable Number</td>
</tr>
<tr>
<td>MQL</td>
<td>Method Quantitation Limit</td>
</tr>
<tr>
<td>NC</td>
<td>Not Calculated</td>
</tr>
<tr>
<td>ND</td>
<td>Not Detected at the reporting limit (or MDL or EDL if shown)</td>
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<tr>
<td>NEG</td>
<td>Negative / Absent</td>
</tr>
<tr>
<td>POS</td>
<td>Positive / Present</td>
</tr>
<tr>
<td>PQL</td>
<td>Practical Quantitation Limit</td>
</tr>
<tr>
<td>PRES</td>
<td>Presumptive</td>
</tr>
<tr>
<td>QC</td>
<td>Quality Control</td>
</tr>
<tr>
<td>RER</td>
<td>Relative Error Ratio (Radiochemistry)</td>
</tr>
<tr>
<td>RL</td>
<td>Reporting Limit or Requested Limit (Radiochemistry)</td>
</tr>
<tr>
<td>RPD</td>
<td>Relative Percent Difference, a measure of the relative difference between two points</td>
</tr>
<tr>
<td>TEF</td>
<td>Toxicity Equivalent Factor (Dioxin)</td>
</tr>
<tr>
<td>TEQ</td>
<td>Toxicity Equivalent Quotient (Dioxin)</td>
</tr>
<tr>
<td>TN TC</td>
<td>Too Numerous To Count</td>
</tr>
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</table>
### Sample Summary

Client: Landau & Associates, Inc.
Project/Site: Upper Buckley Storm Improvement

<table>
<thead>
<tr>
<th>Lab Sample ID</th>
<th>Client Sample ID</th>
<th>Matrix</th>
<th>Collected</th>
<th>Received</th>
<th>Asset ID</th>
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</thead>
<tbody>
<tr>
<td>580-96596-1</td>
<td>LAIHH01(0-1.5)</td>
<td>Solid</td>
<td>08/06/20 13:20</td>
<td>08/06/20 14:30</td>
<td></td>
</tr>
<tr>
<td>580-96596-2</td>
<td>LAIHH02(0-1.5)</td>
<td>Solid</td>
<td>08/06/20 13:40</td>
<td>08/06/20 14:30</td>
<td></td>
</tr>
<tr>
<td>580-96596-3</td>
<td>LAIHH03(0-1.5)</td>
<td>Solid</td>
<td>08/06/20 13:55</td>
<td>08/06/20 14:30</td>
<td></td>
</tr>
<tr>
<td>Sample I.D.</td>
<td>Date</td>
<td>Time</td>
<td>Matrix</td>
<td>No. of Containers</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>--------</td>
<td>-------</td>
<td>--------</td>
<td>-------------------</td>
<td></td>
</tr>
<tr>
<td>LA1 HH01 (0-1.5)</td>
<td>8/10/20</td>
<td>13:20</td>
<td>SOLID</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>LA1 HH02 (0-1.5)</td>
<td>8/10/20</td>
<td>13:40</td>
<td>SOLID</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>LA1 HH03 (0-1.5)</td>
<td>8/10/20</td>
<td>13:55</td>
<td>SOLID</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Observations/Comments:
- Allow water samples to settle, collect aliquot from clear portion
- NWTPH-Dx - Acid wash cleanup
- Silica gel cleanup

Dissolved metal samples were field filtered

Therm ID: 234 Cor. JH Inc.
Login Sample Receipt Checklist

Client: Landau & Associates, Inc.

Login Number: 96596
List Number: 1
Creator: Presley, Kim A

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radioactivity wasn't checked or is &lt;= background as measured by a survey meter.</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>The cooler's custody seal, if present, is intact.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Sample custody seals, if present, are intact.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>The cooler or samples do not appear to have been compromised or tampered with.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Samples were received on ice.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Cooler Temperature is acceptable.</td>
<td>True</td>
<td>Received same day of collection; chilling process has begun.</td>
</tr>
<tr>
<td>Cooler Temperature is recorded.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>COC is present.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>COC is filled out in ink and legible.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>COC is filled out with all pertinent information.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Is the Field Sampler's name present on COC?</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>There are no discrepancies between the containers received and the COC.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Samples are received within Holding Time (excluding tests with immediate HTs)</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Sample containers have legible labels.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Containers are not broken or leaking.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Sample collection date/times are provided.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Appropriate sample containers are used.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Sample bottles are completely filled.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Sample Preservation Verified.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Containers requiring zero headspace have no headspace or bubble is &lt;=6mm (1/4&quot;).</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Multiphasic samples are not present.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Samples do not require splitting or compositing.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Residual Chlorine Checked.</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>
Client Sample Results

Client: Landau & Associates, Inc.
Project/Site: Upper Buckley Storm Improvement

Client Sample ID: LAIHH01(0-1.5)  Lab Sample ID: 580-96596-1
Date Collected: 08/06/20 13:20  Matrix: Solid
Date Received: 08/06/20 14:30  Percent Solids: 91.3

### Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Result</th>
<th>Qualifier</th>
<th>RL</th>
<th>MDL</th>
<th>Unit</th>
<th>D</th>
<th>Prepared</th>
<th>Analyzed</th>
<th>Dil Fac</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCB-1016</td>
<td>ND</td>
<td>0.021</td>
<td>mg/Kg</td>
<td>08/11/20 14:28</td>
<td>08/15/20 02:41</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCB-1221</td>
<td>ND</td>
<td>0.021</td>
<td>mg/Kg</td>
<td>08/11/20 14:28</td>
<td>08/15/20 02:41</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCB-1232</td>
<td>ND</td>
<td>0.021</td>
<td>mg/Kg</td>
<td>08/11/20 14:28</td>
<td>08/15/20 02:41</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCB-1242</td>
<td>ND</td>
<td>0.021</td>
<td>mg/Kg</td>
<td>08/11/20 14:28</td>
<td>08/15/20 02:41</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCB-1248</td>
<td>ND</td>
<td>0.021</td>
<td>mg/Kg</td>
<td>08/11/20 14:28</td>
<td>08/15/20 02:41</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCB-1254</td>
<td>ND</td>
<td>0.021</td>
<td>mg/Kg</td>
<td>08/11/20 14:28</td>
<td>08/15/20 02:41</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCB-1260</td>
<td>ND</td>
<td>0.021</td>
<td>mg/Kg</td>
<td>08/11/20 14:28</td>
<td>08/15/20 02:41</td>
<td>1</td>
<td></td>
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### Surrogate

<table>
<thead>
<tr>
<th>Analyte</th>
<th>% Recovery</th>
<th>Qualifier</th>
<th>Limits</th>
<th>D</th>
<th>Prepared</th>
<th>Analyzed</th>
<th>Dil Fac</th>
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</thead>
<tbody>
<tr>
<td>DCB Decachlorobiphenyl</td>
<td>95</td>
<td>44</td>
<td>135</td>
<td>08/11/20 14:28</td>
<td>08/15/20 02:41</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Tetrachloro-m-xylene</td>
<td>83</td>
<td>48</td>
<td>122</td>
<td>08/11/20 14:28</td>
<td>08/15/20 02:41</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

### General Chemistry

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Result</th>
<th>Qualifier</th>
<th>RL</th>
<th>Unit</th>
<th>D</th>
<th>Prepared</th>
<th>Analyzed</th>
<th>Dil Fac</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent Solids</td>
<td>91.3</td>
<td>0.1</td>
<td>%</td>
<td>08/11/20 20:12</td>
<td>1</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Percent Moisture</td>
<td>8.7</td>
<td>0.1</td>
<td>%</td>
<td>08/11/20 20:12</td>
<td>1</td>
<td></td>
<td></td>
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</table>
## Client Sample Results

**Client Sample ID:** LAIHH02(0-1.5)  
**Lab Sample ID:** 580-96596-2  
**Date Collected:** 08/06/20 13:40  
**Date Received:** 08/06/20 14:30  
**Matrix:** Solid  
**Percent Solids:** 91.7

### Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Result</th>
<th>Qualifier</th>
<th>RL</th>
<th>MDL</th>
<th>Unit</th>
<th>D Prepared</th>
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<th>Dil Fac</th>
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<tr>
<td>PCB-1016</td>
<td>ND</td>
<td></td>
<td>0.021</td>
<td>mg/Kg</td>
<td></td>
<td>08/11/20 14:28</td>
<td>08/15/20 02:59</td>
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<tr>
<td>PCB-1221</td>
<td>ND</td>
<td></td>
<td>0.021</td>
<td>mg/Kg</td>
<td></td>
<td>08/11/20 14:28</td>
<td>08/15/20 02:59</td>
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<td>ND</td>
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<td>mg/Kg</td>
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<td>08/11/20 14:28</td>
<td>08/15/20 02:59</td>
<td>1</td>
</tr>
<tr>
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<td></td>
<td>0.021</td>
<td>mg/Kg</td>
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<td>08/11/20 14:28</td>
<td>08/15/20 02:59</td>
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<td>mg/Kg</td>
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<td>08/11/20 14:28</td>
<td>08/15/20 02:59</td>
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</tr>
<tr>
<td>PCB-1254</td>
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<td></td>
<td>0.021</td>
<td>mg/Kg</td>
<td></td>
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<td>08/15/20 02:59</td>
<td>1</td>
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<td>ND</td>
<td></td>
<td>0.021</td>
<td>mg/Kg</td>
<td></td>
<td>08/11/20 14:28</td>
<td>08/15/20 02:59</td>
<td>1</td>
</tr>
</tbody>
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**Surrogate**  
<table>
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<tr>
<th>Recovery</th>
<th>Qualifier</th>
<th>Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCB Decachlorobiphenyl</td>
<td>100</td>
<td>44:135</td>
</tr>
<tr>
<td>Tetrachloro-m-xylene</td>
<td>79</td>
<td>48:122</td>
</tr>
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</table>

### General Chemistry

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<tr>
<th>Analyte</th>
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<th>Qualifier</th>
<th>RL</th>
<th>RL Unit</th>
<th>D Prepared</th>
<th>Analyzed</th>
<th>Dil Fac</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent Solids</td>
<td>91.7</td>
<td></td>
<td>0.1</td>
<td>%</td>
<td>08/11/20 20:12</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Percent Moisture</td>
<td>8.3</td>
<td></td>
<td>0.1</td>
<td>%</td>
<td>08/11/20 20:12</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
Client Sample Results

Client: Landau & Associates, Inc.
Project/Site: Upper Buckley Storm Improvement

Client Sample ID: LAIHH03(0-1.5)
Date Collected: 08/06/20 13:55
Date Received: 08/06/20 14:30

Lab Sample ID: 580-96596-3
Matrix: Solid
Percent Solids: 90.9

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

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Surrogate

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General Chemistry

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## QC Sample Results

**Client:** Landau & Associates, Inc.  
**Project/Site:** Upper Buckley Storm Improvement  
**Job ID:** 580-96596-1

### Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

#### Lab Sample ID: MB 580-335317/1-A  
**Matrix:** Solid  
**Analysis Batch:** 335723

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**Matrix:** Solid  
**Analysis Batch:** 335723

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#### Surrogate  
**%Recovery**  
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Eurofins TestAmerica, Seattle  
Page 11 of 13  
8/19/2020
## Lab Chronicle

**Client:** Landau & Associates, Inc.  
**Project/Site:** Upper Buckley Storm Improvement

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**Date Received:** 08/06/20 14:30

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**Laboratory References:**  
TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)622-2310

---

Eurofins TestAmerica, Seattle  
**Page 12 of 13**  
8/19/2020
Accreditation/Certification Summary

Client: Landau & Associates, Inc.
Project/Site: Upper Buckley Storm Improvement

Laboratory: Eurofins TestAmerica, Seattle
Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

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The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

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APPENDIX C

Rotosonic Core Run Photographs
Figure C-1: Boring B-4, Core Run #1

Project Number: 0193081.010
Date: Feb-1-2021
Boring: B-4
Core Run #1
Depth: 0-2.5

Top

Bottom
Figure C-2: Boring B-4, Core Run #2

Upper Buckley Water Quality Project
Tacoma, Washington

Core Run Photographs

Figure C-2
Figure C-3: Boring B-4, Core Run #3
Figure C-4: Boring B-4, Core Run #4
Figure C-5: Boring B-4, Core Run #5

Upper Buckley Water Quality Project
Tacoma, Washington

Core Run Photographs

Figure C-5
Figure C-6: Boring B-4, Core Run #6

- Project Number: 0193081.010
- Date: Feb-1-2021
- Boring: B-4
- Core Run #6
- Depth: 15-20
Figure C-7: Boring B-4, Core Run #7

Upper Buckley Water Quality Project
Tacoma, Washington

Core Run Photographs

Figure C-7
Figure C-8: Boring B-4, Core Run #8
Figure C-9: Boring B-4, Core Run #9
Figure C-10: Boring B-4, Core Run #10
Figure C-11: Boring B-4, Core Run #11

Upper Buckley Water Quality Project
Tacoma, Washington

Core Run Photographs

Figure C-11
Figure C-12: Boring B-4, Core Run #12
Figure C-13: Boring B-4, Core Run #13

Upper Buckley Water Quality Project
Tacoma, Washington

Core Run Photographs

Figure C-13
Figure C-14: Boring B-4, Core Run #14
Figure C-15: Boring B-5, Core Run #1
Figure C-16: Boring B-5, Core Run #2
Figure C-17: Boring B-5, Core Run #3
Figure C-18: Boring B-5, Core Run #4
Figure C-19: Boring B-5, Core Run #5
Figure C-20: Boring B-5, Core Run #6

Project Number: 0193081.010
Date: Feb-1-2021
Boring: B-5
Core Run #6
Depth: 15-20

Top  Bottom

Upper Buckley Water Quality Project
Tacoma, Washington

Core Run Photographs

Figure C-20
Figure C-21: Boring B-5, Core Run #7
Figure C-22: Boring B-5, Core Run #8
Figure C-23: Boring B-5, Core Run #9
Figure C-24: Boring B-5, Core Run #10
Figure C-25: Boring B-5, Core Run #11
Figure C-26: Boring B-5, Core Run #12
Figure C-27: Boring B-5, Core Run #13
Figure C-28: Boring B-5, Core Run #14
APPENDIX D

Buckley Gulch Slope Photographs
Figure D-1: Pistol butt-shaped tree observed on a northeast-facing slope within Buckley Gulch.
Figure D-2: Pistol butt-shaped tree observed on a northwest-facing slope within Buckley Gulch.
Figure D-3: Buckley Gulch, looking east; pistol butt-shaped trees and existing slope geometry.
Figure D-4: Floor of Buckley Gulch looking northeast. Dry floor suggests little to no seeps in the vicinity.
APPENDIX D

CAST-IN-PLACE WATER QUALITY FACILITY

STRUCTURAL DESIGN AND CALCULATIONS
DESIGN COMPUTATIONS FOR

638199 Upper Buckley Water Quality Project
Cast-In-Place StormFilter
Tacoma, WA

PREPARED FOR:

CONTECH Engineered Solutions, LLC
605 Global Way
#113
Linthicum Heights, Maryland 21090

PREPARED BY:

DELTA
State License # 3797

860 Hooper Road, Endwell, New York 13760
TEL: 607-231-6600  FAX: 607-231-6650
EMAIL: precast@delta-eas.com
www.delta-eas.com
DESIGN NOTES

AS PROVIDED BY EOR:
- DESIGN IN ACCORDANCE WITH ACI-318 FOR
  HC-20 LIFE USE.

ASSUMPTIONS TO BE VERIFIED BY EOR:
1. EARTH COVER = 8' - 15"
2. UNIT WEIGHT OF SOIL = 120 Pcf
3. BAR COVER = 3" UNLESS
4. WATER TABLE = AT OUTLET PIPE INLET
5. EQUIVALENT FLOOD PRESSURE = 40 Pcf
6. P/L IN CUBES = ACCORDING TO ASCE 41
7. REINFORCEMENT = BAR PER 21X21, GRADE 60

GENERAL NOTES:
1. PROVIDE ADDITIONAL REINFORCING AROUND OPENINGS
   EQUAL TO THE BARS INTERCEPTED. HALF EACH SIDE
   CORNER BARS TO BE IN THE SAME PLANE.
2. TRIM OPENINGS WITH ORIG. #4 BARS. EXTEND BARS
   MINIMUM 1/2" BEYOND OPENINGS. USE BARS AS REQUIRED
   TO MAINTAIN BAR COVER.
3. THIS IS A REINFORCING SUMMARY. REFER TO CONTECH
   ENGINEERS' SOLUTION DRAWINGS FOR OPENING SIZES,
   QUANTITY, LOCATION AND OTHER INFORMATION.

PLAN VIEW TOP SLAB
(BOTTOM NOT SHOWN, TOP W/ #4 @18"oc)
PRECAST VAULT DESIGN

DESCRIPTION

Length (I.D.) = 86.00 ft
Width (I.D.) = 22.50 ft
Height (I.D.) = 7.50 ft
Wall Thickness = 14.00 in
Base Slab Thickness = 28.00 in
Cover Slab Thickness = 28.00 in

TECHNICAL DATA

Earth Cover (Min.) = 5.00 ft
Earth Cover (Max) = 15.00 ft
Min Watertable Depth = 24.83 ft
ka = 0.33
Unit Weight of Soil = 120 pcf
Equivalent Lateral Fluid Pressure = 0.040 kcf
LL Surcharge = 0.08 ksf
Depth Below F.G. to Apply Surcharge = 8.00 ft
Concrete Strength (f'c) = 4.0 ksi
Unit Weight of Concrete = 150 pcf
E_s = 57,000 * √f'c = 3.60E+06 psi (19.2.2.1.b)
Yield Strength (fy) = 60 ksi
E_s = 2.90E+07 psi (20.2.2.2)
n = E_s / E_c = 8.0
β_t = 0.85 (Table 22.2.2.4.3)
fr = 7.5 √f'c = 474 psi (19.2.3.1)
Rho max = (.75 ρ_b) = 0.0213801

Design Wheel Load (Pw) = 16 kips
Uniform Live Load = 0 psf

Capacity Reduction Factors:
φ - Shear = 0.75 (Table 21.2.1)

Load Factors: (Table 5.3.1)

β - LL = 1.60
β - DL = 1.20
β - EL = 1.60 (5.3.8)

References:
**EQUIVALENT LATERAL FLUID PRESSURE:**

\[
\begin{align*}
\text{ka} &= 0.33 \\
\text{Unit Wt. of Soil} &= 120 \text{ pcf} \\
\text{Max. Fill Above Structure} &= 15.00 \text{ ft. (Worst Case)} \\
\text{Structure Inside Ht.} &= 7.50 \text{ ft.} \\
\text{Top Slab Thickness} &= 28.00 \text{ in.} \\
\text{Min. Watertable Depth} &= 24.83 \text{ ft.}
\end{align*}
\]

\[
\text{Lateral Pressure (Dry)} = 39.6 \text{ pcf} \quad \text{(Ka*Soil Wt.)}
\]

\[
\text{Lateral Pressure (Sat.)} = 81.4 \text{ pcf} \quad \text{(Ka*(Soil Wt.-62.4pcf)+62.4pcf)}
\]

\[
\text{Equivalent Lateral Pressure} = 39.6 \text{ pcf}
\]
**Determine Uniform Load From Wheel Live Load for Various Fill Depths**

Distance Between CL of Wheel and CL of Truck: 3 ft
Wheel Load: 16 kips

Distribution Length = 1.75 \times \text{Depth of Fill} + \text{Length of Dual Wheel Dimensions}
Distribution Width = 1.75 \times \text{Depth of Fill} + \text{Width of Dual Wheel Dimensions}

<table>
<thead>
<tr>
<th>Depth of Fill (ft)</th>
<th>Distrib. Length</th>
<th>Distrib. Width</th>
<th>Lengths Overlap?</th>
<th>DLA ft^2</th>
<th>Uniform Load psf</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0</td>
<td>6.92</td>
<td>6.08</td>
<td>YES</td>
<td>78.6</td>
<td>407.4</td>
</tr>
<tr>
<td>3.5</td>
<td>7.80</td>
<td>6.96</td>
<td>YES</td>
<td>95.9</td>
<td>333.5</td>
</tr>
<tr>
<td>4.0</td>
<td>8.67</td>
<td>7.83</td>
<td>YES</td>
<td>114.9</td>
<td>278.6</td>
</tr>
<tr>
<td>4.5</td>
<td>9.55</td>
<td>8.71</td>
<td>YES</td>
<td>135.3</td>
<td>236.5</td>
</tr>
<tr>
<td>5.0</td>
<td>10.42</td>
<td>9.56</td>
<td>YES</td>
<td>157.3</td>
<td>203.4</td>
</tr>
<tr>
<td>5.5</td>
<td>11.30</td>
<td>10.46</td>
<td>YES</td>
<td>180.8</td>
<td>177.0</td>
</tr>
<tr>
<td>6.0</td>
<td>12.17</td>
<td>11.33</td>
<td>YES</td>
<td>205.9</td>
<td>155.4</td>
</tr>
<tr>
<td>6.5</td>
<td>13.05</td>
<td>12.21</td>
<td>YES</td>
<td>232.4</td>
<td>137.7</td>
</tr>
<tr>
<td>7.0</td>
<td>13.92</td>
<td>13.08</td>
<td>YES</td>
<td>260.6</td>
<td>122.8</td>
</tr>
<tr>
<td>7.5</td>
<td>14.80</td>
<td>13.96</td>
<td>YES</td>
<td>290.2</td>
<td>110.3</td>
</tr>
</tbody>
</table>

Min Fill: 5.0 ft
Max Fill: 15.0 ft

Design Min Fill = 5.00 ft
Design Max Fill = 15.00 ft

Note: If design fill < 3', design using concentrated load case

**FIG. 4 Distributed Load Area**
(REF "ASTM C 890-91")
COVER SLAB DESIGN
UNIFORM LIVE LOAD
MIN. FILL
ASTM C890

Length (I.D.) = 86.00 ft.
Width (I.D.) = 22.50 ft.
Wall Thickness = 14.00 in
Slab Thickness = 28.00 in
Earth Cover = 5.00 ft.
Bar cover = 2.00 in

<table>
<thead>
<tr>
<th>Short Span</th>
<th>Long Span</th>
</tr>
</thead>
<tbody>
<tr>
<td>Span = 23.67 ft.</td>
<td>87.17 ft.</td>
</tr>
<tr>
<td>Dead Loads: Soil = 0.60 ksf</td>
<td>0.60 ksf</td>
</tr>
<tr>
<td>Concrete = 0.35 ksf</td>
<td>0.35 ksf</td>
</tr>
<tr>
<td>Additional Uniform Dead Load = 0.00 ksf</td>
<td>0.00 ksf</td>
</tr>
<tr>
<td>Total (wdl) = 0.95 ksf</td>
<td>0.95 ksf</td>
</tr>
</tbody>
</table>

2-Way slab fac. (Distributed)= 1.000 (AASHTO 3.24.6.1) 0.000
Mdl=wdl l² / 8 * (2-way slab factor) = 66.51 kip-ft 0.00 kip-ft
DLA = 157.30 sf 157.30 sf
WII = 0.20 ksf 0.20 ksf
MII=lli l² / 8 * (2-way slab factor) = 14.24 kip-ft 0.00 kip-ft
Mu =γ[(β(l+I)*MII + βd*Mdl)] = 102.60 kip-ft 0.00 kip-ft

25.44 in 24.44 in

Bottom Mat Req. Bar Size and Spacing
Short Span: As = 2.39 in. sq/ft. Use # 9 @ 5.0 in
Long Span: As = 0.60 in. sq/ft. Use # 7 @ 12.0 in

\[ \rho = \frac{1}{1 - \left( \frac{2 \cdot M_u}{\phi b d^2 \cdot 0.85 f'_c} \right) \cdot 0.85 f'_c} \]
\[ \phi = 0.00301675 \]
\[ \rho \cdot n = 0.02426795 \]

Flexure Check:
Moment, ΦM (ACI 318 Table 21.2.2)= 0.90
a = AsFy / 0.85 fc' = 3.508 in 0.884 in
c/a = β1 = 4.13 1.04
Reinforcing Strain εr = (d-c)/c = 0.0155 tension controlled 0.0675 tension controlled
εy = fy/Es = 0.002

Cracking Reinforcing Spacing: ACI 318 - Table 24.3.2
k = \sqrt{(2pn + (pn)^2)} - pn = 0.197 0.000
j = 1 - (k/3) = 0.934 1.000
M = Mdl + MII = 80.76 kip-ft 0.00 kip-ft
fs = M / As j d = 17.09 ksi OK
s = min(15(40000/fs)-2.5c, 12*40000/fs) = 28 in OK

Page 8 of 18
Checked by: DDB
COVER SLAB DESIGN
UNIFORM LIVE LOAD
MIN. FILL
ASTM C890
(Continued)

Shear Check:
\[Vu@d = \gamma(\beta LL*Wll + \beta DL*Wdl)\] *
\[\left[\frac{\text{span}}{2} - d\right] = 14.24 \text{kips/ft}\]
\[eVc = 28.96 \text{kips/ft} \quad \text{OK}\]

Top Mat Bar Size and Spacing
- Short Span: \(A_s = 0.13 \text{ in. sq/ft.}\) Use \# 4 @ 18.0 in
- Long Span: \(A_s = 0.13 \text{ in. sq/ft.}\) Use \# 4 @ 18.0 in

MINIMUM REINFORCING - ACI 318 - Table 7.6.1.1

Short Span
\[\text{As, min} = \text{Max of} \]
\[\left(0.0018*60,000\right)/f_y \times A_g = 0.60 \text{ in}^2/\text{ft} \quad \text{OK, As Provided > As Min.}\]
\[\text{OR} \quad 0.0014 \times A_g = 0.47 \text{ in}^2/\text{ft}\]

Long Span
\[\text{As, min} = \text{Max of} \]
\[\left(0.0018*60,000\right)/f_y \times A_g = 0.60 \text{ in}^2/\text{ft} \quad \text{OK, As Provided > As Min.}\]
\[\text{OR} \quad 0.0014 \times A_g = 0.47 \text{ in}^2/\text{ft}\]
### COVER SLAB DESIGN

#### UNIFORM LIVE LOAD

**MAX FILL**

**ASTM C890**

- Length (I.D.) = 86.00 ft.
- Width (I.D.) = 22.50 ft.
- Wall Thickness = 14.00 in
- Slab Thickness = 28.00 in
- Earth Cover = 15.00 ft.
- Bar cover = 2.00 in

<table>
<thead>
<tr>
<th></th>
<th>Short Span</th>
<th>Long Span</th>
</tr>
</thead>
<tbody>
<tr>
<td>Span</td>
<td>23.67 ft.</td>
<td>87.17 ft.</td>
</tr>
<tr>
<td>Dead Loads:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soil</td>
<td>1.80 ksf</td>
<td>1.80 ksf</td>
</tr>
<tr>
<td>Concrete</td>
<td>0.35 ksf</td>
<td>0.35 ksf</td>
</tr>
<tr>
<td>Additional Uniform</td>
<td>0.00 ksf</td>
<td>0.00 ksf</td>
</tr>
<tr>
<td>Total (wdl)</td>
<td>2.15 ksf</td>
<td>2.15 ksf</td>
</tr>
</tbody>
</table>

2-Way slab fac. (Distributed) = 1.000 (AASHTO 3.24.6.1) 0.000

\[ \text{Mdl} = \text{wdl} \frac{l^2}{8} \times (2\text{-way slab factor}) = 150.53 \text{ kip-ft} \]

\[ \text{DLA} = 918.55 \text{ sf} \]

\[ \text{Wll} = 0.03 \text{ ksf} \]

\[ \text{Mll} = \text{wll} \frac{l^2}{8} \times (2\text{-way slab factor}) = 2.44 \text{ kip-ft} \]

\[ \text{Mu} = \gamma \left[ \beta_{(L+I)} \text{Mll} + \beta_D \text{Mdl} \right] = 184.54 \text{ kip-ft} \]

\[ d = 25.44 \text{ in} \]

Req. Bar Size and Spacing

<table>
<thead>
<tr>
<th></th>
<th>Short Span</th>
<th>Long Span</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use</td>
<td># 9</td>
<td># 7</td>
</tr>
<tr>
<td>@</td>
<td>5.0 in</td>
<td>12.0 in</td>
</tr>
</tbody>
</table>

\[ \rho = \left[ 1 - \left( \frac{2}{\sqrt{\rho n}} + \sqrt{\frac{2}{\rho n}} \right) \right] \times 0.85 f_{c} \]

\[ \rho \times n = 0.04467425 \]

**Flexure Check:**

\[ \Phi M = \Phi f_{y} \]

\[ a = \frac{\text{AsFy}}{0.85f_{c}b} = 3.508 \text{ in} \]

\[ c = a/\beta_1 = 4.13 \text{ in} \]

Reinforcing Strain \( \varepsilon_t = (d-c)/c \times 0.003 \) = 0.0155 tension controlled 0.0675 tension controlled

\[ \varepsilon_{ty} = \frac{f_{y}}{E_s} = 0.002 \]

\[ \Phi \text{Mn} = \Phi f_{y} \times (d-(a/2)) = 254.25 \text{ kip-ft} \] **OK**

**Cracking Reinforcing Spacing:**

ACI 318 - Table 24.3.2

\[ k = \sqrt{(2p_n + (pn)^2)} - p_n = 0.258 \]

\[ j = 1 - (k/3) = 0.914 \]

\[ M = \text{Mdl} + \text{Mll} = 152.97 \text{ kip-ft} \]

\[ f_s = M / \text{As j d} = 33.09 \text{ ksi} \] **OK**

\[ f_s = M / \text{As j d} = 0.00 \text{ ksi} \] **OK**

\[ s = \min(15(40000/fs)-2.5c_c,12*40000/fs) = 13 \text{ in} \] **OK**

\[ s = \min(40000/fs)-2.5c_c,12*40000/fs) = 99 \text{ in} \] **OK**
COVER SLAB DESIGN
UNIFORM LIVE LOAD
MAX FILL
ASTM C890
(Continued)

Shear Check:
\[ V_u \@ d = \gamma[\beta L^*W_{ll} + \beta D^*W_{dl}] \]
\[ [(\text{span}/2) - d] = 25.60 \text{kips/ft} \]
\[ \phi V_c = 28.96 \text{kips/ft} \quad \text{OK} \]

Top Mat Bar Size and Spacing

<table>
<thead>
<tr>
<th>desc</th>
<th>Use</th>
<th>@</th>
<th>18.0 in</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short Span: As = 0.13 in. sq/ft.</td>
<td># 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long Span: As = 0.13 in. sq/ft.</td>
<td># 4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MINIMUM REINFORCING - ACI 318 - Table 7.6.1.1

**Short Span**
As, min = Max of
\[ ((0.0018*60,000)/f_y) * A_g = 0.60 \text{ in}^2/\text{ft} \]
\[ \text{OR} \quad 0.0014 * A_g = 0.47 \text{ in}^2/\text{ft} \]
<= Controls
OK, As Provided > As Min.

**Long Span**
As, min = Max of
\[ ((0.0018*60,000)/f_y) * A_g = 0.60 \text{ in}^2/\text{ft} \]
\[ \text{OR} \quad 0.0014 * A_g = 0.47 \text{ in}^2/\text{ft} \]
<= Controls
OK, As Provided > As Min.
Design wall as simply supported vertically. 
Vert. coeff. 0.125 for \( \frac{w l^2}{8} \)

**MONOLITHIC BASE SECTION**

**CANTILEVER WALL DESIGN**

**COMB. UNIFORM & TRIANGULAR LOAD**

**PCA Rectangular Concrete Tanks**

- **Height,** \( a = 7.50 \) ft.
- **Length,** \( b = 86.00 \) ft.
- **Width,** \( c = 22.50 \) ft.
- **Wall Thickness =** 14.00 in
- \( b/a = 11.5 \)
- **Top of wall hinged?** y (Y or N)

**INSIDE FACE**

- **Bar Cover =** 2.00 in
- **PCA Case #**
  - **Uniform**
  - **Triangular**
    - Max horiz. Coeff. = 0.000, 0.000
    - Max vert. Coeff. = 0.125, 0.067

- **Max horiz. neg. moment =** 0.00 kip-ft
- **Max vert. neg. moment =** 5.95 kip-ft

- **Moment, \( \Phi M \) (ACI 318 Table 21.2.2) =**
  - **Horiz**
    - 0.00 kip-ft
    - 14.96 kip-ft
  - **Vertical**
    - 9.51 kip-ft
    - 15.82 kip-ft

<table>
<thead>
<tr>
<th>Mu</th>
<th>( \phi M )</th>
<th>Bar Sz</th>
<th>Sp</th>
<th>d</th>
<th>As</th>
<th>a</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td># 5</td>
<td>12.0 in</td>
<td>11.06 in</td>
<td>0.31 in. sq/ft.</td>
<td>0.45 in</td>
</tr>
<tr>
<td>Horiz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vertical</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Reinforcing Strain** \( \varepsilon_t = \frac{(d-c)c}{c^*0.003} = 0.0595 \)
  - tension controlled 0.0631
  - \( \varepsilon_t = \frac{f_y}{E_s} = 0.002 \)

- **Side Edge Shear coeff. =**
  - 0.540
  - 0.260

- **Bottom Edge Shear coeff. =**
  - 0.620
  - 0.400

- **Vu =** 5.38 kips
  - \( \phi Vc = 12.59 \) kips
  - \( \phi Vc > Vu: \text{OK} \)

- **Vu =** 6.53 kips
  - \( \phi Vc = 13.31 \) kips
  - \( \phi Vc > Vu: \text{OK} \)

- **ldb = 15 in**
- **min lap = 26 in**

**Cracking Reinforcing Spacing:** ACI 318 - Table 24.3.2

- **Horizontal**
  - \( \rho = \frac{A_s}{b \cdot d} = 0.002311 \)
  - \( \rho \cdot n = 0.018591 \)
  - \( k = \sqrt{(2\rho n + (\rho n)^2) - \rho n} = 0.175 \)
  - \( j = 1 - (k/3) = 0.942 \)
  - \( M = 0.00 \) kip-ft
  - \( fs = M / A_s \cdot j = 0.00 \) ksi
  - \( s = 15(40000/hs) - 2.5c = 99 \) in
  - \([\text{and } \leq 12(40000/hs)]\)

- **Vertical**
  - \( \rho = \frac{A_s}{b \cdot d} = 0.002187 \)
  - \( \rho \cdot n = 0.017597 \)
  - \( k = \sqrt{(2\rho n + (\rho n)^2) - \rho n} = 0.171 \)
  - \( j = 1 - (k/3) = 0.943 \)
  - \( M = 5.95 \) kip-ft
  - \( fs = M / A_s \cdot j = 0.00 \) ksi
  - \( s = 21.10 \) ksi
  - \( s = 23 \) in

**Lateral Earth Pressure**

- Eq. Lat. Press. = 0.040 kcf
  - W2 = 0.69 ksf
  - W3 = 0.98 ksf

**No Surcharge**

---

**Description:** (638199) Upper Buckley

**Job:** 2020.025.089

**Calculated by:** GJP Date 9/29/20

**Checked by:** DDB
Monolithic Base Section Design Continued:

**MINIMUM REINFORCING** - ACI 318 - Table 8.6.1.1

**Horizontal**
As, min = Max of
\[(\frac{0.0018 \times 60,000}{fy}) \times Ag = 0.30 \text{ in}^2/\text{ft} \leq Controls\]

**Vertical**
As, min = Max of
\[(\frac{0.0018 \times 60,000}{fy}) \times Ag = 0.30 \text{ in}^2/\text{ft} \leq Controls\]

**OUTSIDE FACE**
Bar Cover = 2.00 in

<table>
<thead>
<tr>
<th>PCA Case #</th>
<th>Uniform</th>
<th>Triangular</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9</td>
<td>4</td>
</tr>
</tbody>
</table>

Max horiz. Coeff. = 0.000 0.000
Max vert. Coeff. = 0.000 0.000

<table>
<thead>
<tr>
<th>Mu</th>
<th>φMn</th>
<th>Bar Sz</th>
<th>Sp</th>
<th>d</th>
<th>As</th>
<th>a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horiz</td>
<td>0.00 kip-ft</td>
<td>9.81 kip-ft</td>
<td># 4</td>
<td>12.0 in</td>
<td>11.25 in</td>
<td>0.20 in. sq/ft.</td>
</tr>
<tr>
<td>Vertical</td>
<td>0.00 kip-ft</td>
<td>10.25 kip-ft</td>
<td># 4</td>
<td>12.0 in</td>
<td>11.75 in</td>
<td>0.20 in. sq/ft.</td>
</tr>
</tbody>
</table>

Moment, ΦM (ACI 318 Table 21.2.2) = 0.90

Reinforcing Strain \( \varepsilon_t = \frac{(d-c)}{c} \times 0.003 = 0.0964 \) tension controlled

\( \varepsilon_{ty} = \frac{fy}{Es} = 0.002 \) tension controlled

**Cracking Reinforcing Spacing**: ACI 318 - Table 24.3.2

<table>
<thead>
<tr>
<th>Horizontal</th>
<th>Vertical</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \rho = \frac{As}{b \times d} = 0.001454 )</td>
<td>( \rho = 0.00139255 )</td>
</tr>
<tr>
<td>( \rho \times n = 0.011700 )</td>
<td>( \rho \times n = 0.011202216 )</td>
</tr>
<tr>
<td>( k = \sqrt{2(pn + (\rho n)^2) - \rho n} = 0.142 )</td>
<td>0.139</td>
</tr>
<tr>
<td>( j = 1 - (k/3) = 0.953 )</td>
<td>0.954</td>
</tr>
<tr>
<td>( M = Md + Mll = 0.00 kip-ft )</td>
<td>OK</td>
</tr>
<tr>
<td>( fs = M / As \times j = 0.00 kip-ft )</td>
<td>0.00 kip-ft</td>
</tr>
<tr>
<td>( s = 15(40000/fs) - 2.5c_c = 99 \text{ in} )</td>
<td>OK</td>
</tr>
<tr>
<td>( [and \leq 12(40000/fs)] )</td>
<td>OK</td>
</tr>
</tbody>
</table>

**MINIMUM REINFORCING** - ACI 318 - Table 8.6.1.1

**Horizontal**
As, min = Max of
\[(\frac{0.0018 \times 60,000}{fy}) \times Ag = 0.30 \text{ in}^2/\text{ft} \leq Controls\]

**Vertical**
As, min = Max of
\[(\frac{0.0018 \times 60,000}{fy}) \times Ag = 0.30 \text{ in}^2/\text{ft} \leq Controls\]
BASE SLAB DESIGN
HINGED 4 SIDES
PCA Rectangular Concrete Tanks
Case #10

Length = 86.00 ft
Width = 22.50 ft
Wall Thickness = 14.00 in
Slab Thickness = 28.00 in
b/a = 3.8

Vertical Loads:
Soil = 3948.50 kips
Cover slab = 767.76 kips
Walls = 290.94 kips
Other =
Total Dead Load = 5007.20 kips

Net upward bearing pressure:
Dead Load, fbdl = 2.28 ksf
Hydrostatic, fbhyd = 0.15 ksf (2.34 ft * 0.0624 kcf)
Live Load, fbll = + 0.03 ksf
w = 2.32 ksf
Wu = 2.79 ksf

Top cage
Transverse Coeff. = 0.122
Longitudinal Coeff. = 0.036
Bar cover = 2.00 in
Transverse Moment = 143.13 kip-ft
Longitudinal Moment = 42.24 kip-ft

Mu | φMn | Bar Sz | Sp | d | As | a
---|-----|--------|---|---|---|---
Transverse | 172.62 kip-ft | 254.25 kip-ft | #9 | 5.0 in | 25.44 in | 2.39 in. sq/ft. | 3.51 in
Longitudinal | 50.94 kip-ft | 77.63 kip-ft | #7 | 10.0 in | 24.44 in | 0.72 in. sq/ft. | 1.06 in

Shear Coeff. = 0.498
Vu @ 'd' = 28.37 kips
φVc = 28.96 kips
φVc>Vu: OK
### BASE SLAB DESIGN
#### HINGED 4 SIDES
PCA Rectangular Concrete Tanks
Case #10
(Continued)

<table>
<thead>
<tr>
<th>Transverse</th>
<th>Longitudinal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moment, $\Phi M$ (ACI 318 Table 21.2.2) = 0.90</td>
<td>0.90</td>
</tr>
<tr>
<td>$c = a/\beta_1$ = 4.13</td>
<td>1.25</td>
</tr>
</tbody>
</table>

Reinforcing Strain $\varepsilon_t = (d-c)/c \times 0.003 = 0.0155$ tension controlled

$\varepsilon_{ty} = \frac{f_y}{E_s} = 0.002$ tension controlled

Cracking Reinforcing Spacing: ACI 318 - Table 24.3.2

<table>
<thead>
<tr>
<th>Transverse</th>
<th>Longitudinal</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\rho = \frac{As}{b \times d} = 0.007815$</td>
<td>0.002461</td>
</tr>
<tr>
<td>$\rho \times n = 0.062870$</td>
<td>0.019794</td>
</tr>
<tr>
<td>$k = \sqrt{(2\rho n + (\rho n)^2) - \rho n} = 0.297$</td>
<td>0.180</td>
</tr>
<tr>
<td>$j = 1 - (k/3) = 0.901$</td>
<td>0.940</td>
</tr>
<tr>
<td>$M = 143.13 \text{ kip-ft}$</td>
<td>OK</td>
</tr>
<tr>
<td>$s = 15(40000/fs) - 2.5c_c = 14.10 \text{ in}$</td>
<td>OK</td>
</tr>
</tbody>
</table>

MINIMUM REINFORCING - ACI 318 - Table 8.6.1.1

**Transverse**

As, min = Max of

- $((0.0018 \times 60,000)/f_y) \times Ag = 0.60 $ in²/ft <= Controls
- OR $0.0014 \times Ag = 0.47 $ in²/ft

OK, As Provided > As Min.

**Longitudinal**

As, min = Max of

- $((0.0018 \times 60,000)/f_y) \times Ag = 0.60 $ in²/ft <= Controls
- OR $0.0014 \times Ag = 0.47 $ in²/ft

OK, As Provided > As Min.
Design Baffle Wall Reinforcement:

Given:

\[
\text{Thickness} = 10.00'' \\
\text{Height} = 7.50'\text{ to top of wall}
\]

Assumptions:

Assume full height of water on one side
Design baffle wall to cantilever off base slab

Water Pressure = 0.0624 ksf

\[
M = \frac{wl^3}{6}
\]

\[
M = (0.062\text{ ksf} \times 7.50'^3) / 6 = 4.39\text{ k}'
\]

\[
V = \frac{wl^2}{2}
\]

\[
V = (0.0624\text{ ksf} \times 7.50'^2) / 2 = 1.76\text{ k}
\]

\[
M_u = 1.4 \times 4.4\text{ k}' = 6.14\text{ k}'
\]

\[
V_u = 1.4 \times 1.8\text{ k} = 2.46\text{ k}'
\]

* See following sheet for capacity & reinforcement
### Reference: ACI 318-14

**MATERIAL PROPERTIES:**

<table>
<thead>
<tr>
<th>Material Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete Strength, F'c</td>
<td>4000 psi</td>
</tr>
<tr>
<td>Reinforcing Steel Yield, Fy</td>
<td>60 ksi</td>
</tr>
<tr>
<td>Concrete Unit Weight</td>
<td>150 pcf</td>
</tr>
<tr>
<td>Soil Unit Weight</td>
<td>120 pcf</td>
</tr>
<tr>
<td>Member Design Width b</td>
<td>12.00 in</td>
</tr>
<tr>
<td>Member Thickness Ts</td>
<td>10.00 in</td>
</tr>
<tr>
<td>Bar Cover c</td>
<td>2.00 in</td>
</tr>
<tr>
<td>Bar Size</td>
<td>6</td>
</tr>
<tr>
<td>d=Ts-Cov-Bar Size/2</td>
<td>7.63 in</td>
</tr>
</tbody>
</table>

\[
Ec = 57000\sqrt{F'c} = 3605 \text{ ksi} \quad (19.2.2.1.b) \\
Es = 29000 \text{ ksi} \quad (20.2.2.2) \\
n = Es / Ec = 8.04 \quad (Table 22.2.4.3) \\
\beta_1 = 0.85 \quad (Table 22.2.4.3)
\]

**FORCES**

Design Ultimate Moment, \( M_u = 6.14 \text{ kip-ft} \)

Unfactored Moment, \( M_a = 4.388 \text{ kip-ft} \)

Ultimate Shear, \( V_u = 2.457 \text{ kips} \)

Shear Capacity, \( \phi V_c = \phi^*2\sqrt{F'c} \cdot b \cdot d = 8.68 \text{ kips/ft} \) \( > V_u \text{ OK} \)

Steel Area Req'd; \( A_s = \rho \cdot b \cdot d = 0.182 \text{ in}^2/\text{ft} \)

Use \#6 Bar @ 16.00 in oc

As Prov = 0.33 in²/ft \( OK \)

\( \rho \) Prov = 0.004

\( a=As\cdot Fy/85\cdot Fc\cdot b= 0.487 \)

\( c=a/\beta_1= 0.573 \)

Reinforcing Strain \( \varepsilon = (d-c)/c\cdot 0.003 = 0.0369 \text{ tension controlled} \)

\( \phi Mn = \phi \cdot As \cdot Fy \cdot (d-(a/2)) = 11.01 \text{ ft-kips} \) \( OK \)

**CHECK REINFORCING SPACING - ACI 318 - Table 24.3.2**

\[
k = \sqrt{2 \rho n + (\rho n)^2 - \rho n} = 0.214 \\
\rho = 0.00199
\]

\( j = 1 - (k/3) = 0.929 \)

\( fs = Ma/Asjd = 22.44 \text{ ksi} \)

\( s = 15(40000/fs)-2.5c = 21 \text{ in} \) \( [and <=12(40000/fs)] \) \( OK \)

**MINIMUM REINFORCING - ACI 318 - Table 7.6.1.1**

\( As, min = \text{ Max of} \quad ((0.0018\cdot 60,000)/fy) \cdot Ag = 0.22 \text{ in}^2/\text{ft} \) \( <= \text{ Controls} \)

\( OR \quad 0.0014 \cdot Ag = 0.17 \text{ in}^2/\text{ft} \)

Provide As Min \( \geq 0.22 \text{ in}^2/\text{ft} \) Total or \( 0.108 \text{ in}^2/\text{ft} \) per layer
## Development & Splice Length (Tension Reinforcement)

(Ref. ACI318-11, 12.2)

<table>
<thead>
<tr>
<th>( f'_c ) = 4000 PSI</th>
<th>( f_y ) = 60000 PSI</th>
<th>Top Bar</th>
<th>N</th>
<th>(Y/N)</th>
<th>Epoxy</th>
<th>n</th>
<th>(Y/N)</th>
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<tbody>
<tr>
<td>Reinforcement Location Factor ( \varphi_t ) = 1.00</td>
<td>Concrete Cover = 2.00 in</td>
<td>Bar Spacing = 5.00 in</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size Factor ( \varphi_s ) (#6 and smaller) = 0.80</td>
<td>Number of Bar Being Developed ( n ) = 1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size Factor ( \varphi_s ) (#7 and larger) = 1.00</td>
<td>Transverse Reinforcing Spacing ( s ) = 0.00 in</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Light Weight Concrete Factor ( \lambda ) = 1.00</td>
<td>Transverse Reinforcement within ( s ), ( A_{tr} ) = 0 in²</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excess Reinforcement Factor ( \varphi_{er} ) = 1.00</td>
<td>( k_{tr} ) = 40A_{tr}/(sn) = 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[
I_d = \frac{3 \ f_y \ \varphi_t \ \varphi_s \ \varphi_{er} \ d_b}{40 \ \lambda \ \sqrt{f'_c (c_b+k_{tr})/d_b}}
\]

### Splice Length

| Class B |
| Black Bar | Black Bar | Black Bar |
| \( I_d \) * 1.3 | \( I_d \) * 1.3 *F |

<table>
<thead>
<tr>
<th>Bar Size</th>
<th>( d_b ) (in)</th>
<th>( (c_b+k_{tr})/d_b ) (2.5 Max.)</th>
<th>Black Bar</th>
<th>Id</th>
<th>F</th>
<th>Id * F</th>
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</thead>
<tbody>
<tr>
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<td>0.500</td>
<td>2.5</td>
<td>12 &quot;</td>
<td>1</td>
<td>12</td>
<td>16 &quot;</td>
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<tr>
<td># 5</td>
<td>0.625</td>
<td>2.5</td>
<td>14 &quot;</td>
<td>1</td>
<td>14</td>
<td>18 &quot;</td>
</tr>
<tr>
<td># 6</td>
<td>0.750</td>
<td>2.5</td>
<td>17 &quot;</td>
<td>1</td>
<td>17</td>
<td>22 &quot;</td>
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<tr>
<td># 7</td>
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<td>2.5</td>
<td>25 &quot;</td>
<td>1</td>
<td>25</td>
<td>32 &quot;</td>
</tr>
<tr>
<td># 8</td>
<td>1.000</td>
<td>2.5</td>
<td>28 &quot;</td>
<td>1</td>
<td>28</td>
<td>37 &quot;</td>
</tr>
<tr>
<td># 9</td>
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<td>1</td>
<td>36</td>
<td>47 &quot;</td>
</tr>
<tr>
<td># 10</td>
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<td>2.0</td>
<td>46 &quot;</td>
<td>1</td>
<td>46</td>
<td>60 &quot;</td>
</tr>
<tr>
<td># 11</td>
<td>1.410</td>
<td>1.8</td>
<td>57 &quot;</td>
<td>1</td>
<td>57</td>
<td>74 &quot;</td>
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APPENDIX E

CRITICAL AREA ASSESSMENT

AND

MITIGATION MEMORANDUM
INTRODUCTION

The Upper Buckley Water Quality Project (Project) will help improve water quality within the Upper Buckley subbasin of the North Tacoma Watershed by reducing stormwater impacts and improving water quality. The Project is to provide basic treatment for suspended solids and phosphorus by replacing a 750 linear foot stormwater pipe between N 14th and N 16th Streets along N Junett Street and installing a stormwater treatment vault near the Junett Community Garden. A portion of the project area lies within a buffer of a City-designated geohazard area (steep slope) that is associated with Buckley Gulch.

Upon request of the City of Tacoma (City), Parametrix conducted a critical area assessment within 200 feet of the portion of the project located adjacent to Buckley Gulch, hereafter referred to as the “study area.” The study area is located north of 3008 N 16th Street, Tacoma, WA, within Section 31, Township 21 North, and Range 03 East (Figure 1). The objectives of the field effort were to: 1) locate, delineate, and characterize wetlands and streams located within the study area (if present), and 2) conduct an ecological characterization to assess whether the study area contains a “biodiversity area,” as defined under Tacoma Municipal Code (TMC) 13.01.110(B).

METHODS

The wetland and stream assessment and ecological characterization was based on a review of existing information, followed by a field assessment. The methods for these assessments are described in the sections below.

Review of Existing Information

Prior to conducting fieldwork, project biologist reviewed the following maps and materials:

- Aerial photography of the project corridor (Google Earth database)
- National Wetlands Inventory (NWI) online interactive mapper (U.S. Fish and Wildlife Service [USFWS] 2020)
- Washington Department of Fish and Wildlife (WDFW) SalmonScape and fish distribution maps (WDFW 2020a)
- Priority Habitats and Species (PHS) data (WDFW 2020b)
- Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2020)
- Washington Department of Natural Resources (WDNR) water type maps (WDNR 2020)
Field Investigation

Following the review of existing information, Parametrix biologists conducted a field assessment to determine the presence of wetlands and streams and to assess ecological conditions within the study area. This assessment was conducted by Parametrix biologists Adam Merrill and Amanda Weiss on August 05, 2020. Handheld global positioning system (GPS) survey equipment was used to collect sample point locations.

Wetlands

The presence/absence of wetlands within the study area was determined using the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (WMVC Regional Supplement) (U.S. Army Corps of Engineers [USACE] 2010).

Streams

The presence/absence of streams within the study area was determined using U.S. Army Corps of Engineers: A Guide to OHWM Delineations for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States (USACE 2014).

Biodiversity Areas

Determination of a Biodiversity Area was based on criteria stated in TMC 13.01.110(B) Definitions of Tacoma Municipal Code:

Biodiversity Areas include those areas that contain native vegetation that is diverse with a mosaic of habitats and microhabitats. They include areas dominated by a vertically diverse assemblage of native vegetation containing multiply canopy layers and/or areas that are horizontally diverse with a mosaic of habitats and microhabitats. They also include areas with rare or uncommon plant species and associations designated by the City or identified by Federal and State agencies such as the Department of Natural Resources Heritage Program. They are not associated with a specific priority species and their overall habitat function may be limited due to their location in a highly urbanized area; however, they are diverse relative to other areas in the City and support common urban species.

Additionally, visual observations of an existing City-mapped Biodiversity Area located north of the study area were collected and compared with observations collected at the study area.

RESULTS

Review of Existing Information

Characteristics of the study area based on a review of existing information are described below.

Wetlands

A riverine system has been mapped by NWI within the study area (USFWS 2020). This system is running south to north within Buckley Gulch. The riverine system is characterized as intermittent flowing with a streambed and contains seasonally flooded areas.
No soil data is available on NRCS Web Soil Survey for the study area within Buckley Gulch. However, soils within the Upper Buckley subbasin are categorized as Pleistocene continental glacial drift, also known as Vashon till, per the Geologic Map of Tacoma (Walsh TJ 1987).

The City’s interactive map does not show any mapped wetlands within the study area (City of Tacoma 2020).

**Streams and Habitats**

The WDNR Forest Practices Application Mapping and the City’s interactive mapping tool identify one stream within the study area, which is shown within Buckley Gulch (City of Tacoma 2020, WDNR 2020). WDFW PHS data (2020b) does not show the presence of any priority habitat or species within the study area. The City’s interactive map does not show Buckley Gulch as a designated Biodiversity Area (City of Tacoma 2020).

**Field Investigation**

The field investigation of the study area occurred on August 05, 2020. Weather conditions were seasonally warm (temperature ranging from 59 to 81 degrees Fahrenheit [°F]) and dry.

No wetlands were found within the study area. To confirm non-wetland conditions, a sample point was dug within Buckley Gulch to determine nonhydric soils and absence of wetland hydrology (Attachment A). Additionally, no streams were found within the study area. No stream characteristics (streambed and bank, water, etc.) were observed.

Upland habitat conditions within the study area are categorized differently between Buckley Gulch and the top-of-slope/gravel pathway area. Habitat within the gulch contains a mixed forest of older trees consisting primarily of bigleaf maple (*Acer macrophyllum*) and red alder (*Alnus rubra*) (Photo 1). The slopes of the gulch within the study area contain English ivy (*Hedera helix*), sword fern (*Polystichum munitum*), herb robert (*Geranium robertianum*), and field bindweed (*Convolvulus arvensis*). The bottom of the gulch contains a mid-canopy of Indian plum (*Oemleria cerasiformis*) and bare ground covered in leaf litter and dry moss (Photo 2). Trace amounts of Himalayan blackberry (*Rubus armeniacus*) are scattered throughout. Overall, vegetation cover within the gulch is dominated by native species cover.
Photo 1. Buckley Gulch slopes
The top of the slope adjacent to the gravel pathway contains a mixed forest canopy (Photo 3). Tree species vary between nonnative cultivars and planted natives. The neighboring community garden members actively maintain the gravel pathway vegetation and have planted species such as Garry oak (*Quercus garryana*), Larix sp., weeping willow (*Salix babylonica*), and snowberry (*Symphoricarpos albus*). There is also a canopy of mature red alder trees.

Overall, Buckley Gulch and the forested habitat adjacent to the top-of-slope area meet the criteria to be considered a Biodiversity Area pursuant to TMC 13.01.110(B). The area is dominated by native vegetation with multiple canopy layers, which provides refuge for urban wildlife species. Additionally, Buckley Gulch has similar characteristics to an existing City-mapped Biodiversity Area located near N. Yakima Avenue and West Road. The lands surrounding the gulch are highly urbanized (developed with single-family residences and roads).

The boundary of the Biodiversity Area within the study was delineated based upon the outer boundary of mature forest habitat (Figure 1).
IMPACT AND MITIGATION SUMMARY

Excluding the existing gravel path, 6,391 square feet (SF) within the identified Biodiversity Area (5,420 SF of which also lies within the 50-foot steep slope buffer) will be temporarily impacted by project construction. After construction, the gravel path will be replaced and the remaining disturbed areas will be restored with a diverse community of native shrub and tree species (see attached landscape plans) in compliance with TMC 13.11.560 (Biodiversity Area and Corridor Mitigation Requirements) and 13.11.270 (General Mitigation Requirements). The plantings will be monitored for 5 years, as detailed below.

MITIGATION PLAN

Goals and Objectives

The overall goal of the mitigation plan is to replant a total of 6,391 SF of temporarily impacted upland habitat with native vegetation.
Specific objectives to reach this goal include:

- Increasing the overall coverage and diversity of native plants within the impacted slope buffer and Biodiversity Area
- Limiting invasive plant cover

Performance Criteria

A set of specific performance standards has been established to correspond with the stated objectives. These standards will be used to evaluate the success of the mitigation project. By monitoring the mitigation project and comparing the results with performance standards, a determination will be made as to the need for implementing a contingency plan. The performance standards are as follows:

Year 1:

- Planted woody species within the restoration area will achieve 100 percent survival. If all dead woody plantings are replaced, the performance measure will be met.
- Invasive species and Class B noxious weeds will occupy no more than 10 percent of the restoration area.

Year 3:

- Native woody cover within the restoration area will be equal to or greater than 50 percent aerial coverage.
- Invasive species and Class B noxious weeds will occupy no more than 10 percent of the restoration area.

Year 5:

- Native woody cover within the restoration area will be equal to or greater than 80 percent aerial coverage.
- Invasive species and Class B noxious weeds will occupy no more than 10 percent of the restoration area.

Monitoring

The restoration areas will be monitored over a period of no less than 5 years, in accordance with the requirements of TMC 13.11.230(B). Details for monitoring of the restoration site are outlined below.

Methods

The main objective of monitoring is to document the level of success in meeting the performance standards. Monitoring will be conducted by a qualified biologist and will begin the first full growing season after construction is completed and the plants have been installed. The biologist will perform a general walkthrough of the site and document the percent survival.

Survival of plantings will be based on comparisons with as-built drawings. Data documenting plant survival and health will be collected each time the site is monitored. Photographs will be taken to document conditions during that monitoring year.

Invasive and native plant cover will be assessed using line-intercept evaluations of established transects through the site.
Reporting

Monitoring reports will address the items presented in the preceding section and will document plant survival success and problems, if any. The reports will recommend plant species replacements, if necessary. Photographs will be included to document existing site conditions.

Contingency Plan

The City of Tacoma will implement a contingency plan if the restoration areas fail to meet the stated performance criteria. Contingency plans are prepared on a case-by-case basis, depending upon the mitigation aspect that does not meet the goals and objectives of the plan.

REFERENCES

City of Tacoma. 2020. Public DART map online interactive map. Available at: https://dart.cityoftacoma.org/#20200625.


WDFW. 2020b. PHS on the Web: An interactive map of WDFW priority habitats and species information for project review. Available at: http://wdfw.wa.gov/mapping/phs/.

Hydrophytic Vegetation Present? Yes No X

Hydric Soil Present? Yes No X

Wetland Hydrology Present? Yes No X

Is the Sampled Area within a Wetland? Yes No X

Precipitation:
According to the Tacoma No.1 NOAA weather station, precipitation was within the normal range for the three months prior to the site visit.

Remarks:

VEGETATION

<table>
<thead>
<tr>
<th>Tree Stratum</th>
<th>Absolute % Cover</th>
<th>Dominant Species</th>
<th>Indicator</th>
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</tr>
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<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>
<tr>
<td>4.</td>
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<table>
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<td>3.</td>
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Herb Stratum

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<td>2.</td>
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<tr>
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<td>2.</td>
<td></td>
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% Bare Ground in Herb Stratum

100%
### SOIL

#### Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

<table>
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<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>Matrix</th>
<th>Redox Features</th>
<th>Type</th>
<th>Loc</th>
<th>Texture</th>
<th>Remarks</th>
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<td></td>
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</tr>
</tbody>
</table>

1. **Type:** C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.  
2. **Location:** PL=Pore Lining, M=Matrix.  
3. **Texture:** Sa = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

#### Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

#### Indicators for Problematic Hydric Soils:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

#### Restrictive Layer (if present):

- Type: none
- Depth (inches): ____________

#### HYDROLOGY

#### Wetland Hydrology Indicators:

**Primary Indicators (minimum of one required; check all that apply)**

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)

**Secondary Indicators (2 or more required)**

- Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Frost-Heave Hummocks (D7)

#### Field Observations:

- Surface Water Present? Yes __ No X
- Water Table Present? Yes __ No X
- Saturation Present? Yes __ No X

#### Remarks:

- Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
APPENDIX F

TACOMA PUBLIC UTILITIES
WATER SPECIAL PROVISIONS
This appendix contains specifications for the Tacoma Public Utilities portion of the project work. These specifications are for a typical water main project in the street right-of-way so some details (such as street repair) and some restoration details are included in the City of Tacoma project specifications that this is an appendix to.
CITY OF TACOMA
DEPARTMENT OF PUBLIC UTILITIES
TACOMA WATER

SPECIFICATION NO. ES20-0305F

CONSTRUCTING WATER MAINS
in accordance with approved plans for

WATER MAIN REPLACEMENT PROJECT NO. MRP 2020-05
BUCKLEY GULCH, N. 16TH, INTERSECTIONS OF N. 15TH & N. 14TH AND JUNETT ST

Troy Saghafi, P.E.
Tacoma Water
Tacoma Public Utilities
MRP 2020-05
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INTRODUCTION
April 1, 2020

This project is in conjunction with the Environmental Services Specification No. ES20-0305F. These Special Provisions and Tacoma Water Plans are applicable to only the water utility distribution piping (water main) work and unless indicated otherwise, in Addenda or Jurisdictional Right of Way Permits, supersede any conflicting provisions that may appear elsewhere in the project Contract Plans and Specifications (Contract Documents).

Description of Work

The work to be performed under herein consists of furnishing all labor, tools and materials for constructing approximately 750 lineal feet of 6-inch water mains together with all necessary valves, specials, etc., all in accordance with these Special Provisions and Tacoma Water Plans. The work is located along N. 16th St., between N. Junett St. and N. Pine St., the intersection of N. 15th St. and N. Junett St., and the intersection of N. 14th St. and N. Junett St.

All work is located within the SW ¼ of Sec 31, T.21N, R3E, WM in Tacoma, Washington.

All materials required and not listed herein, to be furnished by Tacoma Water, shall be furnished by the Contractor. The modifications to the water distribution system shown on the Water Plans will be constructed as a part of this contract. These Special Provisions are applicable to water distribution work only and supersede any conflicting provisions that may appear elsewhere in the Contract or Standard Specifications in regard to the water distribution main facility scope of work. Proposal items within the Tacoma Water section of the proposal are applicable to the water main scope of work only and shall not be construed to apply to other Contract Documents.

The following Special Provisions shall be used in conjunction with the applicable sections of the 2020 M41-10 Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction and the American Water Works Association (AWWA) Standard Specifications. State Standard Specifications are available through WSDOT, by calling (360) 705-7430, or may be downloaded, free of charge, from this location on the WSDOT home page: www.wsdot.wa.gov/Publications/Manuals/M41-10.htm
DEFINITIONS AND TERMS

1-01.2 Abbreviations

1-01.2(1) Associations and Miscellaneous
This section is supplemented with the following:

DIPRA  Ductile Iron Pipe Research Association
EWO  Extra Work Order
LOI  Letter of Instruction
MRP  Main Replacement Project/Program
NSF  National Sanitation Foundation
RFI  Request for Information
TPU  Tacoma Public Utilities
WDP  Water Division Project

1-01.3 Definitions
This section is supplemented with the following:

All references in the Standard Specifications to the terms “State”, “Department of Transportation”, “Washington State Transportation Commission”, “Commission”, “Secretary of Transportation”, “Secretary”, “Headquarters”, and “State Treasurer” shall be revised to read “Contracting Agency”.

All references to “State Materials Laboratory” shall be revised to read “Contracting Agency designated location”.

All references in the Standard Specifications to the term “Contract Bond” shall be revised to read “Performance Bond.”

All references in the Standard Specifications to the term “Proposal Bond” shall be revised to read “Bid Bond.”

The venue of all causes of action arising from the advertisement, award, execution, and performance of the contract shall be in the Superior Court of the County where the Contracting Agency’s headquarters are located.

Contract Documents
See definition for “Contract”.

Contract Time
The period of time established by the terms and conditions of the contract within which the work must be physically completed.

Dates

Bid Opening Date
The date on which the Contracting Agency publicly opens and reads the bids.
**Award Date**
The date of the formal decision of the Contracting Agency to accept the lowest responsible and responsive bidder for the work.

**Contract Execution Date**
The date the Contracting Agency officially binds the agency to the contract.

**Notice to Proceed Date**
The date stated in the Notice to Proceed on which the contract time begins.

**Substantial Completion Date**
The day the Engineer determines the Contracting Agency has full and unrestricted use and benefit of the facilities, both from the operational and safety standpoint, and only minor incidental work, replacement of temporary substitute facilities, or correction or repair remains for the physical completion of the total contract.

**Physical Completion Date**
The day all of the work is physically completed on the project. All documentation required by the contract and required by law does not necessarily need to be furnished by the Contractor by this date.

**Completion Date**
The day all the work specified in the contract is completed and all the obligations of the Contractor under the contract are fulfilled by the Contractor. All documentation required by the contract and required by law must be furnished by the Contractor before establishment of this date.

**Final Acceptance Date**
The date on which the Contracting Agency accepts the work as complete.

**Contracting Agency**
Agency of Government that is responsible for the execution and administration of the contract to include: “City”, “City of Tacoma”, “Tacoma Public Utilities” and “Tacoma Water”.

**Notice to Proceed**
The written notice from the Contracting Agency or Engineer to the Contractor authorizing and directing the Contractor to proceed with the work and establishing the date on which the contract time begins.

**Traffic**
Both vehicular and non-vehicular traffic, such as pedestrian, bicycle, and wheelchair traffic.

END OF SECTION
1-03 AWARD AND EXECUTION OF CONTRACT

1-03.3 Execution of Contract  
*This section is supplemented with the following:*

A Pre-construction meeting will be scheduled by Geff Yotter, Tacoma Water Construction Operations Manager following review by TPU Legal, Finance Department, Small Business Enterprise Office, Contract and Awards Board, and award of contract by the Tacoma Public Utility Board. The meeting agenda will cover contract compliance, safety and construction. The Contractor is encouraged to have representatives from his/her sub-contractors and their on-site forepersons in attendance. Contact Geff Yotter at (253) 502-8742 concerning questions.

In addition to the contract, performance bond, insurance and other documentation that is required during the contract execution process the Contractor shall submit the following construction documents prior to, or at, the preconstruction meeting.

1. Approved Traffic Control Plan
2. Materials Submittals
3. Storage & Stockpile Site
4. Emergency Contact List
5. Unsuitable Disposal Site
6. Construction Schedule (updated bi-weekly)

1-03.5 Failure to Execute Contract  
*The first sentence is revised to read:*

Failure to return the insurance certification and bonds with the signed contract as required in Section 1-03.3, or failure to provide Small Business Enterprise (SBE) information if required in the contract, or failure or refusal to sign the contract shall result in forfeiture of the bid bond or deposit of this bidder.

END OF SECTION

1-04 SCOPE OF THE WORK

1-04.2 Coordination of Contract Documents, Plans, Special Provisions Specifications and Addenda  
*Second paragraph is revised to read:*


Any inconsistency in the parts of the contract regarding the water portion shall be resolved by the following order of precedence (e.g. 1 presiding over 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11; 2 presiding over 3, 4, 5, 6, 7, 8, 9, 10, and 11; and so forth):

1. Jurisdictional Right of Way Permits
2. Addenda
3. Proposal Form
5. Contract Plans/Drawings
7. AWWA Standards
8. DIPRA Standards
10. Amendments to the Standard Specifications
11. Standard Specifications

1-04.3 Requests for Information

This section is added with the following:

Requests for Information (RFI) from the Contractor to Tacoma Water may be sent via facsimile directly to Geff Yotter, Tacoma Water Construction Operations Manager, fax number (253) 502-8694 or electronically to: gyotter2@cityoftacoma.org.

Allow a minimum of five (5) working days from time of receipt by Tacoma Water for a response.

1-04.4 Changes

1-04.4(1) Minor Changes

This section is revised in its entirety with the following:

Minor changes, additional work, or extra work order (EWO) may be initiated by the Contactor or Tacoma Water. At the discretion of Tacoma Water, this procedure for Minor Changes, Additional Work, or Extra Work may be used in lieu of the more formal procedure as outlined in Section 1-04.4, Changes. EWO’s not covered by contract items will be paid for on a force account basis in accordance with Section 1-09.6 of the Standard Specifications or as a Letter of Instruction.

The Contractor must discuss any “extra work” that can be reasonably foreseen with the Tacoma Water Construction Inspector and/or Engineer prior to doing the work. The Contractor must submit the field copy extra work orders (EWO) to the Inspector and/or Engineer no later than the end of the next working day after the extra work was performed for review and recording. Formal EWO’s may be sent via facsimile directly to Geff Yotter, Tacoma Water Construction Operations Manager, fax number (253) 502-8694 or electronically to: gyotter2@cityoftacoma.org. The Formal EWO must be sent within five (5) working days of the date the work was performed.

The Formal EWO shall have as a minimum the following:
- Name of Contactor
- Date of Work
- Project Number
- Brief Description of Work
- Approximate location of work
- Contractor’s Representative
- Name(s), Job Classification(s), Hour(s) on the extra work, Rate(s) of Pay
- Equipment(s) Used, Hour(s) on the extra work, Equipment Rental Rate(s)
- Extra material used with a copy of vendor’s invoice
- Equipment Rental copies
- Itemized cost showing mark up(s)

Do not include sales tax in the computation of the EWO as it will be calculated through the pay estimate.

Failure to submit the formal extra work orders during this time frame will result in non-payment for extra work. Field EWO’s given to the Inspector does not constitute approval, only verification of documentation. Extra work orders will comply with the requirements of section 1-09.6.

1-04.7 Differing Site Conditions (Changed Conditions)
This section is supplemented with the following:

By entering into the contract, the Contractor represents that he/she has inspected in detail the project site and has become familiar with all the physical and local conditions affecting the project and/or the project site. Any information provided by the City to the Contractor relating to existing conditions on, under, or to the project and/or site including but not limited to information pertaining to subsurface exploration and conditions, borings, test pits, tunnels and other conditions affecting the project site, represents only the opinion of the City as to the location, character, or quantity of such conditions shall draw his/her own conclusions from such information and make sure tests, reviews and analyses as he/she deems necessary to understand such conditions and to prepare the Proposal.

The City assumes no responsibility whatsoever with respect to the sufficiency or accuracy of such information and there is no guarantee either expressed or implied that the conditions indicated or otherwise found by the Contractor as a result of any examination or exploration, are representative of those existing throughout the work and/or project site.

The Contractor shall carefully study and compare the contract documents and shall at once report to the City errors, inconsistencies or omissions discovered. If the Contractor performs any construction activity knowing it involves a recognized error, inconsistency or omission in the contract documents without such notice to the City, the Contractor shall assume the risk and responsibility for such performance and shall bear an appropriate amount of the attributing costs for correction.

The Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the contract documents before commencing activities. Errors, inconsistencies or omissions discovered shall be reported to the City at once.

END OF SECTION
1-05 CONTROL OF WORK

1-05.3 Plans and Drawings

*This section is supplemented with the following:*

Bidders can request one (1) full-size plan set by calling Todd Honey at (253)-502-8295. The requested plan set must be picked up by the bidder at Tacoma Water’s permit counter.

1-05.5 Submittals

*This section is added with the following:*

Submittals must be approved by Tacoma Water and may be forwarded directly to Craig West, Tacoma Water Engineering Construction Coordinator, electronically at cwest@cityoftacoma.org, or mailed to 3628 S. 35th St., Tacoma, WA 98409-3192. (253) 405-8821.

Before any material is shipped or installed, the Contractor shall furnish to the Engineer full details, shop drawings, dimensions, catalog cuts, schematic (elementary) diagrams, and other descriptive matter as required to fully describe the equipment proposed to be included in this contract. The names, addresses and phone numbers for the representative of each piece of equipment shall also be included.

Should any item which deviates from these Specifications be included, the deviation shall be clearly indicated and explained at the time of submittal.

The Contractor shall provide electronic copies of submittal information. Submittals shall be complete, neat, orderly, and indexed. The Contractor shall check submittals for number of copies, adequate identification, correctness, and compliance with the Plans and Specifications, and shall initial all copies. A copy of this Specification shall be included with the submittals. The Contractor shall revise and/or resubmit all submittal information until it is acceptable to the Engineer. After review, one set of submittals will be returned to the Contractor.

Review of submittal information by the Engineer shall not relieve the Contractor of responsibility for meeting the requirements of the Plans and Specifications, or for errors and omissions in submittals. Reviews by the City do not constitute an undertaking on the part of the City to assure or determine compliance with the Plans and Specifications.

The following is a summary of submittal requirements (Table 1). This summary is not inclusive of all submittal requirements. The Contractor shall review each individual section in the applicable provisions or specifications, as noted below, for specific requirements.

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1-05.11 Final Inspection
This section is supplemented with the following:

The Tacoma Water Construction Inspector will process a final inspection document (punch list) of outstanding items and forward to contractor. Final payment will not be processed until all items from punch list are complete to the satisfaction of the engineer and/or inspector.

1-05.13(1) Emergency Contact List
This section is supplemented with the following:

Agencies and telephone numbers:

* **Tacoma Water Emergency**  253-502-8344
  * Troy Saghafi  Tacoma Water Project Engineer  253-502-8746
  * Geff Yotter  Tacoma Water Const. Operations Manager  253-502-8742
  * Todd Honey  Tacoma Water Utilities Serv. Spec.  253-502-8295
  * Tacoma Water Distribution LID/Engineering fax  253-502-8694
  * Utilities Underground Location Center  800-424-5555
  * Washington State Dept. of Labor and Industries  253-596-3895
  * Trent Hill  Tacoma Water Safety Office  253-502-8821
  * James Southern  Tacoma Water Safety Office  253-441-4676
  * Pierce Transit  253-581-8021
  * Puget Sound Energy-Gas  888-225-5773
  * Century Link Communications  800-573-1311
1-06 CONTROL OF MATERIAL

1-06.4 Handling and Storing Materials
This section is supplemented with the following:

The Contractor shall obtain written approval for the storage site from property owner and provide a copy to Geff Yotter, Tacoma Water Construction Operations Manager, prior to start of construction. No gravel, topsoil, mulch, or any other item used in the construction of this project shall be stockpiled on existing or newly constructed streets or sidewalks. All costs to provide a stockpile site shall be incidental to the cost of the contract.

END OF SECTION

1-07 LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC

1-07.6 Permits and Licenses
This section is supplemented with the following:

Before beginning water main work, the Contractor shall obtain and comply with all provisions of the latest revision to Tacoma Municipal Code 2.09. Permit fees in accordance with 2.09.120, Table IX, Special and Miscellaneous Service Fees, A7. “Trench for water line, etc. (miscellaneous trench)” are the responsibility of the contractor. The permit fee shall be calculated based on the total lineal feet of the project. The contractor is encouraged to reference the Tacoma Municipal Code to calculate the fee prior to bid submittal. Fees are subject to CPI adjustments.

The permit may be obtained at the City of Tacoma Planning and Development Services Department, 3rd Floor, 747 Market St, Tacoma (253-591-5030). The contractor shall provide approximate lineal feet and specification number to the permit personnel. A copy of the permit shall be provided to Tacoma Water as part of the submittals.

Traffic control plans shall be submitted to Tacoma Public Works, Traffic Engineering, room 520, 747 Market St, Tacoma, (253) 591-5275, for review and comment. When using the WSDOT Standard “K” Plans, the street names are to be listed on the plans with construction start date and intended working hours.

Water used during construction can be obtained from an approved Tacoma Water fire hydrant. The Contractor will be billed for the water used and shall pay for a
“Hydrant Use Permit” and make a deposit on the water meter. The Contractor shall contact the Water Permit Counter at (253) 502-8247, for information regarding water consumption fees, Hydrant Use Permit fees, meter deposits and approved Tacoma Water hydrant locations. Permit fees and deposits shall be paid prior to using an approved Tacoma Water hydrant.

1-07.16(2) Vegetation Protection and Restoration
This section is supplemented with the following:

Care shall be taken when directed by the Field Inspector to save existing landscaping and trees. The Contractor shall remove any unnecessary debris and rocks and leave landscaping areas in a prepared fashion. Any necessary landscape restoration shall be completed by Tacoma Public Utility landscape crews.

1-07.16(4) Archaeological and Historical Objects
This section is supplemented with the following:

Whenever the Contractor identifies a situation that may involve the discovery of unanticipated cultural resources, the Contractor will immediately cease work and notify the City Inspector. Situations involving the discovery of unanticipated cultural resources include but are not limited to human skeletal remains, Anthropogenic soil horizons (areas showing the influence of humans on nature), occupational surfaces (areas showing evidence of human activity or habitation), midden (dunghill or refuse heap), stone tools or waste flakes (arrowheads or stone chips), bones, burned rocks, other food related material in association with stones tools or flakes, cluster of cans or bottles, tunnels, or logging or agricultural equipment more than 50 years old. The Contractor will take all steps necessary to protect and secure the suspected cultural resource until the City Inspector is able to assess the discovery and determine whether work can resume. Delays of greater than one hour will be considered standby time and will be compensated under the Force Account. If a significant delay is anticipated, the Inspector may direct the Contractor to temporarily abandon the excavation and move to a more distant location to resume work until the situation can be addressed. Tacoma Water will take responsibility for contacting the appropriate state and local agencies.

1-07.18 Public Liability and Property Damage Insurance
This section is deleted in its entirety:

1-07.23 Public Convenience and Safety

1-07.23(1) Construction Under Traffic
This section is supplemented with the following:

All traffic control devices must meet the requirements established by the Manual on Uniform Traffic Control Devices. Refer to other parts of the Contract Documents for more details on Traffic Control submittal and requirements.

The Contractor shall prepare a traffic control plan (TCP) and submit to Tacoma Public Works, Traffic Engineering, room 520, 747 Market St, Tacoma, (253) 591-5275, for review and comment per 1-10.2(1)A. The approved traffic control plan must be on
site and accessible for inspection at all times by local law enforcement or inspectors. An approved copy of the traffic control plan shall be submitted to Geff Yotter, Tacoma Water’s Construction Operations Manager, prior to start of construction.

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.

A flagger shall not be used to direct traffic flow 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. In some situations, the local Traffic Engineer may turn the signal to an all way stop for flagger control. Prior approval must be obtained from the local Traffic Engineer.

The Contractor may close non-arterial streets to through traffic, if allowed in the approved traffic control plan, provided that local access is maintained at all times with a minimum of a 20-foot wide access lane. The Contractor shall coordinate any closures and cooperate with the various businesses and/or residences adjacent to the project site. A minimum of one access shall be maintained to all properties at all times.

Whenever, during the course of construction, it becomes necessary because of the nature of the work, for the Contractor to barricade any street or any part thereof, or to place any obstruction which will impede the flow of traffic in any public thoroughfare within and outside the project area, then the Contractor will be required to give notice of the intended interruption to traffic, setting forth the period and necessity.

The Contractor shall coordinate with the Traffic Engineer of the local jurisdiction on all matters pertaining to the movement of vehicular and pedestrian traffic past the project area.

Any permits required for obstruction or closure of thoroughfares shall be obtained by the Contractor at his/her expense.

The Contractor shall at all times exercise adequate precautions for the safety of all persons, including employees, in the performance of this contract and shall comply with all applicable provisions of federal, state, county and municipal safety laws and regulations.

Tacoma Water’s Inspector and/or Engineer may advise the Contractor and the Public Utilities Safety Officer of any safety violations. It is the Contractor’s responsibility to correct the violation. Failure to correct safety violations shall be grounds for a cease order from the Public Utilities Safety Officer, Engineer, or Inspector. Time and wages lost due to such safety shutdowns shall be at the sole cost of the Contractor. Time lost due to cease orders for safety violations will still be counted in the required number of days the Contractor has to complete the contract.

Any of the above actions by employees of the City of Tacoma shall in no way relieve the Contractor of his/her sole responsibility to provide the safety of all persons, including his/her employees.
1-08 PROSECUTION AND PROGRESS

1-08.3 Progress Schedule

This section is supplemented with the following:

The contract shall be completed in phases to allow Tacoma Water crews access to begin the service transfer process. All costs for phasing the work and completing the work as specified shall be included in the various bid items of the proposal.

Each phase of this project will be tested, sampled, flushed and put into service in segments. This will allow Tacoma Water crews to start service transfers within that segment immediately following successful testing, sampling and flushing on that segment. The Tacoma Water inspector will coordinate test sections and connections, to ensure customers are kept in service and fire protection is not diminished. The Contractor shall be required to make connections and install hydrants as sampled sections become available and services are transferred; not wait until all mainline is constructed.

Please note; Service transfer work by Tacoma Water will not commence until such time as the section of water main has been placed into service and the trench has been successfully backfilled, as demonstrated through receipt of successful compaction test results for that portion of water main to be placed in service.

For water service transfers:

- For water services two inches and smaller, the Contractor shall anticipate one working day per service for Tacoma Water crews to complete service transfers.
- For water services larger than 2- inches, the Contractor shall anticipate one and one half working days per service for Tacoma Water crews to complete service transfers.

1-08.5 Time for Completion

This section is supplemented with the following:

Time is of the essence for this contract; therefore, work shall commence within ten (10) calendar days of the “Notice to Proceed,” and all work shall be completed within thirty (30) working days thereafter.

If the Contractor elects to start work prior to the expiration of the ten (10) calendar days-waiting period from the date of the official notice to proceed, no working days will be charged during this period.

1-08.5(1) Hours of Work

This section is added with the following:

Except in the case of emergency or unless otherwise approved by the Contracting Agency, the normal straight time working hours for the contract shall be any consecutive 8-hour period between 7:00 a.m. and 6:00 p.m. of a working day with a
maximum 1-hour lunch break and a 5-day work week. The normal straight time 8-hour working period for the contract shall be as specified in section 1-08.5(2) or established at the preconstruction conference or as specified by the jurisdictional right-of-way permit.

If a Contractor desires to perform work on holidays, Saturdays, Sundays, or before 7:00 a.m. or after 6:00 p.m. on any day, the Contractor shall apply in writing to the Engineer for permission to work such times. Permission to work longer than an 8-hour period between 7:00 a.m. and 6:00 p.m. is required. Such requests shall be submitted to the Engineer no later than seven (7) days prior to the day for which the Contractor is requesting permission to work.

Permission to work between the hours of 10:00 p.m. and 7:00 a.m. during weekdays and between the hours of 10:00 p.m. and 9:00 a.m. on weekends or holidays may also be subject to noise control requirements. Approval to continue work during these hours may be revoked at any time the Contractor exceeds the Contracting Agency’s noise control regulations or complaints are received from the public or adjoining property owners regarding the noise from the Contractor’s operations. The Contractor shall have no claim for damages or delays should such permission be revoked for these reasons.

Permission to work Saturdays, Sundays, holidays or other than the agreed upon normal straight time working hours Monday through Friday may be given subject to certain other conditions set forth by the Contracting Agency or Engineer. These conditions may include but are not limited to: requiring the Engineer or such assistants as the Engineer may deem necessary to be present during the work; requiring the Contractor to reimburse the Contracting Agency for the costs in excess of straight-time costs for Contracting Agency employees who worked during such times, on non-Federal aid projects; considering the work performed on Saturdays, Sundays, and holidays as working days with regards to the contract time; and considering multiple work shifts as multiple working days with respect to contract time even though the multiple shifts occur in a single 24-hour period. Assistants may include, but are not limited to, survey crews; Water Distribution support personnel; inspectors; and other Contracting Agency employees when in the opinion of the Engineer, such work necessitates their presence.

1-08.5(2) Project Specific Working Hours
This section is added with the following:

Except as otherwise specified in section 1-08.5(1), this project’s working hours shall be 8:00 a.m. to 4:30 p.m., Monday through Friday.

END OF SECTION

1-09 MEASUREMENT AND PAYMENT

1-09.1 Measurement of Quantities
This Item “Lump Sum” is revised to read:
“Lump Sum” items except mobilization shall be measured and paid on a prorated basis in accordance with water main installation progress as determined by the lineal feet of water main installed on each progress payment. Mobilization lump sum shall be paid in accordance with section 1-09.7.

1-09.6 Force Account
This section is supplemented with the following:

Tacoma Water has estimated the cost of the bid item for “Force Account” and “Force Account-Erosion/Water Pollution Control” and has entered the amounts in the bid proposal to become a part of the total bid by the Contractor. It is for the purpose of providing a common proposal for all bidders and for that purpose only.

1-09.7 Mobilization
This section is supplemented with the following:

Bid item for “Mobilization” is included for Contractor mobilization associated with water main portion of Contract.

END OF SECTION

1-10 TEMPORARY TRAFFIC CONTROL

1-10.2(1) A Traffic Control Management
This section is supplemented with the following:

Traffic control plans (TCP) shall be submitted to the City of Tacoma for review and comment. When using the WSDOT Standard “K” Plans, the street names are to be listed on the plans with construction start date, the intended working hours and the project number. The WSDOT Standard “K” Plans are available online at the Washington State Department of Transportation website.

The Contractor is required to contact the local school district and local transit authority three (3) working days prior to any road closure at the number listed in section 1-05.13(1).

1-10.4 Measurement

1-10.4(1) Lump Sum Bid for Project (No Unit Items)
This section is supplemented with the following:

Temporary traffic control labor for this project per lump sum.

1-10.5 Payment

1-10.5(1) Lump Sum Bid for Project (No Unit Items)
This section is supplemented with the following:
“Project Temporary Traffic Control”, lump sum. The lump sum bid price for “Project Temporary Traffic Control” will include all labor, materials, signs, portable changeable message signs, barricades, flaggers, spotters, uniform police officers, etc. for all phases of construction. TCS labor is incidental to the contract.

END OF SECTION

2-02 REMOVAL OF STRUCTURES AND OBSTRUCTIONS

2-02.3 Construction Requirements

As indicated on the plans or as directed by the Engineer all old pipe (except wood stave), valves, hydrants and fittings (not limited to tees, reducers, and ells) salvaged from replaced pipe lines shall be delivered by the Contractor to the Water Storeroom at South 35th and Union Avenue, Tacoma, WA at no additional cost. Otherwise, disposal is incidental to the contract.

Salvage methods shall be used which will save all material intact and undamaged.

The ends of pipe abandoned and left in the ground by this contract shall be plugged with concrete in accordance with 7-08.3(4) or as specified on plan. All costs for labor, equipment, and materials to complete plugging of abandoned pipe shall be incidental to contract.

2-02.3(3) Removal of Pavement, Sidewalks, Curbs, and Gutters

Removal and disposal of existing pavement, sidewalks, curbs, and gutters associated with the water main installation includes all combinations and thicknesses. No additional compensation shall be made for varying combinations and thicknesses.

All costs for the removal and disposal of existing concrete curb, sidewalk, driveways, and alley approaches for the water main or related appurtenances shall be included in the unit contract bid price.

The contractor will be required to saw cut for Tacoma Water service transfers. Additional saw cutting may be necessary in the event that the cement concrete is cracked, damaged, impacted by service transfer/renewal or as directed by the local jurisdiction. All costs shall be included in the unit contract bid price.

Any slurry generated by saw cutting shall be collected by a wet-vacuum and kept out of the storm sewer system. The contractor shall not violate the requirement of WSDOT Standard Specifications, 2020 M 41-10, section 1-07.5 (Fish and Wildlife and Ecology Regulations).

2-02.3(4) Historical Buried Structures-Abandoned Trolley/Railroad Tracks

This section is added with the following:
The Contractor is advised that buried structures may be encountered as part of this project. Information indicates the potential for encountering abandoned Trolley/Railroad tracks and bedding. The estimated track locations are taken from various archived records and Tacoma Water does not guarantee the accuracy or take responsibility for these records. Locations and nature of the structures are generally unknown, and the contractor is advised the quantities will be based on the conditions encountered at the time of the work.

Any slurry generated by saw cutting shall be collected by a wet-vacuum and kept out of the storm sewer system. The contractor shall not violate the requirement of WSDOT Standard Specifications, 2020 M 41-10, section 1-07.5 (Fish and Wildlife and Ecology Regulations).

2-02.4 Measurement
This section is replaced in its entirety with the following:

No measurement for removal and reclaiming salvaged material shall be made and shall be considered incidental to the contract.

Measurement for Removal and disposal of existing pavement, sidewalks, curbs, and gutters associated with the water main installation will be made by the square yard. This bid item does not include pavement removed by the bid item “Planing Bituminous Pavement, 2-inch depth”.

Measurement for “Sub-Surface Railroad/Trolley Bedding Removal”, will be per square yard and includes all thicknesses and combinations concrete, rails, and railroad ties.

2-02.5 Payment
This section is replaced in its entirety with the following:

“Removal and disposal of existing pavement, sidewalks, curbs, and gutters includes all thicknesses & combinations”, per square yard.

“Removal and disposal of existing pavement, sidewalks, curbs, and gutters includes all thicknesses & combinations”, shall include all costs for haul, disposal, saw cutting, wheel trenching, hydro hammering, chipping, grinding, etc., the existing street for water main construction and hydrant laterals. The wheel trencher may be used for the thicker initial cuts for main/hydrant installation. Additional cuts to square up the permanent patch for concrete base and asphalt concrete will be made after trenching and pouring the concrete base, respectively, when applicable, and will encompass areas disturbed by service transfers. All costs for additional cuts shall be included in the unit contract bid price.

“Sub-Surface Railroad/Trolley Bedding Removal”, per square yard.

The unit bid price for “Sub-Surface Railroad/Trolley Bedding Removal”, shall include but not limited to: removal of varying thicknesses of concrete, rails, and railroad ties.
2-13 CONTROL AND MANAGEMENT OF CONTAMINATED MATERIALS

This section is added with the following:

2-13.1 Construction Requirements

2-13.1(1) General

Whenever the Contractor identifies a situation that may involve contaminated/hazardous wastes, the Contractor will immediately cease work and notify the City Inspector. Situations involving contaminated/hazardous wastes may be identified by uncharacteristic odors, soil appearance, texture, containers such as drums or cans and color. The Contractor will take all steps necessary to protect personnel until all risks are identified and safe work can resume. Delays of greater than one hour will be considered standby time and will be compensated under the Force Account. If significant risks or contaminated/hazardous wastes are encountered requiring significant delays, the inspector may direct the Contractor to temporarily abandon the excavation and move to a more distant location to resume work until the situation can be addressed. Tacoma Water will take responsibility for sampling, testing and identification of proper disposal of all hazardous wastes.

A determination for method of disposal will be made upon receipt of sampling results. Excavated spoils will be the responsibility of the Contractor for proper disposal. All hazardous waste must be disposed in an appropriately licensed solid waste facility. The Contractor must identify the facility they will utilize prior to beginning work.

Transport and Disposal of Contaminated/Hazardous Waste includes all costs for the excavation, transportation and disposal of all excavated material which must be disposed in a solid waste landfill. Payment per ton will be determined by the actual weight delivered to the permitted landfill, which must be listed on the scale ticket from the landfill. The original weight ticket from the landfill must be delivered to the inspector or provided with invoice for payment.

There are no estimated numbers for this item, but the cost will be applied if any waste is encountered. This item is not considered for calculation of the total bid amount. Any costs under this item will be covered under the Force Account item.

END OF SECTION

5-04 HOT MIX ASPHALT

5-04.3 Construction Requirements

This section is supplemented with the following:
Prior to the first Hot Mix Asphalt (HMA) placement on the project, a pre-paving meeting will be held by the Construction Inspector, Contractor and Paving Contractor representative. This meeting will establish the lines of communication and provide common knowledge of how the contractor will proceed and what the inspection staff will be expecting. An example of the pre-paving agenda is shown at the back of these Special Provisions.

Two (2) inches of HMA shall be placed and maintained as temporary surfacing in open cut areas of streets, driveways and sidewalks as directed by the Inspector. Temporary HMA paving shall be done so that the entire pavement cut will receive a temporary patch by the conclusion of the day’s work to allow resumption of normal traffic patterns. Temporary paving shall be placed such that it will hold up to heavy traffic for an extended period of time. All paving shall be saw-cut or neat spade prior to excavation.

The Contractor shall maintain a temporary patch while Tacoma Water personnel renew the services and transfer them to the new main, after which he/she shall start with additional street repairs. The Contractor shall make permanent street repairs for all pavement disturbed by Tacoma Water personnel during service renewal/transfer at the unit price bid in the Proposal for those items.

The Contractor shall inform himself/herself of Tacoma Public Works requirements for surface repairs and adjustment of facilities. All manhole rings and valve boxes shall be removed/lowered prior to paving and set to grade after final HMA paving per dwg. SU-25 or dwg 17-56-1, incidental to contract.

The bid item “HMA Cl. ½ PG58-22, per ton” shall include all costs for labor, and materials to install HMA wedge curbing removed as part of this project.

The Contractor shall restore all drainage ditches, culverts and embankments disturbed by his/her operations. The cost and expense for such restorative work is incidental to the Contract. The permanent street repair will be made to the satisfaction of the local jurisdiction and to its standards as shown in the plans.

The Contractor shall confine his/her operations as much as possible, such that there is minimal damage to existing pavement.

It shall be the Contractor’s responsibility to protect the edge of the paved roadway at all times. The expense for pavement repairs beyond the neat line of the trench due to over-excavation or damage to the roadway edge caused by heavy equipment, spoil cleanup or other operations of the Contractor shall be the responsibility of the Contractor.

No permanent street repairs will be made until the services are transferred to the new main. The removal of trench backfill for permanent street repairs will be incidental to the bid, including additional areas disturbed during the service transfers.

5-04.3(3) Hot Mix Asphalt Pavers

The second paragraph of this section is deleted:
5-04.3(3)A Material Transfer Device/Vehicle
This section is deleted:

5-04.3(7)A1 General
This section is supplemented with the following:

Verification of the mix design by the Contracting Agency is not required. The Contractor shall determine anti-stripe requirements for HMA and provide data for anti-stripping.

The Contractor shall provide a mix design based upon 3 million ESAL’s.

5-04.3(7) A2 Statistical or Non-statistical Evaluation
This section is deleted:

5-04.3(8)A Acceptance Sampling and Testing – HMA Mixture

5-04.3(8)A1 General
The first paragraph is revised to read:

Acceptance of HMA shall be as provided under non-statistical or commercial evaluations.

The second and third paragraphs are deleted.

The fourth sentence of the fourth paragraph is deleted.

5-04.3(10) Compaction

5-04.3(10) A General
This section is supplemented with the following:

During paving operations, a certified compaction testing agency shall be at the project site to take compaction test. Testing locations shall be identified by street name, approximate station and centerline offsets. Minimum number of tests required shall be based on the criteria of 1 test per 150 lineal feet with a minimum of 2 tests per trench. On-site test results verifying proper compaction will be provided to both the inspector and the contractor prior to commencing the next lift. Copies of compaction tests results reports shall be provided to the Tacoma Water Construction Inspector within 24 hours. Compaction test results may be sent electronically to facsimile telephone number, (253) 502-8694, to the attention of Geff Yotter, or emailed to gyotter2@cityoftacoma.org. Compaction test results shall list the Tacoma Water Project No., Specification No., Date and Time of compaction test, and station of the compaction test location.

5-04.3(10)B1 General
This section is revised to read:

HMA mixture accepted by statistical or non-statistical evaluation that is used in traffic lanes, including lanes for ramps, truck climbing, weaving, and speed change, and
having a specified compacted course thickness greater than 0.10-foot, shall be compacted to a specified level of relative density. The specified level of relative density shall be a Composite Pay Factor (CPF) of not less than 0.75 when evaluated in accordance with Section 1-06.2, using a minimum of 91.0-percent of the reference maximum density as determined by WSDOT FOP for AASHTO T 209. The specified level of density attained will be determined by the non-statistical evaluation of nuclear density tests taken on the day the mix is placed (after completion of the finish rolling).

Compaction tests will be performed at a minimum of 5 various locations, as determined by the Project Engineer, for each 400 tons placed. The locations will be determined by the stratified random sampling procedure conforming to WSDOT Test Method T 716. For an area in progress with a CPF less than 0.75, a new compaction sequence will begin at the Contractor’s request after the Project Engineer is satisfied that material conforming to the Specifications can be produced. The Compaction Test Procedures will be with the Contractor by the Contracting Agency at the Pre-Construction Conference or a Pre-Paving Meeting, prior to the placement of HMA material on site.

HMA mixture accepted by commercial evaluation and HMA constructed under conditions other than those listed above shall be compacted on the basis of a test point evaluation of the compaction train. The test point evaluation shall be performed in accordance with instructions from the Project Engineer. The number of passes with an approved compaction train, required to attain the maximum test point density, shall be used on all subsequent paving.

HMA for pre-leveling shall be thoroughly compacted. HMA that is used for pre-leveling wheel rutting shall be compacted with a pneumatic tire roller unless otherwise approved by the Engineer.

Cores may be used as an alternate to the nuclear density gauge tests. When cores are taken by the Engineer at the request of the Contractor, the request shall be made by noon of the first working day following placement of the mix. The Engineer shall be reimbursed for the coring expenses.

At the start of paving, if requested by the Contractor, a compaction test section shall be constructed as directed by the Engineer to determine the compactibility of the mix design. Compactibility shall be based on the ability of the mix to attain the specified minimum density (91 percent of the maximum density determined by AASHTO T209). Following determination of compactibility, the Contractor is responsible for the control of the compaction effort. If the Contractor does not request a test section, the mix will be considered compactible.

HMA constructed under conditions other than listed above shall be compacted on the basis of a test point evaluation of the compaction train. The test point evaluation shall be performed in accordance with instructions from the Engineer. The number of passes with an approved compaction train, required to attain the maximum test point density, shall be used on all subsequent paving.

HMA for pre-leveling shall be compacted to the satisfaction of the Engineer.
5-04.3(10)B2 Cyclic Density
This section is deleted:

5-04.3(13) Surface Smoothness
The first paragraph is revised to read:

The completed surface of all courses shall be of uniform texture, smooth, uniform as to crown and grade, and free from defects of all kinds. The completed surface of the overlay shall not vary more than 1/8 inch from the lower edge of a 10-foot straightedge placed on the surface parallel to the centerline. The transverse slope of the completed surface of the overlay shall vary not more than 1/4 inch in 10 feet from the rate of transverse slope of the existing roadway grades.

5-04.4 Measurement
This section is supplemented with the following:

Copies of the weigh tickets shall be given to the Tacoma Water Construction Inspector daily.

Temporary HMA Cl ½ PG58-22, 2-inch minimum depth will be measured by the surface square yardage.

“HMA Cl. 1/2 PG58-22 pavement for permanent trench patch”, will be measured per ton.

5-04.5 Payment
This section is replaced in its entirety with the following:

“Temporary HMA Cl ½ PG58-22, 2-inch minimum depth, installed & removed”, per square yard.

The unit contract price per square yard for “Temporary HMA Cl ½ PG58-22, 2-inch minimum depth, installed & removed” shall be full compensation for all costs including mobilization, preparation, placement, compaction, maintenance and removal in preparation for permanent street repairs.

“HMA Cl ½ PG58-22”, per ton.

The unit contract price per ton for “HMA Cl ½ PG58-22” shall be full compensation for all costs incurred for mobilization, preparation, trimming, grinding, pre-leveling, hot mix asphalt pavement, sweeping, tack coat, joint sealing, saw-cutting, pavement compaction tests and fog seal in accordance with plan details, City of Tacoma Standard Plans, and WSDOT Standard Specifications, 2016, M41-10, section 5-04. All manhole rings and valve boxes shall be removed/lowered prior to paving and set to grade after final HMA paving per dwg. SU-25 or dwg 17-56-1, incidental to contract.

5-04.5(1) Quality Assurance Price Adjustments
This section is deleted.

END OF SECTION
7-04 STORM SEWERS

7-04.3 Construction Requirements
This section is supplemented with the following:

Storm sewers may be encountered at various locations throughout this project. Prior to the start of the storm sewer repair, the Inspector and/or contractor shall notify Tacoma Public Works Inspector. C900 PVC, Ductile Iron or 3034 PVC may be used on storm line repairs. The repair of the storm sewer shall be made three feet outside of the water main trench. No additional compensation shall be made for the extended connection and material. Mechanical couplings (Romac or equivalent) shall be installed at both ends of the storm sewer restoration forming a rigid connection between the new and existing pipe. Rigid PVC slip couplings for PVC pipe and Romac mechanical style for concrete pipe only. Repair/replacement/restoration will be at the inspector’s discretion and the local jurisdiction.

7-04.4 Measurement
This section is revised in its entirety with the following:

Storm, Sanitary, and Side Sewer Restoration will be measured per each.

7-04.5 Payment
This section is revised in its entirety with the following:

“Storm, Sanitary, and Side Sewer Restoration”, per each.

“Storm, Sanitary, and Side Sewer Restoration”, includes any work and materials required to remove and replace storm, sanitary, and side sewers shall be included in the bid item. This is a per each bid item that includes all costs but is not limited to pipe, fittings, pea gravel, labor, and equipment, etc. to repair sewers.

END OF SECTION

7-09 WATER MAINS

7-09.1 Description
The first paragraph is revised to read:

This work consists of constructing water mains 24-inch in diameter and smaller in accordance with the Plans, these Standard Specifications, the Special Provisions and the Standard Plans, at the location shown on the Plans for Tacoma Water.

This section is supplemented with the following:

All pipe, fittings, valves, hydrants and other materials to be installed and placed under these specifications are intended to form a durable section of the distribution system of ample strength and capacity for the operating pressures in the area covered for domestic, commercial and fire protection uses and must be completed in condition to
supply potable water of the highest sanitary quality. All material must be selected and the work planned and carried out to accomplish this purpose.

The cost of any item of work to be completed or materials to be furnished on the contract drawings or stated in the project specifications and having no special bid item in the Proposal, shall be considered included in the various bid items of the contract and no separate payment will be made. All materials required and not specifically listed herein to be furnished by Tacoma Water shall be furnished by the Contractor.

Any part of work not specifically covered by these specifications shall be in accordance with the American Water Works Association (AWWA) Standard Specifications and the Ductile Iron Pipe Research Association (DIPRA).

7-09.1(1)C Gravel Backfill for Pipe Zone Bedding
This section is supplemented with the following:

Aggregates will conform to the requirements for trench backfill.

7-09.1(1)D Pipe Zone Backfill
This section is revised to read:

Aggregates will conform to the requirements for trench backfill.

7-09.2 Materials
Under the heading Aggregates: “Trench Backfill 9-03.15 or 9-03.19” is revised to read:

Trench Backfill shall meet the requirements of Section 9-03.9(3) for Crushed Surfacing Top Course. No recycled material shall be used for water main trench backfill.

This section is supplemented with the following:

All materials shall conform to American Water Works Association (AWWA) and the Ductile Iron Pipe Research Association (DIPRA).

All Push-on Joint and Mechanical Joint rubber gaskets shall be styrene-butadiene rubber (SBR). All gaskets must conform to ANSI/AWWA C111-72 or revision thereof.

7-09.3 Construction Requirements

7-09.3(1) General
This section is supplemented with the following:

Trench Excavation shall be loaded directly onto trucks. Trench Excavation shall not be stockpiled along the trench or on paved streets, driveways, and sidewalks.

Alignment and grade stakes will be provided by Tacoma Water. The Contractor shall provide a minimum of 5-working-days’ notice for staking by Tacoma Water. Request for survey shall be made through Geff Yotter, Tacoma Water Construction Operations Manager, (253) 502-8742. The Contractor shall use a string line to maintain
true grade, and alignment between stakes. Use of electronic leveling devices for grade and alignment shall be at the discretion of the Inspector where string line is impractical.

**7-09.3(1)B Trench Foundation**

*This section is added with the following:*

Trench areas found to be inadequate for a solid pipe line trench foundation shall be over excavated and quarry spalls shall be placed until an adequate foundation is accomplished then sand bedding. Note, the profile shows the invert elevation of the pipe, not the bottom of the trench.

**7-09.3(5) Grade and Alignment**

*The first sentence of the third paragraph is revised to read:*

The depth of trenching for water mains shall be such as to give a minimum cover of 42 inches over the top of pipe unless otherwise specified on the plans, within these Special Provisions, or approved by the Engineer.

**7-09.3(6) Existing Utilities**

*This section is supplemented with the following:

The lump sum bid item for of “Test Holes” is for the purpose of pre-determining and resolving conflicts with existing utilities and is required to be completed prior to the water main installation. Proper test holes cannot be accomplished until utility “one call” locates have established and maintained. The selection of methods materials or equipment used for test holes is at the discretion of the contractor. No additional compensation will be made for any particular or specialized equipment or technique utilized by the Contractor. The work shall include all techniques as necessary to field verify and locate all existing utilities, whether shown on the plans or located via one call utility locates, at all new main crossings. Test-hole excavation shall be done in the presence of the Construction Inspector. Test-hole data shall be provided to the inspector prior to main construction and adequate time given to the engineer to re-design if necessary. If the elevation/alignment of the existing utilities is in conflict with the new main installation, the elevation/alignment design will be adjusted by the engineer/inspector.

Additional compensation for any extra excavation required will be made to the contractor via the Trench Excavation and Disposal item as supplemented in these Special Provisions.

Sanitary side sewers and storm catch basin laterals that are unmarked or not locatable and are damaged during water main construction will be repaired and/or replaced as necessary. Prior to the start of the repair, the Inspector and/or contractor shall notify agency responsible for system and make repairs to their standards and make the repair available for the agencies inspection if required or requested. Repair/replacement/restoration will be at the inspector’s discretion and in accordance with sections 7-04, 7-17, 7-18 and the Washington State Department of Ecology, Criteria for Sewer Works Design, sections C1-8 and C1-9.
7-09.3(7) Trench Excavation

The third sentence of the second paragraph of this section is revised to read:

The minimum trench width shall be 30-inches and shall not exceed 1.5 times the outside diameter of the pipe plus 18-inches, whichever is greater, unless otherwise approved by the Engineer to allow for proper construction of the pipeline, fittings and other appurtenances. The Contractor is advised to refer to the “Installation Guide for Ductile Iron Pipe” published by the Ductile Iron Pipe Research Association for guidance on suggested trench widths for various pipe sizes.

7-09.3(7)A Dewatering of Trench

This section is supplemented with the following:

The Contractor is responsible for having proper and operational equipment for dewatering. The contractor will have operational de-watering equipment on site prior to main shutdown. The cost of all labor, equipment and materials for de-watering shall be included in the various bid items of the contract. No additional compensation will be made for dewatering.

The Contractor is responsible for keeping excavations free from water during construction and disposing of the water in a manner that will not cause injury to public or private property, or to cause a nuisance or a menace to the public. The Contractor shall maintain dry working conditions at all times and under all conditions. Groundwater flowing toward or into excavations shall be controlled to prevent sloughing of excavation walls, boils, uplift, and heave in the excavation, and to eliminate interference with orderly progress of construction. While the excavation is open, the water level shall continuously be maintained at least two (2) feet below the working level. The control of groundwater shall be such that softening of the bottom of excavations, or formation of “quick” conditions or “boils” during excavation, shall not occur. The Contractor is responsible for all foundation material required due to lack of dewatering efforts.

All costs associated with dewatering and discharge to the sanitary sewer shall be incidental to Trench Excavation and Disposal, Section 7-09.3(8) of these specifications.

7-09.3(7)C Extra Trench Excavation

The 4th paragraph of this section is revised to read:

Additional excavations so required shall be classified as Trench Excavation and Disposal.

7-09.3(8) Removal and Replacement of Unsuitable Materials

This section heading is revised to read:

“7-09.3(8) Trench Excavation and Disposal”

This section is supplemented with the following:

Unless specified elsewhere, Contract shall include the export and disposal of 100% of all excavated materials and the import of 100% of all trench backfill material.
7-09.3(9) Bedding the Pipe
The first sentence of the first paragraph is revised to read:

Pipe zone bedding shall conform to the requirements for Trench Backfill.

7-09.3(10) Backfilling Trenches
This section is supplemented with the following:

No recycled material shall be used for trench backfill unless otherwise specified. Tacoma Water will require CSTC for trench backfill up to the roadway restoration section. Backfill shall be compacted in accordance with the 2020 WSDOT Standard Specifications. The Contractor will be required to provide a current proctor of material for compaction testing. Compaction testing will be paid under a separate bid item. CSTC shall also be placed in areas of existing rock surfacing disrupted by the water main construction and in any other areas where directed by the inspector, and rolled with a power roller.

7-09.3(11) Compaction of Backfill
This section is revised to read:

Backfill shall be compacted to at least 95-percent of maximum density as specified in Section 2-03.3(14)D and in accordance with City of Tacoma Standard Plan No. SU-28, or as directed by the Engineer.

At locations where paved streets, roadway shoulders, driveways, or sidewalks will be constructed or reconstructed over the trench, the backfill shall be spread in layers and compacted by mechanical tampers. In such cases, the backfill material shall be placed in successive layers not exceeding 12-inches in loose thickness, and each layer shall be compacted with mechanical tampers to the density specified herein. Mechanical tampers shall be of the impact type as approved by the Engineer.

Compaction test locations shall be at 150 linear foot intervals, with a minimum of two compaction test locations per trench, in accordance with City of Tacoma Standard Plan No. SU-28, or as directed by the Engineer. **The Contractor shall perform compaction testing each day main is installed.**

At each compaction test location, compaction tests shall be taken on each compacted layer, starting 18-inches above the pipe and finishing at the top of backfill. Each layer shall be compacted to 95% modified proctor density, as verified by compaction testing, before placing and compacting the next layer. Compaction testing will be performed by a licensed testing company with trained personnel in the presence of the Tacoma Water Construction Inspector. Passing test will be based on a current proctor of material used. Costs incurred for any proctor test, and failed compaction test, are the responsibility of the Contractor.

If the Contractor fails to conduct proper compaction tests as specified then the Tacoma Water Construction Inspector has the authority to cease Contractor water main work. Any costs incurred as a result of the ceased work shall be borne by the Contractor.
Service transfer work by Tacoma Water will not commence until such time as the trench has been successfully backfilled, as demonstrated through receipt of successful compaction test results for that portion of water main placed in service.

7-09.3(12) General Pipe Installation
*The first sentence of the first paragraph is revised to read:*

Pipe shall be installed in accordance with the manufacturer’s printed specifications and instructions, and to the standards of the AWWA and DIPRA for installing the type of pipe used.

7-09.3(14) Cutting Pipe
*This section is supplemented with the following:*

Short lengths of field cut pipe used for bell and spigot joints shall have a bevel of 30° from center and ¼" from the end.

7-09.3(16) Cleaning and Assembling Joint
*This section is supplemented with the following:*

Only food-grade pipe lubricant as specified by the pipe manufacturer for potable water shall be used on joints. It shall be delivered to the job in closed containers and shall be kept clean. Pipe lubricant shall be in accordance with AWWA C111/A21.11-95 paragraph. 4.4.4, and NSF/ANSI Standard 61, latest edition.

7-09.3(19)A Connections to Existing Mains
*This section is supplemented with the following:*

When connecting new mains to existing, the Contractor shall swab out all new material that will go into immediate service with a chlorine solution prior to installation. When shutdowns for connection are required, the contractor will coordinate and schedule with the inspector, a minimum of three working days prior to the scheduled time of shutdown, to allow 48-hour notification to all customers. Cancellations of the shutdown by the contractor after customer notification is made may result in a charge to the contractor for re-notification.

The Contractor is advised that existing valves used to shut down mains for connections are subject to leakage due to age and condition. The Contractor shall be prepared to deal with water from leaking valves encountered. No additional compensation will be made.

The Contractor is advised that only Tacoma Water crews may operate system valves.

The existing pipe shall be kept clean and free of debris as much as possible.

Coordination is an important part of this project so proper notification for shutdowns is necessary, such that they can be scheduled without causing delays to the Contractor or unanticipated interruption of service to Tacoma Water customers.
7-09.3(19)B Maintaining Service
This section is supplemented with the following:

Tacoma Water will furnish all labor and materials necessary to provide temporary (hi-line) mains and services when necessary or as determined by the Construction Inspector. The Contractor may have some down time waiting for services to be hi-lined. No extra compensation will be made to the Contractor for down time due to work by City forces. No time will be charged towards the contract's time of completion while services are transferred.

Where existing services are to be transferred from old to new mains, the work of the Contractor shall be so planned and coordinated with that of Tacoma Water that Tacoma Water customers will be shut off as briefly as possible.

7-09.3(21) Concrete Thrust Blocking
The first paragraph is supplemented with the following:

Concrete thrust blocking shall conform to Standard Drawing 17-56-1, with concrete having a minimum compressive strength of 3,000 psi at 28 days. Concrete used for thrust blocking on mains eight inch and smaller may meet the requirements of 6-02.3(4)B Jobsite Mixing. Temporary thrust blocking may be revised or altered as approved by the Tacoma Water Construction Inspector.

7-09.3(23) Hydrostatic Pressure Test
Paragraph 13 is deleted:

This section is supplemented with the following:

Testing will only be accomplished with the approval and in the presence of the Tacoma Water Construction Inspector. The Tacoma Water Construction Inspector will provide a set of pressure gauges. Testing will conform to DIPRA standards.

7-09.3(23)A Testing Extensions From Existing Mains
This section is supplemented with the following:

Testing will only be accomplished with the approval and in the presence of the Tacoma Water Construction Inspector. The Tacoma Water Construction Inspector will provide a set of pressure gauges. Testing will conform to DIPRA standards.

7-09.3(23)B Testing Section with Hydrants Installed
This section is supplemented with the following:

Testing will only be accomplished with the approval and in the presence of the Tacoma Water Construction Inspector. The Tacoma Water Construction Inspector will provide a set of pressure gauges. Testing will conform to DIPRA standards.

7-09.3(24)A Flushing
This section is revised to read:
In laying mains, care shall be taken to insure that the interior of the pipe is kept free of foreign matter or trench water. Upon completion of construction, the line shall be filled slowly under the direction of the Engineer and a pressure test conducted.

Sections of pipe to be disinfected shall first be flushed to remove any solids or contaminated material that may have become lodged in the pipe. If a hydrant is not installed at the end of the main, then a tap shall be provided large enough to develop a flow velocity of at least 2.5 feet per second in the water main.

Tacoma Water crews will flush, sample, and de-chlorinate newly installed water mains. The Contractor is advised that only Tacoma Water crews shall operate system valves.

Water for testing and sterilizing will be furnished without charge to the Contractor at such points as may be designated by the Inspector, in such quantities and at such times as will not interfere with service to Tacoma Water customers.

7-09.3(24)K Retention Period Flushing
This section is revised to read:

The chlorinated water resulting from the initial filling shall be retained in the line for a period of not less than 24 hours. After this period the chlorine residual at the pipe extremities and at other representative points shall be at least 25 p.p.m. After which Tacoma Water will remove the chlorinated water and thoroughly flush the line. Tacoma Water shall take initial bacterial test samples of water flowing in the line upon completion of the flushing.

A second set of bacterial test samples will be taken after a 24-hour retention period of the water remaining in the pipe after the initial flushing. Should the samples not test free of E coli and zero coliform bacteria, the line shall be re-disinfected and re-flushed, at the expense of the Contractor, until two successive satisfactory samples are obtained.

Forty-eight hours is the minimum time required by the bacteriological laboratory to process samples.

7-09.3(24)N Final Flushing and Testing
The second paragraph is deleted:
This section is supplemented with the following

The Tacoma Water Construction Inspector will determine location of sample stations and coordinate with Tacoma Water crews for installation. Corporation stops with copper pipe stubs will be installed by Tacoma Water crews at selected points along the pipeline for use as sampling stations and points to release air, and apply test pressure.

The sampling stations will be removed by Tacoma Water crews after bacterial tests and pressure tests are completed unless the station will be used for a new water service lateral. Installation and removal of sample stations will be coordinated with the Contractor. The water main contractor shall complete any excavation required for
installation and/or removal of the sample stations. The cost of all labor, equipment and materials involved in the installation and removal of sample stations shall be included in the various bid items of the contract.

Unless specified in the bid proposal or on the plans, Tacoma Water will furnish all labor and materials necessary to provide new services or to transfer present services to the new mains and to provide the required taps for testing and sterilizing.

Water for testing and sterilizing will be furnished without charge to the Contractor at such points as may be designated by the Inspector, in such quantities and at such times as will not interfere with service to Tacoma Water customers.

7-09.4 Measurement

The first paragraph is revised to read:

Trench shoring: The measurement of shoring will by the linear foot of pipe laid and shall be measured along the pipe through fittings, valves and couplings. The single lineal foot measurement will be for both sides of the trench that is shored. Over-excavation to bypass the use of shoring/shielding is not considered a safety system and no payment will be made. Any extra quantities materials (pavement removal and replacement, trench excavation and disposal, trench backfill) attributed to over-excavation will not be paid for by Tacoma Water. Shoring/shielding requirements will be in accordance with WISHA standards and the 2020 M41-10 Washington State Department of Transportation Standard Specifications Section 7-09.3(7).

This section is supplemented with the following:

The bid item for removal and replacement of unsuitable material will be measured by the cubic yard and shall only cover the materials as removed as part of the trench excavation. Replacement of unsuitable materials shall be paid per the Trench backfill specification.

The unit prices bid in the Proposal shall include all the accessories, gaskets, follower glands, nuts, bolts, etc., necessary to complete the project on the approved plans.

Trench Excavation and Haul of Contaminated Material shall be full pay for all work required to excavate and haul of all contaminated material to LRI Landfill, located at 30919 Meridian Street East, Graham, WA, which is a licensed solid waste disposal facility. Trench excavation and haul requirements will be in accordance with WSDOT Standard Specifications as modified in these Special Provisions. Actual measurement will be based on a neat line trench measurement, per cubic yard.

Roadway Excavation and Haul of Contaminated Material shall be full pay for all work required to excavate and haul of all contaminated material to LRI Landfill, located at 30919 Meridian Street East, Graham, WA, which is a licensed solid waste disposal facility. Roadway excavation and haul requirements will be in accordance with WSDOT Standard Specifications as modified in these Special Provisions. Actual measurement will be based on a neat line measurement, per cubic yard.
Trench Excavation and Disposal: Measurement of trench excavation and disposal of unsuitable material will be by cubic yard based upon on the tonnage of trench backfill placed and accepted by the Engineer and calculated as follows:

\[
\text{Trench Excavation (CY)} = \frac{(\text{Trench Backfill} \times (\text{Ton}) \times 0.87}{1.35 \text{ Ton/CY}}
\]

*Note: Trench Backfill shall be the total of ticketed sand, CSTC, Topsoil Type A, and quarry spalls.

“6-inch Ductile Iron Pipe, Push-on Joint, ANSI/AWWA, C151, Special Thickness Class No. 52, installed (various sizes): Measurement for water mains will be by the linear foot measured along the pipe less fittings, valves and couplings.

No specific unit of measurement shall apply to the lump sum item “Asbestos cement Pipe removal and disposal plan”

Removal and disposal of abandoned AC pipe, all sizes: Measurement for Removal and disposal of abandoned AC pipe, all sizes will be by the linear foot measured along the AC pipe removed.

Mechanical Joint Fittings and couplings (various sizes and combinations): Measurement for fittings and couplings shall be per each.

Permanent Blow –Off Assemblies: Measurement for this item will be per each.

Temporary Blow-Off Assemblies, installed and removed: Measurement for this item will be per each.

6-inch Restraining Glands: Measurement for these items will be per each.

Push-On Joint Restraining Gaskets (various sizes): Measurement for these items will be per each.

6-inch Transition couplings with 7-inch center ring epoxy coating, and stainless steel bolts, A.C. to D.I.: Measurement for these items will be per each.

6-inch Romac End Cap Couplings, D.I. to C.I.: Measurement for these items will be per each.

Concrete Thrust Anchors, in place: Measurement for this item will be per each.

Temporary Thrust Anchors, in place, install and remove: Measurement for this item will be per each. The use of blocking/preformed structures will be at the discretion of the inspector.

Crushed Surfacing Top Course (CSTC) for trench backfill and restoration: Measurement for this item shall be per ton. It is the Contractor’s responsibility to provide gravel tickets to Tacoma Water’s inspector daily as materials are delivered.

Trench Compaction Test (as directed by the inspector), shall be per each for passing compaction test as per section 7-09.3(11) and 2-03(14)D. Test will be
performed by a licensed testing facility with trained personnel in the presence of the Tacoma Water Construction Inspector. Passing test will be based on a current proctor of material used. Costs incurred for any proctor test and failing compaction test are responsibility of the contractor.

**Test Holes:** No unit of measurement shall apply to the lump sum price for Test Holes.

**Force Account:** The item shall conform to Section 1-09.6 of the Standard Specifications.

### 7-09.5 Payment
*This section is revised to read:*

Payment will be made in accordance with Section 1-04.1, for each of the following Bid items that are included in the Proposal:


The unit contract price per cubic yard for “Trench Excavation and Disposal of Contaminated Material, Incl. Haul to LRI” shall be full pay for all work required to haul and dispose of all contaminated unsuitable material, at LRI Landfill, located at 30919 Meridian Street East, Graham, WA, which is a licensed solid waste disposal facility. Trench and disposal requirements will be in accordance with WSDOT Standard Specifications as modified in these Special Provisions. Actual measurement will be based on a neat line trench measurement, per cubic yard.


The unit contract price per cubic yard for “Roadway Excavation and Disposal of Contaminated Material, Incl. Haul to LRI” shall be full pay for all work required to haul and dispose of all unsuitable material, at LRI Landfill, located at 30919 Meridian Street East, Graham, WA, which is a licensed solid waste disposal facility. Roadway Excavation and disposal requirements will be in accordance with WSDOT Standard Specifications as modified in these Special Provisions. Actual measurement will be based on a neat line measurement.

“Trench Excavation and Disposal”, per cubic yard.

The unit contract price for “Trench Excavation and Disposal” shall be full pay for all labor, equipment and materials required for excavating, haul and disposal of unsuitable materials. Trench and disposal requirements will be in accordance with WSDOT Standard Specifications as modified in these Special Provisions.

“Trench shoring”, per linear foot.
The single lineal foot measurement will be full pay for both sides of the trench that is shored. Over-excavation to bypass the use of a shoring/shielding is not considered a safety system and no payment will be made.

“6-inch Ductile Iron Pipe, (Push-On Joint/mechanical joint), ANSI/AWWA, C151, Special Thickness Class No. 52, to furnish, lay and test” per linear foot.

The unit contract price per linear foot for each size “6-inch Ductile Iron Pipe, (Push-On Joint/mechanical joint), ANSI/AWWA, C151, Special Thickness Class No. 52, to furnish, lay and test” shall be full pay for all work to complete the installation of the water main including but not limited to furnishing, laying, jointing pipe, gaskets, gland/bolt kits, testing, flushing, disinfecting the pipeline and cleanup.

Payment for restoration will be made under the applicable items shown in the Proposal. If no pay items for restoration are included in the Proposal, restoration shall be considered incidental to the work of constructing the water main, and all costs thereof shall be included in the unit contract price for “6-inch Ductile Iron Pipe,(Push-On Joint,/mechanical joint), ANSI/AWWA, C151, Special Thickness Class No. 52, to furnish, lay and test”.

“6-inch Ductile Iron (cap/plug), M.J., tapped 2-inch, installed & removed”, per each.

The unit contract price for “6-inch Ductile Iron (cap/plug), M.J., tapped 2-inch, installed & removed” shall be full pay for all labor, equipment and materials required for furnishing, installing and removing these items including gaskets gland/bolts kits.

“6-inch Ductile Iron (Cap/plug), M.J., tapped 2-inch, installed”, per each.

The unit contract price for “6-inch Ductile Iron (cap/plug), M.J., tapped 2-inch, installed” shall be full pay for all labor, equipment and materials required for furnishing, and installing these items including gaskets gland/bolts kits.

“6-inch Transition Coupling with7-inch center ring, epoxy coating, and stainless steel bolts, A.C. to D.I.”, per each.

The unit contract price for “6-inch Transition Coupling with 7-inch center ring, epoxy coating, and stainless steel bolts, A.C. to D.I.”, shall be full pay for all labor, equipment and materials required to furnish and install this item.

“6-inch End Cap Coupling tapped DI. To C.I,” per each.

The unit contract price for “6-inch End Cap Coupling tapped DI. To C.I,” shall be full pay for all labor, equipment and materials required to furnish and install this item.

“Temporary 2-inch Blow-Off Assembly, installed & removed”, per each.

The unit contract price bid per each for “Temporary 2-inch Blow-Off Assembly, installed & removed” shall be full pay for all work to install the blow-off assembly per dwg. 17-56-1, including but not limited to excavating, backfilling, laying and jointing pipe, pipe and fittings, gate valve, meter box, cleanup and removal.
“6-inch Mechanical Joint Restraining Gland, installed”, per each.

The unit contract price for “6-inch Mechanical Joint Restraining Gland, installed”, shall be full pay for all labor, equipment and materials required for furnishing and installing the specified item.

“Concrete Thrust Anchor, installed”, per each.

The unit contract price for “Concrete Thrust Anchor, installed” shall be full pay for all labor, equipment and materials required for furnishing and installing the specified item.

“Temporary Concrete Thrust Anchor, installed & removed”, per each.

The unit contract price for “Temporary Concrete Thrust Anchor, installed & removed”, shall be full pay for all labor, equipment and materials required for furnishing, installing and removing the specified item.

“Crushed Surfacing Top Course for Trench Backfill”, per ton.

The unit contract price for “Crushed Surfacing Top Course for Trench Backfill”, shall be full pay for all labor, equipment and materials required for furnishing and installing the specified item including delivery, spreading, compacting and rolling.

“Crushed Surfacing Base Course for Trench Backfill”, per ton.

The unit contract price for “Crushed Surfacing Base Course for Trench Backfill”, shall be full pay for all labor, equipment and materials required for furnishing and installing the specified item including delivery, spreading, compacting and rolling.

“Trench Compaction Test (as directed by the inspector)”, per each.

The unit contract price for “Trench Compaction Test (as directed by the inspector)”, shall be for passing compaction test as per section 7-09.3(11), by a licensed company in the presence of Tacoma Water Construction Inspector, and shall be measured per each passed test.

“Test Holes”, per lump sum.

The lump sum contract price for “Test Holes” shall be full pay for all labor, equipment and materials required to perform the specified excavations including all flagging required to field verify existing utilities. Progress payment will be made based on the percentage completion of the total work encompassed within the lump sum item.

END OF SECTION

7-10 VACANT
This section including heading is revised to read:
7-10 CASING PIPE FOR WATER MAIN

7-10.1 Description

Construct a casing pipe around the water main at locations where the proposed water main is beneath a sanitary sewer, has less than 18-inches of vertical separation with a sanitary sewer, has less than 10-feet of horizontal separation with a sanitary sewer, at perpendicular crossings with a sanitary sewer, as shown on Tacoma Water Plans, and as directed by Engineer/Inspector. This casing pipe will be installed by trenching and as indicated on the Tacoma Water Plans.

At perpendicular crossings, maintain a minimum 18-inches vertical separation, outside pipe to outside pipe, between water main and non-potable pipe. Install casing with spacers and end seals on the water main that is centered over the crossing with the joint spaced at minimum of 9-feet from the centerline of pipe. Under no circumstance shall the vertical separation between water main and sanitary sewer be less than 6-inches. In instances where the water main is installed underneath a sanitary sewer, provide a casing on both pipes. Casing for sanitary sewers shall be installed as specified elsewhere in the Contract Documents.

At horizontal separations between water mains and sanitary sewers less than 10-feet but greater than 4-feet, install a casing around the water main the entire length unless indicated otherwise by Engineer/Inspector or on the Water Plans. Under no circumstance shall the horizontal separation between water main and sanitary sewer be less than 4-feet.

7-10.2 Materials

7-10.2(1) Casing Pipe

In each location where a casing pipe is necessary, the casing pipe shall be a continuous 20 foot length of 12" PVC Pipe, AWWA C900, DR-25.

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<th>Casing Size</th>
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</tr>
<tr>
<td>8&quot; DI</td>
<td>14&quot;</td>
</tr>
<tr>
<td>10&quot; DI</td>
<td>18&quot;</td>
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7-10.2(2) Casing Spacers

Casing spacers shall be a minimum of 8-inches wide and shall be fabricated with runner heights to provide a standard carrier pipe configuration. The spacers shall be constructed of a coated steel band with 2-inch glass reinforced plastic runners. The casing spacers shall be Model GPT Ranger-2 as manufactured by GPT, a division of EnPro industries or approved equal. The contractor shall be responsible for sizing insulators to provide required clearance of pipe bells and to properly fit the carrier pipe.
7.10.2(3) End Seals

The end seals shall be rubber seals with stainless steel straps and shall be Model W by Pipeline Seal and Insulator (GPT) Company, Inc. or approved equal.

7-10.4 Measurement

Measurement for 12-inch PVC Casing Pipe, AWWA C900/C905, DR-25, 20-foot minimum length, including end seals and casing spacers shall be per each, installed on water main, sanitary sewer, or side sewer.

7-10.5 Payment

“12-inch PVC Casing Pipe, AWWA C900/C905, DR-25, 20-foot minimum length, including end seals and casing spacers”, per each.

The unit contract price for “12-inch PVC Casing Pipe, AWWA C900/C905, DR-25, 20-foot minimum length, including end seals and casing spacers” shall be full pay for all labor, equipment and materials to provide a fully functional casing pipe in place as shown on the plans. The item shall include all costs for installing and assembling all components necessary to install water main, sanitary sewer, or side sewer, within casing pipe to the line and grade shown in the plans. Costs for Trench excavation and Backfill, CSTC for trench backfill, and compaction of trench backfill, to install the casing pipe shall be included in the unit contract price for this item.

END OF SECTION

7-12 VALVES FOR WATER MAINS

7-12.4 Measurement

This section is supplemented with the following:

Measurement for 6-inch Gate Valve, M.J., ANSI/AWWA, C509/515, with C.I. Valve Box, will be per each.

7-12.5 Payment

This section is supplemented with the following:

“6-inch Gate Valve, M.J., ANSI/AWWA, C509/C515, with C.I. Valve Box”, per each.

The unit bid price for “6-inch Gate Valve, M.J., ANSI/AWWA, C509/C515, with C.I. Valve Box, in place, per each” shall be full pay for all labor, equipment and materials required to furnish and install valve. Bid item to include raising valve box to finished grade per drawing 17-56-1, and to include concrete pad and asphalt patch at valve box.

END OF SECTION
7-14 HYDRANTS

7-14.3(1) Setting Hydrants

The second paragraph is revised to read:

All hydrants shall be set on concrete blocks as shown on standard detail 17-56-1. The hydrant barrel drain shall waste into a pit of porous gravel material meeting specification 9-03.12(5), and situated at the base of the hydrant as shown on standard detail 17-56-1.

This section is supplemented with the following:

Hydrant installation will also conform to AWWA and DIPRA standards, and drawing 17-56-1. No barrel extensions will be approved for new installations. The Contractor is responsible for ensuring the proper bury of hydrant for grade is installed.

7-14.3(2)A Hydrant Restraints

This section is supplemented with the following:

Only approved restraining glands will be installed for hydrant restraints, unless shackle rods are specified. No poured concrete thrust block will be placed on the back side of the fire hydrants. If the hydrant lateral is longer than one full length of pipe, either mechanical joint (MJ) pipe, approved push-on joint restraining gaskets or a ductile iron solid sleeve with restraining glands will be installed to ensure correct location and restraint of hydrant.

7-14.3(4) Moving Existing Hydrants

This section is supplemented with the following:

The Engineer and/or Inspector will determine if the existing hydrant lateral tee will be removed and replaced with new pipe or plugged, depending on type of pipe and joint.

7-14.3(6) Hydrant Extensions

This section is revised to read:

No hydrant barrel extensions are approved on new installations.

7-14.3(7) Removing Abandoned Hydrants

This section is added with the following:

The contractor shall remove existing abandoned fire hydrants which were taken out of service by this project or as noted to be removed on plans. Abandoned fire hydrants shall be removed at the foot, laterals plugged and fire hydrants delivered to the Tacoma Water Storeroom at South 35th Street and Union Avenue. All labor and equipment costs are incidental to the contract.

7-14.4 Measurement

This section is supplemented with the following:
Measurement of “6-inch Hydrant, M.J., 4.5-ft. bury, with 4-inch Tacoma Standard Threads & 5-inch Quick Connect Coupling”, will be made per each.

7-14.5 Payment
This section is supplemented with the following:

“6-inch Hydrant, M.J., 4.5-ft. bury, with 4-inch Tacoma Standard Threads & 5-inch Quick Connect Coupling”, per each.

The unit bid price for “6-inch Hydrant, M.J., 4.5-ft. bury, with 4-inch Tacoma Standard Threads & 5-inch Quick Connect Coupling”, shall be full pay for all labor, equipment and materials required for furnishing and installing the hydrant including drain rock and hydrant block. Restraining glands, lateral pipe, tee, and valve will be paid under separate bid items.

END OF SECTION

7-15 SERVICE CONNECTIONS
This section is supplemented with the following:

There are approximately 15 service transfers throughout the project. New mains will be tested and sampled in sections so Tacoma Water can commence with service transfers. Following the successful completion of sampling, the Contractor shall anticipate down time waiting for Tacoma Water crews to complete service transfers. The Contractor shall anticipate one working day per service for Tacoma Water crews to complete service transfers. All costs shall be included in the various bid items in the proposal and no extra compensation will be made to the Contractor for down time due to work by City forces. No time will be charged towards the contract’s time of completion while services are being transferred.

Please note; Service transfer work by Tacoma Water will not commence until such time as the section of water main has been placed into service and the trench has been successfully backfilled, as demonstrated through receipt of successful compaction test results for that portion of water main to be placed in service.

For water service transfers:

- For water services two inches and smaller, the Contractor shall anticipate one working day per service for Tacoma Water crews to complete service transfers.
- For water services larger than 2- inches, the Contractor shall anticipate one and one half working days per service for Tacoma Water crews to complete service transfers.

END OF SECTION

7-17 SANITARY SEWERS
7-17.3 Construction Requirements
This section is supplemented with the following:

Sanitary sewers may be encountered at various locations throughout this project and may need to be repaired, restoration, and/or retrofitted. Prior to the start of the sanitary sewer work, the Inspector and/or contractor shall notify, the Inspector having jurisdiction of the sanitary sewer. C900 PVC shall be used on sanitary repairs. The repair of the sewer shall be made three feet outside of the water main trench or to the limits and material standards of Washington State Department of Ecology, Criteria for Sewer Works Design.

If the sewer pipe falls into the “Unusual Condition” as specified by the Washington State Department of Ecology, Criteria for Sewer Works Design, sections C1-9.1.4 Unusual Conditions (Perpendicular), the sewer pipe shall comply with the requirements of a full length of pipe centered over the water main to the material standards of Table C1-4. No additional compensation shall be made for the extended connection and material. Mechanical couplings (Romac or equivalent) shall be installed at both ends of the sewer restoration forming a rigid connection between the new and existing pipe. Rigid PVC slip couplings for PVC pipe and Romac mechanical style for concrete pipe only. Repair/replacement/restoration will be at the inspector’s discretion and in accordance with Washington State Department of Ecology, Criteria for Sewer Works Design, sections C1-8 and C1-9.

7-17.4 Measurement
This section is revised to read:

“Storm, Sanitary, and Side Sewer Restoration” will be measured per each.

7-17.5 Payment
This section is revised to read:

“Storm, Sanitary, and Side Sewer Restoration”, per each.

The unit bid price for “Storm, Sanitary, and Side Sewer Restoration”, includes all labor and materials required to remove and replace storm, sanitary, and side sewers. This is a per each bid item that includes all costs but is not limited to pipe, fittings, pea gravel, labor, and equipment, etc. to repair sewers.

END OF SECTION

7-18 SIDE SEWERS

7-18.3 Construction Requirements
This section is supplemented with the following:

Sanitary sewers may be encountered at various locations throughout this project and may need to be repaired, restoration, and/or retrofitted. Prior to the start of the sanitary sewer work, the Inspector and/or contractor shall notify, the Inspector having jurisdiction of the sanitary sewer. C900 PVC shall be used on side sewer repairs. The repair of the side sewer shall be made three feet outside of the water main trench or to
the limits and material standards of Washington State Department of Ecology, Criteria for Sewer Works Design.

If the side sewer pipe falls into the “Unusual Condition” as specified by the Washington State Department of Ecology, Criteria for Sewer Works Design, sections C1-9.1.4 Unusual Conditions (Perpendicular), the side sewer pipe shall comply with the requirements of a full length of pipe centered over the water main to the material standards of Table C1-4. No additional compensation shall be made for the extended connection and material. Mechanical couplings (Romac or equivalent) shall be installed at both ends of the sewer restoration forming a rigid connection between the new and existing pipe. Rigid PVC slip couplings for PVC pipe and Romac mechanical style for concrete pipe only. Repair/replacement/restoration will be at the inspector’s discretion and in accordance with Washington State Department of Ecology, Criteria for Sewer Works Design, sections C1-8 and C1-9.

7-18.4 Measurement
This section is revised to read:

“Storm, Sanitary, and Side Sewer Restoration”, will be measured per each.

7-18.5 Payment
This section is revised to read:

“Storm, Sanitary, and Side Sewer Restoration”, per each.

The unit bid price for “Storm, Sanitary, and Side Sewer Restoration”, includes all labor and materials required to remove and replace storm, sanitary, and side sewers. This is a per each bid item that includes all costs but is not limited to pipe casing (to included end seals and casing spacers), pipe, fittings, pea gravel, labor, and equipment, etc. to repair sewers and casing cost.

Pipe casing requirements will follow State of Washington Department of Ecology Criteria for Sewage Works Design (See section 7-10).

END OF SECTION

8-01 EROSION CONTROL AND WATER POLLUTION CONTROL

8-01.3(8) Street Cleaning
This section is revised to read:

Self-propelled pickup and vacuum street sweepers shall be used, whenever required by the Engineer to prevent transport of sediment and other debris off the project site. Street sweepers without vacuums will not be allowed. Street sweepers shall be designed and operated to meet air quality standards.

8-01.4 Measurement
The sixth sentence is replaced with the following:
Street cleaning with self-propelled pickup and vacuum street sweeper equipment will be measured by the hour for the actual time spent cleaning pavement, as authorized by the Inspector. Time to move the equipment to or from the area on which street cleaning is required will not be measured.

8-01.5 Payment

*The tenth sentence is replaced with the following:*

“Street cleaning with Self-propelled pickup and vacuum street sweeper equipment”, per hour.

The unit bid price for “Street cleaning with self-propelled pickup and vacuum street sweeper equipment” will be for a self-propelled pickup and vacuum street sweeper and operator.

**END OF SECTION**

8-04 CURBS GUTTERS, AND SPILLWAYS

8-04.1 Description

*This section is supplemented with the following:*

“Cement Concrete Traffic Curb and Gutter” shall be constructed per City of Tacoma Standard Plan SU-03, a copy of which is attached to this specification.

8-04.3(1) Cement Concrete Curbs, Gutters, and Spillways

*This section is supplemented with the following:*

**Cold Weather work:** The following additional requirements for placing concrete shall be in effect from November 1 to April 1:

- The Engineer shall be notified at least 24 hours prior to placement of concrete.
- All concrete placement shall be completed no later than 2:00 p.m. each day.
- Where forms have been placed and the subgrade has been subjected to frost, no concrete shall be placed until the ground is completely thawed. At the time, the forms shall be adjusted and subgrade repaired as determined by the Engineer.

8-04.4 Measurement

*This section is supplemented with the following:*

“Cement Concrete Traffic Curb and Gutter” will be measured by the linear foot along the line and slope of the completed curb and gutter including bends.

8-04.5 Payment

*This section is supplemented with the following:*

“Cement Concrete Traffic Curb and Gutter”, per linear foot.

The unit bid price for “Cement Concrete Traffic Curb and Gutter”, includes all costs for excavation, grading, preparation, forms, forming, placement, finishing, protection during curing and cleanup, labor, equipment, and material necessary to
construct the cement concrete traffic curb and gutter per referenced detail plan, a copy
of which is attached to this specification.

END OF SECTION

8-14 CEMENT CONCRETE SIDEWALKS

8-14.1 Description
This section is supplemented with the following:

The cement concrete sidewalks shall be constructed in accordance with Tacoma
Public Works Standard Plan(s) SU-04, SU-05 and SU-05a.

8-14.3 Construction Requirements
This section is supplemented with the following:

Cold Weather work: The following additional requirements for placing concrete shall be
in effect from November 1 to April 1:

• The Engineer shall be notified at least 24 hours prior to placement of concrete.
• All concrete placement shall be completed no later than 2:00 p.m. each day.
• Where forms have been placed and the subgrade has been subjected to frost, no
  concrete shall be placed until the ground is completely thawed. At the time, the
  forms shall be adjusted and subgrade repaired as determined by the Engineer.

8-14.4 Measurement
This section is revised in its entirety with the following:

“Cement concrete sidewalk” will be measured by the square yard of finished
surface.

8-14.5 Payment
This section is revised in its entirety with the following:

“Cement Concrete sidewalk”, per square yard.

The unit bid price for “Cement Concrete sidewalk” per Tacoma Public Works
Standard Plans No. SU-04, SU-05 & SU-05a” includes all costs for excavation, saw
cutting, grading, preparation, forms, forming, placement, finishing, protection during
curing and cleanup.

END OF SECTION

9-03 AGGREGATES

9-03.21 Recycled Material
This section is supplemented with the following:
No recycled material shall be used for trench backfill of water main.

END OF SECTION

8-22 PAVEMENT MARKING

8-22.1 Description
This section is supplemented with the following:

Installation of traffic lane markings will re-establish pre-construction markings.

8-22.3 Construction Requirements
This section is supplemented with the following:

The Contractor shall replace existing pavement markings that are disturbed by water main construction. Markings shall be equivalent to that existing prior to construction and shall include but not be limited to crosswalk marking, single and double yellow paint line, reflective lane markers, plastic traffic arrows, and plastic “ONLY” lettering. All traffic markings shall conform to The City of Federal Way standards.

8-22.4 Measurement
This section is supplemented with the following:

The bid item “Traffic Lane Markings” will be measured per linear foot as measured along the construction centerline in areas where markings are replaced. One measurement may include multiple longitudinal lines, raised traffic markers (buttons), transverse lines, and symbol markings.

8-22.5 Payment
This section is supplemented with the following:

“Traffic Lane Markings”, per linear foot.

The contract price per lump sum for “Traffic Lane Markings” shall be full pay for re-establishing all lane striping, stop lines, raised traffic markers (buttons) and turns arrows and includes all labor and material.

END OF SECTION

9-30 WATER DISTRIBUTION MATERIALS
The first paragraph of this section is revised to read:

This specification addresses pipe and appurtenances 24-inch in diameter and smaller. Water distribution material incorporated in the work shall be new. Prior to construction, the Contractor shall submit 3 copies of material submittals to the Engineer for approval.
9-30.1(1) Ductile Iron Pipe

This section is revised to read:

Ductile iron pipe shall be centrifugally cast and meet the requirements of AWWA C151. Ductile iron pipe shall have a cement mortar lining meeting the requirements of AWWA C104. Ductile iron pipe shall be a minimum of Special Thickness Class 52 and manufactured by the following:

- Tyton Joint:
  - Griffin Pipe Company
  - Pacific States Cast Iron Pipe Company
  - U.S. Pipe and Foundry Company

- Fastite Joint:
  - American Cast Iron Pipe Company

- Mechanical Joint:
  - American Cast Iron Pipe Company
  - Griffin Pipe Company
  - Pacific States Cast Iron Pipe Company
  - U.S. Pipe and Foundry Company

Non-restrained joints shall be rubber gasket, push-on type, or mechanical type meeting the requirements of AWWA C111.

Restrained joints shall be as specified in Section 9-30.2(6).

*Note: When plans and specifications require push-on joints to be restrained with nitrile gaskets, only American Ductile Iron Pipe and Fastite Fast-Grip® restraining gaskets are allowed.

9-30.1(3) Rubber Gaskets

This section is added with the following:

All gaskets furnished with pipe shall be styrene butadiene rubber (SBR), unless specified otherwise by the project engineer. When deemed necessary, "Nitrile" (NBR) gaskets will be required. When NBR gaskets are required they must be color-coded and/or marked in color so as to be easily identifiable as nitrile. When nitrile push-on joint restraining gaskets are required, they shall be Fastite Fast-Grip® manufactured by American Cast Iron Pipe Company or approved equal. All gaskets must conform to ANSI/AWWA C111. The gasket requirements for the specific project will be indicated on the face of the plan for the project.

9-30.2 Fittings

This section is revised to read:

Ductile iron flanges and flanged ductile iron spool pieces shall be in accordance with ANSI/AWWA C 115.

Gaskets for steel flanged joints shall be cloth inserted rubber made by Johns-Manville, JM-109 or approved equal.

Unless specified otherwise, all T-head bolts and nuts supplied for mechanical joint fittings, valves, sleeves, couplings, hydrants, tapping sleeves, etc., shall be made of high-strength, low alloy steel, conforming to ANSI/AWWA C111 (Corrosion-Resistant
Steel "Cor-Ten"). All other bolts and nuts shall be hot dipped galvanized or electroplated and conform to ASTM A 307, Grade B.

All bolts shall be of sufficient length that, when assembled and tightened to proper torque, a minimum of one thread will extend outside of the nut.

Tie rods and nuts for hydrant laterals, etc., shall be made of high strength, low alloy steel conforming to ANSI/AWWA C111 ("Cor-Ten"), unless specified otherwise in the plans or Special Provisions.

All ductile iron fittings shall conform to the latest ANSI/AWWA C110 Specifications or ANSI/AWWA Cl53 for Mechanical Joint Compact Ductile Iron Class 350 fittings. All fittings shall have either cement-mortar lining conforming to ANSI/AWWA C104 or fusion bonded epoxy internal lining per ANSI/AWWA C153. Mechanical joint glands supplied with the above fittings shall be ductile iron in accordance with the above specifications. The mechanical joint fittings/pipe shall be installed and the bolts tightened in the sequence and to the torque specified in DIPRA published by the Ductile Iron Pipe Research Association. Type of joints or other special items shall be specified in section 7-10 or on the water main Drawings.

9-30.2(6) Restrained Joints
This section is supplemented with the following:

Mechanical joint restraint shall be incorporated in the design of the follower gland and shall include a restraining mechanism which, when actuated, imparts multiple wedging action against the pipe, increasing its resistance as the pressure increases. Joint flexibility shall be maintained after burial. Glands shall be manufactured of ductile iron conforming to ASTM A 536-80. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell and tee-head bolts conforming to ANSI/AWWA C111/A21.11 and ANSI/AWWA C153/A21.53. Twist-off nuts, sized same as tee-head bolts, shall be used to insure proper actuating of restraining devices. The mechanical joint restraint device shall have a working pressure of at least 250-psi with a minimum safety factor of 2:1 and shall be manufactured by:

- EBAA Iron, Inc., MEGALUG,
- Romac “RomaGrip”
- UniFlange Series 1400
- StarGrip® series 3000
- or approved equal

Tyton joint restraint shall be made with Field-Lok 350® restraining gaskets or approved equal. Fastite joint restraint shall be made with Fast-Grip® restraining gaskets or approved equal.

9-30.2(7) Bolted, Sleeve Type Couplings for Plain End Pipe
The first two sentences in this section are revised to read:

Bolted, sleeve-type couplings, reducing couplings, or transition couplings will be mechanical style flexible coupling meeting AWWA C219, with minimum 7 inch center ring, epoxy coating, and stainless steel nuts and bolts.
End Cap Couplings will be mechanical style flexible coupling meeting AWWA C219, with minimum 7 inch center ring, epoxy coating, stainless steel nuts and bolts, and tapped 2-inch.

9-30.3(1) Gate Valves (3 inches to 16 inches)
*This section is revised to read:*

The end flanges of flanged gate valves shall conform in dimensions and drilling to the Standard ANSI B16.1 for cast iron flanges and flanged fittings, Class 125 unless specifically provided otherwise in plans or supplementary specifications. The bolt holes shall straddle the vertical centerline.

All gate valves shall be resilient seat and shall comply with the ANSI/AWWA standard as listed below:

All Resilient Seat Gate Valves shall conform to the latest revision of AWWA Standard C-509/515 and be UL listed, FM approved. They shall be as manufactured by:

- American Flow "Series 2500"
- AVK-series 25 or 65
- Clow model "2638, 2639, and 2640"
- East Jordan Iron Works, “Flowmaster”
- Kennedy model "KS-FW” and “KS-RW”
- M&H: Style “4067”
- M&H: Style “7000 series”
- Mueller Style "2360"
- NIBCO 619-RW Series
- US Pipe "Metroseal 250"
- or approved equal

All Resilient Seat Gate Valves shall meet the following requirements:

a. Shall have the body and bonnet coated with a fusion bonded epoxy coating meeting all the application and performance requirements of AWWA C-550.

b. All gate valve ends shall be as shown on the project drawing and conform to the applicable ANSI/AWWA standard. Flanged ends shall conform to ANSI B16.1 class 125 or C110 A21.10. Mechanical joint and push-on joint must conform to ANSI/AWWA C111, A21.11.

c. All gate valves, 16-inch and larger, shall be horizontal stem, equipped with machine cut cast steel gears, extended type grease case, position indicators and bypass, all in accordance with the AWWA Specifications.

d. All bonnet and packing nuts and bolts shall be stainless steel.

9-30.3(2) Vacant
*This section, including heading is revised to read:*

9-30.3(2) Horizontal Swing Check Valves
Horizontal swing check valves shall meet the following requirements:

- Shall conform to the latest requirements of AWWA standard C508. Shall have cast iron body, IBBM, swing type, gravity operated, bronze-disc, bronze to bronze seat, and stainless steel hinge pin. All nuts and bolts shall be stainless steel.

- All check valve ends shall be as shown on the project drawing and conform to the applicable ANSI/AWWA standard. Flanged ends shall conform to ANSI B16.1 class 125 or C110 A21.10 Mechanical joint and push-on joint shall conform to ANSI/AWWA C111, A21.11. All nuts and bolts shall be stainless steel.

All Horizontal Swing Check Valves shall be as manufactured by:

- Mueller, model #A2600-20
- U.S. Pipe and Valve, Model #A-2600
- Kennedy Valve, model #1106
- Clow Valve Co., model #1106
- Or approved equal

9-30.3(3) Butterfly Valves
This section is supplemented with:

All butterfly valves shall conform to ANSI/AWWA C504 for Rubber Seated Butterfly Valves, Class 150B. All nuts and bolts shall be stainless steel.

All butterfly valves shall be manufactured by:

- Henry Pratt "Groundhog"
- M&H/Clow “4500”
- Mueller “Linseal III”
- Or approved equal

9.30.3(4) Valve Boxes
This section is revised in its entirety with the following:

Cast iron valve boxes and lids shall be as indicated on the attached Tacoma Water Drawing No. 17-56-1. All buried valves shall be provided with a valve box and lid with an extension of cast iron soil pipe as necessary. The Contractor shall maintain the location and provide access to all valves within the project. No valve shall remain buried during construction.

9-30.3(8) Tapping Sleeve and Valve Assembly
The sixth sentence is revised to read:

Tapping sleeves shall be ductile iron, mechanical joint type or the fabricated steel type, whichever is specified in the bid proposal.

This section is supplemented with the following:
The fabricated steel sleeves shall have epoxy coating and stainless steel bolts and shall be:

- Model JCM 412 manufactured by JCM Industries*
- Model JCM 414 manufactured by JCM Industries
- Model FTS 420 manufactured by Romac Industries, Inc*
- SST III manufactured by Romac Industries, Inc.
- Smith Blair Style 623
- or approved equal

*Models JCM 412 and FTS 420 will only be allowed when tapping ductile iron pipe and the size of the tap is less than half of the size of the pipe being tapped.

Ductile iron, mechanical joint sleeves shall be:
- Model H-615 manufactured by Mueller Co.
- Model H-619 manufactured by Mueller Co.
- Or approved equal.

9-30.5 Hydrants
This section is revised to read:

Hydrants furnished under these Specifications shall conform to the ANSI/AWWA C502, Specifications for Dry-Barrel Fire Hydrants, with the following limitations and exceptions, and be installed per Tacoma Water Drawing 17-56-1.

a. Drawings- Drawings of adequate size showing principal dimensions, material and finish shall be furnished with the bid for hydrants not listed below as acceptable.
b. Make –
   - Clow “Medallion”
   - Kennedy “Guardian K81D”
   - M&H 929, “Reliant” (casting date of 1997 or later.)
   - Mueller "Super Centurion 250"
   - U.S. Pipe "Metropolitan M-94-250"
   - Waterous “Pacer/WB67-250, Tacoma Model”
c. Capacity - Standard size - two-hose and one-pumper nozzle.
d. Size - Standard size shall be 5-1/4-inch main valve with 6-inch inlet bell. All hose nozzles shall be 2-1/2 inches. Unless otherwise indicated in the special Provisions and/or the Drawings, all pumper nozzles and quick connect fittings shall be as specified on standard drawing 17-56-1.
e. Length - Contractor shall verify proper depth of bury of fire hydrant prior to installation.
f. Hydrant Inlet - All hydrants shall be provided with mechanical joint inlet.
g. Operating Mechanism - All moving contact surfaces shall be bronze on bronze or bronze on iron or steel as may be approved by the Superintendent. The hydrants shall have the main valve seat threaded into a bronze sub-seat in the shoe of the hydrant to permit easy removal of the main valve seat.
h. Direction of Opening - All hydrants shall open by turning the operating nut to the left (counter-clockwise).
i. **Hydrant Barrels** - All hydrant barrels shall have a flange located at least 2 inches above the finished grade line and flanged extension sections shall be available in increments of 6 inches.

j. **Operating Nuts for Stem and Nozzle Caps** - The operating stem and cap nut shall be pentagonal in shape. The pentagon shall measure 1.35 inches from the point to the flat, at the base of the nut and 1.23 inches at the top. The faces shall be tapered uniformly and the height of the nut shall not be less than 1.0 inches. The point to the flat dimension shall be measured to the theoretical point where the faces would intersect were there no rounding off of the corners. All nozzles shall be fitted with cast iron threaded caps with operating nut of the same design and proportions as the stem nut. Caps shall be threaded to fit the corresponding nozzles and shall be fitted with suitable gaskets for positive water tightness.

k. **Painting of Hydrants** - All fire hydrants must be painted with a coat of Tri-Polar Ferrite Primer #6000, manufactured by Keeler-Long Inc., or an approved equal. The primer must be applied in accordance with the manufacturer’s recommendations. After backfilling the trench, the City will apply the finish coat of aluminum paint to the nozzle section of the fire hydrant.

l. **Quick Connect Coupling** - The Quick Connect Coupling (aka Storz Coupling) shall be in compliance with the latest version of “NFPA 1963, for non-threaded Metal-Faced Hydrant Connections”. The size of the Quick Connect Coupling and hydrant pumper nozzle threads will be as shown on standard drawing 17-56-1.

m. **Nuts and Bolts** - All nuts and bolts below ground level shall be stainless steel.

### 9-30.5(2) Hydrant Dimensions

*This section is revised in its entirety with the following:*

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrant connection D.I. Pipe ins. dia.</td>
<td>6-inch</td>
</tr>
<tr>
<td>Standard, minimum dia.</td>
<td>6-7/8 inch</td>
</tr>
<tr>
<td>Length of 4.5 ft. bury, hydrant from bottom of hydrant</td>
<td>4 feet, 8 inches</td>
</tr>
<tr>
<td>connection to sidewalk ring</td>
<td></td>
</tr>
<tr>
<td>Valve opening minimum dia.</td>
<td>5-1/4 inches</td>
</tr>
<tr>
<td>Hose Nozzles-number and size</td>
<td>2 - 2-1/2-inch</td>
</tr>
<tr>
<td>Thread (Nat. Board Fire Underwriters)</td>
<td>7-1/2 per inch</td>
</tr>
<tr>
<td>Outside dia. Finished</td>
<td>3-1/16 inch</td>
</tr>
<tr>
<td>Dia. at root of thread</td>
<td>2.8715 inch</td>
</tr>
<tr>
<td>Pattern of thread</td>
<td>60° V thread</td>
</tr>
<tr>
<td>Total length of threaded male Nipple</td>
<td>1-inch</td>
</tr>
<tr>
<td>Pumper Nozzles-number and size</td>
<td>1 - 4-inch</td>
</tr>
<tr>
<td>Thread, outside dia. finished (with .02” cut off top)</td>
<td>5.09-inch</td>
</tr>
<tr>
<td>Dia. at root of thread (with .02” left in valley)</td>
<td>4.74-inch</td>
</tr>
<tr>
<td>Threads (Tacoma Std.)</td>
<td>4 per inch</td>
</tr>
<tr>
<td>Pattern of thread-modified</td>
<td>60° V thread</td>
</tr>
<tr>
<td>Total length of threaded male nipple</td>
<td>1-1/8-inch</td>
</tr>
</tbody>
</table>

### 9-30.5(3) Hydrant Extensions

*This section is revised to read:*
No hydrant barrel extensions are approved on new installations

END OF SECTION

9-30.6 Water Service Connections
This section does not apply to the contract.

END OF SECTION

9-34 PAVEMENT MARKING MATERIAL

9-34.3(2) Type B- Pre formed Fused Thermoplastic
Type B material consists of mixture of pigment, fillers, resins and glass beads that is factory produced in sheet form. The material is applied by heating the pavement and top heating the material. The material shall contain intermixed glass beads. The material shall conform to AASHTO M249, with the exception of the relevant differences for the materials being applied in the pre-formed state and the following:

Resin- The resin shall be alkyd or hydrocarbon

The sample material submitted for approval shall be fused to a suitable substrate prior to performing the following tests.

Retroreflectance- ASTM E1710
The fused samples shall have a minimum initial coefficient of retroreflective luminance of 250 mcd m-2. Lx-1 for white and 175 mcd.m-2 .lx-1 for yellow in accordance with ASTM E1710 when measured with a 30-meter retroreflector meter. WSDOT will measure retro reflectivity for compliance with a Delta LTL-X retro reflectometer.

Skid Resistance- ASTM E303
45 BPN units minimum

The blue color shall match Federal Standards 595, color number 35180, and the tolerance of variation shall match that shown in the FHWA “Highway blue color tolerance chart”.

The red color shall match Federal Standard 595, color number 11136, and the tolerance of variation shall match that shown in the FHWA “Highway Red Color Tolerance Chart”.

END OF SECTION
Pre-Paving Meeting Agenda

Scheduled Date of Paving Operations_____________________________________

Attendees (Name, Phone #)

__________________________________ ________________ ______________
__________________________________ ________________ ______________
__________________________________ ________________ ______________

Preparation:
• Lane marker removal
• Surface swept/washed
• Crack sealing
• Pavement repair
• Offset references for utilities/lane markings
• If paving on surfacing rock; Has grade been accepted?

Mix Design:
• Mix design status (verified or non-verified?)
• Is evaluation statistical, non-statistical, or volumetric?
• Allowable modifications to mix design

Test Section:
• Will compaction testing be readily available?
• Frequency of compaction testing
• Method of compaction testing
• Expectations of compaction (min. 91% of reference maximum density, RICE value)

Tack Coat:
• Tack coat residual application will be _______gal/sy
• A check for application will be performed at the beginning of each paving shift
• Allowance of enough lead time for tack to break before paving

HMA Placement:
• HMA plant location__________________________________________
• Mix design_________________________________________________
• Cancellations (weather of non-weather)
• Depth gauging (checking thickness, meets minimums and maximums)

Smoothness:
• Smoothness checks with straightedge (1/4” in 10-feet, traverse and parallel)
• Close attention to starts and stops

Density:
• No vibratory rolling when mat is below 175°F
• Checks for cyclic density (temperature scan)
• Use of pneumatic roller – between October 1 and April 1
Joints:
- Will a step wedge be used for longitudinal joints?
- Joint construction shall be by rolling from hot side to pinch in HMA
- Joints will be checked for smoothness
- End of shift (night joint) construction methods
- Will check joint density

Irregular Areas:
- How will irregular areas and intersections be paved?

Data Transfer:
- Weigh ticket copies provided to Inspector upon delivery
- RICE value provided to Inspector

Other Discussion Topics:
- Traffic control (need for uniform police officers?)
- Timing for opening traffic
- Pavement markings
- Utility adjustments
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END OF SPECIAL PROVISIONS
APPENDIX G

WASHINGTON STATE DEPARTMENT OF ECOLOGY

SPECIFICATIONS INSERT
General
Partial funding of this project is being provided by the Washington State Department of Ecology’s (Ecology) Stormwater Grant Program.

Compliance with State and Local Laws
The construction of the project, including all subcontracted work, shall conform to the applicable requirements of state and local laws and ordinances.

State Interest Exclusion
It is anticipated that this project will be funded in part by the Washington State Department of Ecology. Neither the State of Washington nor any of its departments or employees are, or shall be, a party to this contract or any subcontract.

Third Party Beneficiary
Partial funding of this project is being provided through the Washington State Department of Ecology Stormwater Grant Program. All parties agree that the State of Washington shall be, and is hereby, named as an express third-party beneficiary of this contract, with full rights as such.

Access to the construction site and to records
The contractor shall provide for the safe access to the construction site and to the contractor's records by Washington State Department of Ecology personnel.

The Contractor shall maintain accurate records and accounts to facilitate the Owner’s audit requirements and shall ensure that all subcontractors maintain auditable records.

These Project records shall be separate and distinct from the Contractor’s other records and accounts.

All such records shall be available to the Owner and to Washington State Department of Ecology personnel for examination. All records pertinent to this project shall be retained by the Contractor for a period of three (3) years after the final audit.

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. Any actions that potentially allow a discharge to state waters must have prior approval of the Washington State Department of Ecology.
**Inadvertent Discovery of Archeological Resources**
The contractor shall obtain a copy of the Inadvertent Discovery Plan from the Project Owner. The contractor shall keep a copy of the inadvertent discovery plan for the project on the work site at all times. The contractor shall immediately stop all work if human remains, cultural, or archeological resources are discovered in the course of construction. The contractor shall follow the inadvertent discovery plan in dealing with the human remains, cultural, or archeological resources.

**Project Signs**
The Contractor shall display Ecology’s logo in a manner that informs the public that the project received financial assistance from the Washington State Stormwater Grant Program.

**Utilization of Minority and Women Business Enterprises**
All bidders are encouraged to utilize certified minority-owned and women-owned businesses to the extent possible in the performance of this contract. All prospective bidders or persons submitting qualifications should take the following steps, when possible.

1. Include qualified minority and women's businesses on solicitation lists.
2. Assure that qualified minority and women's businesses are solicited whenever they are potential sources of services or supplies.
3. Divide the total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by qualified minority and women's businesses.
4. Establish delivery schedules, where work requirements permit, which will encourage participation of qualified minority and women's businesses.
5. Use the services and assistance of the State Office of Minority and Women's Business Enterprises (OMWBE) and the Office of Minority Business Enterprises of the U.S. Department of Commerce, as appropriate.

All prospective bidders must provide a list of the MBE/WBE subcontractors they intend to use during the project. This list must be provided with the bid package.
APPENDIX H

NPDES CONSTRUCTION STORMWATER GENERAL PERMIT
(To be provided to Contractor prior to commencing work)
APPENDIX I

CONSTRUCTION QUALITY ASSURANCE PLAN
[Contractor Name] Construction Quality Assurance Plan

1. Qualifications.
The following individuals will be providing quality control and quality assurance inspection and testing for the entire project. [This shall include all relevant contractors, subcontractors, city personnel and consultants]

<table>
<thead>
<tr>
<th>Organization</th>
<th>Role</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Authority.

[Insert Name Here] is the Construction Superintendent for this project. The Construction Superintendent will be coordinating all activities with the onsite foreman and various subcontractors. He has the authority to stop all work (including that of subcontractors and suppliers).

All testing is completed by the City of Tacoma through the Construction Inspector. Issues that arise are forwarded to the City’s Associate Project manager. Both the Construction Inspector and Associate Project Manager have the authority to stop work.

<table>
<thead>
<tr>
<th>Organization</th>
<th>Role</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Tacoma</td>
<td>Associate Project Manager</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inspector</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Testing</td>
<td></td>
</tr>
</tbody>
</table>

3. Chart of Inspections
Appendix A contains a chart of inspections (both Quality Control and Quality Assurance) that details the definable features of work, the responsible inspector and the frequency and method of inspections. It also includes the testing method (if applicable) and corrective procedures if the test fails.

4. Quality Assurance

4-1. The first part of the Quality Assurance Plan is to develop a list of definable features of work for this project. The list of definable features for this project follows: [This list of features should match the features in Appendix A of this Quality Control Plan, The following items are included as an example. Features should be added/removed for the specifics of this project]

<table>
<thead>
<tr>
<th>Submittals</th>
<th>Electrical</th>
<th>Seeding/Mulching</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey</td>
<td>Embankment</td>
<td>Base Rock</td>
</tr>
<tr>
<td>Clearing and Grubbing</td>
<td>Wall Installation</td>
<td>Paving Porous &amp; Standard HMA</td>
</tr>
<tr>
<td>Erosion Control Devices</td>
<td>Fencing</td>
<td>Traffic Control</td>
</tr>
<tr>
<td>Excavation</td>
<td>Finishing Subgrade</td>
<td>Pavement Markings &amp; Permanent Signs</td>
</tr>
<tr>
<td>Utility Installation</td>
<td>Landscape Planting</td>
<td>Redline Drawings</td>
</tr>
</tbody>
</table>
4-2. The second part of the Quality Assurance Plan is to hold “progress” meetings. On the project as work progresses, prior to the start of each definable feature of work, a “progress” meeting will be held with the foreman and crew.

- The Owner will be invited to the meetings.
- Each meeting will cover the applicable specifications of the contract and the expectations from the crew for the work.
- Any work requiring specialized training will be reviewed prior to start up to assure the work crew is qualified and prepared to complete the work in compliance with the contract.

These “progress” meetings may occur prior to starting work for the day, during a lunch break or at the end of the day as needed.

5. Record Management.

The Construction Superintendent will have overall responsibility for managing all paperwork associated with the quality system. A chart of the paperwork to be maintained along with person responsible for completion, timeframe for completion and submission and location of the contractor copy of the paperwork is found below.

Unless otherwise indicated, originals will be provided to the Owner upon completion. All reports will be used per contract specifications. [The following items are provided as examples. The contractor should update per project specifications]

<table>
<thead>
<tr>
<th>Paperwork</th>
<th>Person Responsible for Collection</th>
<th>Timeframe for Completion and Submission</th>
<th>Location of Contractor Copy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Reports</td>
<td>City Construction Inspector</td>
<td>48 hrs</td>
<td>Contractor Main Office</td>
</tr>
<tr>
<td>Submittals &amp; Certification</td>
<td>City Construction Associate Project Manger</td>
<td>10 days maximum</td>
<td>Contractor Main Office</td>
</tr>
<tr>
<td>Tracking Report</td>
<td>Construction Superintendent</td>
<td>During Construction</td>
<td>Contractor Main Office</td>
</tr>
<tr>
<td>Final Inspection</td>
<td>City Construction Inspector</td>
<td>At project completion</td>
<td>Contractor Main Office</td>
</tr>
</tbody>
</table>

6. Modifications to the Quality Control and Assurance Plan.

The Associate Project Manager, City Construction Inspector and Construction Superintendent will have responsibility for modifying the Quality Control and Assurance Plan as needed during construction. Modifications will be made if definable features are added, removed for substantially modified during construction. Furthermore, modifications to testing procedures and/or corrective action can be made at any time at the discretion of the Associate Project Manager, City Construction Inspector or Construction Tester.
<table>
<thead>
<tr>
<th>Definable Features</th>
<th>Inspection Responsibilities</th>
<th>Process and Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quality Control</td>
<td>Quality Assurance</td>
</tr>
<tr>
<td>Survey</td>
<td>City Chief Surveyor</td>
<td>City Construction Inspector</td>
</tr>
<tr>
<td>Clearing &amp; Grubbing</td>
<td>Construction Superintendent</td>
<td>City Construction Inspector</td>
</tr>
<tr>
<td>Erosion Control Devices</td>
<td>Construction Superintendent</td>
<td>City Construction Inspector</td>
</tr>
<tr>
<td>Excavation</td>
<td>Construction Superintendent</td>
<td>City Construction Inspector</td>
</tr>
<tr>
<td>Utility Installation</td>
<td>Construction Superintendent</td>
<td>City Construction Inspector</td>
</tr>
<tr>
<td>Electrical</td>
<td>Tacoma Public Utility Inspector</td>
<td>Per plans and specifications</td>
</tr>
<tr>
<td>Embankment</td>
<td>Construction Superintendent</td>
<td>City Construction Inspector</td>
</tr>
<tr>
<td>Wall Installation</td>
<td>Construction Superintendent</td>
<td>City Construction Inspector</td>
</tr>
<tr>
<td>Fencing</td>
<td>City Construction Inspector</td>
<td>Per plans and specifications</td>
</tr>
<tr>
<td>Landscape Planting</td>
<td>City Construction Inspector</td>
<td>Per plans and specifications</td>
</tr>
<tr>
<td>Seeding/ Mulching</td>
<td>City Construction Inspector</td>
<td>Per plans and specifications</td>
</tr>
<tr>
<td>Definable Features</td>
<td>Quality Control</td>
<td>Quality Assurance</td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------------------------------</td>
<td>------------------------------</td>
</tr>
<tr>
<td><strong>Inspection Responsibilities</strong></td>
<td><strong>Base Rock</strong></td>
<td>Construction Superintendent</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Paving Porous &amp; Standard HMA</strong></td>
<td>Construction Superintendent</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Traffic Control</strong></td>
<td>Construction Superintendent</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Pavement Markings &amp; Permanent Signs</strong></td>
<td>Construction Superintendent</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX J

HAUL ROUTE OPTIONS
Haul Route Options for Environmental Services Upper Buckley Gulch Project

Project Limits

Connections to/from regional access routes (via Alder/Cedar St to the south or via 6th Ave and only Union Ave to the west)

with potential need for flaggers & ped spotters, east leg of N. 15th St (arterial)/Alder St. (arterial) can accommodate truck turns (similar to current bus route turns)
PART III

CITY OF TACOMA

EQUITY IN CONTRACTING PROGRAM
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

“Bid” means an offer submitted by a Respondent to furnish Supplies, Services, and/or Public Works in conformity with the Specifications and any other written terms and conditions included in a City request for such offer.

“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 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. 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.

4. Government purchasing:

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.

(Ord. 28766 Ex. A; passed Jun. 8, 2021; Ord. 28625 Ex. A; passed Nov. 5, 2019; Ord. 28141 Ex. A; passed Mar. 26, 2013;
Ord. 27867 Ex. A; passed Dec. 15, 2009)

1.07.070 Evaluation of submittals.

A. All submittals for a supplies, services, or public works and improvements contract 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 IV

LOCAL EMPLOYMENT
AND
APPRENTICESHIP
TRAINING PROGRAM (LEAP)
REGULATIONS
FOR
PUBLIC WORKS CONTRACTS
LOCAL EMPLOYMENT AND APPRENTICESHIP TRAINING PROGRAM (LEAP) INSTRUCTIONS AND GOAL FORM

LEAP REQUIREMENTS & PROCEDURES:

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 Submittals:
- **Prime Contractor LEAP Utilization Plan** - This form is to be completed and presented at the Pre-Construction Meeting.
- **LEAP Apprentice Verification Form** - This form is to be completed for every qualifying Apprentice employee.

The forms above, LEAP Program Requirements, and all related LEAP documents can be accessed on the City of Tacoma LEAP website by navigating to LEAP Forms at the following link: [http://cityoftacoma.org/leap](http://cityoftacoma.org/leap).

The City of Tacoma’s LEAP office enforces two mandatory goals on City projects above certain monetary thresholds.

The Local Employment Utilization Goal requires the Prime Contractor performing a qualifying public works project 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 Areas of the Tacoma Public Utilities Service Area.

The Apprentice Utilization Goal requires the Prime Contractor performing a qualifying public works project to ensure that 15 percent of the total labor hours worked on the project are performed by Apprentices who are residents of the City of Tacoma or Tacoma Public Utilities Service Area. The accompanying LEAP Regulations, forms, and maps are included in these specifications.

*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 above $1 million and is thusly subject to the:
1. 15% Local Employment Utilization Goal
2. 15% Apprentice Utilization Goal

LEAP staff can assist contractors in the recruitment, screening and selection of 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) 591-5826. The LEAP Office is located in the Tacoma Municipal Building, 747 Market Street, Room 808, Tacoma, WA 98402.

05/2020
LEAP

Document Submittal Schedule

In the attached packet, you will find the LEAP forms that are required to be submitted by the Prime and Sub Contractors.

- **LEAP Instructions and Goal Form**: brief overview of LEAP Program requirements
- **Prime Contractor LEAP Utilization Plan**: to be submitted at or by the Pre-Construction Meeting *(Required by Prime Contractor Only)*
- **LEAP Apprentice Verification Form**: to be submitted on an ongoing basis for each qualified Apprentice employee via LCP Tracker
- **Tacoma Public Utilities Service Area List, Economically Distressed ZIP Codes List**: for your reference on LEAP-qualified zoning areas

In addition, the LEAP Office will also require from the Prime Contractor and all its Subcontractors:

- **Weekly Certified Payrolls**: to be submitted weekly, biweekly or monthly via LCP Tracker
- **Document Verification**: provide required information when requested from LEAP Office

Please submit above documents as instructed by the Project Manager.

If you have any questions or request further information, please feel free to contact the City of Tacoma’s LEAP Program at (253) 591-5826, Fax (253) 591-5232, or email carmstrong@cityoftacoma.org.
### PRIME CONTRACTOR

**LEAP UTILIZATION PLAN**

*Failure to submit this plan at the Pre-Construction Meeting may result in Progress Payments being withheld.*

**Part A**

<table>
<thead>
<tr>
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<th>Date:</th>
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<th>Contract/Work Order Number(s):</th>
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<th>Project Description:</th>
<th>Notes:</th>
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**Part B**

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<th>Economic Distressed Area Resident</th>
<th>Tacoma Public Utilities Service Area Apprentice Resident</th>
<th>WA State Apprentice <em>(Contracts outside of TPU Service Area Only)</em></th>
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**PLANNED LEAP HOURS***

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<th>Tacoma Public Utilities Service Area Apprentice Resident</th>
<th>WA State Apprentice <em>(Contracts outside of TPU Service Area Only)</em></th>
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**Part C**

Provide a description of how the Contractor plans to ensure that the LEAP Utilization Goals on the project will be met. *(Use additional sheets if necessary)*

---

*Revised 11/2020/CAIII*
General Instructions for completing Prime Contractor LEAP Utilization Plan

**Part A**

**Contractor/Contract Information Section:** The Prime Contractor is responsible for completing this section. Failure to submit this plan at the Pre-Construction Meeting may result in Progress Payments being withheld.

**Part B**

**Planned LEAP Hours Section:** This section should be completed by the Prime Contractor. The information required in Part B is described below.

**Trade or Craft:** Indicate the Trade or Craft being used.

**LEAP Employee Categories:** Indicate the number of hours that will be utilized by the Prime Contractor and all Sub Contractors for each craft and broken down by City of Tacoma Resident, Economically Distressed Area Resident, Tacoma Public Utilities Service Area Apprentice Resident, WA State Apprentice *(Contracts outside of TPU Service Area Only).*

**Totals:** Total the number of hours in each of the five (5) columns.

**Part C**

**Description of how the Contractor plans to ensure fulfillment of the LEAP Utilization Goal:** This section is to be completed by the Prime Contractor. Please describe how you plan to satisfy the LEAP Utilization Goal on this project. Provide a summary of your outreach and recruitment procedures to hire LEAP Qualified Employees to work on this project.
LEAP APPRENTICE VERIFICATION FORM

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 Apprentice categories: (check all that apply and provide evidence for each check)

_____ a. WA State Approved Apprentice living in Tacoma Public Utilities Service Area

_____ b. 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 APPRENTICE VERIFICATION FORM

To be Completed by Contractor or Subcontractor

Please attach a legible copy of the following document(s) showing the address of residence as proof of local (Tacoma) and/or Pierce County residency and apprentice status, youth status, or veteran status.

____________________________________________________________________________________________________________________________________________________

- For Youth - Copy of Birth Certificate or WA State ID or
  WA Driver's License (projects advertised after 05-20-13)

- For Veterans – Copy of DD-214 (Projects advertised after
  05-20-13)

- 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: _______________________________________________
### Economically Distressed ZIP Codes

<table>
<thead>
<tr>
<th>Zip Code</th>
<th>200% Pov</th>
<th>Unemployed</th>
<th>25+ College</th>
<th>Area</th>
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“200% Pov” = People at or below 200% of the federal poverty line. (69th percentile)
“Unemployed” = Unemployment rate (45th percentile)
“25+ College” = People at or above 25 years old without a college degree. (75th percentile)
Apprentices may come from any of the ZIP codes listed under this page. If an apprentice lives in a Economically Distressed ZIP code, they may count towards those labor hours as well. Journeyman must be from the Economically Distressed ZIP codes.
No Work Performed (NWP) Report

Prime/Sub Contractor: _____________________________________________________________

Specification Number: ___________________________________________________________

Project Description: _____________________________________________________________

Payroll Week Ending Date: __________________________           Payroll Number: __________

NO WORK PERFORMED

I, the undersigned, do hereby certify under penalty of perjury, that the information contained herein is true and correct.

Signature of Responsible Officer  Title  Date
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 prevailing wage requirements set forth in either RCW 39.12 or the Davis-Bacon Act - 40 U.S.C. 276 (a).

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 Economically Distressed ZIP Codes within the Tacoma Public Utilities Service Area, 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 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.

Z. 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.

AA. “Tacoma Public Utilities” means the City of Tacoma, Department of Public Utilities.


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:
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.

1.90.050 Good faith efforts. Repealed by Ord. 27368.

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 or Improvement contract.

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.

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.

(Ord. 26301 § 1; passed Oct. 6, 1998)

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)
PART V

STATE PREVAILING WAGE RATES
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.