

Invitation for Bid
City of Garibaldi
Plans and Bid Documents

Project Number: PW-2016-100

Project Description: ARIZONA WAY BRIDGE CONSTRUCTION PROJECT

Prospective Bidders' Conference: August 19, 2016, 9:00 a.m., local time

Due Date: August 25, 2016, 12:00 p.m., local time at Garibaldi City Hall

Plans and Specifications may be reviewed or picked-up at:

City of Garibaldi City Hall at 107 6th Street

Garibaldi, Oregon 97118

There is a \$15.00 *non-refundable* charge for each set of Plans and Specifications.

Plans and Specifications are also available for download at no charge from the ORPIN website at

<http://orpin.oregon.gov/open.dll/welcome>

Source of Funds: "A portion of work under this contract is funded by the Federal Emergency Management Agency (FEMA). The other funds are from the City."

Buy American: Pursuant to a 2014 Congressional appropriations bill, none of the Financing Proceeds may be used for any part of the Project unless all of the iron and steel products used in the project are produced in the United States. "Iron and steel products" means the following products made primarily of iron or steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and construction materials.

Prevailing Wages: The City will not receive or consider a bid unless the bid contains a statement by the bidder that the bidder will comply with ORS 279C.838, ORS 279C.840, or 40 U.S.C. 3141. By signing and submitting the Bid, the Contractor agrees to comply with ORS 279C.838 or 279C.840 and/or 40 U.S.C. 3141 et seq. for a public works project subject to the state prevailing wage rates under ORS 279C.800 to 279C.870, the federal prevailing wage rates under the Davis-Bacon Act (40 U.S.C. 3141 et seq.) or both.

Equal Employment Opportunity "Contractor shall comply with Executive Order 11246 of September 24, 1965, entitled "Equal Employment Opportunity," as amended by Executive Order 11375 of October 13, 1967, and as supplemented in Department of Labor regulations (41 CFR chapter 60)."

PROSPECTIVE BIDDERS' CONFERENCE ATTENDANCE IS MANDATORY

It is highly encouraged that Contractors and Subcontractors visit the site

Notification is hereby given that the City of Garibaldi will be soliciting competitive bids for a Bridge Construction Project, located at Arizona Way and Hwy 101 in Garibaldi, Oregon. Sealed bids will be submitted to and received by Blake Lettenmaier, City Engineer, at Garibaldi City Hall, 107 Sixth Street, Garibaldi, OR 97118, at or before 12:00 p.m., August 25th, 2016, and shall be publicly opened at that location immediately upon closing.

CONTRACTOR shall design and construct one concrete or steel Bridge.

Work items include but are not limited to the following:

CONTRACTOR shall design and construct one shop assembled U80 loading, L/500 load deflection, prefabricated steel bridge superstructure, complete with 12 gauge weathering steel w-beam guardrail system utilizing weathering

steel posts. The bridge shall have a span of 28 feet. The bridge shall be delivered in 3 modules with bolt-up connections.

The bridge superstructure shall be designed in accordance with AASHTO Standard Specifications for Highway Bridges, 17th Edition - 2002. Backwalls shall be placed and have a positive connection joining the backwalls to the modular bridge sections, to retain roadway embankment(s). Backwalls shall be made of galvanized steel.

Steel deck system shall be 9 gauge galvanized steel with corrugations 4-1/4" deep. The bridge deck running surface width shall be 28 feet between the guardrails. The asphalt running deck shall be constructed of Class C asphalt concrete. The deck shall have a positive connection joining the deck panels to the modular bridge sections.

All structural steel shall be of cosmetic (USA) manufacture and shall conform to the requirements of ASTM Specification A588 Weathering Steel with exterior surfaces of girders being blast cleaned prior to shipment to assure uniform weathering.

Precast concrete bridge sills shall be constructed of reinforced Class 4,000 concrete and pre-cast off site. Reinforcing steel shall conform to ASTM A706, No. 6 Grade 40 minimum and utilized in accordance with industry standards. The bridge shall utilize bearing plates, elastomeric pads and assembly bolts. The bridge footing elevation shall be equal.

CONTRACTOR MAY ALSO SUBMIT ALTERNATE CONCRETE BRIDGE DESIGN THAT MEETS THE L80 LOADING, THE L/500 DEFLECTION CRITERIA, COMPLIES WITH AASHTO Standard Specifications for Highway Bridges, 17th Edition - 2002 AND USES THE SAME GUARDRAIL SYSTEM SPECIFIED ABOVE.

CONTRACTOR shall submit bridge plans from manufacturer to the City Engineer for approval, prior to commencement of any work on the project. Bridge plans shall be signed and sealed by a professional engineer licensed in the state of Oregon.

Additional work includes but is not limited to Removal of underground culverts and water line, Sanitary Sewer, Storm Sewer, Water Line, Bridge, Asphaltic Concrete Pavement, Portland Cement Pavement, Manhole lids and slab raising, Shoulder rock, Erosion Control, Landscaping, Earthwork, Grading, Temporary access road, Stream Corridor, Riprap and other associated work..

No prequalification will be required for this Project

The project is to be partially funded by the Federal Emergency Management Agency (FEMA). The contract is for a public work subject to ORS 279C.800 to 279C.870 and the Davis-Bacon Act 40 U.S.C. 276(a), relating to the payment of prevailing wages. No bid will be received or considered by the City unless the bid contains a statement by the bidder as part of its bid that it shall comply with prevailing wage statutes and rules.

Construction Documents, including the Specifications and Bid Forms, will be posted on ORPIN. Hard copies may be reviewed at Garibaldi City Hall at the above address between the hours of 8:00 a.m. and 5:00 p.m., Tuesday through Friday, and may be purchased for a non-refundable fee of \$15.00 until August 19th, 2016. Bidders are solely responsible for all expenses and costs associated with submitting a bid.

Direct all questions to Blake Lettenmaier, City Engineer, at 503-322-3327 or blake@ci.garibaldi.or.us

The City of Garibaldi is an equal opportunity provider and employer.

ADDITIONAL PROJECT FORMS ATTACHED INCLUDE:

- APPENDIX A**
- 1) FIRST-TIER SUBCONTRACTOR DISCLOSURE (WH-179)
 - 2) PUBLIC WORKS FEE INFORMATION FORM (WH-39)
 - To be completed and paid by City upon award.
 - 3) NOTICE OF PUBLIC WORKS (WH-81)
 - To be completed by City upon award.
 - 4) PAYROLL/CERTIFIED STATEMENT FORMS (WH-347) & (WH-348)
 - 5) PUBLIC WORKS FEE ADJUSTMENT FORM (WH-40)
 - To be completed by City after final completion of project.
 - 6) CURRENT PREVAILING WAGE RATE COVER AND AMENDMENTS
 - The complete prevailing wage rate documents can be downloaded from the Oregon Bureau of Labor and Industries website at http://www.oregon.gov/boli/whd/pwr/Pages/pwr_state.aspx

APPENDIX B - STANDARD SPECIFICATIONS

APPENDIX C - TECHNICAL PROVISIONS

APPENDIX D - PLANS/DRAWINGS

APPENDIX E - (SUPPLEMENTAL CONTRACT CONDITIONS)

- CONTRACTING WITH SMALL AND MINORITY BUSINESSES, WOMEN'S BUSINESS ENTERPRISES, AND LABOR SURPLUS AREA FIRMS
- GENERAL DECISION NUMBER: OR160076 07/22/2016 OR76
- DISADVANTAGED BUSINESS ENTERPRISE (DBE) PROGRAM DBE SUBCONTRACTOR PERFORMANCE FORM
- DISADVANTAGED BUSINESS ENTERPRISE (DBE) PROGRAM DBE SUBCONTRACTOR UTILIZATION FORM
- FEMA REQUIRED CONTRACTUAL PROVISIONS -2 C.F.R. § 200.326 AND 2 C.F.R. PART 200, APPENDIX II, REQUIRED CONTRACT CLAUSES

BIDDER

To the City of Garibaldi:

The undersigned hereby Bids and agrees to furnish materials and/or services in compliance with all terms, conditions, specifications and addenda in the Notice of Invitation for Bid except for any written exceptions in the Bid. The signature below also certifies his or her understanding and compliance with The City of Garibaldi Standard Terms and Conditions.

Is the Bidder a "Resident" Bidder per ORS 279A 120? Yes No

Construction Contractors Board Registration Number: _____

Federal Employer Identification Number: _____

Company Name: _____

Address: _____

City	State	Zip Code
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For clarification of this Bid contact:

Name: _____

Telephone: _____

Authorized Signature for Bidder: _____

Printed Name: _____

Title: _____

ACCEPTANCE OF BID AND CONTRACT AWARD (For City of Garibaldi Use Only)

Your bid is hereby accepted. The Contractor is now bound to sell the materials and/or services listed by the attached award notice based upon the solicitation, including all terms, conditions, specifications, plans, addendum, amendments, etc., and the Contractor's Bid as accepted by the City.

City of Garibaldi, Oregon

Awarded on: _____, _____.

Michael Saindon, Manager, City of Garibaldi

1) PREPARATION OF BID:

- a) All bids shall be submitted on the forms provided in this Invitation to Bid package. It is permissible to copy these forms if required. Telegraphic (facsimile), electronic or mailgram bids will not be considered.
- b) The Bid and Contract Award document shall be submitted with an original ink signature by a person authorized to sign the Bid.
- c) Erasures, interlineations, or other modifications in the bid shall be initialed in original ink by the authorized person signing the Bid.
- d) If price is a consideration and in case of error in the extension of prices in the bid, the unit price shall govern. No bid shall be altered, amended, or withdrawn after the specified bid due date and time.
- e) Periods of time, stated as a number of days, shall be calendar days.
- f) Bid due date and time is stated as local Oregon time.
- g) The following items must be completed as part of the Bid submittal: Notice of Invitation for Bid (indicating Oregon Construction Contractors Board License Number), Bid Form, Bid Guaranty (Bond), Non-Collusion Affidavit, EPA forms 6100-3 and 6100-4 (appendix E), and Addenda. Within two (2) hours of the Bid submittal, or with the Bid submittal, the First Tier Subcontractor Disclosure Form must be submitted if the bid is greater than \$100,000.
- h) It is the responsibility of all Bidders to examine the entire *Invitation for Bid package* and seek clarification of any item or requirement that may not be clear and to check all responses for accuracy before submitting a bid. Negligence in preparing a Bid confers no right of withdrawal after bid due date and time.

2) INQUIRIES: Any question related to the *Invitation for Bid (IFB)* shall be directed to the City representative whose name appears as the Contact on the *IFB*. The Bidder shall not contact or ask questions of the department for which the requirement is being procured. Questions shall be submitted in writing only in writing via emailing the City Engineer at blake@ci.garibaldi.or.us. The Buyer may require any and all questions be submitted in writing at the Buyer's sole discretion. Any correspondence related to an *IFB* should refer to the appropriate *IFB* number, page, and paragraph number. All requests for additional information or interpretation of the *IFB* shall be submitted to the Buyer no later than five (5) calendar days before the deadline for submission of bids. If, in the opinion of the City, additional information or clarification is required, an addendum will be issued to all plan holders on record. Any addenda issued by the City seventy-two (72) hours or more before the scheduled closing time for filing bids shall be binding upon the Bidder. Owner will not mail notice of Addenda, but will publish notice of any Addenda on ORPIN's website. Addenda may be downloaded off ORPIN. Prospective bidders should frequently check the Owner's website until closing, (i.e., at least once weekly until the week of closing and at least once daily the week of closing). In all other ways, addenda shall be issued as set forth in OAR 137-049-0250. Bidders shall frequently check the ORPIN website until closing including at least daily the week of the closing. Failure of the Bidder to receive or obtain such addenda shall not excuse them from compliance therewith if they are awarded the contract. Oral instructions or information given by City Officers, employees or agents to Bidders concerning this *IFB* or the work in general shall not bind the City.

3) PROSPECTIVE BIDDERS CONFERENCE: A **mandatory** prospective bidder's conference will be held on **August 19, 2016 at 9:00 a.m.**, local time at Garibaldi City Hall. The purpose of this conference will be to clarify the contents of this *IFB* in order to prevent any misunderstanding of the Buyer position. Any doubt as to the requirements of this *IFB* or any apparent omission or discrepancy should be presented to the Buyer at this conference. The Buyer will then determine if any action is necessary and may issue a written addendum to the *IFB*. Statements made by the Contracting Agency's representatives at the conference are not binding upon the Contracting Agency unless confirmed by Written Addendum. ***Bids will only be accepted from those who are***

represented at the Prospective Bidders' Conference. Attendance at the Prospective Bidders' conference will be evidenced by the representative's signature on the attendance roster.

- 4) **LATE BIDS:** Late Bids received after the scheduled bid due date and time will be returned to the Bidder unopened.
- 5) **WITHDRAWAL OF BID:** At any time prior to the specified bid due date and time, a Bidder (or designated representative) may withdraw the bid.
- 6) **ADDENDUM OF BID:** Receipt of Addendum shall be acknowledged by signing and returning the document with the Bid at the specified bid due date and time.
- 7) **CONSTRUCTION CONTRACTORS REGISTRATION:** A person shall not submit a bid or proposal to work as a construction contractor unless that person is first registered with the Construction Contractors Board as required by ORS 701.021 or licensed by the State Landscape Contractor's Board as required by ORS 671.530. Bids from persons who fail to comply with this requirement shall be deemed non-responsive and be rejected.
- 8) **AWARD OF CONTRACT:**
 - a) Notwithstanding any other provision of this *IFB*, The Buyer expressly reserves the right to: waive any immaterial defect or informality, reject any bids that do not comply with the prescribed public contracting procedures (including the requirement to demonstrate the bidder's responsibility under ORS 279C.375 (3)(b)), reject all bids for good cause if in the public interest, or reissue an *IFB*.
 - b) A response to an *IFB* is a Bid to contract with the Buyer based upon the terms, conditions and specifications contained in the Buyer's *IFB* and the written addenda thereto, if any. Bids do not become contracts unless and until they are accepted and executed by the City Local Contract Review Board and the Garibaldi City Manager in accordance with the City of Garibaldi's Resolutions and Ordinances. A contract is formed when written notice of award(s) is provided to the successful Bidder(s). The contract has its inception in the award document, eliminating a formal signing of a separate contract. For that reason, all of the terms and conditions of the procurement contract are contained in the *IFB*: unless modified by an Addendum.
- 9) **NO PREQUALIFICATION:** No mandatory prequalification is required for this project.
- 10) **ASBESTOS ABATEMENT:** Contractors need not be licensed under ORS 468A.720 regarding asbestos abatement."

STANDARD TERMS AND CONDITIONS

THE FOLLOWING TERMS AND CONDITIONS ARE AN EXPLICIT PART OF THE SOLICITATION AND ANY RESULTANT CONTRACT.

1. **APPLICABLE LAW:** In the performance of this agreement, contractors shall abide by and conform to any and all laws of the United States, State of Oregon and City of Garibaldi including but not limited to federal and state executive orders providing for equal employment and procurement opportunities, the Federal Occupational Safety and Health Act and any other federal or state laws applicable to this agreement.

Attention is called to the requirements of Oregon Revised Statutes (O.R.S.) Chapter 279A, 279B, and 279C. This contract shall be governed by the laws of the State of Oregon. Any action or suits pertaining to this contract may be brought only in courts in the Circuit Court of Tillamook County or the U.S. District Court in Portland. Each and every provision of law and any clause required by law to be in the contract will be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party, the contract will forthwith be physically amended to make such insertion or correction.

The City may cancel this contract without penalty or further obligations by the City or any of its departments or agencies if any person significantly involved in initiating, negotiating, securing, drafting or creating the contract on behalf of the City or any of its departments or agencies, is at any time while the contract or any extension of the contract is in effect, an employee of any other party to the contract in any capacity or a consultant to any other party of the contract with respect to the subject matter of the contract.

2. **AMERICANS WITH DISABILITIES ACT, DISCRIMINATION & AFFIRMATIVE ACTION:** Bidders agree that if awarded a contract, the successful Bidder will comply with all applicable provisions of the Americans with Disabilities Act of 1990, 42 USC Section 12101 et seq. If any Bidder requires special assistance or auxiliary aids during the bidding process, please notify the City of Garibaldi, 503-322-3327 or fax 503-322-3737 at least two (2) business days prior to the required assistance. To the extent applicable, the Contractor represents that it will comply with Executive Order 11246 as amended, Executive Order 11141, Section 503 of the Vocational Rehabilitation Act of 1973 as amended and the Age Discrimination Act of 1975, and all rules and regulations issued pursuant to the Acts. It is the policy of the City of Garibaldi that suppliers of goods or services to the City adhere to a policy of equal employment opportunity and demonstrate an affirmative effort to recruit, hire, and promote regardless of race, color, religion, gender, national origin, age or disability. By submitting the first tier subcontractor disclosure form, Bidder certifies that it has complied with ORS 279A.110(1), which states that a bidder may not discriminate against a subcontractor in awarding a subcontract because the subcontractor is a minority, women or emerging business enterprise certified under ORS 200.055 or a business enterprise that is owned or controlled by, or that employs a disabled veteran.
3. **BUSINESS LICENSE:** A current business license is required before doing business with the City. Information related to complying with the business license requirements is available by contacting Garibaldi City Hall at 503-322-3327 or online at <http://www.ci.garibaldi.or.us/BusinessLicenseAppFY14-15.pdf>

4. CONSTRUCTION AND LANDSCAPE CONTRACTORS BOARDS: Construction contractors must be licensed with the State of Oregon Construction Contractors Board in accordance with O.R.S. 701.005 and any other specialty licensing as required in the bid specification prior to submitting a bid to the City. For information contact:

CONSTRUCTION CONTRACTORS BOARD

700 Summer St. NE, Suite #300, Salem, OR 97310
(503) 378-4621 (website) <http://www.ccb.state.or.us>

A Landscape Contractors Board license is required in accordance with O.R.S. 671.510 if the bid specification includes landscape work as defined by O.R.S. 671.510. For information contact:

LANDSCAPE CONTRACTORS BOARD

2111 Front St. NE, Suite #2-101, Salem, OR 97310
(503) 378-5909 (website) <http://www.oregon.gov/LCB/>

5. LEGAL REMEDIES: All claims and controversies shall be subject to resolution according to the terms of the City of Garibaldi Procurement Policy.
6. BID GUARANTY: All construction contracts shall be accompanied by a bid guaranty. No bid for construction will be considered unless accompanied by a certified check, cashier's check, or a bid bond for an amount not less than ten percent (10%) of the aggregate amount of the bid by a surety company authorized to issue such bonds in the State of Oregon. It shall be payable to the City of Garibaldi as a guaranty that the bid shall be irrevocable for a period of sixty (60) calendar days, unless otherwise specified, after the bid opening date and time and as liquidated damages should the Bidder fail or neglect to furnish the required performance bond and insurance and execute a contract within ten (10) calendar days after receiving said contract from the City for execution.

The City will hold all bid security during the evaluation process. As soon as is practical after the completion of the evaluation, the City will issue a contract award notice for those Bids accepted by the City and return all checks to those who have not been issued a contract award notice.

All bid security from contractors who have been issued an award notice shall be held until the successful execution of all required contractual documents and bonds (performance bond, insurance, etc.). If the contractor fails to execute the required contractual documents and bonds within the time specified, or ten (10) days after notice of award if no period is specified, the contractor may be found to be in default and the contract terminated by the City. In case of default, the City reserves all rights inclusive of, but not limited to, the right to purchase material and/or to complete the required work in accordance with the City of Garibaldi Procurement Policy and to recover any actual excess costs from the contractor. Collection against the bid security shall be one of the measures available toward the recovery of any excess costs.

7. CONFLICT OF INTEREST: A Bidder submitting a bid hereby certifies that no officer, agent or employee of the City who has a pecuniary interest in this bid has participated in the contract negotiations on the part of the City, that the bid is made in good faith without fraud, collusion, or connection of any kind with any other Bidder of the same Invitation for Bids, and that the Bidder is competing solely in its own behalf without connection with, or obligation to, any undisclosed person or firm. No bid will be considered unless accompanied by the notarized Non-Collusion Affidavit form included in the Invitation for Bid.

8. PRE-BID REQUIREMENTS: Before submitting a bid, each Bidder shall carefully examine the Drawings, read the Specifications and all Addenda and visit the work site, if applicable. Each Bidder shall fully inform themselves prior to submitting a bid as to all existing conditions and limitations under which the Work is to be performed, and shall include in the bid a sum to cover all costs of all items necessary to perform the Work as set forth in the Bid Documents. No allowance will be made to any Bidder because of lack of such examination or knowledge. Submission of a bid will be construed as conclusive evidence that the Bidder has made such examination.
9. LOCAL BUSINESS PREFERENCE: ORS 279A.120 requires that, in all public contracts, the public contracting agency shall prefer good or services that have been manufactured or produced in this State if price, fitness, availability and quality are otherwise equal. When a public contract is awarded to a nonresident bidder and the contract price exceeds \$10,000, the bidder shall promptly report to the Department of Revenue on forms provided by the department all information as required by ORS 279A.120(3).
10. COST OF BID/PROPOSAL PREPARATION: The City shall not reimburse the cost of developing, presenting, or providing any response to this solicitation. Bids submitted for consideration should be prepared simply and economically, providing adequate information in a straightforward and concise manner. The *IFB* does not commit the City to pay any costs incurred by a Bidder in the submission of their bid, or in making any necessary studies or designs for the preparation thereof.
11. CONTRACT: The contract between the City and the Contractor shall consist of (1) the Invitation for Bid, including instructions, all terms and conditions, specifications, scopes of work, attachments, price sheet(s), appendices A-E in this *IFB* and any amendments thereto, (2) the Bid submitted by the Contractor in response to the Invitation for Bid (*IFB*), (3) First-Tier Subcontractor Disclosure Form; (4) Oregon Prevailing Wage Rates; (5) Payment Bond; (6) Performance Bond; (7) Notice of Intent to Award; (8) Notice to Proceed; (9) Change Orders, if any; and (10) Certificates of Insurance. In the event of a conflict in language between the *IFB* and the Bid, the provisions and requirements in the *IFB* shall govern. However, the City reserves the right to clarify, in writing, any contractual terms with the concurrence of the Contractor, and such written contract shall govern in case of conflict with the applicable requirements stated in the *IFB* or the Vendor's Bid. The *IFB* shall govern in all other matters not affected by the written contract. The contract, if awarded, will be made to the lowest, responsive and responsible Bidder offering the lowest unit price base bid. Determination of the lowest responsive, responsible bid is subject to review by the City. Adversely affected or aggrieved bidders shall have seven calendar days after notice of award to submit to the City a written protest of the notice of award. Any written protest must be submitted in accordance with the adopted City Rules. Solicitation protests will be handled pursuant to OAR 137- 049-0260(3) and award protests will be handled pursuant to OAR 137- 049-0450(4).
12. CONTRACT AMENDMENTS: This contract may be modified only by a written Contract Amendment signed by persons duly authorized to enter into contracts on behalf of the City and the Contractor.
13. CONTRACT APPLICABILITY: The Bidder shall substantially conform to the terms, conditions, specifications and other requirements found within the text of this *IFB*. All previous agreements, contracts, or other documents, which have been executed between the Bidder and the City are not applicable to this *IFB* or any resultant contract.

14. DRUG TESTING PROGRAM: Pursuant to ORS 279C.505(2), the Contractor awarded the Contract shall demonstrate to Owner that an employee drug-testing program is in place within ten (10) days of receiving a Notice of Award. Submittal of a bid constitutes Contractor's certification that it has a drug testing program in place. The drug testing program shall apply to all employees and be maintained for the duration of the contract awarded. Failure to maintain such a program shall constitute a material breach of this contract.
15. RELATIONSHIP TO PARTIES: It is clearly understood that each party will act in its individual capacity and not as an agent, employee, partner, joint venture, or associate of the other. An employee or agent of one party shall not be deemed or construed to be the employee or agent of the other for any purpose whatsoever. The Contractor is advised that taxes or Social Security payments will not be withheld from any City payments issued hereunder and that the Contractor should make arrangements to directly pay such expenses, if any.
16. INTERPRETATION-PAROL EVIDENCE: This contract represents the entire agreement of the Parties with respect to its subject matter, and all previous agreements, whether oral or written, entered into prior to this contract are hereby revoked and superseded by this contract. No representations, warranties, inducements or oral agreements have been made by any of the Parties except as expressly set forth herein, or in any other contemporaneous written agreement executed for the purposes of carrying out the provisions of this contract. This contract may not be changed, modified or rescinded except as provided for herein, absent a written agreement signed by both Parties. Any attempt at oral modification of this contract shall be void and of no effect.
17. SUBCONTRACTS - ASSIGNMENT & DELEGATION: Contractor shall submit a list of Subcontractors for approval by the City, and Contractor shall be fully responsible for the acts or omissions of any Subcontractors and of all persons employed by them, and neither the approval by City of any Subcontractor nor anything contained herein shall be deemed to create any contractual relation between the Subcontractor and City.

This agreement, and all of the covenants and conditions hereof, shall inure to the benefit of and be binding upon the City and the Contractor respectively and their legal representatives. Contractor shall not assign any rights nor delegate any duties incurred by this contract, or any part hereof without the written consent of City, and any assignment or delegation in violation hereof shall be void.

18. APPROVAL OF SUBSTITUTIONS: The materials, products, and equipment described in the Documents and Addenda establish a standard or required function, dimension, appearance, and quality to be met by any proposed substitution. No substitute will be considered unless written request for approval has been received by the City or its representative at least five (5) days prior to the scheduled closing time for receipt of bids. Each such request shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitute including any drawings, cuts, performance, and test data and any other information necessary for evaluation of the substitute. If a substitute is approved, the approval shall be acknowledged in writing. Bidder shall not consider approvals made in any other manner.

19. RIGHTS AND REMEDIES: No provision in this document or in the vendor's Bid shall be construed, expressly or by implication, as waiver by the City of any existing or future right and/or remedy available by law in the event of any claim of default or breach of contract. The failure of the City to insist upon the strict performance of any term or condition of the contract or to exercise or delay the exercise of any right or remedy provided in the contract, or by law, or the City's acceptance of and payment for materials or services, shall not release the Contractor from any responsibilities or obligations imposed by this contract or by law, and shall not be deemed a waiver of any right of the City to insist upon the strict performance of the Contract.
20. INDEMNIFICATION: Contractor warrants that all its work will be performed in accordance with generally accepted professional practices and standards as well as the requirements of applicable federal, state and local laws, it being understood that acceptance of a contractor's work by City shall not operate as a waiver or release.

Contractor agrees to indemnify and defend the City, its officers, agents and employees and hold them harmless from any and all liability, causes of action, claims, losses, damages, judgments or other costs or expenses including attorney's fees and witness costs and (at both trial and appeal level, whether or not a trial or appeal ever takes place) that may be asserted by any person or entity which in any way arise from, during or in connection with the performance of the work described in this contract, except liability arising out of the sole negligence of the City and its employees. If any aspect of this indemnity shall be found to be illegal or invalid for any reason whatsoever, such illegality or invalidity shall not affect the validity of the remainder of this indemnification. The amount and type of insurance coverage requirements set forth herein will in no way be construed as limiting the scope of the indemnity in this paragraph.

21. EARLY TERMINATION: This agreement may be terminated without cause prior to the expiration of the agreed upon term by mutual written consent of the parties and for the following reasons:
- a. If work under the Contract is suspended by an order of a public agency for any reason considered to be in the public interest other than by a labor dispute or by reason of any third party judicial proceeding relating to the work other than a suit or action filed in regard to a labor dispute; or
 - b. If the circumstances or conditions are such that it is impracticable within a reasonable time to proceed with a substantial portion of the Contract.

Payment of Contractor shall be as provided by ORS 279C.660 and shall be prorated to and include the day of termination and shall be in full satisfaction of all claims by Contractor against City under this Contract. Termination under any provision of this paragraph shall not affect any right, obligation, or liability of Contractor or City which accrued prior to such termination.

22. CANCELLATION WITH CAUSE: City may terminate this Contract effective upon delivery of written notice to Contractor, or at such later date as may be established by City, under any of the following conditions:
- a. If City funding from federal, state, local, or other sources is not obtained or continued at levels sufficient to allow for the purchase of the indicated quantity of services. This Contract may be modified to accommodate a reduction in funds,

- b. If Federal or State regulations or guidelines are modified, changed, or interpreted in such a way that the services are no longer allowable or appropriate for purchase under this Contract,
- c. If any license or certificate required by law or regulation to be held by Contractor, its subcontractors, agents, and employees to provide the services required by this Contract is for any reason denied, revoked, or not renewed,
- d. If Contractor becomes insolvent , if voluntary or involuntary petition in bankruptcy is filed by or against Contractor, if a receiver or trustee is appointed for Contractor , or if there is an assignment for the benefit of creditors of Contractor, or
- e. If Contractor fails to maintain reasonable relations with the public. Verbal abuse, threats, or other inappropriate behavior towards members of the public constitutes grounds for termination.

Any such termination of this agreement under this section shall be without prejudice to any obligations or liabilities of either party already accrued prior to such termination.

City, by written notice of default (including breach of contract) to Contractor, may terminate the whole or any part of this Contract:

- f. If Contractor fails to provide services called for by this Contract within the time specified herein or any extension thereof, or
- g. If Contractor fails to perform any of the other provisions of this Contract, or so fails to pursue the work as to endanger performance of this Contract in accordance with its terms, and after receipt of written notice from City, fails to correct such failures within ten (10) days or such other period as City may authorize.

The rights and remedies of City provided in the above clause related to defaults (including breach of contract) by Contractor shall not be exclusive and are in addition to any other rights and remedies provided by law or under this Contract.

If City terminates this Contract per clause f or g above, Contractor shall be entitled to receive as full payment for all services satisfactorily rendered and expenses incurred, an amount which bears the same ratio to the total fees specified in this Contract as the services satisfactorily rendered by Contractor bear to the total services otherwise required to be performed for such total fee; provided, that there shall be deducted from such amount the amount of damages , if any, sustained by City due to breach of contract by Contractor. Damages for breach of contract shall be those allowed by Oregon law, reasonable and necessary attorney fees, and other costs of litigation at trial and upon appeal.

- 23. SEVERABILITY: In the event any provision or portion of this Contract is held to be unenforceable or invalid by any court of competent jurisdiction, the remainder of this Contract shall remain in full force and effect and shall in no way be affected or invalidated thereby.
- 24. FORCE MAJEURE: Neither City nor Contractor shall be considered in default because of any delays in completion of responsibilities hereunder due to causes beyond the control and without fault or negligence on the part of the party so disenabled , including, but not restricted to, an act of God or of a public enemy, volcano, earthquake, fire, flood, epidemic, quarantine, restriction, area-wide strike, freight embargo, unusually severe weather or delay of Subcontractor or suppliers due to such cause; provided that the party

so disabled shall within ten (10) days from the beginning of such delay, notify the other party in writing of the causes of delay and its probable extent. Such notification shall not be the basis for a claim for additional compensation. Each party shall, however, make all reasonable efforts to remove or eliminate such a cause of delay or default and shall, upon cessation of the cause, diligently pursue performance of its obligation under Contract.

25. **RIGHT TO ASSURANCE:** Whenever one party to this contract in good faith has reason to question the other party's intent to perform, he/she may demand that the other party give a written assurance of this intent to perform. In the event that a demand is made and no written assurance is given within five (5) days, the demanding party may treat this failure as an anticipatory repudiation of the Contract.
26. **RIGHT TO ACCESS RECORDS:** City shall have access to such books, documents, papers and records of Contractor and Subcontractors as are directly pertinent to this Contract for the purpose of making audit, examination, excerpts, and transcripts.
27. **WARRANTIES:** All work shall be guaranteed by the Contractor for a period of 18 months after the date of final acceptance of the work by the Owner. Contractor warrants that all practices and procedures, workmanship, and materials shall be the best available unless otherwise specified in the profession. Neither acceptance of the work nor payment therefore shall relieve Contractor from liability under warranties contained in or implied by this contract. Additional warranty requirements may be set forth in the solicitation.
28. **TITLE AND RISK OF LOSS:** The title and risk of loss of material and/or service shall not pass to the City until the City actually receives the material or service at the point of delivery, unless otherwise provided within this Contract.
29. **CONFLICT BETWEEN TERMS:** It is expressly agreed by and between the parties hereto that should there be any conflict between the terms of this instrument and the bid of the Contractor, this instrument shall control and nothing herein shall be considered as an acceptance of the said terms of said bid conflicting herewith.
30. **NONWAIVER:** The failure of the City to insist upon or enforce strict performance by Contractor of any of the terms of this contract or to exercise any rights hereunder shall not be construed as a waiver or relinquishment to any extent of its right to assert or rely upon such terms or rights on any future occasion.
31. **LIENS:** All materials, service or construction shall be free of all liens, and if the City requests, a formal release of all liens shall be delivered to the City.
32. **LICENSES:** Contractor shall have at the time of bid submittal, and shall maintain in current status, all Federal, State and Local licenses and permits required for the operation of the business conducted by the Contractor as applicable to this Contract. The conclusion of the issuing authority in each case is to be deemed conclusive for the purposes of complying with this provision. By submitting a bid for this public contract, you agree that, with respect to the contract, substantial compliance does not meet the minimum requirements of this or any provision hereof, or of any applicable law or other authority, and that strict

compliance alone is adequate to meet those requirements, unless the City consents to such substantial compliance in writing at the time of bid submittal. The determination shall be made by the City.

33. ATTORNEY'S FEES: In case suit or action is instituted to enforce the provisions of this contract, the parties agree that the losing party shall pay such sum as the Court may adjudge reasonable attorney's fees and court costs including attorney's fees and court costs on appeal.
34. PUBLIC RECORD: All Bids submitted in response to this solicitation shall become the property of the City and shall become a matter of public record available for review, subsequent to the award notification, in accordance with the City's Procurement Policy.
35. WORK IS PROPERTY OF THE CITY: All work performed by Contractor under this Contract shall be the property of the City upon acceptance by the City. The placing and furnishing of all Contract work by the CONTRACTOR, its subcontractors, if any, and by any person, firm or corporation, as labor or material or otherwise, shall be under the provisions of this Contract and with the express waiver of any right to claim against the CITY, or to make any claims or lien against the Contract works.
36. ADVERTISING: Contractor shall not advertise or publish information concerning this Contract, without prior written consent of the City.

GENERAL TERMS AND CONDITIONS

1. **DEFINITIONS:** The terms, as used in or pertaining to the contract, are defined as follows:

CITY: The word "City" shall refer to the City of Garibaldi, Oregon.

CONTRACTOR: The word "Contractor" is defined as the person, firm or corporation with whom the contract is made by the City.

CONTRACT: The word "Contract" will include; the Invitation For Bid Notice, Instructions to Bidders, Bid Form, Bid Guaranty, Performance Bond , Payment Bond, Notice of Award, Notice to Proceed, Change Order, Certificate of Insurance, Certificate of Completion, Contractor's Affidavit Regarding Settlement of Claims, Contractor's Affidavit Certifying Non- Collusion in Bidding, Standard Terms & Conditions, General Terms & Conditions, Special Terms & Conditions, Technical Provisions , Plans and Addenda thereto .

ENGINEER: The word "Engineer" is defined as the person , firm or corporation duly authorized by the City to act as agent in providing professional services including studies, planning, engineering design and construction administration services, inspecting materials and construction, and interpreting plans and specifications.

MATERIALS: The word "Materials" will include, in addition to materials incorporated in the project, equipment and other material used and/or consumed in the performance of the work.

SUBCONTRACTOR: The word "Subcontractor" is defined as those persons or groups of persons having a direct contract with the contractor and those who furnish material worked to a special design according to the plans and/or specifications for this work, and includes those who merely furnish materials not so worked.

WORK: The word "Work" shall include all labor necessary to accomplish the construction required by the Contract and all materials and equipment incorporated or to be incorporated in said construction.

2. **REFERENCE STANDARDS:**

- a. The "2015 Oregon Standard Specifications for Construction" and the latest edition of the "Oregon Standard Drawings and Standard Details" which are sponsored and distributed by the Oregon Department of Transportation (ODOT), and which are hereinafter referred to as the "ODOT Specifications, " are hereby adopted as part of these contract documents.
- b. If any contradiction exists between "ODOT Specifications" and this solicitation document, the solicitation language shall prevail.

3. **LAWS AND REGULATIONS:** The Contractor shall keep himself fully informed of all existing and future City and County ordinances and regulations and state and federal laws and Occupational Safety and Health Standards (OSHA) in any manner affecting the work herein specified. He/she shall at all times observe and protect and indemnify the City of Garibaldi, Oregon, and its officers and agents against any claim or liability arising from or based on the violation of any such ordinances, regulations or laws. It is the responsibility of the Contractor to obtain any and all information regarding the laws and regulations which may be referenced in the Specifications.
4. **RIGHTS OF WAY:** The City will provide Rights-of-Way and easements for all work specified in this contract, and the Contractor shall not enter or occupy with men, tools, equipment or materials any private ground outside the property of the City of Garibaldi, without the consent of the owner.

The Contractor, at his/her own expense, is responsible for the acquisition of any additional easements or rights-of-way that he/she may desire to complete the work of this contract.

5. PROPOSAL QUANTITIES: It is expressly understood and agreed by the parties hereto that the quantities of the various classes of work to be done and the material to be furnished under this Contract, which have been estimated as stated in the Bids, are only approximate and are to be used solely for the purpose of comparing, on a consistent basis, the bids for the work under this Contract. The Contractor further agrees that the City of Garibaldi will not be held responsible if any of the quantities shall be found incorrect; and the Contractor will not make any claim for damages or for loss of profits because of a difference between the quantities of the various classes of work as estimated and the work actually done. If any error, omission, or misstatement is found to occur in the estimated quantities, the same shall not invalidate this Contract or the whole or any part of the work in accordance with the Specifications and Plans herein mentioned, and for the prices herein agreed upon and fixed therefore, or excuse him from any of the obligations or liabilities hereunder, or entitle him to any damage or compensation except as may be provided in this contract.
6. PREVAILING WAGE RATE DETERMINATION: The Contractor shall pay the applicable prevailing wage rates that are in effect at the time the Contract is bid. If the contract price exceeds \$50,000 and is not otherwise exempt, workers shall be paid not less than the specified minimum hourly rate of wage in accordance with ORS 279C.838 and ORS 279C.840. Hard copies of the prevailing wage rates publication may be obtained by contacting the Oregon Bureau of Labor and Industries via telephone at: (971) 673-0839. The applicable prevailing wage rates may be accessed via the internet at: https://www.oregon.gov/boli/WHD/PWR/Pages/PWR_Rate_Publications_2016.aspx
7. This Project is subject to the Davis-Bacon Act. If the state prevailing rate of wage is higher than the federal prevailing rate of wage, the contractor and every subcontractor on the Project shall pay at least the state prevailing rate of wage as determined under ORS 279C.815.

The Contractor and all subcontractors must have a public works bond filed with the Oregon Construction Contractors Board before starting work on the Project, unless exempt under ORS 279C.836(4), (7), (8) or (9). If the contractor fails to pay for labor or services, the City can pay and withhold these amounts from payments due the contractor in accordance with ORS 279C.515. Daily, weekly, weekend, and holiday overtime will be paid as required in ORS 279C.540. The Contractor shall provide workers with a written schedule showing the number of hours per day and days per week the employee may be required to work in accordance with ORS 279C.520. Contractor must promptly pay for any medical services they have agreed to pay per ORS 279C.530.

Unless exempt under ORS 279C.836(4), (7), (8) or (9), before starting work on this contract, or any subcontract hereunder, contractor and all subcontractors must have on file with the Construction Contractors Board a public works bond with a corporate surety authorized to do business in the state of Oregon in the amount of \$30,000. The bond must provide that the contractor or subcontractor will pay claims ordered by the Bureau of Labor and Industries to workers performing labor upon public works projects. The bond must be a continuing obligation, and the surety's liability for the aggregate of claims

that may be payable from the bond may not exceed the penal sum of the bond. The bond must remain in effect continuously until depleted by claims paid under ORS 279C.836(2), unless the surety sooner cancels the bond. The surety may cancel the bond by giving 30 days' written notice to the contractor or subcontractor, to the board and to the Bureau of Labor and Industries. When the bond is canceled, the surety is relieved of further liability for work performed on contracts entered into after the cancellation. The cancellation does not limit the surety's liability for work performed on contracts entered into before the cancellation. Contractor further certifies that contractor will include in every subcontract or provision requiring a subcontractor to have a public works bond filed with the Construction Contractors Board before starting work on the project, unless exempt under ORS 279C.836(4), (7), (8), or (9).

(a) Unless exempt under ORS 279C.836(4), (7), (8), or (9), before permitting a subcontractor to start work on this public works project, the contractor shall verify that the subcontractor has filed a public works bond as required under this section or has elected not to file a public works bond under ORS 279C.836(7).

(b) Unless public contracting agency has been notified of any applicable exemptions under ORS 279C.836(4), (7), (8), or (9), the public works bond requirement above is in addition to any other bond contractors or subcontractors may be required to obtain under this contract.

Pursuant to ORS 279C.515, if the Contractor or a first-tier Subcontractor fails, neglects, or refuses to make payment to a person furnishing labor or materials in connection with the public contract for a public improvement within 30 days after receipt of payment from the Contracting Agency or contractor, the contractor or first-tier subcontractor shall owe the person the amount due plus interest charges commencing at the end of the 10 day period that payment is due under ORS 279C.580(4) and ending upon final payment, unless payment is subject to a good faith dispute as defined in ORS 279C.580. The rate of interest charged to Contractor or first-tier Subcontractor on the amount due shall equal three times the discount rate on 90-day commercial paper in effect at the Federal Reserve Bank in the Federal Reserve District that includes Oregon on the date that is 30 days after the date when payment was received from the public contracting agency or from the Contractor, but the rate of interest shall not exceed 30%. The amount of interest may not be waived.

The City will not receive or consider a bid unless the bid contains a statement by the bidder that the bidder will comply with ORS 279C.838, ORS 279C.840, or 40 U.S.C. 3141. By signing and submitting the Bid, the Contractor agrees to comply with ORS 279C.838 or 279C.840 and/or 40 U.S.C. 3141 et seq. for a public works project subject to the state prevailing wage rates under ORS 279C.800 to 279C.870, the federal prevailing wage rates under the Davis-Bacon Act (40 U.S.C. 3141 et seq.) or both. For contracts \$50,000 or greater, the City shall pay a fee to the Bureau of Labor and Industries and shall be mailed or otherwise delivered to the Bureau in accordance with Fom1WH-347 & WH-348.

8. PAYMENTS TO CONTRACTOR: City agrees to pay Contractor for performance of those services provided hereunder, which payment shall be based upon the following applicable terms:

a. Payment: Payment shall be based upon the unit prices bid by the Contractor, as listed in Contractor's bid. Contractor shall prepare and submit each month to the City at the address listed in the Invitation For Bid, a partial payment request with data supporting the work performed (indicating the

description of labor and materials provided and the dollar amount associated with each, through the date of the request), together with verification by the Contractor's Representative. City's Representative will, within ten (10) days after receipt of each partial payment request, either indicate in writing approval of payment and present the partial payment request to City, or return the partial payment request to Contractor indicating in writing the Representative's reasons for refusing to approve the partial payment request. In the latter case, Contractor may make the necessary corrections and resubmit the partial payment request.

Payment by the City shall release the City from any further obligation for payment to Contractor for services performed or expenses incurred as of the date of the statement of services. Payment of installments shall not be considered acceptance or approval of any work or waiver of any defects therein. Contractor shall include proof of payment to any and all subcontractors and suppliers with each statement submitted to the City. The City shall retain the right to withhold payments if required proof of payment to subcontractor and suppliers is not included with a statement.

b. Timing of Payments: Progress payments, less a five percent retainage as authorized by ORS 279C.555, shall be made to Contractor within twenty (20) days after City receives its Representative's approval of Contractor's partial payment request.

c. Final Payment: The Contractor shall notify the City in writing when the Contractor considers the project complete, and the City shall, within 15 days after receiving the written notice, either accept the work or notify the Contractor of work yet to be performed on the contract. If accepted by the City, the remaining balance due to the Contractor, including the retained percentage, shall be paid to the Contractor by the City within 30 days after the date of said acceptance.

The City shall pay to the Contractor interest at the rate of one and one-half percent per month on the final payment due the Contractor, to commence 30 days after the work under the Contract has been completed and accepted and to run until the date when final payment is tendered to the Contractor. If the City does not, within 15 days after receiving written notice of completion, notify the Contractor of work yet to be performed to fulfill contractual obligations, the interest provided by this subsection shall commence to run 30 days after the end of the 15-day period.

As a further condition of final acceptance, the City may require the Contractor to submit evidence, satisfactory to the City's Representative, that all payrolls, material bills, and other indebtedness connected with the project have been paid. If any indebtedness or liens are in dispute, the Contractor may submit a surety bond satisfactory to the City guaranteeing payment of all such disputed amounts if such payment has not already been guaranteed by surety bond.

All notices, bills and payments shall be made in writing and may be given by personal delivery or by mail. Notices, bills and payments sent by mail should be addressed to the attention of the Buyer and/or Authorized Bidder at the addresses identified in the Invitation For Bid and shall be deemed given upon deposit in the United States mail, postage paid. In all other instances, notices, bills and payments shall be deemed given at the time of actual delivery. Changes may be made in the names and addresses of the person to whom notices, bills, and payments are to be given by giving written notice pursuant to this paragraph.

9. LIQUIDATED DAMAGES: The Contractor agrees that the "Time of Completion" is defined in the Bid and agrees to complete the work by said dates. The Contractor and City agree that the City will suffer respective damages each day the work remains uncompleted after each Time of Completions and that the amounts of those damages are difficult to calculate. Contractor and City agree that a reasonable amount of damages for late completion is \$500 per calendar day and Contractor agrees to pay such amounts as liquidated damages if the work is not completed by Time of Completion. Contractor agrees that the liquidated damages specified herein are a fair way of ascertaining damages to the City and are not a penalty for late completion.
10. STATUS OF CONTRACTOR AS INDEPENDENT CONTRACTOR: Contractor certifies that:
- a. Contractor acknowledges that for all purposes related to this Agreement, Contractor is and shall be deemed to be an Independent Contractor as defined by ORS 670.600 and not an employee of City, shall not be entitled to benefits of any kind to which an employee of City is entitled and shall be solely responsible for all payments and taxes required by law. Furthermore, in the event that Contractor is found by a court of law or any administrative agency to be an employee of City for any purpose, City shall be entitled to offset compensation due, or to demand repayment of any amounts paid to Contractor under the terms of this Agreement, to the full extent of any benefits or other remuneration Contractor receives (from City or third party) as a result of said finding and to the full extent of any payments that City is required to make (to Contractor or to a third party) as a result of said finding.
 - b. The Contractor hereby represents that no employee of the City, or any partnership or corporation in which a City employee has an interest, has or will receive any remuneration of any description from Contractor, either directly or indirectly, in connection with the letting or performance of this Agreement, except as specifically declared in writing.
 - c. If payment is to be charged against Federal funds, Contractor certifies that he/she or she is not currently employed by the Federal Government and the amount charged does not exceed his/her normal charge for the type of service provided.
 - d. Contractor and its employees, if any, are not active members of the Oregon Public Employees Retirement System and are not employed for a total of 600 hours or more in the calendar year by any public employer participating in the Retirement System
 - e. Contractor certifies that it currently has a City business license or will obtain one prior to delivering services under this Agreement.
 - f. Contractor is not an officer, employee, or agent of the City as those terms are used in ORS 30.265.
11. CERTIFIED PAYROLL: The Contractor shall make payment promptly, as due, to all persons supplying to such Contractor labor or material for the performance of the work provided for in this contract. The Contractor will pay all contributions or amounts due the Industrial Accident Fund under the Worker's Compensation Law from such Contractor or Subcontractor incurred in the performance of this contract. The Contractor will pay to the Department of Revenue all sums withheld from employees pursuant to ORS 316.167. The

Contractor shall not permit any lien or claim to be filed or prosecuted against the City of Garibaldi on account of any labor or material furnished.

The Contractor or the Contractor's Surety and every Subcontractor or the Subcontractor's Surety shall file certified statements with the City in writing on a form prescribed by the Commissioner of the Bureau of Labor and Industries, certifying the hourly rate of wage paid each worker which the Contractor or the Subcontractor has employed upon such public work, and further certifying that no worker employed upon such public work has been paid less than the prevailing rate of wage or less than the minimum hourly rate of wage specified in the contract, which certificate and statement shall be verified by the oath of the Contractor or the Contractor's Surety or Subcontractor or the Subcontractor's Surety that the Contractor or Subcontractor has read such statement and certificate and knows the contents thereof and that the same is true to the Contractor's or Subcontractor's knowledge.

- a. The certified statements shall set out accurately and completely the payroll records, including the name and address of each worker, the worker's correct classification, rate of pay, daily and weekly number of hours worked, and the gross wages the worker earned during each week identified in the certified statement.
- b. Each certified statement required herein shall be delivered or mailed by the Contractor or Subcontractor to the City. A true copy of the certified statements shall also be filed at the same time with the Commissioner of the Bureau of Labor and Industries. Certified statements shall be submitted as set forth in ORS 279C.845.
- c. The City shall retain 25 percent of any amount earned by Contractor until the certified statements as required by this section have been filed. City shall pay Contractor the amount retained under this subsection within 14 days after Contractor files the certified statements as required by this section, regardless of whether a subcontractor has failed to file certified statements as required by this section. City is not required to verify the truth of the contents of certified statements filed by Contractor.

The Contractor agrees that if the Contractor fails, neglects or refuses to make prompt payment of any claim for labor or services furnished to the Contractor or a Subcontractor by any person in connection with this contract as such claim becomes due, the proper office of the City of Garibaldi may pay such claim to the person furnishing the labor or services and charge the amount of the payment against funds due or to become due to the Contractor by reason of such contract. Payment of a claim in this manner shall not relieve the Contractor or the Contractor's Surety from obligation with respect to any unpaid claims.

Contractor agrees that no person shall be employed for more than ten (10) hours in any one day, or forty (40) hours in any one week, except in cases of necessity, emergency or when public policy absolutely requires it, and in such cases the laborer shall be paid at least time and a half pay for all overtime in excess of eight (8) hours in any one day or forty (40) hours in any one week when the workweek is five consecutive days, Monday through Friday, or ten (10) hours in any one day and or forty (40) hours in any one week when the workweek is four consecutive days, Monday through Friday and for all work performed on Saturday and on any legal holiday as specified in ORS 279C.540.

Contractor agrees to pay promptly as due, to any person, co partnership, association or corporation furnishing medical, surgical, and hospital care or other needed care and attention incident to sickness or

injury to the Contractor's employees, of all sums which the Contractor agreed to pay for such services and all money and sums which the Contractor collected or deducted from employee wages pursuant to any law, contract or agreement for the purpose of providing or paying for such service.

Contractor shall employ no person for more than 10 hours in any one day, or 40 hours in any one week, except in cases of necessity, emergency, or where public policy absolutely requires it, and in such cases, except in cases of contracts for personal services designated under ORS 279A.055, Contractor shall pay the employee at least time and one-half pay for all overtime in excess of eight (8) hours a day or forty (40) hours in any one week when the work is five (5) consecutive days, Monday through Friday; or for all overtime in excess of 10 hours a day or 40 hours in any one week when the work week is 4 consecutive days, Monday through Friday; and for all work performed on Saturday and on any legal holidays as specified in ORS 279C.540.

Pursuant to ORS 279C.540(2), the Contractor must give notice to employees who work on this contract in writing, either at the time of hire or before commencement of work on the contract, or by posting a notice in a location frequented by employees, of the number of hours per day and the days per week that the employees may be required to work.

The provisions of ORS 279C.800 to ORS 279C.870 relating to the prevailing wage rates will be complied with. The hourly rate of wage to be paid by Contractor or any Subcontractor to workers in each trade or occupation required for the public works employed in the performance of this Contract shall not be less than the specified minimum rate of wage in accordance with ORS 279C.838 and ORS 279C.840.

(a) The latest prevailing wage rates for public works contracts in Oregon are contained in the following publications: The January 2016 Prevailing Wage Rates for Public Works Projects in Oregon, including the April 2016 Amendments. Such publications can be reviewed electronically at:

http://www.oregon.gov/boli/WHD/PWR/Pages/PWR_Oregon_2016.aspx

and are hereby incorporated as part of the contract documents

(b) Contractor and all Subcontractors shall keep the prevailing wage rates for this Project posted in a conspicuous and accessible place in or about the Project.

(c) The Owner shall pay a fee to the Commissioner of the Oregon Bureau of Labor and Industries as provided in ORS 279C.825. The fee shall be paid to the Commissioner as required by the administrative rules adopted by the Commissioner.

(d) If Contractor or any Subcontractor also provides for or contributes to a health and welfare plan or a pension plan, or both, for its employees on the Project, it shall post notice describing such plans in a conspicuous and accessible place in or about the Project. The notice shall contain information on how and where to make claims and where to obtain future information.

12. PRE-CONSTRUCTION CONFERENCE: Within 30 days of the issuance of the Notice of Award, the Contractor is required to attend a Pre-construction Conference. The City will contact the Contractor to schedule a specific date, time and location for the Pre-construction conference. The purpose of the meeting is to outline specific construction items and procedures and to address items which require special attention on the part of the Contractor. The Contractor may also present proposed variations in procedures which the Contractor believes may improve constructability of the project, reduce cost, or will reduce inconvenience to the public. Any necessary coordination and procedures for Construction inspection and staking will be addressed during the Pre-construction Conference. The Contractor will be required to provide the following information at the Pre-construction Conference:

- a. Names and emergency telephone numbers of key personnel involved in the project.
- b. Names and telephone numbers of all subcontractors proposed for use on the project.
- c. A construction progress schedule showing the estimated time for start and completion of the major items of work.
- d. A written proposal outlining the intended plans for maintaining continuous access to residences and businesses along the construction site, and traffic control.
- e. An itemized list of all required shop drawings, material and equipment submittals and a schedule indicating the dates each of these items will be transmitted to the City for review.

Each of the above items is subject to the review and approval by the City.

13. INSURANCE REQUIREMENTS: The Contractor, at Contractor's own expense, shall purchase and maintain the herein stipulated minimum insurance with companies licensed to do business in the State of Oregon with policies and forms satisfactory to the City. The City reserves the right to reject all or any insurance carrier(s) with an unacceptable financial rating. All insurance required herein shall be maintained in full force and effect until all work required to be performed under the terms of the Contract is satisfactorily completed and formally accepted; failure to do so may, at the sole direction of the City, constitute a material breach of this Contract. The Contractor's insurance shall be primary insurance, and any insurance or self insurance maintained by the City shall not contribute to it.

Any failure to comply with the claim reporting provisions of the policies or any breach of an insurance policy warranty shall not affect coverage afforded under the policy to protect the City. The insurance policies shall contain a waiver of transfer rights of recovery (subrogation) against the City, its agents, representatives, directors, officers, and employees for any claims arising out of the Contractor's work or service.

The City reserves the right to request and to receive, within 10 working days, certified copies of any or all of the herein required insurance policies and/or endorsements. The City shall not be obligated, however, to review same or to advise Contractor of any deficiencies in such policies and endorsements, and such receipt shall not relieve Contractor from, or be deemed a waiver of the City's right to insist on, strict fulfillment of Contractor's obligations under this Contract.

The insurance policies required by this Contract shall name the City, its agents, representatives, officers, directors, officials and employees as Additional Insured with respect to this contract. All Liability Insurance

policies will be endorsed to show this additional coverage. A cross-liability clause or separation of insured clause will be included in general liability policy.

The policy or policies of insurance maintained by the Contractor and its subcontractors shall provide at least the following limits and coverage:

- a. Commercial General Liability Insurance: Includes all liability including all major divisions of coverage, but not limited to, Premises/Operations, Completed Operations, Independent Contractors' Protective, Products-Completed Operations, Contractual Liability (including coverage for the Contractor's indemnity obligations and other contractual indemnity obligations assumed by the Contractor), Personal Injury, and Broad Form Property Damage (including coverage for Explosion, Collapse, and Underground Hazards). The following insurance will be carried:

- Employer's Liability Insurance
 - \$ 2,000,000.00 Each Occurrence
 - \$ 2,000,000.00 Disease Each Employee
 - \$ 2,000,000.00 Disease - Policy

- Commercial General Liability insurance
 - \$ 2,000,000.00 Each Occurrence Limit
 - \$ 3,000,000.00 General Aggregate
 - \$ 3,000,000.00 Products/Completed Operations Aggregate
 - \$ 3,000,000.00 Personal and Advertising Injury
 - \$ 2,000,000.00 Limited Job Site Pollution Occurrence Sub-Limit

- Comprehensive Automobile Liability Insurance including coverage for all owned, hired and non-owned vehicles

- \$ 2,000,000.00 Each Occurrence Combined Single Limit
 - \$ 3,000,000.00 Aggregate Bodily Injury & Property Damage

or

- \$ 2,000,000.00 Each Person Bodily Injury
 - \$ 2,000,000.00 Each Occurrence Bodily Injury
 - \$ 2,000,000.00 Each Occurrence Property Damage
 - \$ 2,000,000.00 Each Occurrence Pollution Occurrence Sub-Limit

- b. "All risk" Builder's Risk Insurance (including earthquake and flood) covering the real and personal property of others in the care, custody, and control of the contractor, if applicable. Coverage shall include theft and damage to building interiors, exterior, in transit and offsite storage. The minimum amount of coverage to be carried shall be equal to the full amount of the contract.

The policy shall be endorsed to have the General Aggregate apply to this Project Only.

The insurance policies may provide coverage which contains deductibles or self-insured retentions. Such deductible and/or self-insured retentions shall not be applicable with respect to the coverage provided to the City under such policies. The Contractor shall be solely responsible for deductible

and/or self-insured retention and the City, at its option, may require the Contractor to secure the payment of such deductible or self-insured retentions by a surety bond or an irrevocable and unconditional letter of credit.

Certificates of Insurance: Prior to commencing Services under this Contract, Contractor shall furnish the City with Certificates of Insurance, or formal endorsements as required by the Contract, issued by Contractor's insurer(s), as evidence that policies providing the required coverage, conditions and limits required by this Contract are in full force and effect. Certificates of Insurance should read "Insurance certificate pertaining to (this contract). The City of Garibaldi, its officers, directors and employees shall be added as additional insured with respects to this contract. Insured coverage is primary in the description portion of the certificate.

If a policy does expire during the life of the contract, a renewal certificate must be sent to the City ten (10) days prior to the expiration date. Insurance required herein shall not expire, be canceled, or materially changed without thirty (30) days prior written notice to the City. The procuring of such required insurance shall not be construed to limit contractor's liability hereunder. Notwithstanding said insurance, Contractor shall be obligated for the total amount of any damage, injury, or loss caused by negligence or neglect connected with this Contract.

14. PERFORMANCE BOND: The contractor shall be required to furnish non-revocable security binding the contractor to provide faithful performance of the contract in the amount of 100% of the total contract price payable to the City of Garibaldi.

Performance security shall be in the form of a performance bond, certified check or cashier's check. This security must be in the possession of the City within the time specified or ten (10) days after notice of award if no period is specified. If the contractor fails to execute the security document as required, the contractor may be found in default and the contract terminated by the City. In case of default the City reserves all rights.

All performance bonds shall be executed on the Performance Bond form included in the Bid Document, duly executed by the Bidder as Principal and having as Surety thereon a Surety company approved by the owner and holding a Certificate of Authority to transact surety business in the State of Oregon, by the Oregon Department of Insurance. Individual sureties are unacceptable. All Insurers and Sureties shall have at the time of submission of the proposal an A.M. Best's Key Rating Guide of "A-" or better as currently listed in the most recent Best Key Guide, published by the A.M. Best Company, payable without condition to the Owner.

15. PAYMENT BOND: The contractor shall be required to furnish non-revocable security for the protection of all persons supplying labor and material to the contractor or any subcontractor for the performance of any work related to the contract. Payment security shall be in the amount of 100% of the total contract price and be payable to the City of Garibaldi. Payment security shall be in the form of a payment bond, certified check or cashier's check.

All payment bonds shall be executed on the Payment Bond form included in the Bid Document, duly executed by the Bidder as Principal and having as Surety thereon a Surety company approved by the owner

and holding a Certificate of Authority to transact surety business in the State of Oregon, by the Oregon Department of Insurance. Individual sureties are unacceptable. All Insurers and Sureties shall have at the time of submission of the proposal and A.M. Best's Key Rating Guide of "A-" or better as currently listed in the most recent Best Key Guide, published by the A.M. Best Company, payable without condition to the Owner.

16. NOTICE TO PROCEED: Within 45 days of the issuance of the Notice of Award the City may issue a written Notice to Proceed. The Notice to Proceed shall stipulate the actual contract start date, the contract duration and the contract completion date. The time required for the Contractor to obtain permits, licenses and easements shall be included in the contract duration and shall not be justification for a delay claim by the Contractor. The time required for the Contractor to prepare, transmit and obtain approval of applicable submittals shall be included in the contract duration and shall not be justification for a delay claim by the Contractor.

No work shall be started until after all required permits, licenses, and easements have been obtained.

No work shall be started until all applicable submittals have been submitted and returned approved by the City's Representative.

17. PROTECTION OF FINISHED OR PARTIALLY FINISHED WORK: The Contractor shall properly guard and protect all finished or partially finished work, and shall be responsible for the same until the entire contract is completed and accepted by the City Engineer. The Contractor shall turn over the entire work in full accordance with these Specifications before final settlement shall be made.
18. CHANGE ORDERS: The City may at any time, and without notice, issue a written Change Order requiring additional work within the general scope of this Contract, or any amendment thereto, or directing the omission of or variation in work. If such Change Order results in a material change in the amount or character of the work, an equitable adjustment in the Contract price and other provisions of this Contract as may be affected may be made. Any claim by Contractor for an adjustment under this section shall be asserted in writing within thirty (30) days from the date of receipt by Contractor of the notification of change or the claim will not be allowed. Whether made pursuant to this section or by mutual agreement, no change shall be binding upon City until a Change Order is executed by the Authorized Representative of City, which expressly states that it constitutes a Change Order to this Contract. The issuance of information, advice, approvals, or instructions by City's Representative or other City personnel shall not constitute an authorized change pursuant to this section. Nothing contained in this section shall excuse the Contractor from proceeding with the prosecution of the work in accordance with the Contract, as changed.
19. STOCKPILE OF MATERIALS: The Contractor may, if approved by the City Engineer, place or stockpile materials in the public right-of-way provided they do not prevent access to adjacent properties or prevent compliance with traffic regulations. Traffic shall not be required to travel over stockpiled materials, and proper dust control shall be maintained.
20. EXCESS MATERIALS: When excavations are made, resultant loose earth shall be disposed of off the site. Excess or unsuitable material, broken asphaltic concrete and broken portland cement concrete excavated from the right-of-way shall be removed from the project and disposed of by the Contractor.

Waste material shall not be placed on private property without express permission of the property owner and the City. Contractor shall provide City copies of such written permissions.

The Contractor shall at all times keep the premises free from accumulation of waste materials or rubbish caused by his/her operations. At the completion of the work, he/she shall remove all equipment, tools and surplus materials, and shall completely clean the premises, removing and disposing of all debris and rubbish, and cleaning all stains, spots, marks, dirt, smears, etc. When work premises are turned over to the City, they shall be thoroughly clean and ready for immediate use.

Clean-up shall include removal of all excess materials and removal of oversized rocks and boulders left after finish grading. All disturbed surfacing shall be left with a surface bearing $\frac{3}{4}$ " minus crushed rock or asphaltic concrete as per the Drawings. The Contractor shall provide for the legal disposal of all waste products debris, etc., and shall make necessary arrangements for such disposal.

21. ENVIRONMENTAL POLLUTION: As provided by ORS 279C.525, all applicable provisions of federal, state or local statutes, ordinances and regulations dealing with the prevention of environmental pollution and the preservation of natural resources that affect the work under this contract are by reference incorporated herein to the same force and effect as if set forth herein in full. If the Contractor must undertake additional work due to the enactment of new or the amendment of existing statutes, ordinances or regulations occurring after the submission of the successful bid, the City shall issue a Change Order setting forth the additional work that must be undertaken. The Change Order shall not invalidate the Contract and there shall be, in addition to a reasonable extension, if necessary, of the contract time, a reasonable adjustment in the contract price, if necessary, to compensate the Contractor for all costs and expenses incurred, including overhead and profits, as a result of the delay or additional work.
22. SALVAGE, COMPOSTING OR MULCHING: If this is a contract for demolition work, the Contractor shall salvage or recycle construction and demolition debris, if feasible and cost-effective. If this is a contract for lawn and landscape maintenance, Contractor shall compost or mulch yard waste material at an approved site, if feasible and cost-effective.
23. LOSSES AND DAMAGES: All loss or damage arising out of the nature of the work to be done or from the action of the elements or from any unforeseen circumstances in the prosecution of the same, or from any unusual obstructions or difficulties which may be encountered in and/or during the prosecution of the work, or from any casualty whatsoever of every description, shall be sustained and borne by the Contractor at his/her own cost and expense.
24. CHARACTER AND STATUS OF WORKMEN: Only skilled foremen and workmen shall be employed on work requiring special qualifications. When required by the City, the Contractor shall remove from the Project site any person who is, in the opinion of the City Engineer, disorderly, dangerous, insubordinate, incompetent, or otherwise objectionable to City, in City's sole discretion. The Contractor shall keep the City harmless from damages or claims for compensation that may occur in the enforcement of this section.

25. WORK METHODS: The methods, equipment and appliances used on the work shall be such as will produce a satisfactory quality of work, and shall be adequate to complete the contract within the time limit specified.

Except as is otherwise specified, the Contractor's procedure and methods of construction may, in general, be of his/her own choosing, provided they follow best general practice and are calculated to secure results which will satisfy the requirements of the specifications and the supervision of the work.

The work covered by this Contract shall be carefully laid out in advance and performed in a manner to minimize interference with normal operation and utilization of the roads and railroad. The Contractor shall exercise caution during the course of this construction work to avoid damage to all known existing or possible unknown existing underground utilities. He/she shall conduct his/her construction operations in such a manner as to avoid injury to his/her personnel and to avoid damage to all utilities. Any damage done will be repaired without delay and at the expense of the Contractor.

26. INSPECTION: All material and/or services are subject to inspection and acceptance by the City. Materials and/or services failing to conform to the specifications of this Contract will be held at Contractor's risk and may be returned to the Contractor. If so returned, all costs are the responsibility of the Contractor. The City may elect to do any or all of the following per written determination:

- a. Waive the non-conformance.
- b. Stop the work immediately.
- c. Bring material into compliance.

27. TRAFFIC REGULATIONS: All traffic affected by this construction shall be regulated in accordance with the Oregon Temporary Traffic Control Handbook, latest edition, as prepared by the Oregon Department of Transportation.

At the time of the pre-construction conference, the Contractor shall designate an employee who is well qualified and experienced in construction traffic control and safety and has the Railroad General Safety course to be responsible for implementing, monitoring and altering traffic control measure, as necessary. At the same time the City will designate a representative who will be responsible to see that all traffic control and any alterations are implemented and monitored to the extent that traffic is carried through the work area in an effective manner and that motorists, rail cars, pedestrians, bicyclists and workers are protected from hazard and accidents.

- a. All traffic control devices required for this project shall be the responsibility of the Contractor. The Contractor shall place advance warnings signs in accordance with the Traffic Control Handbook.
- b. The Contractor shall provide, erect and maintain all necessary flashing arrow boards, barricades, suitable and sufficient warning lights, signals and signs, and shall take all necessary precautions for the protection of the work and safety of the public. The Contractor shall provide, erect and maintain acceptable and adequate detour signs at all closures and along detour routes.
- c. All barricades and obstructions shall be illuminated at night, and all safety lights shall be kept burning from sunset until sunrise. All barricades and signs used by the Contractor shall conform to the standard design, generally accepted for such purposes, and payment for all such services and

materials shall be considered as included in the other pay items of the Contract unless specifically listed and identified.

- d. The Contractor shall insure that all existing traffic signs are erect, clean and in full view of the intended traffic at all times. Street name signs at major street intersections shall be maintained erect at all times. If these signs should interfere with construction, the Contractor shall notify the Inspector at least forty eight (48) hours in advance for City personnel to temporarily relocate said signs. The City will re-set all traffic and street name signs to permanent locations when notified by the Contractor that construction is complete unless otherwise stated in the specifications.
- e. When construction activities or traffic hazards at the construction site require the use of flagmen, it shall be the Contractor's responsibility to provide adequate personnel including flagmen to direct traffic safely.
- f. Equipment used and/or directed by the Contractor shall travel with traffic at all times. Supply trucks shall travel with traffic except when being spotted. Provide a flagman to assist with this operation.
- g. During construction, it may be necessary to alter traffic control. Alterations shall be in accordance with the Traffic Control Handbook.
- h. NO STREET WITHIN THIS PROJECT MAY BE CLOSED TO THROUGH TRAFFIC OR TO LOCAL EMERGENCY TRAFFIC WITHOUT THE PRIOR WRITTEN APPROVAL OF THE CITY ENGINEER PER DIRECTION OF THE CITY MANAGER OF THE CITY OF GARIBALDI. Written approval may be given if sufficient time exists to allow for notification of the public at least two (2) days in advance of such closing. Partial closure of streets within the project shall be done in strict conformity with written directions to be obtained from the City Engineer.
- i. The Contractor shall address how local access to adjacent properties will be handled in accordance with the specification herein.
- j. Where crossings of existing pavements occur, no open trenches shall be permitted overnight, but plating may be permitted if conditions allow as determined by the City Engineer or his/her authorized representative. If plates cannot be used, crossings shall be appropriately back-filled to provide a safe smooth travelling surface. See Drawings for specific crossing requirements.

28. **OUTDOOR CONSTRUCTION RESTRICTIONS:** Outdoor construction is restricted to the times listed below in the following table except upon special permit granted by the City:

	Weekdays (Mon.-Fri.)	Weekends (Sat.-Sun.), Holidays
All Outdoor Construction Work	7:00 a.m. to 6:00 p.m.	7:00 a.m. to 6:00 p.m.

Holidays include: New Year's Day, Martin Luther King Jr. Day, Washington's Birthday/President's Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, Christmas Eve Day and Christmas Day.

29. **FIRST TIER SUBCONTRACTOR DISCLOSURE:** If a Bid for the Project is greater than \$100,000, within two working hours of the date and time the Bids are due, the Bidder must submit a written disclosure for all First Tier Subcontractors furnishing labor or labor and materials whose subcontracts are equal to or greater in value than 5% of the total Project Bid or \$15,000, whichever is greater, or \$350,000 regardless of the percentage of the total project bid in accordance with ORS 279C.370. The Bidder must disclose the following information about their first-tier subcontracts either in its Bid submission or within two (2) working hours after the date and time of the deadline when bids are due:

- a. The subcontractor's name, address, Construction Contractor's Board Number (as applicable), and
- b. The dollar value of the subcontract, and
- c. The category of work that the subcontractor will be performing.

If the bidder will not be using any subcontractors that are subject to the above disclosure requirements, the bidder is required to indicate "NONE" on the accompanying form. Failure to submit this form by the disclosure deadline will result in a non-responsive bid. A non-responsive bid will not be considered for award. It is the Bidder's responsibility to determine what all the documents are that must be submitted to the City.

30. USE OF EQUALS: When the specifications for materials, articles, products, and equipment state "or equal", Contractor may bid upon, and use materials, articles, products, and equipment which will perform equally the duties imposed by the general design. The City's Engineer will have the final approval of all materials, articles, products, and equipment proposed to be used as an "equal." It shall not be purchased or installed without prior written approval from the City or its representative.
31. HAZARDOUS MATERIALS: The Contractor shall supply the City with a list of any and all hazardous substances used in performance of this Contract. That list shall identify the location of storage and use of all such hazardous substances and identify the amounts stored and used at each location. Contractor shall provide City with material safety data sheets for all hazardous substances brought onto City property, created on City property or delivered to City pursuant to this Contract. For the purpose of this section, "hazardous substance" means hazardous substance as defined by ORS 453.307(5). Contractor shall complete the State Fire Marshall's hazardous substance survey as required by ORS 453.317 and shall assist City to complete any such survey that it may be required to complete because of substances used in the performance of this Contract.
32. HAZARDOUS WASTE: If, as a result of performance of this Contract, Contractor generates any hazardous wastes, Contractor shall be responsible for disposal of any such hazardous wastes in compliance with all applicable federal and state requirements. Contractors shall provide City with documentation, including all required manifests, demonstrating proper transportation and disposal of any such hazardous wastes. Contractor shall defend, indemnify, and hold harmless City for any disposal or storage of hazardous wastes generated pursuant to this Contract and any releases or discharges of hazardous materials.
33. TEMPORARY SANITARY FACILITIES: The Contractor shall provide facilities for the use of workmen employed on the work site in accordance with the requirements of ORS 654.150, (Sanitary facilities at construction projects; standards, exemptions) and the rules adopted pursuant thereto. Whether or not ORS 654.150 is applicable to the project is the sole responsibility of the Contractor. Contractor shall be responsible for all costs that may be incurred in complying with or in securing exemption or partial exemption from the requirements as incidental to this contract.
34. ELECTRIC POWER, WATER AND TELEPHONE: Unless otherwise specified, the Contractor shall make his/her own arrangements for electric power, water and telephone. Subject to the convenience of the utility, he/she may be permitted to connect to existing facilities where available, but he/she shall meter and bear the cost of such power or water, and installation and disconnect of such power, water and telephone services.

35. UTILITIES AND ELECTRICAL POWER LINES: The electric utility company may maintain energized aerial electrical power lines in the immediate vicinity of this project. Do not consider these lines to be insulated. Construction personnel working in proximity to these lines are exposed to an extreme hazard from electrical shock. Contractors, their employees and all other construction personnel working on this project must be warned of the danger and instructed to take adequate protective measure, including maintaining a minimum ten (10) feet clearance between the lines and all construction equipment and personnel. (see: OSHA Std. 1926.550 (a) 15).

Electrical utility companies may maintain energized underground electrical power lines in the immediate vicinity of this project. These power lines represent an extreme hazard of electrical shock to any construction personnel or equipment coming in contact with them. Contractors, their employees, and all other personnel working near any underground power lines must be warned to take adequate protective measure. (see: OSHA Std. 1926-651 (A)).

Oregon law requires all parties planning excavations in public rights-of-way to contact utilities for locations of their underground facilities in accordance with the rules adopted by the Oregon Utility Notification Center. Those rules are set forth in OAR 952-001-0010 through OAR 952-001-0090. You may obtain copies of the rules by calling the center at (503) 232-1987.

36. COOPERATIVE PURCHASING: Any publicly funded City, county, district, agency or similar entity shall have the authority to purchase specified goods/services directly from the contractor under the terms and conditions of this contract as indicated below:
- a. The bidder agrees to extend identical pricing to local public agencies for the same terms. Quantities listed in this document reflect the City of Garibaldi's estimated usage only.
 - b. Each contracting agency will execute a separate contract with the successful bidder for its requirements.
 - c. Any bidder, by written notification at the time of the bid due date and time, may decline to extend the prices and terms of this bid to any, and/or all other public agencies.
 - d. Additional costs may be incurred by the successful bidder in contracting with another public agency. All demonstrable costs (shipping, etc.) may be passed on to that public agency.

Contractor shall provide information regarding total usage of contract upon request of the City of Garibaldi.

37. MISCELLANEOUS ORS 279C PUBLIC CONTRACTING PROVISIONS:
- a. Contractor shall pay promptly, as due, all persons supplying labor or materials for the prosecution of the work provided for in the contract, and shall be responsible for such payment of all persons supplying such labor or material to any Subcontractor.
 - i. ORS 279C.580(3)(a) requires the prime Contractor to include a clause in each subcontract requiring Contractor to pay the first-tier subcontractor for satisfactory performance under its subcontract within ten (10) days out of such amounts as are paid to the prime Contractor by the public contracting agency; and

- ii. ORS 279C.580(3)(b) requires the prime Contractor to include a clause in each subcontract requiring Contractor to pay an interest penalty to the first-tier subcontractor if payment is not made within thirty (30) days after receipt of payment from the public contracting agency.
 - iii. ORS 279C.580(4) requires the prime Contractor to include in every subcontract a requirement that the payment and interest penalty clauses required by ORS 279C.580(3)(a) and (b) be included in every contract between a subcontractor and a lower-tier subcontractor or supplier.
- b. A notice of claim on Contractor's payment bond shall be submitted only in accordance with ORS 279C.600 and 279C.605.
- c. If the Contractor or a first-tier subcontractor fails, neglects, or refuses to make payment to a person furnishing labor or materials in connection with the public contract for a public improvement within thirty (30) days after receipt of payment from the public contracting agency or Contractor, the Contractor or first-tier subcontractor shall owe the person the amount due plus interest charges commencing at the end of the ten (10) day period that payment is due under ORS 279C.580(4) and ending upon final payment, unless payment is subject to a good faith dispute as defined in ORS 279C.580. The rate of interest charged to Contractor or first-tier subcontractor on the amount due shall equal three times the discount rate on ninety (90) day commercial paper in effect at the Federal Reserve Bank in the Federal Reserve District that includes Oregon on the date that is thirty (30) days after the date when payment was received from the public contracting agency or from the Contractor, but the rate of interest shall not exceed thirty (30) percent. The amount of interest may not be waived.
- d. If the Contractor or a subcontractor fails, neglects, or refuses to make payment to a person furnishing labor or materials in connection with the public contract, the person may file a complaint with the Construction Contractor's Board, unless payment is subject to a good faith dispute as defined in ORS 279C.580.
- e. Contractor shall employ no person for more than ten (10) hours in any one day, or forty (40) hours in any one week, except in cases of necessity, emergency, or where public policy absolutely requires it, and in such cases, except in cases of contracts for personal services designated under ORS 279A.055, Contractor shall pay the employee at least time and one-half pay for all overtime in excess of eight (8) hours a day or forty (40) hours in any one week when the work is five (5) consecutive days, Monday through Friday; or for all overtime in excess of ten (10) hours a day or forty (40) hours in any one week when the work week is four (4) consecutive days, Monday through Friday; and for all work performed on Saturday and on any legal holidays as specified in ORS 279C.540.
- f. As may be required by ORS 279C.845, Contractor or contractor's surety and every subcontractor or subcontractor's surety shall file certified payroll statements with the Contracting Agency in writing.
 - (a) If a contractor is required to file certified statements under ORS 279C.845, the Contracting Agency shall retain 25% of any amount earned by the contractor on the

public works project until the contractor has filed with the Contracting Agency statement as required by ORS 279C.845. The Contracting Agency shall pay the contractor the amount retained within 14 days after the contractor files the required certified statements, regardless of whether a subcontractor has failed to file certified statements required by statute. The Contracting Agency is not required to verify the truth of the contents of certified statements filed by the contractor under this section and ORS 279C.845.

(b) The contractor shall retain 25% of any amount earned by a first-tier subcontractor on this public works contract until the subcontractor has filed with the Contracting Agency certified statements as required by ORS 279C.845. The contractor shall verify that the first-tier subcontractor has filed the certified statements before the contractor may pay the subcontractor any amount retained. The contractor shall pay the first-tier subcontractor the amount retained within 14 days after the subcontractor files the certified statements as required by ORS 279C.845. Neither the Contracting Agency nor the contractor is required to verify the truth of the contents of certified statements filed by a first-tier subcontractor.

- g. All employers, including Contractor, that employ subject workers who work under this contract shall comply with ORS 656.017 and provide the required Workers' Compensation coverage, unless such employers are exempt under ORS 656.126. Contractor shall ensure that each of its subcontractors complies with these requirements.
- h. All sums due the State Unemployment Compensation Fund from the Contractor or any subcontractor in connection with the performance of the contract shall be promptly so paid.
- i. The contract may be canceled at the election of Contracting Agency for any willful failure on the part of Contractor to faithfully perform the contract according to its terms.
- j. Contractor certifies its compliance with the Oregon tax laws, in accordance with ORS 305.385.
- k. In the performance of this contract, the Contractor shall use, to the maximum extent economically feasible, recycled paper, materials, and supplies, and shall compost or mulch yard waste material at an approved site, if feasible and cost effective.
- l. As may be applicable, Contractor certifies that all subcontractors performing construction work under this contract will be registered with the Construction Contractors Board or licensed by the state Landscaping Contractors Board in accordance with ORS 701.035 to ORS 701.055 before the subcontractors commence work under this contract.
- m. Pursuant to Contracting Agency Public Contracting Rule 137-049-0880, the Contracting Agency may, at reasonable times and places, have access to and an opportunity to inspect, examine, copy, and audit the records relating to the Contract.

- n. In compliance with the provisions of ORS 279C.525, the following is a list of federal, state and local agencies, of which the Contracting Agency has knowledge, that have enacted ordinances or regulations dealing with the prevention of environmental pollution and the preservation of natural resources that may affect the performance of the contract:

FEDERAL AGENCIES:

Homeland Security, Department of
Coast Guard

Agriculture, Department of
Forest Service

Soil Conservation Service

Defense, Department of

Army Corps of Engineers

Environmental Protection Agency

Interior, Department of

Bureau of Sport Fisheries and Wildlife

Bureau of Outdoor Recreation

Bureau of Land Management

Bureau of Indian Affairs

Bureau of Reclamation

Labor, Department of

Occupational Safety and Health Administration

Transportation, Department of

Federal Highway Administration

STATE AGENCIES:

Agriculture, Department of

Environmental Quality, Department of

Fish and Wildlife, Department of

Forestry, Department of

Geology and Mineral Industries, Department of

Human Resources, Department of

Land Conservation and Development Commission

Soil and Water Conservation Commission

State Engineer

State Land Board

Water Resources Board

LOCAL AGENCIES:

City Council

County Court

County Commissioners, Board of
Port Districts
Metropolitan Service Districts
County Service Districts
Sanitary Districts
Water Districts
Fire Protection Districts

- o. Contractor shall post and maintain a circular regarding overtime requirements in compliance with ORS 279C.545.

38. REQUIRED AFFIRMATIVE ACTION:

The prime contractor, if subcontracts are to be let, is required to at least take the following affirmative steps.

- a. Placing qualified small and minority businesses and women's business enterprises on solicitation lists
- b. Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises. Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises
- c. Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce

39. ASSIGNING, SELLING, DISPOSING OF, OR TRANSFERING RIGHTS:

Contractor shall not assign, sell, dispose of, or transfer rights, nor delegate duties under the Contract, either in whole or in part, without Owner's prior written consent. Such consent shall not relieve Contractor of any obligations under the Contract. Any assignee or transferee shall be considered the agent of the Contractor and be bound to abide by all provisions of the Contract. If Owner consents in writing to an assignment, sale, disposal or transfer of the Contractor's rights or delegation of Contractor's duties, the Contractor and its surety shall remain liable to Owner for complete performance of the Contract as if no such assignment, sale, disposal, transfer or delegation had occurred, unless Owner otherwise agrees in writing.

SPECIAL TERMS AND CONDITIONS

Purpose: The City of Garibaldi intends to establish a contract for the AIZONA WAY BRIDGE Project. For the technical provisions see Appendix C.

1. Prospective Bidders Conference: Prospective bidders are required to attend a conference to be held at the City of Garibaldi Office:

ADDRESS: 107 6th Street
Garibaldi, Oregon 97118
DATE/TIME: AS INDICATED ON INVITATION FOR BID

The purpose of this conference will be to clarify the contents of this Invitation For Bid in order to prevent any misunderstanding of the City's position. Any doubt as to the requirements of this Invitation For Bid or any apparent omission or discrepancy should be presented to the City at this conference. The City will then determine the appropriate action necessary, if any, and issue a written addendum to the Invitation For Bid. Oral statements or instructions shall not constitute an amendment to the Invitation For Bid. ***Bids will only be accepted from those who are represented at the Prospective Bidders' Conference. Attendance at the Prospective Bidders' conference will be evidenced by the representative's signature on the attendance roster.***

2. Bid Acceptance Period: In order to allow for an adequate evaluation, the City requires a Bid in response to this Solicitation to be valid and irrevocable for sixty (60) days after the opening time and date.
3. **Time of Completion:** The Contractor shall commence work for this project on or before the fifth (5) day following the project start date indicated on the "Notice to Proceed" issued by the City of Garibaldi and shall fully complete all work by **December 9, 2016**. Work may be performed from 7:00 a.m. to 6:00 p.m. all days of the week unless additional time periods are granted by the City of Garibaldi in cooperation with the City of Garibaldi. The Contractor shall, at all times, during the continuance of the Contract, prosecute the work with such force and equipment as is sufficient to complete all work within the time specified.
4. Plans and Specifications to Successful Bidder: The successful Bidder may obtain five (5) sets of Plans and Specifications for this project from the City at no cost.
5. City of Garibaldi Permit: As a City project, the Contractor is not required to obtain a City Public Works Construction, Improvement, Blasting, or Erosion Control permit. The Contractor will be responsible for any other required agency permits.
6. Key Personnel: It is essential that the Contractor provide adequate experienced personnel, capable of and devoted to the successful accomplishment of work to be performed under this contract. The Contractor must agree to assign specific individuals to the key positions.
 - a. The Contractor agrees that, once assigned to work under this contract, key personnel shall not be removed or replaced without written notice to the City.

- b. If key personnel are not available for work under this contract for a continuous period exceeding 30 calendar days, or are expected to devote substantially less effort to the work than initially anticipated, the Contractor shall immediately notify the City, and shall, subject to the concurrence of the City, replace such personnel with personnel of substantially equal ability and qualifications.

**AIZONA WAY BRIDGE PROJECT
BID FORM**

(ALL ITEMS ARE COMPLETE AND INSTALLED INCLUDING ALL EQUIPMENT, LABOR, MATERIALS, APPURTENANCES, BEDDING, BACKFILL, CAPPING, MARKING, BENDS, FITTINGS, THRUST BLOCKS, ETC. CY=IN PLACE CUBIC YARDS)

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	MOBILIZATION & DEMOBILIZATION	1	LS		
2	ALL EARTHWORK AND GRADING	1	LS		
3	EROSION CONTROL INCLUDING STREAM PROTECTION, MAINTENANCE & REMOVAL, LANDSCAPING AND PLANTINGS	1	LS		
4	TEMPORARY ACCESS INCLUDING STRIPPING, GRADING, PROTECTION AND DIRECTION OF TRAFFIC INCLUDING ALL NECESSARY FLAGGING, SIGNS, BARRICADES, DRUMS, DELINIATERS, CONES & OTHER TRAFFIC CONTROL DEVICES INCLUDING DAILY MAINTENANCE	1	LS		
5	TEMPORARY ACCESS ROAD 3" MINUS ROCK SURFACING	120	CY		
6	REMOVAL AND LEGAL DISPOSAL OF CULVERTS AND WATER LINE	1	LS		
7	ADJUSTMENT OF SANITARY SEWER WET WELL SLAB AND MANHOLE FRAMES AND LIDS TO MATCH STREET GRADE	1	LS		
8	SAW CUTTING EXISTING ASPHALT PAVEMENT AND SEALING JOINTS	104	LF		
9	REMOVAL OF EXCESS SOIL AND STOCKPILING IN DESIGNATED AREA LATER TO BE USED AS FILL WHEN CULVERTS ARE REMOVED	1	LS		
10	REMOVAL AND BREAKING IN TO SMALLER THAN 8-INCHES EXISTING ASPHALT AND STOCKPILING IN DESIGNATED AREA LATER TO BE USED AS FILL WHEN CULVERTS ARE REMOVED	130	SY		
11	3/4" MINUS CRUSHED ROAD ROCK BASE	81	TON		
12	POTHOLING WATER, SEWER, CULVERTS AND CABLE UTILITIES	6	EA		
13	CLASS C ASPHALTIC CONCRETE	65	TON		
14	CONNECT SANITARY TO WET WELL	1	EA		

ITEM NO.		QUANTITY	UNIT	UNIT PRICE	AMOUNT
15	SEAL OLD SANITARY CONNECTION TO WET WELL	1	EA		
16	ABANDON EXISTING SANITARY MAIN	64	LF		
17	8-INCH PVC SANITARY LINE	68	LF		
18	STD SANITARY MANHOLE OVER EXISTING MAIN	1	EA		
19	STD SANITARY MANHOLE W/INSIDE DROP	1	EA		
20	8-INCH SANITARY CLEANOUT	1	EA		
21	4-INCH CL 52 DI PIPE	35	LF		
22	ALL DEWATERING, PUMPING AND DIVERTING OF STREAM AND GROUND WATER	1	LS		
23	18"-12" RIPRAP	255	TON		
24	6"-3" CHINKING ROCK	15	TON		
25	SALVAGING AND PLACING NATIVE STREAM BEAD MATERIALS	8	CY		
26	3/4" MINUS CRUSHED ROCK FOR BRIDGE FOOTING BASES	16	TON		
27	BRIDGE AND COMPONENTS	1	LS		
28	Insurance	1	LS		
29	Performance bonds	1	LS		
30	Labor and material bonds	1	LS		

GRAND TOTAL= _____

Bidder agrees and certifies as follows:

- a. Bidder shall be bound by and will comply with the provisions of ORS 279C.840 and 40 U.S.C. 276a;
- b. The Bidder is/is not a resident bidder, as defined in ORS 279A.120 (circle one);
- c. Bidder will comply with the provisions of ORS 305.385 relating to Oregon tax laws;
- d. Bidder has not and will not discriminate against minority, women or emerging small businesses, business enterprises, or a business enterprise that is controlled by or that employs a disabled veteran as defined in ORS 408.225 in obtaining any required subcontracts. Bidder acknowledges that failure to do so shall be grounds for disqualification;
- e. The Bidder, its sub-contractors, if any, and all employers working on this project are subject employers under the Oregon Workers' Compensation law and shall comply with ORS 656.017, which requires them to provide workers' compensation coverage for all their subject workers;

f. The Bidder is registered and in good standing with the Construction Contractors' Board, in accordance with ORS 701.035 to 701.055;

g. All sub-contractors performing work as described in ORS 701.005(2) will be registered with the Construction Contractors Board in accordance with ORS 701.035 to 701.055 before the sub-contractors commence work under the contract.

Company Name: _____

Authorized Signature for Bidder: _____

Printed Name: _____

Title: _____

BID BOND

KNOW ALL PERSONS BY THESE PRESENTS:

That we, _____, as "Principal," (Name of Principal)
And _____, an _____ Corporation, (Name of Surety)
authorized to transact Surety business in Oregon, as "Surety," hereby jointly and severally bind ourselves, our
respective heirs, executors, administrators, successors and assigns to pay unto the City of Garibaldi ("Obligee") the
sum of (\$ _____) _____ dollars.

WHEREAS, the condition of the obligation of this bond is that Principal has submitted its proposal or bid to an
agency of the Obligee in response to Obligee's procurement document for the project identified in the Solicitation
Number indicated above which proposal or bid is made a part of this bond by reference, and Principal is required to
furnish bid security in an amount equal to ten (10%) percent of the total amount of the bid pursuant to the
procurement document and ORS 279C.365(4) for competitive bidding or 279C.400(5) for competitive proposals.

NOW , THEREFORE, if the proposal or bid submitted by Principal is accepted, and if a contract pursuant to the
proposal or bid is awarded to Principal, and if Principal enters into and executes such contract within the time
specified in the procurement document and executes and delivers to Obligee its good and sufficient performance
and payment bonds required by Obligee, as well as any required proof of insurance, within the time fixed by
Obligee, then this obligation shall be void; otherwise, it shall remain in full force and effect.

IN WITNESS WHEREOF, we have caused this instrument to be executed and sealed by our duly authorized legal
representatives this _____ day of _____, 20____.

PRINCIPAL: _____ SURETY: _____

By _____ BY ATTORNEY-IN-FACT:
Signature

Official Capacity Name

Attest: _____
Corporation Secretary Signature

Address

City State Zip

Phone Fax

PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS that

_____ (Name of Contractor)

_____ (Address of Contractor)

_____ hereinafter called "PRINCIPAL", and
(Corporation, Partnership, or Individual)

_____ (Name of Surety)

_____ (Address of Surety)

_____ (Oregon representative for service of process for Surety)

hereinafter called "SURETY", are held and firmly bound unto

The City of Garibaldi, Oregon,

hereinafter called "OWNER", in the total amount of _____

(insert here a sum

_____ Dollars (\$ _____) for the

equal to the contract price)

payment whereof PRINCIPAL and SURETY bind themselves, their heirs, executors, administrators, successors and assigns jointly and severally, firmly by these presents.

WHEREAS, the PRINCIPAL has by written agreement entered into a certain contract with the OWNER, dated the _____ day of _____, 20____, a copy of which is hereto attached and made a part hereof and is hereinafter referred to as the Contract. Said Contract is for:

NOW, THEREFORE:

1. The condition of this obligation is such that, if PRINCIPAL shall promptly and faithfully perform said Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

2. The SURETY hereby waives notice of any alteration or extension of time made by the OWNER.

3. It is expressly agreed that the Bond shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment of the Contract not increasing the Contract price more than twenty percent (20%), so as to bind the PRINCIPAL and the SURETY to the full and faithful performance of the Contract as so amended. The term "Amendment", wherever used in this Bond, and whether referring to this Bond, the Contract, or the Loan Documents shall include any alteration, addition, extension or modification of any character whatsoever.

4. Whenever PRINCIPAL shall be, and declared by OWNER to be in default under the Contract, the OWNER having performed OWNER's obligations thereunder, the SURETY may promptly remedy the default, or shall promptly:

a) Arrange for the PRINCIPAL, with consent of the OWNER, to perform and complete the contract;

b) Complete the Contract in accordance with its terms and conditions, or

c) Obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and upon determination by OWNER and the SURETY jointly of the lowest responsible bidder, arrange for a contract between such bidder and OWNER, and make available as work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which the SURETY may be liable hereunder, the amount set forth above. The term "balance of the contract price," as used in this paragraph, shall mean the total amount payable by OWNER to PRINCIPAL under the Contract and any amendments thereto, less the amount properly paid by OWNER to PRINCIPAL.

5. Any suit under this Bond must be instituted before the expiration of two (2) years from the date on which final payment under the Contract falls due.

6. If any provision of this Bond conflicts with state law, such portion will be deemed deleted therefrom and provisions conforming to such state law shall be deemed incorporated herein. The intent is that the bond shall be construed as a statutory bond and not as a common law bond.

7. No right of action shall accrue on this Bond to or for the use of any person or corporation other than the OWNER named herein or the heirs, executors, administrators or successors of the OWNER.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20__.

ATTEST:

PRINCIPAL

(PRINCIPAL) Secretary

(SEAL)

By: _____

(Witness to PRINCIPAL)

(Address)

(Address)

(SURETY)

ATTEST:

(Witness to SURETY)

By _____
(Attorney-in-Fact)

(Address)

(Address)

NOTE: Date of Bond must not be prior to date of Contract.

If CONTRACTOR is partnership, all partners must execute Bond.

IMPORTANT: SURETY companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in Oregon. SURETY companies must also have an Oregon representative for service of process.

PAYMENT BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address;
Business):

SURETY (Name and Address of Principal Place of

CONTRACT

Effective Date of Agreement:

Amount:

Description (Name and Location):

BOND

Bond Number:

Date (Not earlier than Effective Date of Agreement):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____

By: _____
Signature

Print Name: _____

Name: _____

Signature (Attach Power of Attorney)

Print

Title: _____
Title: _____

ATTEST: _____
ATTEST: _____
Signature Signature

Title Title

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to Owner, this obligation shall be null and void if Contractor:
 - 2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants, and
 - 2.2 Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.
4. Surety shall have no obligation to Claimants under this Bond until:
 - 4.1 Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the addresses described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
 - 4.2 Claimants who do not have a direct contract with Contractor:
 1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
 2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and

3. Not having been paid within the above 30 days, have sent a written notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.
5. If a notice by a Claimant required by paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.
6. Reserved.
7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.
8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.
9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
10. Surety hereby waives notice of any change, including changes of time, to the Contract or to related subcontracts, purchase orders, and other obligations.
11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished shall be sufficient compliance as of the date received at the address shown on the signature page.
13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.
14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.
15. Definitions
 - 15.1 Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power,

light, heat, oil, gasoline, telephone service, or rental equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

- 15.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
- 15.3 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract, or to perform and complete or otherwise comply with the other terms thereof.

FOR INFORMATION ONLY:

Name, Address and Telephone:

Surety Agency or Broker;

Owner's Representative (Engineer or other):

FORMS

NONCOLLUSION AFFIDAVIT

STATE OF _____)
)
)
COUNTY OF _____)
)
)

I, (Type/Print Name) _____, state that I am (Position Title) _____ of (Name of Firm) _____ and that I am authorized to make this affidavit on behalf of my firm, and its owners, directors, and, officers. I am the person responsible in my firm for the price(s) and the amount of this bid.

I state that:

- 1. The price(s) and the amount of this bid have been arrived at independently and without consultation, communication or agreement with any other contractor, bidder or potential bidder.
2. Neither the price(s) nor the amount of this bid, and neither the approximate price(s) nor approximate amount of this bid, have been disclosed to any other firm or person who is a bidder or potential bidder, and they will not be disclosed before bid opening.
3. No attempt has been made or will be made to induce any firm or person to refrain from bidding on this contract, or to submit a bid higher than this bid, or to submit any intentionally high or noncompetitive bid or other form of complementary bid.
4. The bid of my firm is made in good faith and not pursuant to any agreement or discussion with, or inducement from, any firm or person to submit a complementary or other noncompetitive bid.
5. (Name of Firm) _____, its affiliates, subsidiaries, officers, directors, and employees are not currently under investigation by any governmental agency and have not in the last four (4) years been convicted or found liable for any act prohibited by state or federal law in any jurisdiction, involving conspiracy or collusion with respect to bidding on any public contract, except as follows:

I state that (Name of Firm) _____ understands and acknowledges that the above representations are material and important, and will be relied on by THE CITY OF GARIBALDI, OREGON in awarding the contract(s) for which this bid is submitted . I understand and my firm understands that any misstatement in this affidavit is and shall be treated as fraudulent concealment from THE CITY OF GARIBALDI, OREGON of the true facts relating to the submission of bids for this contract.

(Signature) (Signatory's Name)

(Signatory's Title)

SWORN TO AND SUBSCRIBED BEFORE ME THIS _____ DAY OF _____, 20_____

Notary Public

My Commission Expires _____

THREE YEAR EXPERIENCE RECORD

Recent projects first

#1 (Project Name, Location, Contract Cost)

Project description: _____

Project completion date: (contract) _____, (actual) _____

Contact name: _____

Telephone: _____

#2 (Project Name, Location, Contract Cost)

Project description: _____

Project completion date: (contract) _____, (actual) _____

Contact name: _____

Telephone: _____

#3 (Project Name, Location, Contract Cost)

Project description: _____

Project completion date: (contract) _____, (actual) _____

Contact name: _____

Telephone: _____

#4 (Project Name, Location, Contract Cost)

Project description: _____

Project completion date: (contract) _____, (actual) _____

Contact name: _____

Telephone: _____

#5 (Project Name, Location, Contract Cost)

Project description: _____

Project completion date: (contract) _____, (actual) _____

Contact name: _____

Telephone: _____

#6 (Project Name, Location, Contract Cost)

Project description: _____

Project completion date: (contract) _____, (actual) _____

Contact name: _____

Telephone: _____

APPENDIX A

FIRST-TIER SUBCONTRACTOR DISCLOSURE



PROJECT NAME: _____
 BID #: _____
 BID CLOSING: Date: _____ Time: _____

This form must be submitted at the location specified in the Invitation to Bid on the advertised bid closing date and within two working hours after the advertised bid closing time.

List below the name of each subcontractor that will be furnishing labor or will be furnishing labor and materials and that is required to be disclosed, the category of work that the subcontractor will be performing and the dollar value of the subcontract. Enter "NONE" if there are no subcontractors that need to be disclosed.
 (ATTACH ADDITIONAL SHEETS IF NEEDED.)

NAME	DOLLAR VALUE	CATEGORY OF WORK
(1)	\$	
(2)	\$	
(3)	\$	
(4)	\$	
(5)	\$	
(6)	\$	
(7)	\$	
(8)	\$	
(9)	\$	

Failure to submit this form by the disclosure deadline will result in a non-responsive bid. A non-responsive bid will not be considered for award.

Form submitted by (bidder name): _____

Contact name: _____ Phone no.: () _____

- ORS 279C.370 First-tier subcontractor disclosure.** (1)(a) Within two working hours after the date and time of the deadline when bids are due to a contracting agency for a public improvement contract, a bidder shall submit to the contracting agency a disclosure of the first-tier subcontractors that:
- (A) Will be furnishing labor or will be furnishing labor and materials in connection with the public improvement contract; and
 - (B) Will have a contract value that is equal to or greater than five percent of the total project bid or \$15,000, whichever is greater, or \$350,000 regardless of the percentage of the total project bid.
- (b) For each contract to which this subsection applies, the contracting agency shall designate a deadline for submission of bids that has a date on a Tuesday, Wednesday or Thursday and a time between 2 p.m. and 5 p.m., except that this paragraph does not apply to public contracts for maintenance or construction of highways, bridges or other transportation facilities.
- (c) This subsection applies only to public improvement contracts ("projects") with a value, estimated by the contracting agency, of more than \$100,000.
 - (d) This subsection does not apply to public improvement contracts that have been exempted from competitive bidding requirements under ORS 279C.335 (2).
- (2) The disclosure of first-tier subcontractors under subsection (1) of this section must include the name of each subcontractor, the category of work that each subcontractor will perform and the dollar value of each subcontract. The information shall be disclosed in substantially the following [above] form:
- (3) A contracting agency shall accept the subcontractor disclosure. The contracting agency shall consider the bid of any contractor that does not submit a subcontractor disclosure to the contracting agency to be a non-responsive bid and may not award the contract to the contractor. A contracting agency is not required to determine the accuracy or the completeness of the subcontractor disclosure.
 - (4) After the bids are opened, the subcontractor disclosures must be made available for public inspection.
 - (5) A contractor may substitute a first-tier subcontractor under the provisions of ORS 279C.585.
 - (6) A subcontractor may file a complaint under ORS 279C.590 based on the disclosure requirements of subsection (1) of this section.



CONTRACT FEE SECTION
PREVAILING WAGE RATE UNIT
BUREAU OF LABOR AND INDUSTRIES
800 N.E. OREGON ST., #1045
PORTLAND, OR 97232-2180
PHONE: (971) 673-0852
FAX: (971) 673-0769

For Office Use Only: Project DB #: _____

PUBLIC WORKS FEE INFORMATION FORM

For use by public agencies that have contracted with a contractor on a public works project regulated by ORS 279C.800 to 279C.870, in compliance with ORS 279C.825. Also for use by public agencies that are a party to a public works project pursuant to ORS 279C.800(6)(a)(B), (C) (D) or (E).

PUBLIC AGENCIES: Please complete and mail this form to BOLI at the above address, along with the public works fee of one-tenth of one percent of the contract price (contract amount x .001), payable to BOLI. **The minimum fee is \$250.00; the maximum fee is \$7,500.00.** Without the following completed information, the bureau may be unable to properly credit you for payment received.

PUBLIC AGENCY: _____ AGENCY #: _____

AGENCY MAILING ADDRESS: _____

CITY, STATE, ZIP: _____

AGENCY CONTACT PERSON: _____ PHONE: () _____

PROJECT MANAGER NAME: _____ PHONE: () _____

PROJECT NAME: _____

CONTRACT NAME (if part of larger project): _____

PROJECT LOCATION: _____

PROJECT NO: _____ DATE CONTRACT FIRST ADVERTISED: _____

DATE CONTRACT AWARDED: _____ CONTRACTOR CCB#: _____

CONTRACTOR BUSINESS NAME (DBA): _____

CONTRACTOR ADDRESS: _____

CITY, STATE ZIP _____

CONTRACT AMOUNT: \$ _____ FEE AMOUNT DUE/PAID: \$ _____

If less than \$50K, is it part of a larger project? yes no Contract amount x .001 = fee due

(Please duplicate this form for future use.)



BUREAU OF LABOR AND INDUSTRIES
NOTICE OF PUBLIC WORKS
(For use by public agencies in complying with ORS 279C.835)

For Office Use Only: Project DB #: _____
--

NOTE: ORS 279C.835 requires that public contracting agencies include with this form a copy of the disclosure of first-tier subcontractors submitted pursuant to ORS 279C.370.

PUBLIC AGENCY INFORMATION

Agency Name: _____
Agency Division: _____ Agency # (if known): _____
Address: _____
City, State, Zip: _____
Email Address: _____
Agency Representative: _____ Phone: _____

SECTION A: To be completed when a public agency awards a contract to a contractor for a public works project, including CM/GC projects. (See reverse for public works projects in which no public agency awards a contract to a contractor.)

CONTRACT INFORMATION:

Project Name: _____
Contract Name (if part of larger project): _____
Project #: _____ Contract #: _____
Project Manager Name: _____ Phone: _____ Fax: _____
Project Location (Street(s), City): _____ Project County: _____
Contract Amount: \$ _____ If under \$50,000, is this contract part of a larger project? YES NO
If yes, total project amount: \$ _____
Will project use federal funds that require compliance with the Davis-Bacon Act? YES NO
Date Contract Specifications First Advertised for Bid (if not advertised, date of RFP or first contact with contractor): _____
OR If CM/GC Contract, Date Contract Became a Public Works Contract (see OAR 839-025-0020(6)): _____
Date Contract Awarded: _____ Date Work Expected to Begin: _____ Date Work Expected to be Complete: _____

PRIME CONTRACTOR INFORMATION:

Name: _____
Address: _____
City, State Zip: _____ Phone: _____
Construction Contractors Board Registration #: _____
Name of Bonding Company: _____
Address: _____
Agent Name: _____ Phone: _____
Payment Bond #: _____

Copy of first-tier subcontractors attached (see NOTE above).

Signature of agency representative completing form: _____
Printed Name: _____ Phone: _____ Date: _____
Email Address: _____

THIS FORM WILL BE RETURNED TO THE PUBLIC AGENCY FOR CORRECTION AND RESUBMITTAL IF INCOMPLETE.

Complete this page for public works projects in which NO PUBLIC AGENCY AWARDS A CONTRACT TO A CONTRACTOR. Complete the CONTRACT INFORMATION AND SECTION B, C, D or E, whichever applies to the project.

CONTRACT INFORMATION:

Name of Project Owner: _____ Phone: _____
Project Name: _____ Project #: _____
Project Location (Street(s), City): _____ Project County: _____
Total Project Cost: \$ _____ Amount of Public Funds Provided for the project: \$ _____
Name(s) of Public Agency(ies) Providing Public Funds: _____
Will project use federal funds that require compliance with the Davis-Bacon Act? YES NO
Date Work Expected to Begin: _____ Date Work Expected to be Complete: _____

SECTION B: To be completed when a project is a public works pursuant to ORS 279C.800(6)(a)(B) (a project for the construction, reconstruction, major renovation or painting of a road, highway, building, structure or improvement of any type that uses \$750,000 or more of funds of a public agency).

Date the public agency or agencies committed to the provision of funds for the project: _____

SECTION C: To be completed when a project is a public works pursuant to ORS 279C.800(6)(a)(C) (a project for the construction of a privately owned road, highway, building, structure or improvement of any type that uses funds of a private entity and in which 25 percent or more of the square footage of the completed project will be occupied or used by a public agency).

Total square footage of privately owned road, highway, building, structure or improvement: _____
Percent of total square footage of the completed project that will be occupied or used by a public agency: _____
Date the public agency or agencies entered into an agreement to occupy or use the completed project: _____

SECTION D: To be completed when a project is a public works pursuant to ORS 279C.800(6)(a)(D) (a project that includes the construction or installation of a device, structure or mechanism that uses solar radiation on public property, regardless of project cost or whether the project uses funds of a public agency).

Date the public agency entered into an agreement for the project: _____

SECTION E: To be completed when a project is a public works pursuant to ORS 279C.800(6)(a)(E) (a project for the construction, reconstruction, major renovation or painting of a road, highway, building, structure, or improvement of any type that occurs, with or without using funds of a public agency, on real property that the Oregon University System or an institution in the Oregon University System owns).

Date the public agency entered into an agreement for the project: _____

Signature of agency representative completing form: _____

Printed Name: _____ Phone: _____ Date: _____

Email Address: _____

THIS FORM WILL BE RETURNED TO THE PUBLIC AGENCY FOR CORRECTION AND RESUBMITTAL IF INCOMPLETE.

RETURN THIS COMPLETED FORM TO:

Prevailing Wage Rate Unit • Bureau of Labor and Industries • 800 NE Oregon Street, #1045 • Portland, OR 97232-2180
Telephone (971) 673-0852 • FAX (971) 673-0769 • pwemail@boli.state.or.us



CONTRACT FEE SECTION
PREVAILING WAGE RATE UNIT
BUREAU OF LABOR AND INDUSTRIES
800 N.E. OREGON ST., #1045
PORTLAND, OR 97232-2180
PHONE: (971) 673-0852
FAX: (971) 673-0769

For Office Use Only: Project DB #: _____

PUBLIC WORKS FEE ADJUSTMENT FORM

**THIS FORM TO BE USED FOR RECONCILIATION OF FEES UPON COMPLETION OF
PUBLIC WORKS PROJECTS**

(As required by ORS 279C.825 and OAR 839-025-0210)

PUBLIC AGENCIES: Complete and mail this form to BOLI at the above address after completion of the public work project and not less than 30 days after the final progress payment is made to the contractor. Public agencies are required to determine the final contract price, including all change orders or other adjustments to the original contract price, and to calculate the adjusted prevailing wage rate fee based on the revised contract price. Documentation must be included to support the final contract price. Documentation of the final contract price may consist of change orders or other contract documents substantiating the amount of the contract. The prevailing wage rate fee of one-tenth of one percent (.001) shall be applied to the final contract price, with credit taken for fees already submitted. The public agency must submit any additional fee payable to BOLI, or submit any request for refund, with this adjustment form. **THE MINIMUM FEE IS \$250.00; THE MAXIMUM FEE IS \$7,500.00. NO ADDITIONAL FEE IS REQUIRED TO BE PAID, AND REFUNDS WILL NOT BE MADE, IF THE BALANCE DUE OR THE REFUND DUE IS LESS THAN \$100.00.**

PUBLIC AGENCY: _____ **AGENCY #:** _____

AGENCY CONTACT PERSON: _____ **PHONE :**() _____

MAILING ADDRESS: _____

PROJECT NAME: _____

CONTRACT NAME (if part of larger project): _____

PROJECT NUMBER: _____ **PROJECT LOCATION:** _____

CONTRACTOR/BUSINESS NAME (DBA): _____

CONTRACTOR CCB#: _____ **DATE AWARDED:** _____

FINAL CONTRACT/PROJECT AMOUNT: _____ **FINAL FEE DUE:** _____
(Include all change orders and adjustments to the contract price) (Final Contract amount X .001)

ORIGINAL CONTRACT AMOUNT: _____ **INITIAL FEE PAID:** _____
(Original Contract amount X .001)

TOTAL ADJUSTMENT: _____ **BALANCE DUE*:** _____

or
REFUND DUE*: _____
*Final contract fee less initial fee paid

Sample Calculation:			
Final Contract Amount:	\$ 400,000.00	Final Fee Due:	\$ 400.00
Original Contract Amount:	- 300,000.00	Initial Fee Paid:	- 300.00
Total Adjustment:	\$ 100,000.00	Additional Amount Due:	\$ 100.00

(Please duplicate this form for future use)

PREVAILING WAGE RATES

for

Public Works Contracts in Oregon



OREGON BUREAU OF LABOR AND INDUSTRIES

**Brad Avakian
Commissioner
Bureau of Labor and Industries**

Effective: July 1, 2016

BRAD AVAKIAN
COMMISSIONER



CHRISTIE HAMMOND
DEPUTY COMMISSIONER

BUREAU OF LABOR AND INDUSTRIES

July 1, 2016

In January and July of each year, the Bureau of Labor and Industries publishes the prevailing wage rates that are required to be paid to workers on non-residential public works projects in the state of Oregon. Quarterly updates are published in April and October.

A separate publication, entitled "[Definitions of Covered Occupations for Public Works Contracts in Oregon](#)," provides occupational definitions used to classify the duties performed on public works projects.

These publications are available electronically on the bureau's website at www.oregon.gov/boli. In order to contain costs and preserve limited budget resources, BOLI is no longer automatically mailing copies of these publications to contracting agencies, contractors, and other interested parties. Those on the agency's mailing list will receive a postcard notification whenever the publications are amended in the future. One complimentary hard copy of each PWR publication is available upon request by emailing BOLI at pwremail@boli.state.or.us or calling 971-673-0838. Additional copies are available at cost, plus postage.

Also available on the bureau's website is a link to the federal Davis-Bacon rates. This link is posted in order to assist contractors and public agencies in determining which rates to pay on projects in Oregon subject to BOTH the state PWR and federal Davis-Bacon Act. The higher of the wage rates must be paid on such projects.

Unless specifically exempted by state law, prevailing wage rates are the minimum wages that must be paid to all workers employed on all public works. These rates are determined using data collected from a statewide construction industry wage survey of occupations and crafts performing commercial building and heavy and highway construction in 14 geographic regions of the state.

ORS 279C.830 requires that the applicable wage rates be incorporated into all bid specifications for public works contracts subject to the PWR law. A statement incorporating the applicable prevailing wage rate publication and any amendments thereto or Davis-Bacon wage rate determination into the specifications *by reference* will satisfy these requirements. Such reference must include the title of the applicable wage rates publication or determination and the date of the publication or determination as well as the date of any applicable amendments. A provision that prevailing wage rates must be paid must also appear in the contract.

Generally, the rates in effect at the time the bid specifications are first advertised are those that apply for the duration of the project. There are some exceptions to this rule. For example, if during the bidding process, the prevailing wage rates change, the public agency has the option of amending the bid specifications to reflect such changes. If a Construction Manager/General Contractor (CM/GC) is used on the project, the rates in effect at the time the CM/GC contract becomes a public works contract are the applicable rates to be used for the duration of the project. (See OAR 839-025-0020 for more information.) Note that the applicable rates for purposes of compliance with the federal Davis-Bacon Act may be different than the applicable rates for purposes of compliance with Oregon's prevailing wage rate laws. The effective federal rates will be those as determined under 29 CFR 1.6.

If you have any questions regarding application of the state PWR law or the applicable rates to be paid on any project, contact the bureau's Prevailing Wage Coordinator in Portland at (971) 673-0839.

Brad Avakian
Commissioner
Bureau of Labor and Industries

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BOLI forms necessary to comply with ORS 279C.800 through ORS 279C.870 may be found in the back of this booklet. Contractors are encouraged to use and keep on file the forms provided as master copies for use on future prevailing wage rate projects.

All of the information in this booklet can be accessed and printed from the Internet at: www.oregon.gov/BOLI

Pursuant to ORS 279C.800 to ORS 279C.870, the prevailing wage rates contained in this booklet have been adopted for use on public works contracts in Oregon. Additional copies of this booklet are available at cost, plus postage.

HOW TO LOOK UP A RATE

1. When was the project first advertised for bid?

For purposes of compliance with Oregon's prevailing wage rate laws, the rates in effect at the time the bid specifications are first advertised are those that apply for the duration of the project. (See OAR 839-025-0020(6) for information about projects using a CM/GC.)

2. What type of work is being performed by the employee?

Using the booklet, [Definitions of Covered Occupations](#) find the definition that most closely matches the actual work being performed by the worker. If you have any questions about work classifications, contact BOLI at the number below.

3. Where is the work being performed – what region?

Find the occupation in the correct region pages associated with the county where the project construction is taking place.

4. Is there a rate listed next to the classification?

If so, use it. The prevailing wage rate is made up of an hourly base rate and an hourly fringe rate; it is the combination of these two amounts that must be paid to the worker.

5. If the book directs you to "See Appendix," go to the back of the book and use the rate listed in the Appendix pages. It may include a group number, shift differential, hazard pay and/or zone pay which are added to the hourly base rate.

6. Apprentices must be paid the full fringe rate in those regions where the appendix rate does not apply. However, if the book directs you to "See Appendix," and the worker is registered in a bona fide apprenticeship program, **you may contact BOLI at (971) 673-0839** for the applicable hourly fringe rate.

7. If you still don't know CALL BOLI at (971) 673-0839.

For specific information or questions regarding the prevailing wage law, you may obtain a "Prevailing Wage Rate Laws" handbook by contacting the nearest Oregon Bureau of Labor and Industries office listed below. An order form is in the back of this booklet.

BOLI Office Locations

Eugene	1400 Executive Parkway, Suite 200 Eugene, OR 97401	(541) 686-7623
Portland	800 NE Oregon St., #1045 Portland, OR 97232	(971) 673-0761
Salem	3865 Wolverine St. NE, Bldg. E-1 Salem, OR 97305	(503) 378-3292

PUBLIC WORKS BONDS

EVERY CONTRACTOR AND SUBCONTRACTOR who works on public works projects subject to the prevailing wage rate (PWR) law is required to file a **\$30,000 "PUBLIC WORKS BOND"** with the Construction Contractor's Board (CCB). (ORS 279C.836) This includes flagging and landscaping companies, temporary employment agencies, and sometimes sole proprietors.

- This bond is to be **USED EXCLUSIVELY FOR UNPAID WAGES** determined to be due by the Bureau of Labor and Industries (BOLI).
- The bond **MUST** be filed **BEFORE STARTING WORK** on a prevailing wage rate project.
- The bond is in effect **CONTINUOUSLY** (do not have to have one per project).
- **BEFORE PERMITTING A SUBCONTRACTOR TO START WORK** on a public works project, **CONTRACTORS MUST VERIFY** their subcontractors have either filed the bond, or have elected not to file a public works bond due to a bona fide exemption.
- A public works bond is in addition to any other required bond the contractor or subcontractor is required to obtain.

Exemptions:

- Allowed for contractors that are certified disadvantaged, minority, women or emerging small business enterprises, for the first FOUR years of certification;
 - Exempt contractor must still file written verification of certification with the CCB, and give the CCB written notice that they elect not to file a bond.
- For projects with a total project cost of \$100,000 or less, a public works bond is not required. (Note this is the total project cost, not an individual contract amount.)
 - The Prime Contractor must give written notice to the public agency that they elect not to file a public works bond.
 - Subcontractors must give written notice to the prime contractor that they elect not to file a public works bond.
- Emergency projects, as defined in ORS 279A.010(f).

ORS 279C.830(3) and (4) require:

That the **specifications** for every contract for public works shall contain a provision stating that the contractor and every subcontractor must have a public works bond filed with the CCB before starting work on the project, unless otherwise exempt.

Every contract awarded by a contracting agency shall contain a provision requiring the contractor:

- To have a public works bond filed with the CCB before starting work on the project, unless otherwise exempt;
- To include in every subcontract a provision requiring the subcontractor to have a public works bond filed with the CCB before starting work on the project unless otherwise exempt.

PWR SURVEY WAGE RATE APPEAL PROCESS

- 1) Anyone wishing to challenge or appeal a survey rate determination should submit their request in writing to the commissioner.
- 2) The appeal should include:
 - a) a complete description of the “problem,” including the affected trade(s), and documentation or evidence (if available) supporting why the rate determination is incorrect
 - b) recommendations for how the rate could be more accurately determined.
- 3) The written appeal will be reviewed by the Wage and Hour Division which will recommend to the commissioner a course of action and proposed time frame for addressing the issue (such as a recommendation that further information be obtained, an investigation or study of the matter be conducted, a rate amendment or correction be issued, the next survey be modified, etc.).
- 4) The commissioner will review the division’s recommendation and either approve, disapprove or modify the recommendation. (The PWR Advisory Committee may be consulted in some matters as deemed appropriate by the commissioner.)
- 5) The requesting party will be notified of the commissioner’s decision.

PWR REQUIRED POSTINGS

ALL CONTRACTORS AND SUBCONTRACTORS

PREVAILING WAGE RATES

Each and every contractor and subcontractor engaged in work on a public works must post the applicable prevailing wage rates for that project in a conspicuous place at the work site so workers have ready access to the information. ORS 279C.840(4); OAR 839-025-0033(1).

DETAILS OF FRINGE BENEFIT PROGRAMS

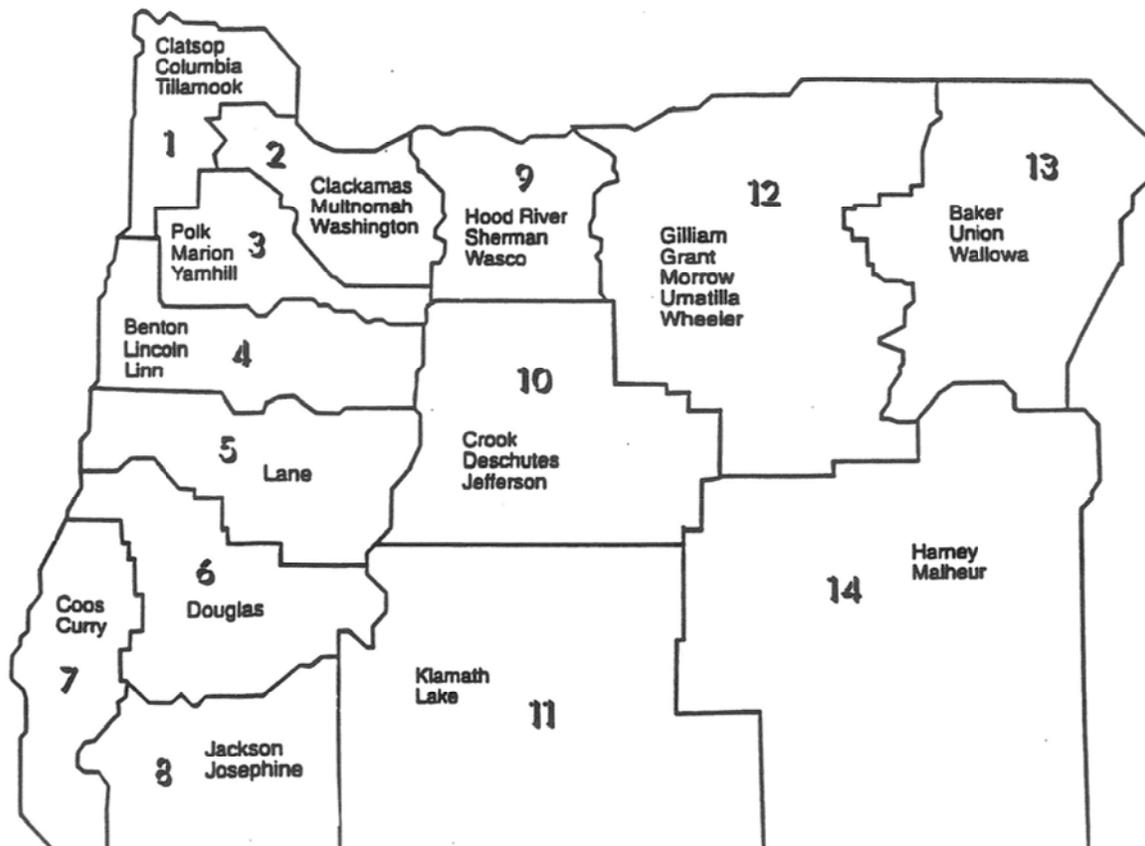
When a contractor or subcontractor provides for or contributes to a health and welfare plan or a pension plan, or both, for the contractor or subcontractor's employees who are working on a public works project, the details of all fringe benefit plans or programs must be posted on the work site. The posting must include a description of the plan or plans, information about how and where claims can be made and where to obtain more information. The notice must be posted in a conspicuous place at the work site in the same location as the prevailing wage rates (see above). ORS 279C.840(5); OAR 839-025-0033(2)

WORK SCHEDULE

Contractors and subcontractors must give workers the regular work schedule (days of the week and number of hours per day) in writing, before beginning work on the project. Contractors and subcontractors may provide the schedule at the time of hire, prior to starting work on the contract, or by posting the schedule in a location frequented by employees, along with the prevailing wage rate information and any fringe benefit information. If an employer fails to give written notice of the worker's schedule, the work schedule will be presumed to be a five-day schedule. The schedule may only be changed if the change is intended to be permanent and is not designed to evade the PWR overtime requirements. ORS 279C.540(2); OAR 839-025-0034.

PREVAILING WAGE RATES OCCUPATIONS BY REGIONS

PREVAILING WAGE RATE REGIONS



REGION #1
Clatsop, Columbia and Tillamook Counties

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	See Appendix	See Appendix
Bricklayer/Stonemason	See Appendix	See Appendix
Bridge and Highway Carpenter (See Carpenter Group 5)	See Appendix	See Appendix
Carpenter Group 1 & 2	See Appendix	See Appendix
Cement Mason	See Appendix	See Appendix
Diver	See Appendix	See Appendix
Diver Tender	See Appendix	See Appendix
Dredger	See Appendix	See Appendix
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	\$32.59	\$14.29
Drywall Taper	\$28.67	\$13.41
Electrician	See Appendix	See Appendix
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	\$24.10	\$10.12
Fence Erector (Metal)	\$20.50	\$5.09
Flagger (See Laborer Group 3)	See Appendix	See Appendix
Glazier	\$29.14	\$13.75
Hazardous Materials Handler/Mechanic	See Appendix	See Appendix
Highway and Parking Striper	\$26.11	\$8.20
Ironworker	See Appendix	See Appendix
Laborer Group 1	See Appendix	See Appendix
Laborer Group 2	See Appendix	See Appendix
Laborer Group 3	See Appendix	See Appendix
Landscape Laborer/Technician	\$16.94	\$4.00
Limited Energy Electrician	\$29.37	\$10.33
Line Constructor	See Appendix	See Appendix
Marble Setter	See Appendix	See Appendix
Millwright Group 1 & 2 (See Carpenter Group 3 & 4)	See Appendix	See Appendix
Painter	\$21.52	\$7.13
Piledriver	\$33.81	\$14.59
Plasterer and Stucco Mason	\$23.05	\$17.99
Plumber/Pipefitter/Steamfitter	See Appendix	See Appendix
Power Equipment Operator Group 1	See Appendix	See Appendix
Power Equipment Operator Group 1A	See Appendix	See Appendix
Power Equipment Operator Group 1B	See Appendix	See Appendix
Power Equipment Operator Group 2	See Appendix	See Appendix
Power Equipment Operator Group 3	See Appendix	See Appendix
Power Equipment Operator Group 4	See Appendix	See Appendix
Power Equipment Operator Group 5	See Appendix	See Appendix
Power Equipment Operator Group 6	See Appendix	See Appendix

REGION # 1
 Clatsop, Columbia and Tillamook Counties

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Roofer	\$24.43	\$8.76
Sheet Metal Worker	See Appendix	See Appendix
Soft Floor Layer	\$24.31	\$9.81
Sprinkler Fitter	See Appendix	See Appendix
Tender to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	See Appendix	See Appendix
Tender to Plasterer and Stucco Mason	\$17.35	\$12.74
Testing, Adjusting, and Balancing (TAB) Technician	\$30.47	\$9.98
Tilesetter/Terrazzo Worker: Hard Tilesetter	See Appendix	See Appendix
Tile, Terrazzo, and Marble Finisher	See Appendix	See Appendix
Truck Driver – All Groups	\$20.39	\$6.03

REGION #2
 Clackamas, Multnomah and Washington Counties

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	\$33.92	\$23.34
Bricklayer/Stonemason	See Appendix	See Appendix
Bridge & Highway Carpenter (See Carpenter Group 5)	See Appendix	See Appendix
Carpenter Group 1 & 2	See Appendix	See Appendix
Cement Mason	See Appendix	See Appendix
Diver	See Appendix	See Appendix
Diver Tender	See Appendix	See Appendix
Dredger	\$39.08	\$13.28
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	See Appendix	See Appendix
Drywall Taper (See Painter & Drywall Taper)	See Appendix	See Appendix
Electrician	See Appendix	See Appendix
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	\$24.10	\$10.12
Fence Erector (Metal)	\$20.50	\$5.09
Flagger (See Laborer Group 3)	See Appendix	See Appendix
Glazier	See Appendix	See Appendix
Hazardous Materials Handler/Mechanic	\$20.16	\$8.43
Highway and Parking Striper	\$26.11	\$8.20
Ironworker	See Appendix	See Appendix
Laborer Group 1	See Appendix	See Appendix
Laborer Group 2	See Appendix	See Appendix
Laborer Group 3	See Appendix	See Appendix
Landscape Laborer/Technician	\$16.94	\$4.00
Limited Energy Electrician	See Appendix	See Appendix
Line Constructor	See Appendix	See Appendix
Marble Setter	See Appendix	See Appendix
Millwright Group 1 & 2	\$29.32	\$10.68
Painter	\$21.52	\$7.13
Piledriver (See Carpenter Group 6)	See Appendix	See Appendix
Plasterer and Stucco Mason	See Appendix	See Appendix
Plumber/Pipefitter/Steamfitter	See Appendix	See Appendix
Power Equipment Operator Group 1	See Appendix	See Appendix
Power Equipment Operator Group 1A	See Appendix	See Appendix
Power Equipment Operator Group 1B	See Appendix	See Appendix
Power Equipment Operator Group 2	See Appendix	See Appendix
Power Equipment Operator Group 3	See Appendix	See Appendix
Power Equipment Operator Group 4	See Appendix	See Appendix
Power Equipment Operator Group 5	See Appendix	See Appendix
Power Equipment Operator Group 6	See Appendix	See Appendix

REGION #2
 Clackamas, Multnomah, and Washington Counties

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Roofer	See Appendix	See Appendix
Sheet Metal Worker	See Appendix	See Appendix
Soft Floor Layer	\$24.31	\$9.81
Sprinkler Fitter	See Appendix	See Appendix
Tenders to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	See Appendix	See Appendix
Tender to Plasterer and Stucco Mason	\$17.35	\$12.74
Testing, Adjusting, and Balancing (TAB) Technician	\$30.47	\$9.98
Tilesetter/Terrazzo Worker: Hard Tilesetter	See Appendix	See Appendix
Tile, Terrazzo, and Marble Finisher	See Appendix	See Appendix
Truck Driver – All Groups	\$20.39	\$6.03

REGION #3
 Marion, Polk and Yamhill Counties

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	\$33.92	\$23.34
Bricklayer/Stonemason	See Appendix	See Appendix
Bridge and Highway Carpenter	\$34.18	\$14.57
Carpenter Group 1 & 2	\$29.19	\$11.67
Cement Mason	See Appendix	See Appendix
Diver	See Appendix	See Appendix
Diver Tender	See Appendix	See Appendix
Dredger	See Appendix	See Appendix
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	See Appendix	See Appendix
Drywall Taper (See Painter & Drywall Taper)	See Appendix	See Appendix
Electrician	See Appendix	See Appendix
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	\$24.10	\$10.12
Fence Erector (Metal)	\$20.50	\$5.09
Flagger	\$21.03	\$10.45
Glazier	See Appendix	See Appendix
Hazardous Materials Handler/Mechanic	See Appendix	See Appendix
Highway and Parking Striper	See Appendix	See Appendix
Ironworker	\$31.96	\$18.48
Laborer Group 1	\$24.25	\$10.01
Laborer Group 2	\$25.29	\$9.52
Laborer Group 3	\$22.35	\$11.30
Landscape Laborer/Technician	\$16.94	\$4.00
Limited Energy Electrician	\$29.37	\$10.33
Line Constructor	See Appendix	See Appendix
Marble Setter	See Appendix	See Appendix
Millwright Group 1 & 2	\$29.32	\$10.68
Painter	\$21.52	\$7.13
Piledriver	\$33.81	\$14.59
Plasterer and Stucco Mason	\$23.05	\$17.99
Plumber/Pipefitter/Steamfitter	See Appendix	See Appendix
Power Equipment Operator Group 1	See Appendix	See Appendix
Power Equipment Operator Group 1A	See Appendix	See Appendix
Power Equipment Operator Group 1B	See Appendix	See Appendix
Power Equipment Operator Group 2	See Appendix	See Appendix
Power Equipment Operator Group 3	See Appendix	See Appendix
Power Equipment Operator Group 4	See Appendix	See Appendix
Power Equipment Operator Group 5	See Appendix	See Appendix
Power Equipment Operator Group 6	See Appendix	See Appendix

REGION #3
 Marion, Polk and Yamhill Counties

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Roofer	See Appendix	See Appendix
Sheet Metal Worker	\$32.29	\$12.84
Soft Floor Layer	See Appendix	See Appendix
Sprinkler Fitter	See Appendix	See Appendix
Tender to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	See Appendix	See Appendix
Tender to Plasterer and Stucco Mason	\$17.35	\$12.74
Testing, Adjusting, and Balancing (TAB) Technician	\$30.47	\$9.98
Tilesetter/Terrazzo Worker: Hard Tilesetter	\$25.99	\$12.23
Tile, Terrazzo, and Marble Finisher	\$21.04	\$11.10
Truck Driver – All Groups	\$20.39	\$6.03

REGION #4
Benton, Lincoln and Linn Counties

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	\$33.92	\$23.34
Bricklayer/Stonemason	See Appendix	See Appendix
Bridge and Highway Carpenter	\$34.18	\$14.57
Carpenter Group 1 & 2	See Appendix	See Appendix
Cement Mason	See Appendix	See Appendix
Diver	See Appendix	See Appendix
Diver Tender	See Appendix	See Appendix
Dredger	\$39.08	\$13.28
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	See Appendix	See Appendix
Drywall Taper (See Painter & Drywall Taper)	See Appendix	See Appendix
Electrician	See Appendix	See Appendix
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	\$24.10	\$10.12
Fence Erector (Metal)	\$20.50	\$5.09
Flagger	\$21.03	\$10.45
Glazier	See Appendix	See Appendix
Hazardous Materials Handler/Mechanic	See Appendix	See Appendix
Highway and Parking Striper	\$26.11	\$8.20
Ironworker	\$31.96	\$18.48
Laborer Group 1	\$24.25	\$10.01
Laborer Group 2	\$25.29	\$9.52
Laborer Group 3	\$22.35	\$11.30
Landscape Laborer/Technician	\$16.94	\$4.00
Limited Energy Electrician	\$29.37	\$10.33
Line Constructor	See Appendix	See Appendix
Marble Setter	See Appendix	See Appendix
Millwright Group 1 & 2	\$29.32	\$10.68
Painter	\$21.52	\$7.13
Piledriver	\$33.81	\$14.59
Plasterer and Stucco Mason	See Appendix	See Appendix
Plumber/Pipefitter/Steamfitter	\$39.94	\$18.29
Power Equipment Operator Group 1	See Appendix	See Appendix
Power Equipment Operator Group 1A	See Appendix	See Appendix
Power Equipment Operator Group 1B	See Appendix	See Appendix
Power Equipment Operator Group 2	See Appendix	See Appendix
Power Equipment Operator Group 3	See Appendix	See Appendix
Power Equipment Operator Group 4	See Appendix	See Appendix
Power Equipment Operator Group 5	See Appendix	See Appendix
Power Equipment Operator Group 6	See Appendix	See Appendix

REGION #4

Benton, Lincoln and Linn Counties

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Roofer	See Appendix	See Appendix
Sheet Metal Worker	\$32.29	\$12.84
Soft Floor Layer	\$24.31	\$9.81
Sprinkler Fitter	\$30.64	\$11.90
Tenders to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	See Appendix	See Appendix
Tender to Plasterer and Stucco Mason	\$17.35	\$12.74
Testing, Adjusting, and Balancing (TAB) Technician	\$30.47	\$9.98
Tilesetter/Terrazzo Worker: Hard Tilesetter	See Appendix	See Appendix
Tile, Terrazzo, and Marble Finisher	See Appendix	See Appendix
Truck Driver – All Groups	\$20.39	\$6.03

REGION #5
Lane County

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	See Appendix	See Appendix
Bricklayer/Stonemason	See Appendix	See Appendix
Bridge and Highway Carpenter	\$34.18	\$14.57
Carpenter Group 1 & 2	\$29.19	\$11.67
Cement Mason	See Appendix	See Appendix
Diver	See Appendix	See Appendix
Diver Tender	See Appendix	See Appendix
Dredger	See Appendix	See Appendix
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	See Appendix	See Appendix
Drywall Taper (See Painter & Drywall Taper)	See Appendix	See Appendix
Electrician	See Appendix	See Appendix
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	\$24.10	\$10.12
Fence Erector (Metal)	\$20.50	\$5.09
Flagger (See Laborer Group 3)	See Appendix	See Appendix
Glazier	See Appendix	See Appendix
Hazardous Materials Handler/Mechanic	See Appendix	See Appendix
Highway and Parking Striper	\$26.11	\$8.20
Ironworker	See Appendix	See Appendix
Laborer Group 1	See Appendix	See Appendix
Laborer Group 2	See Appendix	See Appendix
Laborer Group 3	See Appendix	See Appendix
Landscape Laborer/Technician	\$16.94	\$4.00
Limited Energy Electrician	\$29.37	\$10.33
Line Constructor	See Appendix	See Appendix
Marble Setter	See Appendix	See Appendix
Millwright Group 1 & 2	\$29.32	\$10.68
Painter	\$21.52	\$7.13
Piledriver	\$33.81	\$14.59
Plasterer and Stucco Mason	See Appendix	See Appendix
Plumber/Pipefitter/Steamfitter	See Appendix	See Appendix
Power Equipment Operator Group 1	See Appendix	See Appendix
Power Equipment Operator Group 1A	See Appendix	See Appendix
Power Equipment Operator Group 1B	See Appendix	See Appendix
Power Equipment Operator Group 2	See Appendix	See Appendix
Power Equipment Operator Group 3	See Appendix	See Appendix
Power Equipment Operator Group 4	See Appendix	See Appendix
Power Equipment Operator Group 5	See Appendix	See Appendix
Power Equipment Operator Group 6	See Appendix	See Appendix

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Roofer	\$24.43	\$8.76
Sheet Metal Worker	\$32.29	\$12.84
Soft Floor Layer	\$24.31	\$9.81
Sprinkler Fitter	\$30.64	\$11.90
Tender to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	See Appendix	See Appendix
Tender to Plasterer and Stucco Mason	\$17.35	\$12.74
Testing, Adjusting, and Balancing (TAB) Technician	\$30.47	\$9.98
Tilesetter/Terrazzo Worker: Hard Tilesetter	See Appendix	See Appendix
Tile, Terrazzo, and Marble Finisher	See Appendix	See Appendix
Truck Driver – All Groups	\$20.39	\$6.03

REGION #6
Douglas County

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	\$33.92	\$23.34
Bricklayer/Stonemason	\$32.33	\$14.78
Bridge and Highway Carpenter (See Carpenter Group 5)	See Appendix	See Appendix
Carpenter Group 1 & 2	\$29.19	\$11.67
Cement Mason	See Appendix	See Appendix
Diver	See Appendix	See Appendix
Diver Tender	See Appendix	See Appendix
Dredger	See Appendix	See Appendix
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	See Appendix	See Appendix
Drywall Taper (See Painter & Drywall Taper)	See Appendix	See Appendix
Electrician	\$37.60	\$15.35
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	\$24.10	\$10.12
Fence Erector (Metal)	\$20.50	\$5.09
Flagger (See Laborer Group 3)	See Appendix	See Appendix
Glazier	See Appendix	See Appendix
Hazardous Material Handler/Mechanic	\$20.16	\$8.43
Highway and Parking Striper	See Appendix	See Appendix
Ironworker	\$31.96	\$18.48
Laborer Group 1	See Appendix	See Appendix
Laborer Group 2	See Appendix	See Appendix
Laborer Group 3	See Appendix	See Appendix
Landscape Laborer/Technician	\$16.94	\$4.00
Limited Energy Electrician	\$29.37	\$10.33
Line Constructor	See Appendix	See Appendix
Marble Setter	See Appendix	See Appendix
Millwright Group 1 & 2	\$29.32	\$10.68
Painter	\$21.52	\$7.13
Piledriver (See Carpenter Group 6)	See Appendix	See Appendix
Plasterer and Stucco Mason	\$23.05	\$17.99
Plumber/Pipefitter/Steamfitter	\$39.94	\$18.29
Power Equipment Operator Group 1	See Appendix	See Appendix
Power Equipment Operator Group 1A	See Appendix	See Appendix
Power Equipment Operator Group 1B	See Appendix	See Appendix
Power Equipment Operator Group 2	See Appendix	See Appendix
Power Equipment Operator Group 3	See Appendix	See Appendix
Power Equipment Operator Group 4	See Appendix	See Appendix
Power Equipment Operator Group 5	See Appendix	See Appendix
Power Equipment Operator Group 6	See Appendix	See Appendix

REGION #6
Douglas County

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Roofer	\$24.43	\$8.76
Sheet Metal Worker	See Appendix	See Appendix
Soft Floor Layer	\$24.31	\$9.81
Sprinkler Fitter	\$30.64	\$11.90
Tender to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	\$26.59	\$11.17
Tender to Plasterer and Stucco Mason	\$17.35	\$12.74
Testing, Adjusting, and Balancing (TAB) Technician	\$30.47	\$9.98
Tilesetter/Terrazzo Worker: Hard Tilesetter	See Appendix	See Appendix
Tile, Terrazzo, and Marble Finisher	See Appendix	See Appendix
Truck Driver – All Groups	\$20.39	\$6.03

REGION #7
Coos and Curry Counties

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	\$33.92	\$23.34
Bricklayer/Stonemason	\$32.33	\$14.78
Bridge and Highway Carpenter (See Carpenter Group 5)	See Appendix	See Appendix
Carpenter Group 1 & 2	\$29.19	\$11.67
Cement Mason	\$27.06	\$13.39
Diver	See Appendix	See Appendix
Diver Tender	See Appendix	See Appendix
Dredger	See Appendix	See Appendix
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	See Appendix	See Appendix
Drywall Taper (See Painter & Drywall Taper)	See Appendix	See Appendix
Electrician	See Appendix	See Appendix
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	\$24.10	\$10.12
Fence Erector (Metal)	\$20.50	\$5.09
Flagger (See Laborer Group 3)	See Appendix	See Appendix
Glazier	See Appendix	See Appendix
Hazardous Materials Handler/Mechanic	\$20.16	\$8.43
Highway and Parking Striper	See Appendix	See Appendix
Ironworker	See Appendix	See Appendix
Laborer Group 1	See Appendix	See Appendix
Laborer Group 2	See Appendix	See Appendix
Laborer Group 3	See Appendix	See Appendix
Landscape Laborer/Technician	\$16.94	\$4.00
Limited Energy Electrician	\$29.37	\$10.33
Line Constructor	See Appendix	See Appendix
Marble Setter	See Appendix	See Appendix
Millwright Group 1 & 2	\$29.32	\$10.68
Painter	\$21.52	\$7.13
Piledriver	\$33.81	\$14.59
Plasterer and Stucco Mason	\$23.05	\$17.99
Plumber/Pipefitter/Steamfitter	See Appendix	See Appendix
Power Equipment Operator Group 1	See Appendix	See Appendix
Power Equipment Operator Group 1A	See Appendix	See Appendix
Power Equipment Operator Group 1B	See Appendix	See Appendix
Power Equipment Operator Group 2	See Appendix	See Appendix
Power Equipment Operator Group 3	See Appendix	See Appendix
Power Equipment Operator Group 4	See Appendix	See Appendix
Power Equipment Operator Group 5	See Appendix	See Appendix
Power Equipment Operator Group 6	See Appendix	See Appendix

REGION #7
Coos and Curry Counties

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Roofer	\$24.43	\$8.76
Sheet Metal Worker	See Appendix	See Appendix
Soft Floor Layer	\$24.31	\$9.81
Sprinkler Fitter	See Appendix	See Appendix
Tender to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	See Appendix	See Appendix
Tender to Plasterer and Stucco Mason	See Appendix	See Appendix
Testing, Adjusting, and Balancing (TAB) Technician (See Sheet Metal Worker or Plumber/Pipefitter/Steamfitter)	See Appendix	See Appendix
Tilesetter/Terrazzo Worker: Hard Tilesetter	See Appendix	See Appendix
Tile, Terrazzo, and Marble Finisher	\$21.04	\$11.10
Truck Driver – All Groups	\$20.39	\$6.03

REGION #8
Jackson and Josephine Counties

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	\$33.92	\$23.34
Bricklayer/Stonemason	\$32.33	\$14.78
Bridge and Highway Carpenter (See Carpenter Group 5)	See Appendix	See Appendix
Carpenter Group 1 & 2	\$29.19	\$11.67
Cement Mason	See Appendix	See Appendix
Diver	See Appendix	See Appendix
Diver Tender	See Appendix	See Appendix
Dredger	See Appendix	See Appendix
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	See Appendix	See Appendix
Drywall Taper	\$28.67	\$13.41
Electrician	See Appendix	See Appendix
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	\$24.10	\$10.12
Fence Erector (Metal)	\$20.50	\$5.09
Flagger (See Laborer Group 3)	See Appendix	See Appendix
Glazier	\$29.14	\$13.75
Hazardous Materials Handler/Mechanic	\$20.16	\$8.43
Highway and Parking Striper	\$26.11	\$8.20
Ironworker	See Appendix	See Appendix
Laborer Group 1	See Appendix	See Appendix
Laborer Group 2	See Appendix	See Appendix
Laborer Group 3	See Appendix	See Appendix
Landscape Laborer/Technician	\$16.94	\$4.00
Limited Energy Electrician	\$29.37	\$10.33
Line Constructor	See Appendix	See Appendix
Marble Setter	See Appendix	See Appendix
Millwright Group 1 & 2	\$29.32	\$10.68
Painter	\$21.52	\$7.13
Piledriver (See Carpenter Group 6)	See Appendix	See Appendix
Plasterer and Stucco Mason	\$23.05	\$17.99
Plumber/Pipefitter/Steamfitter	See Appendix	See Appendix
Power Equipment Operator Group 1	See Appendix	See Appendix
Power Equipment Operator Group 1A	See Appendix	See Appendix
Power Equipment Operator Group 1B	See Appendix	See Appendix
Power Equipment Operator Group 2	See Appendix	See Appendix
Power Equipment Operator Group 3	See Appendix	See Appendix
Power Equipment Operator Group 4	See Appendix	See Appendix
Power Equipment Operator Group 5	See Appendix	See Appendix
Power Equipment Operator Group 6	See Appendix	See Appendix

REGION #8
 Jackson and Josephine Counties

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Roofer	\$24.43	\$8.76
Sheet Metal Worker	\$32.29	\$12.84
Soft Floor Layer	\$24.31	\$9.81
Sprinkler Fitter	\$30.64	\$11.90
Tender to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	\$26.59	\$11.17
Tender to Plasterer and Stucco Mason	\$17.35	\$12.74
Testing, Adjusting, and Balancing (TAB) Technician (See Sheet Metal Worker or Plumber/Pipefitter/Steamfitter in Appendix)	See Appendix	See Appendix
Tilesetter/Terrazzo Worker; Hard Tilesetter	\$25.99	\$12.23
Tile, Terrazzo, and Marble Finisher	\$21.04	\$11.10
Truck Driver – All Groups	\$20.39	\$6.03

REGION #9
Hood River, Sherman and Wasco Counties

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	See Appendix	See Appendix
Bricklayer/Stonemason	See Appendix	See Appendix
Bridge and Highway Carpenter (See Carpenter Group 5)	See Appendix	See Appendix
Carpenter Group 1 & 2	See Appendix	See Appendix
Cement Mason	See Appendix	See Appendix
Diver	See Appendix	See Appendix
Diver Tender	See Appendix	See Appendix
Dredger	See Appendix	See Appendix
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	See Appendix	See Appendix
Drywall Taper (See Painter & Drywall Taper)	See Appendix	See Appendix
Electrician	See Appendix	See Appendix
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	\$24.10	\$10.12
Fence Erector (Metal)	\$20.50	\$5.09
Flagger (See Laborer Group 3)	See Appendix	See Appendix
Glazier	See Appendix	See Appendix
Hazardous Materials Handler/Mechanic	\$20.16	\$8.43
Highway and Parking Striper	See Appendix	See Appendix
Ironworker	See Appendix	See Appendix
Laborer Group 1	See Appendix	See Appendix
Laborer Group 2	See Appendix	See Appendix
Laborer Group 3	See Appendix	See Appendix
Landscape Laborer/Technician	\$16.94	\$4.00
Limited Energy Electrician	See Appendix	See Appendix
Line Constructor	See Appendix	See Appendix
Marble Setter	See Appendix	See Appendix
Millwright Group 1 & 2	\$29.32	\$10.68
Painter	See Appendix	See Appendix
Piledriver	\$33.81	\$14.59
Plasterer and Stucco Mason	See Appendix	See Appendix
Plumber/Pipefitter/Steamfitter	See Appendix	See Appendix
Power Equipment Operator Group 1	See Appendix	See Appendix
Power Equipment Operator Group 1A	See Appendix	See Appendix
Power Equipment Operator Group 1B	See Appendix	See Appendix
Power Equipment Operator Group 2	See Appendix	See Appendix
Power Equipment Operator Group 3	See Appendix	See Appendix
Power Equipment Operator Group 4	See Appendix	See Appendix
Power Equipment Operator Group 5	See Appendix	See Appendix
Power Equipment Operator Group 6	See Appendix	See Appendix

REGION #9
Hood River, Sherman and Wasco Counties

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Roofer	\$24.43	\$8.76
Sheet Metal Worker	See Appendix	See Appendix
Soft Floor Layer	See Appendix	See Appendix
Sprinkler Fitter	See Appendix	See Appendix
Tender to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	See Appendix	See Appendix
Tender to Plasterer and Stucco Mason	\$17.35	\$12.74
Testing, Adjusting, and Balancing (TAB) Technician (See Sheet Metal Worker or Plumber/Pipefitter/Steamfitter)	See Appendix	See Appendix
Tilesetter/Terrazzo Worker: Hard Tilesetter	See Appendix	See Appendix
Tile, Terrazzo, and Marble Finisher	See Appendix	See Appendix
Truck Driver – All Groups	\$20.39	\$6.03

REGION #10
 Crook, Deschutes and Jefferson Counties

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	See Appendix	See Appendix
Bricklayer/Stonemason	\$32.33	\$14.78
Bridge and Highway Carpenter	\$34.18	\$14.57
Carpenter Group 1 & 2	\$29.19	\$11.67
Cement Mason	\$27.06	\$13.39
Diver	See Appendix	See Appendix
Diver Tender	See Appendix	See Appendix
Dredger	See Appendix	See Appendix
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	See Appendix	See Appendix
Drywall Taper (See Painter & Drywall Taper)	See Appendix	See Appendix
Electrician	See Appendix	See Appendix
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	\$24.10	\$10.12
Fence Erector (Metal)	\$20.50	\$5.09
Flagger	\$21.03	\$10.45
Glazier	\$29.14	\$13.75
Hazardous Materials Handler/Mechanic	\$20.16	\$8.43
Highway and Parking Striper	\$26.11	\$8.20
Ironworker	See Appendix	See Appendix
Laborer Group 1	\$24.25	\$10.01
Laborer Group 2	\$25.29	\$9.52
Laborer Group 3	\$22.35	\$11.30
Landscape Laborer/Technician	\$16.94	\$4.00
Limited Energy Electrician	\$29.37	\$10.33
Line Constructor	See Appendix	See Appendix
Marble Setter	\$29.56	\$10.88
Millwright Group 1 & 2	\$29.32	\$10.68
Painter	\$21.52	\$7.13
Piledriver (See Carpenter Group 6)	See Appendix	See Appendix
Plasterer and Stucco Mason	\$23.05	\$17.99
Plumber/Pipefitter/Steamfitter	See Appendix	See Appendix
Power Equipment Operator Group 1	See Appendix	See Appendix
Power Equipment Operator Group 1A	See Appendix	See Appendix
Power Equipment Operator Group 1B	See Appendix	See Appendix
Power Equipment Operator Group 2	See Appendix	See Appendix
Power Equipment Operator Group 3	See Appendix	See Appendix
Power Equipment Operator Group 4	See Appendix	See Appendix
Power Equipment Operator Group 5	See Appendix	See Appendix
Power Equipment Operator Group 6	See Appendix	See Appendix

REGION #10
 Crook, Deschutes and Jefferson Counties

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Roofer	\$24.43	\$8.76
Sheet Metal Worker	See Appendix	See Appendix
Soft Floor Layer	\$24.31	\$9.81
Sprinkler Fitter	\$30.64	\$11.90
Tender to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	\$26.59	\$11.17
Tender to Plasterer and Stucco Mason	\$17.35	\$12.74
Testing, Adjusting, and Balancing (TAB) Technician (See Sheet Metal Worker or Plumber/Pipefitter/Steamfitter)	See Appendix	See Appendix
Tilesetter/Terrazzo Worker: Hard Tilesetter	\$25.99	\$12.23
Tile, Terrazzo, and Marble Finisher	\$21.04	\$11.10
Truck Driver – All Groups	\$20.39	\$6.03

REGION #11
Klamath and Lake Counties

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	\$33.92	\$23.34
Bricklayer/Stonemason	\$32.33	\$14.78
Bridge and Highway Carpenter	\$34.18	\$14.57
Carpenter Group 1 & 2	\$29.19	\$11.67
Cement Mason	\$27.06	\$13.39
Diver	See Appendix	See Appendix
Diver Tender	See Appendix	See Appendix
Dredger	See Appendix	See Appendix
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	\$32.59	\$14.29
Drywall Taper	\$28.67	\$13.41
Electrician	See Appendix	See Appendix
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructors (Non-metal)	\$24.10	\$10.12
Fence Erector (Metal)	\$20.50	\$5.09
Flagger	\$21.03	\$10.45
Glazier	\$29.14	\$13.75
Hazardous Materials Handler/Mechanic	\$20.16	\$8.43
Highway and Parking Striper	See Appendix	See Appendix
Ironworker	See Appendix	See Appendix
Laborer Group 1	\$24.25	\$10.01
Laborer Group 2	\$25.29	\$9.52
Laborer Group 3	\$22.35	\$11.30
Landscape Laborer/Technician	\$16.94	\$4.00
Limited Energy Electrician	\$29.37	\$10.33
Line Constructor	See Appendix	See Appendix
Marble Setter	See Appendix	See Appendix
Millwright Group 1 & 2 (See Carpenter Group 3 & 4)	See Appendix	See Appendix
Painter	\$21.52	\$7.13
Piledriver (See Carpenter Group 6)	See Appendix	See Appendix
Plasterer and Stucco Mason	\$23.05	\$17.99
Plumber/Pipefitter/Steamfitter	\$39.94	\$18.29
Power Equipment Operator Group 1	See Appendix	See Appendix
Power Equipment Operator Group 1A	See Appendix	See Appendix
Power Equipment Operator Group 1B	See Appendix	See Appendix
Power Equipment Operator Group 2	See Appendix	See Appendix
Power Equipment Operator Group 3	See Appendix	See Appendix
Power Equipment Operator Group 4	See Appendix	See Appendix
Power Equipment Operator Group 5	See Appendix	See Appendix
Power Equipment Operator Group 6	See Appendix	See Appendix

REGION #11
 Klamath and Lake Counties

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Roofer	\$24.43	\$8.76
Sheet Metal Worker	\$32.29	\$12.84
Soft Floor Layer	\$24.31	\$9.81
Sprinkler Fitter	\$30.64	\$11.90
Tender to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	See Appendix	See Appendix
Tender to Plasterer and Stucco Mason	\$17.35	\$12.74
Testing, Adjusting, and Balancing (TAB) Technician	\$30.47	\$9.98
Tilesetter/Terrazzo Worker: Hard Tilesetter	\$25.99	\$12.23
Tile, Terrazzo, and Marble Finisher	See Appendix	See Appendix
Truck Driver – All Groups	\$20.39	\$6.03

REGION #12
 Gilliam, Grant, Morrow, Umatilla and Wheeler Counties

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	See Appendix	See Appendix
Bricklayer/Stonemason	See Appendix	See Appendix
Bridge and Highway Carpenter (See Carpenter Group 5)	See Appendix	See Appendix
Carpenter Group 1 & 2	See Appendix	See Appendix
Cement Mason	See Appendix	See Appendix
Diver	See Appendix	See Appendix
Diver Tender	See Appendix	See Appendix
Dredger	See Appendix	See Appendix
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	See Appendix	See Appendix
Drywall Taper	\$28.67	\$13.41
Electrician	See Appendix	See Appendix
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	\$24.10	\$10.12
Fence Erector (Metal)	\$20.50	\$5.09
Flagger (See Laborer Group 3)	See Appendix	See Appendix
Glazier	\$29.14	\$13.75
Hazardous Materials Handler/Mechanic	See Appendix	See Appendix
Highway and Parking Striper	See Appendix	See Appendix
Ironworker	See Appendix	See Appendix
Laborer Group 1	See Appendix	See Appendix
Laborer Group 2	See Appendix	See Appendix
Laborer Group 3	See Appendix	See Appendix
Landscape Laborer/Technician	\$16.94	\$4.00
Limited Energy Electrician	\$29.37	\$10.33
Line Constructor	See Appendix	See Appendix
Marble Setter	See Appendix	See Appendix
Millwright Group 1 & 2	\$29.32	\$10.68
Painter	See Appendix	See Appendix
Piledriver (See Carpenter Group 6)	See Appendix	See Appendix
Plasterer and Stucco Mason	\$23.05	\$17.99
Plumber/Pipefitter/Steamfitter	See Appendix	See Appendix
Power Equipment Operator Group 1	See Appendix	See Appendix
Power Equipment Operator Group 1A	See Appendix	See Appendix
Power Equipment Operator Group 1B	See Appendix	See Appendix
Power Equipment Operator Group 2	See Appendix	See Appendix
Power Equipment Operator Group 3	See Appendix	See Appendix
Power Equipment Operator Group 4	See Appendix	See Appendix
Power Equipment Operator Group 5	See Appendix	See Appendix
Power Equipment Operator Group 6	See Appendix	See Appendix

REGION #12
 Gilliam, Grant, Morrow, Umatilla and Wheeler Counties

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Roofer	\$24.43	\$8.76
Sheet Metal Worker	See Appendix	See Appendix
Soft Floor Layer	\$24.31	\$9.81
Sprinkler Fitter	See Appendix	See Appendix
Tenders to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	See Appendix	See Appendix
Tender to Plasterer and Stucco Mason	\$17.35	\$12.74
Testing, Adjusting, and Balancing (TAB) Technician (See Sheet Metal Worker or Plumber/Pipefitter/Steamfitter)	See Appendix	See Appendix
Tilesetter/Terrazzo Worker: Hard Tilesetter	\$25.99	\$12.23
Tile, Terrazzo, and Marble Finisher	\$21.04	\$11.10
Truck Driver – All Groups	\$20.39	\$6.03

REGION #13
 Baker, Union and Wallowa Counties

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	\$33.92	\$23.34
Bricklayer/Stonemason	See Appendix	See Appendix
Bridge and Highway Carpenter	\$34.18	\$14.57
Carpenter Group 1 & 2	\$29.19	\$11.67
Cement Mason	\$27.06	\$13.39
Diver	See Appendix	See Appendix
Diver Tender	See Appendix	See Appendix
Dredger	See Appendix	See Appendix
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	\$32.59	\$14.29
Drywall Taper	\$28.67	\$13.41
Electrician	\$37.60	\$15.35
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	\$24.10	\$10.12
Fence Erector (Metal)	\$20.50	\$5.09
Flagger (See Laborer Group 3)	See Appendix	See Appendix
Glazier	See Appendix	See Appendix
Hazardous Materials Handler/Mechanic	\$20.16	\$8.43
Highway and Parking Striper	\$26.11	\$8.20
Ironworker	See Appendix	See Appendix
Laborer Group 1	See Appendix	See Appendix
Laborer Group 2	See Appendix	See Appendix
Laborer Group 3	See Appendix	See Appendix
Landscape Laborer/Technician	\$16.94	\$4.00
Limited Energy Electrician	\$29.37	\$10.33
Line Constructor	\$43.79	\$14.76
Marble Setter	See Appendix	See Appendix
Millwright Group 1 & 2	\$29.32	\$10.68
Painter	\$21.52	\$7.13
Piledriver	\$33.81	\$14.59
Plasterer and Stucco Mason	\$23.05	\$17.99
Plumber/Pipefitter/Steamfitter	See Appendix	See Appendix
Power Equipment Operator Group 1	See Appendix	See Appendix
Power Equipment Operator Group 1A	See Appendix	See Appendix
Power Equipment Operator Group 1B	See Appendix	See Appendix
Power Equipment Operator Group 2	See Appendix	See Appendix
Power Equipment Operator Group 3	See Appendix	See Appendix
Power Equipment Operator Group 4	See Appendix	See Appendix
Power Equipment Operator Group 5	See Appendix	See Appendix
Power Equipment Operator Group 6	See Appendix	See Appendix

REGION #13
 Baker, Union and Wallowa Counties

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Roofer	\$24.43	\$8.76
Sheet Metal Worker	See Appendix	See Appendix
Soft Floor Layer	\$24.31	\$9.81
Sprinkler Fitter	\$30.64	\$11.90
Tenders to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	\$26.59	\$11.17
Tender to Plasterer and Stucco Mason	\$17.35	\$12.74
Testing, Adjusting, and Balancing (TAB) Technician	\$30.47	\$9.98
Tilesetter/Terrazzo Worker: Hard Tilesetter	\$25.99	\$12.23
Tile, Terrazzo, and Marble Finisher	See Appendix	See Appendix
Truck Driver – All Groups	\$20.39	\$6.03

REGION #14
Harney and Malheur Counties

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Asbestos Worker/Insulator	See Appendix	See Appendix
Boilermaker	\$33.92	\$23.34
Bricklayer/Stonemason	See Appendix	See Appendix
Bridge and Highway Carpenter	\$34.18	\$14.57
Carpenter Group 1 & 2	\$29.19	\$11.67
Cement Mason	\$27.06	\$13.39
Diver	See Appendix	See Appendix
Diver Tender	See Appendix	See Appendix
Dredger	See Appendix	See Appendix
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	\$32.59	\$14.29
Drywall Taper	\$28.67	\$13.41
Electrician	\$37.60	\$15.35
Elevator Constructor, Installer and Mechanic	See Appendix	See Appendix
Fence Constructor (Non-metal)	\$24.10	\$10.12
Fence Erector (Metal)	\$20.50	\$5.09
Flagger	\$21.03	\$10.45
Glazier	\$29.14	\$13.75
Hazardous Materials Handler/Mechanic	\$20.16	\$8.43
Highway and Parking Striper	\$26.11	\$8.20
Ironworker	\$31.96	\$18.48
Laborer Group 1	\$24.25	\$10.01
Laborer Group 2	\$25.29	\$9.52
Laborer Group 3	\$22.35	\$11.30
Landscape Laborer/Technician	\$16.94	\$4.00
Limited Energy Electrician	\$29.37	\$10.33
Line Constructor	See Appendix	See Appendix
Marble Setter	See Appendix	See Appendix
Millwright Group 1 & 2	\$29.32	\$10.68
Painter	\$21.52	\$7.13
Piledriver	\$33.81	\$14.59
Plasterer and Stucco Mason	\$23.05	\$17.99
Plumber/Pipefitter/Steamfitter	\$39.94	\$18.29
Power Equipment Operator Group 1	\$36.01	\$13.45
Power Equipment Operator Group 1A	\$40.91	\$14.10
Power Equipment Operator Group 1B	\$41.84	\$13.90
Power Equipment Operator Group 2	\$33.07	\$12.72
Power Equipment Operator Group 3	\$31.79	\$11.18
Power Equipment Operator Group 4	\$31.18	\$10.78
Power Equipment Operator Group 5	\$28.18	\$9.54
Power Equipment Operator Group 6	\$27.70	\$11.98

REGION #14
 Harney and Malheur Counties

Using the booklet, Definitions of Covered Occupations, find the definition that most closely matches the actual work being performed by the worker.

OCCUPATION	BASIC HOURLY RATE	FRINGE RATE
Roofer	\$24.43	\$8.76
Sheet Metal Worker	\$32.29	\$12.84
Soft Floor Layer	\$24.31	\$9.81
Sprinkler Fitter	See Appendix	See Appendix
Tenders to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	\$26.59	\$11.17
Tender to Plasterer and Stucco Mason	\$17.35	\$12.74
Testing, Adjusting, and Balancing (TAB) Technician	\$30.47	\$9.98
Tilesetter/Terrazzo Worker: Hard Tilesetter	\$25.99	\$12.23
Tile, Terrazzo, and Marble Finisher	See Appendix	See Appendix
Truck Driver – All Groups	\$20.39	\$6.03

APPENDIX

JULY 1, 2016

Collectively Bargained Rates

(To be used only when referred to in the Regions pages 6-33)

JULY 1, 2016 APPENDIX

*The Appendix rates are Collectively Bargained Rates to be used **ONLY** for Regions/Trades specified in pages 6 through 33. Refer to pages 6 through 33 **BEFORE** using rates in this section. Rates in this section may include premium pay such as shift differential, hazard pay and/or a zone pay differential which is added to the hourly base rate.*

Using the booklet, Definitions of Covered Occupations, find the definition and group number, if applicable, that most closely matches the actual work being performed by the worker.

Asbestos Worker/Insulator	38
Boilermaker	38
Bricklayer/Stonemason	38
Bridge and Highway Carpenter (See Carpenter Group 5)	38
Carpenter	38-39
Cement Mason	39
Diver	39-40
Diver Tender	39-40
Dredger	40
Drywall, Lather, Acoustical Carpenter & Ceiling Installer	40-41
Drywall Taper (See Painter)	45
Electrician	41-43
Elevator Constructor, Installer and Mechanic	43
Glazier	43
Hazardous Materials Handler	43
Highway/Parking Striper	43
Ironworker	43
Laborer	44
Limited Energy Electrician	44-45
Line Constructor	45
Marble Setter	45
Millwright Group 1 & 2 (See Carpenter Group 3 & 4)	38
Painter and Drywall Taper	45
Piledriver (See Carpenter Group 6)	38
Plasterer and Stucco Mason	46
Plumber/Pipefitter/Steamfitter	46
Power Equipment Operator	47
Roofer	48
Sheet Metal Worker	48-49
Soft Floor Layer	49
Sprinkler Fitter	49
Tender to Mason Trades (Brick and Stonemason, Mortar Mixer, Hod Carrier)	49
Tender to Plasterer and Stucco Mason	49
Testing and Balancing (TAB) Technician	49
Tilesetter/Terrazzo Worker: Hard Tilesetter	49
Tile, Terrazzo, and Marble Finisher	50
Truck Driver	50
MAP: Power Equipment Operator, Zone 1	51

TRADE	HOURLY BASE RATE	HOURLY FRINGE RATE	TRADE	HOURLY BASE RATE	HOURLY FRINGE RATE
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ASBESTOS WORKER/INSULATOR

45.42 20.77

Firestop Containment **28.92 14.53**

BOILERMAKER **36.44 28.75**

BRICKLAYER/STONEMASON

34.79 20.10

(This trade is tended by "Tenders to Mason Trades")

(Add \$1.00 per hour to Fringe for Refractory repair work)

CARPENTER

Zone 1 (Base Rate)

Group 1	34.76	14.84
Group 2	34.91	14.84
Group 3	35.26	14.84
Group 4	35.41	14.84
Group 5	35.26	14.84
Group 6	35.77	14.84

Zone Differential for Carpenters
(Add to Zone 1 Base Rate)

Zone 2	.85 per hour
Zone 3	1.25 per hour
Zone 4	1.70 per hour
Zone 5	2.00 per hour
Zone 6	3.00 per hour
Zone 7	5.00 per hour

Zone 1: Projects located within 30 miles of the respective city hall of the cities listed.

Zone 2: More than 30 miles but less than 40 miles.

Zone 3: More than 40 miles but less than 50 miles.

Zone 4: More than 50 miles but less than 60 miles.

Zone 5: More than 60 miles but less than 70 miles.

Zone 6: More than 70 miles but less than 100 miles.

Zone 7: More than 100 miles.

CARPENTER (continued)

Reference Cities for Group 1 and 2 Carpenters

Albany	Goldendale	Madras	Roseburg
Astoria	Grants Pass	Medford	Salem
Baker City	Hermiston	Newport	The Dalles
Bend	Hood River	Ontario	Tillamook
Brookings	Klamath Falls	Pendleton	Vancouver
Burns	La Grande	Portland	
Coos Bay	Lakeview	Port Orford	
Eugene	Longview	Reedsport	

Group 3
(Millwright Group-I)

Group 4
(Millwright Group-II)

Zones for Groups 3 and 4 Carpenter are determined by the distance between the project site and **either**

- 1) The worker's residence; **or**
- 2) City Hall of a reference city listed for the appropriate group shown, whichever is closer

Reference Cities for Group 3 and 4 Carpenters

Eugene	Medford	Portland	Vancouver
Longview	North Bend	The Dalles	

Group 5
(Bridge & Highway Carpenter)

Group 6
(Piledriver)

Zones for Groups 5 and 6 Carpenter are determined by the distance between the project site and **either**

- 1) The worker's residence; **or**
- 2) City Hall of a reference city listed for the appropriate group shown, whichever is closer

Reference Cities for Group 5 and 6 Carpenters

Bend	Longview	North Bend
Eugene	Medford	Portland

TRADE	HOURLY BASE RATE	HOURLY FRINGE RATE	TRADE	HOURLY BASE RATE	HOURLY FRINGE RATE
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CARPENTER (continued)

Note: All job or project locations shall be computed (determined) on the basis of road miles and in the following manner. A mileage measurement will start at the entrance to the respective city hall, facing the project (if possible), and shall proceed by the normal route (shortest time, best road) to the geographical center on the highway, railroad, and street construction projects (end of measurement). On all project contracts, the geographical center where the major portion of the construction is located, shall be considered the center of the project (end measurement).

Welders receive \$.75/hour above their group's rate.

When working with creosote and other toxic, treated wood and steel material, workers shall receive \$.25/hour premium pay for minimum of eight (8) hours.

When working in sheet pile coffer dams or cells up to the external water level, Group 6 workers shall receive \$.15/hour premium pay for minimum of eight (8) hours.

CEMENT MASON

(This trade is tended by "Concrete Laborer")

Zone A (Base Rate)

Group 1	30.00	18.18
Group 2	30.60	18.18
Group 3	30.60	18.18
Group 4	31.20	18.18

Zone Differential for Cement Mason
(Add to Zone A Base Rate)

Zone B	.65 per hour
Zone C	1.15 per hour
Zone D	1.70 per hour
Zone E	3.00 per hour

Zone A: Projects located within 30 miles of the respective city hall of the reference cities listed.

Zone B: More than 30 miles, but less than 40 miles.

Zone C: More than 40 miles, but less than 50 miles.

Zone D: More than 50 miles, but less than 80 miles.

Zone E: More than 80 miles.

Reference Cities for Cement Mason

Bend	Eugene	Portland	The Dalles
Corvallis	Medford	Salem	Vancouver

CEMENT MASON (continued)

Note: All job or project locations shall be computed (determined) on the basis of road miles and in the following manner. A mileage measurement will start at the entrance to the respective city hall, facing the project (if possible), and shall proceed by the normal route (shortest time-best road) to the geographical center on the highway, railroad, and street construction projects (end of measurement). On all other project contracts, the geographical center where the major portion of the construction is located, shall be considered the center of the project (end measurement).

DIVER & DIVER TENDER

Zone 1 (Base Rate)

DIVER	83.55	14.84
DIVER TENDER	39.35	14.84

- 1) For those workers who reside within a reference city below, their zone pay shall be computed from the city hall of the city wherein they reside.
- 2) For those workers who reside nearer to a project than is the city hall of any reference city below, the mileage from their residence may be used in computing their zone pay differential.
- 3) The zone pay for all other projects shall be computed from the city hall of Portland.

Zone Differential for Diver/Diver Tender
(Add to Zone 1 Base Rate)

Zone 2	.85 per hour
Zone 3	1.25 per hour
Zone 4	1.70 per hour
Zone 5	2.00 per hour
Zone 6	3.00 per hour
Zone 7	5.00 per hour

Zone 1: Projects located within 30 miles of city hall of the reference cities listed.

Zone 2: More than 30 miles, but less than 40 miles.

Zone 3: More than 40 miles, but less than 50 miles.

Zone 4: More than 50 miles, but less than 60 miles.

Zone 5: More than 60 miles, but less than 70 miles.

Zone 6: More than 70 miles, but less than 100 miles.

Zone 7: More than 100 miles from the city hall of employee's home local.

Reference Cities for Diver/Diver Tender

Astoria	Klamath Falls	Newport	Roseburg
Bend	Longview	North Bend	Salem
Eugene	Medford	Portland	The Dalles

TRADE	HOURLY BASE RATE	HOURLY FRINGE RATE	TRADE	HOURLY BASE RATE	HOURLY FRINGE RATE
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DIVER & DIVER TENDER (continued)

Note: All job or project locations shall be computed (determined) on the basis of road miles and in the following manner. A mileage measurement will start at the entrance to the respective city hall, facing the project (if possible), and shall proceed by the normal route (shortest time, best road) to the geographical center on the highway, railroad, and street construction projects (end of measurement). On all project contracts, the geographical center where the major portion of the construction is located, shall be considered the center of the project (end measurement).

Depth Pay and Enclosure Pay are added to the Divers' Basic Hourly Rate to obtain the Total Hourly Rate for the Diver.

Basic Hourly Rate	+	Hourly Depth Pay	+	Hourly Enclosure Pay	=	Diver Total Hourly Pay Rate
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Diver Depth Pay:

<u>Depth of Dive</u>	<u>Hourly Depth Pay</u>
50-100 ft.	\$1.00 per foot over 50 feet
101-150 ft.	\$1.50 per foot over 100 feet
151-200 ft.	\$2.00 per foot over 150 feet

Depth shall be figured from the surface to the actual depth where the diving work is being performed.

Diver Enclosure Pay (working without vertical escape):

Distance Traveled

<u>In the Enclosure</u>	<u>Hourly Enclosure Pay</u>
5-50ft.	\$0.50/hr. up to \$4.00 maximum per day
50-100ft.	\$1.13/hr. up to \$9.00 maximum per day
100-150ft.	\$2.13/hr. up to \$17.00 maximum per day
150-200ft.	\$4.63/hr. up to \$37.00 maximum per day
200-300ft.	\$4.63/hr. up to \$37.00 maximum per day, plus \$0.40 per foot traveled in enclosure.
300-450ft.	\$4.63/hr. up to \$37.00 maximum per day, plus \$0.80 per foot traveled in enclosure.
450-600ft.	\$4.63/hr. up to \$37.00 maximum per day, plus \$1.60 per foot traveled in enclosure.

DREDGER

Zone A (Base Rate)

Leverman (Hydraulic & Clamshell)	45.96	14.35
Assistant Engineer (Watch Engineer, Mechanic Machinist)	42.80	14.35
Tenderman (Boatman Attending Dredge Plant) Fireman	41.31	14.35
Fill Equipment Operator	40.14	14.35
Assistant Mate	37.44	14.35

Zone Differential for Dredgers
(Add to Zone A Base Rate)

Zone B	3.00 per hour
Zone C	6.00 per hour

Zone mileage based on road miles:

- Zone A: Center of jobsite to no more than 30 miles from the city hall of Portland.
- Zone B: More than 30 miles but not more than 60 miles.
- Zone C: Over 60 miles.

DRYWALL, LATHER, ACOUSTICAL CARPENTER & CEILING INSTALLER

Zone 1 (Base Rate)

1. DRYWALL INSTALLER	35.05	14.55
2. LATHER, ACOUSTICAL CARPENTER & CEILING INSTALLER	35.05	14.55

Zone Differential for Drywall, Lather, Acoustical Carpenter & Ceiling Installer
(Add to Zone 1 Base Rate)

Zone mileage based on road miles:

Zone 2	31-40 miles	.85 per hour
Zone 3	41-50 miles	1.25 per hour
Zone 4	51-60 miles	1.70 per hour
Zone 5	61-70 miles	2.00 per hour
Zone 6	71-100 miles	3.00 per hour
Zone 7	101 or more	5.00 per hour

TRADE	HOURLY BASE RATE	HOURLY FRINGE RATE	TRADE	HOURLY BASE RATE	HOURLY FRINGE RATE
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DRYWALL, LATHER, ACOUSTICAL CARPENTER & CEILING INSTALLER (continued)

The correct transportation allowance shall be based on road mileage from the City Hall of the local union having jurisdiction of the job or other transportation reference cities herein listed.

Reference Cities for Drywall, Lather, Acoustical Carpenter & Ceiling Installer

Albany	Coquille	Medford	Roseburg
Astoria	Eugene	Newport	Salem
Baker	Grants Pass	North Bend	Seaside
Bandon	Hermiston	Pendleton	The Dalles
Bend	Klamath Falls	Portland	Tillamook
Brookings	Kelso-Longview	Reedsport	Vancouver

ELECTRICIAN

Area 1

Electrician	29.00	12.61
Cable Splicer	31.90	12.76

Reference Counties Area 1

Malheur

Area 2

Electrician	38.80	18.59
Cable Splicer	40.74	18.65

Reference Counties Area 2

Baker	Grant	Umatilla	Wallowa
Gilliam	Morrow	Union	Wheeler

Add 50% of the base rate when workers are required to work under the following conditions:

1. Under compressed air with atmospheric pressure exceeding normal pressure by at least 10%.
2. From trusses, swing scaffolds, bosun's chairs, open platforms, unguarded scaffolds, open ladders, frames, tanks, stacks, silos and towers where the workman is subject to a direct fall of (a) more than 60 feet or (b) into turbulent water under bridges, powerhouses or spillway faces of dams.

ELECTRICIAN (continued)

Area 3

Electrician	35.80	16.62
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Reference Counties Area 3

Coos	Douglas (a)	Lincoln
Curry	Lane (a)	

(a) Those portions of Lane and Douglas lying **west** of a line running North and South from the NE corner of Coos County to the SE corner of Lincoln County.

Shift Differential

1 st Shift "day"	Between the hours of 8:00am and 4:30pm	8 hours pay for 8 hours work
2 nd Shift "swing"	Between the hours of 4:30pm and 1:00am	8 hours pay for 8 hours work plus 17% for all hours worked
3 rd Shift "Graveyard"	Between the hours of 12:30am and 9:00am	8 hours pay for 8 hours work plus 31% for all hours worked.

When workers are required to work under compressed air or where gas masks are required, or to work from trusses, all scaffolds including mobile elevated platforms, any temporary structure, bosun's chair or on frames, stacks, towers, tanks, within 15' of the leading edges of any building at a distance of:

50 – 75 feet to the ground	Add 1 ½ x the base rate
75+ feet to the ground	Add 2 x the base rate

High Time is not required to be paid on any permanent structure with permanent adequate safeguards (handrails, mid-rails, and toe guards). Any vehicle equipped with outriggers are exempted from this section.

OREGON DETERMINATION 2016-02

TRADE	HOURLY BASE RATE	HOURLY FRINGE RATE	TRADE	HOURLY BASE RATE	HOURLY FRINGE RATE
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ELECTRICIAN (continued)

Area 4

Electrician	37.73	18.57
Cable Splicer	41.50	18.69
Lighting Maintenance/ Material Handlers	17.95	9.79

Reference Counties Area 4

Benton	Jefferson	Marion
Crook	Lane (b)	Polk
Deschutes	Linn	Yamhill (c)

(b) That portion of Lane County lying east of a line running North and South from the NE corner of Coos County to the SE corner of Lincoln County.

(c) South half

Shift Differential

1 st Shift "day"	Between the hours of 8:00am and 4:30pm	8 hours pay for 8 hours work
2 nd Shift "swing"	Between the hours of 4:30pm and 1:00am	8 hours pay for 8 hours work plus 17% for all hours worked
3 rd Shift "Graveyard"	Between the hours of 12:30am and 9:00am	8 hours pay for 8 hours work plus 31.4% for all hours worked.

Area 5

Electrician	40.20	22.30
Electrical Welder	44.22	22.42
Material Handler/ Lighting Maintenance	22.91	15.41

Reference Counties Area 5

Clackamas	Hood River	Tillamook	Yamhill (d)
Clatsop	Multnomah	Wasco	
Columbia	Sherman	Washington	

(d) North Half

ELECTRICIAN (continued)

Area 5

Shift Differential

1 st Shift "day"	Between the hours of 8:00am and 4:30pm	8 hours pay for 8 hours work
2 nd Shift "swing"	Between the hours of 4:30pm and 1:00am	8 hours pay for 8 hours work plus 17.3% for all hours worked
3 rd Shift "Graveyard"	Between the hours of 12:30am and 9:00am	8 hours pay for 8 hours work plus 31.4% for all hours worked.

Zone Pay for Area 5 Electrician and Electrical Welder

(Add to Basic Hourly Rate)

Zone mileage based on air miles:

Zone 1	31-50 miles	1.50 per hour
Zone 2	51-70 miles	3.50 per hour
Zone 3	71-90 miles	5.50 per hour
Zone 4	Beyond 90	9.00 per hour

There shall be a 30-mile free zone from downtown Portland City Hall and a similar 15-mile free zone around the following cities:

Astoria	Seaside	Tillamook
Hood River	The Dalles	

Further, the free zone at the Oregon coast shall extend along Hwy 101 west to the ocean Hwy 101 east 10 miles if not already covered by the above 15-mile free zone.

Area 6

Electrician	30.44	15.70
Cable Splicer	30.44	15.70
Lighting Maintenance and Material Handlers	16.22	8.74

Reference Counties Area 6

Douglas (e)	Jackson	Klamath
Harney	Josephine	Lake

(e) That portion of Douglas County lying east of a line running North and South from the NE corner of Coos County to the SE corner of Lincoln County.

TRADE	HOURLY BASE RATE	HOURLY FRINGE RATE	TRADE	HOURLY BASE RATE	HOURLY FRINGE RATE
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LABORER

Zone 1 (Base Rate):

Group 1	26.63	13.50
Group 2	27.65	13.50
Group 3	23.00	13.50

Note: A Hazardous Waste Removal Differential must be added to the base rate if work is performed inside the boundary of a Federally Designated Hazardous Waste Site. A Group 1 base rate is used for General Laborer on such a site. For further information on this, call the Prevailing Wage Rate Coordinator at (971) 673-0839.

Zone Differential for Laborers
(Add to Zone 1 Base Rate)

Zone 2	.65 per hour
Zone 3	1.15 per hour
Zone 4	1.70 per hour
Zone 5	2.75 per hour

- Zone 1: Projects located within 30 miles of city hall in the reference cities listed.
- Zone 2: More than 30 miles but less than 40 miles.
- Zone 3: More than 40 miles but less than 50 miles.
- Zone 4: More than 50 miles but less than 80 miles.
- Zone 5: More than 80 miles.

Reference Cities for Laborer

Albany	Burns	Hermiston	Roseburg
Astoria	Coos Bay	Klamath Falls	Salem
Baker City	Eugene	Medford	The Dalles
Bend	Grants Pass	Portland	

Note: All job or project locations shall be computed (determined) on the basis of road miles and in the following manner. A mileage measurement will start at the entrance to the respective city hall, facing the project (if possible), and shall proceed by the normal route (shortest time, best road) to the geographical center on the highway, railroad, and street construction projects (end of measurement). On all other project contracts, the geographical center where the major portion of the construction is located, shall be considered the center of the project (end measurement).

LIMITED ENERGY ELECTRICIAN

Area 1 **20.00** **8.65**

Reference Counties Area 1

Malheur

Area 2 **30.75** **17.07**

Reference Counties Area 2

Baker	Grant	Umatilla	Wallowa
Gilliam	Morrow	Union	Wheeler

Area 3 **27.15** **14.81**

Reference Counties Area 3

Coos	Douglas (a)	Lincoln
Curry	Lane (a)	

(a) Those portions of Lane and Douglas lying **west** of a line running North and South from the NE corner of Coos County to the SE corner of Lincoln County.

Area 4 **27.83** **14.33**

Reference Counties Area 4

Benton	Jefferson	Marion
Crook	Lane (b)	Polk
Deschutes	Linn	Yamhill (c)

(b) That portion of Lane County lying **east** of a line running North and South from the NE corner of Coos County to the SE corner of Lincoln County.

(c) South half

Area 5 **31.50** **18.35**

Reference Counties Area 5

Clackamas	Hood River	Tillamook	Yamhill (d)
Clatsop	Multnomah	Wasco	
Columbia	Sherman	Washington	

(d) North Half

TRADE	HOURLY BASE RATE	HOURLY FRINGE RATE	TRADE	HOURLY BASE RATE	HOURLY FRINGE RATE
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PLASTERER AND STUCCO MASON

(This trade is tended by "Tenders to Plasterers")

Zone A (Base Rate)

Plasterer	28.12	18.48
Swinging Scaffold	29.12	18.48
Nozzleman	30.12	18.48

Zone Differential for Plasterer and Stucco Mason
(Add to Zone A Base Rate)

Zone B	.85 per hour
Zone C	1.25 per hour
Zone D	1.70 per hour
Zone E	2.00 per hour
Zone F	3.00 per hour
Zone G	5.00 per hour
Zone H	10.50 per hour for 8 hours

Zone A: Projects located within 30 miles of the respective city hall of the reference cities listed below.

- Zone B: More than 30 miles, but less than 40 miles.
- Zone C: More than 40 miles, but less than 50 miles.
- Zone D: More than 50 miles, but less than 60 miles.
- Zone E: More than 60 miles, but less than 70 miles.
- Zone F: More than 70 miles, but less than 100 miles.
- Zone G: More than 100 miles, but less than 300 miles.
- Zone H: More than 300 miles.

Reference Cities for Plasterer & Stucco Mason

Bend	Medford	Salem
Eugene	Portland	

PLUMBER/PIPEFITTER/STEAMFITTER

<u>Area 1</u>	28.00	14.32
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Reference Counties Area 1

Baker	Harney (a)	Malheur
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(a) Except that portion which lies North and West of a North-South line drawn from the town of John Day to a point five miles east of the town of Burns and three miles South of Burns thence on an airline through the town of Wagontire West to the county line.

(Add \$2.21 to base rate if it is possible for worker to fall 30 ft. or more, or if required to wear a fresh-air mask or similar equipment for 2 hours or more)

PLUMBER/PIPEFITTER/STEAMFITTER (continued)

Zone Differential for Area 1
Plumbers/Pipefitters/Steamfitters
(Add to Base Rate)

Zone 1	2.50 per hour
Zone 2	3.50 per hour
Zone 3	5.00 per hour

Zone mileage based on road miles:

- Zone 1: Forty (40) to fifty five (55) miles from City Hall in Boise, Idaho.
- Zone 2: Fifty five (55) to one hundred (100) miles from City Hall in Boise, Idaho.
- Zone 3: Over one hundred (100) miles from City Hall in Boise, Idaho.

There shall be a maximum of ten (10) hours of zone pay per workday.

<u>Area 2</u>	49.24	29.09
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Reference Counties Area 2

Grant	Umatilla	Wallowa
Morrow	Union	

Zone Differential for Area 2
(Add to Base Rate)

Zone 2 **10.62/hr.** not to exceed \$80.00 day.

Zone mileage based on road miles:

Zone 2: Eighty (80) miles or more from City Hall in Pasco, Washington.

(Add \$1.00 to base rate if it is possible for worker to fall 35 ft. or more, or if required to wear a fresh-air mask or similar equipment for 1 hour minimum increments)

<u>Area 3</u>	42.11	25.47
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Reference Counties Area 3

Benton	Deschutes	Klamath	Polk
Clackamas	Douglas	Lake	Sherman
Clatsop	Gilliam	Lane	Tillamook
Columbia	Hood River	Lincoln	Wasco
Coos	Jackson	Linn	Washington
Crook	Jefferson	Marion	Wheeler
Curry	Josephine	Multnomah	Yamhill

TRADE	HOURLY BASE RATE	HOURLY FRINGE RATE	TRADE	HOURLY BASE RATE	HOURLY FRINGE RATE
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POWER EQUIPMENT OPERATOR

Zone 1 (Base Rate)

Group 1	39.47	14.10
Group 1A	41.44	14.10
Group 1B	43.42	14.10
Group 2	37.58	14.10
Group 3	36.44	14.10
Group 4	35.36	14.10
Group 5	34.13	14.10
Group 6	30.94	14.10

(Group 4 Tunnel Boring Machine Mechanic add \$10.00/hour hyperbaric pay)

Note: A Hazardous Waste Removal Differential must be added to the base rate if work is performed inside the boundary of a Federally Designated Waste Site. For information on this differential, call the Prevailing Wage Rate Coordinator at (971) 673-0839.

(Add \$0.40 to the base rate for any and all work performed underground, including operating, servicing and repairing of equipment)

(Add \$0.50 to the base rate per hour for any employee who works suspended by a rope or cable)

(Add \$0.50 to the base rate for employees who do "pioneer" work (break open a cut, build road, etc.) more than one hundred fifty (150) feet above grade elevation)

Shift Differential

Two-Shift Operations:

On a two shift operation, when the second shift starts after 4:30 p.m., second-shift workers shall be paid the base hourly wage rate plus five percent (5%) for all hours worked.

When the second shift starts at 8:00 p.m. or later, the second-shift workers shall be paid at the base hourly wage rate plus ten percent (10%) for all hours worked.

Three-Shift Operations:

On a three-shift operation, the base hourly wage rate plus five percent (5%) shall be paid to all second-shift workers for all hours worked, and the base hourly wage rate plus ten percent (10%) shall be paid to all third shift workers for all hours worked.

Zone Pay Differential
(Add to Zone 1 Base Rate)

Zone 2	3.00 per hour
Zone 3	6.00 per hour

POWER EQUIPMENT OPERATOR (continued)

For projects in the following metropolitan counties:

Clackamas	Marion	Washington
Columbia	Multnomah	Yamhill

See map on page 51 for Zone 1 of this classification

(A) All jobs or projects located in Multnomah, Clackamas and Marion counties, West of the western boundary of Mt. Hood National Forest and West of Mile Post 30 on Interstate 84 and West of Mile Post 30 on State Hwy 26 and West of Mile Post 30 on Hwy 22 and all jobs located in Yamhill County, Washington County and Columbia County shall receive Zone 1 pay for all classifications.

(B) All jobs or projects located in the area outside the *identified boundary* above, but less than 50 miles from the Portland City Hall shall receive Zone 2 pay for all classifications.

(C) All jobs or projects located more than 50 miles from the Portland City Hall, but outside the identified border above, shall receive Zone 3 pay for all classifications.

Reference cities for projects in all remaining counties:

Albany	Coos Bay	Grants Pass	Medford
Bend	Eugene	Klamath Falls	Roseburg

(A) All jobs or projects located within 30 miles of the respective city hall of the above mentioned cities shall receive Zone 1 pay for all classifications.

(B) All jobs or projects located more than 30 miles and less than 50 miles from the respective city hall of the above mentioned cities shall receive Zone 2 for all classifications.

(C) All jobs or projects located more than 50 miles from the respective city hall of the above mentioned cities shall receive Zone 3 pay for all classifications.

Note: All job or project locations shall be computed (determined) on the basis of road miles and in the following manner. A mileage measurement will start at the entrance to the respective city hall, facing the project (if possible), and shall proceed by the normal route (shortest time-best road) to the geographical center on the highway, railroad, and street construction projects (end of measurement). On all other project contracts, the geographical center where the major portion of the construction is located, shall be considered the center of the project (end measurement).

OREGON DETERMINATION 2016-02

TRADE	HOURLY BASE RATE	HOURLY FRINGE RATE	TRADE	HOURLY BASE RATE	HOURLY FRINGE RATE
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ROOFER

Area 1

Roofer	29.03	17.42
Handling coal tar pitch	31.93	17.42
Remove fiberglass insulation	31.93	17.42

Reference Counties Area 1

Baker	Gilliam	Multnomah	Washington
Clackamas	Grant	Sherman	Wheeler
Clatsop	Hood River	Tillamook	
Columbia	Jefferson	Wasco	

Area 2

Roofer	25.55	14.49
Handling coal tar pitch	27.55	14.49
Remove fiberglass insulation	27.05	14.49

Reference Counties Area 2

Benton	Douglas	Lake	Marion
Coos	Harney	Lane	Polk
Crook	Jackson	Lincoln	Yamhill
Curry	Josephine	Linn	
Deschutes	Klamath	Malheur	

Area 4

Roofers	25.96	10.47
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Reference Counties Area 4

Umatilla	Union	Wallowa
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(Add \$2.00 to basic hourly rate for employees working with irritable bituminous materials)

(Add \$2.00 to basic hourly rate for employees removing fiberglass insulation)

Area 5

Roofers	25.77	10.52
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Reference County for Area 5

Morrow

(Add \$3.00 to base rate for employees working with irritable and pitch bituminous materials)

SHEET METAL WORKER

<u>Area 1</u>	37.53	19.12
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Reference Counties Area 1

Benton	Grant	Multnomah	Washington
Clackamas	Hood River	Polk	Wheeler
Clatsop	Lincoln	Sherman	Yamhill
Columbia	Linn	Tillamook	
Gilliam	Marion	Wasco	

(Add \$1.00 to base rate for work performed on any swinging platform, swinging chair or swinging ladder)

(Add \$1.00 to base rate for work where a worker is exposed to resins, chemicals or acid)

<u>Area 2</u>	24.41	16.74
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Reference Counties Area 2

Baker	Malheur
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(Add \$1.75 to base rate for work performed in an area where epoxy resins or other injurious chemicals are being applied)

<u>Area 3</u>	33.53	20.83
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Reference Counties Area 3

Morrow	Umatilla	Union	Wallowa
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(Add \$1.00 to base rate for work where it is necessary to wear a chemically activated type face mask)

<u>Area 4</u>	31.17	17.20
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Reference Counties Area 4

Douglas	Lane
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(Add \$1.00 to base rate for work performed on any swinging platform, swinging chair or swinging ladder)

(Add \$1.00 to base rate for work where a worker is exposed to resins, chemicals or acid)

TRADE	HOURLY BASE RATE	HOURLY FRINGE RATE	TRADE	HOURLY BASE RATE	HOURLY FRINGE RATE
--------------	---------------------------------	-----------------------------------	--------------	---------------------------------	-----------------------------------

TILE, TERRAZZO, AND MARBLE FINISHER

1. TILE, TERRAZZO FINISHER	23.13	13.56
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(Add \$1.00 to base rate when working with a safety belt)

(Add \$1.00 to base rate if work involves epoxy, furnane, alkox or acetylene black grouting)

2. BRICK AND MARBLE FINISHER	23.13	13.69
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(Add \$1.00 to base rate for Refractory work)

TRUCK DRIVER (continued)

Note: All job or project locations shall be computed (determined) on the basis of road miles and in the following manner. A mileage measurement will start at the entrance to the respective city hall, facing the project (if possible), and shall proceed by the normal route (shortest time-best road) to the geographical center on the highway, railroad, and street construction projects (end of measurement). On all other project contracts, the geographical center where the major portion of the construction is located, shall be considered the center of the project (end measurement).

TRUCK DRIVER

Zone A (Base Rate):

Group 1	27.60	14.37
Group 2	27.72	14.37
Group 3	27.85	14.37
Group 4	28.12	14.37
Group 5	28.34	14.37
Group 6	28.51	14.37
Group 7	28.71	14.37

Zone differential for Truck Drivers
(Add to Zone A Base Rate)

Zone B	.65 per hour
Zone C	1.15 per hour
Zone D	1.70 per hour
Zone E	2.75 per hour

- Zone A: Projects within 30 miles of the cities listed.
- Zone B: More than 30 miles but less than 40 miles.
- Zone C: More than 40 miles but less than 50 miles.
- Zone D: More than 50 miles but less than 80 miles.
- Zone E: More than 80 miles.

Reference Cities

Albany	Eugene	Madras	Reedsport
Astoria	Goldendale	Medford	Roseburg
Baker	Grants Pass	McMinnville	Salem
Bend	Hermiston	Newport	The Dalles
Bingen	Hood River	Ontario	Tillamook
Brookings	Klamath Falls	Oregon City	Vancouver
Burns	LaGrande	Pendleton	
Coos Bay	Lakeview	Portland	
Corvallis	Longview	Port Orford	

**LIST OF CONTRACTORS INELIGIBLE
TO RECEIVE PUBLIC WORKS CONTRACTS
PUBLICATION DATE: JULY 1, 2016**

To: All Oregon Contracting Agencies

Pursuant to ORS 279C.860, contractors on this list are ineligible to receive public works contracts subject to the Prevailing Wage Rate Law. These contractors and subcontractors, as well as any firm, corporation, partnership or association in which the contractor or subcontractor has a financial interest are ineligible to receive public works contracts until removed from this list.

If you have questions regarding the list or for the most current information regarding persons ineligible to receive prevailing wage contracts, please contact the Prevailing Wage Rate Coordinator in Portland at (971) 673-0839.

	<u>CONTRACTOR NAME</u>	<u>DATE PLACED</u>	<u>REMOVAL DATE</u>
1.	A D Traffic Control Services, LLC 309 S. McLoughlin Blvd, Oregon City, OR 97045	August 24, 2015	August 23, 2018
2.	Affordable Safe and Professional Flagging, LLC 305 NE 6 th Street Grants Pass, OR 97526	September 17, 2012	September 16, 2017
3.	ASAP Flagging & Traffic Control, Inc. 11681 Sumner Street, Suite A Portland, OR 97220	September 17, 2012	September 16, 2017
4.	Beaver Flagging 2239 Dakota Street Eugene, OR 97404	November 25, 2009	November 24, 2019
5.	Christy C. Beaver 2570 River Road Eugene, OR 97404	November 25, 2009	November 24, 2019
6.	Kimberly Bell-Eddy 8535 Woodard Ave SE Salem, OR 97317	January 12, 2016	January 11, 2023
7.	BSD OR WA. LLC 2951 NW Division St., Ste110 Gresham, OR 97030	February 11, 2016	February 10, 2019
8.	Bill Butler 4355 SE 10 th Drive Gresham, OR 97080	January 22, 2016	January 21, 2019
9.	Cameron Creations Steven Cameron Nancy Cameron PO Box 2 Lowell, OR 97452	May 25, 2000	Not to be Removed
10.	Diane Marie Cina 20630 Boulderfield Avenue Bend, OR 97701	March 7, 2014	March 6, 2017
11.	Timothy Covington 1000 NE 122 nd Street, Suite B-13 Portland, OR 97230	September 17, 2012	September 16, 2017

**LIST OF CONTRACTORS INELIGIBLE
TO RECEIVE PUBLIC WORKS CONTRACTS
PUBLICATION DATE: JULY 1, 2016**

	<u>CONTRACTOR NAME</u>	<u>DATE PLACED</u>	<u>REMOVAL DATE</u>
12.	Kelly Cunningham 4355 SE 120 th Drive Gresham, OR 97080	January 22, 2016	January 21, 2019
13.	Randall D. David 35491 Laura Lane SE Albany, OR 97321	January 15, 2016	January 14, 2019
14.	Demolition Contractors, Inc. PO Box 4010 19650 SW Teton Ave Tualatin, OR 97062	February 15, 2016	February 15, 2018
15.	Amanda Dawn Denton Olsen-Smith PO Box 1058 Willamina, OR 97080	February 11, 2016	February 10, 2019
16.	Diamond Concrete, Inc. PO Box 1627 Lake Oswego, OR 97035	April 4, 2014	April 3, 2017
17.	DNB Painting, Inc. 35491 Laura Lane SE Albany, OR 97321	January 15, 2016	January 14, 2019
18.	Robert Donily 19650 SW Teton Ave Tualatin, OR 97062	February 15, 2016	February 15, 2018
19.	Elite Contract Flooring, LLC 15192 SE Bradford Road Clackamas, OR 97015	March 25, 2014	March 24, 2017
20.	Rocky Evans 3333 NW Elm Avenue Redmond, OR 97756	April 10, 2014	April 9, 2017
21.	Final Touch NW Inc. PO Box 169 2245 Crestview Drive West Linn, OR 97068	January 8, 2015	January 7, 2018
22.	GNC Construction Services, LLC 309 S. McLoughlin Blvd. Oregon City, OR 97045	July 21, 2015	July 20, 2018
23.	H. & L. Corporation 13711 NE Laurin Rd. Vancouver, WA 98662	January 30, 2015	January 29, 2018
24.	Hard Rock Concrete, Inc. 3333 NW Elm Avenue Redmond, OR 97756	April 10, 2014	April 9, 2017

**LIST OF CONTRACTORS INELIGIBLE
TO RECEIVE PUBLIC WORKS CONTRACTS
PUBLICATION DATE: JULY 1, 2016**

	<u>CONTRACTOR NAME</u>	<u>DATE PLACED</u>	<u>REMOVAL DATE</u>
25.	High Mountain Plumbing Company 20630 Boulderfield Avenue Bend, OR 97701	March 7, 2014	March 6, 2017
26.	K & O Contracting, LLC 5050 SW 198 th Avenue Aloha, OR 97007	April 11, 2014	April 10, 2017
27.	Kim Bell Flagging, Inc. 8535 Woodard Ave SE Salem, OR 97317	January 12, 2016	January 11, 2023
28.	KMS Concrete Construction, LLC 11500 NE 76 th Street A-3, Suite 110 Vancouver, WA 98662	November 22, 2013	November 21, 2016
29.	KO Construction, LLC 10736 SE Hwy 212 Clackamas, OR 97015	April 11, 2014	April 10, 2017
30.	Peter G. Lupachev aka Peter Lupachov 4536 SE Stark Street Portland, OR 97239	November 2, 2015	November 1, 2018
31.	Noland Enterprises, Inc. 601 NW McDonald Road Prineville, OR 97754	June 6, 2016	June 5, 2019
32.	Debbie Noland 601 NW McDonald Road Prineville, OR 97754	June 6, 2016	June 5, 2019
33.	James Noland 601 NW McDonald Road Prineville, OR 97754	June 6, 2016	June 5, 2019
34.	Eric James O'Malley PO Box 1627 Lake Oswego, OR 97035 9301 SW Sagert St. Apt 127 Tualatin, OR 97062	April 4, 2014	April 3, 2017
35.	A.J. Olsen-Smith aka Alex James Olsen-Smith aka Alex J. Olsen PO Box 1058 Willamina, OR 97080	February 11, 2016	February 10, 2019
36.	Orcanco Commercial Construction, Inc. 4355 SE 10 th Drive Gresham, OR 97080	January 22, 2016	January 21, 2019

**LIST OF CONTRACTORS INELIGIBLE
TO RECEIVE PUBLIC WORKS CONTRACTS
PUBLICATION DATE: JULY 1, 2016**

	<u>CONTRACTOR NAME</u>	<u>DATE PLACED</u>	<u>REMOVAL DATE</u>
37.	Peter Construction, Inc. dba Peters Construction, Inc. 4522 SW Water Ave., Suite 110 Portland, OR 97239	November 2, 2015	November 1, 2018
38.	Phoenix Construction Group, Inc. 309 S. McLoughlin Blvd. Oregon City, OR 97045	August 24, 2015	August 23, 2018
39.	Portland Flagging, LLC dba A D Traffic Control Services 309 S. McLoughlin Blvd. Oregon City, OR 97045	August 24, 2015	August 23, 2018
40.	Portland Safety Equipment, LLC 309 S. McLoughlin Blvd. Oregon City, OR 97045	August 24, 2015	August 23, 2018
41.	Marco Antonio Rojas 8855 SE 172 nd Avenue Happy Valley, OR 97086	April 11, 2014	April 10, 2017
42.	Mauricio Rojas-Osornio 9006 SE Augustine Court Happy Valley, OR 97086	April 11, 2014	April 10, 2017
43.	Colleen Runyon 13711 NE Laurin Rd. Vancouver, WA 98662	January 30, 2015	January 29, 2018
44.	Edward Runyon 13711 NE Laurin Rd. Vancouver, WA 98662	January 30, 2015	January 29, 2018
45.	Avian Samuel PO Box 169 2245 Crestview Drive West Linn, OR 97068	January 8, 2015	January 7, 2018
46.	Terrence Samuel PO Box 169 PO Box 249 Wilsonville, OR 97070 2245 Crestview Drive West Linn, OR 97068	January 21, 2015	January 20, 2018
47.	SBG Construction Services LLC 309 S. McLoughlin Blvd. Oregon City, OR 97045	August 24, 2015	August 23, 2018
48.	Kenya Smith 309 S. McLoughlin Blvd. Oregon City, OR 97045	July 21, 2015	July 20, 2018

**LIST OF CONTRACTORS INELIGIBLE
TO RECEIVE PUBLIC WORKS CONTRACTS
PUBLICATION DATE: JULY 1, 2016**

	<u>CONTRACTOR NAME</u>	<u>DATE PLACED</u>	<u>REMOVAL DATE</u>
49.	Sun Triangle Painting, LLC 3422 Monarch Drive NE Salem, OR 97301	December 15, 2013	December 14, 2016
50.	Alan Tatom 168 Clearwater Avenue NE Salem, OR 97301	July 10, 2015	July 9, 2025
51.	Tri-Star Flagging, LLC 309 S. McLoughlin Blvd. Oregon City, OR 97045	August 24, 2015	August 23, 2018
52.	Phillip Walker 580 Market Street NE Salem, OR 97301	July 10, 2015	July 9, 2025
53.	Willamette Plumbing and Mechanical, LLC 1311 Doaks Ferry Road NW 1485 West Meadows Salem, OR 97304	February 3, 2014	February 2, 2017
54.	Evan Williams 309 S. McLoughlin Blvd. Oregon City, OR 97045	February 29, 2016	February 28, 2019
55.	WWJD Traffic Control, Inc. 168 Clearwater Avenue NE Salem, OR 97301	July 10, 2015	July 9, 2025

**BRAD AVAKIAN, COMMISSIONER
OREGON BUREAU OF LABOR AND INDUSTRIES**

PREVAILING WAGE RATE FORMS

WH-38	Certified Payroll Form
WH-39	Public Works Fee Information Form
WH-40	Public Works Fee Adjustment Form
WH-81	Notice of Public Works
WH-118	Planned Public Improvement Summary
WH-119	Capital Improvement Cost Comparison Estimate



BUREAU OF LABOR AND INDUSTRIES, PREVAILING WAGE RATE UNIT

**INSTRUCTIONS FOR COMPLETING THE PREVAILING WAGE RATE
PAYROLL/CERTIFIED STATEMENT FORM (WH-38)**

The Payroll/Certified Statement form (WH-38) may be used by contractors for reporting their payroll as required by ORS 279C.845 on public works projects subject to the Prevailing Wage Rate (PWR) Law. Although this form has not been officially approved by the U.S. Department of Labor (US DOL), it is designed to meet the requirements of the federal Davis-Bacon Act. For projects associated with the U.S. Department of Housing and Urban Development (HUD), contact the public agency (owner) associated with the project for assistance with payroll reporting.

Contractors are not required to use the WH-38 form in reporting their payroll; however, the contractor must provide all of the information contained in the form, including the certified statement on page two. The certified statement must be signed by the contractor, certifying the accuracy of the information reported on the payroll, including representations pertaining to the provision of fringe benefits to employees by third parties, and must be submitted with each weekly payroll report. Detailed instructions concerning the preparation of the form follow:

Complete the top third of the form. Be sure to enter the date the contract was first advertised for bid. If you are not sure of this date, contact the public agency (owner) associated with the project. The "Payroll No." is a US DOL requirement and represents the number of weeks the contractor performed work on the project.

Column 1 – NAME AND ADDRESS: The employee's full name must be shown on each payroll submitted. The employee's address must also be shown on the first payroll submitted. The address need not be shown on subsequent payrolls submitted unless the address changes. The US DOL requires an employee identification number for each individual employee, on each payroll submitted. This number may be, but does not have to be, the last four digits of the employee's social security number.

Column 2 – CLASSIFICATION: For assistance in determining the correct classification, use the Bureau of Labor and Industries' (BOLI's) publication "Definitions of Covered Occupations for Public Works Contracts in Oregon." On the WH-38, list the classification that is most descriptive of the work actually performed by the employee. Give the group number for those classifications that include such information. Indicate which workers are apprentices, if any, and give their current percentage, classification, and group number when applicable. If an employee works in more than one classification, use the highest rate for all hours worked, or use separate line entries to show hours worked and hourly rates for each classification.

Column 3 – DAY AND DATE: Enter the day of the week (M, T, W, Th, F, S, and Sn) in the top row of boxes, and the corresponding date below.

HOURS WORKED EACH DAY: Enter the total number of straight time hours worked in the row marked "ST." Generally, hours worked over 8 in a day or work performed on Saturdays, Sundays, and legal holidays should be entered as overtime ("OT") hours worked. Contractors who have adopted and followed a written work schedule of four consecutive ten-hour days (Monday through Thursday or Tuesday through Friday) may enter hours worked over 10 in a day as overtime hours. For more information on overtime requirements, see the Contractor Responsibilities section of BOLI's publication, "*Prevailing Wage Rate Laws*."

Check the correct work schedule box to indicate the employee's weekly work schedule: 5/8 or 4/10. Enter the employee's regular hourly schedule for the week being reported next to the "Reg. Hrly. Schd: ____ to ____." For example: 7:00 a.m. to 4:30 p.m.

Column 4 – TOTAL HOURS: Enter separately the total number of straight time and overtime hours worked by the employee (in each classification, if applicable) on the PWR project during the week. The total number of straight time hours worked should be entered in the lower box ("ST"); the total number of overtime hours worked should be entered in the top box ("OT").

Column 5 – HOURLY BASE RATE: Enter the hourly base rate (plus zone pay, if any) and the hourly overtime rate (plus zone pay, if any) paid to the employee in the appropriate straight time and overtime boxes. (Payment of not less than one and one half times the base rate of pay, including zone pay but not including fringe benefits, is required to be paid for overtime hours pursuant to ORS 279C.540). Generally, use the appropriate prevailing wage rates in effect at the time the contract was first advertised for bid by the public agency. If this date is not known, or if the project was not advertised for bid, contact the public agency (owner) associated with the project for assistance with applicable rates.

Column 6 – HOURLY FRINGE BENEFIT AMOUNT PAID AS WAGES TO THE EMPLOYEE: Enter hourly fringe benefit amounts paid directly to the employee as wages. (For overtime hours worked, it is not necessary to pay time and one half for the fringe benefit portion of the prevailing wage rate.)

Column 7 – GROSS AMOUNT EARNED: Enter the gross amount earned for work on the PWR project during the week. If part of the employee's wages for the pay period were earned on projects other than the project described on the WH-38, or if the employee is paid less often than on a weekly basis, enter in column 7 first the gross amount earned on the PWR project for the week, then the total gross amount earned for the pay period. For example: \$567.84 / \$1,267.27.

Column 8 – ITEMIZED DEDUCTIONS, FICA, FED, STATE, ETC.: Enter deductions withheld from wages for the pay period. All deductions must be in accordance with the provisions of ORS 652.610 (and as defined in Regulations, Part 3 (29 CFR Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948, 63 Stat. 108, 72 Stat. Stat. 967, 76 Stat. 357; 40 U.S.C 276c) on projects subject to Davis-Bacon Act). For projects subject to the Davis-Bacon Act, itemize the deductions.

Column 9 – NET WAGES PAID: Enter the total amount of net wages actually paid to the employee for the pay period. This figure can be calculated by subtracting the total deductions reported in Column 8 from the gross amount of wages for the pay period reported in the bottom portion of Column 7.

Column 10 – HOURLY FRINGE BENEFITS PAID TO BENEFITS PARTY, PLAN, FUND OR PROGRAM: Enter the hourly amount of fringe benefits paid to each individually approved party, plan, fund, or program, for each employee. List these amounts separately on the lines provided. Any contractor who is making payments to approved parties, plans, funds or programs in amounts less than the required hourly fringe benefit is obligated to pay the difference directly to the employee as wages in lieu of fringe benefits, and to show that amount in Column 6 of this form. For information on how to calculate hourly fringe benefit credits, see Appendix A in the BOLI's publication, "*Prevailing Wage Rate Laws*."

Column 11 – NAME OF BENEFIT PARTY, PLAN, FUND OR PROGRAM: Enter the name of the party, plan, fund, or program that corresponds to the amount paid as an hourly fringe benefit in Column 10.

CALCULATION CHECK

In order to determine whether the wages and fringe benefits paid are sufficient to meet prevailing wage rate requirements, the following check may be performed:

1. For each classification listed in column 2, compute the sum of:
 - a) the hourly base rate of pay shown in Column 5,
 - b) the hourly fringe benefit amount paid as wages to employee shown in Column 6, and
 - c) the hourly fringe benefits paid to benefit party, plan, fund or program shown in Column 10.
2. This sum must equal or exceed the total of the hourly base rate (including zone pay) and the hourly fringe benefit rate for that classification as listed in the appropriate issue of BOLI's publication, *Prevailing Wage Rates for Public Works Contracts in Oregon*.

IF YOU HAVE QUESTIONS REGARDING COMPLETION OF THIS FORM, CONTACT THE PREVAILING WAGE RATE UNIT OF THE BUREAU OF LABOR AND INDUSTRIES AT (971) 673-0838.

NOTE: PAYROLL/CERTIFIED STATEMENTS ARE ONLY REQUIRED TO BE SUBMITTED TO THE PUBLIC AGENCY ASSOCIATED WITH THE PROJECT.

**CERTIFIED PAYROLL AND OTHER FORMS ARE AVAILABLE ON OUR WEBSITE:
WWW.OREGON.GOV/BOLI**

PRIME CONTRACTOR SUBCONTRACTOR PAYROLL NO. _____
 Business Name (DBA): _____ Phone: (____) _____ CCB Registration Number: _____

Project Name: _____ Project Number: _____ Type of Work: _____
 Street Address: _____ Project Location: _____
 Mailing Address: _____ Project County: _____

Date Pay Period Began: _____ Date Pay Period Ended: _____

THIS SECTION FOR PRIME CONTRACTORS ONLY

THIS SECTION FOR SUBCONTRACTORS ONLY

Public Contracting Agency Name: _____ Subcontract Amount: _____
 Phone: (____) _____ Prime Contractor Business Name (DBA): _____
 Date Contract Specifications First Advertised for Bid: _____ Prime Contractor Phone: (____) _____
 Contract Amount: _____ Prime Contractor's CCB Registration Number: _____
 Date You Began Work on the Project: _____

(1) NAME, ADDRESS AND EMPLOYER'S IDENTIFICATION NUMBER	(2) CLASSIFICATION (INCLUDE GROUP # AND APPRENTICESHIP STEP IF APPLICABLE)	(3) DAY AND DATE							(4) TOTAL HOURS	(5) HOURLY BASE RATE	(6) HOURLY FRINGE BENEFIT AMOUNTS PAID AS WAGES TO EMPLOYEE	(7) GROSS AMOUNT EARNED (see directions)	(8) ITEMIZED DEDUCTIONS FICA, FED. STATE, ETC.	(9) NET WAGES PAID	(10) HOURLY FRINGE BENEFITS PAID TO BENEFIT PARTY, PLAN, FUND OR PROGRAM	(11) NAME OF BENEFIT PARTY, PLAN, FUND, OR PROGRAM
		HOURS WORKED EACH DAY														
		OT														
		ST														
		Schedule: 5/8 <input type="checkbox"/> 4/10 <input type="checkbox"/> ; Reg. Hrly. Schd: _____ to _____.														
		OT														
		ST														
		Schedule: 5/8 <input type="checkbox"/> 4/10 <input type="checkbox"/> ; Reg. Hrly. Schd: _____ to _____.														
		OT														
		ST														
		Schedule: 5/8 <input type="checkbox"/> 4/10 <input type="checkbox"/> ; Reg. Hrly. Schd: _____ to _____.														
		OT														
		ST														
		Schedule: 5/8 <input type="checkbox"/> 4/10 <input type="checkbox"/> ; Reg. Hrly. Schd: _____ to _____.														

*Although this form has not been officially approved by the U.S. Department of Labor, it is designed to meet the requirements of both the state PWR law and the federal Davis-Bacon Act.
 WH-38 (Rev. 06/16) THIS FORM CONTINUED ON REVERSE

CERTIFIED STATEMENT

Date: _____
 I, _____ (NAME OF SIGNATORY PARTY) _____ (TITLE)
 do hereby state:

(1) That I pay or supervise the payment of the persons employed by:

_____ (CONTRACTOR, SUBCONTRACTOR OR SURETY)
 on the _____ (BUILDING OR WORK) _____ that during the payroll period
 commencing on the _____ day of _____ (MONTH) _____, and ending the _____ day
 of _____ (MONTH) _____ (YEAR), all persons employed on said project have been paid the

full weekly wages earned, that no rebates have been or will be made either directly or indirectly to or on behalf of said _____ (CONTRACTOR, SUBCONTRACTOR OR SURETY) from the full weekly wages earned by any person, and that no deductions have been made either directly or indirectly from the full wages earned by any person, other than permissible deductions as specified in ORS 652.610, and as defined in Regulations, Part 3 (29 CFR Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948, 63 Stat. 108, 72 Stat. 967, 76 Stat. 357, 40 U.S.C. 276c), and described below:

(2) That any payrolls otherwise under this contract required to be submitted for the above period are correct and complete; that the wage rates for workers contained therein are not less than the applicable wage rates contained in any wage determination incorporated into the contract; that the classifications set forth therein for each worker conform with work performed.

(3) That any apprentices employed in the above period are duly registered in a bona fide apprenticeship program registered with a state apprenticeship agency recognized by the Bureau of Apprenticeship and Training, United States Department of Labor, or if no such recognized agency exists in a state, are registered with the Bureau of Apprenticeship and Training, United States Department of Labor.

I HAVE READ THIS CERTIFIED STATEMENT, KNOW THE CONTENTS THEREOF AND IT IS TRUE TO MY KNOWLEDGE:

 (NAME AND TITLE)

 (SIGNATURE AND DATE)

In addition to completing sections (1) - (3), if your project is subject to the federal Davis-Bacon Act requirements, complete the following section as well:

(4) That:
 (a) WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS OR PROGRAMS

- In addition to the basic hourly wage rates paid to each laborer or mechanic listed in the above referenced payroll, payments of fringe benefits as listed in the contract have been or will be made to appropriate programs for the benefit of such employees, except as noted in Section 4(c) below.

(b) WHERE FRINGE BENEFITS ARE PAID IN CASH

- Each laborer or mechanic listed in the above referenced payroll has been paid, as indicated on the payroll, an amount not less than the sum of the applicable basic hourly wage rate plus the amount of the required fringe benefits as listed in the contract, except as noted in Section 4(c) below

(c) EXCEPTIONS:

 EXCEPTION (CRAFT) _____ EXPLANATION _____

REMARKS:

 NAME AND TITLE _____ SIGNATURE _____

THE WILLFUL FALSIFICATION OF ANY OF THE ABOVE STATEMENTS MAY SUBJECT THE CONTRACTOR OR SUBCONTRACTOR TO CIVIL OR CRIMINAL PROSECUTION. SEE SECTION 1001 OF TITLE 18 AND SECTION 231 OF TITLE 31 OF THE UNITED STATES CODE.

**FILE THIS FORM WITH THE PUBLIC AGENCY ASSOCIATED WITH THE PROJECT
 NOTE TO CONTRACTORS: YOU MUST ATTACH COPIES OF THIS FORM TO EACH OF YOUR PAYROLL SUBMISSIONS ON THIS PROJECT.
 INSTRUCTIONS AND ADDITIONAL FORMS ARE AVAILABLE ON OUR WEBSITE: WWW.OREGON.GOV/BOLI.**



CONTRACT FEE SECTION
PREVAILING WAGE RATE UNIT
BUREAU OF LABOR AND INDUSTRIES
800 N.E. OREGON ST., #1045
PORTLAND, OR 97232-2180
PHONE: (971) 673-0852
FAX: (971) 673-0769

For Office Use Only: Project DB #: _____

PUBLIC WORKS FEE INFORMATION FORM

For use by public agencies that have contracted with a contractor on a public works project regulated by ORS 279C.800 to 279C.870, in compliance with ORS 279C.825. Also for use by public agencies that are a party to a public works project pursuant to ORS 279C.800(6)(a)(B), (C) (D) or (E).

PUBLIC AGENCIES: Please complete and mail this form to BOLI at the above address, along with the public works fee of one-tenth of one percent of the contract price (contract amount x .001), payable to BOLI. **The minimum fee is \$250.00; the maximum fee is \$7,500.00.** Without the following completed information, the bureau may be unable to properly credit you for payment received.

PUBLIC AGENCY: _____ AGENCY #: _____

AGENCY MAILING ADDRESS: _____

CITY, STATE, ZIP: _____

AGENCY CONTACT PERSON: _____ PHONE: (____) _____

PROJECT MANAGER NAME: _____ PHONE: (____) _____

PROJECT NAME: _____

CONTRACT NAME (if part of larger project): _____

PROJECT LOCATION: _____

PROJECT NO: _____ DATE CONTRACT FIRST ADVERTISED: _____

DATE CONTRACT AWARDED: _____ CONTRACTOR CCB#: _____

CONTRACTOR BUSINESS NAME (DBA): _____

CONTRACTOR ADDRESS: _____

CITY, STATE ZIP _____

CONTRACT AMOUNT: \$ _____ FEE AMOUNT DUE/PAID: \$ _____

If less than \$50K, is it part of a larger project? yes no Contract amount x .001 = fee due

(Please duplicate this form for future use.)



CONTRACT FEE SECTION
PREVAILING WAGE RATE UNIT
BUREAU OF LABOR AND INDUSTRIES
800 N.E. OREGON ST., #1045
PORTLAND, OR 97232-2180
PHONE: (971) 673-0852
FAX: (971) 673-0769

For Office Use Only:
Project DB #: _____

PUBLIC WORKS FEE ADJUSTMENT FORM

THIS FORM TO BE USED FOR RECONCILIATION OF FEES UPON COMPLETION OF PUBLIC WORKS PROJECTS

(As required by ORS 279C.825 and OAR 839-025-0210)

PUBLIC AGENCIES: Complete and mail this form to BOLI at the above address after completion of the public work project and not less than 30 days after the final progress payment is made to the contractor. Public agencies are required to determine the final contract price, including all change orders or other adjustments to the original contract price, and to calculate the adjusted prevailing wage rate fee based on the revised contract price. Documentation must be included to support the final contract price. Documentation of the final contract price may consist of change orders or other contract documents substantiating the amount of the contract. The prevailing wage rate fee of one-tenth of one percent (.001) shall be applied to the final contract price, with credit taken for fees already submitted. The public agency must submit any additional fee payable to BOLI, or submit any request for refund, with this adjustment form. **THE MINIMUM FEE IS \$250.00; THE MAXIMUM FEE IS \$7,500.00. NO ADDITIONAL FEE IS REQUIRED TO BE PAID, AND REFUNDS WILL NOT BE MADE, IF THE BALANCE DUE OR THE REFUND DUE IS LESS THAN \$100.00.**

PUBLIC AGENCY: _____ AGENCY #: _____

AGENCY CONTACT PERSON: _____ PHONE: () _____

MAILING ADDRESS: _____

PROJECT NAME: _____

CONTRACT NAME (if part of larger project): _____

PROJECT NUMBER: _____ PROJECT LOCATION: _____

CONTRACTOR/BUSINESS NAME (DBA): _____

CONTRACTOR CCB#: _____ DATE AWARDED: _____

FINAL CONTRACT/PROJECT AMOUNT: _____ FINAL FEE DUE: _____

(Include all change orders and adjustments to the contract price)
.001)

(Final Contract amount X

ORIGINAL CONTRACT AMOUNT: _____ INITIAL FEE PAID: _____

(Original Contract amount X .001)

TOTAL ADJUSTMENT: _____ BALANCE DUE*: _____

or

REFUND DUE*: _____

*Final contract fee less initial fee paid

Sample Calculation:			
Final Contract Amount:	\$ 400,000.00	Final Fee Due:	\$ 400.00
Original Contract Amount:	- 300,000.00	Initial Fee Paid:	- 300.00
Total Adjustment:	\$ 100,000.00	Additional Amount Due:	\$ 100.00

(Please duplicate this form for future use)



BUREAU OF LABOR AND INDUSTRIES
NOTICE OF PUBLIC WORKS
(For use by public agencies in complying with ORS 279C.835)

For Office Use Only: Project DB #: _____
--

NOTE: ORS 279C.835 requires that public contracting agencies include with this form a copy of the disclosure of first-tier subcontractors submitted pursuant to ORS 279C.370.

PUBLIC AGENCY INFORMATION

Agency Name: _____
Agency Division: _____ Agency # (if known): _____
Address: _____
City, State, Zip: _____
Email Address: _____
Agency Representative: _____ Phone: _____

SECTION A: To be completed when a public agency awards a contract to a contractor for a public works project, including CM/GC projects. (See reverse for public works projects in which no public agency awards a contract to a contractor.)

CONTRACT INFORMATION:

Project Name: _____
Contract Name (if part of larger project): _____
Project #: _____ Contract #: _____
Project Manager Name: _____ Phone: _____ Fax: _____
Project Location (Street(s), City): _____ Project County: _____
Contract Amount: \$ _____ If under \$50,000, is this contract part of a larger project? YES NO
If yes, total project amount: \$ _____
Will project use federal funds that require compliance with the Davis-Bacon Act? YES NO
Date Contract Specifications First Advertised for Bid (if not advertised, date of RFP or first contact with contractor): _____
OR If CM/GC Contract, Date Contract Became a Public Works Contract (see OAR 839-025-0020(6)): _____
Date Contract Awarded: _____ Date Work Expected to Begin: _____ Date Work Expected to be Complete: _____

PRIME CONTRACTOR INFORMATION:

Name: _____
Address: _____
City, State Zip: _____ Phone: _____
Construction Contractors Board Registration #: _____
Name of Bonding Company: _____
Address: _____
Agent Name: _____ Phone: _____
Payment Bond #: _____

Copy of first-tier subcontractors attached (see NOTE above).

Signature of agency representative completing form: _____
Printed Name: _____ Phone: _____ Date: _____
Email Address: _____

THIS FORM WILL BE RETURNED TO THE PUBLIC AGENCY FOR CORRECTION AND RESUBMITTAL IF INCOMPLETE.

Complete this page for public works projects in which NO PUBLIC AGENCY AWARDS A CONTRACT TO A CONTRACTOR. Complete the CONTRACT INFORMATION AND SECTION B, C, D or E, whichever applies to the project.

CONTRACT INFORMATION:

Name of Project Owner: _____ Phone: _____
Project Name: _____ Project #: _____
Project Location (Street(s), City): _____ Project County: _____
Total Project Cost: \$ _____ Amount of Public Funds Provided for the project: \$ _____
Name(s) of Public Agency(ies) Providing Public Funds: _____
Will project use federal funds that require compliance with the Davis-Bacon Act? YES NO
Date Work Expected to Begin: _____ Date Work Expected to be Complete: _____

SECTION B: To be completed when a project is a public works pursuant to ORS 279C.800(6)(a)(B) (a project for the construction, reconstruction, major renovation or painting of a road, highway, building, structure or improvement of any type **that uses \$750,000 or more of funds of a public agency**).

Date the public agency or agencies committed to the provision of funds for the project: _____

SECTION C: To be completed when a project is a public works pursuant to ORS 279C.800(6)(a)(C) (a project for the construction of a privately owned road, highway, building, structure or improvement of any type **that uses funds of a private entity and in which 25 percent or more of the square footage of the completed project will be occupied or used by a public agency**).

Total square footage of privately owned road, highway, building, structure or improvement: _____

Percent of total square footage of the completed project that will be occupied or used by a public agency: _____

Date the public agency or agencies entered into an agreement to occupy or use the completed project: _____

SECTION D: To be completed when a project is a public works pursuant to ORS 279C.800(6)(a)(D) (a project that includes the construction or installation of a **device, structure or mechanism that uses solar radiation** on public property, regardless of project cost or whether the project uses funds of a public agency).

Date the public agency entered into an agreement for the project: _____

SECTION E: To be completed when a project is a public works pursuant to ORS 279C.800(6)(a)(E) (a project for the construction, reconstruction, major renovation or painting of a road, highway, building, structure, or improvement of any type that occurs, with or without using funds of a public agency, **on real property that the Oregon University System or an institution in the Oregon University System owns**).

Date the public agency entered into an agreement for the project: _____

Signature of agency representative completing form: _____

Printed Name: _____ Phone: _____ Date: _____

Email Address: _____

THIS FORM WILL BE RETURNED TO THE PUBLIC AGENCY FOR CORRECTION AND RESUBMITTAL IF INCOMPLETE.

RETURN THIS COMPLETED FORM TO:

Prevailing Wage Rate Unit • Bureau of Labor and Industries • 800 NE Oregon Street, #1045 • Portland, OR 97232-2180
Telephone (971) 673-0852 • FAX (971) 673-0769 • pwremail@boli.state.or.us



PLANNED PUBLIC IMPROVEMENT SUMMARY

FISCAL YEAR: _____ . _____ (Name of State or Local Government Agency) PAGE _____ OF _____

Project Number	Project Name	Project Type	Project Location	Estimated Project Cost	Agency or Contract Work

ORS 279C.305 requires that not less than 30 days prior to adoption of its budget for the subsequent budget period, each public agency shall prepare and file with the Commissioner of the Bureau of Labor and Industries a list of every public improvement known to the agency that the agency plans to fund in the budget period, identifying each improvement by name and estimating the total on-site construction costs. The list shall also contain a statement as to whether the agency intends to perform the construction by a private contractor. If the agency intends to perform construction work using the agency's own equipment and personnel on a project estimated to cost more than \$125,000, the agency must also show that its decision conforms to the state's policy that public agencies make every effort to construct public improvements at the least cost to the public agency. Public agencies are required to keep and preserve a full, true and accurate account of the costs of performing the work, including all engineering and administrative expenses, and the cost, including investment costs, of any equipment used.

This form (WH-118) may be used to list planned public improvements. Form WH-119 (Capital Improvement Project Cost Comparison Estimate) may be used to report the agency's least cost analysis.

Completed forms should be mailed to:

Prevailing Wage Rate Unit
 Wage and Hour Division, #1045
 Bureau of Labor and Industries
 800 N.E. Oregon St.
 Portland, OR 97232-2180



CAPITAL IMPROVEMENT PROJECT COST COMPARISON ESTIMATE

_____ (Name of State or Local Government Agency)

DEPARTMENT: _____ PROJECT NAME: _____
 PROPOSED YEAR: _____ FUND: _____
 PROJECT DESCRIPTION: _____ PROJECT NUMBER: _____

Rough Quantity Estimates	Units	Work Class Description	Agency Force Estimate		Agency Contract Estimate	
			Unit Cost	Total Cost	Unit Cost	Total Cost
				\$		\$

ESTIMATED CONSTRUCTION PERIOD: _____

The above-named agency has determined that this project can be performed at the least cost by: the Agency Contractor (check one)

_____ (Signature of Agency Official)

ORS 279C.305 requires that not less than 30 days prior to adoption of its budget for the subsequent budget period, each public agency shall prepare and file with the Commissioner of the Bureau of Labor and Industries a list of every public improvement known to the agency that the agency plans to fund in the budget period, identifying each improvement by name and estimating the total on-site construction costs. The list shall also contain a statement as to whether the agency intends to perform the construction by a private contractor. If the agency intends to perform construction work using the agency's own equipment and personnel on a project estimated to cost more than \$125,000, the agency must also show that its decision conforms to the state's policy that public agencies make every effort to construct public improvements at the least cost to the public agency. Public agencies are required to keep and preserve a full, true and accurate account of the costs of performing the work, including all engineering and administrative expenses, and the cost, including investment costs, of any equipment used.

Form WH-118 (Planned Public Improvement Summary) may be used to list planned public improvements. This form (WH-119) may be used to report the agency's least cost analysis.

Completed forms should be mailed to:
 Prevailing Wage Rate Unit
 Wage and Hour Division, #1045
 Bureau of Labor and Industries
 800 N.E. Oregon St.
 Portland, OR 97232-2180

The 2016 edition of the *Prevailing Wage Rate Laws* handbook are now available. One complimentary hard copy of each Prevailing Wage Rate (PWR) publication is available upon request by emailing BOLI at pwremail@boli.state.or.us or calling (971) 673-0838. Additional copies are available at cost, plus postage.

In addition to providing this and other PWR publications, the Bureau of Labor and Industries' PWR Unit regularly offers free, informational seminars for both public agencies and contractors. The current schedule is available online at <http://www.oregon.gov/boli/WHD/PWR/docs/pwrsched.pdf>.

Prior to responding below, please consider that all PWR-related information is available online at <http://www.oregon.gov/BOLI/WHD/PWR/Pages/index.aspx>. If you are interested in receiving the handbook and/or being included on our mailing lists for future seminar notifications, please complete the form below and return it to the bureau's PWR Unit. You may mail this form to the address on the opposite side of the form, or fax it to (971) 673-2372.

-
- Please send me the 2016 edition of the *Prevailing Wage Rate Laws* handbook.
 - Please add me to the mailing list to receive information about BOLI PWR seminars.
 - Please add me to the e-mailing list to receive information about BOLI PWR seminars.

AGENCY OR CONTRACTOR BUSINESS NAME and PHONE NUMBER (Required)

AGENCY OR CONTRACTOR BUSINESS E-MAIL ADDRESS (Please print clearly)

MAILING ADDRESS

CITY, STATE, ZIP

NAME OF REPRESENTATIVE and PHONE NUMBER if different from above.

place
stamp
here

BOLI - PREVAILING WAGE RATE UNIT
800 NE OREGON #1045
PORTLAND, OR 97232

APPENDIX B

City of Garibaldi

Public Works Standard Construction Specifications

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DIVISION ONE – GENERAL REQUIREMENTS

101 DEFINITIONS AND ABBREVIATIONS

- A. Unless otherwise defined in the Contract Documents the following definitions and abbreviations shall apply wherever used.
- B. The words directed, required, permitted, ordered, requested, instructed, designated, considered necessary, prescribed, approved, acceptable, satisfactory, or words of like import, refer to actions, expressions, and prerogatives of the City Engineer.
- C. Command type sentences are used but are not exclusive of other directives, throughout these Standard Construction Specifications. In all cases the command expressed or implied is directed to the Contractor.

101.1 DEFINITIONS

Acceptance of Work

All work required by the Contract Documents will be considered accepted upon approval of the Certificate of Completion by Owner.

Acts of God

An act of God is to be construed to mean an earthquake, flood, cloudburst, tornado, hurricane or other phenomenon of nature of catastrophic proportions or intensity.

Advertisement

The public announcement inviting bids or requesting proposals for work to be performed or materials to be furnished.

Attorney

The City Attorney of the City of Garibaldi, Oregon.

Bid

The offer of a Bidder, which is the basis of the Contract, submitted on Owner's official Bid form, to perform stated work at a price or prices quoted.

Bid Bond

The bond required to be submitted with each Bid as described in **Subsection 102.06, BID GUARANTY AND ORGANIZATION**, as a Bid Guaranty, which assures that the bidder will enter into a contract if his bid is accepted, synonymous with bid security. Bid bonds shall also be required for proposals.

Bidder

Any individual, firm, co-partnership, corporation, or combination thereof, submitting a Bid in response to the advertisement calling for bids on the work contemplated in the Contract.

Certificate of Completion

Standard Owner's form which must be signed by the Contractor.

Certificate of Compliance

Standard Owner's form which must be signed by the Contractor stating compliance with the Contract Documents.

Change Order

A written order issued by the City Engineer to the Contractor directing changes in the work, subject to approval of Owner.

City

The City of Garibaldi, Oregon, acting through its legally constituted City Council. The terms "City" and "Owner" are interchangeable.

City Engineer

The City Engineer of the City of Garibaldi, acting either directly or through authorized representatives. The terms "Engineer", "Public Works Director" and "City Engineer" are interchangeable

Contract Cost

The aggregate amount of price promised to be paid by Owner to Contractor upon fulfillment of the Contract.

Contract

The document entitled contract or agreement which is executed by the Contractor and the Owner, authorizing ordinance, the advertisement calling for bids, the bid, instructions to bidder, plans, all specifications, addenda, permits, performance bond, insurance certificates, and change order for any approved revisions made during the performance of the work to any of the above listed documents, collectively referenced as the contract documents.

Contract Item

A specific unit of work for which a price or basis of payment is provided in the Contract.

Contractor

Any individual, firm, co-partnership, corporation or any combination thereof who has or have entered into a Contract with the Owner for a particular project. In the case of work being done under permit issued by the Owner, the permittee shall be construed to be the Contractor.

Day

Calendar day, any and every day shown on the calendar, Sundays and Holidays included.

Easement

The right to use a defined area of property for specific purpose or purposes as set forth in the specifications.

Foreign Contractor

Contractor who has not paid unemployment taxes or income taxes in this state during the 12 calendar months immediately preceding submission of the bid, or does not have a business address in this state.

Improvement

General term encompassing all phases of work to be performed under a Contract for a Local Improvement District and is synonymous with the term Project or work.

Inspector

The authorized representative of the City Engineer whose authority, instructions, and decisions shall be limited to the particular duties and responsibilities entrusted to him in making detailed inspections of any or all portions of the work or materials therefore.

Lump Sum

A method of payment providing for one all-inclusive payment for the work described to be done, complete and accepted without further measurement, as such work is covered under the applicable lump sum pay item.

Manager

The City Manager of the City of Garibaldi, Oregon, acting either directly or through authorized representatives.

Non-Resident Bidder

A bidder who is not a resident bidder.

Notice

A written communication delivered by hand or by mail to the authorized individual, member of the firm or officer of the corporation for which it is intended. If delivered or sent by mail it shall be addressed to the last known

business address of the individual, firm or corporation. In the case of a Contract with two or more persons, firms or corporations, notice to one shall be deemed notice to all.

OSHD Standard Specifications

The latest edition of the Specification Document published by the State of Oregon, entitled Standard Specifications for Highway Construction, Oregon State Highway Division. This document is available from the Oregon State Highway Division, Salem, Oregon.

Owner

The City of Garibaldi, Oregon, acting through its legally constituted City Council. The terms "Owner" and "City" are interchangeable.

Performance and Payment Bond

The bond submitted by the Contractor and his surety as specified in the Contract and as more fully described in **Subsection 103.06, PERFORMANCE AND PAYMENT BOND.**

Plans

The official Plans, profiles, cross sections, elevations, details and other working, supplementary and detail drawings, or reproductions thereof, signed by the City Engineer, which show the location, character, dimensions and details of the work to be performed. Plans may either be bound in the same book as the balance of the Contract Documents or bound in separate sets, and are a part of the Contract Documents, regardless of the method of binding.

Prequalification

Process for pre-screening contractors.

Project

General term encompassing all phases of the work to be performed under the Contract and is synonymous with the term Improvement or Work.

Proposal

The submission of a plan or project, which becomes the basis of a Contract, submitted in response to a Request for Proposals.

Provide

When related to an item of work, the word provide shall be understood to mean furnish and install the work complete in place.

Reference Specifications

Bulletins, standards, rules, methods of analysis or test, codes and specifications of other agencies, engineering societies, or industrial associations referred to in the Contract Documents. All such references specified herein refer to the latest edition thereof, including any amendments thereto which are in effect and published at the time of advertising for bids or of issuing the permit for the project.

Request for Proposals

Method of contractor selection as set forth in ORS 279C.400 through ORS 279C.414 which may include but is not limited to award without negotiation, negotiation with the highest ranked proposer, competitive negotiations, multiple-tiered competition designed either to identify a class of proposers that fall within a competitive range or to otherwise eliminate from consideration a class of lower ranked proposers, or any combination of methods. Unless otherwise noted, all requirements of these Standard Construction Specifications applicable to bids shall also be applicable to Requests for Proposals except first-tier subcontractor disclosure under ORS 279C.370 and reciprocal preference under ORS 279A.120.

Resident Bidder

A bidder that has paid unemployment taxes or income taxes in this state during the 12 calendar months immediately preceding submission of the bid, has a business address in this state and has stated in its bid whether the bidder is a "resident bidder" under ORS 279A.120.

Responsible and Responsive Bidder

This term denotes a bidder who has the capability in all respects to perform fully the contract, and the integrity and reliability which will assure good faith performance and who has submitted a bid under a competitive sealed bid which conforms in all respects to the invitation for bids so that all bidders may stand on equal footing with respect to method and timeliness of submission and as to the substance of any resulting contract.

Right-of-Way

A general term denoting public land, property, or interest therein, acquired for or devoted to a public street, public access or public use.

Roadway

That portion of a street and its appurtenances between curbs, gutters, or ditches, primarily used for vehicular traffic.

Shop Drawings and Submittals

Supplementary plans or data or other information which the Contract requires the Contractor to submit to the City Engineer.

Shown

As used herein, the word shown, or as shown, shall be understood to refer to work shown on the Plans in the Contract.

Special Specifications

Requirements peculiar to the project and changes and modifications of the Standard Construction Specifications.

Specified

As used herein, the word specified, or as specified, means as required by the Contract.

Standard Plans or Drawings

Details of structures, devices, or instructions adopted by Owner as a standard and referred to in the Contract.

Standard Construction Specifications

The terms, directions, provisions and requirements set forth herein.

Station

A distance of 100 ft. measured horizontally along the established centerline of a street, sewer, or other work, unless specified otherwise.

Street

Any street, avenue, boulevard, alley, lane, bridge, bicycle path, road, public thoroughfare or public way and any land over which a right-of-way has been obtained or granted for any purpose of public travel.

Subcontractor

An individual, partnership, firm, corporation, or any combination thereof, to whom the Contractor sublets part of the Contract.

Substantial Completion

The work (or a specified part thereof) has progressed to the point where, in the opinion of the City Engineer, it is sufficiently complete in accordance with the Contract Documents, so that the work (or specified part) can be utilized for the purposes for which it is intended.

Surety

The corporate body which is bound with and for the Contractor, for the acceptable performance of the Contract, and for his payment of all obligations arising out of the Contract.

Unit Price

A Contract item of work providing for payment based on specific unit of measurement; e.g., linear foot or cubic yard.

Use of Pronoun

As used herein, the singular shall include the plural, and the plural the singular; any masculine pronoun shall include the feminine or neuter gender; and the term "person" includes natural person or persons, firm, co-partnership, corporation or association, or combination thereof.

Utility

Tracks, overhead or underground wires, pipelines, conduits, ducts, or structures, owned, operated or maintained in or across a public right-of-way or easement.

Work

All material, labor, tools, equipment, and all appliances, machinery, transportation, and appurtenances necessary to perform and complete the Contract, and such additional items not specifically indicated or described which can be reasonably inferred as belonging to the item described or indicated and as required by good practice to provide a complete and satisfactory system or structure.

Working Day

Calendar day, any and every day shown on the calendar, excluding Saturdays, Sundays and Legal Holidays.

101.2 ABBREVIATIONS

AAN	American Association of Nurserymen
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AGA	American Gas Association
AGC	Associated General Contractors of America
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
APWA	American Public Works Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers Association
AWS	American Welding Society
AWWA	American Water Works Association
CRSI	Concrete Reinforced Steel Institute

DEQ	Department of Environmental Quality
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
ITE	Institute of Traffic Engineers
NEC	National Electrical Code
NEMA	National Electrical Manufacturer's Association
NLMA	National Lumber Manufacturer's Association
OAR	Oregon Administrative Rules
ORS	Oregon Revised Statutes
OSHA	Occupational Safety and Health Administration
OSHD	Oregon State Highway Division
ODOT	Oregon Department of Transportation
OCSR	Oregon Coast Scenic Railroad
PCA	Portland Cement Association
POTB	Port of Tillamook Bay
SDR	Standard Dimension Ratio
UBC	Uniform Building Code
UL	Underwriters' Laboratories, Inc.
USASI	United States of America Standards Institute
WWPA	Western Wood Products Association

102 INSTRUCTIONS TO BIDDERS

102.1 EEO AFFIRMATIVE ACTION

Bidders must comply with the City of Garibaldi's Equal Opportunity Policy for Contractors. The policy is included in and made a part of these Contract Documents.

102.2 PREQUALIFICATION OF BIDDERS

- A. Prequalification application forms may be obtained from the City Engineer's Office, Garibaldi, Oregon. All bidders must be prequalified. Prequalification applications submitted without being designated for a project advertised for bid by the City will be considered as a general prequalification application and processed pursuant to ORS 279C.430, and notice of prequalification status will be given within 30 days of the receipt of the application.
- B. Pursuant to ORS 279C.435, bidders prequalified with the Department of Transportation or with the Oregon Department of Administrative Services, are rebuttably presumed qualified for the same kind of work. (NOTE: No person may engage in any business within the City without first obtaining a City license and paying the fee prescribed pursuant to City of Garibaldi Code.)

102.3 FORM OF BID

- A. Bidders shall enclose the bid, bid bond, certified check or cashier's check in a sealed, labeled, and addressed envelope and file as required in the Notice to Contractors. The bidders shall also enclose a copy of the contract agreement signed by a representative of the bidder's organization authorized to bind the bidder to

contract. The contract will only become consummated upon signature by the Owner. A separate signed proposal form is not needed. The outside of the envelope should plainly identify: the Project name and the Bid Opening date. (Resolution 05-10 4/11/05)

- B. All bids must be clearly and distinctly typed or written with ink or indelible pencil and be on the form furnished by Owner, and in addition to necessary unit price items and total prices in the column of totals to make a complete bid, all applicable blanks giving general information must be filled in and the bid signed by the Contractor or a duly authorized agent. Any statement accompanying and tending to qualify a bid may cause rejection of such bid, unless such statement is required in a bid embracing alternative bids.
- C. Unless otherwise specified, bidders shall bid on all bid items included in the bid and the low bidder shall be determined as noted in **Subsection 103.01, AWARD OF CONTRACT**. Except as provided herein, bids which are incomplete, or fail to reply to all items required in the bid may be rejected.
- D. All bids must state whether business is being done as an individual, a co-partnership, a corporation, or a combination thereof, and if incorporated, in what state, and if a co-partnership, state names of all partners. The person signing on behalf of a corporation, a co-partnership or combination thereof shall state his position with the firm or corporation, and state whether the corporation is licensed to do business in the State of Oregon.

102.4 WITHDRAWAL, MODIFICATION OR ALTERATION OF BID

- A. A bid may only be withdrawn on written or telegraphic request of the bidder and received by the owner prior to the scheduled closing time for filing bids.
- B. Prior to Bid Opening, changes may be made provided the change is initialed by the bidder or his agent. If the intent of the bidder is not clearly identifiable, the interpretation most advantageous to Owner will prevail.

102.5 LATE BIDS

Bids received after the scheduled closing time for filing bids, as set forth in the invitation for bids will be rejected and returned unopened to the bidder unless such closing time is extended by Owner.

102.6 BID GUARANTY AND ORGANIZATION

Unless covered by an annual bid bond, filed with the Owner, in an unencumbered amount sufficient to cover all pending bids, all bids must be accompanied by a Bid guaranty guaranteeing that the bid will be irrevocable for 60 days, unless specified otherwise, in the form of a certified check or cashier's check payable to the order of the Owner, or a bidder's bond in such form as is approved by the City Attorney in an amount of at least 10% of the amount of the bid. Such bid guaranty shall be forfeited as liquidated damages if the bidder shall fail or neglect to furnish a performance bond and insurance, if required, and to execute and return the contract within 15 days after issuance of the Contract.

102.7 INTERPRETATION OF CONTRACT AND ADDENDA

- A. If it should appear to a Bidder that the work to be done or matters relative thereto are not sufficiently described or explained in the Contract Documents or that Contract Documents are not definite and clear, or the Bidder requests additional information or an interpretation of the contract, the Bidder may make written inquiry regarding same to the City Engineer at least five days before the scheduled closing time for filing bids.
- B. If, in the opinion of the City Engineer, additional information or interpretation is required, an addendum will be issued to all known specification holders.
- C. Any addendum or addenda issued by the Owner which may include changes, corrections, additions, interpretations or information, and issued 48 hrs. or more before the scheduled closing time for filing bids, Saturday, Sunday and legal holidays not included, shall be binding upon the Bidder. Owner may supply copies

of such addenda to all contractors who have obtained copies of the Contract for the purpose of bidding thereon, but failure of the Contractor to receive or obtain such addenda shall not excuse him from compliance therewith if he is awarded the contract. Owner may also choose not to mail notice of Addenda, and to publish notice of any Addenda on Owner's Web site, instead, if such procedure is specified in the bidding documents.

- D. ORAL INSTRUCTIONS OR INFORMATION CONCERNING THE CONTRACT OR THE PROJECT GIVEN OUT BY OFFICERS, EMPLOYEES OR AGENTS OF THE OWNER TO PROSPECTIVE BIDDERS SHALL NOT BIND THE OWNER.

102.8 EXAMINATION OF CONTRACT, SITE OF WORK AND SUBSURFACE DATA

- A. Bidders shall determine for themselves all the conditions and circumstances affecting the project or the cost of the proposed work, including without limitation utility interferences, by personal examination of the site, careful review of the Contract and by such other means as the Bidder feels may be necessary.
- B. It is understood and agreed that information regarding subsurface or other conditions, or obstructions indicated in the Contract Documents, is provided by Owner only for the convenience of Bidders and such information is not expressly or tacitly warranted to accurately represent actual conditions. Bidder's use of such information shall be at Bidder's sole risk, and Bidder is responsible to confirm any information provided from such independent sources as Bidder feels may be necessary.
- C. Logs of test holes, test pits, soils reports, ground-water levels and other supplementary subsurface information are offered as information of underlying materials and conditions at the locations actually tested. Owner will not be liable for any loss sustained by the Contractor as a result of any variance between conditions contained in or interpretations of test reports and the actual conditions encountered during progress of the work.
- D. The submission of a Bid shall be conclusive evidence that the Bidder has investigated and is satisfied as to the site subsurface conditions to be encountered, as to the character, quality and quantities of work to be performed and materials to be furnished, and as to the requirements of the Contract.

102.9 FAMILIARITY WITH LAWS AND ORDINANCES

- A. The Bidder is presumed to be familiar with all Federal, State, and local laws, ordinances, and regulations which in any manner affect those engaged or employed in the work or the materials or equipment used in the proposed construction, or which in any way affect the conduct of the work.
- B. If the Bidder, or Contractor, shall discover any provision in the Contract which is contrary to or inconsistent with any law, ordinance or regulation, he shall immediately report it to the Owner in writing.

102.10 UNIT BIDS

- A. The estimate of quantities of work to be done under unit price bids is approximate and is given only as a basis of calculation for comparison of bids and award of the Contract. The Owner does not warrant that the actual amount of work will correspond to the amount as shown or estimated. Payment will be made at unit prices under a contract, only for work actually performed or materials actually furnished according to actual measurement.
- B. Bidders must include in their bid prices the entire cost of each item of work set forth in the bid, and when, in the opinion of the Owner, the prices in any bid are obviously unbalanced, such bid may be rejected.
- C. The unit contract prices for the various bid items of the contract shall be full compensation for all labor, materials, supplies, equipment, tools and all things of whatsoever nature required for the complete incorporation of the item into the work the same as though the item were to read "In Place."

102.11 REJECTION OF BIDS

- A. Owner reserves the right to reject any or all bids in whole or in part or waive irregularities.
- B. This invitation to bid does not commit the City to pay any costs incurred by any Bidder in the submission of a proposal, or in making necessary studies or designs for the preparation thereof, or for procuring or contracting for the items to be furnished under the invitation to bid.

102.12 CONFLICT OF INTEREST

A bidder filing a bid thereby certifies that no officer, agent, or employee of the City who has a pecuniary interest in this bid has participated in the contract negotiations on the part of the City, that the proposal is made in good faith without fraud, collusion, or connection of any kind with any other Bidder for the same call for bids, and that the Bidder is competing solely on its own behalf without connection with, or obligation to, any undisclosed person or firm.

102.13 INELIGIBILITY FOR PUBLIC CONTRACTS FOR FAILURE TO PAY PREVAILING RATE OF WAGE

The bidder, in submitting the bid, does thereby certify that the bidder is not ineligible to receive a contract for a public work, as set forth in ORS 279C.860 and agrees, if awarded a contract, that every subcontractor will be required to certify compliance thereto, said certification to be filed with the City Engineer prior to such subcontractor commencing any work under the contract.

102.14 ORS 654.150 SANITARY FACILITIES AT CONSTRUCTION PROJECTS STANDARDS, EXEMPTIONS

If the contract price is estimated (itemized bid) or bid (lump sum) by Contractor at \$500,000 or more, Contractor shall be responsible for all costs (which costs shall be included in the bid whether or not a specific bid item is provided therefore) that may be incurred in complying with or in securing exemption or partial exemption from the requirements of ORS 654.150, (Sanitary facilities at construction projects; standards, exemptions) and the rules adopted pursuant thereto. Whether or not ORS 654.150 is applicable to the project is the sole responsibility of the Contractor.

103 AWARD AND EXECUTION OF CONTRACT

103.1 AWARD OF CONTRACT

- A. The award will be made by Owner to the Bidder submitting the lowest, responsible and responsive bid. In determining the lowest acceptable bid, Owner may take into account, among other factors, the prices bid, discounts, if any, time of completion or delivery proposed, as between equal bids, the relative merits and performance of any item specifically proposed by the Bidder, any variation in maintenance and guaranty period specially proposed by the Bidder in excess of any minimums specified, the realistic balance of prices in the bids for various parts or units of work and the experience and ability of Bidder to perform the work.
- B. While price extensions are required as a matter of convenience, in the event of error in extensions, the unit prices bid shall govern. In the event of discrepancy between the written and numerical amounts, the written prices will govern.
- C. Determination of the lowest Bidder and award are subject to review and determination by the Attorney as to legal sufficiency of any bid submitted.

- D. Award and tender of contract, if it be awarded, shall be made within 45 calendar days, unless otherwise specified, after the date of opening of bids.

103.2 EXECUTION OF CONTRACT

Once the contractual agreement is signed by the City and Notice of Award is provided to the successful bidder, the bidder shall furnish a performance bond, a payment bond and proof of filing of a public works bond and such other required bonds and insurances satisfactory to the Owner within 15 days following Notice of Award of the Contract.

103.3 FAILURE TO EXECUTE CONTRACT

- A. Failure on the part of the Bidder to whom the Contract is awarded to deliver the required performance, payment and proof of public works bonds and other required bonds and insurances as provided for in **Subsection 103.02, EXECUTION OF CONTRACT**, shall be just cause for cancellation of the award, withdrawing tender of the Contract and forfeiture of the Bid Guaranty to Owner.
- B. The forfeited Bid Guaranty shall become property of the Owner, not as a penalty, but in liquidation of damages sustained. Award may then be made to the next lowest responsible and responsive Bidder, or the work may be re-advertised, or otherwise, as the Owner may decide.

103.4 RETURN OF BID GUARANTY

- A. Upon the execution of the contract and bond by the successful bidder, the bid guaranty shall be returned. The bidder who is awarded a contract and who fails promptly and properly to execute the contract or bond shall forfeit the bid guaranty that accompanied the bid.
- B. The bid guaranty of unsuccessful bidders will be returned after the bids have been opened and the contract has been awarded, and shall not be retained after the contract has been duly signed. The owner reserves the right to retain the bid security of the three lowest bidders until the award contract has been signed and returned.

103.5 TRANSFER OF CONTRACT AND INTERESTS THEREIN

- A. Excepting Surety assignment under the performance and payment bond, the Contract is not assignable to any other party or parties without the prior written consent of Owner. In case of such attempted transfer without permission, Owner may refuse to carry out the Contract either with the transfer or the transferee, but all rights of action for any breach of the Contract by said Contractor is reserved to the Owner.
- B. Neither officer of Owner, nor any person employed in its service is or shall be permitted any share or part of the Contract or is or shall be entitled to any benefit which may arise from the contract.
- C. Any assignment of money shall be subject to all proper setoffs and withholdings in favor of Owner and to all deductions provided for in the Contract, and particularly all money withheld, whether assigned or not, shall be subject to being used by Owner for completion of the work in the event Contractor should be in default therein.

103.6 PERFORMANCE AND PAYMENT BOND

At the time of execution of the Contract, the Contractor shall furnish a Performance Bond and a Payment Bond and proof of filing of a public works bond with the Construction Contractor's Board, or other such Bonds approved by the Owner and Attorney in an amount equal to the amount of the Contract based upon the estimate of quantities or lump sum as set forth in the Proposal, conditioned upon a compliance with and fulfillment of all terms and provisions of the Contract, including maintenance, repair and replacement, and all applicable laws and prompt payment, as due, to all persons supplying labor and/or material for prosecution of the work.

103.7 PROOF OF CARRIAGE OF INSURANCE

Work shall not commence until all insurance required in the Contract has been obtained and a certificate thereof has been approved by the Attorney. Contract shall maintain insurance throughout the life of the Contract which will hold Owner harmless and shall indemnify Owner for any and all losses to third persons or to Owner arising out of the operations, including any contingent liability arising therefrom.

103.8 FOREIGN CONTRACTOR

A foreign Contractor or non-resident bidder awarded a contract with a price exceeding \$10,000, under provisions of ORS 279A.120, shall promptly report to the Department of Revenue on forms to be provided by the Oregon Department of Revenue the total contract price, terms of payment, length of contract and such other information as may be required before final payment can be received on the public contract. Final payment shall not be made until Owner is satisfied that this provision has been accomplished.

104 SCOPE OF WORK

104.1 PLANS AND SPECIFICATIONS

- A. The Contract Documents will govern the work to be done. Anything mentioned in the Specifications and not shown on the Plans and detailed drawings, or shown on the Plans and detailed drawings and not mentioned in the Specifications, shall be of like effect as though shown or mentioned in both. Specifications and Plans referred to in any of the Contract Documents shall be considered as being included in the document in which such reference is made.
- B. When a particular Standard Plan or Specification is referred to, such reference shall be to the Standard Plan or Specification which is in force at the time of advertising for bids. The phrases, "Contractor shall", "Contractor will", etc. may not always be specifically stated in all paragraphs but is considered understood where not specifically stated otherwise.

104.2 PRECEDENCE OF CONTRACT DOCUMENTS

- A. In case of conflict, the order of precedence of the following documents in controlling the work shall be:
 - 1. Contract
 - 2. Addenda
 - 3. Bid
 - 4. Permits from outside agencies required by law
 - 5. Special Specifications (Technical Provisions)
 - 6. Standard Plans and Standard Details
 - 7. Standard Construction/Technical Specifications
 - 8. City Approved Construction Plans
- B. Change orders and supplemental agreements will take precedence over Contract Documents listed above.

104.3 SHOP DRAWINGS AND OTHER SUBMITTALS

- A. Plans furnished and included with Specifications indicate the work proposed and the results that are intended to be accomplished.

- B. Unless otherwise specified, furnish six copies of all layout, detail, shop and working drawings requested by the City Engineer. Shop drawings shall be of sufficient size and scale to clearly show details. After review and approval by the City Engineer, two copies will be returned to the Contractor.
- C. By approving and submitting shop drawings, product data and samples, the Contractor represents that he has determined and verified all materials, field measurements, and field construction criteria related thereto, and that he has checked and coordinated the information contained within such submittals with the requirements of the work and of the Contract Documents and that he has checked and coordinated the information contained within such submittals with the requirements of the work and of the contract documents and that he is satisfied they conform to the contract documents.
- D. All required shop drawings, product data and samples shall be furnished to the City Engineer for his review and any required testing before any of the work or related work is performed or products or material ordered prior to the City Engineer's review and completion of any testing will be at Contractor's risk.
- E. The City Engineer will review all shop drawings, product data and samples and conduct such tests as are required by the contract documents within a reasonable time but in no event will the City Engineer be required to complete such review or conduct such tests in less than 14 days after submission. The City Engineer will return marked-up submittal copies indicating one of the following actions:
 - 1. If review and checking indicate no exceptions, copies will be returned marked "NO EXCEPTIONS TAKEN" and work may begin immediately on incorporating the material or equipment covered by the submittal into the work.
 - 1. If review and checking indicate limited corrections are required, copies will be returned marked "Make Corrections noted," and upon making the corrections noted, work may begin immediately to incorporate the material or equipment covered by the submittal into the work.
 - 2. If review and checking indicate insufficient or incorrect data have been submitted, copies will be returned marked "REVISE AND RESUBMIT." No work may begin on incorporating the material or equipment covered by this submittal into the work until the submittal is revised, resubmitted, and returned marked either "NO EXCEPTIONS TAKEN" OR "MAKE CORRECTIONS NOTED."
 - 3. If review and checking indicate the material or equipment submittal is unacceptable, copies will be returned marked "REJECTED." No work may begin on incorporating the material or equipment covered by this submittal into the work until a new submittal is made and returned marked either "NO EXCEPTIONS TAKEN" OR "MAKE CORRECTIONS NOTED."
 - 4. If review and checking indicate additional information is required, copies will be returned marked "SUBMIT SPECIFIED ITEM." Work may begin immediately on incorporating the material or equipment covered by the submittal into the work, only if it is not affected by the item to be submitted. If any material or equipment is affected, no work may begin on incorporating that material or equipment into the work until it and the submittal are submitted and returned marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED."
- F. The review by the City Engineer of any shop drawings, product data, samples, construction methods and equipment or other submittals is only for conformance with the general design concept of the project and does not extend to consideration of structural integrity, safety, detailed compliance with contract requirements, or any other obligation of the Contractor. Any action shown is subject to the requirements of the plans and specifications.
- G. The contractor is responsible for confirming and correlating all dimensions; fabricating and construction techniques; coordinating his entire work in strict accordance with the contract documents. The review does not relieve Contractor from his obligation fully to perform all contract requirements, nor shall such review give rise to any right of action or suit in favor of Contractor or third persons, against the City Engineer or Owner.

104.4 CHANGES IN THE WORK

- A. Without invalidating the Agreement and without notice to a surety, Owner may, at any time, order additions, deletions or revisions in the Work: these will be authorized by a written amendment, a Change Order, or a work directive change.
- B. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- C. At any time the contractor encounters a changed condition, situation, or direction that he believes may result in additional contract time or contract cost that he feels is attributable to the Owner, the contract must provide immediate notification to the City's project manager and must provide written notification must be provided within one work day and a written estimate on the impacts upon project cost and project completion to the City's project manager within two work days from first becoming aware or when the individual should have been aware of the changed condition, situation, or direction. If the Contractor fails to provide the required notice and estimate of impact in a timely manner as prescribed above, the City shall be not liable for the additional costs or time caused by the changed condition, situation, or direction. (Resolution 05-10 4/11/05)
- D. If the contractor or any of their personnel accepts direction from the City's project manager that they feel is beyond the scope of the contract and will result in increased cost and/or time to complete the project, the contractor or authorized personnel shall notify the City's project manager immediately of their belief that the direction is a change and is beyond the scope of the contract. The City's project manager is not authorized to require additional work resulting in additional cost to the contract without proper authorization from City management. If the work is directed under Force Account, the strict requirements of **Subsection 104.05, FORCE ACCOUNT WORK**, shall be required. (Resolution 05-10 4/11/05)

104.5 FORCE ACCOUNT WORK

- A. The Contractor shall perform work on a force account basis upon written notice by the City Engineer.
- B. The Contractor must maintain records in such a manner as to provide a clear distinction between direct cost of work performed on force account basis and costs of all other operations performed in connection with the Contract.
- C. The Contractor shall, on a daily basis, furnish to the City Engineer signed reports itemizing materials used and setting forth the cost of labor and charges for equipment rental, delineating whether said equipment is Contractor or Subcontractor owned. Provide names, identifications, and classifications of workmen, the hourly rate of pay and hours worked, and the size, type, and identification number of equipment and hours of equipment operation.
- D. The Contractor shall substantiate material charges by vendor's invoices, submit such invoices with the reports; or, if not available, submit with subsequent reports. In the event said vendor's invoices are not submitted within 30 days after completion of the force account work owner reserves the right to establish the cost of such materials.
- E. The City Engineer will compare his records with the reports furnished by the Contractor, make any necessary adjustments, compile the costs of work paid for on a force account basis, and issue a change order covering the work.

104.6 SALVAGE

When shown or specified, carefully salvage and stockpile within the construction area all castings, pipe and any discarded facilities, to be disposed of by owner.

105 CONTROL OF WORK

105.1 AUTHORITY OF THE CITY ENGINEER

- A. The City Engineer will decide all questions which may arise as to quantity, quality, and acceptability of materials furnished and work performed the rate of progress of the work; interpretation of the Plans and Specifications; the measurement of all quantities; and the acceptable fulfillment of the Contract on the part of the Contractor. The City Engineer's estimates, decisions and approval signify favorable opinion and qualified consent; it does not carry with it certification or assurance of completeness, quality or accuracy concerning details. Such approval does not relieve Contractor from responsibility for errors, improper fabrication, improper construction methods, and non-conformance to requirements or for deficiencies within his control.
- B. It is further understood that all work to be done under the Contract will not be considered completed until it has passed final inspection by the City Engineer and is accepted by the Owner. It is further understood that the authority of the City Engineer is such that the contractor shall at all times carry out and fulfill the instructions and directions of the City Engineer insofar as they concern the work to be done under the Contract.
- C. The City Engineer shall have the authority to order unacceptable work to be corrected, removed or replaced, and unauthorized work to be removed and, pending completion of such order, to deduct the estimated cost thereof from any monies due, including retainage, or to become due the Contractor. This authority shall take precedence over any and all requirements of the specifications for payment set forth elsewhere in the specifications.
- D. In the City Engineer's sole discretion, minor defects in the work may be accepted subject to a reasonable deduction from the Contract price or other credits to the owner. Such determination by the City Engineer shall be final.
- E. The City Engineer is not authorized to waive any written notice required of the Contractor by the Contract.

105.2 AUTHORITY AND DUTIES OF INSPECTORS

- A. The City Engineer may appoint assistants to inspect all materials used and all work done. Such inspection may extend to any or all parts of the work and to the preparation or manufacture of materials to be used. Inspectors will not be authorized to revoke, alter, enlarge, or relax the provisions of the contract. An Inspector is placed on the work to keep the City Engineer informed of progress of the work and the manner in which it is being done. In addition, the Inspector shall call to the attention of Contractor any deviation from the Plans, or Specifications.
- B. An Inspector will not be authorized to approve or accept any portion of the work or to issue instructions contrary to the Plans and Specifications under this Contract. Furthermore, the Inspector is not authorized to waive any written notices required by the Contract. The Inspector will have authority to reject defective material and to suspend any work that is being improperly done, subject to final decision by the City Engineer.

105.3 RESPONSIBILITY OF CONTRACTOR

- A. Do all work and furnish all labor, materials, equipment, tools, and machines necessary for the performance and completion of the project in accordance with the Contract. Be obligated to determine and be responsible for the method of construction.
- B. Contractor shall be solely liable for any accident, loss or damage happening to work referred to in the Contract prior to completion and acceptance thereof.

105.4 NOTIFICATION OF UTILITIES AND AGENCIES

- A. Obtain prior approval from the City Engineer for closing or partial closing of any street. Give at least two working days advance notice of such closure to all agencies providing emergency services, including without limitation police, fire and ambulance services. Notification shall include, but not be limited to the time of commencement and completion of work, names of streets or location of alleys to be closed, or partially closed, schedule of operations and routes of detours where applicable.
- B. When performing work in streets and easements, whether inside or outside Owner's legal boundaries, notify all of the affected utilities and local agencies about the operations so as to properly coordinate and expedite the work in such a manner as to cause the least amount of conflict and interference between the operations and those of other agencies.
- C. The Contractor and its subcontractors must comply with all provisions of ORS 757.541 to ORS 757.571 including notification of all owners of underground facilities at least 48 business day hours but not more than 10 business days before beginning work. Notify the following utilities and agencies in writing at least two working days before commencing any work on the project.
 - 1. City of Garibaldi Public Works Department
 - 2. Pacific Power and Light
 - 3. Oregon Department of Transportation
 - 4. Tillamook People's Utility District
 - 5. Embarq/Century Link
 - 6. Charter Cable
 - 7. Port of Tillamook Bay
 - 8. Oregon Coast Scenic Railroad
 - 9. Alaska Communication Systems
- D. Owner shall relocate or cause to be relocated all privately or publicly owned utility conduits, lines, poles, mains, pipes and such other facilities within the jurisdiction and control of Owner where such relocation is necessary in order to conform said utility and other facilities with the plans and ultimate requirements of the project. If desirable for specific reasons, or for convenience of field operations, contact the above listed utilities.

105.5 UTILITIES AND EXISTING IMPROVEMENTS

- A. Information shown as to location of existing water courses, drains, sewer lines or utility lines is provided for Contractor's information and convenience and is not, in any way, warranted to be accurate by Owner. Contractor shall verify all such information and shall deal with varying conditions at its own expense.
- B. Operation of water valves and hydrants by unauthorized personnel is strictly prohibited. Obtain written permission from and pay any fee required from the Water Authority in whose jurisdiction the work is being performed prior to using hydrant water.
- C. Provide for the flow of sewers, drains, or water courses interrupted during the progress of the work, and restore such drains or water courses as approved by the City Engineer, at no additional cost to Owner.
- D. Be responsible for all costs for the repair of any and all damage to any utility, whether previously known or disclosed during the work, as may be caused by the work. Maintain in place utilities not shown on the drawings to be relocated or altered by others. If Contractor requires temporary relocation, for his convenience or because of his method of construction or as a result of site conditions, Contractor shall bear all costs for said temporary relocation. Maintain utilities which have been relocated by others in their relocated positions in order to avoid interference with structures which cross the project work.
- E. Make excavations and borings ahead of work, as necessary, to determine the exact location of interfering utilities or underground structures. When this is not feasible or practical or the need for such work was not

foreseen, the utility owners or the Owner shall have the right to enter upon the right-of-way and upon any structure therein for the purpose of making new installations, changes or repairs. Conduct operations so as to provide the time needed for such work to be accomplished during the progress of the improvement, at no additional cost to the owner.

- F. It is understood that there will be interfering utilities, service laterals, and other underground pipes, drains or structures encountered on underground projects that are not shown or are shown incorrectly on the plans and/or have not been previously discovered in the field. Contractor agrees this is a normal and usual occurrence in the construction of underground improvements. Furthermore, bidders understand and agree that work in some cases must be done in close proximity to said utilities and underground pipes, drains, and structures not shown or shown incorrectly on the plans which may require a change in operations and may cause sloughing of the trench, additional traffic control, additional pavement and backfill costs, and time; the Contractor agrees that a reasonable number of these occurrences are usual and ordinary on underground projects and are reflected in the bid and plan of operation.
- G. The City Engineer will require a reasonable amount of time to perform design changes necessitated by directly conflicting utilities and/or the utility owners will require a reasonable amount of time to make necessary utility relocations.
- H. The Bidders agree to provide for these conflicts and interferences and agree to provide for a reasonable amount of time for design changes and/or utility relocations due to said interference in the bid and understand that no additional compensation for interruption of schedule, extended overhead, delay or any other impact claim or ripple effect or any other costs whatsoever or additional time will be made for these conflicts or interferences.

105.6 SURVEY SERVICE

- A. Give notice to the City Engineer not less than three working days in advance of when survey services will be required in connection with the laying out of any portion of the work.
- B. The City Engineer will furnish and set construction stakes establishing lines and grades as he determines necessary for all work under the Contract.
- C. The City Engineer will furnish appropriate offset lines and grades as he deems necessary for all projects involving trenching operations. Contractor will be responsible for the transfer of the offset lines or grades into the ditch, to batterboards, or any other point within the work. Work done without lines and grades having been established by the City Engineer or work done beyond the lines and grades will be considered as unauthorized and will not be paid for and may be ordered removed, replaced, or corrected at no expense to the Owner.

105.7 PROTECTION OF SURVEY MARKERS

105.7.1 Permanent Survey Markers

- A. Notify the City Engineer not less than three working days prior to starting work in order that the City Engineer may take necessary measures to ensure the preservation of survey monuments, stakes, lot stakes and bench marks. Do not disturb permanent survey monuments, stakes, lot stakes or bench marks without the consent of the City Engineer, and notify the City Engineer and bear the expense of replacing any that may be disturbed.
- B. When a change is made in the finished elevation of the pavement of any roadway in which a permanent survey monument is located, preserve the monument and adjust the monument cover to the new grade at no expense to Owner.

105.7.2 Construction and Survey Markers

- A. Preserve construction survey stakes and marks for the duration of their usefulness during construction. If any construction survey stakes are lost or disturbed through negligence of Contractor, and in the judgment of the City Engineer need to be replaced, such replacement shall be by the City Engineer at the expense of Contractor.
- B. The cost of replacement shall be charged against, and shall be deducted from payments for Contract work.

105.8 PROTECTION OF PROPERTY

- A. Protect all public and private property, insofar as it may be endangered by operations and take every reasonable precaution to avoid damage to such property.
- B. Restore and bear the cost of any public or private improvement, facility, structure, or land and landscaping within the right-of-way or easement which is damaged or injured directly or indirectly by or on account of an act, omission, or neglect in the execution of the work. Restore to a condition substantially equivalent to that existing before such damage or injury occurred, by repairing, rebuilding, or otherwise effecting restoration thereof, or if this is not feasible, make a suitable settlement with the Owner of the damaged property.
- C. Give reasonable notice to occupants of buildings on property adjacent to the work to permit the occupants to remove vehicles, trailers and other possessions as well as salvage or relocate plants, trees, fences, sprinkler systems, or other improvements in the right-of-way which are designated for removal or which might be destroyed or damaged by work operations.
- D. Protect all designated trees, lawns and planted areas within the right-of-way or easements. Required tree protection practices are contained in the Garibaldi Tree Technical Manual. Restore all on-surface disturbed areas, by methods as set forth in the technical specifications. If conditions are such that the method specified cannot be done, provide erosion control surface covering of such quality and quantity as will prevent erosion from occurring, without adverse impacts to the environment, if required by conditions existing at the site, at no additional cost to the Owner.
- E. Review with the City Engineer the location, limits and methods to be used prior to clearing work. Clearing and grubbing shall be performed in strict compliance with all local, State and Federal laws and requirements pertaining to clearing and burning, and particularly in conformity with the provisions of ORS Chapter 477, and all subsequent amendments, which require, among other things, filing with the State Forester a general description of the right-of-way to be cleared before the start of clearing operations. Obtain the required permit from the State Forester and perform clearing work in conformance thereto.

105.9 USE OF WORK DURING CONSTRUCTION

- A. Owner shall have the right to take possession of and use any completed or partially completed portions of the Work. Such use shall not be considered as final acceptance of the Work or portions thereof.
- B. Such action by Owner will not relieve the Contractor of responsibility for injury or damage to said completed portions of the work resulting from use by public traffic, action of the elements, Contractor's operations, defective work, or negligence, or from any other cause, except for injury or damage resulting from Owner's negligence.
- C. Contractor will not be required to again clean up such portions of the Work prior to final acceptance, excepting for such clean up as results from Contractor's operations or defective work. Use of any completed or partially completed portions of the work does not relieve Contractor from the warranty responsibility nor shall the warranty period commence to run until final completion and acceptance of the work.

105.10 FURNISHING TEMPORARY SERVICES AND FACILITIES

- A. Contractor shall install, furnish and maintain temporary light, power, water and any temporary services or facilities complete with connecting piping, wiring, lamps, and similar equipment during construction of the work, including testing and start up.
- B. Contractor shall remove temporary facilities upon completion of work.
- C. Contractor shall obtain all permits and bear all costs in connection with temporary services and facilities. The work shall conform to applicable statutes, rules, codes, and other requirements in the use of these facilities.

105.11 VERBAL AGREEMENTS OR REPRESENTATIONS

No verbal agreement or conversation by or with any officer, agent or employee of the Owner, either before or after execution of the Contract, shall affect or modify any of the terms or obligations contained in any of the documents comprising the Contract. Any such verbal agreement or conversation is in no way binding upon Owner.

105.12 WATER AND AIR POLLUTION CONTROL

- A. During the term of the Contract, Contractor's operations shall conform to applicable laws and regulations of the Oregon Department of Environmental Quality, and other agencies of the State and Federal government, City of Garibaldi Erosion Control Plans, as well as other local Ordinances and Resolutions designed to prevent, control, and abate water and air pollution.
- B. During all phases of the work, or when directed, protect work sites, storage and disposal areas from washout and erosion, and take precautions to control or abate dust nuisance and air pollution by cleaning up, sweeping, sprinkling, covering, enclosing or sheltering work areas, and stockpiles, and by promptly removing from paved streets earth or other material which may become airborne or may be washed into waterways or drainage systems.

105.13 NOISE

Conform and comply with applicable noise regulations as established in the City of Garibaldi Municipal Code 9.05.300.

105.14 ACCESS TO THE WORK

- A. Provide access to the work for representatives of the owner, Port of Tillamook Bay, Oregon Coast Scenic Railroad, the State of Oregon, the Federal Government, and other entities having jurisdiction in the area.
- B. Allow access to the City Engineer or his representatives to all parts of the work and to plants of manufacturers at all times. Furnish them with every reasonable facility for ascertaining if the work meets requirements and intent of the Contract.

105.15 DEFECTIVE OR UNAUTHORIZED WORK

- A. All work which does not conform to the requirements of the Contract shall be considered as unacceptable.
- B. Upon discovery immediately remove unacceptable and defective work and replace by work and materials which conform to the Contract. This provision shall have full effect regardless of the fact that the unacceptable work may have been done or the defective materials used with the full knowledge of the Inspector.

105.16 WORK IN THE RIGHT OF WAY OR CITY-MANAGED PUBLIC EASEMENT

- A. Any time development requires access to work in the public right-of-way (ROW), ODOT ROW, POTB ROW or a City-managed public utility easement, the contractor is required to develop and submit a plan and schedule to the Public Works Director for review and approval. This plan must be submitted prior to the commencement of any work and in sufficient time for a complete review by the Public Works staff.
- B. The plan will be in sufficient detail for staff to determine if the plan is complete and functional. The City's Public Works Director/City Engineer will be the final approval authority for the plan. Depending on the complexity and impact, time may be required for discussions with the City Council and/or appropriate neighborhood associations.
- C. Once the plan is approved, any deviation must be reviewed and recommended for approval by the PIP Manager and approved by the Public Works Director/City Engineer. If the contractor fails to adhere to the approved plan, the City of Garibaldi has the right to require immediate restoration of the ROW for the citizens of Garibaldi. If the contractor fails to comply with immediate restoration of the ROW, the City of Garibaldi has the right to restore the ROW at the contractor's expense.

106 CONTROL OF MATERIALS

106.1 PREFERENCE FOR USE OF OREGON PRODUCTS

Preference may be given to services, articles or materials produced or manufactured in Oregon, if price, fitness, availability and quality are otherwise equal. These provisions do not apply to Contracts on projects financed wholly or in part by Federal funds.

106.2 QUALITY OF WORK

Materials, parts, products and equipment which are to be incorporated into the work shall be new and shall conform to the Contract Documents.

106.3 SAMPLING AND TESTING

- A. Tests of the work may be made by Owner at any time during construction of the work or during the production, fabrication, or preparation and use of materials, parts, products and equipment.
- B. Owner reserves the right to require samples and to test products for compliance with pertinent requirements irrespective of prior certification of the products by the manufacturer.
- C. When such tests of the work are necessary, as determined by the City Engineer, such tests will be made by and at the expense of Owner unless otherwise specified. Provide such facilities and cooperate as required for collecting and forwarding samples and do not incorporate into the work until tests have been made and found acceptable. In all cases furnish the required samples without charge and in ample time to permit testing prior to use. Contractor shall provide safety measures and devices to protect those who take the samples.
- D. In the absence of any reference Specification it shall be understood that materials shall meet the Specifications and requirements of the American Society for Testing and Materials (ASTM), or the American Association of State Highway and Transportation Officials (AASHTO), as directed by the City Engineer. When there is no pertinent coverage under ASTM or AASHTO, the material concerned shall meet Specifications and requirements of applicable Commercial Standards of the Commodity Standards Division of the U.S. Department of Commerce. Lacking such coverage, materials shall meet requirements established by reputable industry for a high-quality product of the kind involved.

- E. All testing shall be performed by the testing laboratory or by the City Engineer or as directed by the City Engineer.
- F. In the event the City Engineer requests tests and the work fails, the contractor shall bear all costs for this test and all subsequent testing necessary to meet specified requirements.

106.4 CERTIFICATION

The City Engineer in his sole discretion may in lieu of any other required sampling and testing accept from contractor two copies of the manufacturer's certification with respect to the product involved, under conditions set forth as follows:

1. Certification shall state that the named product conforms to Owner's requirements and that representative samples thereof have been sampled and tested as specified.
2. Certification shall either be accompanied with a certified copy of test results, or certify that such test results are on file with the manufacturer and will be furnished to the City Engineer upon request.
3. Certification shall give the name and address of the manufacturer and the testing agency and the date of tests; and shall set forth the means of identification which will permit field determination of the product delivered to the project as being the product covered by the certification.
4. Contractor shall not be responsible for any costs of certification or for any costs of the sampling and testing of products in connection therewith.

106.5 INSPECTION BY OTHERS

Inspection of work by persons other than representatives of the Owner will not constitute inspection by Owner.

106.6 STORAGE AND PROTECTION OF ITEMS OF WORK

Contractor shall store items to be incorporated into the work to assure the preservation of their quality and fitness for the work. Stored items, even though approved before storage, may be reinspected and are subject to rejection prior to being incorporated into the work. Stored items shall be located so as to facilitate their prompt inspection.

106.7 TRADE NAMES, EQUALS OR SUBSTITUTIONS

- A. In order to establish a basis of quality, certain processes, types of machinery or equipment or kinds of materials may be specified either by description of process or by designating a manufacturer by name and referring to his brand or product designation or by specifying a kind of material. It is not the intent of these specifications to exclude other processes, equipment or materials of equal value, utility or merit.
- B. Whenever a process is designated or a manufacturer's name, brand or item designation is given or whenever a process or material covered by patent is designated or described, it shall be understood that the words "or equal" follow such name, designation, or description, whether in fact they do so or not. This "or equal" clause is not a warranty, either expressed or implied by Owner that an equal exists.
- C. The Contractor may offer to furnish materials or equipment of equal or better quality and performance other than that specified as a substitute after the contract is executed. If the offer necessitates changes to or coordination with any other portion of the work, the data submitted shall include drawings and details showing all such changes. Contractor agrees to perform these changes as part of the substitution of material or equipment.
- D. Acceptance by the City Engineer shall not relieve the Contractor from full responsibility for the efficiency, sufficiency, quality and performance of the substituted material or equipment in the same manner and degree as the material and equipment specified by name. Any cost differential associated with a substitution shall be reflected in the Contract price and the contract shall be appropriately modified by Change Order.

- E. If the Bid includes a list of equipment, materials or articles for which Contractor must name the manufacturer at time of submission of the bid, no substitutions therefore will be permitted.
- F. All materials or equipment of equal or better quality offered by the Contractor for substituting shall be approved by the City Engineer prior to incorporation into the project.

107 LEGAL RELATIONS AND RESPONSIBILITIES

107.1 LAWS AND REGULATIONS

- A. Contractor shall comply with all Federal and State laws, all local laws, ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of work. Observe and comply with all such laws, ordinances, regulations, orders and decrees. Protect and indemnify Owner and his representatives against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order or decree, whether by Contractor, his subcontractors, suppliers of materials or services, or others engaged by the Contractor, or their employees.
- B. In addition to those set forth herein, the Statutes of the State of Oregon for public works contracts, Chapters 279A and 279C, are incorporated by reference into the Contract.

107.2 SUBCONTRACTORS

- A. After contract award and notice of contractor subcontractor agreements have been submitted, work shall not be transferred or subcontracted without prior consent of Owner.
- B. Use of subcontractors, material suppliers or equipment suppliers shall in no way release Contractor from any obligations of contract with Owner.
- C. Contractor will provide in all subcontract agreements that the Subcontractor, material supplier and equipment supplier will be bound by the terms and conditions of this Contract to the extent that they relate to the Subcontractor's work, material or equipment. All Subcontractors' agreements will also provide that they are assignable to the Owner at Owner's option, in the event this agreement is terminated for default of Contractor.

107.3 NO WAIVER OF LEGAL RIGHTS

- A. Owner shall not be precluded or estopped by any measurement, estimate or certificate made either before or after completion and acceptance of work or payment therefore, from showing the true amount and character of work performed and materials furnished by the Contractor, or from showing that any such measurement, estimate or certificate is untrue or incorrectly made, or that work or materials do not conform in fact to the Contract.
- B. Owner shall not be precluded or estopped, notwithstanding any such measurement, estimate or certificate, or payment in accordance therewith, from recovering from the Contractor and his Sureties such damages as it may sustain by reason of his failure to comply with terms of the Contract, or from enforcing compliance with the Contract.
- C. Neither acceptance by Owner, or by any representative or agent of the Owner, of the whole or any part of the work, nor any extension of time, nor any possession taken by Owner, nor any payment for all or any part of the project, shall operate as a waiver of any portion of the Contract or of any power herein reserved, or any right to damages herein provided.
- D. A waiver of any breach of the Contract shall not be held to be a waiver of any other breach.

107.4 OTHER CONTRACTS

- A. The Owner reserves the right to award other contracts or issue permits for work that may require coordination with the work to be performed under this contract.
- B. When separate contracts or permits are awarded or issued for different portions of the Project, "the Contractor" in the contract documents in each case shall be the contractor who signs each separate contract.
- C. Mutual Responsibility of Contractors - The contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their work, and shall properly connect and coordinate his Work with theirs.
- D. If any part of the Contractor's Work depends for proper execution or results upon the work of any other separate Contractor, the Contractor shall inspect and promptly report to the City Engineer any apparent discrepancies or defects in such work that render it unsuitable for such proper execution and results. Failure of the Contractor to inspect and report shall constitute an acceptance of the other Contractor's work as fit proper to receive the Work, except as to defects which may develop in the other separate contractor's work after the execution of the Contractor's Work.
- E. Should the Contractor cause damage to the work or property of any separate contractor which results in a claim against the Owner, and if the claim is not satisfied by contractor and the separate contractor sues the Owner or initiates an arbitration proceeding on account of any damage alleged to have been so sustained, the Owner shall notify the Contractor who shall defend if requested such proceedings at the contractor's expense, and if any judgment or award against the Owner arises therefrom the contractor shall pay or satisfy it and shall reimburse the Owner for all attorney's fees and court or arbitration costs which the Owner has incurred.
- F. The Contractor shall be responsible for any cutting, fitting and patching that may be required to complete the Work except as otherwise specifically provided in the Contract. The Contractor shall not endanger any work of any other contractors by cutting, excavating or otherwise altering any work and shall not cut or alter the work of any other contractor. Any costs caused by defective or ill-timed work shall be borne by the party responsible therefore.
- G. If a dispute arises between the separate contractors as to their responsibility for cleaning up, the Owner may clean up and charge the cost thereof to the several contractors as the City Engineer shall determine to be just.

107.5 LIABILITY AND INDEMNIFICATION

- A. The Contractor shall assume all responsibility for the work and shall bear all losses and damages directly or indirectly resulting to the Contractor, to the Owner, to the City Engineer, and to their officers, agents, and employees on account of the character or performance of the work, unforeseen difficulties, accidents, or any other cause whatsoever.
- B. The Contractor shall defend, indemnify, and hold harmless the Owner, the Design Engineer, and their officers, agents and employees from all claims, loss, damage, and injury of every kind directly or indirectly arising out of this Contract. The Contractor shall assume this responsibility even if fault is the basis of the claim, and any act, omission or conduct of the Owner connected with the Contract is a condition or contributory cause of the claim, loss, damage or injury.
- C. The Contractor shall not be liable for, nor be required to defend, or indemnify the Owner or the Design Engineer relative to any claim, loss, damage, or injury resulting solely from acts or omissions by the Owner, the Design Engineer, or their officers, agents or employees. The Contractor shall not be liable for, not be required to defend, or indemnify the Owner or the Design Engineer relating to any claim loss, damage, or injury arising from the use of any maps, drawings, reports, surveys, designs, or specifications furnished by the Owner, Design Engineer, or their officers, agents, or employees.
- D. Any specific duty or liability imposed or assumed by the Contractor, as may be otherwise set forth in the Contract documents, shall not be construed as a limitation or restriction of the general liability or duty imposed upon the Contractor by this section.

- E. The Contractor shall assume all responsibility for the work.

107.6 INSURANCE

107.6.1 General

- A. The Contractor shall provide and maintain during the life of this Contract the insurance coverage designated hereafter. All costs for such insurance shall be born by the Contractor and shall be included in the contract price.
- B. Prior to execution by the Owner and before commencing work under this Contract, Contractor shall furnish the City Engineer with certificates of insurance specified herein showing the name of the insurance carrier, coverage, type, amount (or limits), policy numbers, effective and expiration dates, description of operations covered, and containing substantially the following cancellation provision:
- C. "The insurance covered by this certificate will not be canceled or materially reduced, except after 30 days written notice has been received by the Owner."
- D. In case of the breach of any provision of this Article, the Owner, at its option, may take out and maintain, at the expense of the Contractor, such insurance as the Owner may deem proper. The Owner may deduct the cost of such insurance from any monies which may be due or become due the Contractor under this Contract.

107.6.2 Review and Approval of Insurance

- A. The Contractor shall not commence work under this Contract nor allow any subcontractor to commence work on a subcontract until [it] the Contractor has obtained all the insurance required hereunder and such insurance has been approved by the Attorney.
- B. All policies or insurance and certificates of insurance shall be satisfactory to the Owner. Approval of the insurance shall not relieve or decrease the liability of the Contractor hereunder.

107.6.3 Workers' Compensation, the Federal Longshoremens' and Harborworkers' Act and the Federal Jones Act

- A. The Contractor shall provide and shall require all subcontractors to provide workers' compensation coverage for all persons employed under this Contract including the Contractors' partners and any individual regardless of relation to the Contractor's partners and any individual regardless of relation to the Contractor or to the partners who provide work under this Contract. The Contractor shall be required to assure that subject workers will receive the compensation for compensable injuries provided in ORS Chapter 656 either by:
 - 1. A carrier-insured employer; or
 - 2. A self-insured employer as provided by ORS 656.407.
- B. In addition to the statutory benefits outlined above, the Contractor and all subcontractors shall provide employers' liability insurance with limits of not less than:
 - 1. \$100,000 each accident for bodily injury by accident
 - 2. \$100,000 each employee for bodily injury for disease
 - 3. \$500,000 policy limit for bodily injury by disease
- C. Evidence of such coverage, including the guaranty or warrant period, shall be filed with the City and maintained for the duration of the Contract.

- D. The Contractor shall defend, indemnify, and hold harmless, the City and the City's officers, agents, and employees against any liability that may be imposed upon them by reason of the Contractor's or subcontractor's failure to provide workers' compensation and employers liability coverage.
- E. Where work under this Contract is subject to the Federal Longshoremens' and Harborworkers' Act or the Federal Jones Act, the Contractor shall provide coverage for such exposure.

107.6.4 General Liability and Automobile Liability

- A. The Contractor shall provide a general liability policy that provides coverage for bodily injury including personal injury and property damage liability insurance and automobile liability insurance. Such insurance must protect the Contractor, the Owner, and their officers and employees from all things or damage which may arise out of this Contract or in connection therewith, including all operations of Subcontractors. Such insurance shall provide coverage for not less than the amounts for which public bodies are responsible as set forth in ORS Chapter 30, Tort Actions against Public Bodies, but in no event less than the following limits of liability.
 - 1. \$1,000,000 each occurrence
 - 2. \$1,000,000 general aggregate
 - 3. \$1,000,000 product and completed operations aggregate
 - 4. \$1,000,000 personal and advertising injury
 - 5. \$1,000,000 combined single limit automobile liability for owned, non-owned, and hired automobiles.
- B. The policy shall contain an endorsement that the aggregate applies separately to this Contract.
- C. The insurance shall be written on a comprehensive form which includes broad form property damage on an occurrence basis. Unless excluded by Special Specification, the general liability policy shall include, without deductible, coverage for premises operations, explosion and collapse hazard, underground hazard, products, completed operations, contractual insurance, and independent contractors. Such insurance shall be maintained until the expiration of the guaranty period required by the Contract. Failure to maintain liability insurance as provided above shall, at Owner's option, be cause for immediate termination of the Contract.
- D. The Contractor shall provide a letter from the insurance company which states that such insurance shall be without prejudice to coverage otherwise existing.
- E. The City of Garibaldi, its officers, agents, and employees, shall be named additional insureds in the Contractor's General Liability Insurance policy by attaching ISO Endorsement number CG 20 09 11 85 ADDITIONAL INSURED - Owners, Lessees, or Contractors (Form A) or its equivalent.
- F. The policy shall also provide for a Cross Liability Endorsement or Separation of Insureds Endorsement.
- G. The policy shall be endorsed to provide an AMENDMENT - AGGREGATE LIMITS OF INSURANCE (per project) specifying that a separate aggregate limit of liability applies to this Contract.
- H. If there are insufficient insurance proceeds and assets of the Contractor to fully indemnify the City of Garibaldi, its officers, employees, agents, and the City Engineer, then the City, its officers, employees, and agents would be indemnified first with any remaining insurance proceeds and assets to be used to indemnify the City Engineer.
- I. If set forth in the Special Specifications, additional insureds may be the Owner's consultant, engineer, other governmental bodies with jurisdiction in the area involved in the project, and their officers and employees and such agents as may be specified.

107.6.5 Claims on Project

The Contractor, when notified of a claim by an affected party shall

1. Refer claim to the Contractor's insurance carrier or claims administrator.
2. Contractor's insurer will copy Owner on acknowledgment of claim.
3. Contractor's insurer will copy Owner on notice to claimant of disposition of claim.

107.6.6 Builders Risk Insurance

- A. During construction, Contractor shall obtain and maintain for the benefit of the parties to the Contract as their interest may appear, all-risk Builder's Risk insurance to the extent of 100% of the value of the project. Coverage shall also include:
 1. Formwork in place
 2. Form lumber on site
 3. Temporary structures
 4. Equipment
 5. Supplies related to the work while at the site
- B. Such insurance shall be endorsed to require thirty days' written notice to the City prior to cancellation or change of the policy. One copy of the policy and two certificates of such insurance shall be delivered to the City before commencing work and shall be subject to review and approval by the City. The City may temporarily waive delivery of the copy of the policy. In the event Contractor fails to maintain such insurance, the City may arrange therefore; and any premium incurred shall be to the account of Contractor.

107.7 ROYALTIES AND PATENTS

Pay all royalties and license fees required to perform the Work. Defend and indemnify Owner, from all loss or damage that may result from the Contractor's wrongful or unauthorized use of any patented article or process.

107.8 PERMITS

Secure all Municipal, County, State, Federal or other permits or licenses, necessary or incident to performance of the work under this Contract. Comply with all permit requirements pertaining to the project.

107.9 COMPLIANCE WITH OREGON REVISED STATUTES CHAPTER 279A AND 279C (PUBLIC CONTRACTING)

- A. Comply, and require all Subcontractors to comply with the city's public contracting requirements, the requirements of the applicable State statutes, and be subject to the applicable liabilities provided in Oregon Revised Statutes Chapter 279A and 279C (Public Contracting), such as, but not limited to, the statutes that are numbered and referenced, and incorporated herein by an abbreviated subject matter, and listed below and the statutes required to be set forth as conditions in public contracts, which follows.
 1. ORS 279A.110 Discrimination in subcontracting prohibited; remedies
 2. ORS 279A.120 Preference for Oregon goods and services; nonresident bidders
 3. ORS 279A.125 Preference for recycled materials
 4. ORS 279C.505 Conditions concerning payment, contributions, liens, withholding, drug testing
 5. ORS 279C.510 Demolition contracts to require material salvage; lawn and landscape maintenance contracts to require composting or mulching

6. ORS 279C.515 Conditions concerning payment of claims by public officers, payment to persons furnishing labor or materials and complaints
 7. ORS 279C.520 Condition concerning hours of labor
 8. ORS 279C.525 Provisions concerning environmental and natural resources laws; remedies
 9. ORS 279C.530 Condition concerning payment for medical care and providing workers' compensation
 10. ORS 279C.555 Withholding of retainage
 11. ORS 279C.560 Form of retainage
 12. ORS 279C.580 Contractor's relations with subcontractors
 13. ORS 279C.585 Authority to substitute undisclosed first-tier subcontractor; circumstances; rules
 14. ORS 279C.830 Provisions concerning prevailing rate of wage in specifications, contracts and subcontracts; applicability of prevailing wage; fee; bond
 15. ORS 279C.838 Applicability of state and federal rates of wage; determination of site of project; determination of applicability of wage to transportation workers; waiver
 16. ORS 279C.840 Payment of prevailing rate of wage; posting of rates and fringe benefit plan provisions
 17. ORS 279C.845 Certified statements regarding payment of prevailing rates of wage; retainage
 18. ORS 279C.855 Liability for violations
- B. See Appendix A for the statutes required as conditions in public contracts.

107.10 LABOR

- A. Upon notification in writing from the City Engineer, remove immediately from the job for its duration any laborer, workman, mechanic, foreman, superintendent, or other person employed who is found to be incompetent, intemperate, troublesome, disorderly or otherwise objectionable, or who fails or refuses to perform his work properly or acceptably.
- B. Comply with provisions of Owner's Equal Opportunity Policy and with ORS Chapter 659A relative to unlawful employment practices and discrimination by employers against any employee or applicant for employment because of race, religion, color, sex, or national origin. Particular reference is made to ORS 659A.030, which states that it is unlawful employment practice for any employer, because of the race, religion, color, sex, or national origin of any individual, to refuse to hire or employ or to bar or discharge from employment such individual or to discriminate against such individual in compensation or in terms, conditions or privileges of employment.

107.11 OVERTIME

- A. In addition to the requirement set forth in Specification 107.09 (ORS 279C.520), Contractor shall notify the City Engineer of any overtime operations as soon as possible. The Contractor must provide documentation to the City Engineer's satisfaction justifying the overtime work.
- B. In the event that the Contractor wishes to proceed with an overtime operation, the Contractor must first notify and obtain approval from the City Engineer to do so, prior to commencing such work.
- C. For overtime work requested by the Contractor, the Contractor shall pay the applicable wage rate for the City Engineer's Inspector, engineering and operations personnel, and other staff required at the project during the overtime hours.

- D. This section does not apply to labor performed in the manufacture or fabrication of any material ordered by the Contractor or manufactured or fabricated in any plant or place other than the place where the main Contract is to be performed.

107.12 SAFETY

107.12.1 Employee Safety

- A. The Contractor shall at all times be responsible for the safety of his employees and his subcontractor's employees. The Contractor shall maintain the job site and perform the work in a manner which meets the Owner's responsibility under statutory and common law for the provision of a safe place to work and which complies with the Owner's written safety regulations, if any.
- B. Conduct the project with proper regard for the safety and convenience of the public. When the project involves use of public ways, provide necessary flag persons and install and maintain means of reasonable access to all fire hydrants, service stations, warehouses, stores, houses, garages and other property.
- C. Private residential driveways shall be closed only with approval of the City Engineer or specific permission of the property owner.
- D. Do not interfere with normal operation of public transit vehicles unless otherwise authorized. Do not obstruct or interfere with travel over any public street or sidewalk without approval.
- E. At all times provide open trenches and excavations with secured and adequate barricades or fences of an approved type which can be seen from a reasonable distance. Close up or plate all open excavations at the end of each working day in all street areas unless approved otherwise by the City Engineer and in all other areas when it is reasonably required for public safety or as directed by the City Engineer. At night, mark all open work and obstructions by lights. Install and maintain all necessary signs, lights, flares, barricades, railings, runways, stairs, bridges and facilities.
- F. Observe all safety instructions received from the City Engineer or governmental authorities, but following of such instructions shall not relieve Contractor from its responsibility or liability for accidents to workmen or damage or injury to person or property.

107.12.2 Public Safety and Convenience

- A. The Contractor shall at all times conduct his work so as to insure the least possible obstruction to traffic and convenience to the general public and residents in the vicinity of the work and to insure the protection of persons and property.
- B. No road or street shall be closed to the public except with the permission of the City Engineer and proper governmental authority. Fire hydrants on or adjacent to the work shall be kept accessible to firefighting equipment at all times.
- C. Temporary provisions shall be made by the Contractor to insure the use of sidewalks, private and public driveways and proper functioning of all gutters, sewer inlets, drainage ditches and culverts, irrigation ditches and natural water courses.
- D. The Contractor will minimize inconvenience to others due to mud and dust.

107.12.3 Safety Program

- A. The Contractor shall adopt a written safety program complying with the requirements of employee and public safety set forth hereinabove and as described in the Special Conditions.
- B. The Safety Program shall also comply with Oregon Administrative Rules (OAR) Chapter 437, Division 3, Rules 1926.20 through 1926.34 regarding general safety and health provisions.

107.13 RIGHTS-OF-WAY, EASEMENTS, AND PREMISES

- A. Confine construction activities within property lines, right-of-way, limits of easements and limits of construction permits as shown or specified in the Contract Documents unless arrangements are made with owner(s) of adjacent private property. If additional space or property is needed to accommodate Contractor's method for construction of the Work or for the convenience of the Contractor, Contractor shall bear all related costs and responsibilities. Prior to the use of any private property outside the specified boundaries, file with the City Engineer written permission from the property owner(s).
- B. Do not unreasonably encumber the specified work areas with materials and equipment. Obtain and bear the costs of permits for special occupancy and use of the specified work areas from the proper agencies. Comply with all requirements regarding signs, advertisements, fires and smoking.

107.14 MAINTENANCE AND WARRANTY

- A. In addition to and not in lieu of any other warranties required under the Contract make all necessary repairs and replacements to remedy, in a manner satisfactory to the City Engineer and at no cost to Owner, any and all defects, breaks, or failures of the Work occurring within eighteen months following the date of substantial completion due to faulty or inadequate materials or workmanship. Repair damage or disturbances to other improvements under, within, or adjacent to the work, whether or not caused by settling, washing, or slipping, when such damage or disturbance is caused, in whole or in part, from activities of the Contractor in performing his duties and obligations under this Contract when such defects or damage occur within the warranty period. The eighteen month maintenance period required shall, with relation to such required repair, be extended two years from the date of completion of such repair.
- B. If Contractor, after written notice, fails within 10 days to proceed to comply with the terms of this section, Owner may have the defects corrected, and Contractor and Contractor's Surety shall be liable for all expense incurred. In case of an emergency where, in the opinion of the City Engineer, delay would cause serious loss or damage, repairs may be made without notice being given to Contractor and Contractor or Surety shall pay the cost of repairs. Failure of the City Engineer to act in case of an emergency shall not relieve Contractor or Surety from liability and payment of all such costs.
- C. In addition to provisions A and B above, City of Garibaldi waterline facilities installed by the contractor under this contract that require repair or replacement during the two-year maintenance period shall be repaired by the Owner or under the direction of the Owner and the contractor and contractor's surety shall be liable for all expenses incurred.
- D. In addition to provisions A and B above, all water quality facilities or areas built or improved by the contractor that require repair, maintenance, or replacement during a two year maintenance period shall be repaired in a manner satisfactory to the City Engineer by the contractor and the contractor and contractor's surety shall be liable for all expenses incurred. Water quality areas include, but are not limited to, improved wetlands and transition areas, ponds, swales, and rain gardens. Repair damage or disturbances to other improvements under, within, or adjacent to the Work, whether or not caused by settling, washing, or slipping, when such damage or disturbance is caused, in whole or in part, from activities of the Contractor in performing his duties and obligations under this Contract when such defects or damage occur within the warranty period. The 2 year maintenance period required shall, with relation to such required repair, be extended two years from the date of completion of such repair.

108 PROSECUTION AND PROGRESS OF WORK

108.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Within 30 days of Contract award or one week in advance of starting work, whichever is earlier, SUBMIT FOR WRITTEN APPROVAL a proposed construction schedule to the City Engineer. Contractor may not commence

work until construction schedule is approved by the City Engineer. If it is desirable to carry on operations in more than one location simultaneously, submit a schedule for each location at least one week in advance of beginning such operations. In the event that the Contractor's proposed construction schedule does not meet the necessary construction program schedule as determined by Owner, immediately resubmit a schedule that conforms as approved. Contractor shall not commence work until schedule is approved by the City Engineer.

- B. The schedule shall show the proposed order of work and indicate the time required for completion of the major items of work. This working schedule shall take into account the passage and handling of traffic with the least practicable interference therewith and the orderly, timely and efficient prosecution of work. It will also be used as an indication of the sequence of the major construction operations and as a check on the progress of work.

108.2 PRECONSTRUCTION CONFERENCE

Attend a preconstruction conference, if requested, at a time, prior to start of work, designated by the City Engineer. Comply with information and instructions provided at the preconstruction conference as recorded in the minutes of the meeting.

108.3 NOTICE TO PROCEED

- A. Unless stated otherwise in the Special Specifications, written Notice to Proceed will be given by the City Engineer within 30 days after the Performance and Payment Bond and all required insurances have been filed with and approved by the Owner and the Contract has been executed. Do not commence work under the Contract until such written notice has been given.
- B. Notice to proceed may be delayed up to an additional 30 days (for a total of 60 days) from date of Contract by the City Engineer if, in the City Engineer's opinion, necessary easements or permits have not been obtained, or required utility relocation, construction, or reconstruction has not been completed or has not progressed to a degree that will allow initial contract work to commence.
- C. Commence work within 10 working days after the date of the Notice to Proceed, or such other date as may be fixed by the Notice to Proceed, which date shall establish the date for commencement of the Contract time. Notify the City Engineer 48 hours in advance of the time and place work will be started.

108.4 CONTRACT TIME

- A. Time shall be considered the essence of the Contract.
- B. Upon commencement of work, Contractor shall provide adequate labor, materials, equipment, and work shall be performed vigorously and continuously in accordance with a schedule which will ensure completion within the specified time limit. Failure to diligently pursue the work may jeopardize additional contract time.

108.5 SUSPENSION OF WORK

108.5.1 Work is suspended for convenience

- A. Temporarily suspend work on the Project wholly or in part for convenience of Owner as directed by the City Engineer. In the event of such suspension, the City Engineer shall, except in emergency, and except as hereinafter provided, give Contractor three days notice. Work shall be resumed within five days after notice has been given by the City Engineer to Contractor to do so.
- B. The City Engineer shall allow Contractor an extension of time for completion corresponding to the total period of temporary suspension, and shall reimburse Contractor for necessary rental of unused equipment, services of watch persons, and other unavoidable expenses accruing by reason of the suspension, as stipulated in **Subsection 108.06, DELAYS AND EXTENSIONS OF TIME**.

108.5.2 Work is suspended by the City Engineer

- A. Immediately suspend work on the project, wholly or in part, as directed by the City Engineer, for reasonable periods of time as the City Engineer may deem necessary, when conditions are unsuitable for satisfactory performance of the work.
- B. The Owner shall allow the Contractor an extension of time for completion corresponding to the total period of suspension, but the Contractor shall not be entitled to reimbursement for any costs or damages arising under this clause.

108.5.3 Work is suspended for cause

Immediately suspend work on the Project wholly or in part as directed by the City Engineer for such periods as the City Engineer may deem necessary due to:

- 1. Failure to correct unsafe conditions for working personnel, the general public, or Owner's employees
- 2. Failure to immediately correct defective and unacceptable work in accordance with **Subsection 105.15, DEFECTIVE OR UNAUTHORIZED WORK**.
- 3. Failure to carry out provisions of the Contract Documents
- 4. Failure to carry out orders or directives

108.5.3 Voluntary suspension by Contractor

- A. There shall be no voluntary suspension or slowing of operations without the prior written approval of the City Engineer and such approval shall not relieve Contractor from the responsibility to complete the Contract work within the prescribed Contract time.
- B. Should operations be discontinued, Contractor shall notify, in writing, the City Engineer at least 24 hours in advance of resuming operations.

108.5.4 Responsibilities of Contractor

- A. At the commencement of and during any suspension of Work, protect all work performed to prevent any damage or deterioration of the Work. Provide temporary protection devices to warn, safeguard, protect, guide and inform traffic during suspension, the same as though the work had been continuous and without interferences.
- B. Bear all costs for providing suitable provisions for traffic control and for maintenance and protection of the work during suspension unless the suspension was for convenience.
- C. In all cases of suspension, except voluntary suspension by Contractor, work will be resumed only upon written order of the City Engineer or Owner.

108.6 DELAYS AND EXTENSIONS OF TIME

- A. If the Contractor is significantly delayed due to court orders enjoining the prosecution of this Project, unavoidable strikes, Acts of God, unusual and extraordinary action of the elements that are of such severity to stop all progress of the work, or act or neglect of Owner not authorized by the Contract, the Contractor shall, within 48 hours of the start of the occurrence, give notice to the City Engineer of the cause of the potential delay and estimate the possible time extension involved. The Contractor shall give notice to the City Engineer of any actual time extension requested as a result of the aforementioned occurrence within 10 days after the cause of the delay has been remedied.
- B. No extension of time will be considered for weather conditions normal to the area and time of year in which the work is being performed. Delays in delivery of equipment or material purchased by the Contractor or his Subcontractors (including Owner-selected equipment) shall not be considered as a just cause for delay, when

timely ordering would have made the equipment available. The Contractor shall be fully responsible for the timely ordering, scheduling, expediting, delivery, and installation of all equipment and materials. Extensions of time will be considered for delayed delivery of Owner specified equipment "without equal".

- C. Within a reasonable period after the Contractor submits to the City Engineer a written request for an extension of time the City Engineer will make the decision on each request, for City Manager approval.
- D. An adjustment of Contract time as herein provided shall be the Contractor's sole remedy for any delay in completion of the project arising from causes beyond the control of the Contractor, except for unreasonable delay caused by acts or omissions of the Owner or persons acting therefor. In no event shall the Contractor be entitled to collect or recover any damages, loss or expense incurred by reason of such delay, except for an unreasonable delay caused by acts or omissions of the owner or persons acting therefore. However, if Contractor is delayed due solely to a breach by Owner, Contractor will be entitled to recover damages limited to reimbursement for necessary rental of unused equipment, services of watch persons, documented direct overhead costs, documented direct unavoidable expenses accruing by reason of the suspension, plus 15% of the foregoing damages to cover normal Contractor profit. Contractor shall not be entitled to indirect costs or any other damages arising out of the delay, including but not limited to, interruption of schedules, or any other impact claim or ripple effect. If a delay is caused by Owner and Contractor (joint delay), Contractor shall be entitled to a time extension only, by reason of such joint delay.

108.7 LIQUIDATED DAMAGES

- A. Time shall be considered the essence of the Contract. If Contractor fails to complete the project or to deliver the supplies or perform the services within the time specified in the Contract or any extension thereof by Owner, the actual damage to Owner for the delay will be substantial but will be difficult or impractical to determine.
- B. It is therefore agreed that Contractor will pay to Owner, not as a penalty but as liquidated damages, the per diem amount, as set forth in the following given Schedule of Liquidated Damages or modification thereof as given in the Special Provisions for each and every calendar day elapsed in excess of the Contract time or the final adjusted Contract time applicable to the work required under the Contract.

SCHEDULE OF LIQUIDATED DAMAGES

Original Amount of Contract		Per Diem Amount of Liquidated Damages	
For More Than	To and Including	Calendar Day*	Working Day
\$ 0	\$ 25,000	\$ 40	\$ 55
25,000	50,000	65	85
50,000	100,000	110	150
100,000	500,000	150	210
500,000	1,000,000	225	315
1,000,000	2,000,000	300	420
2,000,000	5,000,000	450	630

*Calendar day amounts are applicable when the contract time is expressed on the calendar day, calendar workday or fixed date basis.

- C. Permitting Contractor to continue and finish the work or any part thereof after the Contract time or adjusted Contract time, as pertinent, has expired shall in no way operate as a waiver on the part of Owner or any of its rights under the Contract.

- D. Payment of liquidated damages shall not release Contractor from obligations in respect to the fulfillment of the entire Contract, nor shall the payment of such liquidated damages constitute a waiver of Owner's right to collect any additional damages which may be sustained by failure of Contractor to carry out the terms of the Contract, it being the intent of the parties that said liquidated damages be full and complete payment only for failure of Contractor to complete the work on time.

108.8 CONTRACTOR'S REPRESENTATIVE

- A. Designate, in writing before starting work, an authorized representative who shall have complete authority to represent and to act for Contractor, in all directions given by the City Engineer. Contractor or its authorized representative shall supervise the work, and shall be present on site continually during its progress.
- B. If Contractor or its authorized representative is not present, directions may be given by the City Engineer or his authorized representative to the workmen and such order shall be received and followed. Any direction will be confirmed in writing upon request from the Contractor.
- C. Contractor shall keep a complete copy of the Plans and Specifications on or near the site at all times.

108.9 CONFLICTS, ERRORS, OMISSIONS, AND ADDITIONAL DRAWINGS

- A. Check and compare all Plans and Specifications prior to construction and notify the City Engineer of any discrepancies or omissions in order to permit correction by the City Engineer. Coordination of Plans and Specifications is intended.
- B. Furnish labor and materials as required for the work. Should any work or materials be reasonably required or intended for carrying the project to completion which are omitted on the Plans and Specifications, furnish same as fully as if particularly delineated or described. The intent of the Plans and Specifications is to show and describe a complete project within the limits stated.
- C. Dimensions shown on Plans shall be followed, rather than scale measurements. Whenever it appears that the Plans are not sufficiently detailed or explicit, the City Engineer may furnish additional detail drawings or written instructions and Contractor shall perform the work in accordance with the additional details or instructions.

108.10 OWNER'S RIGHT TO DO WORK

- A. Failure or refusal to comply with any of the terms or conditions of the Contract will permit Owner to supply or correct any deficiency or defect or take other appropriate action without prejudice to any other remedy.
- B. Such action by Owner shall be taken only after seven days notice by the City Engineer to Contractor and his Surety, unless in the judgment of the City Engineer an emergency or danger to the work or to the public exists, in which event action of Owner as set forth above may be taken without any notice whatsoever.
- C. The cost of such action by Owner shall be deducted from the payment then or thereafter due Contractor. Pay Owner any costs in excess of such payment due.

108.11 TERMINATION FOR DEFAULT

- A. If the Contractor should be adjudged bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of insolvency, or if he should refuse to or fail to supply enough properly skilled workmen or proper materials for the efficient prosecution of the Project, disregard laws, ordinances or the instructions of the City Engineer, or otherwise be in violation of any provision of the Contract, the Owner may, without prejudice to any other right or remedy and after giving the Contractor and its Surety seven days written notice, terminate the services of the Contractor and take possession of the premises and of all materials, tools and appliances thereon as well as all other materials

whether on the premises or not, on which the Contractor has received partial payment and finish the work by whatever method it may deem expedient.

- B. In the event action as above indicated is taken by the Owner, the Contractor, or its Surety, shall provide the City Engineer with immediate and peaceful possession of all of the materials, tools and appliances located on the premises as well as all other materials whether on the premises or not, on which the Contractor has received any progress payment.
- C. Upon termination, in the event that the Surety does not complete the Contract, at the election of the Owner, Contractor shall assign any and all subcontractors and material contracts to Owner or Owner's designee. Further, the Contractor shall not be entitled to receive any further payment until the work is completed. On completion of the work, determination shall be made by the City Engineer of the total amount the Contractor would have been entitled to receive for the work, under the terms of the Contract, had Contractor completed the work. If the difference between said total amount and the sum of all amounts previously paid to the Contractor, which difference will hereinafter be called the "unpaid balance," exceeds the expense incurred by the Owner in completing the work, including expense for additional managerial and administrative services, such excess will be paid to the Contractor, with the consent of the Surety. If, instead, the expense incurred by the Owner exceeds the unpaid balance, the amount of the excess shall be paid to the Owner by the Contractor or his Surety. The expense incurred by the Owner as herein provided, and the damage incurred through the Contractor's default, shall be as determined and certified by the City Engineer.
- D. In addition to and apart from the above-mentioned right of the Owner to terminate the employment of the Contractor, the Contract may be canceled at the election of the Owner for any willful failure or refusal on the part of the Contractor to faithfully perform the Contract according to all of its terms and conditions; provided, however, that in the event the Owner should cancel the Contract, neither the Contractor nor its Surety shall be relieved from damages or losses suffered by the Owner on account of the Contractor's breach of Contract.
- E. The Owner may, at its discretion, avail itself of any or all of the above rights or remedies and that its invoking of any one of the above rights or remedies will not prejudice or preclude the Owner from subsequently invoking any other right or remedy set forth above or elsewhere in the Contract.
- F. None of the foregoing provisions shall be construed to require Owner to complete the work, not to waive or in any way limit or modify the provisions of the Contract relating to the fixed and liquidated damages suffered by Owner on account of failure to complete the Project within the time prescribed.

108.12 TERMINATION IN THE PUBLIC INTEREST

- A. It is hereby agreed that the Owner has the right to terminate the Contract in whole or in part when it is considered to be in the public interest.
- B. In the event the Contract is terminated as being in the public interest the Contractor shall be entitled to a reasonable amount of compensation for preparatory work and for all costs and expenses arising out of the termination excluding lost profits. The amount to be paid to the Contractor:
 - 1. Shall be determined on the basis of the contract price in the case of any fully completed separate item or portion of the work for which there is a separate or unit contract price; and
 - 2. In respect to any other work, the Contractor will be paid a percent of the Contract price equal to the percentage of the work completed.

City of Garibaldi

Public Works Standard Construction Specifications

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DIVISION TWO – GENERAL TECHNICAL REQUIREMENTS

201 MOBILIZATION

201.1 DESCRIPTION

This section covers, but is not limited to, work necessary to obtain all bonds, insurance, licenses, and permits; move in personnel and equipment; set up all offices, buildings, and facilities; provide all required light, power, and water; install project information signs if required; prepare for construction complete; demobilize, including removal of all facilities and clean up; and all other work to successfully complete the project which is not covered in other bid items.

201.2 MATERIALS

Provide all materials required to accomplish the work as specified.

201.3 CONSTRUCTION

201.3.1 General

- A. Set up construction facilities in a neat and orderly manner within designated or approved work area.
- B. Provide for an acceptable material and equipment storage area. Supply all labor and equipment necessary to accomplish the work as specified.
- C. Conform to applicable requirements of **Section 105, CONTROL OF WORK**, including, but not limited to
 1. Required notifications
 2. Protection of surveying monuments and other markers
 3. Temporary traffic control
 4. Temporary utility connections
 5. Protection of property
 6. Water and air pollution
 7. Noise
 8. Tree protection

202 TEMPORARY TRAFFIC CONTROL

202.1 DESCRIPTION

This section covers all work necessary to conduct construction operations so as to offer the least possible obstruction and inconvenience to the public and to protect pedestrian and vehicular traffic.

202.2 MATERIALS

202.2.1 Uniform Traffic Control Devices

Provide barricades, signs, and traffic control devices built in conformance with the Manual on Uniform Traffic Control Devices (current edition), published by the U.S. Department of Transportation, and the Oregon supplements to the Manual published by the Oregon Department of Transportation.

202.3 CONSTRUCTION

202.3.1 General

- A. Use flag persons and provide and maintain such signs, barricades, warning lights, and other traffic control devices in conformance with the manuals referenced in **Subsection 202.02.01, Uniform Traffic Control Devices**. Adequately warn the public at all times of existing conditions on all streets affected by work operation.
- B. Patrol the construction area at least twice daily and reset all disturbed signs and traffic control devices immediately. Remove or cover non applicable signs when not needed. Prior to closing or partial closing of any street, conform to **Subsection 105.04, NOTIFICATION OF UTILITIES AND AGENCIES**.

202.3.2 Traffic Control within the Project

- A. Formulate and submit a traffic control plan and a work schedule to minimize the disruption of traffic. Plan shall be submitted at the pre-construction conference. If no conference is held, plan shall be submitted at least 10 days in advance of beginning work. Obtain approval of plan and schedule from the City Engineer before commencing work. Allow traffic to pass through the work with as little inconvenience and delay as possible.
- B. The traffic control plan shall contain a complete signing plan for semi-permanent and portable signs, barricades, and other traffic controls, provisions to keep the signs or devices current with the construction activities and the illumination of all detours and obstructions during hours of darkness. Be responsible for furnishing, installing, and maintaining all traffic control devices. Maintain these devices at all times including non-working hours.
- C. Provide approved access to private properties at all times, except during stages of construction when it is impractical to perform construction and maintain access to private property simultaneously, as determined by the City Engineer. When access is to be denied notify occupants of affected properties at least 24 hours in advance.
- D. When, in the judgment of the City Engineer, vehicular parking is a hazard to through traffic or to the work, furnish and place NO PARKING signs on any street which is directly involved in the construction work.
- E. Only one intersection will be closed at a time without prior approval by the City Engineer. The Contractor will notify Police and Fire departments in the jurisdiction of the closing and opening of streets. Pedestrian detours shall not exceed one block in length and all foot bridges will be provided with adequate handrails.

202.3.3 Construction and Maintenance of Detours

Construct and maintain temporary detours for protection of the work and the safe passage of traffic around work area. Conform to requirements for detours in **Subsection 107.12, SAFETY**.

202.3.4 Flagging Requirements

- A. The Contractor shall provide and maintain such signs, barricades and warning lights as are necessary to warn and protect the public at all times on highways, roads or streets affected by work operations.

- B. In addition, the Contractor shall also provide all necessary ODOT certified flag persons and guards necessary to warn and protect the public. Each flagger on duty shall wear an orange or yellow colored hard hat and an orange colored or fluorescent red-orange or fluorescent yellow-orange colored vest and shall be equipped with a highly visible, reflectorized "Stop-Slow" hand sign conforming to current standards for daylight use; and with illuminated stand area, of high visibility for night use.

202.3.5 Dust Control

- A. Contractor shall be responsible for maintaining adequate dust control during and after construction and prior to acceptance by the Owner.
- B. The contractor shall apply a fine spray of water or other approved dust palliative to unpaved surfaces. Paved surfaces shall be broomed with power brooms (i.e., street sweepers) to control dust.

203 CLEARING AND GRUBBING

203.1 DESCRIPTION

- A. This section covers work necessary to clear, remove, and dispose of all debris and vegetation such as stumps, trees, logs, roots, shrubs, vines, grass, and weeds within the designated limits, to preserve from injury or defacement such objects and vegetation as are designated to remain in place, and to perform final clean-up of the designated area.
- B. Clearing is defined as cutting of trees, bushes, vines, and other vegetative growth at or above ground surface and removal from the site of all such cut or down vegetation.
- C. Grubbing shall consist of the elimination of wooden and vegetative matter occurring at or below ground surface including, but not limited to, stumps, trunks, roots, canes, stems, debris remaining from clearing work, and sticks having a diameter of 1 in. or more.
- D. Review with the City Engineer the location, limits, and methods to be used prior to commencing work under this section.
- E. Removal of man-made structures, including, but not limited to, concrete slabs, walls, vaults, footings, asphaltic surfaced areas, and graveled areas, shall be included in payment for excavation or excavation and backfill as provided in **Subsection 204.03.04**, Excavation of Existing Improvements and Miscellaneous, and will not be included in **Section 203, CLEARING AND GRUBBING**.
- F. As indicated in **Subsection 105.08, PROTECTION OF PROPERTY**, occupants of buildings adjacent to the work shall have salvage rights to plants, trees, shrubs, fences, and other improvements in the right-of-way. Contractor shall notify adjacent property owners. Contractor does not assume ownership of clearing and grubbing items until after fulfilling the requirements of **Subsection 105.08, PROTECTION OF PROPERTY**, and **Subsection 203.03.02, Timber Salvage**.

203.2 MATERIALS

Explosives used for clearing and/or grubbing shall be fresh, stable material manufactured to the standards of the "Institute of Makers of Explosives", and shall conform to the applicable requirements of ORS Chapter 476 and 480.

203.3 CONSTRUCTION

203.3.1 General

- A. Obtain the required permits as specified in **Subsection 105.08, PROTECTION OF PROPERTY**, and perform clearing work in conformance thereto.

- B. Remove trees and plants as designated within the area of work, and remove all sod, topsoil, and organic earth within designated areas.
- C. Remove and stockpile as directed, all topsoil that is free of roots, rocks, and other objectionable material and is determined by the City Engineer to be suitable for future use. Take reasonable care to prevent topsoil from becoming mixed with subsoil. Contractor shall provide imported topsoil per **Subsection 206.02.04, Topsoil**, at its sole expense if existing topsoil is not adequately segregated as determined by the City Engineer.

203.3.2 Timber Salvage

203.3.2.1 Trees in Street Right-of-Way

- A. The adjacent property owner shall have the right to any trees felled in the right-of-way adjacent to owner's property.
- B. Contractor shall notify adjacent property owners by mail or doorhanger at least 48 hrs. prior to felling trees. Trees shall be stacked and decked on owner's property or removed from the construction site if the owner does not reserve the right of ownership.

203.3.2.2 Trees on City-Owned Property

- A. Owner reserves the right to merchant timber as designated in the Contract Documents and as marked at the project site by the City Engineer.
- B. Assume ownership, remove, and dispose of all other timber. Cut, trim, and handle marked merchantable timber in such a manner as to ensure the best sale value to Owner and dispose of resulting waste materials as hereinafter specified.

203.3.3 Protection of Existing Vegetation

- A. Protect all trees, shrubbery, and other vegetation, not designated for removal, from damage caused by the work as directed by the Garibaldi Tree Technical Manual. Cut and remove trees and branches only where approved.
- B. When directed, remove branches other than those required to provide a balanced appearance of any tree. Contractor will provide adequate protection for trees, shrubbery, and other vegetation adjacent to the work area which is to remain, as indicated on the plans and as directed by the Garibaldi Tree Technical Manual. No roots projecting into the excavation will be cut except in the presence of the Project inspector and the City Arborist.
- C. All roots authorized to be cut will be cut neatly, with a sharp tool to avoid torn root endings. Remove branches only as directed by the City Arborist.

203.3.4 Clearing

Clear the area above the natural ground surface of all vegetation and objectionable materials. Cut timber and timber growth so that no stump extends above ground surface more than 6 in. Prune all limbs over paved streets to an elevation 14 ft. above the pavement on arterial and collector streets, and 11 ft. above the pavement on residential streets. Prune all limbs over sidewalks to an elevation 7 ft., 6 in. above the sidewalk. All such pruning shall be done in accordance with accepted arboricultural standards, and shall be approved by the City Arborist.

203.3.5 Clearing Borrow and Waste Disposal Areas

Clear areas designated as borrow and waste disposal areas to designated limits and dispose of all waste as herein specified.

203.3.6 Grubbing and Stripping

- A. Completely remove all stumps and roots within the limits of required excavations and fill areas. No stumps or portion thereof shall come within 3 ft. of fill subgrades or slope surfaces. Use of explosives for stump removal shall conform to requirements of **Subsection 203.02, MATERIALS**. Obtain any and all permits required for use of explosives from controlling jurisdiction.
- B. On areas to be occupied by fills, remove all grass, roots, and embedded wood to a depth not less than 3 ft. below subgrade or slope surface on which the fill is to be constructed.
- C. On excavation areas, remove all roots and embedded wood to a depth not less than 1 ft. below subgrade or slope surface through which excavation is required.

203.3.7 Disposal of Waste Material

Remove and dispose of all waste material or debris from the site. Obtain all necessary permits for disposing of waste materials. Copies of such permits shall be provided the City Engineer prior to disposal.

203.3.8 Backfilling and Clean-up

- A. In areas not subject to future excavations or filling, fill all holes and depressions caused by clearing and grubbing with material acceptable to the City Engineer and reshape area to drain properly and to conform to adjacent undisturbed topography.
- B. Leave work area in a clean and sightly condition, free from litter and debris.

203.3.9 Removal and Replacement of Signs, Mailboxes, Posts, etc.

- A. Contractor will be responsible for the removal and replacement of all signs, mailboxes, posts, etc. when not specifically designated otherwise by the City Engineer.
- B. Contractor to contact property owner prior to removal and reinstallation of mailbox. Mail boxes in work area must be temporarily moved to allow clearing and excavation as well as easy access by mailman and residents. Upon completion of excavation, mail boxes shall be permanently replaced behind curb to postal service regulations.

204 EXCAVATION, EMBANKMENT, BEDDING, AND BACKFILL

204.1 DESCRIPTION

204.1.1 General

This section covers work necessary for excavation, construction of embankment, foundation stabilization, pipe bedding, pipe zone backfill, trench backfill, and disposal of material required in construction of streets, sewers, water mains, storm drains, structures, and appurtenances thereto.

204.1.2 Unclassified Excavation

Unclassified excavation is defined as all excavation, regardless of type, nature, or condition of materials encountered unless separately designated. The Contractor shall assume full responsibility to estimate the kind and extent of various materials to be encountered in order to accomplish the work.

204.1.3 Rock Excavation

- A. Rock excavation is defined as the removal of all material which by actual demonstration cannot, in the City Engineer's judgment, be reasonably excavated with equipment comparable to types listed in the table below and equipped with rippers or similar approved equipment and which is, in fact, systematically

Manufacturer	Model	Minimum Net Horse Power	Type of Excavation
Caterpillar	225	125	Trench
John Deere	690	125	Trench
Case	125B/980B	125	Trench
Caterpillar	D8	300	Grading and Structural

- B. In trenches, boulders or pieces of concrete below grade larger than 1/2 cu. yd. will be classified as rock if drilling and blasting or other approved methods are actually used for their removal from the trench. If material which would be classified as rock by the above definition is mechanically removed without blasting, breaking, or splitting, it will be considered unclassified excavation and will be paid for as such at the unit price bid, or if larger equipment is specifically brought in for the sole purpose of rock removal, as defined above, then such removal will be considered rock excavation and will be paid for as such at the unit price bid.

204.1.4 Trench Excavation

Trench Excavation is defined as removal of all material encountered in the trench to the depths and widths as shown and, unless otherwise classified by the City Engineer, shall be considered unclassified or rock excavation.

204.1.5 Embankment

Embankment is defined as furnishing, placing, and compacting embankment materials to the depth and configuration as shown.

204.1.6 Foundation Stabilization

Foundation stabilization is defined as the removal of unsuitable material in the bottom of an excavation as directed by the City Engineer and replacement with specified material for support of a roadbed, pipe, main, conduit, structure, or appurtenances thereto.

204.1.7 Vacant

204.1.8 Pipe Zone

Pipe zone is defined as the full width of the trench from 6 in. below outside of the pipe barrel to a point 12 in. above the top outside surface of the pipe barrel as shown on the plans.

204.1.9 Trench Backfill

Trench backfill is defined as furnishing, placing, and compacting backfill material in the trench between the top of the pipe zone and the bottom of the pavement base or ground surface. Trench backfill will be classified as either native or select backfill.

204.2 MATERIALS

204.2.1 Embankment Materials

Provide embankment materials of approved earth, sand, bank-run or river-run gravel or combinations thereof, which can be compacted to the densities specified free of peat, humus, muck, frozen ground, organic matter, or other materials detrimental to construction of firm, dense, and sound embankments.

204.2.2 Foundation Stabilization

Use foundation stabilization consisting of gravel or crushed aggregate ranging in size from 6"-0 to 3/4"-0 as specified. Material shall be well graded from coarse to fine, and free from excessive clay or organic material.

204.2.3 Vacant

204.2.4 Pipe Zone Material

- A. Use pipe zone material consisting of 3/4"-0 crushed aggregate or sand, as noted on the plans or in the special provisions.
- B. Pipe zone material shall be as specified for crushed aggregate material in *Subsection 204.02.06, Class B Backfill, 3/4"-0 Crushed Aggregate*.

204.2.5 Class A Backfill, Native Backfill Material

- A. Use native material excavated from within limits of the project that can be compacted to the density specified and free from vegetation and other deleterious material containing no frozen ground.
- B. Maximum particle size shall be as shown, except for trench backfill, wherein the particle size shall not exceed 6 in. in diameter.

204.2.6 Class B Backfill, 3/4"-0 Crushed Aggregate

- A. Coarse and fine aggregates shall conform to requirements of **Section 205, TYPES AND USE OF MATERIALS** and to additional requirements contained herein.
- B. Crushed aggregates to be incorporated in the work shall have a sand equivalent of not less than 35 when tested in conformance with AASHTO T-176. Crushed aggregate shall meet the requirements for Liquid Limit and Plasticity Index of *Subsection 205.02.12.03, Fine Aggregate (Sand)*.
- C. The crushed aggregates shall be uniformly graded from coarse to fine and shall conform to one or another of the following grading requirements as specified in the following table.

Sieve Size (inches)	Separated Sizes				
	2-1/2"-0	2"-0	1-1/2"-0	1"-0	3/4"-0
	Percentages (by weight)				
3	100				
2-1/2	95-100	100			
2		95-100	100		
1-1/2			95-100	100	
1-1/4	55-75				
1		55-75		90-100	100
3/4			55-75		90-100
1/2				55-75	
3/8					55-75
*1/4	30-45	30-45	35-50	40-55	40-60

*Of the fraction passing the 1/4 in. sieve, 40% to 60% shall pass the No. 10 sieve.

For determination of sizes and grading conform to AASHTO T-27.

- D. Where 1"-0 base aggregate is approved for use, at least 70% (by weight) of the material passing through the 1/4 in. sieve but retained on the No. 10 sieve shall have at least one mechanically fractured face.
- E. Crushed aggregate will be sampled for acceptance at one or more of the following times as determined by the City Engineer:
 - 1. In its final state on the roadbed after all processing and prior to the placement of subsequent surfacing materials;
 - 2. In the stockpile after all shaping work has been completed; or,
 - 3. Immediately after crushing.
- F. For trench backfill, the maximum particle size shall not exceed 3/4 in. in pipe zone.

204.2.7 Class C Backfill, Clean Sand

Class C backfill shall be clean sand with no particle size greater than 1/4 in.

204.2.8 Class D Backfill, Pit or Bar-Run Material

Pit or bar-run material shall be well graded from course to fine free from roots, clay balls, organic material and debris. Maximum size of material shall be 6 in. No more than 5% by weight shall pass the No. 200 sieve. The material shall have a minimum uniformity coefficient of 8, and a minimum permeability coefficient of 10-3 cm/sec.

204.2.9 Class E Backfill, Controlled Density Fill

Controlled Density Fill (CDF) shall be a mixture of Portland Cement, fly ash, aggregates, water and admixtures proportioned to provide a non-segregating, self-consolidating, free-flowing and excavatable material that will result in a hardened, dense, non-settling fill. CDF shall conform to the requirements of **Section 205, TYPES AND USE OF MATERIALS.**

204.2.10 Imported Topsoil

- A. Unless specified otherwise, imported topsoil shall be used. Provide natural, fertile, friable topsoil, representative of local productive soil, and 90% free of clay lumps or other foreign matter larger than 2 in.

diameter, not frozen or muddy, with pH 5.0 to 7.0, and not less than 3% humus as determined by loss on ignition of moisture-free samples dried at 100°C.

- B. Gravel portion (particles larger than 2 mm) shall not exceed 15% of total volume. Imported topsoil shall be free of quack grass, horsetail, and other noxious vegetation and their seeds. Should such regenerative material be present in the soil all resultant growth, both surface and root, shall be removed and replaced to original specifications at the Contractor's expense within 2 years of acceptance of the work.

204.2.11 Native Topsoil

When specified, use topsoil from the site, properly stored and protected and free from grass, debris, overburden and roots, sticks, hard clay, and stones which will not pass a 1 in. square opening.

204.2.12 Water

Use water that conforms to requirements of **Section 205, TYPES AND USE OF MATERIALS**. Provide water at the Contractor's sole expense. Contractor shall obtain City water as designated by the City. Whenever City water is to be used, the Contractor shall obtain a meter issued by the City.

204.2.13 Explosives

Use explosives which are fresh, stable materials manufactured to the standards of the "Institute of Makers of Explosives", and conforming to applicable requirements of ORS Chapter 476 and 480.

204.3 CONSTRUCTION

204.3.1 Excavation

- A. Excavate, remove, and dispose of all formations and materials, natural or man-made, irrespective of nature or conditions, encountered within limits hereinafter defined or as specified, necessary for construction of the project. Method of excavation used is optional. Overbreak shall be removed at the Contractor's expense. Use hand methods for excavation that cannot be accomplished without endangering existing or new structures or other facilities.
- B. Furnishing, installing, and removal of all shoring, sheeting, and bracing as required to support adjacent earth banks and structures, and for the safety of the public and of all personnel working in the excavation shall be the Contractor's responsibility and shall be considered incidental to the construction.

204.3.2 Rock Excavation and Explosives

204.3.2.1 Depth of Excavation

- A. Excavate to the depths designated or as shown on the Plans. Correct over-excavation with compacted material as directed at no additional expense to Owner.
- B. In trenches for sewers, and water mains or conduits, remove all material necessary to provide a minimum clearance of 6 in. under the pipe and replace with bedding material in conformance with **Subsection 204.02.04, Pipe Zone Material**.

204.3.2.2 Methods and Records Required

Before rock removal by systematic drilling and blasting or other methods will be permitted, notify the City Engineer who, with Contractor or its representative, will determine the amount of material to be removed as rock excavation and will record the information. Then drill, blast, or break with power-operated tools specially designed for rock excavation, and excavate the material.

204.3.2.3 Use of Explosives

- A. Obtain any and all permits required for use of explosives required by the City of Garibaldi, and other governing agencies.
- B. Use of explosives shall be avoided as far as practicable, and in no case shall tunnel blasting methods be used. Such blasting as must be done shall be controlled in a manner, which will avoid possible shattering or loosening of materials back of lines to which the excavations are to be made. All blasting shall be supervised and/or done by a state certified powder person. Be responsible for any and all damages to property or injury to persons resulting from blasting, or accidental or premature explosions that may occur in connection with the use of explosives. Give adequate warning to all affected persons and adjacent property owners prior to blasting.
- C. Where excavations in hard, solid rock are to be made to depths of 10 ft. or more, blasting thereof shall be done by the presplitting or preshearing method unless other methods are approved by the City Engineer.

204.3.2.4 Trench Blasting

When blasting rock in trenches, cover area to be shot with blasting mats or other approved type of protective material that will prevent scattering of rock fragments outside of the excavation.

204.3.3 Preservation of Existing Improvements

- A. Conduct operations in such a manner that existing streets, utilities, railroad tracks, structures, and other facilities, which are to remain in place, will not be damaged, as specified in **Section 105, CONTROL OF WORK**. Furnish and install cribbing and shoring, or whatever means are necessary to support material carrying existing facilities, or to support the facilities themselves, and maintain such supports until no longer needed.
- B. Protect temporary facilities, until they are no longer required, and remove and dispose of temporary supports and other protective means when they are no longer required.

204.3.4 Excavation of Existing Improvements and Miscellaneous

- A. Unless otherwise specifically provided for, excavation or excavation and backfill includes all excavating, removing, hauling, and depositing, including but not limited to, existing pavements, walks, driveways, surfaces, slabs, curbs, gutters, and similar cement concrete structures, bituminous materials, all rock or gravel road surfacing materials, abandoned sewers, pipes and conduits, logs, piling, footings, foundations, vaults, and chambers, when such materials are within the limits of excavation.
- B. Remove remaining ends of abandoned pipes, or portions of other items partially removed under this work, which would be left exposed after final excavation, to a minimum of 1 ft. below the finished grade or elevation. Plug or seal ends of abandoned pipes in backfill or embankment areas. Storm drain pipe shall be reconnected as directed by the City Engineer.
- C. Payment for all work in this section and repair of any damage will be considered incidental to the work and included under bid items for Excavation, Excavation and Backfill, or other specified earthwork items.

204.3.5 Limits of Excavation

- A. Excavate to the depths and widths designated, allowing for forms, shoring, working space, base material, and finish topsoil where required. Do not excavate deeper than elevation shown.
- B. Excavation carried below grade lines shown or established without approval shall be replaced with compacted foundation stabilization material at the Contractor's expense.

- C. Over-excavation under footings shall be filled with concrete of strength equal to that of the footing, and cuts below grade shall be corrected by similarly cutting adjoining areas and creating a smooth transition, all at the Contractor's expense.
- D. When the precise location of subsurface structures is unknown, locate such structures by hand excavation prior to utilizing mechanical excavation equipment.

204.3.6 Slope Grading

Make slopes free of all exposed roots, unstable rock, and loose stones exceeding 3 in. in any dimension. Shape tops of banks to circular curves with, in general, not less than a 6 ft. radius, unless rock makes such work impractical. All surfaces shall be neatly and smoothly trimmed.

204.3.7 Foundation Stabilization

If, in the judgment of the City Engineer, material in the bottom of an excavation is unsuitable for supporting foundations, piers, retaining walls, cribbing, sewers, pipes, or similar facilities, over-excavate as directed and backfill to required grade with thoroughly compacted foundation stabilization material conforming to **Subsection 204.02.02, Foundation Stabilization**.

204.3.8 Disposal of Excess Material

- A. Excavated materials not suitable or not required for backfill or embankment shall be deposited at predesignated sites specified or sites supplied by the Contractor. An embankment permit may be necessary within the City of Garibaldi for embankments exceeding 50 cu. yd. or before the Contractor places excavated material from City projects on any property.
- B. The Contractor shall make all arrangements for disposal of excess material, obtain the necessary permits when not provided by the City at predesignated sites, and bear all cost or retain any profit incidental to such disposal.

204.3.9 Temporary Location of Excavated Materials

- A. Place excavated material, specified for embankment or backfills and not excess material, only within the construction easement, right-of-way, or specified working area. Pile in such a manner that it will cause a minimum of inconvenience to the public.
- B. Furnish the City Engineer a copy of written approval from each property owner prior to stockpiling material on private property outside of easements. Conform to all Federal, State, and local codes governing the safe loading of trenches with excavated material.
- C. Provide free access to all fire hydrants, water valves, and meters, and leave clearance to enable free flow of storm water in all gutters, conduits, and natural watercourses.

204.3.10 Surface Removal and Replacement for Trenches

204.3.10.1 Removal and Replacement of Topsoil

- A. When specified and where trenches within easements cross lawns, garden areas, pasture lands, cultivated fields, or other areas on which topsoil conditions exist, remove all topsoil to a depth of at least 12 in. for the full width of the trench to be excavated. Stockpile topsoil to one side of the easement in a location and do not mix with remaining excavated material. Replace and compact removed topsoil in the top of backfilled trench to the depth removed.
- B. Maintain finished grade of topsoil level with area adjacent to the trench until final acceptance by the City Engineer. Repair damage to adjacent topsoil caused by work operations. Remove all rock, gravel, clay, and any other foreign materials from surface; regrade, and add topsoil as required.

- C. In lieu of stockpiling topsoil, Imported Topsoil as defined in **Subsection 204.02.07, Class C Backfill, Clean Sand**, may be substituted and replaced to the actual depth removed at the Contractor's expense. If, in the opinion of the City Engineer, the Contractor does not take precautions to protect the stockpiled topsoil from contamination by rocks, clay, excess water, etc., the Contractor will import topsoil meeting the requirements of **Subsection 204.02.07, Class C Backfill, Clean Sand**, at his own expense.
- D. Payment for removing, stockpiling, and replacing topsoil in the trench is included in the bid item, Trench Excavation and Backfill.

204.3.10.2 Removal of Pavement, Curbs, Driveways, and Sidewalks

- A. Cut all asphalt pavement to full depth with a pavement saw or other suitable pavement cutter prior to excavation of trenches.
- B. Saw Portland Cement Concrete pavement, curbs, and sidewalks to a minimum depth of 4 in. or half the concrete thickness, whichever is greater. Subsequent removal may be accomplished by using a jackhammer. Full depth cut by pavement saw can be done at the option of the Contractor. Use of any machine utilizing a falling or swinging weight in the form of a "headache ball" will not be permitted.
- C. Width of cut shall be as shown on the plans. Remove all loose, undermined or damaged pavement. Remove all pavement between the trench and curb, pavement edge or construction joint whenever the cut is 3 ft. or less from the curb, pavement edge, or construction joint. Prior to paving, all loose, cracked, sunken or otherwise damaged edges will be saw cut in continuous straight cuts. Straight line saw cut lengths will not be less than 50 ft. Cut angles will not exceed 15°.
- D. Pavement and concrete materials removed shall be hauled from the site and not used for trench backfill. Replacement of pavement, curb, and sidewalk shall conform to the requirements of **Section 209, RESURFACING**. Six inch T-cuts are required as shown in the Drawings.

204.3.11 Trench Excavation and Shoring

204.3.11.1 Maximum Length of Open Trench

- A. Length of trench excavated in advance of the pipe laying shall be kept to a minimum, and in no case shall it exceed 200 ft. unless otherwise authorized. The length of unrestored work area and total unfinished trench construction shall not exceed a length of 800 ft., for each main line pipe laying operation unless otherwise authorized. Trench construction will not be considered completed until all restoration is completed. If the unfinished trench or restoration exceeds 800 ft. in length, the main line construction shall be suspended and shall not be resumed until authorized by the City Engineer.
- B. In no case will any trench be left unfinished or uncovered overnight or outside working hours.
- C. A section of trench shall be considered as unfinished until excavation, construction, backfilling, compaction, gravel road restoration, Portland Cement Concrete pavement, minimum of first lift of asphaltic concrete pavement or cold patch, and cleanup operations have been completed. Cleanup of backfilled and construction area shall include resurfacing and cleaning of area so as to allow use of trench and adjacent construction area for normal use as required in **Section 207, RESTORATION AND CLEANUP**.

204.3.11.2 Trench Width

- A. The maximum trench width at the ground surface will be kept to a minimum necessary to install the pipe in a safe manner. Trenches shall be of sufficient width to allow for shoring and permit proper joining of pipe and compaction of the backfill material along the sides of the pipe. Minimum trench

width of unsheeted trenches shall provide a clear working space of at least 6 in. on each side of the outside diameter of the pipe bell. Sheeting requirements shall be independent of trench widths.

- B. Trench width at the top of the pipe will be the pipe inner diameter plus 18 in., except where specifically shown on the Drawings, or specified in the Special Specifications. The pipe will be centered in the trench on line and grade at all times. When authorized by the City Engineer, the Contractor may use pipe of greater strength or install a superior pipe bedding in lieu of maintaining the trench widths shown. If maximum width shown is exceeded by Contractor (without written authorization), the Contractor shall provide pipe of a higher strength designation, a higher class of bedding, or both, as approved by the City Engineer, at no expense to the Owner.
- C. Make the excavation for manholes and other structures wide enough to provide a minimum of 12 in. between sides of structure and sides of excavation.
- D. Confine top width of trench to dedicated rights-of-way or construction easements. Special written agreements to extend width may be made by the Contractor with affected property owners, provided such agreements are approved by the City Engineer.

204.3.11.3 *Grade*

- A. Excavate trench to lines and grades shown or as established by the City Engineer, with proper allowance for pipe thickness, pipe bedding, and foundation stabilization. The subgrade upon which bedding is to be placed shall be firm, undisturbed, and true to grade.
- B. If the trench is over-excavated, restore to grade with thoroughly compacted foundation stabilization material or pipe bedding material at the Contractor's expense. Place material over full width of the trench in compacted layers to established grade with allowance for pipe bedding.

204.3.11.4 *Shoring, Sheeting, and Bracing of Trenches*

- A. Sheet and brace trench when necessary to prevent caving and to protect adjacent structures, property, workers, and the public. Increase trench widths by the thickness of the sheet and maintain sheeting until pipe has been placed and backfilled at the pipe zone.
- B. Remove shoring and sheeting as backfilling is done, in a manner that will not damage the pipe or permit voids in the backfill. All sheeting, shoring, and bracing of trenches shall conform to the safety requirements of the Federal, State, or local agency having jurisdiction. The most stringent of these requirements shall apply.

204.3.12 *Dewatering*

- A. Furnish, install, and operate all necessary machinery, appliances, and equipment to keep excavations free from water during construction. Remove and dispose of all water entering the trench excavation continuously during the time the trench is being prepared for the pipe laying, during the pipe laying, when concrete is being placed, and until the backfill has been completed. Dewater and dispose of water so as to prevent injury to public or private property, or nuisance or menace to the public.
- B. Drainage of trench water through the pipeline under construction is prohibited unless otherwise approved by the City Engineer. At all times have on hand sufficient pumping equipment and machinery in good working condition for all ordinary emergencies, including power outage. Have available at all times competent workers for operation of the pumping equipment. Control surface runoff to prevent entry or collection of water in excavations.
- C. Control ground water such that softening of the bottom of excavations or formation of "quick" conditions or "boils" during excavation shall be prevented. Design and operate dewatering systems so as to prevent removal of natural soils and so that ground water level outside the excavation is not reduced to the extent that would damage or endanger adjacent structures or property.

- D. Before dewatering is started, submit to the City Engineer a statement of the method, installation, and details of the dewatering system proposed to be used. Open and cased sumps shall not be used as primary dewatering for excavations deeper than 3 ft. below static water table.
- E. Release ground water to its static level in such a manner as to maintain the undisturbed state of natural foundation soils. Prevent disturbance of compacted backfill and flotation or movement of structures, water mains, sewers, and other utilities. Dispose of water according to environmental laws.
- F. Dewatering shall be considered as incidental to, and all costs included in, the various contract pay items in the Proposal.

204.3.13 *Compaction*

- A. Compaction shall be by mechanical methods only.
- B. Compaction equipment shall be of suitable type and adequate to obtain the amount of compaction specified. Compaction equipment shall be operated in strict accordance with the manufacturer's instructions and recommendations and shall be maintained in such condition that it will deliver the manufacturer's rated compactive effort. Compaction equipment for granular materials shall be vibratory plate or vibratory drum compactors.
- C. Any settlement noted in backfill, embankment, or in structures built over the backfill or embankment within the 18-month warranty period in accordance with the **DIVISION ONE - GENERAL REQUIREMENTS** will be considered to be caused by improper compaction methods and shall be corrected at the Contractor's expense. Structures damaged by settlement shall be restored to their original condition by the Contractor at the Contractor's expense.

204.3.14 *Embankment*

204.3.14.1 *Roadway Embankment*

A. Preparation of Embankment Foundations

Prior to construction of embankments, excavate and dispose of unstable material or unsuitable foundation material. Limit excavation to lines, grades, and cross sections shown. Backfill basements, trenches, and holes that is located within embankment limits with specified material. Compact natural ground underlying embankments to the depth of grubbing or to a minimum of 12 in. to density specified for the embankment material to be placed.

B. Embankment Construction

1. Construct embankments to the lines and grades shown. Place material in continuous horizontal layers with compacted material not exceeding 6 in. lifts. Compact each lift to at least 95% of maximum dry density as determined by ASTM D 1557/AASHTO T-180 and to where it will show no appreciable deflection or adverse reaction under the compacting equipment during compaction.
2. If the surface of the prepared foundation or the compacted surface of a preceding lift is too dry or smooth to bond properly with the next layer of material, moisten or scarify, or both, before the next layer of material is placed. Compact slopes of all embankments thoroughly, and true to line and grade.
3. Do not place embankment material when the material, foundation, or previously placed embankment material is frozen. Embankment material shall not be placed in final position until moisture in excess of optimum moisture has been removed. Water settling of embankments will not be permitted.

204.3.14.2 Pipeline Embankment

- A. Where pipelines are to be placed within an embankment, construct the embankment to its final specified elevation prior to trench excavation for the pipeline. Place pipe bedding and pipe zone materials in accordance with applicable portions of **Subsection 204.03.16, Pipe Zone Placement** and **204.03.17, Trench Backfill and Compaction**. Place trench backfill material as specified in **Subsection 204.03.17, Trench Backfill and Compaction**.

- B. Additional Pipe Cover

In locations where insufficient pipe cover exists, place excess excavated trench material suitable for embankment over the pipe to provide a minimum cover of 3 ft. Compact as required for underlying trench backfill.

204.3.14.3 Embankment for Structural Foundations

Deposit specified materials free from roots, organic material, trash, and stones larger than 3 in. diameter in uniform lifts across the full width of the embankment. Compact each lift to 95% of maximum dry density as determined by ASTM D 1557/AASHTO T-180.

204.3.15 Pipe or Conduit Pipe Zone Bedding

- A. Construct bedding in conformance with the Drawings.
- B. Pipe zone bedding consists of leveling the bottom of the trench or top of the foundation material and placing pipe bedding select material to the horizontal centerline (springline) of the pipe. Bedding select material shall be placed in at least two lifts. Place the first lift to provide the minimum depth of bedding select material shown on the Drawings before the pipe is installed. Spread smoothly to proper grade so that pipe is uniformly supported along the barrel. Excavate bell holes at each joint to permit proper assembly and inspection of the entire joint. Bedding under pipe shall provide a firm, unyielding support along the entire pipe length. Place subsequent lifts of not more than 6 in. thickness up to the horizontal centerline of the pipe. Bring lifts up together on both sides of the pipe and carefully work under pipe haunches.
- C. Pipe zone bedding shall be considered to include full width of excavated trench from the bottom of the trench or top of the foundation stabilization material to the top of the bedding.
- D. Particular attention must be given to the area from the invert to the horizontal centerline of the pipe or top of the bedding to ensure that firm support is obtained to prevent any lateral movement of the pipe during the final backfilling of the pipe zone.

204.3.16 Pipe Zone Placement

Place pipe zone material carefully around the pipe in 6 in. layers and compact to a minimum of 90% maximum dry density as determined by ASTM D 1557/AASHTO T-180. Pipe zone material for water pipe shall be compacted to a minimum of 95% of maximum dry density as determined by ASTM D 1557/AASHTO T-180. Prevent pipe from movement either horizontally or vertically during placement and compaction of pipe zone material.

204.3.17 Trench Backfill and Compaction

204.3.17.1 General

- A. The right is reserved to modify the use, location, and quantities of the type of backfill during construction as the City Engineer considers to be in the best interest of the Owner.
- B. Class A Backfill will, generally be limited to use in unsurfaced or unimproved areas.

- C. Class B Backfill will, typically, be required for backfill in new roadways (except arterials where Class E is required) under construction, future roadways, gravel roadways or pedestrian and bicycle pathways.
- D. Class C Backfill will, typically, not be allowed.
- E. Class D Backfill will, typically, not be allowed.
- F. Class E Backfill (CDF) shall be required in existing paved streets, new arterial roadways under construction and roadways where subsequent trench settlement must be held to a minimum.
- G. The City Engineer may sample excavated material to determine suitability of the Class A material for use as backfill. The contractor shall take reasonable precautions to prevent excavated material from becoming saturated beyond the critical moisture limits and replace any saturated Class A material with Class B, C, D or E material as specified, at no additional expense to the owner.

204.3.17.2 Class A, B, C or D Backfill

- A. The contractor shall backfill the trench above the pipe zone in successive lifts. Backfill shall not be allowed to free-fall into the trench until at least 3 ft. of cover is provided over the top of the pipe. The method of compaction shall be modified as necessary to protect the pipe.
- B. The contractor shall compact each lift to a minimum of 95% of the maximum dry density as determined by ASTM D 1557/AASHTO T-180. If the specified compaction is not obtained, the contractor may be required to use a modified compaction procedure and/or reduce the thickness of the lifts. If approved materials meeting the specifications cannot be compacted to the required density regardless of the compactive effort or method, the City Engineer may reduce the required density or direct that alternate materials be used. In no case shall excavation and pipe laying operations proceed until the contractor is able to compact the backfill to the satisfaction of the City Engineer.
- C. When the backfilling is complete, the contractor shall finish the surface area as specified. In paved or graveled areas the contractor shall maintain the surface of the trench backfill level with the existing grade with 3/4"-0 crushed aggregate material, or asphalt concrete, if directed, until final pavement replacement is completed and accepted by the owner.

204.3.17.3 Controlled Density Fill

Backfill the trench above the pipe zone with CDF material. If the CDF is to be used as a temporary surfacing, backfill the CDF to the top of the trench and strike it off to provide a smooth surface. If the CDF is not to be used as temporary surfacing, backfill the CDF up to the bottom of the proposed resurfacing. No compaction of CDF is allowed. The CDF shall be steel-plated to protect it from traffic for a minimum of 24 hours. After 24 hours, the CDF may be paved, or opened to traffic until permanent surface restoration is completed, if it has hardened sufficiently to prevent rutting.

204.3.17.4 Compaction Testing

- A. Sampling and testing of materials for determination of compliance with the specified compaction requirements may be taken at any location and time as the City Engineer may determine. Excavate test pits in the backfill as directed by the City Engineer for the purpose of testing the backfill compaction. At the option of the City Engineer, density tests may be taken on a lift of compacted backfill immediately before placing the next lift. All costs in connection with excavating test pits, providing and installing safety shoring as required to protect the testing person, and standby time during field density test shall be considered incidental to backfill and shall be included in unit prices bid for the various items involved.
- B. When compaction testing has been performed by the City Engineer and the required density has not been obtained by the Contractor, the Contractor shall bear all costs for all subsequent retesting in the

areas of non-compliance. All testing shall be performed by the testing laboratory of the City Engineer. The City Engineer shall keep an accurate account of the time spent for the testing laboratory to perform retesting. The Contractor shall be totally responsible for rescheduling compaction testing with the City Engineer. Any and all tests associated with delays due to retesting shall be the sole responsibility of the Contractor.

- C. If required density has not been obtained, remove the backfill from the trench, replace with backfill, and recompact as many times as it is necessary to obtain the required specified minimum densities.

204.3.17.5 Trench Maintenance

- A. In graveled areas, maintain surface of the backfilled trench level with the adjacent and existing grade, before and after the area is opened to traffic, with 1"-0 crushed aggregate material. In paved areas, cold mix asphalt pavement shall be used until the final pavement replacement is completed. The cold mix asphalt or steel plating shall be in place at the end of each workday. City may limit usage of steel plates and conditions under which they are used. Every use of steel plates must have prior approval from the City. Place cold mix asphalt in conformance with **Section 209, RESURFACING**.
- B. Maintain backfilled trench surface between any two successive manholes until the following operations have been completed and accepted by the City Engineer.
 - 1. Service connections installed, backfilled, and compacted.
 - 2. Trench compaction.
 - 3. Construction of manholes and appurtenances.
 - 4. Air testing and mandrel testing.
 - 5. Cleanup and restoration of all physical features, including concrete curbs, gutters, and driveways.
 - 6. Utilities restored to their original condition or better.
 - 7. All work required between the two manholes accomplished.
- C. Maintain backfilled trench surface between any two successive valves until the following operations have been completed and accepted by the City Engineer.
 - 1. Service connections installed, backfilled, and compacted.
 - 2. Valves, valve boxes, and hydrants installed.
 - 3. Hydrostatic testing.
 - 4. Flushing and disinfection.
 - 5. Cleanup and restoration of all physical features, including concrete curbs, gutters, and driveways.
 - 6. Utilities restored to their original condition or better.
 - 7. All work required between the two valves accomplished.
- D. Do not undertake final pavement replacement until all items outlined above have been completed and accepted.
- E. Maintenance of backfilled trenches is considered as incidental to this item of work, and payment for such maintenance will be considered as included in payment for Excavation and Backfill.

205 MATERIALS - TYPES AND USE

205.1 DESCRIPTION

This section covers certain types of materials and their use that are common to appropriate forms of construction contained throughout Divisions 3 through 6.

205.2 MATERIALS

205.2.1 General

Unless specified otherwise in the Contract Documents or Drawings, materials contained herein will be used in required work.

205.2.2 Portland Cement Concrete

- A. Use concrete having a 28-day design strength of 3,300 psi for curbs, sidewalks, and poured in place manholes and catch basins, and 4,000 psi for PCC pavement per AASHTO T-22 and T-23 with 1-1/2 in. maximum size aggregate.
- B. High early strength concrete (Type III cement) shall be used when patching trenches in Portland Cement Concrete pavement.
- C. Use Type II cement concrete for all sewer and water main construction and appurtenances thereto.
- D. Portland Cement Concrete shall be sampled and tested in accordance to the ASTM test methods in the table below.

Sampling Fresh Concrete	C172
Obtaining Drilled Cores	C42
Molding and Curing Specimens	C31
Compressive Strength	C39
Flexural Strength	C78
Slump	C143
Air Content	C173 or C231
Unit Weight Yield	C138
Setting of Mortar	C191 or C266

205.2.3 Cement Mortar

Use either standard premixed mortar conforming to ASTM C 387, or mortar proportioned with 1 part Portland Cement to 2 parts clean, well-graded sand which passes a 1/8 in. screen and which conforms to AASHTO M-45. Admixtures may be used, but do not exceed the following percentages of cement by weight: Hydrated lime - 10% and diatomaceous earth or other inert materials - 5%. Testing shall conform to the OSHD test for mortar strength.

205.2.4 Cement Grout

205.2.4.1 Type "A" Grout

Utilize grout which consists of 1 part Portland Cement, 3 parts of clean and well-graded sand. Use minimum amount of water to produce a thick, creamy consistency.

205.2.4.2 Type "B" Grout

Where type "B" grout is specified, use a mixture consisting of 1 part Portland Cement, 5 parts of clean and well-graded sand, and 7 parts pea gravel, by volume.

205.2.5 Steel Reinforcement

Use steel deformed bars conforming to ASTM A 615, Grade 40, except that longitudinal bars in continuously reinforced concrete pavement shall be Grade 60. See **Section 702, REINFORCEMENT**.

205.2.6 Dowels

Utilize steel dowels which conform to ASTM A 306 Grade 70. Where specified, dowels shall be coated with plastic or other approved material for bond prevention. See **Section 702, REINFORCEMENT**.

205.2.7 Structural Joint Material

Use preformed and poured joint fillers conforming to requirements of **Subsection 701.02.06 Joint Materials**. For joints in Portland Cement Concrete pavement, curbs, gutters, driveways, sidewalks, and pathways, refer to **Public Works Design Standards, DIVISION FIVE - STREETS**.

205.2.8 Curing Materials for Portland Cement Concrete

Conform to one or more of the following requirements for curing materials; choice of method to be used is dependent on weather and existing conditions.

White Burlap – Polyethylene Sheets	AASHTO M-171
Waterproof Paler	AASHTO M-171
White – Pigmented Liquid Membrane-Forming Compound*	AASHTO M-148
White Polyethylene Film	AASHTO M-171
Burlap Cloth (Jute or Kenaf)	AASHTO M-182

*Required for PCC curbs, but do not use on bridges or box culverts. Test in accordance with the OSHD modified procedure.

205.2.9 Epoxy Cement

Epoxy cement shall be a two-compound epoxy resin adhesive conforming to requirements of AASHTO M-235.

205.2.10 Portland Cement

A. Furnish one or more of the following types as specified:

1. Type I – For general use when special properties of other type cements are not required.
2. Type IA – Air-entraining cement for same uses as Type I, where air-entrainment is desired.
3. Type II – For use when moderate sulfate resistance or moderate heat of hydration is desired.
4. Type IIA – Air-entraining cement for same uses as Type II, where air-entrainment is desired.
5. Type III – For use when high early strength is desired.
6. Type IIIA – Air-entraining cement for same use as Type III, where air-entrainment is desired.

B. Portland Cement shall conform to AASHTO M-85 for low alkali cement except as follows:

1. Total alkali content (sodium and potassium oxide calculated as Na₂O+0.658K₂O) shall not exceed 0.6%.

2. Types I, IA, III, or IIIA must contain a maximum of 10% tricalcium aluminate.
 3. Time-of-setting tests shall be by either the Gillmore Test or the Vicat Test or both, as the City Engineer may elect.
- C. When not otherwise specified, use Type I. Contractor, at his option, may use Type III Portland Cement (high early strength) in lieu of Type I in the identical quantity specified for the latter.
- D. Differing brands or types of cement, or the same brand or type of cement from different plants shall not be mixed during use nor be used alternately. Cement may be sampled either at the plant or site of work at the option of the City Engineer.

205.2.11 Water

Water used in all work must be reasonably clean and free of oil, salt, acid, alkali, sugar, vegetable matter, or other substances injurious to the finished product. Use water conforming to AASHTO T-26 for mixing and curing Portland Cement Concrete, mortar, or grout. Water of approved potable quality may be used without test.

205.2.12 Aggregates

205.2.12.1 Description

This work consists of furnishing and placing one or more courses of aggregates, as subbase or base, on an approved subgrade or subbase.

205.2.12.2 Materials

Crushed aggregates shall consist of crushed gravel or rock, including sand.

A. Fracture

Gravel shall have at least one fractured face on 50% of the material retained on each sieve size 1-1/2 in. and above and 70% for the material passing the 1-1/2 in. sieve and retained on each of the sieves down to 1/4 in.

B. Durability

The source material from which aggregate materials are obtained, produced or manufactured, shall meet the qualifying test requirements in the table below.

Test	Test Method	Requirements
Degradation:		
Passing No. 20 sieve	OSHD TM 208	30% Max.
Sediment Height	OSHD TM 208	3 in. Max.
Abrasion:	OSHD TM 211	35% Max.

C. Sand Equivalent

Crushed aggregates to be incorporated in the work shall have a sand equivalent of not less than 35 when tested in conformance with OSHD TM 101.

D. Liquid Limit and Plasticity

Crushed aggregate shall meet the requirements in the table below.

LIQUID LIMIT AND PLASTICITY INDEX VALUES

Percent of Material Passing No. 40 Sieve	Liquid Limit (Maximum) OSHD TM 102	Plasticity Index (Maximum) OSHD TM 103
0.0 to 5.0, inclusive	33	6
5.1 to 10.0, inclusive	30	5
10.1 to 15.0, inclusive	27	4
15.1 to 20.0, inclusive	24	3
20.1 to 25.0, inclusive	21	2
Over 25.0	21	0 or N.P.

E. Grading Requirements

Crushed aggregates shall conform to the grading requirements in the table below.

GRADING REQUIREMENTS FOR CRUSHED AGGREGATES

Separated Sizes:	2-1/2"-0	2"-0	1-1/2"-0	1"-0	3/4"-0
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Sieve Size	Percentages Passing (by weight)				
3 in.	100				
2-1/2 in.	95-100	100			
2 in.	-	95-100	100		
1-1/2 in.	-	-	95-100	100	
1-1/4 in.	55-75	-	-	-	
1 in.	-	55-75	-	90-100	100
3/4 in.	-	-	55-75		90-100
1/2 in.	-	-	-	55-75	-
3/8 in.	-	-	-		55-75
1/4 in.	30-45	30-45	35-50	40-55	40-60
No. 10	12-27	12-27	14-30	16-33	16-36
No. 40	0-16	0-16	3-18	8-24	8-24
No. 200	0-9	0-9	0-8	0-8	0-10

The determination of sizes and gradings shall be in conformance with AASHTO T-27.

F. Acceptance

Crushed aggregate will be sampled for acceptance at one or more of the following times as determined by the City Engineer:

- a. In its final state on the roadbed after all processing and prior to the placement of subsequent surfacing materials;
- b. In the stockpile after all shaping work has been completed; or,
- c. Immediately after crushing.

205.2.12.3 Fine Aggregate (Sand)

- A. Use fine aggregate consisting of finely crushed rock or gravel, fine sand, and other finely divided natural and inert mineral matter, thoroughly washed, and free of clay, loam, shale, alkali, vegetable matter, and other deleterious matter. Do not mix fine aggregate from different geological sources, and do not store in the same pile nor use alternately in the same class of construction or mix.
- B. Portland Cement Concrete shall contain fine aggregate which has a deleterious material content not exceeding the limits shown in the table below.

Friable Particles	1% (by weight)
Lightweight Particles	1% (by weight)
Material Passing No. 200 Sieve	1% (by weight)

- C. When this fine aggregate for Portland Cement Concrete is subject to five alternations of the sodium sulfate soundness test (AASHTO T-104), weighted percentage of loss must not exceed 10% by weight.
- D. Asphalt cement concrete and surface treatments shall contain fine aggregate having a weighted loss of not more than 15 mass percent when sodium sulfate is used or 20 mass percent when magnesium sulfate is used in five cycles of the soundness test. Total deleterious matter shall not exceed 2% by weight.
- E. Use fine aggregates which meet the durability requirements for coarse aggregates contained hereinbefore, and which meet the Liquid Limit and Plasticity Index requirements in the table below.

Quality	Test Method	Requirement
Liquid Limit	AASHTO T-89	NP or 33 Max.*
Plasticity Index	AASHTO T-90	NP or 6 Max.*

- F. *When tested as specified, both the Liquid Limit and the Plasticity Index test results shall conform with the information shown in the table below.

Percent of Material Passing No. 40 Sieve	AASHTO T-89 Liquid Limit (Maximum)	AASHTO T-90 Plasticity Index (Maximum)
0.0 to 5.5, inclusive	33	6
5.1 to 10.0, inclusive	30	5
10.1 to 15.0, inclusive	27	4
15.1 to 20.0, inclusive	24	3
20.1 to 25.0, inclusive	21	2
Over 25.0	21	O or N.P.

- G. Sampling and testing fine aggregate shall conform to the methods shown in the following table.

Sampling	AASHTO T-2
Material Passing No. 200 Sieve	AASHTO T-11
Organic Impurities	AASHTO T-21
Sieve Analysis	AASHTO T-27
Mortar Strength	ASTM C 109
Soundness	AASHTO T 104
Friable Particles	AASHTO T 112
Lightweight Pieces	AASHTO T 113
Sand Equivalent	AASHTO T 176

205.2.13 Asphalt Materials

205.2.13.1 General

Unless otherwise specified herein or in applicable subsections, types and grades of material shall conform to the current Oregon State Highway Division's "Specifications for Asphalt Materials" for Light Duty AC obtainable from the Engineer of Materials, ODOT, Salem, Oregon 97310.

205.2.13.2 Asphaltic Cement

Use PBA-2 grade asphalt that meets OSHD requirements for Light Duty AC.

205.2.13.3 Tack Coat

Asphalt shall consist of CSS-1 or CSS-1H emulsified asphalts.

205.2.13.4 Slurry Seal

Use CSS-1H cationic emulsified asphalt.

205.2.14 Controlled Density Fill

- A. CDF shall attain unconfined compressive 28-day strengths of approximately 100 psi.
- B. Materials used in CDF mixture shall conform with the following:

Portland Cement	Section 205.02.10
Fly Ash	ASTM C 618 (Class C or F) or ODOT 02010.10
Aggregate	Section 205.02.12
Water	Section 205.02.11
Admixtures	ODOT 02040, AASHTO M-194, ASTM C 494, or ASTM C 260

205.2.15 Geotextiles

205.2.15.1 Description

Geotextiles will be accepted for use in various applications according to the provisions of this section.

205.2.15.2 Definitions

- A. Geotextile - A fabric manufactured specifically for use in civil engineering applications. Fibers used in the manufacture of geotextiles consist of long chain synthetic polymers. At least 85% by weight of the long chain polymers are polyolephins, polyesters, or polyamides.

1. Drainage Geotextile - For installation in subsurface drains or other drainage locations.
 2. Embankment Geotextile - For installation within or under embankments for stabilization.
 3. Riprap Geotextile - For installation behind and beneath riprap, buttresses, inlays, shear keys, and erosion control applications.
 4. Wall Geotextile - For construction of retained earth walls.
 5. Subgrade Geotextile - For installation on subgrades and in other material separation applications.
 6. Pavement Overlay Geotextile - For installation beneath an asphalt concrete overlay.
- B. Machine Direction - The long, or warp, direction of the geotextile. The cross-machine, or fill, direction is perpendicular to the machine direction.
- C. Non-Woven Geotextile - A textile produced by bonding and/or interlocking of fibers by mechanical, heat, or chemical means.
- D. Roll - Unit of continuous geotextile without transverse seams as furnished by the manufacturer. Roll size may vary between manufacturers and types of geotextiles.

205.2.15.3 Acceptance Requirements

- A. The geotextile shall have the components as listed below.
1. Be composed of a polymeric yarn or fiber oriented into a stable network which retains its relative structure during handling, placement, and design service life.
 2. Meet or exceed the properties outlined under Geotextile Property Values.
 3. Be free of any chemical treatment or coating which might significantly reduce permeability.
 4. Have the selvage finished so the outer fibers are prevented from pulling away from the fabric.
 5. Be free of defects or tears.
 6. Be resistant to ambient temperatures, acid and alkaline conditions, micro-organisms and insects.
 7. Be for the intended purpose and have dimensional stability.
- B. Base the actual minimum average roll values furnished by the manufacturer on representative test results from the manufacturing plant which produced the rolls, and shall meet or exceed each of the specified minimum values. Clearly label all rolls as being part of the same production run certified as meeting all applicable requirements.

GEOTEXTILE PROPERTY VALUES

Minimum Value						
Geotextile Property Test Method	Drainage (1) Geotextile Type 1/Type 2	Riprap (1) Geotextile Type 1/Type 2	Subgrade Geotextile	Embankment Geotextile	Wall (1) Geotextile	Pavement (1) Overlay Geotextile
Grab tensile strength minimum in each principal direction - <i>ASTM D 4623</i>	80 lb./180 lb.	200 lb./260 lb.	180 lb.	230 lb.	---	80 lb.
Grab Elongation – <i>ASTM D 4632</i>	15%	15%	---	---	---	50%
Burst Strength, Diaphragm method - <i>ASTM D 3786 Mod. (OSHA TM 814) (TF 25 Method 3)</i>	130 psi/290 psi	320 psi/430 psi	290 psi	430 psi	---	---
Puncture Strength - <i>ASTM D 4833 or ASTM D 3787 Mod. (OSHD TM 816)</i>	35 lb./80 lb.	80 lb./110 lb.	80 lb.	110 lb.	---	---
Apparent opening size (AOS), U.S. Std. Sieve - <i>ASTM D 4751 (CW-02215 Corps of Engr.)</i>	No. 70 sieve or smaller opening	No. 70 sieve or smaller opening	No. 30 sieve or smaller opening	No. 30 sieve or smaller opening	(2)	---
Water permeability - <i>ASTM D 4491</i>	0.1 cm/sec.	0.1 cm/sec.	0.005 cm/sec.	0.005 cm/sec.	(2)	---
Ultraviolet stability - <i>ASTM D 4355 at 500 hours</i>	---	70% strength retained	---	---	70% strength retained	---
Wide strip tensile strength - <i>ASTM D 4595</i>	---	---	---	---	(2)	---
Asphalt retention - <i>OSHD TM 817 (TF25 Method 3) (3)</i>	---	---	---	---	---	0.20 gal./sq. yd.
Melting point - <i>ASTM D 276</i>	---	---	---	---	---	300° F

205.3 CONSTRUCTION

205.3.1 Description

This work consists of furnishing and placing geotextiles in drains, under embankments, for embankment reinforcement, under riprap, buttresses, inlays, shear keys and erosion control applications, behind retaining

structures, over roadbed subgrades, and beneath pavement overlays as shown on the plans and at other locations as directed.

205.3.2 Geotextile Installation Requirements

205.3.2.1 Acquisition and Storage

Provide complete rolls of geotextile as furnished by the manufacturer and protect against damage and deterioration. Store all geotextile rolls in a dry place and off the ground at all times according to ASTM D 4873. Cover all rolls and partial rolls with a dark protective covering when received. The geotextile will be rejected for use if the City Engineer determines it has defects, deterioration, or has been damaged.

205.3.2.2 Placement

A. Surface Preparation

1. Prepare the surface receiving the geotextile to a smooth condition free of obstructions, depressions and debris unless otherwise directed. Do not drag the geotextile on the ground or mishandle in any way.
2. Loosely place the geotextile without wrinkles so placement of the overlying material will not tear the geotextile. Lap or sew the geotextile at the ends and sides of adjoining sheets as specified.

B. On Slopes

Place the geotextile with the machine direction oriented up-down the slope. Lap the upper sheets over the top of the lower sheets. When the geotextile is placed on a slope steeper than 6:1, securely anchor the laps to the ground surface with pins or stakes as necessary to prevent slippage and tearing of the geotextile. Start placement of fill material on the geotextile at the toe of the slope and proceed upwards.

C. Where Exposed To Water

If geotextiles are placed under water or in areas where water will flow, the geotextile may be placed with the machine direction parallel to the direction of water flow instead of the placement direction specified. Overlap sheets so the upstream sheet is placed over the top of the downstream sheet. Adequately secure the geotextile to prevent slippage. As the geotextile is placed under water, place the backfill material on it to the required thickness. Do not place geotextile more than 50 ft. ahead of the specified cover material.

205.3.2.3 Overlaps

- A. Minimum overlap requirements for geotextiles shall be as indicated in the table below.

Geo Textile Application	Minimum Overlap Requirements (Inches)
Drains	12
Embankment Stabilization	24
Geotextile Wall Reinforcement	24
Pavement Overlays	*
Riprap and Rock Buttresses	24
Roadbed Subgrade Stabilization	24

* Use sufficient overlap to insure closure, but not more than 6 in.

- B. If the City Engineer determines the specified overlap is not sufficient, increase the overlap to provide adequate coverage or sew the geotextile together in the field.

205.3.2.4 Field Seams

- A. General - Obtain the City Engineer's approval before field seaming and stitching. Sew field seams with polymeric thread consisting of polypropylene, polyester, or kevlar, and as resistant to deterioration as the geotextile being sewn. Use a color of thread that contrasts with the geotextile being sewn so the stitches are exposed for inspection when the geotextile is placed.
- B. Seam Type - Obtain the geotextile manufacturer's recommendation for the type of seam and stitch to be used. If the Contractor does not obtain and provide the foregoing technical information, use a "J" seam with at least three stitches per inch. The flat, or prayer, seam may be used for repair of damaged in-place geotextile.

205.3.2.5 Protection of Geotextile

- A. Protect the geotextile at all times from ultraviolet (UV) rays, contamination by surface runoff, and construction activities.
- B. Traffic or construction equipment will not be permitted directly on the geotextile except as authorized.
- C. When placed for construction, cover the geotextile with specified cover material as soon as possible. Do not leave in uncovered condition for more than five days, except when used with temporary retained earth walls and asphalt overlays.
- D. Place cover material on the geotextile in a manner that the geotextile is not torn, punctured, or shifted. Use a minimum 6 in. thick cover layer or twice the maximum aggregate size, whichever is thicker. End-dumping cover material directly on the geotextile will not be permitted.
- E. Limit construction vehicles in size and weight so rutting in the initial layer above the geotextile is not more than 3 in. deep or 1/2 the layer thickness, whichever is lesser. Turning of vehicles on the first layer will not be permitted.

205.3.2.6 Repair of Geotextile

Repair or replace all torn, punctured, or contaminated geotextiles during construction at no cost to the Division. Repair by placing a patch of the specified geotextile over the affected area. Overlap the existing geotextile with the patch. Where geotextile seams are required to be sewn, repair any damaged sheet by sewing unless otherwise indicated on the plans or special provisions or as directed.

205.03.023.07 Drainage Geotextile

When used in trenches for drains, place the geotextile in the trench as shown on the plans to loosely conform to the shape of the trench with no wrinkles or folds.

205.3.2.8 Embankment Geotextile

Construct embankment stabilization according to details shown on the plans. Place the geotextile layers so the geotextile machine direction is transverse to the embankment centerline. Spread the geotextile so all slack and wrinkles are eliminated.

205.3.2.9 Riprap Geotextile

- A. Place geotextile behind and beneath riprap, buttresses, inlays, shear keys, and erosion control applications according to the details shown. Demonstrate to the satisfaction of the City Engineer that the combination of the rockfill drop height and the thickness of any aggregate cushion, when

specified or required, are adequate to not puncture or damage the geotextile when placing the riprap or stone embankment material. In addition, limits indicated in the following table shall apply.

Maximum Drop Height (Feet)		
Size of Rock Material	Onto Geotextile	Onto an Aggregate Cushion Blanket
Greater than 200 lbs.	0	3
200 lbs. or less	3	3

- B. After placing the riprap, backfill all voids in the riprap face so the geotextile is completely covered and not visible.

205.3.2.10 Wall Geotextile

- A. General - Begin wall construction at the lowest portion of the excavation and place each layer horizontally as shown on the plans. Complete each layer in its entirety before the next layer is started. Seams will be allowed only at the wall face. Either overlap geotextile sheets perpendicular to the wall or sew seams parallel to the wall face. Stretch the geotextile in a perpendicular direction to the wall face to eliminate slack before backfilling.
- B. Forming the Wall - Use a temporary form system at the wall face during construction. A typical temporary form system and a sequence of wall construction required are shown in the plans. Use pegs, pins, or the manufacturer's recommended method as approved by the City Engineer, in combination with the forming system, to hold the geotextile in place until the cover material is placed.
- C. Backfill for Wall Construction - Compact the backfill for the wall within the limits shown or directed. Compact each layer to 95% of maximum density as determined by OSHD TM 109. Maintain the water content to within +/- 3 percent of the optimum moisture content. Sheepsfoot rollers and vibratory rollers or other rollers with protrusions will not be allowed within 3 ft. of the wall face. Compact this area using approved light mechanical tampers, without damaging or distorting the wall facing or reinforcing layers.

205.3.2.11 Subgrade Geotextile

- A. For roadbed subgrade separation, prepare the subgrade according to **Section 501, SUBGRADE**.
- B. Correct geotextile failures, as evidenced by soil pumping or roadbed distortion, by removing any covering material in the affected area and placing a geotextile patch on the exposed geotextile. The patch shall overlap the exposed geotextile a minimum of 12 in. Cover the patch with the specified cover material and compact before proceeding.

205.3.2.12 Pavement Overlay Geotextile

- A. General - Place geotextile and pavement overlay in four basic steps:
 1. Surface preparation
 2. Sealant application
 3. Geotextile placement
 4. Overlay placement

- B. As outlined according to **Section 508, GEOTEXTILE FABRICS.**

206 LANDSCAPING AND LANDSCAPE RESTORATION

206.1 DESCRIPTION

This Section covers the work necessary as indicated below:

- A. Finish grading, addition of topsoil, fertilizer, and weed control, establishment of lawns or grass areas by sod or seeding, and maintenance of lawn or grass areas, complete;
- B. Mulching, fertilization, and planting of ground cover, establishment of nursery stock, such as trees, shrubs, and small plants, and maintenance of ground cover and nursery stock, complete;
- C. Irrigation system and subsurface drainage, complete.

206.2 MATERIALS

206.2.1 Plants

Names of plants to conform to standardized names of the American Joint Committee on Horticultural Nomenclature. Names of varieties not included therein conform to names generally accepted in the nursery trade. Provide plants which are nursery-grown with habit of growth that is normal for the species, sound, healthy, vigorous, and free from insects, diseases, and injuries and equal to or exceeding measurements specified, measured before pruning with branches in normal position. Provide sizes and methods of handling according to the code of standards recommended by the AAN.

206.2.2 Seed

Provide tested grass and legume seed from blue tag stock and from the latest crop available. Deliver each variety or mixture in standard containers labeled in accordance with Oregon State laws and U.S. Department of Agriculture rules and regulations under the Federal Seed Act. Provide with label showing the following: seed variety, percentage of purity, germination, maximum weed content, and date of test (must be within nine months of date of delivery). Seed must be tested as set forth in the General Seed Certification Standard by the Oregon State University Certification Board. Mold or evidence of container having been wet or otherwise damaged will be cause for rejection of each lot of seed.

206.2.3 Sod

Provide grass sod from certified or approved source, strongly rooted, and free of pernicious weeds. Sod should be composed of several seed varieties excluding blue and bent grass varieties.

206.2.4 Topsoil

206.2.4.1 Native Topsoil

Save, store, protect, and reuse approved native topsoil taken from the top 12 in. of the excavation. Ensure that topsoil is free from grass, overburden and roots, sticks, hard clay, and any stones which will not pass a 1 in. square opening. Wherever native topsoil cannot be saved or is not satisfactory for reuse, use imported topsoil conforming to **Subsection 204.02.07, Imported Topsoil**, but only with the approval of the City Engineer.

206.2.5 Sand

Conform to the requirements of **Subsection 205.02.12.03, Fine Aggregate**.

206.2.6 Organic Material for Soil Amendment

Use a peat consisting of natural residue formed by decomposition of reeds, sedges, or mosses from freshwater site. Peat must be free from lumps, roots, stones, and capable of absorbing at least 4 times its dry weight of water. It must contain organic matter not less than 90% on a dry weight basis, and have a maximum moisture content at time of delivery of 65% by weight.

206.2.7 Lime

Provide a lime composed of ground dolomitic limestone not less than 85% total carbonates and magnesium, ground so that 50% passes 100 mesh sieve and 90% passes 20 mesh sieve. Coarser material may be acceptable provided the specified rates of application are increased proportionately on the basis of quantities passing 100 mesh sieve.

206.2.8 Subdrains

Use perforated PVC drain pipe, meeting the requirements of *Subsection 601.02.04, PVC PIPE*, unless otherwise specified, and as approved by the City Engineer.

206.2.9 Irrigation and Water Systems

206.2.9.1 Pipe

Use Schedule 40 PVC on all mainlines, Class 200 PVC for lateral lines and solvent weld PVC pipe (SDR-21), conforming to ASTM D 2241, and fittings of PVC with deep socket dimensions conforming to ASTM D 2466.

206.2.9.2 Main Valves

Install the following main valves: up to and including 3 in., resilient seated ball valve with bronze bodies, 4 in. and larger, gate valves with either bronze or iron bodies, all having bronze stems, bronze seat rings, and bronze disc faces, and conforming to ASTM B 62.

206.2.9.3 Pressure Reducing Valves

Use adjustable, heavy duty bronze pressure reducing valves. Must have approved stainless steel or monel strainer to permit quick cleaning or replacement without dismantling or removing the valve from the line and with integral or independent union.

206.2.9.4 Control Valves

- A. Provide normally open electric control valves of brass or bronze for underground installation. Valves shall have cross or slot type handle for operation with a standard key, a removable bonnet and stem assembly, an adjustable packing gland, a rising stem to assure full opening of the valve, renewable disc-type washer seat, and integral or independent union.
- B. Use electrically operated control valves of bronze, brass, or stainless steel. These shall be of the normally open type, having an open or close time greater than 4 seconds, and capable of manual control during power failure. Provide with a motor assembly or operating parts which are removable without disturbing the valve body. Must be all waterproof for underground burial, and with integral or independent union for supply line connection.

206.2.9.5 Quick-Coupling Valves

Supply one-piece or two-piece body type, locking cap, having body of approved heavy duty brass or bronze, watertight before and after the coupler is inserted, and designed so that the valve seat is closed before the coupler is removed. Provide valve couplers, keys, and hose swivels of compatible design to quick-coupling valves.

206.2.9.6 Risers

Connect sprinkler heads and quick-coupling valves to plastic pipe water supply lines with Schedule 80 PVC pipe risers. Heads and valves connected to plastic pipe water supply lines shall, in addition, be provided with an approved swing joint. All threaded pieces shall be wrapped with Teflon tape.

206.2.9.7 Backflow Prevention

Use either reduced pressure or double check valve assemblies, as indicated in Contract Documents, of a type and size approved by the Owner.

206.2.10 Fertilizer

Use fertilizer conforming to the recommended content as provided for in **206.03.02 Soil Test**. Furnish fertilizer in moisture-proof bags with weight and the manufacturer's certified analysis of the contents showing the percentage for each ingredient. Furnish fertilizer in a dry condition free from lumps and caking, in a uniform granular or palletized form, of standard commercial grade conforming to all State and Federal regulations and to the standards of the Association of Official Agricultural Chemists. Fertilizer may be furnished in bulk form if an approved transfer hopper is provided.

206.2.11 Mulch and Ground Covers

Use one or more of the following types of mulch.

1. Organic mulch of clean ground Douglas fir or hemlock bark graded so that 50% consists of particles larger than 1/4 in., but not exceeding 1 in., and 20% will pass a No. 10 sieve.
2. Stone mulch of screened washed bank gravel with rounded pebbles. Submit sample for approval of color and size.
3. Fiber-glass mulch of approved commercial grade fiber-glass yarn mat.
4. Straw mulch of threshed straw of oats, wheat, or rye, free from seed of noxious weeds or clean salt hay.
5. On steep slopes use approved mesh to reinforce mulch or plantings such as fiber mulch of heavy, twisted jute mesh or other material as approved, with openings between strands approximately 1 in. square.
6. Spray mulch of a verdyol complex, with nontoxic, 100% organic water soluble powder binding agent with silva fiber used in hydraulic seeding operations.

206.2.12 Tie Downs

Use one or more of the following materials as the need arises:

1. Eye-bolt masonry anchors of galvanized steel, with approved lead shield or flush shell for setting into masonry joint or concrete.
2. Wood stakes, 2 in. x 2 in. x 96 in., clear straight cedar, or approved.
3. Wire of 12 gauge, pliable galvanized steel, for guys, or for fastening trees to stakes.
4. Hose for guy wire encasement will be of 2-ply reinforced rubber garden hose, having a minimum 5/8 in. diameter threaded openings fitted with screw eyes.
5. Turnbuckles will be zinc-coated, with a 6-1/2 in. lengthwise opening, and 3/8 in. diameter threaded openings fitted with screw eyes.

206.2.13 Soil Sterilant

Soil sterilant shall be as approved by the City Engineer for the purpose specified and shall be applied conforming to manufacturer's recommendations.

206.3 CONSTRUCTION

206.3.1 General

Conform to the manufacturer's and supplier's recommendations and instructions and to accepted practices in the industry. Planting and maintenance of trees are contained in the Garibaldi Tree Technical Manual.

206.3.2 Soil Test

If directed by the City Engineer, have a soil test performed before the project schedule is submitted. The test may be performed by any Oregon State University County Extension Agent or by any other approved soils testing laboratory. The soils analysis shall provide a chemical analysis of the soil and recommendations for soil improvement for the vegetation to be grown. The recommendations shall be used to select the particular fertilizer and soil improvement materials to be used prior to planting.

206.3.3 Lawns and Grass

206.3.3.1 Project Schedule

Within 20 calendar days of the date specified for commencement of work, submit for approval a time schedule indicating dates for beginning and completion of the following operations:

1. Delivery of Materials
2. Preparation of Seedbed
3. Planting Grass
4. Maintenance

206.3.3.2 Delivery, Handling, and Storage of Sod

- A. Deliver sod immediately on lifting and after lawn bed is prepared for planting. Protect sod from drying by covering during delivery to protect from sun and wind. Store materials only in designated areas.
- B. If sod is not laid within two days of delivery, spread out flat with grass side up in cool place and keep moist. Rolled or stacked sod that becomes yellow will not be accepted.

206.3.3.3 Preparation of Subgrade

After rough grading is completed and before topsoil is spread, apply lime and/or super phosphate as determined by soil analysis, and mix to a depth of 4 to 6 in. Conform to manufacturer's recommendations for applying lime and super phosphate simultaneously, and schedule application or applications accordingly.

206.3.3.4 Subsurface Drainage

- A. Lay drainage pipe on firm bed of gravel with minimum fall of 0.5% and located as shown on the plans. Place pipe at a minimum depth of 24 in. and not any deeper than required to produce minimum fall. Cover backfill with fiberglass mat to prevent infiltrations of soil. Backfill trenches with gravel to within 4 in. of subgrade.

- B. Place other drain materials in conformance with the applicable requirements in DIVISION 5 - SEWERS. Complete backfilling of trenches with a 4 in. layer of coarse sand and tamp for compaction, as approved.

206.3.3.5 Topsoil and Finish Grading

Spread topsoil and soil conditioner over the prepared rough grade using a rubber-tired tractor with grader blade or equivalent, weighing a maximum of 3 1/2 tons. Imported topsoil must be incorporated with at least a 2 in. layer of subsoil. Thoroughly mix the applied materials to a depth of 8 in. using a disc or cultivator over the entire area in two directions at right angles. Rake topsoil areas to a uniform grade so that all areas drain, as shown on the plans or as approved. Remove all trash and any stones exceeding 2 in. in diameter from the area to a depth of 2 in. prior to preparation and planting grass.

206.3.3.6 Soil Sterilant

Apply specified soil sterilant at the rate recommended and by the method approved by the manufacturer or as specified.

206.3.3.7 Seeding

Plant grass seed only at times when local weather and other conditions are favorable to the preparation of the soil and to the germination and growth of grass seed. Sow grassed areas evenly with a mechanical spreader at the recommended rate and method approved by Oregon Department of Agriculture Extension Service. Method of seeding may be varied, as approved, however, the responsibility to establish a smooth, uniformly grassed area will not be waived. Hydroseeding will be permitted, unless otherwise specified.

206.3.3.8 Sodding

Before sod is laid, correct soft spots and irregularities in grade of the prepared bed, as approved. Lay sod, and tamp or roll so that no voids occur. Water sod thoroughly. Complete sod surface true to finished grade, even and firm. On slopes steeper than 1 to 2, fasten sod with wooden pins 6 in. long driven through the sod into the soil, flush with the top of the sod at approved intervals.

206.3.3.9 Mulching and Protection of Slopes

- A. Mulch all areas with a slope from 5% to 20% by spreading a uniform light cover of ryegrass over the seeded area at a rate of 1-1/2 tons per acre.
- B. In areas with a slope steeper than 20%, and up to 25%, install erosion control netting. In non-turf areas, cover netting with fir bark mulch.
- C. Mulch all areas with a slope steeper than 25% with spray mulch applied at a rate of 15 gal. per 1,000 sq. ft. after wetting the ground with water penetrating at least 1 in. deep.
- D. Protect new seeded area from pedestrian traffic. Unless otherwise approved, erect a fence of 2 in. by 2 in. posts 4 ft. high spaced 10 ft. on center and strung with jute, hemp, or a single strand of No. 12 gauge wire marked with cloth strips at 3 ft. intervals between posts.

206.3.3.10 Maintenance

- A. Begin maintenance immediately after each portion of lawn is planted and continue for 8 weeks after all lawn planting is completed.
- B. Water to keep surface soil moist. Repair washed out areas by filling with topsoil, fertilizing, and seeding. Replace mulch on banks when washed or blown away. Repair fencing as needed. Mow to 2 in. after grass reaches 3 in. in height, and mow frequently enough to keep grass from exceeding 2-1/2 in. Weed by local spot application of selective herbicide only after first planting season when grass is established.

206.3.3.11 Lawn Guarantee

- A. If, at the end of the 8-week lawn maintenance period, a satisfactory stand of grass has not been produced, immediately renovate and reseed the unsatisfactory portions of lawn, or when approved, reseed at the beginning of the next planting season. If a satisfactory stand of grass develops by June 1st of the following year, the lawn will be accepted. If the lawn is not accepted, a complete replanting will be required during the ensuing planting season.
- B. A satisfactory stand is defined as a lawn or section of lawn that has:
 - 1. No bare spots larger than 3 sq. ft.
 - 2. Not more than 10% of the total area with bare spots larger than 1 sq. ft.
 - 3. Not more than 15% of the total area with bare spots larger than 6 in. square.

206.3.3.12 Inspection for Acceptance

Submit a written notice eight weeks after the start of maintenance on the last section of completed lawn. Within 15 days of such written notice the City Engineer will make an inspection of the lawn to determine if a satisfactory stand of grass has been produced.

206.3.4 Trees, Shrubs and Ground Cover

206.3.4.1 Delivery, Preparation and Storage

- A. Dig plants designated as Balled and Burlapped in the Contract Documents with firm, natural balls of earth of diameter and depth sufficient to encompass the fibrous and feeding root system required for full recovery of the plant. Firmly wrap balls with burlap and bind with twine, cord, or wire mesh. Where necessary to prevent breaking or cracking of the ball during the process of planting, or where the tree exceeds 4 in. in diameter, secure the ball to a platform. Meet or exceed AAN Standards, current edition.
- B. Dig bare root plants during dormant period to remove earth with the least possible injury to the fibrous root system. Cover the roots with thick coating of mud immediately after digging by puddling or wrapping in wet straw, moss, or other suitable packing material for protection until delivery.
- C. Furnish container grown plants with self-established root systems sufficient to hold earth together after removal from the container but not root-bound. Plants shall have grown for at least 3 months in the container with inside diameter specified. Meet or exceed AAN Standards, current edition.
- D. If plants are not in the dormant state, spray with anti-desiccant to cover foliage as recommended by manufacturer, prior to digging the plants. During shipment, protect the plants with tarpaulin or other approved covering to prevent excessive drying from the sun and wind.
- E. Cover balls of balled and burlapped plants, and containers of container grown plants, which cannot be planted immediately upon delivery, with moist mulch to protect from drying. Plant or heel-in bare root plants immediately upon delivery. Water plants as necessary to prevent drying until planted. Do pruning only at the time of planting.
- F. Open and separate all bundles of heeled-in bare root plants before the roots are covered. Avoid leaving air pockets among the roots.

206.3.4.2 Soil Conditioning

- A. After the specified chemical analysis report for topsoil is received, prepare the topsoil mixture for plant pits and beds by thoroughly mixing the approved topsoil with soil conditioner materials, fertilizer, and lime. Thoroughly mix with rotary mixer or other approved method in the proportions indicated in the following table.

Topsoil Classification by Clay Content	Required Mixture			Parts by Volume	
	Top Soil	Sand	Peat	Fertilizer*	Lime
Clay 5-10%	4	0	1 lb./cu. yd.	1/2 lb./cu. yd.	1
Clay 10-15%	2	2	1 lb./cu. yd.	1/2 lb./cu. yd.	1
Clay 15-25%	2	4	1-1/2 lb./cu. yd.	1/2 lb./cu. yd.	1

*Adjust in accordance with Soil Test chemical analysis report.

- B. Store and protect topsoil mixture and other materials at designated area of the site. Protect topsoil mixture from excessive leaching by covering with tarpaulin if stored for more than 6 weeks.

206.3.4.3 Planting Procedures

- A. Within 20 calendar days after receiving the notice to proceed, submit a time schedule for approval indicating dates for commencement and completion of the operations below.
1. Tagging of plants in the nurseries
 2. Survey and staking of plant locations
 3. Delivery of topsoil and other materials
 4. Digging and preparation of plant pits and beds
 5. Delivery of trees and plants to the site
 6. Planting of trees and other plants
 7. Fertilization and application of pre-emergent herbicide
 8. Guying, staking and mulching
 9. Completion of work for start of guarantee period
- B. At least 20 days before start of the guarantee period, submit a schedule of proposed maintenance operations indicating the number of man-hours contemplated for each operation by season during autumn, winter, spring and summer.
- C. Locate new planting where shown on plans, except make approved adjustments where obstructions below ground are encountered or where changes have been made in the construction.
1. Place no planting, except ground cover, closer than 18 in. to pavements and structures.
 2. Dig plant pits and have soil mixture for planting ready before plants are delivered. Excavate circular pits with vertical sides a minimum of 2 ft. greater than the diameter of the ball. For trees, shrubs, and vines excavate pits to depth sufficient to accommodate ball or roots when plant is set to finished grade.
 3. Place 3 in. of compacted soil mixture in the bottom of pit. Set plants upright and face as approved to give the best appearance or relationship to adjacent structures. Remove wire, burlap, and surplus binding from top and sides of balls. Spread roots in normal position. Cut all broken or frayed roots off cleanly.
 4. Place prepared soil mixture and compact carefully to avoid injury to roots and to fill voids. When hole is nearly filled, add water as necessary and allow to soak away. Fill hole to finished grade.

5. When directed by the City Engineer, form shallow saucer around plant by placing ridge of topsoil around edge of pit 2 ft. greater than diameter of ball. After ground settles, fill with additional soil to level of finished grade.
- D. Plant trees before surrounding smaller plants and covers are placed. Position trees as shown on plans or, where spacing dimensions or locations are not clear, as approved.
- E. Plant shrubs on centers as shown on plans with spacing adjusted if required to evenly fill bed using specified quantity of plants.
- F. Plant hedges on centers as shown on plans. Excavate trenches a maximum of 4 in. deeper and 12 in. wider than spread of roots or diameter of balls. Make adjustments to spacing if necessary to fill trench evenly with the quantity of plants shown on plans.
- G. Plant ground covers in beds having minimum 8 in. of prepared soil mixture. Treat ground cover beds with soil fumigant, after preparation for planting, but before any plants are installed within bed area, to destroy weed seeds. Apply according to Manufacturer's directions, delaying planting for the recommended minimum period to allow dissipation of herbicide. Space plants as shown on plans. Mulch and water immediately after planting.
- H. Plant bulbs in ground cover beds to recommended depths for each bulb type as shown on plans.
- I. Provide trees and planting beds with 3 in. layer of fir or hemlock bark mulch within two days after planting and keep at this depth throughout maintenance period. Mulch to entirely cover area of saucer around each tree.
- J. Use four guys equally spaced as shown on plans for all trees greater than 4 in. in diameter.
- K. Use three guys equally spaced as shown on plans for all trees 4 in. in diameter or less.
- L. Where shown on plans, wrap trunks of trees spirally from ground line to height of second branches. Make all wrappings neat and snug and hold material in place by raffia cord at top and bottom.

206.3.4.4 Pruning and Repair

At completion of planting work, prune and repair injuries at all plants. Limit amount of pruning to minimum necessary to remove dead or injured twigs and branches and to compensate for the loss of roots as a result of planting operations. Do not change natural habit or shape of plant. Make cuts to branch collar, leaving no stubs. On all cuts over 3/4 in. in diameter and bruises or scars on bark, trace the injured cambium back to living tissue and remove. Smooth and shape wounds so as not to retain water. Coat with approved tree wound paint.

206.3.4.5 Plant Guarantee

- A. Guarantee all plants for a minimum of 1 year to be alive and in vigorous growing condition at the end of guarantee period. Guarantee period shall extend 1 year from date of Acceptance of Work as defined in **Subsection 101.01, DEFINITIONS**. Remove unsatisfactory plants and replace with plants of the same kind, quality and size as originally provided as specified.
- B. Guarantee all plant replacements to be alive and in vigorous growing condition 1 year after replacement. Bear all costs of replacement except for replacements resulting from removal, loss or damage due to occupancy of project in any part, vandalism or acts, of neglect on part of others. Replace plants that die immediately, unless during a season unfavorable for planting. When season is unfavorable, plant during the first month of the next favorable planting season.

206.3.4.6 Maintenance

- A. Begin maintenance immediately after each plant is installed and continue to maintain until the end of the guarantee period.

- B. Perform the operations indicated below:
1. Watering as often as required to maintain capillary water within 2 in. of the soil surface around plants
 2. Weeding of plant beds, planting saucers and plantpockets to keep free of weeds, using approved selective herbicide according to the Manufacturer's directions for use, and/or weeding by hand methods
 3. Mulching monthly to replenish mulch and keep at required 2 in. minimum depth
 4. Tightening and repairing guys to keep trees erect and supported without damage to bark
 5. Resetting plants to proper grades or upright position
 6. Restoration of planting saucers
 7. Seasonal spraying to control disease or insect pests that may impair plant vigor
- C. Replace plants required by the plant guarantee on a regular monthly basis, except during the months of December, January and February.

206.3.5 Irrigation Systems

206.3.5.1 General

- A. Install components of the irrigation system as shown and as recommended by the equipment manufacturers. All sprinkler runouts shall be evenly graded to the drain points shown on plans. Piping beneath paved areas shall have a minimum cover of 30 in. Construct irrigation system in areas to receive topsoil after topsoil is spread, compacted, and rough graded.
- B. Steel pipe or copper tubing may be bedded using excavated material. Bed PVC pipe in sand, as shown on plans and backfill to a minimum of 3 in. above the pipe with sand. Determine the final number and location of sprinkler heads after grading is complete, such that complete coverage of all sprinkled areas is provided. Flush out system thoroughly and pressure test before installing sprinkler heads. Adjust flow on each head for proper coverage.
- C. Lawn areas and shrub areas shall be irrigated separately.
- D. Repair and replace irrigation parts and winterize as necessary.

206.3.5.2 Steel Pipe

Ream, clean, and remove burrs and mill scale from piping before making up. Make joints with approved joint compound.

206.3.5.3 Copper Tubing

Cut tubing square and remove burrs. Clean both inside of fittings and outside of tubings with steel wool and muriatic acid before sweating. Take care to prevent annealing of fittings and hard-drawn tubing when making connections. Mitering of joints for elbows and notching of straight runs of pipe for tees will not be permitted.

206.3.5.4 PVC Pipe

Cut, make up, and install PVC pipe in accordance with the manufacturer's recommendations, as approved. Lay PVC pipe using the practice of snaking from one side of the trench to the other, 1 cycle per 40 ft. or less. Use strap wrenches for tightening threaded plastic joints. Take care not to over-tighten fittings. Do not lay PVC pipe when the temperature is below 40°F. Sprinklers and valves shall be installed in accordance with the manufacturer's recommendations, as approved.

207 RESTORATION AND CLEANUP

207.1 DESCRIPTION

This section covers the work necessary to restore and clean up the site, and remove all construction equipment, refuse, and unused materials of any kind resulting from project activities.

207.2 MATERIALS

Provide all materials required to accomplish the work as specified.

207.3 CONSTRUCTION

207.3.1 Surface Dressing

- A. Slopes, sidewalk areas, planting areas, and roadway shall be smoothed and dressed to the required cross section and grade by means of a grading machine insofar as it is possible to do without damaging the work or existing improvements, trees, and shrubs. Unless specified otherwise, the maximum slope shall be 2 to 1 in cut and fill. Supplement machine dressing by hand work as necessary.
- B. Upon completion of the cleaning and dressing, the project shall appear uniform in all respects. Grade all areas true to line and grade as shown. Excavated areas adjoining new walkways and curbs shall be backfilled with top soil. Where the existing ground is below the sidewalk and curb, fill and dress the area to the walk. Wherever fill material is required in the planting area, make finish surface high enough to allow for final settlement. Surface improvements other than topsoil which are adjacent to new walkways or curbs, such as asphalt paving or brickwork, shall be replaced with like materials.

207.3.2 Removal of Materials

Remove and dispose of all excavated or construction materials, equipment, and trash of all kinds resulting from the work. Where brush and trees have been disturbed, remove and dispose of or restore same as directed by the City Engineer at the Contractor's expense.

207.3.3 Cleaning Drains

Clean all drainage facilities such as inlets, catch basins, culverts, and open ditches of all excess material or debris which is the result of the work.

207.3.4 Cleaning Paved Surfaces and Appurtenances

Clean all pavement surfaces, whether new or existing within the limits of the project. All haul routes will be kept free of dust, dirt, gravel, and debris at all times. Clean existing improvements such as curbs, gutters, walls, sidewalks, castings for manholes, monuments, water gates, lamp poles, vaults, signs, and other similar installations.

Flush the street with a pressure type flusher and hand broom or flush all sidewalks.

207.3.5 Restoring Planted Areas

Hand-rake and drag all former grasses and/or planted areas leaving disturbed areas free from rocks, gravel, clay, or any other foreign material and ready, in all respects, for seeding. The finished surface shall conform to the original surface, be free-draining and free from holes, rough spots, or other surface features detrimental to a seeded area.

207.3.6 Restoring Mobilization, Borrow and Disposal Areas

Clean all properties which were disturbed during construction of the project. Dispose of all uprooted stumps, felled trees, brush, excess excavation, rock, discarded materials, rubbish, and debris. Remove all plant, equipment, tools, and supplies and restore the property occupied to a neat, clean, and orderly condition, in equal or better condition to that existing before move in.

207.3.7 Removal of Signs

Do not remove warning, regulatory, guide, or project signs prior to formal acceptance, except as directed.

207.3.8 Restoring Curbs, Sidewalks and Driveways

Repair or replace all curbs, sidewalks, driveways, and other structures damaged during construction of the work. Construct curbs, sidewalks, driveways, and other structures in conformance with the applicable requirements in **DIVISION FIVE - STREET TECHNICAL REQUIREMENTS**.

208 BORING AND JACKING

208.1 DESCRIPTION

208.1.1 Boring

Boring shall include all methods by which a pipe or conduit is pushed or pulled into place and by which the excavation method precludes the stationing of a worker within the pipe or conduit without stopping or removing the excavation equipment.

208.1.2 Jacking

Jacking shall include all methods by which a pipe or conduit is pushed or pulled into place and one or more workers inside the conduit excavate and assist in keeping the conduit on a straight and true grade and alignment.

208.1.3 Permits

- A. Permitter shall designate the owner of railroad tracks or other facilities with prior rights, under which a pipe or conduit must be bored or jacked.
- B. All necessary permits for the undercrossing will be obtained by the City.
- C. The operation across the Permitter's right-of-way must conform to the requirements of the Permitter as outlined in a pipeline crossing agreement made between the Permitter and the City. The Contractor shall conform with all requirements of the pipeline crossing agreement. Before work is commenced, the Contractor shall be solely responsible for obtaining and delivering to the Permitter a public liability and property damage insurance policy in the amount required in the pipeline crossing agreement.
- D. The insurance company writing the policy shall be authorized to do business in the State of Oregon and shall be satisfactory to the Permitter. The insurance policy or policies shall be delivered to and remain in the possession of the Permitter. If any special agreement is required between the Contractor and the Permitter, it shall be completed and signed before the Contractor enters upon or commences work on the Permitter's property.

208.2 MATERIALS

208.2.1 Pipe Bedding and Pipe Zone Material

Conform to the requirements of Section 204, EXCAVATION, EMBANKMENT, BEDDING AND BACKFILL.

208.2.2 Pipe

Conform to Section 301, PIPE AND FITTINGS or Section 402, WATERWORKS MATERIALS for the strength, class, and type as shown or specified.

208.2.3 Casing

- A. Provide casing of size to permit proper construction to the required lines and grades. Casing shall be the type shown in the table below.
- B. Use minimum gauge or wall thickness corresponding to the size of casing selected from the following; however, be responsible for selecting the gauge consistent with the operations and the specified requirements of the permitter.

Diameter	Smooth Steel Pipe Min. Thickness
12 in. & Under	3/16 ASTM A 53
15-24 in.	1/4 ASTM A 53
30-36 in.	5/16 AWWA C 201
48-78 in.	Not Allowable

- C. Equip jacked casings with nipples at the springline and crown at 10 ft. centers when pressure grouting is specified.

208.2.4 Grout

- A. Grout for filling the annular space between the carrier pipe and casing pipe shall be a mixture of Portland Cement, sand, and pea gravel proportioned to allow complete filling of the annular space. The mixture shall have a creamy consistency which enables it to be pumped with a concrete pump.
- B. Grout for pressure grouting outside jacked carrier or casing pipe shall be a mixture of Portland Cement (Type 1-P) and water proportioned to allow complete filling of all voids. The maximum allowable slump shall be less than 5 in.

208.2.5 Stainless Steel Bands

One-half inch wide by 0.020 in. thick steel bands, or equal.

208.2.6 Supports and Skids

Lumber shall be No. 2 West Coast Douglas fir graded in conformance with WWPA Current Grading Rules for Western Lumber. Material shall be pressure treated with Creosote or pentachlorophenol in mineral spirits in accordance with AWWA C14, C8, C9, and C2 as applicable. Minimum retention shall be as designated for contact with ground. Method of treatment shall be in accordance with the applicable portion of the AWWA standards. Insofar as practicable, all timbers shall be cut to size before the material is given the preservative treatment.

208.3 CONSTRUCTION

208.3.1 General

- A. Conform to all Federal, State and local laws and regulations pertaining to tunneling and specifically to the standards set forth in the Oregon Safety Code for Places of Employment, Chapter 24, Safety Code for Mining, Tunneling and Quarrying, published by the Oregon Industrial Accident Commission, latest revision.
- B. Before the start of the work, submit satisfactory evidence to the City Engineer that all insurance coverage requirements called for by the Permittee have been complied with. If required, proposed construction methods and materials shall be submitted to the Permittee before the start of construction. Written authorization to proceed from the Permittee shall be submitted to the City Engineer before the start of construction.
- C. Prior to starting construction, all required labor, materials, and equipment shall be on the site. Notify all Permittees at least 48 hours in advance of working within their right-of-way unless otherwise specified in the permit.

208.3.2 Excavation

Excavation shall be unclassified and shall include whatever materials are encountered to the depths as shown or as required. The boring Contractor or Subcontractor will visit the site and make an estimate of the kind and extent of various materials which may be encountered in the excavation.

208.3.3 Alternate of Jacking or Boring

Jacking or boring may be allowed in lieu of the open trench method. However, written authorization by the City Engineer must first be obtained. The City Engineer retains the right to reject either the jacking or boring method without rejecting the other. Authorization by the City Engineer shall in no way relieve the Contractor of the responsibility for making a satisfactory installation meeting the requirements set forth herein.

208.3.4 Jacking and Boring

- A. Equip the leading section of pipe or conduit with a jacking head securely anchored thereto to prevent any wobble or alignment variation during the jacking or boring operation. For jacking, all excavation shall be carried out entirely within the jacking head, and no excavation in advance thereof shall be permitted. For jacking, every effort shall be made to avoid any loss of earth outside the jacking head. Remove excavated material from the pipe or conduit as excavation progresses, and do not allow such material to accumulate within the pipe or conduit.
- B. Jack or bore all pipes or conduits to true line and grade. Should any deviation from true line and grade be considered excessive, in the judgment of the City Engineer, the Contractor shall correct at no expense to the Owner.
- C. Should appreciable loss of ground occur during the jacking or boring operations, backpack all voids promptly. Fill all remaining voids upon completion of the operations; such filling or backpacking shall be with grout.
- D. The design of all sewer pipe or conduit is based upon the superimposed loads and not upon the loads resulting from the jacking or boring operations. The Contractor shall be responsible for any increase in pipe strength necessary to withstand jacking or boring loads and grouting.

208.3.5 Concrete Pipe and Box Section

Protect the driving ends of concrete pipe or conduit against spalling and other damage. Intermediate joints shall be similarly protected by the installation of sufficient bearing shims to properly distribute the bearing stresses. Remove any section of pipe or conduit showing signs of failure and replace with a new section.

208.3.6 Smooth Steel Casing

- A. Join sections of smooth steel casing to be jacked or bored by welding the joints with a continuous weld for full circumference or by other approved means. Provide joints which are capable of resisting the jacking and boring forces without failure.
- B. Brace pipe or conduit installed in a casing to prevent shifting and flotation. Fill the void between the casing and the pipe or conduit with grout, or other material as specified or approved.
- C. If not shown on Plans or specified, the casing diameter shall be the option of the Contractor. Provide casing of such strength as to withstand the jacking or boring loads and of such diameter to allow filling the void between the pipe or conduit and casing with the approved material.

208.3.7 Grouting Voids Outside Casing or Carrier Pipe

- A. After the casing, or carrier pipe where no casing is specified, has been jacked or bored into position, pressure grout to fill all voids outside the casing through the grout holes provided. Start grouting at the spring line hole at one end and pump grout until grout appears in the grout hole at the crown, then start grouting through the opposite spring line hole until grout appears at the hole in the crown.
- B. Next grout through the hole at the crown until grout appears in the next set of holes along the pipe. Plug the holes at the starting point and move to the next set of holes and repeat grouting sequence until full length of jacked pipe has been grouted. Grouting once commenced at any one point shall be completed without stopping.
- C. Nipples installed in grout holes must be removed and the holes grouted flush with the pipe wall or nipples should be cut off flush with pipe wall and grouted over or use flush mount pipe nipples and plugs.

208.3.8 Cased Pipe

Provide strapped timber cradle under barrel of pipe, join pipe, and slide into casing. Pipe barrel shall bear continuously on cradles. Pipe installation shall conform to applicable requirements in **Section 301, PIPE AND FITTINGS** or **Section 402, WATERWORKS MATERIALS**, including hydrostatic or air testing and line and grade.

208.3.9 Grouting Void Between Carrier Pipe and Casing

Completely fill the annular space between the casing and the carrier pipe with grout (See **Subsection 205.02.04.02, Type "B" Grout**) or as specified. Fill the voids by continuously pumping grout from one end of casing pipe until grout appears at the other open end. When grouting, use low pressure grouting equipment. The grouting pressures shall not be greater than the design loads of the carrier pipe. The Contractor shall, at his sole expense, remove and replace any pipe sections which fail during the grouting process.

208.3.10 Vacant

208.3.11 Contractor's Responsibility

- A. The Contractor shall be fully responsible for settlement or deterioration of the finished crossing until a period of two years after final acceptance by the Owner.
- B. Where casing is not required but is used at the option of the Contractor, the casing and the backfill between the pipe or conduit and the casing shall be included in the pay item for Boring or Jacking as applicable, and no separate payment for pipe will be made.

209 RESURFACING

209.1 DESCRIPTION

This section covers the work necessary to replace all pavement, pavement base, curbs, sidewalks, rock surfacing and other surface features damaged either directly or indirectly by the operations incidental to the construction of sewers, storm drains, water distribution systems, and conduits.

209.2 MATERIALS

209.2.1 Asphalt Concrete

Use hot mix asphalt concrete Class C mix conforming to the requirements for hot mix asphalt concrete in **Section 505, ASPHALT CONCRETE PAVEMENT** and **Section 205, TYPES AND USE OF MATERIALS**.

209.2.2 Vacant

209.2.3 Vacant

209.2.4 Vacant

209.2.5 Pavement Base

Use pavement base material for resurfacing trenches which conform to **Section 503, AGGREGATE BASES**.

209.2.6 Forms

All forms shall conform to requirements for forms in **DIVISION 7 - CONCRETE STRUCTURES**.

209.2.7 Rock Surfacing

Rock surfacing shall be 1"-0 or 1-1/2"-0 crushed aggregate as specified in **Subsection 204.02.06, Class B Backfill, 3/4"-0 Crushed Aggregate**.

209.2.8 Subgrade

Subgrade material shall conform to the requirements for subgrade in **Section 501, SUBGRADE**.

209.2.9 Joint Materials

209.2.9.1 Preformed Elastomeric Joint Seals

Preformed elastomeric joint seals shall conform to the requirements of AASHTO M-220.

209.2.9.2 Poured Filler

Poured filler for concrete joints shall conform to the requirements of AASHTO M-173 (ASTM D 1190).

209.2.9.3 Rubber Gaskets for Concrete Pipe and Precast Section Joints

Rubber gaskets for use in concrete pipe and precast manhole section joints shall conform to the requirements of AASHTO M-198 except that rubber gaskets for use in concrete siphon pipe joints shall conform to the composition and property requirements set forth in ASTM C 361.

209.2.9.4 Joint Mortar for Concrete Pipe Joints and Precast Manhole Section Joints

Joint mortar shall consist of one part Portland Cement and two parts approved sand with water as necessary to obtain the required consistency. Mortar shall be used within 30 minutes after its preparation unless conditions during use necessitate a shorter time.

209.2.9.5 Plastic Compound for Precast Manhole Section Joints

- A. Compound for use in precast manhole section joints shall be a putty-like, preformed homogeneous blend of hydrocarbon resins and rubber or plasticizing materials with not more than 50% by weight of inert mineral filler. The compound shall be specifically manufactured for the intended use and shall be pliable at temperatures between 32°F and 135°F.
- B. A specimen at 77°F and 1/2 in. square in cross section shall stretch at least 1-1/2 in. before rupture when tested with the apparatus described in ASTM D 113. It shall adhere firmly and cohesively to the precast manhole sections when the compound-sealed joint is flexed to its maximum extent. The compound shall be accompanied by and used with such primer solution as the manufacturer of the compound may recommend. Compound conforming to Federal Specification SS-S-00210 (GSA-FSS) is representative of an acceptable material.

209.2.9.6 Water Stop

Water stop shall be either plastic or rubber as the Contractor may elect conforming to the following:

A. Plastic Water Stop

- 1. Polyvinylchloride water stop shall be manufactured to the dimensions called for on the plans from virgin polyvinylchloride (P.V.C.) compound. No reclaimed P.V.C. will be allowed. The water stop shall have the following properties:

	ASTM Test Method	Specification
Tensile, psi	D 412	1800
Elongation %	D 412	350
100% Modulus, psi	D 412	760
Low Brittle Temperature	D 746	50°F
Cold Bend Test*		No Failures

*Samples maintained at -70°F for two hours, then bent quickly around a 1/4 in. mandrel to 180°.

- 2. The supplier shall furnish test samples of the material from which his water stop is to be manufactured. Samples shall be in sheet form having a uniform thickness of from 1/16 to 1/8 in. and having a total area of not less than 2 sq. ft. Each sample shall be comprised of pieces not smaller than 6 in. x 6 in.

B. Rubber Water Stop

- 1. Rubber water stop shall be manufactured to the dimensions shown on the plans in such a manner that the finished product shall have an integral cross section which will be dense, homogeneous, and free from porosity and other imperfections. The water stop shall have the following properties:
 - a. Hardness - The shore A Durometer hardness shall be 60 to 70 when tested in accordance with ASTM D 2240.
 - b. Elongation - Minimum of 450%.
 - c. Tensile strength - Minimum of 3000 psi.

- d. Water absorption - Maximum of 55% by weight after immersion in water for two days at 15 °F.
- e. Tensile strength after aging - The test specimen, after accelerated aging of seven days at 158 °F, shall retain not less than 80% of the original tensile strength. The tensile strength of the test specimen, after accelerated aging of 48 hours in oxygen at 158°F and tensile stress of 300 psi, shall be not less than 80% of the original tensile strength.
- f. Compression set - After 22 hours at 158°F shall be not more than 30% when tested in accordance with ASTM D 395, method B.
- g. Specific gravity - 1.17 ± 0.03 .
- h. Defects - Minor surface defects such as surface peel covering less than 1 sq. in., surface cavities or bumps less than 1/4 in. in longest lateral dimensions and less than 1/16 in. deep will be acceptable.

209.3 CONSTRUCTION

209.3.1 Street Maintenance

Maintain all trenches as specified under **Section 204, EXCAVATION, EMBANKMENT, BEDDING, AND BACKFILL.**

209.3.2 Temporary Cold Mix Asphalt

- A. All excavations on hard surfaces shall be paved with a temporary cold mix asphalt patch at the end of each workday.
- B. Place and compact temporary cold mix asphalt to a minimum depth of two in. over the backfilled and compacted trench areas as specified **under Section 204, EXCAVATION, EMBANKMENT, BEDDING, AND BACKFILL.** Spread with a mechanical spreading machine, or place by hand methods. Distribute into place by means of shovel or suitable forks and spread with rakes in a loose layer of uniform density.
- C. After spreading, the mixture shall be thoroughly and uniformly compacted with a power-driven roller capable of providing compression of 200 to 300 lbs. per linear inch as soon as raking is complete. Compact areas inaccessible to the roller by tamping. After compaction, the temporary cold mix asphalt shall have the minimum thickness specified and shall match the adjacent existing grade. The temporary cold mix asphalt patch shall be maintained such that a continuous surface will exist without depressions or potholes.

209.3.3 Pavement Base

- A. Place pavement base to the specified depth; when not specified, place to a compacted depth of 12 in. Bring the top of the pavement base to a smooth, even grade at a distance below finished grade equivalent to the required pavement depth.
- B. Compact the pavement base with mechanical vibratory or impact tampers to a density of not less than 95% of the maximum dry density as determined by AST D 1557/AASHTO T-180.

209.3.4 Asphalt Concrete Pavement

209.3.4.1 Tack Coat

Tack coat all edges of existing pavement, manhole and clean-out frames, inlet boxes and like items. Apply an asphalt tack coat to the base lift of asphalt at a rate of 0.05 to 0.15 gal. per sq. yd. prior to placing the second lift when the time between placing the second lift is greater than four hours after placement of the initial lift.

209.3.4.2 Asphalt Concrete Placement

- A. Saw cut the existing pavement a minimum of 6 in. from the edge of the existing pavement at the side of the trench. The saw cut shall be a straight line and shall follow lines parallel to the pipe centerline to remove any pavement which has been damaged or which is broken and unsound. The saw-cut pavement edges shall be free of irregularities. Provide a smooth, sound edge for joining the new pavement. Excavate the material immediately below the cutback area and replace with 3/4 in. compacted crushed gravel base.
- B. Place the asphalt concrete on the prepared subgrade over the trench to the specified depth, or the depth of the adjacent pavement, whichever is greater. When a prime coat is specified, place asphalt concrete after the prime coat has set. Place the asphalt concrete in a minimum of two lifts. Maximum thickness for any one lift of pavement shall not exceed 2 1/2 in. The minimum thickness for placement of compacted pavement shall not be less than 1 in. Spread and level the asphalt concrete with hand tools or by use of a mechanical spreader, depending upon the area to be paved. Bring the asphalt concrete to the proper grade and compact by rolling or the use of hand tampers where rolling is impossible or impractical.
- C. Roll with power rollers capable of providing compression of 200 to 300 pounds per linear inch. Begin the rolling from the outside edge of the replacement progressing toward the existing surfacing, lapping the existing surface at least 1/2 the width of the roller. If existing surfacing bounds both edges of the replacement, begin rolling at the edges of the replacement, lapping the existing surfacing at least 1/2 the width of the roller, and progress toward the center of the replacement area. Overlap each preceding track by at least 1/2 the width of the roller and make sufficient passes over the entire area to remove all roller marks and to produce a smooth, uniform surface. Density requirements for asphalt concrete pavement shall conform to those in Section 505, ASPHALT CONCRETE PAVEMENT.
- D. Finished surface of the new compacted paving shall be flush with the existing surface and conform to the grade and crown of the adjacent pavement.

209.3.4.3 Seal Coat

- A. Immediately after the new paving is completed, apply a seal coat of liquid asphalt conforming to **Subsection 205.02.13, Asphalt Materials**, to all joints between the new and original asphalt pavement. The seal coat shall be a minimum of 12 in. in width and shall be centered on the joint. The liquid asphalt shall be applied to the point that it begins to run off. The minimum application rate shall be 1.7 gal. per 100 linear ft.
- B. Immediately after the liquid asphalt has been applied and before the asphalt has solidified, cover the seal coat asphalt with clean-dry masonry sand. The sand shall be applied in a layer thick enough to prevent tracking of seal coat. Before opening the street to traffic, the Contractor shall clean up all loose sand.

209.3.4.4 Surface Smoothness

- A. The top surface of the asphalt concrete pavement, when tested with a 12 ft. straightedge furnished and operated by the Contractor, shall not vary by more than 0.02 ft. either parallel to or perpendicular to the centerline. The City Engineer will observe this testing and may require additional testing. The means of correction of a surface that does not meet the smoothness requirements shall have the approval of the City Engineer.
- B. When tests show the pavement is not within the above tolerances, the Contractor shall take immediate action to correct equipment or procedures in his paving operation to eliminate the unacceptable pavement roughness.
- C. Any surface irregularities exceeding the above tolerances shall be corrected by the Contractor using a method or methods listed herein and approved by the City Engineer.

- D. Corrective Action - Corrective measures by the Contractor requiring one or more of the following actions approved by the City Engineer shall be performed on deficient areas:
 1. Remove and replace the surface course.
 2. Place an overlay of a thickness approved by the City Engineer.
 3. Grind the pavement surface utilizing diamond blades up to maximum depth of 0.3 in. and apply an emulsion fog coat as directed by the City Engineer.
- E. All corrective work shall be completed within 10 working days following notification from the City Engineer that the pavement does not meet the specified tolerances, unless otherwise directed by the City Engineer.
- F. All corrective work, including furnishing of materials, shall be performed at the Contractor's expense and no adjustment in contract time will be made for corrective action work.

209.3.4.5 Weather Conditions

- A. Asphalt concrete mixtures shall be placed on dry prepared surfaces when the air temperature in the shade and the surface temperature is not less than those specified in the following table:

SURFACE TEMPERATURE LIMITATIONS

Compacted Thickness of Individual Courses	Travel Lanes/ Wearing Course	All Other Courses
Less than 1-1/2 in.	60°F	55°F
1-1/2 in. to 2-1/2 in.	50°F	45°F Over
2-1/2 in. and other	40°F	35°F

- B. Placing of any mixture during rain or other adverse weather conditions normally will not be permitted, except that mix in transit at the time these adverse conditions occur may be laid if the mix is of proper temperature, if the mix has been covered during transit, if placed on a foundation free of pools, or flow of water and if all other requirements of these specifications are met. Asphalt concrete mixtures shall not be placed when the underlying layer is frozen, or when, in the opinion of the City Engineer, weather conditions either existing or expected will prevent the proper handling, finishing, or compaction of the mixtures.
- C. Do not apply asphalt for tack coat when the surface temperature is less than 50°F.

209.3.4.6 Protection of Structures

- A. Provide whatever protective coverings may be necessary to protect the exposed portions of bridges, culverts, curbs, gutters, posts, guard fences, road signs, and any other structures from splashing oil and asphalt from the paving operations. Remove any oil, asphalt, dirt, or any other undesirable matter that may come upon these structures by reason of the paving operations.
- B. Where existing structures (e.g., water valve boxes, manholes, catch basins, or other underground utility appurtenances) are within the area to be surfaced, make the resurfacing level with the top of the existing finished elevation of these facilities. The Contractor shall be responsible for adjusting the existing structures as specified in **Section 511, ADJUSTMENT OF EXISTING STRUCTURES TO GRADE**. Consider any delays experienced from such obstructions as incidental to the paving operation. No additional payment will be made. Protect all covers during asphalt application.

209.3.4.7 Excess Materials

Dispose of all excess materials. Make arrangements for the disposal and bear all costs or retain any profit incidental to such disposal.

209.3.5 Portland Cement Concrete Pavement

- A. Pavement replaced shall be the same thickness as that removed, or a minimum of 6 in. Protect the newly placed concrete from traffic for a period of at least seven days.
- B. Saw cut the existing pavement a minimum of 6 in. from the edge of the existing pavement at the side of the trench. The saw cut shall be a straight line following lines parallel to the pipe centerline and shall remove any pavement which has been damaged or which is broken and unsound. The saw cut pavement edges shall be free of irregularities. Provide a smooth, sound edge for joining the new pavement.
- C. Handle, place, finish and cure concrete pavement in conformance with the applicable provisions of **Section 506, PORTLAND CEMENT CONCRETE PAVEMENT.**

209.3.6 Rock Surfacing

Place rock surfacing only where shown or directed on streets, driveways, parking areas, street shoulders, and other areas disturbed by the construction. Spread the rock by tailgating and supplement by hand labor where necessary. Level and grade the rock surfacing to conform to adjacent existing grades and surfaces as directed.

209.3.7 Concrete Driveways, Sidewalks and Curbs

- A. Replace concrete driveways, sidewalks and curbs to the same section, width, depth, line and grade as that removed or damaged. Saw broken or jagged ends of existing concrete on a straight line and to a vertical plane. Prior to replacing the concrete sections properly backfill and compact the backfill to prevent subsequent settlement.
- B. Replace concrete driveways and sidewalks between scored joints unless otherwise directed by the City Engineer. Provide a minimum 2 in. thick compacted leveling course of clean 3/4"-0 crushed aggregate. All concrete replacement work shall be completed prior to the placement of adjacent asphalt concrete. Restoration and clean up shall be as specified under **Section 207, RESTORATION AND CLEANUP.**
- C. Construct forms to match existing. Place concrete and finish exposed surfaces similar to adjacent surface in conformance with **Section 507, CURBS, GUTTERS, DRIVEWAYS, AND SIDEWALKS.**

City of Garibaldi

Public Works Standard Construction Specifications

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DIVISION THREE – SANITARY SEWER TECHNICAL REQUIREMENTS

301 PIPE AND FITTINGS

301.1 DESCRIPTION

This section covers the following work:

1. Gravity and pressure sewer pipe
2. Fittings
3. Service line sewers

301.2 MATERIALS

301.2.1 General

- A. Use all sewer pipe and fittings of the size, strength, material and joint type specified on the Drawings and/or the Proposal. Use jointing material as hereinafter specified for each pipe material. Each piece of pipe shall be clearly identified as to strength, class and date of manufacture.
- B. The manufacturer or fabricator shall furnish appropriate certification, based on manufacturer's routine quality control tests, that the materials in the pipe and fittings meet the requirements specified herein. Strength, permeability, hydrostatic tests and pipe joints will be used as the basis of acceptance as described under Proof Tests herein. Minimum length of pipe shall be 3.5 ft.
- C. It is not intended that materials listed herein are to be considered equal or generally interchangeable for all applications. The Design Engineer shall determine the materials suitable for the project and so specify.
- D. Use pipe and fittings for service lines of one type of material throughout; no interchanging of pipe and fittings will be allowed. Use 4 in. diameter pipe for residential services when not otherwise specified.
- E. Do not coat pipes for sewers internally or externally with any substance of any type in an attempt to improve its performance when air tested.

301.2.2 Concrete Pipe

301.2.2.1 Non-Reinforced Concrete Pipe

Non-reinforced concrete pipe shall conform to ASTM C 14, Class 3 as shown or specified and the following additional requirements:

1. Cement shall be Type II conforming to ASTM C 150.
2. The minimum Portland Cement content shall be 564 lbs. per cu. yd.
3. The water/cement ratio shall not exceed 0.49.
4. The Contractor shall provide the City Engineer with a Certificate of Compliance from the pipe manufacturer that the pipe and concrete mix conform in all respects to these specifications and other non-conflicting requirements of the referenced ASTM Specifications.

301.2.2.2 Reinforced Concrete Pipe

Reinforced concrete pipe shall conform to ASTM C 76, Class IV as shown or specified with Wall B design and the following additional requirements:

1. Cement shall be Type II conforming to ASTM C 150.
2. The minimum Portland Cement content shall be 564 lbs. per cu. yd.
3. The water/cement ratio shall not exceed 0.49.
4. Elliptical reinforcing is not permitted.
5. The area of the outer circular reinforcing cage shall not be less than 75% by the inner cage.
6. The Contractor shall provide the City Engineer with a Certificate of Compliance from the pipe manufacturer that the pipe and concrete mix conform in all respects to these specifications and other non-conflicting requirements of the referenced ASTM Specifications.

301.2.3 Ductile Iron Pipe

- A. Ductile iron pipe centrifugally cast of 60-42-10 iron shall conform to ANSI A21.51 Class 150 or AWWA C151, with Push-on Joint or Mechanical Joints as specified, conforming to ANSI Specification A21.11/AWWA C111. Ductile iron pipe shall be lined with cement mortar and seal coated in accordance with ANSI Standard A21.4/AWWA C104.
- B. When specified, tube type polyethylene encasement shall conform to ANSI A21.5/AWWA C105.

301.2.4 PVC Non-Pressure Pipe

PVC sewer pipe shall conform to ASTM D 3034 SDR-35.

301.2.5 PVC Pressure Pipe

PVC pressure pipe shall conform to AWWA C900 class as specified.

301.2.6 Service Connection Markers

New 2 in. x 4 in. utility grade lumber, or better, in one piece shall be used. No splicing will be permitted.

301.2.7 Jointing Materials

- A. Only lubricants for jointing materials approved by the manufacturer shall be used.
- B. Furnish in duplicate a certified statement from the manufacturer of the gaskets, setting forth the basic polymer used in the gaskets and results of the tests of the physical properties of the compound. Gaskets shall be shipped in containers with identification of the batch from which the gaskets were fabricated.

301.2.7.1 Concrete Pipe

All pipes shall be bell and spigot. Rubber gaskets for bell and spigot pipe shall conform to ASTM C 443. Use captive gasket in groove design for pipe 24 in. diameter and larger.

301.2.7.2 Cast Iron and Ductile Iron Pipe

Rubber gaskets shall conform to ANSI A21.11/AWWA C111.

301.2.7.3 PVC Pipe

Rubber gaskets for PVC pipe shall conform to ASTM F 477.

301.2.8 Proof Tests

301.2.8.1 General

The intent of this requirement is to prequalify a joint system, components of which meet the joint requirements, as to the water tightness capability of that joint system. This proof test shall be understood to apply to all sanitary sewers. Material and test equipment for proof testing shall be provided by the manufacturer. Joints shall meet the requirements of yard testing specified below. The pipe manufacturer shall submit results of the yard tests made, certified by a testing agency acceptable to the City Engineer. In general, each pipe material and joint assembly shall be subject to the following three proof tests at the discretion of the City Engineer:

1. Pipe in Straight Alignment - No less than three nor more than five pipes selected from stock by the City Engineer or the testing agency shall be assembled according to the manufacturer's installation instructions with the ends suitable plugged and restrained against internal pressure. The pipe shall be subjected to 13 psi hydrostatic pressure for 10 minutes. Free movement of water through the pipe joint or pipe shall be grounds for rejection of the pipe.
2. Pipe in Maximum Deflected Position - A test section shall be deflected as described hereinafter for each pipe material. The pipe shall be subjected to 10 psi hydrostatic pressure for 10 minutes. Free movement of water through the pipe joint or pipe wall shall be grounds for rejection of the pipe.
3. Joints Under Differential Load - The test section shall be supported on blocks or otherwise as described hereinafter for each pipe material. There shall be no visible leakage when the stressed joint is subjected to 10 psi internal hydrostatic pressure for 10 minutes.

301.2.8.2 Concrete Pipe

- A. For deflected position, create a position 1/2 in. wider than the fully assembled position, on one side of the outside perimeter of each joint.
- B. For differential load test, assemble three pipes according to the manufacturer's instructions in straight alignment with the ends suitably plugged and restrained against internal hydrostatic pressure. The end pipes of the test section shall be supported on blocks or otherwise so that the center pipe is suspended freely between the adjacent pipe and bearing only the joints. T
- C. he pipe section shall be filled with water and a load of 150 pounds per inch of pipe diameter, in addition to the weight of the pipe, shall be supplied over an arc of not less than 120° along a longitudinal distance of 12 in. immediately adjacent to one of the joints. For pipe 24 in. and larger, the applied load shall be reduced by 1/2 of the weight of water in the suspended pipe.

301.2.8.3 Cast Iron Pipe and Ductile Iron Pipe

- A. For deflected position, create a position 1/2 in. wider than the fully compressed section on one side of the outside perimeter.
- B. For differential load, support so that one of the pipes is suspended freely between adjacent pipe, bearing only on the joints. Apply a force per the following table along a longitudinal distance of 12 in., immediately adjacent to one of the joints.

Pipe Size	Force – Pounds	Pipe Size	Force – Pounds
4 in.	1,000	15 in.	3,700
6 in.	1,500	18 in.	4,400
8 in.	2,000	21 in.	5,000
10 in.	2,500	24 in.	5,500
12 in.	3,000	and over	---

301.01.08D PVC Pipe

PVC pipe joints shall be tested by and meet the requirement of ASTM C 3212 for gravity sewers and ASTM D 3139 for pressure sewers.

301.2.9 Fittings

301.2.9.1 General

- A. Provide tee or wye fittings in the sewer main for service line sewers and catch basin or inlet connections. Tee and wyes for service line sewers shall be 4 in. inside diameter, unless otherwise specified. All fittings shall be of sufficient strength to withstand all handling and load stresses encountered.
- B. All fittings shall be of the same materials as the pipe unless otherwise specified. Material joining the fittings to the pipe shall be free from cracks and shall adhere tightly to each joining surface. Use the same type of joints on all fittings that are used on the main sewer pipe. Tee or wye fittings shall not be closer than 12 in. to any joint or bell of main line sewer which is 12 in. or less in diameter.

301.2.9.2 Concrete Pipe

- A. Use shop fabricated fittings on all concrete pipe.
- B. Submit fabrication details for shop fabricated fittings for review prior to delivery of fittings to the job site.

301.2.9.3 Cast Iron and Ductile Pipe

Use mechanical joint cast iron fittings conforming to ANSI A21.10/AWWA C110, and a class of at least equal to that of the adjacent pipe. Use push-on fittings of gray cast iron with body thickness and radii of curvature conforming to ANSI A21.10 and joints conforming to ANSI A21.11/AWWA C111.

301.2.9.4 PVC Pipe

- A. PVC pipe shall be connected to sanitary manholes using an approved adapter specifically manufactured for the intended service and approved by the City Engineer. PVC pipe adapters shall be Fernco CMA, Romac LCT, Tylox Manhole Adapters, Vassalo Series 32850, Kor-N-Seal, Sealtite, Z-Lok-XP, or equal commercial product. Field-fabricated waterstops or improvised adapters such as gaskets stretched over the pipe will not be allowed.
- B. Adapters requiring the use of grout for installation shall be anchored and finished using an approved non-shrink grout. Mortar is not acceptable.

301.2.10 Pipe Coupling Adapters

Use flexible mechanical compression joint coupling with No. 305 stainless steel bands manufactured by Joints, Inc., Fernco Joint Sealer, or equal.

301.2.11 Cleanouts

Cleanouts will be of the same material and size as the main line.

301.3 CONSTRUCTION

301.3.1 Excavation and Backfill

Conform to the requirements of **Section 204, EXCAVATION, EMBANKMENT, BEDDING, AND BACKFILL**. All excavation shall be unclassified.

301.3.2 Line and Grade for Gravity and Pressure Sewers

Do not deviate from line or grade, as established by the Design Engineer, more than 1/2 in. for line and 1/4 in. for grade, provided that such variation does not result in a level or reverse sloping invert. Measure for grade at the pipe invert, not at the top of the pipe because of permissible variation in pipe wall thickness. Establish line and grade for pipe by the use of lasers or by transferring the cut from the offset stakes to batter boards at maximum intervals of 25 ft.

301.3.2.1 Line and Grade for Service Line Sewers

- A. The Design Engineer will establish line and grade to the tract of land to be serviced by the sewer system. At the preselected location of the service line, a stake will be driven into the ground showing the depth of excavation required at the property line.
- B. Lay the pipe on a straight line and at a 2% grade between the tee or riser and the stake. Lay the pipe by means of a builder's level of good quality and not less than 24 in. in length.

301.3.3 Pipe Distribution and Handling

- A. Distribute material on the job no faster than it can be used to good advantage. Unload pipe only by means recommended by the pipe manufacturer. Do not unload pipe of any size by dropping to the ground. Do not distribute more than one week's supply of material in advance of laying, unless approved.
- B. Pipe shall not be unloaded or stored in the public right-of-way or easement unless it has been certified and accepted by the Design Engineer. Inspect all pipe and fittings prior to lowering into trench to ensure no cracked, broken, or otherwise defective materials are used. Clean ends of pipe thoroughly. Remove foreign matter and dirt from inside of pipe and keep clean during and after laying.
- C. Use proper implements, tools, and facilities for the safe and proper protection of the work. Lower pipe into the trench in such a manner as to avoid any physical damage to the pipe. Remove all damaged pipe from the job site. Do not drop or dump pipe into trenches.

301.3.4 Pipe Laying and Jointing of Pipe and Fittings

301.3.4.1 General

- A. Proceed with pipe laying upgrade with spigot or tongue ends pointing in direction of flow. Place pipe in such a manner as to ensure a continuous and uniform bearing and support for the full length of the pipe between joints. Take care to properly align the pipe before forced entirely home.
- B. Upon completion of pipe laying all pipe joints shall be in the "home" position, which is defined as the position where the least gap (if any) exists, when the pipe components that comprise the joint are fitted together as tightly as the approved joint design will permit. Gaps at pipe joints shall not exceed that allowed by the manufacturer's recommendations.
- C. Take special care to prevent movement of the pipe after installation when laid within a movable trench shield.

- D. When laying operations are not in progress, protect the open end of the pipe from entry of foreign material and block the pipe to prevent movement or creep of gasketed joints.
- E. Plug or close off pipes which are stubbed out for manhole construction or for connection by others.
- F. Provide all sewer pipes, 36 in. or smaller in diameter, entering or leaving manholes or other structures, with flexible joints within 18 in. of the exterior wall. Pipes larger than 36 in. in diameter shall have this flexible joint within a distance from the exterior wall equal to one-half the inside pipe diameter.
- G. When cutting and/or machining the pipe is necessary, use only tools and methods recommended by pipe manufacturer.
- H. When shown or approved to deflect pipe from a straight line, either in the vertical or horizontal plan, or when long-radius curves are shown, the amount of deflection shall not exceed that specified or approved by the City Engineer. The pipe manufacturer's recommendation will serve as a guide, but the decision of the City Engineer shall be final.

301.3.4.2 Concrete Pipe

Use rubber ring gasket joints.

301.3.5 Installation of Service Line Sewers, Tees and Wyes

- A. Install tee and wye fittings and service line sewers as shown on the plans. Provide pipe bedding material compacted to a minimum of 90% of maximum density as determined by ASTM D 1557/AASHTO T-180 under all tees and wyes and branch fittings, extending to the springline of the fittings. Place pipe bedding material on undisturbed native material or compacted foundation stabilization material.
- B. Connect service lines to manholes only when directed. Make the connection so the standard pipe joint is located not more than 1.5 ft. from the structure.
- C. Provide ends of all service lines and fittings with approved watertight plugs, caps, or stoppers, suitably braced to prevent blowoff during internal air testing. Such plugs or caps shall be removable and their removal shall provide a socket suitable for making a flexible joint lateral connection or extension.

301.3.6 Markers

- A. In new subdivisions, undeveloped areas, and where connections will not be made in the contract, after the service line is installed, block the capped or plugged end and install 2 in. x 4 in. marker. Extend markers at least 4 ft. above the ground surface. Paint the top portion of the marker after its installation with first-quality green, quick-drying enamel. After the paint has dried, use black, quick-drying enamel and neatly indicate the distance from the natural ground surface to the top of the service line pipe in feet and inches.
- B. Take precautions during the backfilling operation to ensure the position and location of the marker. If the marker is broken or knocked out of vertical alignment during the backfilling operation, reopen the trench and replace the marker.
- C. In new subdivisions, at the time the curbs are poured, an S shall be stamped in the top of curb at each point a lateral crosses beneath the curbline.

301.3.7 Concrete Closure Collars

- A. Only where specified on Drawings, construct concrete closure collars in conformance with the details provided. Wash pipe to remove all loose material and soil from the surface on which the concrete will be placed. Construct forms with materials that will ensure that no concrete shall enter the line. Make entire

collar in one placement, and do not place collars in water. Concrete closure collars shall be placed using an approved commercial concrete bonding agent applied to all surfaces in contact with the collar.

- B. Where concrete closure collars are necessary to join PVC pipe, the PVC surface shall first be prepared for bonding to the concrete by applying a dense coating of clean mortar sand to the pipe using PVC solvent cement. After the cement has cured, commercial concrete bonding agent shall be applied to the sand surface prior to placement of concrete. Water as a substitute for commercial bonding agent will not be allowed. Do not backfill the trench until the concrete has sufficient strength.

301.3.8 *Disconnection and Reconnection of Existing Service Lines*

When shown or directed, disconnect existing service lines from existing sewers and reconnect them to the new sewers. The Contractor shall be responsible for locating the existing service lines prior to installing the tee or wye in the new sewer line. The contractor shall verify and reconnect all active services to the main line sewer.

301.3.9 *Testing*

301.3.9.1 *General*

- A. All gravity sanitary sewers including service line sewers and appurtenances shall successfully pass an air test prior to acceptance and shall be free of leakage. Manholes shall be tested as specified in **Section 302, MANHOLES AND CONCRETE STRUCTURES**.
- B. All pressure sewer force mains shall be tested in accordance with applicable portions of **Section 403, CONSTRUCTION** when not otherwise specified.
- C. A televised inspection of the sanitary sewer pipe shall be performed. Any defects in material or workmanship shall be satisfactorily corrected prior to final acceptance of the work.
- D. All tests and inspections (including video-inspection) must be performed in the presence of the City Engineer or his/her representative to be valid.
- E. Tests shall be performed in the following order: deflection testing, air pressure testing, video inspection. If any one of the tests fail, all tests must be completed again after repair of the failed section in the testing order specified above.
- F. Deflection testing, air pressure testing, and video inspection shall be done only after backfill has passed the required compaction tests based on AASHTO T-180 and the roadway base rock has been placed, compacted, and approved by the City Engineer.
- G. The sanitary system must receive the approval of the City Engineer regarding deflection testing, air pressure testing, and video inspection before paving of overlying roadways will be permitted.

301.3.9.2 *Cleaning Prior to Testing and Acceptance*

- A. Prior to final testing, acceptance and final manhole-to-manhole inspection of the sewer system by the City Engineer, ball, flush and clean all parts of the system. Remove all accumulated construction debris, rocks, gravel, sand silt, and other foreign material from the sewer system at or near the closest downstream manhole. If necessary, use hydrocleaning.
- B. Upon the City Engineer's final manhole-to-manhole inspection of the sewer system, if any foreign matter is still present in the system, reflush and clean the sections and portions of the lines as required.

301.3.9.3 *Testing Procedure*

Perform the tests in a manner satisfactory to the City Engineer. Any arrangement of testing equipment which will provide observable and accurate measurements of air leakage under the specified conditions

will be permitted. Calibrate gauges for air testing with a standardized test gauge provided by the Contractor at the start of each testing day. The calibration shall be witnessed by the City Engineer; notify the City Engineer 24 hours prior to each test.

301.3.9.4 Time of Test

Make tests of sections of constructed sanitary sewer for acceptance only after all service connections, manholes, backfilling, and compaction are completed between the stations to be tested. Owner may require testing of manhole-to-manhole sections as they are completed in order to expedite the acceptance of sections of sewer and allow connections prior to the whole system being completed.

301.3.9.5 Repairs

- A. Repair or replace, in a manner satisfactory to the City Engineer, any section of the system not meeting the air test requirements, or which has leakage or infiltration.
- B. Correct such failures occurring within the warranty period in a manner satisfactory to the City Engineer at the Contractor's sole expense.
- C. The Contractor, in contracting to do this work, agrees that the leakage allowances as indicated herein are fair and practical.

301.3.9.6 Air Testing

A. General

1. The City Engineer may, at any time, require a calibration check of the instrumentation used. Use a pressure gauge having minimum divisions of 0.10 psi and an accuracy of 0.0625 psi. (1 oz. per sq. in.) All air used shall pass through a single control panel.
2. All plugs used to close the sewer for the air test must be capable of resisting the internal pressures and must be securely braced. Place all air testing equipment above ground and allow no one to enter a manhole or trench where a plugged sewer is under pressure. Release all pressure before the plugs are removed.
3. The testing equipment used must include a pressure relief device designed to relieve pressure in the sewer under test at 10 psi or less and must allow continuous monitoring of the test pressures in order to avoid excessive pressure. Use care to avoid the flooding of the air inlet by infiltrated ground water. (Inject the air at the upper plug if possible.) Use only qualified personnel to conduct the test.

B. Ground Water

1. The presence of ground water will affect the results of the test. Determine the average height of ground water over the sewer immediately before starting the test.
2. In every case, determine the height of the water table at the time of the test by exploratory holes or such other methods satisfactory to the City Engineer. The City Engineer will make the final decisions regarding test height for the water in the pipe section being tested.

C. Method

Use the Time-Pressure Drop Method for all air testing. The test procedures are described as follows:

- a. Clean the sewer to be tested and remove all debris where noted.
- b. Wet the sewer prior to testing, if desirable.
- c. Plug all sewer outlets with suitable test plugs. Brace each plug securely.
- d. Check the average height of the ground water over the sewer. The test pressures required below shall be increased 0.433 psi for each foot of average water depth over the sewer.

- e. Add air slowly to the section of sewer being tested until the internal air pressure is raised to 4.0 psig greater than the average back pressure of any ground water that may submerge the pipe.
- f. After the internal test pressure is reached, allow at least 2 minutes for the air temperature to stabilize, adding only the amount of air required to maintain pressure.
- g. After the temperature stabilization period, disconnect the air supply.
- h. Determine and record the time in seconds that is required for the internal air pressure to drop from 3.5 psig to 2.5 psig greater than the average back pressure of any ground water that may submerge the pipe. This leakage only allowed in concrete pipe. For PVC and ductile iron pipe, no leakage allowed.

D. Acceptance

- 1. The sewer shall be considered acceptable when tested as described previously if the section under test does not lose air at a rate greater than 0.0015 cfm per sq. ft. of internal sewer surface. This leakage only allowed in concrete pipe. For PVC and ductile iron pipe, no leakage allowed.
- 2. For test sections containing over 625 sq. ft. of surface area, the time measured by this method for 1.0 psi pressure drop shall be calculated according to the formula below.

$T = d^2L/42$	T = test duration, seconds
	d = pipe diameter (inches)
	L = section length (feet)
	42 = conversion factor

- 3. For test sections containing less than 625 sq. ft. of internal surface area, the time measured by this method for 1.0 psi pressure drop shall be calculated according to the formula below.

$T = 56d$	T = test duration, seconds
	d = pipe diameter (inches)

- 4. The internal surface area of pipeline sections may be calculated using the formula below.

$A = \pi Ld/12$	A = area in square feet
	π = constant (3.14)
	d = pipe inside diameter (inches)
	L = pipe length (feet)

- 5. The surface areas of lateral lines of differing lengths and diameters may be accommodated in Equations 1 and 2 above by using the sums $(d_1)^2L_1+ \dots+(d_n)^2L_n$ and $d_1+ \dots+d_n$ in place of d^2L and d , respectively.

301.3.10 Deflection Test for PVC Pipe

- A. In addition to air testing, perform a deflection test for all sanitary sewers and culverts constructed of PVC pipe after the trench backfill and compaction has been completed. The test shall be conducted by pulling an approved solid pointed mandrel or variable deflection measuring gauge through the completed pipeline a minimum of 30 days after compaction is completed. The diameter of the mandrel shall be 95% of the internal pipe diameter.

- B. Conduct testing on a manhole-to-manhole basis and only after the line has been completely flushed clean with water. Locate and repair any sections failing to pass the test and retest the section, at the Contractor's sole expense.

301.3.11 Television Inspection of Sanitary Sewers

- A. Upon completion of all sewer construction, repairs, cleaning, and required tests, the contractor shall notify the City Engineer when the television inspection will be performed.
- B. Subsequent to being notified, the City Engineer shall commence examination of lines. Findings will be recorded. Use pan & tilt camera types only and every lateral shall be inspected and identified on tape.
- C. When performing television inspections, water shall be added, tracing dye and a 1 in. measuring ball shall be utilized.
- D. Upon correction of deficiencies revealed by televiewing, the contractor shall notify the City Engineer; the same steps listed above may be repeated until all work is acceptable.
- E. Air tests and deflection tests are required prior to television inspection. All tests and inspections must be done in the presence of the City Engineer or his/her authorized representative.
- F. Before release of the maintenance or warranty bond, the City Engineer may require televised inspection of the piping at the Contractor's expense. The Contractor shall correct all deficiencies found by this inspection.
- G. The City of Garibaldi may, at its own option, perform a deflection test.

301.3.12 Subsequent Failure

No infiltration of ground water in the system is allowed. No standing water is allowed.

301.3.13 Cleanouts

Cleanouts will be constructed per the City Standard Details. The cleanout will stand vertical and the Contractor will bring compacted bedding material up around the vertical portion to the top.

301.3.14 Service Risers

The service risers will be constructed with a tee fitting at the main line. If a wye fitting is necessary then a 1/8 bend will be utilized at the wye in place of the tee. Payment will begin at the upper end of the 1/8 bend if the Contractor chooses to use this method.

302 MANHOLES AND CONCRETE STRUCTURES

302.1 DESCRIPTION

This section covers the work necessary for the construction of the following items:

1. Manholes
4. Drop Assemblies
5. Special Concrete Structures
6. Concrete Encasement

302.2 MATERIALS

302.2.1 Base Rock

Three-quarter inch minus base rock, conforming to the requirements for crushed aggregate material in *Subsection 204.02.06, Class B Backfill, 3/4"-0 Crushed Aggregate.*

302.2.2 Forms

Forms for exposed surfaces shall be steel or plywood. Others shall be matched boards, plywood or other approved material. Form all vertical surfaces. Trench walls, large rock or earth shall not be used as form material.

302.2.3 Concrete and Reinforced Steel

Concrete and reinforcing steel shall conform to **Section 205, TYPES AND USE OF MATERIALS.**

302.2.4 Cement Mortar

When specified for use, cement mortar shall conform to **Section 205, TYPES AND USE OF MATERIALS.** Consistency of mortar shall be such that it will readily adhere to the pipe if using the standard tongue-and-groove type joint. Mortar mixed for longer than 30 minutes shall not be used.

302.2.5 Manholes

302.2.5.1 Standard Precast Manhole Sections

- A. Furnish sections as specified conforming to the details on the Drawings and to ASTM C 478. Cones shall have same wall thickness and reinforcement as manhole section. Provide eccentric cones with precast grooves for all manholes over 6 ft. in depth. Flat slab tops with precast grooves reinforced to withstand AASHTO H 20 loading shall be provided for manholes 4 ft. deep from crown of pipe and less. Top and bottom of all sections shall be parallel.
- B. Prior to the delivery of any size of precast manhole section on the job site, yard permeability tests will be conducted at the point of manufacture. The precast sections to be tested will be selected at random from the stockpiled material which is to be supplied for the job. All test specimens will be mat tested, and shall meet the permeability test requirements of ASTM C 4 and ASTM C 497.

302.2.5.2 Precast Concrete Bases

Manholes may be constructed using precast, reinforced concrete bases. Construction of precast bases shall conform to the requirements of ASTM C 478. THE BASE RISER SECTION SHALL BE INTEGRAL WITH THE BASE SLAB.

302.2.5.3 Poured in Place Manhole Bases

The Contractor may use poured in place manhole bases. Concrete shall conform to **Section 302, MANHOLES AND CONCRETE STRUCTURES.**

302.2.5.4 Manhole Grade Rings

Concrete grade rings for extensions shall be a maximum of 6 in. high.

302.2.5.5 Jointing Materials

Preformed plastic gaskets conforming to the requirements of AASHTO M-198 or joints using confined O-ring with rubber gaskets conforming to ASTM C 443 shall be used.

302.2.6 Pipe and Fittings

Conform to requirements of Section 301, PIPE AND FITTINGS.

302.2.7 Manhole and Cleanout Frames and Covers

302.2.7.1 General

- A. All castings shall be true to size, weight and tolerances shown on the Drawings. Delivered weight shall be +/- 5 percent of the specified weight. The bearing seat shall not rock when checked by the test jig. The foundry shall supply all test gauges and shall not subcontract any of the work other than testing procedure, patterns, and machining and cartage.
- B. The casting shall not be made by the open mold method and shall be free of porosity, shrink cavities, cold shuts, or cracks, or any defects which would impair serviceability. Repair of defects by welding or by the use of "smooth-on" or similar material will not be permitted.
- C. All castings shall be shot or sandblasted, and the application of paint or other coating will not be permitted. All manhole frames and covers located outside of the right-of-way shall be tamper-proof.

302.2.7.2 Materials

- A. Conform to ASTM A 48, Class 30B with the following revisions:

Tensile Strength	30,000 psi
Traverse Strength:	1.2 in. diam. bar at 18 in. centers
Load - Pounds	2,600 - 3,000
Deflection - Inches	0.22 - 0.34
Brinell Hardness (as cast)	173 - 200

- B. The foundry shall certify as to the tensile and traverse properties and the Brinell Hardness. The Owner reserves the right to require a Rough Traverse bar (size of bar 1.2 in. diam. by 20 in. long) and/or a tensile bar as per ASTM A 48 for each 20 castings or heat when less than 20 castings are made.

302.2.7.3 Inspection

- A. Notify the Owner at least 24 hours in advance of casting the units or bars. At least 24 hours notice shall also be given prior to final gauging and inspection.
- B. When directed, the following strength test shall be made on the manhole cover. The cover, while resting in its frame, shall sustain a concentrated load of 40,000 lbs. applied at its center through a 2-1/2 in. plug. The City Engineer may, at any time, require up to 5% of the job and/or order and in no case less than one cover to be tested in this manner.
- C. In case of failure during the test, additional covers shall be furnished until the tests prove satisfactory. Covers that do not pass this test shall not be used.

302.2.7.4 Cap Screws

Cap screws and washers for tamperproof and watertight manhole covers shall be stainless steel with 60,000 psi minimum tensile strength conforming to ASTM A 453.

302.2.8 Steps for Precast Manholes

- A. Steps for precast manholes shall be of 3/4 in. diameter structural steel in conformance with the Standard Details or be of steel reinforced polypropylene plastic, M.A. Industries, Inc., No PS-2PFS, or Lane

No. P-13850, or approved equal. All steps shall be in conformance with ASTM C 478 and shall be aligned vertically. All steps within a manhole shall be of the same design, type and size (mixing of unmatched steps within the same manhole is not permitted). Loose steps shall be cause for rejection of that manhole cone or section.

- B. Steps of 3/4 in. diameter structural steel shall conform to ASTM A 36 and galvanized in accordance to ASTM A 123. Steps shall be safety type 12 in. x 8 in. x 2 in. pattern as shown on the Standard Plans.
- C. Steel reinforced polypropylene steps are to be driven into pre-formed holes in precast concrete manhole cones and sections by the manhole manufacturer prior to delivery to job site and shall be in conformance with specifications indicated below:
 - 1. ASTM A 615 Grade 60, 1/2 in. deformed steel rod
 - 2. ASTM 2146 78 Type II, Polypropylene

302.2.9 Non-Shrink Grout

- A. Non-shrink grout shall be Sika 212, Euco N-5, Five-Star, or equal non-metallic cementitious commercial grout exhibiting zero shrinkage per ASTM C 827 and CRD-C-621. Grout shall not be amended with cement or sand, and shall not be reconditioned with water after initial mixing. Unused grout shall be discarded after 20 minutes and shall not be used.
- B. Non-shrink grouts shall be placed or packed only with the use of an approved commercial concrete bonding agent applied to all cured concrete surfaces being grouted. The bonding agent shall be compatible with the brand of grout being used. Water as a substitute for commercial bonding agent for non-shrink grout will not be allowed in sanitary sewer construction.

302.3 CONSTRUCTION

302.3.1 General

302.3.1.1 Excavation and Backfill

Conform to applicable provisions in **Section 204, EXCAVATION, EMBANKMENT, BEDDING, AND BACKFILL**. Backfill around manholes, inlets, catch basins, and other appurtenances shall be of the same quality as the trench backfill immediately adjacent. All excavation shall be unclassified.

302.3.1.2 Base Rock

Place crushed aggregate base rock and thoroughly compact with a mechanical vibrating or power tamper.

302.3.1.3 Foundation Stabilization

If material in bottom of excavation is unsuitable for supporting manholes and other sewer appurtenances, excavate below subgrade as directed and backfill to required grade with rock conforming to Foundation Stabilization in **Section 204, EXCAVATION, EMBANKMENT, BEDDING, AND BACKFILL**.

302.3.2 Manholes

- A. All manholes, except as otherwise specified, shall be constructed using precast, reinforced concrete base sections, riser sections, and other precast appurtenances conforming to ASTM C 478. Base riser sections shall be integral with the base slabs.
- B. Preformed plastic gaskets shall be installed in strict accordance with the manufacturer's recommendation. Only pipe primer furnished by the gasket manufacturer will be approved. When using preformed plastic gaskets, manhole sections with chips or cracks in the joint surfaces shall not be used. Completed manholes shall be rigid and all manholes for sanitary sewers shall pass the vacuum test. Construct

manhole inverts in conformance with the Drawings with smooth transitions to ensure an unobstructed flow through manhole. Cover exposed edges of pipe completely with mortar. Trowel all mortar surfaces smooth.

- C. The inside of all manholes will be grouted smooth with all spaces between risers, rings, and cones filled with grout flush with the inside of the manhole.
- D. Holes for installing pipe into precast manhole sections shall be cast in place or core drilled.
- E. Channels shall conform accurately to sewer grade. Channel shall be formed to accept a 3 ft. long by 6 in. TV camera. Construct cast in place channel and shelf, in field, in one operation. Finish concrete shelf between channels with a brush.

302.3.3 Drop Assemblies

Construct drop assemblies at locations indicated and as shown on the Drawings.

302.3.4 Pipe Stubouts and Manholes

Install stubouts from manholes at locations as shown or directed. Concrete pipe connections to sanitary manholes shall be grouted watertight with non-shrink grout using an approved commercial concrete bonding agent applied to all concrete surfaces being grouted. Provide manhole with resilient connector for PVC pipe connectors. Core drill opening in manhole walls with concrete saw. Pipe connections to the cone section of a manhole are strictly prohibited.

302.3.5 Manhole Grade Rings

- A. In general, manhole grade rings will be used on all manholes in streets or roads or other locations where a subsequent change in existing grade may take place. Extensions will be limited to a maximum height of 12 in.
- B. Install appropriate combination of grade rings to a height that will accommodate the finish manhole surface elevation as shown on the Drawings. Lay grade rings in mortar with sides plumb and tops level. All mortared sanitary sewer manhole necks and all grade ring joints made with mortar shall be constructed using an approved commercial concrete bonding agent applied to all cured concrete surfaces being mortared.
- C. No joints, necks, frames, or grade rings on sanitary sewers shall be mortared without an approved bonding agent. Water as a substitute for commercial concrete bonding agent will not be approved. Grade ring extensions shall be watertight.

302.3.6 Adjustment of Manholes and Cleanouts to Grade

- A. Frame and cover shall be brought up to finish grade for asphaltic concrete. If only one lift of AC will be applied for a period of time exceeding 24 hours prior to second lift, the frame and cover shall be brought to the grade of the first lift, and standard cast iron riser rings shall be used to adjust grade at a later date for final lift. (Resolution 05-10 4/11/05)
- B. All storm manholes located outside of paved areas shall be raised 12 in. above final grade and tamper proof frames and lids shall be used. (Resolution 05-10 4/11/05)

302.3.7 Vacuum Testing

Manholes shall be vacuum tested.

- 1. Each manhole may be tested immediately after assembly and prior to backfilling for contractor information and ease of repair if necessary. Acceptance testing will be accomplished after backfilling and final paving is complete.

2. All lift holes shall be plugged with an approved non-shrink grout. Manhole frame to grade ring or cone connection shall use commercial concrete bonding agent and non-shrink grout.
3. All pipes entering the manhole shall be plugged, taking care to securely brace the plug from being drawn into the manhole.
4. The test head shall be placed at the inside of the top of the manhole frame and the seal inflated in accordance with the manufacturer's recommendations. The seal at grade rings and frame shall be subject to the test.
5. A vacuum of 10 in. of mercury shall be drawn and the vacuum pump shut off. With valves closed, the time shall be measured for the vacuum to drop to 9 in. The manhole shall pass if the time is greater than 60 seconds for 48 in. diameter, 75 seconds for 60 in., and 90 seconds for 72 in. diameter manholes.
6. If the manhole fails the initial test, necessary repairs shall be made with an approved non-shrink, quick-setting grout. Retesting shall proceed until a satisfactory test is obtained.

302.3.8 Concrete Encasement for Sanitary Sewer

- A. Conform to the requirements shown on the Drawings and to applicable requirements of **Section 204, EXCAVATION, EMBANKMENT, BEDDING, AND BACKFILL**. Foundation stabilization, if required, shall be completed and the bottom of the trench compacted. Sides of encasement shall be formed, not poured against soil or rock, unless directed or approved by the City Engineer.
- B. Support pipe true to line and grade before and during placement of concrete. Encasement shall be placed in a minimum of two lifts. Provide a keyway on both sides of the encased pipe and vertical reinforcing bond steel as shown on Drawings. Adequately support the pipe to prevent pipe deflection during concrete placement and initial set.
- C. Reinforcing shall be placed as shown on the appropriate Standard Detail.
- D. After concrete encasement has been placed and taken an initial set, cure by covering with well-moistened earth or backfill material for five days before conducting compaction operations and air test.

302.3.9 Special Concrete Structures

Conform to the details as shown.

302.3.10 Placing Precast Units

If material in bottom of trench is unsuitable for supporting unit, excavate as directed and backfill to required grade with foundation stabilization material in conformance with **Section 204, EXCAVATION, EMBANKMENT, BEDDING, AND BACKFILL**. Set units to grade at locations shown or directed.

302.3.11 Cleaning

Upon completion, clean each structure of all silt, debris and foreign matter.

303 WORK ON EXISTING SANITARY SEWERS

303.1 DESCRIPTION

This section covers the work necessary to join new work to existing, the abandoning of sanitary sewer lines, storm drains and structures, and adjusting existing utility structures to finished grades.

303.2 MATERIALS

Conform to requirements of **Section 205, TYPES AND USE OF MATERIALS** and to the requirements for related work referred to herein.

303.2.1 Prefabricated Inside Drops (Oregon Drops)

This type of connection will only be allowed with prior approval by the City Engineer. Materials proposed to be used in construction shall be submitted to the City Engineer for approval.

303.3 CONSTRUCTION

303.3.1 Excavation and Backfill

Conform to requirements of **Section 204, EXCAVATION, EMBANKMENT, BEDDING, AND BACKFILL**. All excavation shall be unclassified.

303.3.2 Manholes Over Existing Sewers

- A. Advise City Engineer of system for diverting sewage flow and obtain authorization before starting. The Contractor shall be totally responsible for maintaining adequate capacity for flow at all times and adequately protecting new and existing work.
- B. Construct manholes over existing operating sewer lines at locations shown. Perform necessary excavation and construct new manholes in conformance with applicable requirements of **Section 302, MANHOLES AND CONCRETE STRUCTURES**.
- C. Construct manholes as shown on the Drawings. Densify the concrete base by vibrating or working as approved and screed to provide a level, uniform bearing for precast sections.
- D. Manhole cannot be poured over existing pipe and then top of pipe removed to expose sanitary sewer. Pipe shall be cut outside of manhole with a flexible joint installed either side of manhole as shown in the Drawing.
- E. Place the first precast section of manhole in concrete base before concrete has set and deposit sufficient mortar on the base to assure a watertight seal between the base and the manhole wall. First section shall be properly located and plumb. Stacking additional precast manhole sections shall be prohibited until the concrete has cured a sufficient amount to support the additional weight in moist conditions.
- F. Prevent broken material or debris from entering sewer flow. Maintain flow through approved sewer lines at all times. Protect new concrete and mortar for a period of seven days after placing. All sanitary sewer manholes shall be hydrostatically tested in accordance with **Subsection 302.03.07, Vacuum Testing**.

303.3.3 Connection to Existing Main

- A. All tests and inspections for watertightness and proper construction shall be completed to the satisfaction of the City Engineer and be performed in accordance with the state plumbing code prior to connection to an existing sewer. Previous use of the service line or building sewer for septic tank or other application, or absence of usable cleanouts for accessing the building sewer, shall not excuse the requirement for testing except as may be authorized by the state building codes inspector.
- B. Connections of service lines to existing sewers shall be made watertight. Connection shall be made where possible to existing tees or wyes previously installed. If the tee or wye is plugged, the plug shall be removed and connection made in accordance with the applicable portions of **Section 303, WORK ON EXISTING SANITARY SEWERS**. Transition couplings between dissimilar pipe materials shall be made using HARD fittings. When specifically approved by the City Engineer, flexible connections with stainless steel bands such as Fernco, Caulder, or equal may be used.

- C. Where tees or wyes for connection are absent or unusable, connection of service lines shall be typically made with an Inserta Tee® or approved equal. Taps shall be located a minimum of 12 in. from existing pipe joints and other taps. Connection point shall be core drilled in the upper quadrant of the pipe at a 45 degree angle, hole diameter cut to manufacturer's specifications, and hub adapter (manufactured in accordance with ASTM D 3034) shall be connected to rubber sleeve with #316 stainless steel band (9/16 in. wide). Elastomeric seals shall meet ASTM F 477. Connection shall have a gasketed bell. Incorrect drilled hole size, damage to the City main, or non-tight fitting sewer taps will require resolution as approved by the City Engineer and may require removal and replacement of a section of the main. Other tapping materials must receive prior approval from the City Engineer.
- D. All taps shall be inspected and approved by an authorized representative of the local jurisdictional authority.
- E. Taps shall be installed without protrusion into or damage to the existing sewer. No compromise of the sewer will be allowed, such as undermining and settlement of the sewer grade, debris in the sewer, or longitudinal or transverse cracking of the sewer pipe.

303.3.4 *Removal of Existing Pipes, Manholes and Appurtenances*

Existing pipelines, manholes and appurtenances which lie in the line of and are to be replaced by the new construction shall be removed from the site and disposed of as provided for in **Section 203, CLEARING AND GRUBBING**.

303.3.5 *Filling Abandoned Manholes, Inlets and Catch Basins*

Existing manholes shown to be abandoned shall be filled with granular material as specified in **Section 204, EXCAVATION, EMBANKMENT, BEDDING, AND BACKFILL**. Compact to at least 90% maximum density as determined by ASTM D 1557. Remove manhole frame and cover and plug all pipes with permanent plugs as specified in **Subsection 303.03.07, Permanent Plugs**. Break or perforate the bottom to prevent the entrapment of water.

303.3.6 *Existing Manhole Frames and Covers*

Manhole frames and covers removed by the Contractor which will not be reused on the project shall become the property of the City. Notify the City Engineer a minimum of one day prior to removal to arrange for picking up the removed frames and covers.

303.3.7 *Permanent Plugs*

Clean interior contact surfaces of all pipes to be cut off or abandoned. Construct concrete plug in end of all pipe 18 in. or less in diameter. Minimum length of concrete plugs shall be 8 in. For pipe 21 in. and larger, the plugs may be constructed of common brick or concrete block. Plaster the exposed face of block or brick plugs with mortar. All plugs shall be watertight and capable of withstanding all internal and external pressures without leakage.

303.3.8 *Adjusting Existing Structures to Grade*

Existing manholes, inlets, catch basins and similar structures shall be brought to the specified finished grade by methods of construction as required in **Section 511, ADJUSTMENT OF EXISTING STRUCTURES TO GRADE**.

303.3.9 *Reconstruct Manhole Base*

Conform to applicable requirements of **Section 302, MANHOLES AND CONCRETE STRUCTURES**. Exercise caution in chipping out existing concrete base so as to prevent cracking of manhole walls. Prevent all material from entering the sewer flow. Pour new base to a minimum of 6 in. below the lowest projection of the pipe. Construct new channels to the elevations shown. Conform to details for channel construction in the

Drawings. Repair any cracks which occur as a result of work operations with new grout to form a watertight seal.

303.3.10 *Connect Pipe to Existing Inlets*

Conform to applicable requirements of **Section 302, MANHOLES AND CONCRETE STRUCTURES**. Core drill opening in inlet with a concrete saw and grout in a watertight seal between the new pipe and inlet wall. PVC connection requires boot. Concrete or ductile iron connection requires shear joint located no more than 18 in. from outside of manhole. See plans. Plaster mortar smooth inside pipe opening. Alignment, slope of pipe, and other construction details shall be as specified.

303.3.11 *Connection to Existing Manholes*

All sanitary sewer pipe connections, including those at invert level and penetrations for drop connectors, conduits, and pass-throughs, shall conform to the requirements of applicable portions of **Section 301, PIPE AND FITTINGS** and **Section 302, MANHOLES AND CONCRETE STRUCTURES**.

City of Garibaldi

Public Works Standard Construction Specifications

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DIVISION FOUR – WATER TECHNICAL REQUIREMENTS

401 GENERAL

The following specifications, in conjunction with applicable requirements of other parts of the contract documents, the plans, and addenda, shall govern the character and quality of material, equipment and construction procedures for water work. All work done shall be in compliance with the requirements and restraints of OSHA, the State of Oregon Accident Prevention Division regulations and the Workers' Compensation Board. In addition, all work shall be completed in conformance with State of Oregon, Tillamook County, and/or City of Garibaldi Street Opening Permits.

402 WATER WORKS MATERIALS

DUCTILE IRON FITTINGS

- A. All fittings shall conform to ANSI/AWWA Specification C110/A21.10 or ANSI/AWWA Specification C153/A21.53. All ductile iron fittings shall be Class 350. Fittings shall be furnished with flanged or mechanical joints as specified on the plans. Fittings shall be furnished with a standard outside coating, and a cement mortar lining with bituminous seal coat conforming to ANSI/AWWA Specification C104/A21.4. Fittings shall be factory lined with cement mortar or cement lined to factory standards. No field coating with cement will be approved, other than for minor repairs and only with the express permission of the City Engineer.
- B. Fittings shall be new and free of defects in coating, body, and lining. During installation, fittings shall be properly aligned and bolted securely to provide watertight joints. All buried units and bolts shall receive a protective coating of Koppers Super Tank or approved equal. Protective coating shall be dried and cured before fitting is placed and covered. If coating is not dry, 2 layers of 8 mil plastic shall be wrapped around fitting and coated areas.
- C. All tees and crosses shall be flanged on all sides. All valves shall be flanged by mechanical joint and per 402.07.
- D. Fittings shall be manufactured by Griffin, Trinity Valley, Tyler, Union Foundry, U.S. Pipe, or approved equal.

MECHANICAL JOINTS

- A. Mechanical joints, including accessory glands, gaskets, and bolts, shall conform to the requirements of ANSI/AWWA C111/A21.11, except where specifically modified in AWWA C153 for compact ductile iron fittings. As stated in AWWA C111, T-bolts shall be made of either high-strength cast iron containing a minimum of 0.50% copper, or high-strength, low alloy, steel. Bolts shall be marked to identify material and producer. Contractor shall provide the City Engineer with the bolt manufacturer's specifications, which shall give the following information: manufacturer's name, type of material, and identifying mark. Follower glands for mechanical joints shall be domestic made only.
- B. Mechanical joint gaskets shall be made of vulcanized synthetic rubber and shall be no more than three years old.
- C. The recommended installation procedures in AWWA SPECIFICATION C111, Appendix A, "Notes on Installation of Mechanical Joints", including bolt torque ranges, shall be followed.

402.02.01 *Megalug® Retainer Glands*

- A. Retainer glands packs on mechanical joints shall be Megalug® brand, as manufactured by Ebaa Iron Sales, Inc., ONLY. Megalug® shall be used on ductile iron pipe and fittings only. Exceptions must be specifically

approved by the City Engineer, be submitted for review prior to beginning work, and conform to the specifications in this section. All parts, including bolts, retainer glands, and gaskets shall be new and free of defects.

- B. Restraint for standardized mechanical joints shall be incorporated in the design of the follower gland and shall impart multiple points of wedge action with gripper teeth against the pipe, increasing its resistance as the pressure increases. The assembled joint shall maintain its flexibility after burial and shall maintain its integrity by a controlled and limited expansion of each joint during the wedging action. Restraining glands shall be manufactured of high strength ductile iron conforming to the requirements of ASTM A 536, Grade 65-45-12 and shall meet the applicable requirements of ANSI/AWWA C110/A21.10. Wedges shall be contoured to properly fit on the pipe, and shall be manufactured of ductile iron, heat treated to a minimum hardness of 370 BHN.
- C. Dimensions of the glands shall be such that they can be used with the standardized mechanical joint bell and tee head bolts conforming to the requirements of ANSI/AWWA C111/A21.11 and ANSI/AWWA C153/A21.53 of latest revision. Twist off nuts shall be incorporated in the design of the wedge actuating screws to ensure proper torque. The mechanical joint restraining device shall have a water working pressure rating of 350 psi for 3-16 in. and 250 psi for 18-48 in. with a safety factor of at least 2:1 against separation when tested in a dead-end situation, and shall be EBAA Iron, Inc. Megalug® or approved equal.

FLANGED JOINTS

- A. Flanges shall conform to ANSI Specification B16.1 for class 125 flanges and shall conform in all other respects to ANSI/AWWA C110/A21.11. Bolts for assembly of flanged joints shall be of the size and quantity shown in Table 10.14 on Page 34 of AWWA C110. As stated in AWWA C110, bolts shall conform to ANSI B18.2.1, Square and Hex Bolts and Screws Inch Series, Including Hex Cap Screws and Lag Screws. Nuts shall conform to ANSI B18.2.2, Square and Hex Nuts. Threads shall conform to ANSI B1.1, Standard for Unified Inch Screw Threads (UN and UNR Thread Form), Class 2A, external, and Class 2B, internal.
- B. Bolts and nuts shall be of low carbon steel conforming to the requirements of ASTM A 307, Standard Specifications for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength, Grade B.
- C. Contractor shall provide the City Engineer with the manufacturer's specifications regarding the bolts to be used on the project.
- D. Flange gaskets shall be full face, 1/8 in. thick, red rubber or approved equal.

FLANGED PIPE OR SPOOLS

- A. Flanged pipe or spools shall conform to the latest edition of ANSI/ANWA C115/A21.15. Flanges shall conform to requirements as specified in **Subsection 402.04, FLANGED PIPE OR SPOOLS**. Pipe used shall be Class 53 D.I. Pipe shall be furnished with coatings as specified in "Ductile Iron Pipe". Threads on the flanges and pipe barrel shall be taper pipe threads (NPT) in accordance with ANSI B1.20.1.
- B. When ordering, the following minimum information shall be provided to the manufacturer: Pipe size and finished length (flg. to flg., flg. to p.e.).
- C. Manufacturer shall provide the following information: Length and weight shown on each pipe, flange manufacturer marking, country where cast, and D.I. or C.I. stamped on flanges. If fabricator is other than flange manufacturer, fabricator's mark shall be stamped with metal die on each flange after assembly. Also, manufacturer shall provide statement that the flange pipe complies with the specified standards.

DUCTILE IRON PIPE

Ductile Iron pipe shall be Class 52. Physical properties shall not be less than 60-42-10 iron and pipe shall conform with the latest revision of ANSI/AWWA Specification C151/A21.51. Ductile Iron pipe shall be factory lined with

cement mortar and bituminous seal coat and coated outside with asphaltic seal coat. Push-on rubber gasketed joints shall be provided unless mechanical, flanged, or locked joints are specified on the plans. Push-on and mechanical pipe joints shall conform with ANSI/AWWA Specification C111/A21.11 and flanged joints shall conform with ANSI/AWWA C115/A21.15.

POLYETHYLENE ENCASEMENT

- A. Polyethylene film shall conform to ASTM D 1248 78, having a minimum thickness of 0.008 in. (8 mil). Only polyethylene tubing, and not sheets, shall be installed.
- B. Polyethylene tubing shall be held in place with 2 in. wide adhesive tape which is compatible with polyethylene, with plastic binder twine, with nylon tie straps, or other method approved by the City Engineer.

VALVES (GENERAL)

Direct-buried line valves of 12 in. size and larger shall be butterfly valves. All smaller, direct-buried line valves shall be gate valves. All valves shall be designed to AWWA specifications and shall have standard 2 in. square operating nut unless otherwise shown on the plans. All pipe valves and fittings shall be pressure rated at 250 to 350 psi and shall open counter clockwise. All fittings shall be factory cement lined and coated.

GATE VALVES

- A. Two-inch gate valves shall be resilient seat (RS), non-rising stem with "O" ring packing, complying with AWWA Class "C" Specifications. Gate valves 4 in. through 10 in. shall be resilient seat, non-rising stem with "O" ring packing, complying with AWWA Class C Specifications. The valves shall be designed to withstand water working pressures of 150 psi or more. All valves shall be furnished with a 2 in. square operating nut and shall open counter clockwise when viewing valve from above. (Resolution 05-10 4/11/05)
- B. Operation of the valve shall permit full withdrawal of the disc from the waterway to provide a clear unrestricted passage when the valve is in the open position. The valve shall be furnished with mechanical joint ends unless otherwise specified. Where flanges are furnished on valves, they shall conform with ANSI Specification B-16.1, Class 125.
- C. Specified 2 in. gate valves shall have a resilient wedge.

BUTTERFLY VALVES

All butterfly valves shall be rubber-seat type and bubble-tight at 150 psi pressure with flow in either direction. They shall be designed for direct burial and be satisfactory for application involving valve operation after long periods of inactivity. Valves shall conform to AWWA Specification C-504, Class 150B. All valves shall be Mueller or approved equal. Operating nut for the valve shall be located on the side of the main shown on the plans. (Resolution 05-10 4/11/05)

FIRE HYDRANT ASSEMBLY

- A. Fire hydrants shall conform with AWWA Specification C-502. The hydrants shall have a 5-1/4 in. minimum valve opening with a 6 in. mechanical joint inlet, a 6 in. mechanical joint by flanged resilient seat auxiliary gate valve, two 2-1/2 in. hose nozzles, a 4-1/2 in. pumper nozzle, a 1-1/2 in. pentagon operating nut (opening counter clockwise) and a safety flange. The hydrant color shall be yellow (Miller Safety Yellow OE 40). The fire hydrant shall be arranged for a 3-1/2 ft. bury unless otherwise specified. See plans for additional requirements.
- B. The auxiliary valve shall be Mueller resilient seat No. A-2370-16 only and be furnished complete with cast iron valve box, complete with cover, galvanized bolts and gaskets.

- C. Fire hydrant shall be Mueller Centurion, A-423 or Clow Medallion F-2545, and no other manufacturer will be acceptable by the City Engineer.

CAST IRON VALVE BOXES

- A. Valve boxes shall be the cast iron "Vancouver" pattern (18 in. tall casting only). Valve riser pipe from the valve to the cast iron top shall be 6 in. PVC sewer pipe ASTM D 3034, SDR-35, or equal for the Vancouver box.
- B. Valve box castings shall be smooth and uniform. Box lid shall not protrude above the rim and lids shall seat flat without rocking. Boxes of uneven thickness, pitted, or otherwise flawed in the casting will be rejected. PVC sewer pipe shall be cut off smooth with no sharp edges.

BLOW OFF UNITS

Blow off units shall consist of RS gate valves, brass galvanized pipe and standard valve boxes and covers as specified in **Subsection 403.08, PLACING PERMANENT BLOW OFF ASSEMBLIES** and on the plans.

AIR RELEASE VALVE UNITS

Air release valve unit shall consist of a double-strap 2 in. service saddle, 2 in. size with 1/4 bend adapt copper, Type K copper, 2 in. Val-matic No. 38 air release valve or approved equal, 2 in. Nibco No. 113 brass gate valve, 48 in. concrete manhole cone, taper-proof frame and cover, three 12 in. concrete pier blocks, one 12 in. x 12 in. x 4 in. concrete block, and brass ells, nipples and adapters as noted on the plans.

2-INCH SERVICE SADDLES

Service saddles shall be 2 in. I.P.T., double strap, stainless steel. Body of saddle shall be Ductile Iron coated with nylon, and straps, bolts, washers, and nuts shall be stainless steel.

COPPER PIPE

Service lines shall be soft temper, copper water tube type K, meeting ASTM B 88 Specifications.

BRASS FITTINGS

Corporation Stops

One-inch Corporation Stops shall be Mueller H 15008 or Ford F1000 4Q. Two-inch Corporation Stops for air and vacuum valve shall have a 1/4 bend coupling (Mueller 110 CTS compression outlet). See plans.

Angle Meter Stops

One-inch Angle Meter Stops shall be Mueller H 14258 or Ford 1 in. - KV43-444W-Q. Two-inch shall be Mueller 14277 or Ford 2 in. FV23-777W. On 2 in. services, Mueller flanged Angle Meter Stop with 110 CTS compression inlet, H-14277, is also allowed. See plans.

Copper Unions

Three part copper to copper union shall be equivalent to Mueller 110 compression union.

Copper Couplings

Straight couplings, copper to inside iron pipe thread shall be Mueller 110 compression or equal. Copper couplings, copper to outside iron pipe threads, shall be Mueller 110 compression union or equal.

403 CONSTRUCTION

STORAGE OF EQUIPMENT AND MATERIALS

- A. Unless otherwise noted on the plans or in the special provisions, it shall be the responsibility of the contractor to locate an approved storage site for all equipment and materials.
- B. Prior approval shall be obtained from the governing agency for any storage of equipment or materials within the right of way (i.e., stringing of pipe).

PLACING AND BLOCKING PIPE AND FITTINGS

- A. The pipe shall be laid true to line, without objectionable breaks in grade and shall be firmly bedded for the entire length of the pipe.
- B. Where conflicts arise between the designed grade of the waterline and an existing underground structure, the depth of the trench may be increased to permit proper installation of the waterline. Payment for over excavation shall begin once the extra depth reaches 18 in. below the designed grade.
- C. Care shall be taken to clean joints and to keep them free of water during construction. Whenever water is excluded from the interior of the pipe, adequate backfill shall be deposited on the pipe to prevent floating. In the event of any flotation occurring, the pipe so affected shall be removed from the trench, replaced and re-laid at the Contractor's expense.
- D. Each section of the pipe and each fitting shall be thoroughly cleaned before it is lowered into the trench. Cleaning of each pipe or fitting shall be accomplished by swabbing out, brushing out, blowing out with compressed air, washing to remove all foreign matter. The most efficient method of cleaning out pipe and fittings will be determined on the job by the City Engineer.
- E. If clean pipe sections and fittings cannot be placed in the trench without getting dirt into the open ends, the City Engineer will require that a piece of tightly woven canvas be tied over the ends of the pipe or fitting or a mechanical plug be used until it has been lowered into position in the trench. After the pipe or fitting has been lowered into the trench, all foreign matter shall be completely brushed from the bell and spigot ends before assembly. At the end of each day, or during suspension of the work, the pipe ends shall be securely closed by means of a secure plug or approved equivalent. Water in the trench shall not be allowed to enter the pipe and fittings.
- F. All tees, elbows and any major changes in direction of pipe alignment shall be securely restrained using Megalug® MJ retainer glands and field lock gaskets to a distance as specified on the plans or as determined by the City Engineer.
- G. When thrust blocks are required or allowed by the City Engineer using appropriate size thrust block they shall be constructed based on the size and pressure of the water main to be constructed. All pipe and fittings in contact with concrete shall be completely wrapped in 2 layers of 8 mil plastic prior to the placement of the concrete as approved by the City Engineer. Concrete used for thrust blocking shall be commercially mixed, have a slump of 2 to 4 in. and a minimum 28-day strength of 3000 psi. Concrete mix shall be uniformly blended with appropriate quantity of water before being placed in the trench and shall not contain any dirt or other foreign matter. Thrust blocks shall be formed so that fitting joints remain accessible, and blocks that are to be removed in future waterline extensions shall be supplied with a rebar pulling loop and formed so that the block may be pulled off without disturbing the fitting. See plans. The cost of furnishing and installing blocking, rebar pull loops and plastic wrap shall be included in the unit prices bid.
- H. If it is necessary to cut the pipe to lay it on curves or to cause a change in direction, the Contractor shall cut the pipe as required for proper installation. Where the cut length of pipe is to be installed into the bell end of another pipe, the cut end shall be beveled to ensure a proper seal. To set valves and fittings properly, the pipe

shall be cut to the exact length required to obtain the designated locations. The cost of cutting the pipe shall be included in the unit prices bid.

- I. Dead end lines, where a standard 2 or 4 in. blow-off assembly is not required by the plans, shall be provided with a 3/4 in. Corporation Stop 18 in. from the plugged end of the pipe. This will allow for air removal and release of line pressure during future waterline extension. No extra payment shall be made for this installation.

WET TAPPING EXISTING MAIN

- A. When specified, wet taps on existing water main are required to minimize interruption of service to customers. Typically, wet taps will only be performed under the direction and direct supervision of City personnel. Tapping sleeve and valve shall conform to the plans.
- B. Tapping machine shall be equipped with a coupon retaining pilot bit equipped with retaining clips capable of securely holding the core drilled coupon so that it does not fall back into the main. Contractors who lose the coupon or are unable to provide it for inspection may be fined and/or held liable for any and all costs, damages, and repair that occur as a result of the lost coupon, including, but not limited to, costs for City Water crews to recover the pipe coupon.
- C. Before attaching tapping sleeve, care shall be taken to clean water main of all debris and defects. Attach sleeve and valve to the main. Then attach proper tapping machine to valve. Pressure test this assembly before making tap. After making tap, remove the tapping machine and inspect fitting and valve for leaks. If any such leaks are found, contractor shall be required to repair the defect. Attach branch main to valve and install pipe. Tapping sleeve and valve shall be wrapped in 8 mil plastic and tape in accordance with Subsection 403.04, POLYETHYLENE ENCASEMENT OF PIPE AND FITTINGS. Taps shall be made no closer than 18 in. from end of sleeve to nearest joint.
- D. Excavation for tap shall be such as to fully expose main with a minimum depth below main of 12 in. A minimum of 18 in. of main shall be exposed from both ends of the tapping sleeve. Also, excavate enough area to accommodate tapping machine and workers. Backfilling shall be in accordance with **Section 204, EXCAVATION, EMBANKMENT, BEDDING, AND BACKFILL.**

POLYETHYLENE ENCASEMENT OF PIPE AND FITTINGS

- A. When specified, install polyethylene encasement, tube type, on all pipe and appurtenances. Polyethylene film shall conform to ASTM Standard Specification D 1248 78, having a minimum thickness of 0.008 in. (8 mil). Install this encasement in accordance with AWWA C105, Method A, one length of polyethylene tube for each length of pipe. The use of polyethylene sheets will not be allowed. Sand backfill shall be placed within the pipe zone and bedding area wherever polyethylene encasement is used.
- B. Cut tubing open if necessary to wrap valves and fittings. Valves shall be wrapped up to the bottom of the operating nut. Polyethylene shall be wrapped snugly around the pipe and held in place by using an adhesive tape compatible with polyethylene, plastic binder twine, or nylon tie straps. Backfill material shall not be allowed to get under the polyethylene, and pockets in the polyethylene which can trap backfill material shall be eliminated.

PLACING VALVE UNITS

- A. A valve unit shall consist of a valve, bolts, gaskets, followers, PVC riser pipe, and cast iron valve box, complete with cover.
- B. Valves shall be placed in a vertical position at locations shown on the plans. The Contractor shall check each valve to determine that the valve is properly adjusted to seat securely and open fully. Valves not meeting these requirements shall not be installed. Valve boxes and PVC riser pipe shall be placed in a vertical position over the valve operating nut and the backfill shall be carefully compacted around the box. Any valve boxes found off center from the valve operating nut shall be removed and replaced into the proper position. The top of the valve box shall be adjusted to meet finish grade.
- C. PVC riser pipe shall extend up inside the valve box 7 in. on the Vancouver box and 9 in. on the Portland valve box to allow future raising of the box. Notches shall be cut into the rim of the valve box on a line passing through the center of the box as detailed on the plans. Valve boxes shall be placed so that the notches line up parallel with the water main below. A collar of concrete with a depth of 4 in. and a width of 6 in. shall be placed around the top of all valve boxes not in a paved area.
- D. The Contractor shall not operate any valve touching potable water.

PLACING FIRE HYDRANT ASSEMBLIES

- A. The fire hydrant assembly shall consist of a mechanical joint hydrant, mechanical joint by flange auxiliary gate valve, cast iron valve box, galvanized bolts, gaskets and tie rods.
- B. The fire hydrant shall be placed in a vertical position on a precast concrete slab having a bearing surface of not less than 1 sq. ft. The hydrant shall be securely blocked using not less than 3 cu. ft. of concrete. Hydrant drain holes shall not be blocked. Not less than 4 cu. ft. of clean drain rock shall be placed around the base of the hydrant for drainage. See Drawings for other requirements. Fire hydrant extension kits are not allowed.

COPPER SERVICE INSTALLATION

- A. Where indicated on the drawings or as determined in the field, the contractor will be required to install copper water services. This will require the contractor to make all taps for the service, install new copper pipe or transfer existing copper pipe to new main and install either Corporation Stops or 2 in. gate valves. See Drawings for installation requirements.
- B. Where new 1 in. copper service pipe is to be installed at the existing meter locations, the new Angle Meter Stop shall be set at the same elevation as the existing Angle Meter Stop with a maximum of 2 in. away from connection point on the existing meter. All new copper pipe and service fittings shall be kept clean and free of debris. City water crews will make connection of new Angle Meter Stop to existing meter. City water crews shall only have to remove the existing Angle Meter Stop, connect the new Angle Meter Stop, and flush the new service. Any extra time and materials required due to the Contractor's negligence shall be recorded and deducted from the Contractor's final payment.
- C. Where new services are installed, new meter boxes shall be set with the top of the box at finish grade. The longest dimension of the box shall be set perpendicular to the centerline of the street. A new meter box shall be provided where, in the opinion of the City Engineer, an existing meter box is cracked, broken, or has missing parts. Where an existing meter must be relocated, Contractor shall provide and install the new copper service, Angle Meter Stop, and meter box complete and adjusted, to finished grade. City water crew will install the meter.
- D. All copper and brass structures shall be bedded and covered with 3/4 in. minus crushed aggregate to a depth of 6 in. on all sides. However, the interior of the meter box shall be backfilled with soft earth free of gravel and organic matter.

- E. Service lines shall be located in a direct line between the meter and a point on the main directly opposite the meter. Service lines shall have a minimum cover of 30 in. except where crossing road ditches where the cover may be reduced to 24 in. at said road ditch.
- F. Where existing copper service is to be transferred to new main, and the existing main is to remain live, City crew shall disconnect corporation Stop from old main and install a brass plug. Contractor shall provide excavation down to old Corporation Stop, select backfill and compaction. Excavation and backfill shall be considered incidental to the project. Contractor shall perform surface restoration according to the bid item for that work.
- G. This item deleted.
- H. Corporation Stops shall be set at a 30° angle up from horizontal. Taps shall be a minimum distance of 18 in. from the bell or spigot end of the main or another service tap.
- I. Where a new section of copper service is to be installed, it shall be type K, seamless soft annealed copper pipe conforming with ASTM B 88. There shall be no splicing of copper unless service is longer than 60 ft. or as approved by the City Engineer (unique conditions). When splicing is approved between two pieces of copper, it shall be done with a three piece copper to copper union. No more than one splice per service shall be made and splicing shall be made outside of the existing or proposed travel lane. Existing galvanized service lines encountered by the contractor shall be replaced with copper service pipe up to and through the Angle Meter Stop.
- J. Where 1-1/2 in. and 2 in. services are to be installed, the new main shall be tapped 2 in., a double strap 2 in. I.P.T. service saddle, 2 in. x 6 in. brass I.P.T. nipple, 2 in. I.P.T. gate valve and 2 in. x 3 in. male I.P.T. x copper composite adapter. Two inch rigid copper tubing and 1-1/2 in. or 2 in. Angle Meter Stop shall then be installed to the new meter location.
- K. Once the new copper services are installed by the Contractor and the new waterline facilities are pressure tested, chlorinated and accepted, City water crews shall relocate existing meters to their new locations and replumb the service. It shall be the responsibility of the Contractor to coordinate this with the City Construction Inspector. Placement of new sidewalks or other surface restoration shall not take place until meters have been installed.

PLACING PERMANENT BLOW OFF ASSEMBLIES

- A. A standard 2 in. blow off assembly shall consist of a plug tapped 2 in. I.P.T., 2 in. x 6 in. or 2 in. brass nipple, 2 in. RS gate valve, 2 in. x 2 in. galvanized tee with 2 in. plug, two valve boxes with covers, steel shim, thrust blocking, 2 in. Schedule 40 galvanized pipe, and a standard blow off drain.
- B. A 4 in. or 6 in. blow off assembly shall consist of a main size x 4 in. or 6 in. MJ x flange reducer, flange x flange RS gate valve, companion flange, galvanized 90° bend, schedule 40 galvanized piping, pier block, two valve boxes, galvanized coupling and galvanized bar plug.
- C. The blow off assembly shall be placed as shown in the Drawings, securely blocked with concrete as required.
- D. The main line pipe shall be thrust restrained with a straddle block as shown on the plans or concrete thrust block as shown on the plans. Blow-off pipe and fittings shall remain fully accessible for repair and replacement without disturbing thrust blocking.
- E. Payment for the blow off assembly shall include furnishing, transporting, assembling and placing of the complete assembly, blocking, plus backfill and servicing. Main line thrust blocking shall be paid under separate bid item.

PLACING AIR RELEASE VALVE UNITS

- A. An air release valve unit shall consist of a 2 in. double strap service saddle, 2 in. Corporation Stop with 1/4 bend copper adapter, 2 in. copper pipe, 2 in. brass gate valve, 2 in. air release valve, 48 in. concrete manhole cone with frame and cover and 12 in. concrete pier blocks, and other fittings for plumbing the unit and as noted on the plans.
- B. The air release valve unit shall be placed as shown on the plans, secure in place with concrete block and all crushed gravels compacted as specified.
- C. Placing the air release valve unit shall consist of transporting, assembling, and placing of the complete unit, tapping the water main, excavating and backfilling as specified and servicing.

REMOVING EXISTING WATER WORKS MATERIALS

- A. When the Contractor removes existing pipe, gate valve units, fittings, fire hydrant units or other items to allow installation of the work specified herein, he shall haul the removed water works materials to the Owner's designated storage yard unless otherwise directed by the City Engineer. Title to the removed materials shall remain with the Owner.
- B. The Owner reserves the right to designate other water works materials to be removed. The Contractor shall remove the designated water works materials and haul them to the Owner's designated storage yard.

ABANDONING EXISTING MAINS AND VALVES

Any existing water lines that are abandoned shall be severed and plugged as directed by the City Engineer. All abandoned valve boxes shall be cut off 12 in. below grade, gravel filled, and asphalt plugged at no additional cost.

MAINTAINING SERVICE

- A. The Contractor shall schedule construction work specified herein to maintain a continuous water service to existing water users. Where it is necessary to shut down service to make required interties, the Contractor shall notify the Owner at least five working days prior to a planned water service shut down to allow the Owner to notify users of the impending loss of water service.
- B. Notification to the City shall include both the Fire Department and the Public Works Department. Contractor may be required to make necessary service shutdowns of affected businesses after regular business hours at no additional cost to the Owner.

FLUSHING

- A. The New Pipeline shall be flushed, pressure tested, and disinfected before any connection to the existing water system is made. Temporary blow-offs shall be provided by contractor at all dead-ends and points of connection to the existing system. The new waterline shall be built as close as possible, as determined by the City Engineer, to the existing water system at points where connections are to be made.
- B. All pipe, valves and fittings shall be thoroughly flushed prior to pressure testing and chlorination. Flushing shall be done through blow off units, hydrants, individual services, and main at a minimum velocity of 2.5 F/S. All water used during flushing operations shall be measured through a Pitot Blade and stop watch. All results shall be reported to the City Engineer on a daily basis.
- C. Prior to any flushing procedures taking place, the Contractor shall issue a flushing plan providing direction of flow, water damage control and a written schedule to the City Engineer for approval. A 48-hour notice shall be given to the City Engineer prior to any system shut-down or flushing procedures. Under no circumstance shall the Contractor operate any City valves without prior approval by the City Engineer.

- D. The following chart shows minimum temporary blow-off/inlet sizes which shall be provided by the Contractor. Gate valves shall be provided on blow-off and inlet pipes to pressure test against, and to keep the pipe interior clean when backflow device is removed.

REQUIRED OPENINGS TO FLUSH PIPELINES

Nominal Pipe Size (inches)	Flow Required to Produce 2.5 FPS Velocity (gpm)	Minimum Inlet & Outlet Pipe Size Required (inches)
4	110	2
6	240	2
8	430	4
10	660	4
12	1950	4
14	1290	6
16	1690	6
18	2140	6
20	2640	6
24	3800	6

- E. All flushing and testing water shall be delivered to the new waterline through Oregon State Health Division approved double check valve backflow prevention devices.
- F. The Contractor shall provide or obtain a backflow prevention device. Certified backflow tester shall test device and furnish documentation to City Construction Inspector after device is installed on site.
- G. After flushing, the new system shall be pressure tested and disinfected. Payment for this item shall be included in the price bid for pipeline installation work.

TESTING AND CHLORINATION

- A. All of the pipe, fittings, services, and individual valves, except the last connection with the existing main, after being placed, must be pressure tested. If the contractor elects to test the line in sections, the lengths of the sections and provisions for testing shall be subject to approval by the City Engineer.
- B. Before testing the pipeline for leakage, the pipeline shall be thrust blocked. Thrust blocks shall be completed, must consist of commercially mixed concrete with a strength of not less than 3,000 psi at 28 days, and shall be allowed to cure for a minimum of five days prior to commencement of pressure testing (three days if high-early cement is used). The interior of the pipeline shall be thoroughly flushed per **Subsection 403.13, FLUSHING** to remove all foreign matter.
- C. Pressure testing shall commence only after backfill has passed the required compaction tests per AASHTO T-180 and the roadway base rock has been placed, compacted, proof rolled, and approved by the City Engineer.
- D. The water system must receive the City Engineer’s approval regarding testing before paving of overlying roadways will be permitted. The contractor shall furnish necessary thrust blocks, pumps, medium range pressure gauges, means of measuring water loss, and all other equipment, materials and labor required for making the tests.

- E. All air vents shall be open during the filling of the pipeline with water. After a test section is completely filled, it shall be allowed to stand under slight pressure for at least 24 hours to allow the lining to absorb what water it will and to allow the escape of air from any small air pockets. During this period, the bulkheads, valves and exposed connections shall be examined for leaks. If any are found, they shall be stopped. The pressure shall then be raised slowly to the minimum hydrostatic pressure of 180 psi, or 1.5 times the normal working pressure, whichever is higher, measured at the point of highest elevation and shall be maintained for a period of at least one hour, beginning at a time of day to be mutually agreed upon between the Contractor and the City Engineer.
- F. Test pressure shall not exceed 150% of pipe pressure rating.
- G. No leakage is acceptable. While the pipe is under pressure and stabilized, an inspection for leaks along the pipeline shall be made by the Contractor. The test shall last for approximately one hour at a test pressure of 180 psi. The gauges should be graduate at 2 psi increments. Any leaks found shall be recorded and shall be repaired by the Contractor. All such repairs shall be made subject to the approval of the City Engineer.
- H. The Contractor, at his own expense, shall perform any excavation required to locate and repair leaks or other defects which may develop under the test. He shall remove backfill and paving already placed, shall replace such removed material, and shall make all repairs necessary to secure the required water-tightness. All repairs and re-tests shall be made at the Contractor's sole expense.
- I. All leakage tests shall be made in the presence of the City Engineer.
- J. The pipeline shall be thoroughly chlorinated, flushed, and tested in accordance with all state and local laws and the Oregon State Health Division's publication, "Public Water Systems", Oregon Administrative Rules (OAR) Chapter 333. All chlorinated water shall be discharged into the public sanitary sewer system. If a sanitary sewer is not available, the contractor shall employ the use of storage tanks, basins, or other means to transport or treat the chlorinated water for discharge to an approved point of disposal. Adequate quantities of chlorine in a water solution shall be added to the pipeline and shall be allowed to stand a sufficient length of time to sterilize the interior of the pipeline. The chlorinated water shall be flushed from the pipeline and a water sample shall be taken from the pipeline. The water sample shall be tested biologically and an acceptable certification that the water is safe for domestic water consumption shall be obtained before placing the pipeline into service. If the water is not safe, the Contractor shall chlorinate and flush the line and take new samples until an acceptable safe water certification is obtained.
- K. Chlorine may be applied by the following methods: Liquid chlorine gas/water mixture, direct chlorine gas feed, or calcium hypochlorite and water mixture. The chlorination agent shall be applied at the beginning of the section adjacent to the feeder connection and shall be injected through a corporation cock, hydrant, or other connection ensuring treatment of the entire line. Water shall be fed slowly into new line with chlorine applied in amounts to produce a dosage greater than 50 ppm but not more than 200 ppm throughout the system. After 24 hours, a residual of not less than 25 ppm shall be produced in all parts of the line. If the check measurement taken after the 24 hour period indicates a free chlorine residual of less than 25 ppm, the system shall be flushed, rechlorinated, and rechecked until a final residual of 25 ppm or more is achieved and at no additional expense to the Owner.
- L. During the chlorination process, all valves and accessories shall be operated. All parts of the line and services shall be chlorinated. After chlorination, the water shall be flushed from the line at its extremities until the replacement water tests are equal chemically and bacteriologically to those of the permanent source of supply. Care shall be taken to prevent discharge of chlorinated water directly to running streams. The water should be spread over the ground or held in ditches or seepage ponds. Water samples will be taken for bacteriological tests by the City of Garibaldi.
- M. The Contractor shall furnish and place all necessary fittings required for the testing, chlorinating and flushing of the pipeline. If a Corporation Stop is removed, the hole shall be filled with a brass plug.
- N. Water used in testing and flushing the pipeline shall be purchased from the City.

CUT-IN AND CONNECTION TO EXISTING MAINS

- A. After new waterline is flushed, pressure tested and disinfected, but prior to any cut-in and connects, contractor shall hold an on-site pre-connection meeting. Those to attend shall include on-site foreman, City inspector, City operations personnel, and City Engineer.
- B. This meeting shall take place prior to each connection and no longer than one week prior to the connection. At this meeting, contractor shall have all fittings, pipe, chlorine swabbing equipment, pumps and hoses, and all equipment needed to make the cut-in connect. Cut-in schedule and coordination shall be discussed.
- C. Once the bacteria test has been passed, cut-ins and connections to the existing water system shall be made by the contractor. All fittings necessary for the cut-in and pumps adequate to handle water in the trench shall be on hand and ready for service before connection is commenced. If the new waterline is opened to the air before contractor and City personnel are ready to proceed with the connection, or if new waterline is contaminated by dirt or dirty water, the new waterline shall be disinfected again.
- D. Fittings and pipe for cut-ins shall be swabbed out thoroughly with a 1% chlorine solution (1/2 lb. of 64% calcium hypochlorite in 4 gal. of water). Swabbing equipment and solution shall be kept clean and fresh.
- E. During each connection, work shall proceed without breaks until the connection is completed and water service is turned back on. Ground water shall not be allowed around any of the existing piping during the connection.
- F. After the connection is completed and water service is turned back on, a visual leak inspection of all fittings shall be done by the inspector prior to backfilling.
- G. All new lines under construction shall be physically disconnected from the existing City system. Under no circumstances shall a new line be connected to the existing water system prior to complete testing and acceptance by the City of Garibaldi. (Resolution 05-10 4/11/05)

CLAY DAMS

- A. Where indicated on the plans, or as directed by the City Engineer, the Contractor shall place clay dams to prevent ground water movement along the trench. Dams shall be made of impervious backfill material composed of particles at least 50% of which pass a No. 200 sieve, and with a plasticity index not less than 20, unless otherwise indicated on the plans.
- B. A dam shall fill the trench completely from side to side and top to bottom, except for the volume occupied by the pipeline and any materials required for surface restoration. Pipe in contact with clay dam will be wrapped with two layers of 8 mil polyethylene.
- C. Flow shall be considered in design of water and storm drain system.

City of Garibaldi

Public Works Standard Construction Specifications

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DIVISION FIVE – STREET TECHNICAL REQUIREMENTS

501 SUBGRADE

501.01 DESCRIPTION

- A. This section covers work necessary for preparation of the subgrade, complete. See also **Section 203, CLEARING AND GRUBBING**, and **Section 204, EXCAVATION, EMBANKMENT, BEDDING, AND BACKFILL**.
- B. Subgrade is defined as the area of new or existing roads, streets, alleys, driveways, sidewalks, or locations upon which additional materials are to be placed as a part of work covered in other Sections or by future work. Where applicable, subgrade may be considered to extend over the full width of the specified base course.

501.01.01 Untreated Subgrade

The material placed in fills or unmoved from cuts in the normal grading of the roadbed and which is brought to true line and grade, shaped and compacted as required by these specifications to provide a foundation for the pavement structure.

501.2 MATERIALS

501.2.1 Water

Conform to the requirements in *Subsection 205.02.11, Water*.

501.3 CONSTRUCTION

501.3.1 Preparation

- A. In advance of setting line and grade, complete clearing and grubbing as specified in **Section 203, CLEARING AND GRUBBING** of these specifications. Drain all depressions or ruts which contain water. Blade and shape subgrade to remove irregularities and secure a uniform surface.
- B. Subgrade upon which pavement, sidewalk, curb and gutter, driveways, or other structures are to be directly placed shall not vary more than 0.5 in. from the specified grade and cross section. Subgrade upon which subbase or base material is to be placed shall not vary more than 0.5 in. from the specified grade and cross section at any point. Variations within the above specified tolerances shall be compensating so that the average grade and cross section specified are met.
- C. In advance of setting line and grade, the Contractor shall clear and dispose of brush, weeds, vegetation, grass and debris from the subgrade. The Contractor shall drain all depressions or ruts which contain water.
- D. Prior to starting subgrade work, including backfill, all underground work contemplated in the area of the subgrade shall be completed. This requirement includes work on the contract, work to be performed by the owner or by others.
- E. The Contractor shall remove all soft or otherwise unsuitable material as directed and replace with approved material from the excavation. The Contractor shall compact to a line 1 ft. beyond the edge of paving, curb or form.

- F. Subgrade areas which cannot be compacted to specified density, but in the judgment of the City Engineer otherwise meet the requirements herein, may be removed and aerated or stabilized with an approved soil stabilizing material, all at no additional expense to the Owner.
- G. Subgrade materials which cannot be compacted to specified density because of excess moisture shall be dried out to bring materials to the optimum moisture content. The Contractor shall aerate, drain, rehandle, or by other means at his option remove the excess moisture. Unless otherwise specified in the special conditions, all costs involved in the removal of excess moisture from the subgrade material will be considered incidental and be included in the various other items of work in the Proposal.

501.3.2 Grading of Areas Not to be Paved

When specified, areas within and adjacent to the project which are intended for lawns, planting areas, flower beds and similar uses shall be finished with 4 in. of topsoil and graded smooth as directed. Topsoil, for such finishing shall be fertile, loamy natural surface soil consisting of sands, silts, clays and organic matter and shall be free of toxic substances, weeds, roots, refuse, sticks, large rocks or lumps. Topsoil available from required excavation shall be used to the greatest extent possible in this work.

501.3.3 Overexcavation and Foundation Stabilization

When, in the opinion of the City Engineer, unsuitable material or other conditions are discovered which render the subgrade, unable to be compacted to the specified density, then the City Engineer may order the Contractor to remove and dispose of the unsuitable material and then backfill with crushed rock as specified in the applicable portions of **Section 204, EXCAVATION, EMBANKMENT, BEDDING, AND BACKFILL.**

501.3.4 Embankment Construction

- A. The Contractor shall place embankments and fills of all kinds in approximately horizontal layers of a maximum of 8 in. in thickness and compact each layer separately and thoroughly to the density specified. No fragments of rock shall be larger than 6 in. in any dimension.
- B. In the immediate vicinity of curbs, walks, driveways, inlets, manholes and similar structures, in holes and where embankment and fill materials cannot be reached by the normal compacting equipment, the Contractor shall compact to specified density by approved methods.
- C. The Contractor shall exercise caution to ensure that embankment construction and fill does not move, endanger or overstress any structure. The Contractor shall place and compact embankments at the end of bridges prior to the time that work begins on the bridge.
- D. Embankments shall not be constructed when the embankment material, or the embankment on which it would be placed is frozen.

501.3.5 Slides and Slipouts

- A. Material outside the planned roadway or ditch slopes which is unstable and constitutes potential slides, in the opinion of the City Engineer, material which has come into the roadway, channel or ditch, and material which has slipped out of new or old embankments shall be excavated and removed. The material shall be excavated to designated lines or sloped either by benching or in such manner as directed by the City Engineer. Such material shall be used in the construction of the embankments or disposed of as directed by the City Engineer.
- B. The above provisions shall not be so construed as to relieve the Contractor of his obligation to maintain all slopes true and smooth.

501.3.6 Slopes

Excavation and embankment slopes shall be finished in conformance with the lines and grades shown on the plans.

501.3.7 Finishing and Cleanup

All roadbeds, planting areas, ditches, embankments and other areas on which earthwork is performed shall be trimmed reasonably close to established lines, grades, and cross sections and shall be finished in a thoroughly workmanlike manner. They shall be kept free, throughout the work, of debris and foreign matter of all kinds and prior to final acceptance the entire right-of-way shall be cleaned up and finished as directed.

501.3.8 Compaction and Density Requirements

- A. The density of compacted materials in place will be determined by AASHTO T-191, and the maximum density by AASHTO T-180 as specified.
- B. The Contractor shall compact all embankments, fills and backfills to a minimum density in place of 95% of maximum density.
- C. Roadbed cuts and foundations for structures to a depth of 1 ft. below established subgrade or foundation elevation shall be 3 in. maximum material and shall be compacted to a minimum density in place of 95% of maximum density.
- D. Final subgrade proof-roll in the presence of the City Engineer or his/her representative with a 10 cu. yd. truck loaded with rock is required prior to placing aggregate base.

502 WATERING

DESCRIPTION

This section covers work necessary to furnish and apply water for roadway excavations, fills, subgrades, roadbeds, backfill, subbases, bases, and surfacings, and water used for the alleviation or prevention of dust within the project limits.

MATERIALS

Water

Water shall be free of silts and other deleterious matter. Make all necessary arrangements and pay all costs for obtaining water. Maintain an adequate supply of water at all times to complete the required work.

CONSTRUCTION

- A. The Contractor shall make all arrangements necessary for the procurement of water and its application. Water shall be obtained only from metered hydrant on 8th Street for water truck after setting up an account with the City of Garibaldi Finance Department. Use of a meter and doublecheck backflow device on a hydrant on the project site shall only be allowed with the approval of the City Engineer. If allowed, The Contractor shall obtain a hydrant meter from the City Engineer for the purposes of measuring all water used on the project. Use of on-site water from a nearby hydrant will generally only be approved for flushing and filling new water lines.
- B. Water by means of tank trucks equipped with spray bars, by hose and nozzle, or by other approved equal means which ensure uniform and controlled application. The use of splash boards will not be permitted without prior approval.
- C. Perform watering at any hour of the day and on any day of the week as necessary.

503 AGGREGATE BASES

DESCRIPTION

This section covers work necessary to furnish and place one or more courses of aggregates and water, as base, on a prepared surface.

MATERIALS

Aggregates for aggregate base shall be crushed rock.

Aggregate

Crushed aggregate shall conform to requirements of **Section 205, TYPES AND USE OF MATERIALS** and to additional requirements contained herein.

Sand Equivalent

Base aggregates to be incorporated in the work shall have a sand equivalent of not less than 35 when tested in conformance with AASHTO T-176.

Liquid Limit and Plasticity

Base aggregate shall meet the requirements for Liquid Limit and Plasticity Index of **Subsection 205.02.12.02 Materials**.

Grading Requirements

- A. The base aggregates shall be uniformly graded from coarse to fine and shall conform to one or another of the following grading requirements as specified in table below.

Separated Sizes					
	2-1/2"-0	2"-0	1-1/2"-0	1"-0	3/4"-0
Sieve Size	Percentages (by weight)				
3 in.	100				
2-1/2 in.	95 – 100	100			
2 in.		95 – 100	100		
1-1/2 in.			95 – 100	100	
1-1/4 in.	55 – 75				
1 in.		55 – 75		90 – 100	100
3/4 in.			55 – 75		90 – 100
1/2 in.				55 – 75	
3/8 in.					55 – 75
*1/4 in.	30 – 45	30 – 45	35 – 50	40 – 55	40 – 60

*Of the fraction passing the 1/4 in. sieve, 40% to 60% shall pass the No. 10 sieve.

- B. For determination of sizes and grading conform to AASHTO T-27. Where 1"-0 base aggregate is approved for use, at least 70% (by weight) of the material passing the 1/4 in. sieve but retained on the No. 10 sieve shall have at least one mechanically fractured face.

Acceptance

- A. Materials will be subject to acceptance indicated below.
- B. Crushed aggregate will be sampled for acceptance at one or more of the following times as determined by the City Engineer:
 - 1. In its final state on the roadbed after all processing and prior to the placement of subsequent surfacing materials;
 - 2. In the stockpile after all shaping work has been completed; or,
 - 3. Immediately after crushing.

CONSTRUCTION OF SUBGRADE

Preparation of Subgrade

Ensure that all surfaces and materials on which subbase or base is to be constructed are firm and have been prepared as specified in the applicable portions of **Section 501, SUBGRADE**.

Mixing

Mix to provide a homogeneous mixture of unsegregated and uniformly dispersed materials which will compact to not less than 95% maximum density as specified in **Subsection 503.03.04, Compaction**. Add water during mixing in amount sufficient to provide optimum moisture content plus or minus two percentage points.

Placing

Weather Limitations

When the weather is such that satisfactory results cannot be secured, the Contractor shall suspend operations. Place no surfacing materials in snow or on a soft, muddy, or frozen subgrade. Owner will not be liable to damages or claims of any kind or description by reason of operations being suspended due to weather limitation.

Equipment

- A. Furnish equipment that will provide for efficient and continuous operations insofar as practicable.
- B. Aggregate bases shall be deposited on the roadbed at a uniform quantity per linear foot so that the Contractor will not resort to spotting, picking up, or otherwise shifting of aggregate base material. Segregation of aggregates shall be avoided and the material as spread shall be free of pockets of coarse or fine material.
- C. Spreading equipment shall have an adjustable screed or strike-off assembly and it may have a receiving, mixing, and distribution system. It may be a complete and integral unit, self-propelled and powered; a crawler-track or wheeled type tractor intimately combined with a receiving, mixing, spreading, and screeding unit attached thereto; or a heavy-duty self-propelled grader, of an approved type, equipped with at least an 8 ft. blade. Equipment shall be capable of spreading or striking off material to the designed line, grade, and transverse slope with surface texture of uniform appearance without excessive segregation or fracture of material.
- D. Spreading equipment may be provided with an automatic control system if Contractor so elects or if specified.

Thickness of Lifts

If the required compacted depth of the base course exceeds 6 in., construct in two or more layers of approximately equal thickness. Maximum compacted thickness of any one layer shall not exceed 6 in. Place each layer in spreads as wide as practicable and to full width of the course before a succeeding layer is placed.

Compaction

At the time compaction begins, the materials shall be at optimum moisture content, plus or minus 2%. Compaction of each layer shall continue until a density of 95% of Relative Maximum Density has been obtained according to ASTM D 1557/AASHTO T-180. Water shall be added to the materials, as necessary during the compaction, to maintain the proper moisture content and upon completion of each layer, the Contractor shall maintain the materials in specified conditions until it is covered by the following layer or course.

Surface Finish

Surface of the base shall parallel the established cross section and grade for the finished surface within 0.04 ft. The finished surface of base, when tested with a 12 ft. straight edge shall not vary from the testing edge by more than 0.04 ft. at any point.

504 CEMENT TREATED BASE

DESCRIPTION

This section covers the work necessary for the furnishing and construction of the cement treated base complete.

MATERIALS

Composition of Mixture

1. The CTB mixture shall be comprised of aggregate, Portland Cement, and water in the proportions and amounts established by the mix design. The cement content normally is to be between 4.5 and 5.5% of the dry weight of the aggregate. The mixture shall be proportioned to provide for a minimum 28-day ultimate compressive strength of 1,000 psi. The proportions of the materials will be subject to change as required to meet the herein specifications.
2. In all plants, the weight or rates of feed of aggregates and water shall be within 5% of the amounts of each material that are specified. The weights or rates of feed of cement shall be such that the variations in cement content in samples, taken from any part of a mixed batch or from different batches, or from time to time from the product of continuous mixers, or from mixtures spread on the roadbed, shall not have variations above or below the cement content designated by the City Engineer of more than 0.5 of a percentage point.

504.2.1 Aggregate

The aggregate shall meet the requirements of **Section 503, AGGREGATE BASES** and shall be crushed rock or gravel including sand conforming to specifications.

504.2.2 Portland Cement

Cement to be used shall be Portland Cement Type I or Type II conforming to the requirements of AASHTO M-85 for low alkali cement. The total alkali content shall not exceed 0.8% and the tricalcium aluminate content shall not exceed 10%.

504.2.3 Water

Water used in mixing shall be clean and free of oil, salt, acid, alkali, sugar, vegetable matter, or other substance injurious to the finished product, and shall meet the requirements of AASHTO T-26.

504.2.4 Asphalt Materials

The asphalt used for the curing seal shall be emulsified asphalt meeting the requirements of *Subsection 205.02.13, Asphalt Materials*.

504.2.5 Mix Design and Certification

- A. Ten days prior to production, the Contractor shall furnish the City Engineer a complete mix design showing the proportions of all constituents proposed for use and strength test results of samples prepared using the proposed proportions and constituents for a minimum of seven-day, 14-day, and 28-day curing periods.
- B. Also, accompanying the mix design, the Contractor shall submit the manufacturer's certification and a copy of test results with respect to the product involved. The certification shall consist of the name of the project, the name and address of the manufacturer and the testing agency and the date of testing. The certification shall also set forth a means of identification, which will permit field determination of the product delivered to the project as being the product covered by the certification.
- C. The Contractor shall be responsible for all costs of certification and testing of products in connection therewith.

504.3 CONSTRUCTION

Preparation of Underlying Course

Prior to the production or placing of cement treated base, complete all utility work and prepare the subgrade in strict accordance with **Section 501 SUBGRADE**.

504.3.1 Mixture

- A. The CTB mixture shall be mixed at a centrally located plant of the batch type or of the continuous mixing type, capable of providing a mix of aggregate, cement, and water of uniform proportions and consistency as designated by the mix design.
- B. The charging of the materials into the mixer shall be by means whereby the quantities of the several materials are accurately controlled. Mixing shall continue until a uniform and homogeneous mixture of aggregate, cement, and water has been obtained. In general, the time of mixing shall not be less than 30 seconds, except that the time may be reduced when tests indicate that the requirement for the variation of cement content, as specified, can be consistently complied with.

504.3.2 Weather Limitations

The CTB shall be constructed in accordance with the weather limitations as set forth in **Section 701, CONCRETE STRUCTURES**.

504.3.3 Equipment

Equipment used shall conform to the following requirements unless otherwise approved:

504.3.3.1 Hauling Equipment

Vehicles for hauling the mixture shall be watertight, agitating, or non-agitating, and capable of discharging the mix without waste and with practicable minimum amount of separation.

504.3.3.2 Spreading Equipment

- A. Spreading of the CTB mixture shall be by a machine, which has an adjustable screed or strike-off assembly and it may have a receiving and distribution system. The equipment shall be capable of spreading the material and striking it off to the required thickness and the designated line, grade, and transverse slope without segregation, dragging, or fracture of material. The spreading and screeding equipment may be a complete and integral unit, self-propelled and powered; a crawler-track or wheeled type tractor intimately combined with a receiving, spreading, and screeding unit attached thereto; or, if approved by the City Engineer a heavy duty self-propelled grader, equipped with at least an 8 ft. blade. The screed or strike-off assembly shall operate by an approved action, which produces specified results and a surface texture of uniform appearance.
- B. Spreading equipment which rides on freshly spread material and produces tracks or partially compacted areas thereon will be acceptable provided no displacement of material or filling of tracks occur, and provided further that the tracks are not of such depth as to be visible after compaction is completed.
- C. The spreading equipment may be provided with a control system automatically controlling the laying of the mix to specified transverse slope and longitudinal grade by means of actuation from an independent line and grade control reference, if the Contractor so elects.

504.3.3.3 Other Equipment

Equipment shall be provided to apply water by spray method to the CTB mixture during its compaction, the spray attachments being of a type that will produce a uniform and controlled fine spray. Equipment for application of the bituminous curing seal shall provide application by pressure spray method in a uniform and controlled application. Motor graders shall be available for correction of unavoidable segregation at edges of the mix.

504.3.3.4 Compacting Equipment

Compaction shall be with vibrating type, pneumatic tire type, steel wheel type, or other approved type compactor, as the Contractor may elect; provided however, that compactors with lugs, projections, or other features that would leave ruts, holes, grooves, or uneven surfaces in the CTB after compaction or which would loosen the mixture while operating will not be permitted. Either a pneumatic tire roller or a smooth steel wheel roller shall be provided for the final rolling and compacting of the mixture.

504.3.4 Hauling and Placing

- A. Maintain the surface of the underlying course in a wet condition by sprinkling just in advance of placing. The CTB mixture shall be delivered and deposited without delay. Mixture which has begun to harden and take an initial set prior to placement, or which has been retempered in transit with water, will be rejected and shall be wasted at the sole expense of the Contractor.
- B. The mixture shall be delivered to the spreading machine by direct deposit in the receiving hopper, by placing in windrows in front of the machine, or by other means acceptable to the City Engineer. If material is placed in windrows it shall be deposited on the roadbed at a uniform quantity per linear foot, which quantity shall be sufficient to provide the required compacted thickness without resorting to excess spotting, picking-up, or otherwise shifting or the mixture. The mixture shall be delivered and placed without hauling equipment operating over any uncured material.
- C. The mixture shall be spread and screeded by specified equipment in one or more layers to provide the compacted thickness called for by the Drawings. Placing shall be in strip widths which will hold the number of longitudinal joints to a practicable minimum, normally to not less than 10 ft. widths.
- D. The depositing and spreading shall progress continuously without breaks insofar as is practicable. Should stoppage of operations be of such duration as to allow the mixture to take its initial set, the Contractor shall construct a transverse construction joint as hereinafter provided.

- E. The mixture shall be spread and screeded to required thickness and to designated line, grade, and transverse slope without segregation, dragging, or fracture of the components of the mixture.
- F. Motor graders shall be used to correct unavoidable segregation at edges and to reprocess minor areas of deficiency.

504.3.5 Thickness and Number of Layers

If the required compacted depth of CTB exceeds 6 in., it shall be constructed in two or more layers of approximately equal thickness. The maximum compacted thickness of any one layer shall not exceed 6 in.

504.3.6 Construction Joints

When it is necessary, due to the termination of the day's run or to shutdown, to discontinue placing the mixture for a period of time which will allow the placed mixture to take its initial set, the Contractor shall construct a temporary transverse construction joint. This joint shall be formed with a wooden block, such as a 6 in. thick timber with width equal to or greater than the depth of the course, or with other devices acceptable to the City Engineer, extending across the width of the strip and held firmly against the vertical end of the strip of mixture which is to terminate at the joint. The top of the joint form shall be set true to the slope and grade of the CTB and shall be firm under pressure from compacting equipment. When construction of the CTB is resumed, the form shall be removed without damage to the adjacent CTB.

504.3.7 Compaction

- A. Compaction of the CTB mixture with specified compactors shall begin as soon as it has been spread and shall be continuous until completion. Not more than 60 minutes shall elapse between the start of the mixing and the time of starting compaction of the CTB mixture on the prepared subgrade. Compaction shall begin at edges and shall be controlled to prevent breakdown at the sides of a strip.
- B. Successive passes of the compactor shall be so spaced that no more than 75% of the compactive width of the compactor shall be on an uncompacted area at any time.
- C. During compacting, sprinkling with water by fine spray application shall be done at the time and in the amounts required. Surfaces of uncompacted, partially compacted mixture shall be kept moist at all times until the bituminous seal has been placed thereon.
- D. Compaction on the completed CTB shall be 95% of the maximum density indicated by the mix design.

504.3.8 Surface Finish

- A. The CTB surface shall parallel the cross section and grade of the finished surface within 0.04 ft., and when tested with a 12 ft. straight edge shall not vary from the testing edge by more than 0.03 ft. at any point.
- B. When Portland Cement Concrete pavement is to be placed on the CTB, the surface of the CTB at any point shall not extend above the grade established by the Engineer. The specified finish shall be attained by the following method.
- C. After compaction of the final lift, the surface of the CTB shall be brought within the specified tolerances by trimming with a subgrade planer, by motor grader equipped with an electronically controlled blade or by grinding. Areas on which trimming or grinding is performed shall be rolled until a smooth surface is attained.
- D. The excess material may be used at other locations in the work area provided said excess material complies with applicable specification requirements.

504.3.9 Bituminous Curing Seal

- A. As soon as possible after each layer of the CTB is constructed; as herein- before specified, and while it is still moist, the surface and exposed edges shall be covered with a bituminous curing seal. The liquefied

asphalt shall be applied at a uniform rate between .25 gal. and .35 gal. per sq. yd. by a pressure spray method.

- B. After the curing seal has been applied, it shall cure for a period of four days and during this period no vehicle shall be permitted to use the section. In case of damage to the curing seal, after application and during the curing period, the damaged section shall be repaired by the Contractor immediately by resealing at his own expense.
- C. The curing seal on any lift of CTB may be omitted if, within two hours after the start of mixing of the preceding lift of CTB, a succeeding lift of material (CTB, bituminous base or asphalt concrete) is placed over the preceding lift. Vibratory rollers will not be permitted in the compaction of any succeeding lift of CTB, bituminous base, or asphalt concrete during the period of time from two hours to 96 hours after the mixing of any of the underlying lifts of CTB.

504.3.10 Care of Work

During the construction of the CTB, the Contractor shall exercise care to protect the work from damage. Following construction of each strip and each layer of the base and following construction of the entire course of the CTB, the Contractor shall perform such work as specified and as the City Engineer may determine to be necessary to prevent raveling and rutting, to prevent segregation of materials, and to maintain the layer or course of the CTB to the specified compaction and surface finish; all until the strip, layer, or course is covered by a following layer or course of material as specified or until all work under the contract is completed.

504.3.11 Modification of Equipment and Methods

On tapers and other areas of irregular shape, limited length, restrictive width or other condition where the City Engineer determines that full compliance with the above equipment and construction requirements is not practicable, the specified equipment and construction requirements may be modified, subject to approval by the City Engineer.

504.3.12 Timing of Operations, Adequacy of Organization, and Rejection of Mixture

- A. All operations involved in constructing the CTB shall be so timed and coordinated that regardless of daily or seasonal variations in weather, temperature and humidity, such work shall result in a finished CTB conforming in all respects to specified requirements.
- B. In this respect, the Contractor shall provide and have readily available at all times adequate equipment, tools, material, and labor; and shall achieve the hauling, spreading, compacting, and trimming of the CTB mixture within two hours after mixing.
- C. Any CTB mixture not placed and trimmed within this two-hour period shall be subject to rejection, wasting, removal, and replacement as the City Engineer determines to be applicable, and all costs involved in such removal, wasting, and replacement shall be borne by the Contractor.

504.3.13 Handling Traffic Over Cement-Treated Base

- A. At locations where traffic must be routed over the cement-treated base, the CTB mixture shall be made with Type III or Type IIIA (high early strength) cement to expedite development of strength at an early date. Any extra costs of using high early strength cement shall be considered as incidental, with payment therefore covered in the pay item "Portland Cement in CTB Mixture."
- B. If the City Engineer so directs, traffic over recently constructed CTB shall be controlled as to speed and routing.

504.3.14 Testing

Materials and Mixture

1. Aggregate and cement will be subject to acceptance as specified under **Subsection 504.02, MATERIALS**. Plant mixed mixtures will be subject to final acceptance after blending and mixing either at the plant or place of delivery. Acceptance will be based on periodic sample taking.
2. When specified, the Contractor shall furnish certified laboratory tests that show results of the tests at no expense to the City. The City Engineer may do sampling and/or testing of the materials. If evidence of non-compliance with the requirements exists, additional tests may be required to assure that the materials meet the requirements as specified at the sole expense of the Contractor.

504.03.14A In-Place Sample

The City Engineer shall be permitted to cut samples or to take cores, or to require the Contractor to cut samples or take cores, from the full depth of the compacted mixture or from the separate layers and courses thereof for testing purposes, and at such locations and at such frequencies as the City Engineer determines necessary for proper representation. Sampling shall be at the expense of the Contractor. Where samples have been taken and the samples show deficiencies according to these specifications, the Contractor shall repair the cuts or cores with like material and shall make repairs to the pavement as directed by the City Engineer, all at no expense to the City.

505 ASPHALT CONCRETE PAVEMENT

505.1 DESCRIPTION

- A. This section covers work necessary for the construction of hot mix asphalt pavements under prepared foundations or base surfaces.
- B. Hot mix asphalt concrete is defined as a mixture of asphalt cement; well graded, high quality aggregate; mineral filler and additives as required; heated and plant mixed into a uniformly coated mass, hot laid on a prepared foundation and compacted to specified density.

505.2 MATERIALS

505.2.1 General

Asphalt and aggregate shall meet OSHD requirements for Light Duty AC and will be subject to approval preceding mixing. Plant mixed mixtures will be subject to final approval after blending and mixing, either at the plant or at the place of delivery prior to rolling. Approval will be based on periodic sampling and testing of the materials.

505.2.2 Asphalt Cement

Asphalt materials incorporated in the mix shall be PBA-5 grade asphalt that conforms to requirements of **Section 205, TYPES AND USE OF MATERIALS**.

505.2.3 Aggregates

Aggregates shall conform to requirements of **Section 205, TYPES AND USE OF MATERIALS**.

505.2.4 Mineral Filler

- A. Mineral filler shall conform to the requirements of AASHTO M-17.
- B. Collector dust may be used as mineral filler, in whole or in part, provided the dust or the resultant mineral filler mixture conforms to the above requirements.

505.2.5 Additives

Additives and admixtures may be used to prevent stripping or separation of bituminous coatings from aggregates, and to aid in the mixing or use of bituminous mixes or for experimental purposes. Use admixtures and additives of standard recognized products of known value for the intended purpose and obtain approval on the basis of laboratory tests prior to their use. They shall have no deleterious effect on the bituminous material and shall be complete miscible.

505.2.6 Composition and Proportion of Mixtures

- A. The class of asphalt concrete to be used shall be as shown and shall conform to the requirements indicated in the table below.

DENSE GRADED

Sieve Size Passing	Percentage of Total Aggregate (by weight)		
	Class "B"	Class "C" (Mod.)	Class "D"
1 in.	99-100	----	----
3/4 in.	92-100	99-100	----
1/2 in.	75-94	91-100	99-100
1/4 in.	50-70	58-73	85-100
#10	21-41	24-36	37-57
#40	6-24	8-18	13-29
#200	2-7	3-8	4-9
Asphalt Cement*	4-8	3-8	4-8

*Percent of total mix (by weight).

- B. The amount of new asphalt cement to be added to the recycled mixture will vary from 3-8%.
- C. Class "B", "C", and "D" asphalt concrete shall meet the qualifying test requirements indicated in the table below.

Test	Test Method	Requirements
Stability, First Compaction	OSHD Standard Test*	35 min. (residential streets) 40 min. (arterial streets)
Voids, First Compaction	OSHD Standard Test*	7% maximum
Voids, Second Compaction	OSHD Standard Test*	1% minimum
Retained Strength	AASHTO T-165-Modified	70% minimum

*Available from Engineer or Materials, ODOT, Salem, Oregon 97310.

505.2.7 Mix Formulas

- A. The Contractor may be required to submit a job-mix formula for review by the City Engineer.
- B. The job-mix formula shall indicate the gradation of each of the several aggregate constituents to be used in the mixture and shall establish the exact proportion of each constituent to be used to produce a combined gradation of aggregate within the appropriate limits stated above.
- C. The job-mix formula shall also indicate the ASTM bulk specific gravity of each aggregate constituent, the measured maximum specific gravity of the mix at the optimum asphalt content determined in accordance with ASTM D 2041, all properties as stated in **Subsection 505.02.06, Composition and Proportion of Mixtures**, of these specifications for at least four different asphalt contents other than optimum, two of which will be below optimum and two of which will be above optimum, the percent of asphalt lost due to absorption by the aggregate, and any other information pertinent to the design of the mix.

505.2.8 Recycled Asphalt Pavement (RAP) Materials Permitted

If approved by the City Engineer, the Contractor may use processed recycled asphalt pavement materials in the production of new asphalt concrete pavement. The RAP materials proposed for use in the recycled mix shall contain hard, sound, and durable aggregates, and asphalt of a composition to provide properties equivalent to asphalt as specified in these specifications when in the mix.

505.2.9 Tolerances

- A. After the mix formula is submitted, the several constituents shall meet the following tolerances, but always within the range of proportions specified in **Subsection 505.02.06, Composition and Proportion of Mixtures**:

ASPHALT CONCRETE MIX TOLERANCES

	Tolerance (± to Job Mix Formula)
Aggregate passing 1 in., 3/4 in., 1/2 in. sieves	Within the range of the proportions specified in Subsection 505.02.06, Composition and Proportion of Mixtures

	Specifications
Aggregate passing 1/4 in. sieve	6.0%
Aggregate passing No. 10 & No. 40 sieve	5.0%
Aggregate passing No. 200 sieve	2.0%
Asphalt cement	0.5%
Temperature of mixture at time it is placed in final position	240-300°F

- B. Each day the City Engineer shall be permitted to take as many samples as he considers necessary for checking the uniformity of the mixture. When unsatisfactory results or other conditions make it necessary, the City Engineer may require a new mix formula.
- C. Should a change in source of material be made, or should conditions arise which the City Engineer determines to be justified, the Contractor shall establish a new job-mix formula.
- D. The materials to be used in the work shall be of such nature that a mixture of them, proportioned in accordance with the mix formula, will have a retained strength of no less than 70% when tested in accordance with AASHTO T-165 as modified by OSHD test methods. The City Engineer shall be permitted to take as many samples as he considers necessary for checking the uniformity of the mixture.

505.2.10 Feathering

Asphalt concrete for use in feathering at curb or gutter lines, at intersections, at connections with existing pavement, in spot patching, and under similar conditions, shall be a fine mix of asphalt concrete such as Class "D" mix.

505.3 CONSTRUCTION

505.3.1 Repaving Conference

The Contractor and his supervisory personnel plus any subcontractors and their supervisory personnel who are to be involved in the paving work shall meet with the Project Manager and his representatives for a

preparing conference at a time mutually agreed upon. At this conference, the Contractor shall discuss his methods of accomplishing all phases of the paving work. The plan of the work, order of paving and other details of performance shall meet with the approval of the City Engineer.

505.3.2 Preparation of Bases

- A. All pavement bases and foundations constructed under this Contract shall be completed and finished as prescribed under the applicable specification for its construction.
- B. Manholes, inlets, water valve boxes, and other such structures shall have been completed, cured, and otherwise prepared, as applicable, and made clean and ready for asphalt pavement. Unless otherwise approved, manholes shall be adjusted so that they can be paved over and then later adjusted as shown on the plans. Paint vertical surfaces that will come in contact with asphalt pavement with tack coat material to provide a good bond and seal. Cover top surfaces with paper or other material to prevent adherence of asphalt pavement, tack coat, or prime coat.
- C. Prior to placement of asphalt and no more than 24 hours before paving is scheduled to begin, a final proofroll of the prepared rock base shall be performed in the presence of the City Engineer or his/her representative.
- D. Monument boxes must be installed prior to the final lift of asphalt and shall be installed per the Tillamook County Surveyor's requirements.

505.3.3 Reconditioning Old Roadbed

- A. This work consists of reconditioning and preparing previously constructed roadbed subgrades, existing stone bases and surfacings, and existing pavements; none of which were constructed by the Contractor under the pertinent Contract but on which an additional layer or course of material is to be placed.
- B. Existing aggregate subbases, bases, and surfacings shall be bladed, scarified, leveled, and compacted in conformance to lines, grades, and cross sections as established and the density and tolerance requirements of **Section 503, AGGREGATE BASES**.
- C. Prelevel uneven or broken bituminous, cement concrete, or brick surfaces with asphalt concrete as specified. Spread and compact preleveling asphalt concrete to the density and surface condition as directed.

505.3.4 Tack Coat

- A. Asphalt shall consist of emulsified asphalts (CSS-1 or CSS-1H) or an approved equal.
- B. Spread asphalt by means of pressure-spray equipment which will provide uniformity of application at prescribed rates. Do not apply aggregate cover material to the tack coat. Asphalt shall be applied to the prepared surface at a rate of 0.05 gal. per sq. yd. for clean surfaces and up to 0.12 gal. per sq. yd. for dirty surfaces. The tack coat shall not be applied during wet or cold weather or during darkness and apply only so far in advance as is appropriate to maintain a tacky, sticky condition of the asphalt. Apply tack coat in such a manner as to offer the least interference to traffic and to permit at least one-way traffic without pickup or tracking of asphalt.

505.3.5 Mixing

- A. Mix the asphalt concrete by combining aggregate, asphalt, and additives at an approved central mixing plant equipped with controls to accurately measure and monitor the various components of the mix to produce a uniform homogeneous mixture at the specified temperature.
- B. The discharge temperature of the mix will vary with the type of mixing plant, climatic conditions, and other variables. However, the temperature shall be sufficient to provide thorough mixing and coating and

to provide a mass viscosity of the mix on the grade which will permit compaction to required density. Mix temperatures and asphalt in storage shall generally not exceed 325°F.

505.3.6 *Placing*

- A. Conform to the Drawing of work, order of paving, and other details of performance as approved. Lift thickness shall be as shown on the Drawing or specified.
- B. Unless otherwise approved by the City Engineer, streets shall be paved to final grade using 2 or more lifts. Final lift shall be placed at time as directed by the City Engineer.
- C. Transport the asphalt concrete mixture from the mixing plant to the point of use in trucks. Send no loads so late in the day as to prevent the spreading and compacting of the mixture during daylight, unless approved lighting is provided.
- D. Hot mix asphalt concrete shall normally be placed on dry prepared surfaces and when air temperature in the shade is 40°F (minimum) and rising. Place Class "E" wearing surface only when the existing pavement temperature is at least 60°F. Placing during rain or other adverse weather conditions will not be permitted. The temperature of hot mix at the time it is spread into final position shall be between 240 and 300°F, except Class "E" mix shall be between 200 and 250°F.
- E. Lay the mixture in strips of such width as to hold to a practical minimum the number of longitudinal joints required. The longitudinal joints in any layer of pavement shall be offset from those joints in layers below by not less than 6 in. Before any paving is started, the Contractor shall submit a Drawing indicating locations of longitudinal joints to the City Engineer for his review. Take special care at longitudinal joints to provide positive bond and required density.
- F. Bituminous paving machines shall be self-contained, power-propelled units, provided with an activated screed or strike-off assembly, heated if necessary, and capable of spreading and finishing layers of bituminous mix material in lane widths applicable to the specified typical sections, and to required thicknesses, lines, grades, and cross sections. Machines used for shoulders and similar construction shall be capable of spreading and finishing to the widths shown.
- G. When the capacity of the paver to properly spread and finish exceeds the rate of delivery of mixture, operate the paver at a reduced and uniform speed to give continuous spreading and finishing.
- H. Take care at all times to prevent segregation in the mixture as evidenced by areas of fine and coarse materials, and correct any such segregation with fresh mixture either spread and worked into the surface or by complete removal and replacement of segregated mixture at no expense to the Owner. AT NO TIME SHALL THE COURSE AGGREGATE SEGREGATED FROM THE MIX FROM HAND SPREADING OR RAKING OF JOINTS BE SCATTERED ACROSS THE PAVED MAT. Such material shall be collected and disposed of.
- I. On areas to be patched with asphalt concrete mixture and on areas of irregular shape or limited size, the spreading and finishing requirements may be modified as approved.
- J. Boils and slicks occurring in the pavement must be immediately removed and replaced with suitable materials, at the sole expense of the Contractor.

505.3.7 *Paving Plant and Equipment*

All plant and equipment used by the Contractor in the preparation and mixing of asphalt concrete shall conform to the requirements of Section 403.33, "Standard Specifications for Highway Construction" as published by Oregon State Highway Division, 1984 Edition.

505.3.8 *Weigh Scales*

- A. When materials are to be measured for payment by weighing on vehicle scales, the Contractor shall provide the scales and transport the materials to the scales provided.

- B. The vehicle scales furnished shall be accurate within the tolerances required by State law and shall be licensed with the Oregon Department of Agriculture. Scales shall be suitable for the weighing to be done and shall be properly installed and maintained.
- C. At each end of the vehicle scale there shall be a straight approach in the same plane as the platform. The approaches shall be of sufficient length and width to ensure the level positioning of combination vehicles longer than the scale platform during weight determinations. All vehicle brakes shall be released while combination vehicle are being weighed.
- D. Vehicle scales shall be inspected and the accuracy tested every six months by either the State Department of Agriculture or a scale service company. Scales installed at a new site shall be inspected and the accuracy tested before use. Testing by a scale service company shall be done by using a minimum of 10,000 lbs. of test weights certified by the State Department of Agriculture.

505.3.9 Hauling Equipment

- A. Vehicles used for hauling asphalt concrete mixtures shall have tight, clean, and smooth beds which have been thinly coated with a minimum amount of paraffin oil, lime solution, soapy water or other approved material to prevent the mixture from adhering to the beds. Diesel oil may be used when requested by the Contractor and approved by the City Engineer. Its use will be terminated by the City Engineer if it is not being used as specified or is a source of contamination for the asphalt mix.
- B. During each application of an approved coating material, and prior to loading, the vehicle bed shall be drained of all excess coating material by raising the truck bed, opening belly dump gates or operating the conveyer belt as appropriate for the type of equipment being used.
- C. Vehicles which cause excessive segregation, which leak badly, or which delay normal operations, as such are determined by the City Engineer, shall not be used.
- D. Contractors hauling vehicles shall be so constructed and equipped with covers to protect against moisture and against heat loss, and shall have a 3/8 in. diameter hole near the middle of the left side wall of the bed to allow access for a thermometer.

505.3.10 Asphalt Concrete Pavers

- A. Pavers shall be self-contained, power-propelled units, provided with an activated screed or strike-off assembly, heated if necessary, and capable of spreading and finishing layers of asphalt concrete material in widths applicable to the specified typical sections, and to required thicknesses, lines, grades and cross sections.
- B. Extensions added to the paver when used on travel lanes shall have the same augering and screeding equipment as the rest of the paver.
- C. The paver shall be equipped with a receiving and distribution system of sufficient capacity for a uniform spreading operation and capable of placing the mixture uniformly in front of the screed without segregation of materials.
- D. The paver shall be designed to compensate for minor irregularities of the base on which it is supported, so that such will not be reflected immediately in the surface of the layer being placed. The weight of the paver shall be supported on tracks or wheels none of which shall contact the mixture being laid. The contact area of the screed or strike-off assembly shall be uniform over the entire width of the strip of mixture being placed.
- E. The screed or strike-off assembly shall produce a finished surface of the required evenness and texture without tearing, shoving or gouging the mixture. The paver shall be equipped with either a manual or electronic line and grade control.

505.3.11 Weather Limitations

- A. Asphalt concrete mixtures shall be placed on dry prepared surfaces when the air temperature in the shade and the surface temperature is not less than those specified in the following table:

SURFACE TEMPERATURE LIMITATIONS

Compacted Thickness of Individual Courses	Travel Lanes/Wearing Course	All Other Courses
Less than 1-1/2 in.	60°F	55°F
1-1/2 in. to 2-1/2 in.	50°F	45°F
Over 2-1/2 in. and other	40°F	35°F

- B. Placing of any mixture during rain or other adverse weather conditions normally will not be permitted, except that mix in transit at the time these adverse conditions occur may be laid if of proper temperature, if the mix has been covered during transit, if placed on a foundation free of pools, or flow of water and if all other requirements of these specifications are met. Asphalt concrete mixtures shall not be placed when the underlying layer is frozen, or when, in the opinion of the City Engineer, weather conditions either existing or expected will prevent the proper handling, finishing, or compaction of the mixtures.

505.3.12 Compaction

The Contractor will not be permitted to use any equipment which crushes the aggregate to any extent. However, he will be required to obtain the densities required in **Subsection 505.03.14, Density Requirements.**

505.3.13 Compactors

Rollers shall be steel wheel, pneumatic tire, vibratory or a combination of these types as the Contractor may elect. They shall be in good condition and capable of reversing without backlash.

505.3.13.1 Steel Wheel Rollers

Steel wheel rollers shall have a minimum gross static weight of 8 tons and a minimum static weight on the drive wheel of 250 pounds per inch of width. For finish rolling a 6-ton minimum gross static weight is acceptable and the 250 pounds per inch of width will not be required.

505.3.13.2 Vibratory Rollers

Vibratory rollers shall be equipped with amplitude and frequency controls and shall be specifically designed for compaction of asphalt concrete mixtures. The rollers shall be capable of frequencies of not less than 2,000 vibrations per minute.

505.3.13.3 Pneumatic Rollers

The pneumatic-tired rollers shall be self-propelled, tandem, or multiple axles, multiple wheel type with smooth-tread pneumatic tires of equal size staggered on the axles at such spacings and overlaps as will provide uniform compacting pressure for the full compacting width of the roller and shall be capable of exerting ground pressures of at least 800 psi of tire contact area. Pneumatic-tired rollers shall be fully skirted to insulate the tires from significant heat loss during compaction.

505.3.14 Density Requirements

- A. The density of asphaltic concrete shall be at least 92% of Rice theoretical maximum density as determined in conformance with AASHTO T-209 as modified by OSHD.
- B. For final acceptance of the pavement, the density of each section of pavement will be determined by random acceptance tests using a nuclear gauge or laboratory analysis of the pavement core samples. Density tests will be taken at five randomly selected sites for each section of pavement. The average of the five density tests will constitute the density of the pavement.
- C. A section of pavement will be the area constructed from 500 consecutive tons of mixture or portion thereof. Acceptance tests will not be made within 1 ft. of the edges of the panel or from areas where the specified compacted thickness is less than 1-1/2 in.
- D. When using a nuclear gauge, two readings will be obtained at each site, the second at right angles to the first. The two readings will be averaged to obtain the test density. For any section of pavement, if the Contractor requests in writing within two work days after nuclear gauge test results are furnished to the Contractor pavement cores will be obtained at the same randomly selected sites used for the nuclear gauge tests. The density of the core samples will be determined by an independent testing laboratory. The average density of these five core samples will constitute the in-place density of the section of pavement and will prevail over the nuclear test results. If the density as determined by the core samples does not meet density requirements, the Contractor shall bear the cost of coring and testing.
- E. The City Engineer shall have the right to test any areas that appear defective in compaction. If the areas are found deficient, the City Engineer may require the Contractor to bring the areas into conformance with the specifications.
- F. The City will not accept mixture compacted to less than 89.0% of the theoretical maximum density (Rice density) or 95.7% of target density. The City Engineer may decide to allow the deficient pavement to remain in place. In that case, the City Engineer and the Contractor will agree in writing on all related matters to the terms and conditions. (Resolution 05-10 4/11/05)
- G. If the Contractor takes core samples to verify the densities, the holes shall be filled with like material and compacted and sealed to the City Engineer's satisfaction. The density of the core samples shall be tested by an independent testing laboratory in accordance with ASTM 2726. All verifying works performed by the Contractor shall be at the Contractor's expense.
- H. Where in-place mixture fails to meet the compaction standard of 92% of theoretical maximum density, the City Engineer may accept the pavement and the Contractor shall be subject to a penalty paid to the City in accordance with the following schedule: (Resolution 05-10 4/11/05)

BONDING SCHEDULE

% Maximum Density (Normal Method)	% Pay*	Bond Amount*
92.0 and above	100	0
91.5 to 91.9	95	5%
91.0 to 91.4	90	10%
90.5 to 90.9	85	15%
90.0 to 90.4	80	20%
89.5 to 89.9	70	30%
89.0 to 89.4	60	40%
88.1 to 89.0	0 to 50**	50 to 100%**
88.0 and below	0	100%

*Applies to price for in-place asphalt concrete, including asphalt cement where measured and paid for separately.

**As determined by the City Engineer.

- I. In addition to the specified unit price deduction, if the in-place compaction of more than 25% of the top lift mixture is 90.0% of Rice density or less, and at the City Engineer's discretion, the Contractor shall fog seal the top lift of paving as specified by the City Engineer. The fog seal shall be done at the Contractor's expense.
- J. Additional remedial work may be required to in-place mixture compacted to less than 88.0% as directed by the City Engineer.

505.3.15 Transverse Joints

- A. Form transverse joints by cutting back on the previous run to expose the full depth of the layer or course.
- B. Place a course or strip of asphalt concrete as nearly continuous as practicable. Carefully construct transverse joints using vertical faces and thoroughly compacted to provide a smooth riding surface. Apply a coat of bituminous material to contact surfaces just before mixture is placed against previously rolled mixture. The Contractor shall use a 10 ft. straight edge to determine the location of the full depth vertical faces.
- C. At bridge ends or at joints with other rigid type structures, existing bases shall be conditioned and compacted, and place asphalt concrete to extra thickness and compact in transverse direction as well as longitudinally.
- D. When the end of a course or strip of asphalt concrete is to be temporarily subject to traffic, the end shall be left on a bevel of approximately 20:1 (horizontal to vertical), being later cut back to a vertical edge.

505.3.16 Construction Joints

- A. Placing of a course or strip of asphalt concrete shall be as nearly continuous as practicable. Transverse joints shall be carefully constructed and thoroughly compacted to provide a smooth riding surface.
- B. The mixture shall be laid in strips of such widths as to hold to a practical minimum the number of longitudinal joints required. Longitudinal joints in the wearing course shall not occur within the area or width of a traffic lane or auxiliary lane. On median lanes and on shoulder areas such joints shall occur only at points of change in the transverse slopes as shown on the plans or designated by the City Engineer. The longitudinal joints in one layer shall offset those in the layer immediately below by a minimum of 6 in. Underlying longitudinal joints shall be within 12 in. of the edge of a lane or within 12 in. of the center of a lane, except in irregular areas, or if otherwise shown on the plans.

- C. When the end of a course or strip of asphalt concrete is to be temporarily subjected to traffic, the end shall be on a bevel of approximately 20:1 (horizontal to vertical), being later cut back to a vertical edge to provide a fresh surface against which subsequently placed asphalt concrete is to abut.
- D. When placing of asphalt concrete pavement in layers in excess of 2 in. nominal thickness is being performed under traffic, work shall be scheduled in a manner such that at the end of each working day, the full width of the area to be paved shall be completed to the same elevation with no longitudinal drop-offs within this width.
- E. When placing of asphalt concrete pavement in layers of 2 in. or less in thickness is being performed under traffic, work shall be scheduled in a manner such that at the end of each working shift, one strip of new travel lane pavement shall not extend ahead of the adjoining strip of travel lane pavement more than the distance normally covered by each shift.
- F. Where abrupt or sloped drop-offs of greater than 2.5 in. occur within or at the edge of the paved surface, the Contractor shall construct and maintain a wedge of asphalt concrete at a Slope 10:1 or flatter along the exposed joint.

505.3.17 Thickness and Number of Layers

- A. Asphalt concrete shall be placed in the number of courses and to the total compacted thickness per course called for by the typical cross sections given on the plans.
- B. In case the course of pavement involves the placing of a layer of variable thickness, as for leveling existing irregular surfacings, the course may include or consist of a layer of asphalt concrete of variable compacted thickness. The layer shall not exceed maximum thickness indicated in the table below.

Type of Mix	Maximum Compacted Thickness Layers
"B"	2.5 in.
"C"	2 in.
"D"	1 in.

- C. The top surface of each layer of asphalt concrete shall be spread at grade and cross section closely paralleling the specified top surface of the finished pavement.

505.3.18 Pavement Samples

The City Engineer shall be permitted to cut samples or to take cores from the full depth of compacted mixture or from the separate layers and courses thereof, for testing purposes, and at such locations and at such frequencies as the City Engineer determines necessary for proper representation. Where samples have been taken, and when directed by the City Engineer, the Contractor shall furnish new like material for filling the holes with no extra compensation.

505.3.19 Pavement Smoothness

- A. The top surface of the asphalt concrete pavement, when tested with a 12 ft. straightedge either parallel to or perpendicular to the centerline furnished and operated by the Contractor, shall not vary by more than 0.02 ft. The City Engineer will observe this testing and may require additional testing. The means of correction of a surface that does not meet the smoothness requirements shall have the approval of the City Engineer.

- B. When tests show the pavement is not within the above tolerances, the Contractor shall take immediate action to correct equipment or procedures in his paving operation to eliminate the unacceptable pavement roughness.
- C. Any surface irregularities exceeding the above tolerances shall be corrected by the Contractor using a method or methods listed herein and approved by the City Engineer.
- D. Corrective Action - Corrective measures by the Contractor requiring one or more of the following actions approved by the City Engineer shall be performed on deficient areas:
 - 1. Remove and replace the surface course.
 - 2. Place an overlay of a thickness approved by the City Engineer.
 - 3. Grind the pavement surface utilizing diamond blades up to a maximum depth of 0.3 in. and apply an emulsion fog coat as directed by the City Engineer.
- E. When utility appurtenances such as manhole covers and valve boxes are located in the traveled way and they are not required to be adjusted or are required to be adjusted before paving, these tolerances will not apply at the utility appurtenance.
- F. All corrective work shall be completed within 10 working days following notification from the City Engineer that the pavement does not meet the specified tolerances, unless otherwise directed by the City Engineer.
- G. All corrective work, including furnishing of materials, shall be performed at the Contractor's expense and no adjustment in contract time will be made for corrective action work.

505.3.20 Special Protection Under Traffic

In addition to other required provisions for traffic, the following shall apply to pavement construction: no traffic or equipment shall come in contact with the compacted mixture until it has cooled and set sufficiently to prevent marking; edges shall be protected from being broken down; and edge drop-offs one or more inches in height shall be marked with warning devices visible by day and night to the traveling public, and placed at spacings indicated on the plans or as directed by the City Engineer.

506 PORTLAND CEMENT CONCRETE PAVEMENT

506.1 DESCRIPTION

This section covers work necessary for construction of Portland Cement Concrete pavements, with or without reinforcement, on a prepared subgrade or base course, complete.

506.2 MATERIALS

All material shall conform to requirements of **Section 205, TYPES AND USE OF MATERIALS.**

506.3 CONSTRUCTION

506.3.1 General

The plant, equipment, and tools required in the performance of the work must be of the design, capacity, and in condition to efficiently perform their respective functions of the work. Schedule and coordinate all operations involved in constructing the pavement so that regardless of the daily or seasonal variations in weather, temperature, and humidity under which the work is permitted to proceed, such work will result in a finished pavement conforming in all respects to specified requirements. Provide and have available at all

times adequate equipment, tools, materials, and labor to achieve these results and failure to so provide will be cause for discontinuance or rejection of the work upon order of the City Engineer. Conform to applicable requirements of concrete construction in **Section 701, CONCRETE STRUCTURES**.

506.3.2 Preparation of Concrete Mix

- A. Before beginning any concrete work, the Contractor shall, at the City Engineer's request, have the concrete mix designed and submit the mix design for approval. The mix design shall be tested by a laboratory approved by the City Engineer by preparing trial batches from each of which four standard test cylinders shall be cast, cured and tested as specified for the job concrete. Certified copies of all laboratory reports, stating whether or not the items reported meet specifications, shall be sent directly to the City Engineer from the testing laboratory.
- B. Portland Cement, fine aggregate, coarse aggregate in required separated sizes, water, air-entraining agents and other admixtures as required, shall be used in the concrete in such proportions as may be determined to be necessary to produce a concrete of suitable workability, plasticity and entrained-air content and of such strength as the conditions to be met may require. The proportions may be changed by the Design Engineer from time to time during the progress of the work, but they shall at no time be such that test cylinders of the resultant concrete, made in accordance with the applicable provisions of AASHTO T-23 and tested as set forth in OSHD TM 719, will show compressive strengths of less than 4,000 psi at an age of 28 days.
- C. Changes in proportions, and particularly in the proportion of cement, may be made not only for the purpose of causing the concrete to meet specified 28-day requirements but also to produce concrete of high early strength when concrete of that kind is required. The maximum amount of cement to be used shall be 750 lbs. per cu. yd. of concrete.
- D. The proportions of water to be used shall be determined by the Design Engineer, it being the intent of the specification to have the water-cement ratio held as low as is consistent with the production of a workable, uniform and dense concrete. The maximum water-cement ratio shall be 6 gal. of water per 94 lbs. of cement.
- E. Entrained air in the concrete shall be as directed by the Design Engineer and normally will be from four to 6% by volume. The entrained air shall be obtained by use of air-entraining cement, by air-entraining additives or admixtures, or by combinations thereof as may become necessary and as the City Engineer may approve.
- F. The Contractor shall provide and use approved means for the adding of controlled amounts of additives, admixtures and retardants to the mix.
- G. No change in the source or character of any material shall be made without due notice to the City Engineer. No material shall be used in the mix until the City Engineer has approved such material and has designated the proportions of the materials in the mix based on the use of such approved materials.

506.3.3 Hauling

Hauling of Portland Cement Concrete mixed at a central plant or in transit will conform to the provisions of **Section 701, CONCRETE STRUCTURES**.

506.3.4 Forms

Conform to the applicable requirements of Forms in **Section 701, CONCRETE STRUCTURES**.

506.3.5 Handling and Placing

- A. Conform to requirements for Handling and Placing in **Section 701, CONCRETE STRUCTURES**.

- B. During the placing of concrete, making provision for the construction of joints and the placing of dowels, tie bars, and other devices as shown. The Contractor is referred to **DIVISION SEVEN - CONCRETE STRUCTURES TECHNICAL REQUIREMENTS**.

506.3.6 Preparation of Roadway

- A. Before paving operations are commenced, the base constructed under the contract and on which the pavement is to be constructed and shall be in or brought to the completed and finished condition prescribed under the applicable specification for its construction. Old base and foundations constructed under other contracts shall be brought by the Contractor to an acceptable condition as prescribed in these specifications.
- B. In addition to the base under the pavement, an area of sufficient width alongside the pavement base which will support the paving equipment shall be brought to proper grade and compacted so as to support the equipment at proper grade and cross section. The base for the pavement shall be maintained and firm and true to established grade and cross section until the concrete is placed thereon.
- C. Manholes, inlets, and other such structures shall have been completed, adjusted, cured, and otherwise prepared, as applicable, and made clean and ready to have concrete placed in contact therewith. Manhole frames and other independent metal structures in the pavement area shall be painted with suitable asphalt material.
- D. The conditioned base shall be in a compacted and smooth condition when the concrete is placed thereon, and shall be moist. Watering of the base shall be thorough and uniform.
- E. The City Engineer shall be permitted to place plates on prepared base and to reference them for later determination of thickness of concrete, and the Contractor shall exercise care to preserve such plates from displacement.

506.3.7 Weather Limitations

- A. Except with written permission from the City Engineer, construction of Portland Cement Concrete pavement shall not be in progress or continued when a descending air temperature in the shade and away from artificial heat reaches 35°F. Unless otherwise permitted, the temperature of the mix shall be neither less than 50°F nor more than 80°F at the time of placing. Material containing frost or lumps of hardened material shall not be used.
- B. Concreting operations shall be discontinued upon order due to insufficient natural light, unless an adequate and approved artificial lighting system is provided and operated.
- C. When concrete is being placed during cold weather and the air temperature may be expected to drop below 35°, a sufficient supply of straw, hay, grass, or other suitable blanketing material shall be provided along the work. Any time the air temperature may be expected to reach the freezing point during the day or night, the material so provided shall be spread over the pavement to a sufficient depth to prevent freezing of the concrete. If required by the City Engineer, concrete laid less than 24 hours shall also be covered by approved canvas or similar enclosures and devices capable of protecting the concrete from freezing. Any concrete injured by frost action shall be removed and replaced at the Contractor's expense.
- D. The Contractor shall have available materials for the protection of the edges and surface of the unhardened concrete from the effects of rain or other precipitation at all times. Protective material may consist of sheets of burlap, paper or plastic film. It will be the Contractor's responsibility to protect the pavement from damage, and failure to properly protect unhardened concrete may constitute cause for the removal and replacement of defective pavement at the Contractor's expense.

506.3.8 Slip Form Paving

- A. Place the concrete uniformly in final position by the slip form method in one complete pass in such a manner that a minimum of finishing will be necessary to provide a dense and homogeneous pavement in

conformance to true grade and cross section. The machine shall vibrate the concrete for the full width and depth of the pavement being placed. Such vibration shall be accomplished with vibrating tubes or arms working in the concrete. The sliding forms shall be rigidly held together to prevent spreading of the forms. Use forms of sufficient length so that no appreciable slumping of the concrete will occur.

- B. Operate the slip form paver with as nearly continuous forward movement as possible and coordinate all operations of mixing, delivery, and spreading concrete to provide uniform progress. Stopping and starting the paving machine shall be held to an absolute minimum. If, for any reason, it is necessary to stop the forward motion of the paver, stop the vibratory and tamping elements immediately. Apply no tractive force to the machine, except that which is controlled from the machine. The Contractor shall stop his operation immediately if the finished work is not of specified quality. Deficient areas shall be repaired before the concrete starts to set.
- C. Ensure that supports of the slip form paver and other equipment which ride on previously placed pavement are offset over that pavement sufficiently to prevent breakage of the edge thereof and provide such supports with suitable protective means to avoid marring or chipping of the previously placed pavement.
- D. Hand-spreading and distributing shall be with shovels, not rakes, and the concrete shall not be fouled with foreign matter, nor shall joint devices be disturbed during such operations. The Contractor shall furnish hand operated mechanical vibrators of a type and design approved by the City Engineer. These vibrators shall be used in the consolidation of the concrete pavement within at least 6 ft. on each side of construction and expansion joints and such other areas as the City Engineer may direct.
- E. During the placing of concrete, provision shall be made for the construction of joints and the placing of dowels, tie bars and other devices as called for by the plans or as directed by the City Engineer.
- F. Concrete that is not in place within 45 minutes after being mixed (or one hour if mixed at a central plant or in transit) shall be subject to rejection and wasting at the direction of the City Engineer. Concrete which has begun to harden or take an initial set prior to placement, or which has been retempered with water will be rejected and shall be wasted by the Contractor in an approved manner and at his own expense.

506.3.9 Tamping and Screeding

- A. Compact the concrete pavement by means of vibrating screeds, mechanical tampers, tamping templates, and such other implements as approved. A vibratory screed or an automatic screeding and tamping machine may be substituted for a tamping template, subject to approval. Operate the equipment in such a manner that a satisfactory compaction of the concrete is produced and the surface of the pavement is uniform, true to grade and cross section.
- B. Immediately after placing concrete upon the subgrade and before initial set has occurred, strike off the concrete and tamp by means of a tamping template, used at right angles to the centerline of the street, until the concrete is thoroughly consolidated to specified grade and crown section and sufficient mortar is brought to the surface for finishing purposes. If the design or location of the base is such as to preclude the possibility of tamping as previously described, such as a variable crown section, curb being constructed monolithic with base, in alleys, or where the grade exceeds 10%; employ other approved methods to obtain the prescribed results.

506.3.10 Finishing

- A. After the concrete is placed and compacted, strike it true to line, grade, and cross section as shown and float to a smooth, even texture with an approved long handled wood float having a troweling or smoothing surface from 6 to 12 in. wide, or other approved floating device. Apply the float to the surface of the concrete with its length parallel to the centerline of the street and operate it from bridges, planing off the high places and filling the low places. Lap preceding applications of the float by at least one-half its length. If, after such planing, low places are discovered in the surface of the concrete, add specified

grade, cross section, and surface tolerance, with a surface free from laitance, soupy mortar, marks, or irregularities.

- B. Following the float finish and at the proper set, broom finish the surface. Draw the broom transversely across the pavement with not more than one stroke per width of broom. Fill any areas of minor honeycomb or other minor defect in composition of the concrete along the exposed edges with a stiff mortar or cement and fine aggregate applied to the moistened concrete in a workmanlike manner. Areas showing serious defects in composition of the concrete shall be cause for removal of affected pavement and replacement with pavement of specified quality for the full width of strip between longitudinal joints or edges and for a length not less than 10 ft.
- C. Tool the free edges of new pavement and joints with previously placed Portland Cement Concrete with an approved edging tool to remove laitance and mortar resulting from finishing operations and to provide a clean rounded edge to the new pavement. Tooling shall not form ridges on the surface of the concrete. Perform tooling of edges at transverse joints and longitudinal joints as directed.

506.3.11 Joints

Conform to applicable requirements of **Section 701, CONCRETE STRUCTURES** and Special Conditions.

506.3.12 Tolerances

- A. At the conclusion of the finishing operation the surface of the pavement shall not vary from a true surface, when tested with a 12 ft. testing straight-edge, more than 0.02 of a foot in 12 ft.
- B. The finished surface shall not vary more than 0.03 ft. from the Drawing elevations at any point.
- C. If the surface smoothness of the pavement after curing is found to exceed the tolerance permitted, grind the high spots until they meet the tolerance. The practicable extend of grinding shall not exceed 0.5 in., nor create spalling of aggregate nor create deficiencies in pavement thickness. Low spots, if in hardened concrete may be filled with an approved epoxy grout provided such filling is performed in a neat, workmanlike manner and blend inconspicuously with adjoining concrete. All grinding to be at the sole expense of the Contractor.

506.3.13 Curing

506.3.13.1 Curing of Concrete

- A. Immediately after the final floating, surface finishing, and edging has been completed and while the concrete surface is still moist, cover the entire exposed concrete and cure in accordance with one of the following provisions as specified:
 - 1. Apply membrane-forming compound of the white pigmented type uniformly to damp concrete by pressure-spray methods at a rate which will form an impervious membranes when tested in accordance with AASHTO T-155.
 - 2. Apply white polyethylene film, waterproof paper or burlap polyethylene sheets to damp concrete as soon as it can be placed without marring the surface. Place in intimate contact with the surface, extend over and beyond the sides or edges of the slabs or forms, and weight as approved to hold the covering in position as a moisture proof covering. Laps shall be of approved dimensions and design to maintain tightness equivalent to the covering.
 - 3. Apply burlap cloth to damp concrete as soon as it can be placed without marring the surface. Saturate the cloth with water and keep fully wetted during the curing period.
- B. Regardless of which of the above methods the Contractor chooses, keep the curing medium intact and effective for a period of not less than 72 hours after application.

506.3.13.2 Protection of Concrete

- A. Erect and maintain suitable barriers to protect the concrete from traffic or other detrimental trespass until the pavement is opened to traffic. If necessary, maintain watchmen to ensure that barriers remain effective.
- B. Wherever it is necessary that traffic including Contractor's vehicles and equipment be carried from one side of the pavement to the other, construct and maintain suitable bridges over the pavement.
- C. Prior to allowing equipment or traffic on the new surface, the concrete must have attained the specified compressive strength and shall be free from scarring, abrasion, stones, loose mortar, and other matter apt to be deleterious to the concrete surface. Operate all equipment without damage to the new concrete.
- D. Repair or replace any part of the pavement, as directed, which has been damaged by traffic or from any other cause, prior to its official acceptance, at the sole expense of the Contractor.

507 CURBS, GUTTERS, DRIVEWAYS, AND SIDEWALKS

507.1 DESCRIPTION

- A. This section covers work necessary for the construction of curbs, gutters, combination curb and gutter, combination of curb, gutter and sidewalk, islands, traffic separators, driveways, sidewalks, and pathways hereinafter referred to collectively as structures.
- B. The respective structure names are specific in their use and refer specifically to those names as shown.

507.2 MATERIALS

507.2.1 General

Materials shall conform to requirements of **Section 205, TYPES AND USE OF MATERIALS** and to additional requirements contained herein.

507.2.2 Portland Cement Concrete for Extrusions

Grade the combined aggregates within the limits indicated in the table below.

Sieve Sizes	Total Passing Percent by Weight
1/2 in.	100
3/8 in.	75-00
No. 4	50-75
No. 16	20-40
No. 30	12-23
No. 50	5-15
No. 100	0-5

507.2.3 Portland Cement Concrete

Portland Cement concrete shall conform to **Subsection 205.02.02, Portland Cement Concrete** except that extruded curbs and/or gutters shall have a maximum slump of 2 in.

507.2.4 Aggregate

Aggregate materials for base, foundation, courses, leveling courses, or bedding shall conform to 1"-0 gradation in **Section 503, AGGREGATE BASES**.

507.3 CONSTRUCTION

507.3.1 Preparation of Base

507.3.1.1 Earthwork

When roadway earthwork is called for in connection with other items of work under the same contract, which includes structure construction under this section, all excavation, backfilling, and berm construction for the structures and in the vicinities thereof as required or as shown, shall conform to applicable requirements of **Section 204, EXCAVATION, EMBANKMENT, BEDDING, AND BACKFILL**.

507.3.1.2 Aggregate Foundation or Bedding

- A. Construct sidewalk structures on aggregate foundation course of 2 in. of 3/4"-0 compacted gravel, on firm subgrade or bedding of selected granular material as specified.
- B. Curb proofroll shall be performed prior to placing curb and gutter on aggregate bedding with a 10CY dumptruck loaded with rock. The prepared and tested area shall extend 1 ft. behind and 1 ft. in front of location of curb/gutter, shall be the depth of the street section specified on the plans, and shall be witnessed by the City Engineer or his/her representative.
- C. When structures are to be constructed on areas where approved aggregate material is already in place, such materials may be salvaged and reused as bedding.
- D. Foundation courses or beddings involving the furnishing of new materials shall be constructed in conformance to the applicable requirements of **Section 503, AGGREGATE BASES**.

507.3.1.3 Base for Portland Cement Concrete

- A. All bases upon which new cement concrete structures are to be constructed shall be firm and free of all deleterious matter. Dampen thoroughly surfaces upon which new cement concrete is to be placed. No payment will be made for water and the work of placing base materials. The cost of preparing bases shall be considered as incidental to the construction of structures.
- B. When new concrete is placed by the mechanical extrusion method, vertical dowel fastening to underlying concrete or asphalt may be eliminated and the bond between new concrete and underlying concrete or asphalt provided with epoxy cement applied in conformance with the manufacturer's recommendations as approved. Spread epoxy at a rate which will provide a thorough coating to the surface with all voids and depressions filled. Place new structure on the epoxy cement within 15 minutes after spreading.

507.3.2 Forms

507.3.2.1 Forms

Conform to requirements for Forms in **Section 701, CONCRETE STRUCTURES**.

507.3.3 Equipment

- A. Plant and equipment requirements as described in **Section 505, ASPHALT CONCRETE PAVEMENT** and **Section 506, PORTLAND CEMENT CONCRETE PAVEMENT** may be modified as approved, when circumstances warrant. For asphalt sidewalks or islands, spread asphalt concrete by small or special pavers, by spreader boxes, or by blade graders. Compact with small, self-propelled rollers, vibratory compactors, or mechanical tampers. Spread or compact the mixture by hand methods only when approved.
- B. The machine for extruding cement concrete curb or asphalt concrete curb shall be of the self-propelled type equipped with a material hopper, distributing screw, and adjustable curb forming devices capable of placing and compacting cement concrete or asphalt concrete to the lines, grades, and cross section as shown, in an even homogeneous manner. Cement concrete curb shall be free of honeycomb and cracks.
- C. Set top of curb grade by an offset guide line using the survey marks established by the Design Engineer. The forming tube portion of the extrusion machine shall be readily adjustable vertically during the forward motion of the machine to provide, when necessary, a variable height of curb conforming to the predetermined curb grade. A grade line gauge or pointer shall be attached to the machine in such manner that a continual comparison can be made between the curb being placed and established curb grade as indicated by the offset guide line.
- D. In lieu of the above method for maintaining the curb grade, the extrusion machine may be operated on approved rails or forms set at the proper relative grade.

507.3.4 Placing Material

No asphalt or concrete shall be placed until the surface and forms, where used, have been inspected and approved.

507.3.4.1 Portland Cement Concrete

Construct Portland Cement Concrete structures between specified forms or by an mechanical extrusion method, as the Contractor may elect. If forms are used, maintain a 2 to 4 in. slump, and thoroughly compact and strike off. If the structures are constructed by a mechanical extrusion method, maintain a maximum slump of 2 in. Feed cement concrete into the extruding machine at a uniform rate and operate the machine under sufficient restraint in a forward motion to produce a well-compacted mass of concrete.

507.3.5 Finishing

507.3.5.1 General

- A. Construct all structures within 1/4 in. of true line and within 1/4 in. of established surface grade, cross section and slope, and within 1/4 in. of specified thickness, and all finished surfaces shall be free from humps, sags, or other irregularities. When a straightedge 10 ft. long is laid on a finished surface, the surface shall not vary more than 0.02 ft. from edge of the straightedge.
- B. Where Portland Cement Concrete sidewalks or pathways are to be placed around or adjacent to manholes, pipe inlets, or other miscellaneous structures, form around the miscellaneous structure and allow a minimum of 18 in. of clearance, after the sidewalk is poured and cured, adjust miscellaneous structures to grade and finish placing the sidewalk or pathway.

507.3.5.2 Portland Cement Concrete

- A. Sidewalks, Approaches and Other Structures
 - 1. Finish surface of concrete to grade and cross section with a bull float, trowel smooth, score if required, then finish with a broom. Use floats of not less than 10 ft. in length for straight grade

sections and not less than 5 in. in width. Finish concrete with an edger tool. Light brooming shall be transverse to the line of traffic, and if water is necessary, it shall be lightly applied to the surface immediately in advance of brooming.

2. The surface of concrete sidewalks shall be marked into rectangles with a scoring tool which will leave the edges rounded. Scoring and dimensions shall be as directed. Sidewalks shall have a slope of 1/4 in. per foot from the top of curb to the back of walk unless otherwise shown.
3. Joints shall be finished with a 3 in. shine in new construction, or if construction is infill work, finish shall match existing pattern. A light broom finish is required on all sidewalk and curb ramps perpendicular to the direction of travel.

B. Curbs

1. Remove forms after the concrete has taken initial set and while the concrete is still green. Minor defects shall be repaired with mortar containing one part Portland Cement and two parts sand only while the concrete is still green. Plastering will not be permitted on the faces and exposed surfaces. Honeycombed, cracked, chipped and structurally defective concrete shall be removed and replaced at no expense to Owner. While the concrete is still green, finish exposed surfaces as required to provide a uniform texture and smooth surface.
2. When constructing precast concrete curbs, the proportions of sand, gravel and cement, the type of forms used, and the method of compacting the concrete in the forms shall all be such that as dense, smooth and uniform a surface as is practicable for a concrete masonry unit will be obtained on the finished curb units. The faces that are to be exposed shall be free from chips, cracks, air holes, honeycomb or other imperfections. Repair or patching of said imperfections is not permitted; curb and gutter section shall be removed and replaced in sections not smaller than 3' in length.
3. Furnish and install a minimum of two 3 in. PVC Sch. 40 pipe curb drains to serve each lot. Blockouts shall be of adequate size to accommodate a 3 in. PVC drain pipe. PVC pipe shall conform to ASTM D 2241. Curb drains will be considered incidental work for which no separate payment will be made.
4. Where curb and gutter are present and when removing only the face of the curb (as in an approach installation), doweling will be required. Rebar (#5) shall be drilled into the existing gutter section at 18 in. on center and bent up into the forms for the curb face. Two longitudinal sections of rebar (#5) shall be drilled into the existing curb and gutter on both sides of the removed section of curb face, overlap 12 in. if more than one piece of rebar is used.

507.3.6 Curing Portland Cement Concrete

- A. After the concrete has been placed and finished in curb structures, as specified, it shall be cured by application of a white pigmented liquid membrane-forming compound applied uniformly to the damp concrete by pressure spray methods, or by keeping the concrete protected and moist for at least 72 hours. The concrete structure shall be kept from contact and strain for at least seven days.
- B. Curing of concrete in all other structures shall conform to the requirements for Curing in **Section 506, PORTLAND CEMENT CONCRETE PAVEMENT.**

507.3.7 Joints in Portland Cement Concrete

- A. Contraction Joints in Walks and Incidental Surfacing

Form transverse contraction joints of the weakened plane or dummy type in the exposed surfaces of cement concrete walks and incidental surfacings at such locations as are required to confine the

contraction joint spacing to a maximum of 15 ft. The joints shall be formed to a depth of 1/3 of the thickness of concrete and to a width of about 1/8 in. Joint edges shall be tooled.

B. Contraction Joints in Curbs

Place contraction joints in curbs at intervals not exceeding 15 ft. Contraction joints shall be of the open joint type and shall be provided by inserting a thin, oiled steel sheet vertically in the fresh concrete to force coarse aggregate away from the joint. The steel sheet shall be inserted 1/2 the depth of the curb. After initial set has occurred in the concrete and prior to removing the front curb form, the steel sheet shall be removed with a sawing motion. Finish top of curb with a steel trowel and finish edges with a steel edging tool. Contraction and expansion joints of curbs should coincide with joints in sidewalks and streets.

C. Requirements Near Existing Structures

Cut back existing curbs, walks, driveways and other such structures to permit the new construction and where the new structures are to be constructed against or within 4 in. of the end, edge or side of other structures, the new construction shall include the construction of approved connections therewith, using the same kind of concrete as is used in the new construction. Make the joint between the old and new material with a saw cut.

507.3.8 Dowels, Tie Bars, Reinforcing

Provide metal reinforcing bars and wire fabric reinforcement when and as shown. When shown, provide and place dowels with "slip sleeves" as load transfer mediums. Provide and place dowels, but without "slip sleeves," as fastenings or ties between new concrete and existing underlying concrete when shown. Provide tie bars when shown. Place reinforcing, dowels and tie bars in conformance to the applicable requirements in **Section 702, REINFORCEMENT**.

508 GEOTEXTILE FABRICS

508.1 GENERAL

This work consists of furnishing and placing geotextile fabrics in on subgrades (0 subgrade geotextile) and beneath an asphalt overlay (pavement overlay geotextile) as shown on the plans or as directed by the City Engineer.

508.2 MATERIALS

Geotextile materials shall conform to **Subsection 205.02.14, Controlled Density Fill**.

508.3 CONSTRUCTION

508.3.1 General

General requirements for placement of geotextile shall be in accordance with **Subsection 205.03.01, Description**.

508.3.2 Subgrade Geotextile

- A. For roadbed subgrade separation, prepare the subgrade according to **Section 501, SUBGRADE**.
- B. Correct geotextile failures, as evidenced by soil pumping or roadbed distortion, by removing any covering material in the affected area and placing a geotextile patch on the exposed geotextile. Cover the patch with the specified cover material and compact before proceeding.

508.3.3 Pavement Overlay Geotextile

A. General

Place geotextile and pavement overlay in four basic steps.

- a. Surface preparation
- b. Sealant application
- c. Geotextile placement
- d. Overlay placement

B. Weather Limitations

Do not place sealant and geotextile unless the weather limitations of 00745.40 are met, as appropriate, except the minimum air temperature shall be 50°F for paving grade asphalt sealant placement and 60°F for asphalt emulsion sealant placement.

C. Surface Preparation

Prepare the pavement surface on which the sealant is to be placed according to specifications and the items listed below.

- a. Clean and fill cracks exceeding 1/8 in. width with bituminous crack filler from the Division's Qualified Product List.
- b. Repair minor irregularities or depressions as directed.
- c. Allow crack filling material to cure before placing geotextile.
- d. Where the pavement is severely cracked, rutted, deformed, or otherwise distressed, place a leveling course as directed instead of extensive surface preparation.

D. Sealant Application

1. Use a normal paving grade asphalt. A cationic or anionic emulsion may be used as approved. Do not use cutbacks or emulsions which contain solvents.
2. Uniformly spray the asphalt sealant at normal application temperature by means of a pressure distributor on the prepared dry pavement surface. Apply at the normal rate of 0.20 to 0.30 gal. per sq. yd. or as recommended by the geotextile manufacturer as directed.
3. If using emulsions, increase the application rate 50% or as directed. Some underlying surfaces may require a higher application rate. Within street intersections, on steep grades, or in other zones where vehicle speed changes are commonplace, reduce the normal application rate by 20% or as directed.
4. The target width of sealant application shall be geotextile width plus 6 in. Apply the sealant only as far in advance of geotextile installation as appropriate to insure a tacky surface at the time of geotextile placement. Place geotextile the same day as the sealant. Do not allow traffic on the sealant. Clean excess asphalt from the road surface.

E. Geotextile Placement

1. Place the geotextile into the sealant using mechanical or manual laydown equipment capable of providing a smooth installation with a minimum amount of wrinkling or folding before the sealant loses tackiness. When asphalt emulsions are used, allow the asphalt to separate from the water (break) before placing the geotextile.
2. Slit wrinkles or folds exceeding 1 in. and lay flat. Shingle-lap not more than 6 in. in the direction of the paving. Broom and/or pneumatic roll to maximize geotextile contact with the pavement surface. Additional hand-placed sealant material may be required at laps as determined.

3. Limit traffic to necessary construction equipment and emergency vehicles on the geotextile before and during paving unless otherwise directed. Turn the paver and other vehicles gradually. Keep turning to a minimum to avoid geotextile movement and damage. Avoid abrupt starts and stops.

F. Overlay Placement

Place the overlay the same day the geotextile is placed. Remove sealant that bleeds through the geotextile. Do not windrow asphalt concrete material on the geotextile ahead of the paving machines. Do not use an asphalt concrete material pickup machine. In the event of rain, the contractor shall place sand over uncovered fabric to absorb sealant.

509 COLD PLANE PAVEMENT REMOVAL

509.1 GENERAL

This work shall consist of preparing a foundation for placement of new surfacing by removal of existing surfacing to the depth, width, and cross section shown on the plans.

509.2 WORKMANSHIP

509.2.1 Equipment

The existing surfacing shall be removed with a self-propelled planning machine or grinder. The equipment shall be capable of accurately establishing profile grades within a tolerance of 0.02 ft. by reference from either the existing pavement or from independent grade control and shall have a positive means for controlling cross slope elevations. The equipment shall incorporate a totally enclosed cutting drum with replaceable cutting teeth and shall have an effective means for removing excess material from the surface and for preventing dust from escaping into the air. The use of a heating device to soften the pavement will not be permitted.

509.2.2 Pavement Removal

- A. The existing pavement shall be removed to the depth, width, grade, and cross section shown on the plans or as directed by the City Engineer to provide a surface profile true to specified grade and transverse slope.
- B. Except where samples are taken to establish a job mix formula, the existing surfacing shall not be removed more than five days prior to construction of the new surfacing, unless otherwise approved by the City Engineer.
- C. Wherever samples are obtained from existing surfacing more than five days prior to construction of the new surfacing, the Contractor shall patch the samples areas with asphalt concrete at his own expense.

509.2.3 Surface Tolerance

The new surface resulting from the pavement removal will be tested by the City Engineer for trueness to specified grade and transverse slope at selected locations. Testing will be with a 12 ft. straightedge. The variation of the surface from the testing edge of the straightedge between any two contact points shall not exceed 0.02 ft.

509.2.4 Disposal of Materials

- A. Materials removed under this specification which are not recycled and used on the project shall become the property of the Contractor at the point of removal and shall be disposed of off the limits of the project in a manner satisfactory to the City Engineer.

- B. The Contractor is encouraged to salvage any removed cold planed materials which are not recycled and used on the project for use on future projects.

510 POROUS PAVEMENT

510.1 GENERAL CONSIDERATIONS

- A. Use of porous pavement is encouraged in private development within Garibaldi to reduce stormwater impacts from impervious area associated with development. However, design, construction, and maintenance criteria for this pavement type are key to its successful installation and effectiveness. The following sections describe these key considerations.
- B. A typical porous asphalt pavement consists of a top porous asphalt course, a filter course, a reservoir course (designed for runoff detention and frost penetration), and existing soil or subbase material.
- C. The top porous asphalt course is an open-graded asphalt concrete surface course approximately 2-4 in. thick. This course consists of porous asphalt concrete containing little sand or dust, with a pore space of approximately 16% (as compared to 2-3% for conventional asphalt concrete). Strength and flow properties of porous asphalt concrete are similar to conventional asphalt concrete.
- D. The filter course is a 1 to 2 in. thick layer of 1/2 in. crushed stone aggregate. In addition to providing some filtration (limited by the relatively large pore space), the filter course also provides stability for the reservoir course during application of the asphalt mix.¹
- E. The reservoir course is a base of 1-1/2 to 3 in. stone of a depth determined by the storage volume needed. In addition to transmitting mechanical loads, the reservoir course stores runoff water until it can infiltrate into the soil. On slopes, reservoir courses at the higher end are not credited with storage capability due to lateral drainage.
- F. Where soils have low permeability, the reservoir course thickness should be increased to provide additional storage. With soils composed primarily of clay or silt, the infiltration capacity may be so slow that the soil is unacceptable as a subgrade, necessitating replacement by suitable borrow material. If the natural material beneath is relatively impermeable, drainage may have to be provided. The drainage may take the form of subsurface drains, french drains or dutch drains.
- G. Another 2 in. filter course can be applied below the reservoir course to allow additional infiltration. Below the filter course, we recommend a Filter fabric.
- H. Under the filter fabric is the undisturbed soil.

510.2 PLANNING CONSIDERATIONS

- A. Soil tests should be conducted to determine permeability, load bearing capacity, resistance to frost heave, swell and shrink. Soils with a permeability rating of A or B are probably more suitable than soils with a permeability rating of C. Evaluate the soils and drainage area to estimate the amount of water that may enter the porous pavement, and how fast this water will percolate through the soil. Underlying soils should have a minimum infiltration rate of 0.27 in. per hr., or 0.52 in. per hr. for full exfiltration systems.
- B. Plan to design any necessary Diversions in conjunction with the porous pavement. Diversions should be placed around the perimeter of the porous pavement to keep runoff and sediment completely away from the site both before and during construction.
- C. Do not store heavy equipment on the area in which porous asphalt pavement will be laid. Heavy equipment will compact soils and reduce the soil's infiltration.

510.3 DESIGN CONSIDERATIONS

Porous asphalt pavement systems should be designed by registered professional engineers.

1. Slope

The slope of porous asphalt pavement should not exceed 5% and is best when as flat as possible. If low spots do develop in the parking lot, it may be advisable to install drop inlets to divert runoff into the stone reservoir more quickly.

2. Depth

The depth of the stone reservoir should be such that it drains completely within 72 hours. This allows the underlying soils to dry out between storms (improving pollutant removal) and also preserves capacity for the next storm. If the site has marginal soils for infiltration (e.g. loams, silt loams), or covers a wide area, it may be prudent to design the reservoir to drain within 48 hours.

3. Residence Time

Care should be taken in spacing the underdrain network in partial exfiltration systems. If perforated underdrains are too close together, runoff may be collected too efficiently to provide the exfiltration needed for high pollutant removal. As a general design rule, a minimum residence time of 12 hours should be a target for the design storm.

4. Effects of Frost

If frost penetrates deeper than the thickness of the pavement and reservoir courses, and the subgrade soil has potential for frost heaving, it is recommended that additional material be added to the reservoir course to below the frost zone. If the subsurface freezes, the effectiveness of this BMP is diminished.

510.4 CONSTRUCTION CONSIDERATIONS

- A. Before the entire development site is graded, the planned area for the porous pavement should be roped off by Construction Barriers to prevent heavy equipment from compacting the underlying.
- B. Install Diversions as needed to keep runoff off the site until the porous pavement is in place.
- C. Excavate the subgrade soil using equipment with tracks or over-sized tires. Narrow rubber tires should be avoided since they compact the soil and reduce its infiltration capabilities.
- D. After excavation is complete, the bottom and sides of the stone reservoir should be lined with filter fabric to prevent upward piping of underlining or underlying soil. The fabric should be placed flush with a generous overlap between rolls. Follow manufacturer's specifications.
- E. Clean, washed 1.5 to 3 in. aggregate should be placed in the excavated reservoir in lifts, and lightly compacted with plate compactors to form the reservoir or base course. Unwashed stone has enough sediment to pose a clear risk of clogging at the soil/filter cloth interface. The minimum depth of this layer is usually 9 in.
- F. A 1 to 2 in. thick layer of 0.5 in. stone should be placed over the reservoir or base course, and manually graded to plan specifications.
- G. Add the porous asphalt layer (2 to 4 in. thick), but only when the air temperature is above 50°F and the laying temperature is between 230-260°F. Failure to follow these guidelines can lead to premature hardening of the asphalt and subsequent loss of infiltration capacity.
- H. Asphalt used in porous asphalt concrete ranges from a 50% to 100% penetration grade, depending upon the ambient temperatures and viscosity characteristics desired. Generally, the grades used in a given locality for conventional asphalt concretes will suffice for porous asphalt as well. However, the porous product is more subject to scuffing, which occurs when the front wheels of stationary vehicles are turned. It is therefore suggested that for porous asphalt, an 85 to 100% penetration grade be used.

- I. The percent of asphalt should be specified between 5.5 and 6, based on the total weight of the pavement. The lower limit is to assure adequately thick layers of asphalt around the stones, and the upper limit is to prevent the mix from draining asphalt during transport.
- J. To avoid damage due to photo-oxidative degradation of the asphalt, the asphalt coatings on the aggregate surfaces should be thicker than usual. In this case, the asphalt can form skins or otherwise be mildly degraded without significant loss of cementing properties.
- K. Roll the asphalt when it is cool enough to withstand a ten-ton roller. Normally, only one or two passes of the roller are necessary. More frequent rolling can reduce the infiltration capabilities on the open-graded asphalt mix.
- L. After rolling is complete, all traffic should be kept out of the porous pavement area for a minimum of one day to allow proper hardening.

510.5 AFTER CONSTRUCTION

- A. Stabilize the surrounding area and any established outlet following specifications in the Seeding and Mulching or Sodding BMPs. This will prevent sediment from entering the porous pavement.
- B. Where applicable, remove temporary Diversions after vegetation is established.
- C. Post signs to prevent vehicles from entering the area with muddy tires. If muddy vehicle access cannot be prevented, a temporary Access Road should be installed.
- D. Although snow and ice tends to melt more quickly on porous pavement, it may still be necessary to apply de-icing compounds to melt snow and ice. Do not use sand or ash because they may cause clogging of the pavement.

511 ADJUSTMENT OF EXISTING STRUCTURES TO GRADE

511.1 DESCRIPTION

This section covers the work necessary for adjusting tops of existing structures (e.g., manholes, sumps, catch basins, inlets, valve boxes, meter boxes, monument boxes, and similar structures) to required elevation and/or horizontal alignment complete. See *Subsection 511.03.03, Raised Tops of Masonry Structures*, *Subsection 511.03.04, Lowering Tops of Masonry Structures*, and *Subsection 511.03.05, Adjusting Metal Structures*, for adjustment of new structures to grade.

511.2 MATERIALS

511.2.1 General

Materials used in adjustment of existing structures may be materials salvaged from the existing installation and brought to a condition approved for reuse by the City Engineer.

511.3 CONSTRUCTION

511.3.1 Excavation and Backfill

- A. Excavation shall be unclassified and shall include whatever materials are encountered to the depths as shown.
- B. Saw cut around structures to be adjusted when pavement work has been completed. Do not use a jack hammer for pavement cutting. Replace pavement to previous density and grade.

- C. Backfill shall be done in accordance with the applicable requirements of **Section 204, EXCAVATION, EMBANKMENT, BEDDING AND BACKFILL.**

511.3.2 Salvage of Frames, Covers, and Grates

- A. Metal frames, covers, grates, and fittings may be salvaged from structures to be adjusted or abandoned, and if of suitable size and condition, as determined by the City Engineer, may be reused in the work.
- B. Salvaged components to be reused shall be cleaned of foreign material by solvents, sand blasting, or other methods that will not harm the component but will restore it to a nearly new condition. Salvaged frames, covers, and grates not reused on the project shall become the property of the Owner.

511.3.3 Raising Tops of Masonry Structures

- A. After existing frames, covers, and grates have been removed, expose the top surface on which new mortar or concrete is to be placed and chip away at least 1/5 in. to expose firm concrete. The new surface shall be cleaned by brushing and shall be moistened with water at the time of placing new concrete. New concrete shall then be placed to required grade and cured at least three days, after which the frame shall be seated in fresh mortar and brought to the proper grade.
- B. Masonry of bricks or concrete blocks shall be raised with new bricks, blocks, mortar, or combinations thereof or with Portland Cement Concrete, as conditions may require. Concrete boxes may be lifted and placed on precast concrete box extensions, on new brick, or on cast-in-place concrete as may be suitable.
- C. Mortar for building up existing masonry shall not be placed to a depth exceeding 1 in. Concrete shall not be placed to a depth of less than 4 in. To conform to these requirements, existing shells or walls of structures to be raised shall be cut down as necessary to provide space for the new construction.
- D. Fabricated metal rings or plates may be furnished and used in adjustment work, provided the metal and its fabrication design is at least equal to specified characteristics of strength and support required of the covers or grates to be placed, that uniform bearing of bearing surfaces is assured, and positive provision is afforded against displacement when in service.

511.3.4 Lowering Tops of Masonry Structures

Where the top of an existing masonry structure is to be lowered, the masonry portion of the structure shall be exposed to required depth, cut off, or removed to an elevation below that established for the bottom of metal frame or cover which is to be reset on masonry and shall then be built up with mortar, concrete, brick, or concrete blocks, or with metal rings or plates to required elevation and top design. Joining of new material to old, minimum thickness of new mortar and concrete, limitations, curing, and other details shall be as specified in **Section 701, CONCRETE STRUCTURES.**

511.3.5 Adjusting Metal Structures

- A. Metal inlets, valve boxes, meter boxes, monument boxes, or other like structures shall be raised or lowered to grade normally by resetting the entire structure on firm foundation. In the case of raising the structure to a point where it would not enclose or protect its contents, add metal extensions of like design below the original structure.
- B. Contractor may replace the structure with a new structure of adequate design as approved and at the Contractor's sole expense. Salvaged structures not reused on the project shall become the property of the Owner. Metal structures shall meet the surface smoothness requirements of **Subsection 209.03.04.04, Surface Smoothness.** Conform to applicable Sections of **DIVISION THREE - SANITARY SEWER TECHNICAL REQUIREMENTS** and **DIVISION FOUR - WATER TECHNICAL REQUIREMENTS.**

City of Garibaldi

Public Works Standard Construction Specifications

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DIVISION SIX – STORM DRAIN TECHNICAL REQUIREMENTS

601 PIPE AND FITTINGS

DESCRIPTION

This section covers the work listed below.

1. Gravity and storm sewer pipe
2. Culverts
3. Perforated pipe underdrains
4. Fittings

MATERIALS

601.02.01 General

- A. Use all storm sewer pipe and fittings of the size, strength, material and joint type specified on the Drawings and/or the Proposal. Use jointing material as hereinafter specified for each pipe material. Each piece of pipe shall be clearly identified as to strength, class and date of manufacture.
- B. The manufacturer or fabricator shall furnish appropriate certification, based on manufacturer's routine quality control tests, that the materials in the pipe and fittings meet the requirements specified herein. Strength, permeability, hydrostatic tests and pipe joints will be used as the basis of acceptance as described under Proof Tests herein. Minimum length of pipe shall be 3-1/2 ft.
- C. It is not intended that materials listed herein are to be considered equal or generally interchangeable for all applications. The Design Engineer shall determine the materials suitable for the project and so specify on the plans. Contractor must follow materials as specified on the plan as approved by the City.
- D. Green, ribbed PVC pipe conforming to ASTM F 794, is the preferred pipe for storm drains of 24 in. or less in diameter and should be specified for most applications.
- E. Use pipe and fittings of one type of material throughout; no interchanging of pipe and fittings will be allowed. All pipes shall be rubber gasketed.
- F. Do not coat pipes for storm sewers internally or externally with any substance of any type in an attempt to improve its performance when air tested.

601.01.02 Concrete Pipe

601.2.2.1 Nonreinforced Concrete Pipe

Nonreinforced concrete pipe shall conform to ASTM C 14, Class 3, as shown or specified and the following additional requirements:

1. Cement shall be Type II conforming to ASTM C 150.
2. The minimum Portland Cement content shall be 564 lbs. per cu. yd.
3. The water/cement ratio shall not exceed 0.49.
4. The Contractor shall provide the City Engineer with a Certificate of Compliance from the pipe manufacturer that the pipe and concrete mix conform in all respects to these specifications and other non-conflicting requirements of the referenced ASTM Specifications.

601.2.2.2 Reinforced Concrete Pipe

Reinforced concrete pipe shall conform to ASTM C 76, Class IV, as shown or specified with Wall B design and the following additional requirements:

1. Cement shall be Type II conforming to ASTM C 150.
2. The minimum Portland Cement content shall be 564 lbs. per cu. yd.
3. The water/cement ratio shall not exceed 0.49.
4. Elliptical reinforcing is not permitted.
5. The area of the outer circular reinforcing cage shall not be less than 75% by the inner cage.
6. The Contractor shall provide the City Engineer with a Certificate of Compliance from the pipe manufacturer that the pipe and concrete mix conform in all respects to these specifications and other non-conflicting requirements of the referenced ASTM Specifications.

601.2.2.3 Perforated Concrete Pipe

Perforated concrete pipe and fittings shall conform to ASTM C 444 and applicable requirements of ASTM C 14 and C 76 as modified herein, class and end type as specified.

601.2.3 Ductile Iron Pipe

- A. Ductile iron pipe centrifugally cast of 60-42-10 iron shall conform to ANSI A21.51 Class 150 or AWWA C151, with Push-on Joint or Mechanical Joints as specified, conforming to ANSI Specification A21.11/AWWA C111. Ductile iron pipe shall be lined with cement mortar and seal coated in accordance with ANSI Standard A21.4/AWWA C104.
- B. When specified, tube type polyethylene encasement shall conform to ANSI A21.5/AWWA C105.

601.2.4 PVC Non-Pressure Pipe and Perforated PVC Pipe

601.2.4.1 Solid Wall

PVC sewer pipe shall conform to ASTM D 3034 SDR-35 or F 794.

601.2.4.2 Perforated Wall

Perforated PVC pipe shall conform to ASTM D 1785, Schedule 40. The perforations shall consist of two rows of 2 in. slots. The slots shall be transverse to the axis of the pipe. Two rows of slots shall be 120° on centers. Slot size shall be 0.4 in.

601.2.5 High Density Polyethylene Pipe (HDPE)

Smooth interior, corrugated exterior HDPE sewer pipe and associated HDPE fittings shall conform to AASHTO M-294, AASHTO 252, ASTM 405 or ASTM 667.

601.2.6 Corrugated Aluminum Alloy Pipe

- A. Corrugated aluminum alloy pipe shall be used only for specialized applications as approved by the City Engineer. Other materials must be demonstrated to be impractical or unavailable.
- B. Corrugated aluminum alloy pipe and coupling bands of the gauges and types as shown or specified shall conform to the material, fabrication, and inspection requirements of AASHTO M-196, Type I or Type II, and AASHTO M-197. Recorrugate the ends of Helical corrugated pipe to receive annular bands at each joint.

601.2.7 Flared End Sections

- A. Precast concrete flared-end sections shall conform to the requirements for Reinforced Concrete Pipe herein specified. The area of steel reinforcement per linear foot of flared-end section shall be at least equal to the minimum steel requirements for circular reinforcement in circular pipe for the internal diameter of the circular portion of the flared-end section. Submit all details of construction to the City Engineer.
- B. Use prefabricated aluminum flared-end sections conforming to AASHTO M-197.

601.2.8 Bituminous Coating

When specified, completely coat the inside and outside surfaces of corrugated pipe with bituminous material conforming to AASHTO M-190 Type A, with a minimum thickness of 0.05 in. at the crest of the corrugations.

601.2.9 Paved Inverts

When specified, bituminously coat the bottom one-half and pave the inside surface of the corrugated metal pipe for 1/4 of its circumference with bituminous material conforming to AASHTO M-190 Type B to provide a flat invert centered in the bottom of the pipe. The pavement, except where the upper edges intersect the corrugations, shall have a minimum thickness of 1/8 in. above the crests of the corrugations. Suitably mark the outside of the pipe on both ends to clearly designate the centerline of the top of the pipe.

601.2.10 Jointing Materials

- A. Only lubricants for jointing materials approved by the manufacturer shall be used.
- B. Furnish in duplicate a certified statement from the manufacturer of the gaskets, setting forth the basic polymer used in the gaskets and results of the tests of the physical properties of the compound. Gaskets shall be shipped in containers with identification of the batch from which the gaskets were fabricated.

601.2.10.1 Concrete Pipe

Rubber gaskets for bell and spigot pipe shall conform to ASTM C 443. Use captive gasket in groove design for pipe 24 in. diameter and larger. Mortar for tongue and groove pipe shall conform to **Section 205, TYPES AND USE OF MATERIALS.**

601.2.10.2 Cast Iron and Ductile Iron Pipe

Rubber gaskets shall conform to ANSI A21.11/AWWA C111.

601.2.10.3 PVC Pipe

Rubber gaskets for PVC pipe shall conform to ASTM F 477.

601.2.10.4 HDPE Pipe

Rubber gaskets for HDPE pipe shall conform to ASTM F 477.

601.2.11 Proof Tests

601.2.11.1 General

The intent of this requirement is to pre-qualify a joint system, components of which meet the joint requirements, as to the water tightness capability of that joint system. This proof test shall be understood to apply to all storm drains, which are to be tested for water tightness prior to acceptance. Material and test equipment for proof testing shall be provided by the manufacturer. Joints shall meet the requirements of yard testing specified below. The pipe manufacturer shall submit results of the yard

tests made, certified by a testing agency acceptable to the City Engineer. In general, each pipe material and joint assembly shall be subject to the following three proof tests at the discretion of the City Engineer:

1. Pipe in Straight Alignment.

No less than three nor more than five pipes selected from stock by the City Engineer or the testing agency shall be assembled according to the manufacturer's installation instructions with the ends suitably plugged and restrained against internal pressure. The pipe shall be subjected to 13 psi hydrostatic pressure for 10 minutes. Free movement of water through the pipe joint or pipe shall be grounds for rejection of the pipe.

2. Pipe in Maximum Deflected Position.

A test section shall be deflected as described hereinafter for each pipe material. The pipe shall be subjected to 10 psi hydrostatic pressure for 10 minutes. Free movement of water through the pipe joint or pipe wall shall be grounds for rejection of the pipe.

3. Joints Under Differential Load.

The test section shall be supported on blocks or otherwise as described hereinafter for each pipe material. There shall be no visible leakage when the stressed joint is subjected to 10 PSI internal hydrostatic pressure for 10 minutes.

601.2.11.2 Concrete Pipe

- A. For deflected position, create a position 1/2 in. wider than the fully assembled position, on one side of the outside perimeter of each joint.
- B. For differential load test, assemble three pipes according to the manufacturer's instructions in straight alignment with the ends suitably plugged and restrained against internal hydrostatic pressure. The end pipes of the test section shall be supported on blocks or otherwise so that the center pipe is suspended freely between the adjacent pipe and bearing only the joints. The pipe section shall be filled with water and a load of 150 pounds per inch of pipe diameter, in addition to the weight of the pipe, shall be supplied over an arc of not less than 120° along a longitudinal distance of 12 in. immediately adjacent to one of the joints. For pipe 24 in. and larger, the applied load shall be reduced by 1/2 of the weight of water in the suspended pipe.

601.2.11.3 Cast Iron Pipe and Ductile Iron Pipe

- A. For deflected position, create a position 1/2 in. wider than the fully compressed section on one side of the outside perimeter.
- B. For differential load, support so that one of the pipes is suspended freely between adjacent pipe, bearing only on the joints. Apply a force per the following table along a longitudinal distance of 12 in., immediately adjacent to one of the joints.

Pipe Size	Force – Pounds	Pipe Size	Force – Pounds
4 in.	1,000	15 in.	3,700
6 in.	1,500	18 in.	4,400
8 in.	2,000	21 in.	5,000
10 in.	2,500	24 in.	5,500
12 in.	3,000	and over	----

601.2.11.4 PVC Pipe

PVC pipe joints shall be tested by and meet the requirement of ASTM C 3212 for gravity sewers and ASTM D 3139 for pressure sewers.

601.2.11.5 HDPE Pipe

HDPE pipe shall be tested and meet the requirements of ASTM D 3350 for polyethylene pipe.

601.2.12 Fittings

601.2.12.1 PVC Pipe

In connecting PVC pipe to manholes, use resilient connectors in conformance with ASTM C923.

601.2.13 Couplings, Bands and Fittings for Corrugated Metal Pipe

Use couplings, bands and fittings conforming to AASHTO M-196.

601.3 CONSTRUCTION

601.3.1 Excavation and Backfill

Conform to the requirements of **Section 204, EXCAVATION, EMBANKMENT, BEDDING, AND BACKFILL**. All excavation shall be unclassified.

601.3.2 Line and Grade for Gravity Storm Sewers

Do not deviate from line or grade, as established by the Design Engineer, more than 1/2 in. for line and 1/4 in. for grade, provided that such variation does not result in a level or reverse sloping invert. Measure for grade at the pipe invert, not at the top of the pipe, because of permissible variation in pipe wall thickness. Establish line and grade for pipe by the use of lasers or by transferring the cut from the offset stakes to batter boards at maximum intervals of 50 ft.

601.3.3 Pipe Distribution and Handling

- A. Distribute material on the job no faster than it can be used to good advantage. Unload pipe only by means recommended by the pipe manufacturer. Do not unload pipe of any size by dropping to the ground. Do not distribute more than one week's supply of material in advance of laying, unless approved.
- B. Pipe shall not be unloaded or stored in the public right-of-way or easement unless it has been certified and accepted by the City Engineer. Inspect all pipe and fittings prior to lowering into trench to ensure no cracked, broken, or otherwise defective materials are used. Clean ends of pipe thoroughly. Remove foreign matter and dirt from inside of pipe and keep clean during and after laying.
- C. Use proper implements, tools, and facilities for the safe and proper protection of the work. Lower pipe into the trench in such a manner as to avoid any physical damage to the pipe. Remove all damaged pipe from the job site. Do not drop or dump pipe into trenches.

601.3.4 Pipe Laying and Jointing of Pipe and Fittings

601.3.4.1 General

- A. Proceed with pipe laying upgrade with spigot or tongue ends pointing in direction of flow. Place pipe in such a manner as to ensure a continuous and uniform bearing and support for the full length of the pipe between joints. Take care to properly align the pipe before forced entirely home. Upon completion of pipe laying all pipe joints shall be in the "home" position, which is defined as the position where the least gap (if any) exists, when the pipe components that comprise the joint are

- fitted together as tightly as the approved joint design will permit. Gaps at pipe joints shall not exceed that allowed by the manufacturer's recommendations. For curved sewers the normal gap will be the gap existing when the pipe joints are in the "home" position as described above, for the pipe in the specified deflected position. After installation, prevent movement from any cause including uplift or floating.
- B. Take special care to prevent movement of the pipe after installation when laid within a movable trench shield.
 - C. When laying operations are not in progress, protect the open end of the pipe from entry of foreign material and block the pipe to prevent movement or creep of gasketed joints.
 - D. Plug or close off pipes which are stubbed out for manhole construction or for connection by others.
 - E. Provide all sewer pipes, 36 in. or smaller in diameter, entering or leaving manholes or other structures, with flexible joints within 18 in. of the exterior wall. Pipes larger than 36 in. in diameter shall have this flexible joint within a distance from the exterior wall equal to one-half the inside pipe diameter.
 - F. When cutting and/or machining the pipe is necessary, use only tools and methods recommended by pipe manufacturer.
 - G. When shown or approved to deflect pipe from a straight line, either in the vertical or horizontal plan, or when long-radius curves are shown, the amount of deflection shall not exceed that specified or approved by the City Engineer. The pipe manufacturer's recommendation will serve as a guide, but the decision of the City Engineer shall be final.

601.3.4.2 Concrete Pipe

Use rubber ring gasket joints unless mortar joints are specifically specified. When mortared joints are used, the entire joint for the full circumference of the pipe shall be completely filled with mortar. The surfaces of the pipe joint shall be brushed clean prior to mortaring. Fill the exterior of the joint with mortar and in the case of bell and spigot joints, fill to an angle of 45°.

601.3.4.3 Corrugated Metal Pipe

Repair all damaged areas of the protective coating with material equal to the original and permit to dry or solidify before backfilling.

601.3.5 Perforated Pipe Underdrains

601.3.5.1 Trench Excavation and Backfill

Conform to applicable requirements in **Section 204, EXCAVATION, EMBANKMENT, BEDDING, AND BACKFILL**. All excavation shall be unclassified.

601.3.5.2 Pipe Bedding

Provide a minimum 4 in. bedding of 1-1/2"-3/4 rock under perforated drain pipe, or as shown. Hand grade the bedding to proper grade ahead of pipe laying. Provide a firm, unyielding support along the entire pipe length. 3/4"-0

601.3.5.3 Backfill at the Pipe Zone

Backfill the pipe zone with 1-1/2"-3/4 rock hand placed simultaneously on both sides of the pipe for the full trench width.

601.3.5.4 Backfill Above the Pipe Zone

Use 1-1/2"-3/4 rock for backfill above the pipe zone, unless otherwise specified.

601.3.5.5 Laying and Jointing Perforated Pipe

- A. Securely fasten together perforated pipe with couplings, fittings, or bands as specified by the manufacturer for the type of the pipe used. Close upgrade ends of all subsurface drain pipe with approved plugs to prevent entry of soil materials.
- B. Begin pipe laying normally at the outlet end of the pipe line. The lower segment of pipe shall be in contact with the shaped bedding throughout its full length. Bell or groove ends of rigid pipe and outside circumferential laps of flexible pipe shall be placed facing the upgrade end.
- C. Lay all perforated pipe, except perforated PVC pipe, with perforations facing down, unless otherwise specified or directed. Place perforated PVC Drain Pipe with slots facing up.
- D. Inspect all pipe prior to lowering into the trench and, if necessary, clean off any material tending to plug the perforations of the pipe. Carefully lower all pipe and fittings into the trench to avoid any contamination of the filter bedding material.

601.3.6 Flared End Sections

Construct flared end sections in accordance with the details and dimensions shown, except that minor variations may be accepted to permit the use of the manufacturer's standard prefabricated sections and methods of fabrication. Conform excavation, bedding and backfill to applicable requirements herein for the adjacent pipe or drain to be joined.

601.3.7 Pipe Coupling Adapters

Use of hard fitting is required when transitioning between dissimilar pipe materials, unless no such fitting is available (simply because part is not in stock or is a special order is not justifiable cause for use of a flexible fitting). When approved by the City Engineer or his/her representative, use flexible mechanical compression joint coupling with No. 305 stainless steel bands manufactured by Joints, Inc., Fernco Joint Sealer or equal.

601.3.8 Concrete Closure Collars

Only where specified on Drawings, construct concrete closure collars in conformance with the details provided. Wash pipe to remove all loose material and soil from the surface on which the concrete will be placed. Wet nonmetallic pipe thoroughly prior to placing the collars. Construct forms with materials that will ensure that no concrete shall enter the line. Make entire collar in one placement, and do not place collars in water. After the collars are placed and have taken their initial set, cure by covering with well-moistened earth. Do not backfill the trench until the concrete has sufficient strength.

601.3.9 Culverts

Remove and replace culverts in conformance to all applicable requirements of this section and **Section 204, EXCAVATION, EMBANKMENT, BEDDING, AND BACKFILL.**

601.3.10 Testing Storm Drains

601.3.10.1 General

- A. The Contractor shall make a televised inspection of the storm drain pipe. Use pan & tilt camera types only. Every lateral shall be inspected and identified on tape. Any defects in material or workmanship shall be satisfactorily corrected prior to final acceptance of the work.
- B. When the quality of materials used or workmanship performed during the construction of storm drains is in doubt for any reason, the City Engineer may require the storm drain and all applicable appurtenances to be tested. When so ordered, the storm drain shall be required to pass the same air test as specified for sanitary sewers in **Subsection 301.03.10, Deflection Test for PVC Pipe.**

- C. All tests and inspections (including video-inspection) must be performed in the presence of the City Engineer or his/her representative to be valid.
- D. Tests shall be performed in the following order: deflection testing, air pressure testing (if required per 601.03.10A.2), video inspection. If any one of the tests fail, all tests must be completed again after repair of the failed section in the testing order specified above.
- E. Deflection testing, air pressure testing (if required), and video inspection shall be done only after backfill has passed the required compaction tests based on AASHTO T-180 and the roadway base rock has been placed, compacted, proofrolled, and approved by the City Engineer.
- F. The storm system must receive the City Engineer's approval regarding deflection testing, air pressure testing (if required), and video inspection before paving of overlying roadways will be permitted.

601.3.10.2 *Cleaning Prior to Testing and Acceptance*

- A. Prior to final testing, acceptance and final manhole-to-manhole inspection of the storm sewer system by the City Engineer, ball, flush and clean all parts of the system. Remove all accumulated construction debris, rocks, gravel, sand silt, and other foreign material from the storm sewer system at or near the closest downstream manhole. If necessary, use mechanical rodding or bucketing equipment.
- B. Upon the City Engineer's final manhole-to-manhole inspection of the storm sewer system, if any foreign matter is still present in the system, reflush and clean the sections and portions of the liens as required.

601.03.10C *Repairs*

- A. Repair or replace, in a manner satisfactory to the City Engineer, any section of pipe not meeting the test requirements, or which has leakage.
- B. Infiltration of ground water following a successful air test as specified, shall be considered as evidence that the original test was in error or that subsequent failure of the pipeline has occurred. Correct such failures occurring within the warranty period in a manner satisfactory to the City Engineer at the Contractor's sole expense.

601.3.11 *Deflection Test for PVC, Ribbed PVC, and HDPE Pipe*

- A. Perform a deflection test for all storm drains and culverts constructed of PVC, Ribbed PVC, and HDPE pipe after the trench backfill and compaction has been completed. The test shall be conducted by pulling an approved solid pointed mandrel or variable deflection measuring gauge through the completed pipeline after compaction is completed.
- B. The diameter of the mandrel shall be 95% of the internal pipe diameter. Conduct testing on a manhole-to-manhole basis and only after the line has been completely flushed clean with water. Locate and repair any sections failing to pass the test and retest the section, at the Contractor's sole expense.

601.3.12 *Television Inspection of Storm Drains*

- A. Upon completion of all storm drain construction, repairs, cleaning, and required tests, notify the City Engineer that all lines are ready for televising inspection.
- B. Subsequent to being notified, the City Engineer shall commence examination of lines or may waive the television inspection. Findings will be recorded. Correct all deficiencies at the Contractor's sole expense.
- C. Upon correction of deficiencies revealed by televising, notify the City Engineer; the same steps listed above may be repeated until all work is acceptable.
- D. The Contractor may, at its own option, perform a deflection test at the same time it performs its television inspection.

- E. Before release of the maintenance or warranty bond, the City Engineer may require televised inspection of the piping at the Contractor's expense. The Contractor shall correct all deficiencies found by this inspection.
- F. When performing television inspections, water shall be added, tracing dye and a 1 in. measuring ball shall be utilized. Use pan-and-tilt camera types only and every lateral shall be inspected and identified on tape.

601.3.13 Subsequent Failure

No infiltration of ground water in the system is allowed. No standing water greater than 3/8 in. is allowed.

602 MANHOLES, INLETS AND CONCRETE STRUCTURES

DESCRIPTION

This section covers the work necessary for the construction of items listed below.

- 1. Manholes
- 5. Sumps
- 6. Inlets and Catch Basins
- 7. Anchor Walls
- 8. Special Concrete Structures
- 9. Concrete Encasement

MATERIALS

602.2.1 Base Rock

Three-quarter inch minus base rock, conforming to the requirements for crushed aggregate material in *Subsection 204.02.06, Class B Backfill, 3/4"-0 Crushed Aggregate.*

602.2.2 Forms

Forms for exposed surfaces shall be steel or plywood. Others shall be matched boards, plywood or other approved material. Form all vertical surfaces. Trench walls, large rock or earth shall not be used as form material.

602.2.3 Concrete and Reinforced Steel

Concrete and reinforcing steel shall conform to **Section 205, TYPES AND USE OF MATERIALS.**

602.2.4 Cement Mortar

When specified for use, cement mortar shall conform to **Section 205, TYPES AND USE OF MATERIALS.** Consistency of mortar shall be such that it will readily adhere to the pipe if using the standard tongue-and-groove type joint. Mortar mixed for longer than 30 minutes shall not be used.

602.2.5 Manholes

602.2.5.1 Standard Precast Manhole Sections

- A. Furnish sections as specified conforming to the details on plans and to ASTM C 478. Cones shall have same wall thickness and reinforcement as manhole section. Provide eccentric cones

with precast grooves for all manholes over 6 ft. in depth. Flat slab tops with precast grooves reinforced to withstand AASHTO H-20 loadings shall be provided for manholes 6 ft. deep from crown of pipe and less. Top and bottom of all sections shall be parallel.

- B. Prior to the delivery of any size of precast manhole section on the job site, yard permeability tests will be conducted at the point of manufacture. The precast sections to be tested will be selected at random from the stockpiled material, which is to be supplied for the job. All test specimens will be mat tested, and shall meet the permeability test requirements of ASTM C 14 and ASTM C 497.

602.2.5.2 *Precast Concrete Bases*

Construction of precast bases shall conform to the requirements of ASTM C 478. The base riser section shall be integral with the base slab.

602.2.5.3 *Poured in Place Manhole Bases*

Concrete shall conform to **Section 205, TYPES AND USE OF MATERIALS**.

602.2.5.4 *Manhole Grade Rings*

Concrete grade rings for extensions shall be a maximum of 6 in. high and shall be Keylock joint.

602.2.5.5 *Jointing Materials*

Preformed plastic gaskets conforming to the requirements of AASHTO M-198 or joints using confined O-ring with rubber gaskets conforming to ASTM C 443 shall be used.

602.2.6 *Pipe and Fittings*

Conform to requirements of **Section 601, PIPE AND FITTINGS**.

602.2.7 *Precast Inlets and Catch Basins*

Precast base and extension units shall conform to ASTM C 913 and shall be used in the construction of all inlets and catch basins. Concrete risers for extensions shall be a minimum of 4 in. in height and shall be the same quality as the main section.

602.2.8 *Manhole and Cleanout Frames and Covers*

602.2.8.1 *General*

All castings shall be true to size, weight and tolerances shown on the plans. Delivered weight shall be ± 5 percent of the specified weight. The bearing seat shall not rock when checked by the test jig. The foundry shall supply all test gauges and shall not subcontract any of the work other than testing procedure, patterns, and machining and cartage. The casting shall not be made by the open mold method and shall be free of porosity, shrink cavities, cold shuts, or cracks, or any defects which would impair serviceability. Repair of defects by welding or by the use of "smooth-on" or similar material will not be permitted. All castings shall be shot or sandblasted, and the application of paint or other coating will not be permitted. All manhole frames and covers located outside of the right-of-way shall be tamper-proof and set to an elevation 1 ft. above finish grade.

602.02.08.01 *Materials*

Conform to ASTM A 48, Class 30B, with the revisions indicated in the table below.

Tensile Strength	30,000 psi
Traverse Strength (1.2 in. dia. bar - 18 in. centers) Load - Pounds	1,600 - 3,000
Deflection - Inches	0.22 - 0.34
Brinell Hardness (as cast)	173 – 200

The Foundry shall certify as to the tensile and traverse properties and the Brinell Hardness. The Owner reserves the right to require a Rough Traverse bar (size of bar 1.2 in. dia. by 20 in. long) and/or a tensile bar as per ASTM A 48 for each 20 castings or heat when less than 20 castings are made.

602.02.08.03 Cap Screws

Cap screws and washers for tamperproof and watertight manhole covers shall be stainless steel with 60,000 psi minimum tensile strength conforming to ASTM A 453.

602.2.9 Standard Frames and Grates for Inlets and Catch Basins

Frames and grates for catch basins and storm drain inlets shall be fabricated of steel conforming to ASTM A 7, A 36, A 373 in accordance with the details shown on the plans. All connections shall be welded. Welding shall conform to requirements of current code for welding in building construction of the American Welding Society. Frames and gratings shall be tested one within the other, and there shall be no more than 1/16 in. rock. When checked by a test jig, the bearing seat of either component shall have no more than 1/16 in. rock. Test jibs shall be furnished by the manufacturer.

602.2.10 Steps for Precast Manholes

Manhole steps will comply with **Section 302, MANHOLES AND CONCRETE STRUCTURES**.

602.2.11 Storm Sumps

The precast sections will comply with **Subsection 602.02.05, Manholes**. The frame and cover will comply with **Subsection 602.02.08, Manhole and Cleanout Frames and Covers** and will be tamper-proof when the sump is located outside the right-of-way. The steps will comply with **Subsection 602.02.10, Steps for Precast Manholes**. Drain rock will be clean round imported material and the size will be 2" to 4". The filter fabric will be Mirafi 140 or equal.

602.03 CONSTRUCTION

602.03.01 General

602.03.01.10 Excavation and Backfill

Conform to applicable provisions in **Section 204, EXCAVATION, EMBANKMENT, BEDDING, AND BACKFILL**. Backfill around manholes, inlets, catch basins, and other appurtenances shall be of the same quality as the trench backfill immediately adjacent. All excavation shall be unclassified.

602.3.1.2 Base Rock

Place crushed aggregate base rock and thoroughly compact with a mechanical vibrating or power tamper.

602.3.1.3 Foundation Stabilization

If material in bottom of excavation is unsuitable for supporting manholes and other sewer appurtenances, excavate below subgrade as directed and backfill to required grade with rock conforming to Foundation Stabilization in **Section 204, EXCAVATION, EMBANKMENT, BEDDING, AND BACKFILL**.

602.3.2 Manholes

- A. All manholes, except as otherwise specified, shall be constructed using precast, reinforced concrete base sections, riser sections, and other precast appurtenances conforming to ASTM C 478. Base riser sections shall be integral with the base slabs.
- B. Preformed plastic gaskets shall be installed in strict accordance with the manufacturer's recommendation. Only pipe primer furnished by the gasket manufacturer will be approved. When using preformed plastic gaskets, manhole sections with chips or cracks in the joint surfaces shall not be used. Completed manholes shall be rigid and all manholes for sanitary sewers shall pass the hydrostatic test. Construct manhole inverts in conformance with the plans with smooth transitions to ensure an unobstructed flow through manhole. Cover exposed edges of pipe completely with mortar. Trowel all mortar surfaces smooth.
- C. Holes for installing pipe into precast manhole sections shall be cast in place or core drilled.
- D. Channels shall conform accurately to sewer grade. Channel shall be formed to accept a 3 ft. long by 6 in. TV camera. Construct cast in place channel and shelf, in field, in one operation. Finish concrete shelf between channels with a brush.

602.3.3 Pipe Stubouts from Manholes

Install stubouts from manholes at locations as shown or directed using sand collar or rubber boot. Grout or install pipes into manhole walls or manhole base so as to provide watertight seal around pipes. Provide manhole with resilient connector for PVC pipe. Pipe connection shall be by core drilling only. Pipe connections to the cone section of a manhole are strictly prohibited.

602.3.4 Manhole Grade Rings

- A. In general, manhole grade rings will be used on all manholes in streets or roads or other locations where a subsequent change in existing grade may take place. Extensions will be limited to a maximum height of 12 in.
- B. Install appropriate combination of grade rings to a height that will accommodate the finish manhole surface elevation as shown on the Drawings. Lay grade rings in mortar with sides plumb and tops level. Seal joints with mortar to provide a watertight seal. Grade ring extensions shall be watertight.

602.3.5 Adjustment of Manholes to Grade

- A. Frame and cover shall be brought to finish grade for asphaltic concrete. If only one lift of AC will be applied for a period of time exceeding 24 hours prior to second lift, the frame and cover shall be brought to the grade of the first lift, and a standard cast iron riser shall be used to adjust grade at a later date for final lift. (Resolution 05-10 4/11/05)
- B. All storm manhole located outside of paved areas shall be raised 12 in. above final grade and tamper proofed frames and lids shall be used. (Resolution 05-10 4/11/05)

602.3.6 Vacuum Testing

Manholes may be vacuum tested at the discretion of the City Engineer according to guidelines listed in *Subsection 302.03.07, Vacuum Testing*.

602.3.7 Concrete Encasement for Storm Drainage Pipe

- A. Conform to the requirements shown on the Drawings and to applicable requirements of **Section 204, EXCAVATION, EMBANKMENT, BEDDING, AND BACKFILL**. Foundation stabilization, if required, shall be completed and the bottom of the trench compacted. Sides of encasement shall be formed, not poured against soil or rock, unless directed or approved by the City Engineer.

- B. Support pipe true to line and grade before and during placement of concrete. Encasement shall be placed in a minimum of two lifts. Provide a keyway on both sides of the encased pipe and vertical reinforcing bond steel as shown on the Drawings. Adequately support the pipe to prevent pipe deflection during concrete placement and initial set.
- C. Reinforcing shall be placed as shown on the Drawings.
- D. After concrete encasement has been placed and taken an initial set, cure by covering with well-moistened earth or backfill material for five days before conducting compaction operations and air test.

602.3.8 Special Concrete Structures

Conform to the details as shown.

602.3.9 Placing Precast Units

If material in bottom of trench is unsuitable for supporting unit, excavate as directed and backfill to required grade with foundation stabilization material in conformance with **Section 204, EXCAVATION, EMBANKMENT, BEDDING, AND BACKFILL**. Set units to grade at locations shown or directed.

602.3.10 Installation of Inlets and Catch Basins

- A. Install inlets and catch basins at the locations shown on the Plans or where directed by the Design Engineer.
- B. Construct inlets and catch basins as shown on the Drawings. All inlets and catch basins constructed with precast units shall conform to ASTM C 913. The top section, including curb, gutter, and frame, shall be cast-in-place. The Contractor may use poured in place inlets and catch basins in accordance with the Drawings. Concrete shall conform to **Section 205, TYPES AND USE OF MATERIALS**.
- C. Set frames and grates at elevations shown or as directed. Frames shall be cast in concrete. Bearing surfaces shall be clean and provide uniform contact. Anchor bolts and other fastenings shall be firmly embedded in concrete.
- D. Any surrounding structures (e.g., pavement, curbs, gutters, sidewalks, driveways) and landscaping damaged during installation of inlets or catch basins shall be restored in accordance with these Standard Specifications at the Contractor's sole expense.

602.3.11 Inlet and Catch Basin Extensions

Install extensions to height as required. Use the largest size (in height) pre-cast extension risers available from the manufacturer that will allow for conformance with the specified finished grade. Stacking small pre-cast extensions where a larger extension could be used is prohibited. Lay risers in mortar with sides plumb and tops to grade. Joints shall be sealed with mortar, with interior and exterior troweled smooth. Prevent mortar from drying out and cure by applying an approved curing compound or other approved method. Extensions shall be watertight.

602.3.12 Cleaning

Upon completion, clean each structure of all silt, debris and foreign matter.

602.3.13 Steps for Precast Manholes

Steps shall comply with that specified in **DIVISION THREE – SANITARY SEWER TECHNICAL REQUIREMENTS**.

602.3.14 Drywells

Drywells are not allowed in the City of Garibaldi.

603 WORK ON EXISTING STORM DRAINS DRAINAGE STRUCTURES

DESCRIPTION

This section covers the work necessary to join new work to existing, the abandoning of storm drains and structures and adjusting existing utility structures to finished grades.

MATERIALS

Conform to requirements of **Section 205, TYPES AND USE OF MATERIALS** and to the requirements for related work referred to herein.

CONSTRUCTION

603.3.1 Excavation and Backfill

Conform to requirements of **Section 204, EXCAVATION, EMBANKMENT, BEDDING, AND BACKFILL**. All excavation shall be unclassified.

603.3.2 Manholes Over Existing Storm Sewers

- A. Advise City Engineer of system for diverting flow and obtain authorization before starting. The Contractor shall be totally responsible for maintaining adequate capacity for flow at all times and adequately protecting new and existing work.
- B. Construct manholes over existing operating storm sewers at locations shown. Perform necessary excavation and construct new manholes in conformance with applicable requirements of **Section 302, MANHOLES AND CONCRETE STRUCTURES**.
- C. Construct manholes as shown on the Drawings. Densify the concrete base by vibrating or working as approved and screed to provide a level, uniform bearing for precast sections.
- D. Manhole cannot be poured over existing pipe and then top of pipe removed to expose storm drain. Pipe shall be cut outside of manhole with a flexible joint installed either side of manhole as shown in the Drawings.
- E. Place the first precast section of manhole in concrete base before concrete has set and deposit sufficient mortar on the base to assure a watertight seal between the base and the manhole wall. First section shall be properly located and plumb. Stacking additional precast manhole sections shall be prohibited until the concrete has cured a sufficient amount to support the additional weight in moist conditions.
- F. Prevent broken material or debris from entering storm sewer. Maintain flow through approved lines at all times. Protect new concrete and mortar for a period of seven days after placing.

603.3.3 Connection to Existing Manholes, Inlets and Concrete Structures

Provide all diversion facilities and perform all work necessary to maintain flow in existing lines during connection. Manhole connections shall be done by core drilling only. Grout in new pipe to provide watertight seal, and when applicable, smooth flow into and through existing manhole as specified in **Subsection 603.03.09, Reconstruct Manhole Base**.

603.3.4 Removal of Existing Pipes, Manholes and Appurtenances

Existing pipelines, manholes and appurtenances which lie in the line of and are to be replaced by the new construction shall be removed from the site and disposed of as provided for in **Section 203, CLEARING AND GRUBBING**.

603.3.5 Filling Abandoned Manholes, Inlets and Catch Basins

Existing manholes, inlets, and catch basins shown to be abandoned shall be filled with granular material as specified in **Section 204, EXCAVATION, EMBANKMENT, BEDDING, AND BACKFILL**. Compact to at least 90% maximum density as determined by ASTM D 1557. For catch basins, remove frame and grate. For manholes, remove frame and cover and top cone section (or flat top). Plug all pipes with permanent plugs. Final grade shall be specified by the Design Engineer. Break or perforate the bottom to prevent the entrapment of water.

603.3.6 Existing Manhole Frames and Covers

Manhole frames and covers removed by the Contractor which will not be reused on the project shall become the property of the City at the City's discretion.

603.3.7 Permanent Plugs

Clean interior contact surfaces of all pipes to be cut off or abandoned. Construct concrete plug in end of all pipe 18 in. or less in diameter. Minimum length of concrete plugs shall be 8 in. For pipe 21 in. and larger, the plugs may be constructed of common brick or concrete block. Plaster the exposed face of block or brick plugs with mortar. All plugs shall be watertight and capable of withstanding all internal and external pressures without leakage.

603.3.8 Adjust Existing Structures to Grade

Existing manholes, inlets, catch basins and similar structures shall be brought to the specified finished grade by methods of construction as required in **Section 511, ADJUSTMENT OF EXISTING STRUCTURES TO GRADE**.

603.3.9 Reconstruct Manhole Base

Conform to applicable requirements of **Section 302, MANHOLES AND CONCRETE STRUCTURES**. Exercise caution in chipping out existing concrete base so as to prevent cracking of manhole walls. Prevent all material from entering the flow. Pour new base to a minimum of 6 in. below the lowest projection of the pipe. Construct new channels to the elevations shown. Conform to details for channel construction in the Drawings. Repair any cracks which occur as a result of work operations with new grout to form a watertight seal.

603.3.10 Connect Pipe to Existing Inlets

Conform to applicable requirements of **Section 302, MANHOLES AND CONCRETE STRUCTURES**. Core drill opening and grout in a watertight seal between the new pipe and inlet wall. Plaster mortar smooth inside pipe opening. Alignment, slope of pipe, and other construction details shall be as specified.

603.3.11 Storm Sump Protection

When a storm sump is encountered the Contractor will take all precautions to protect the structure, and replace all disturbed structures and materials to their original condition.

603.3.12 Storm Laterals

- A. All tests and inspections for watertightness and proper construction shall be completed to the satisfaction of the City Engineer and be performed in accordance with the state plumbing code prior to connection to an existing storm sewer. Previous use of the service line for other applications, or absence of usable cleanouts for accessing the building storm sewer, shall not excuse the requirement for testing except as may be authorized by the state building codes inspector.
- B. Connections of service lines to existing storm sewers shall be made watertight. Connection shall be made where possible to existing tees or wyes previously installed and plugged. Transition couplings between dissimilar pipe materials shall be made using hard fittings. Flexible connectors with stainless steel bands

such as Fernco, Caulder, or equal may be used only when specifically approved by the City Engineer and will only be considered on a case by case basis.

- C. Where tees or wyes for connection are absent or unusable, connection of service lines shall be typically made with an Inserta Tee® or City approved equal. Taps shall be located a minimum of 12 in. from existing pipe joints and other taps. Connection point shall be core drilled in the upper quadrant of the pipe at a 45 degree angle, hole diameter cut to manufacturer's specifications, and hub adapter (manufactured in accordance with ASTM D 3034) shall be connected to rubber sleeve with #316 stainless steel band (9/16 in. wide). Elastomeric seals shall meet ASTM F 477. Connection shall have a gasketed bell. Incorrect drilled hole size, damage to the City main, or non-tight fitting storm sewer taps will require resolution as approved by the City Engineer and may require removal and replacement of a section of the main. Other tapping materials must receive prior approval from the City Engineer.
- D. All taps shall be inspected and approved by an authorized representative of the local jurisdictional authority.
- E. Taps shall be installed without protrusion into or damage to the existing storm sewer. No compromise of the storm sewer will be allowed, such as undermining and settlement of the storm sewer grade, debris in the storm sewer, or longitudinal or transverse cracking of the storm sewer pipe.

604 DETENTION/RETENTION POND REQUIREMENTS

CONSTRUCTION REQUIREMENTS

- A. All pond outlet structures shall be designed with anti-seepage collars per the plans.
- B. Soil groups A or B require installation of a liner. In soil groups C and D, liner may be required at the discretion of the City Engineer in specific cases and conditions.
- C. A pollution control manhole is required preceding the inlet to the pond structure. (Resolution 05-10 4/11/05)
- D. Ponds active in wet weather season without established side slope and/or bottom vegetation shall have river rock lining the bottom and up the sides to the water quality level or 24 in. from bottom, whichever is greater. (Resolution 05-10 4/11/05)

POND TESTING REQUIREMENTS

- A. All ponds shall pass a hydrostatic test prior to City acceptance/approval. During the pond testing process the perimeter of the pond area shall have temporary fencing. The test shall be conducted according to the following guidelines:
 - 1. Plug outlet structure(s) and fill the pond to the 25-year detention depth.
 - 2. Record the volume of water required to meet the 25-year detention depth.
 - 3. The test shall last for a period of not less than 24 hrs. once the City has authorized the testing time to begin. (i.e. there may be an initial saturation period required)
 - 4. At the end of the testing period the loss of water is recorded.
 - 5. The loss shall not exceed 40% in a 24-hour period except in below grade facilities
 - 6. There shall be no visible signs of failure such as seepage, cracks, blow-outs, or erosion.
- B. In the instance, if a storm event occurs during a hydrostatic test, the City reserves the right to terminate the test and re-test under conditions necessary to insure an accurate assessment.
- C. All costs associated with the testing of the detention/retention facility shall be incurred by the developer. (Resolution 05-10 4/11/05)

UNDERGROUND DETENTION TANK TESTING REQUIREMENTS

- A. All underground detention tanks shall pass a hydrostatic test prior to City acceptance/approval. The test shall be conducted according to the following guidelines:
 - 1. Plug outlet structure(s) and fill the facility to the top of the manhole access port.
 - 2. Record the volume of water required to attain the manhole access port.
 - 3. No water shall be added to the tank and the manhole access ports shall remain locked during the test period.
 - 4. The test shall last for a period of two hours once the City has authorized the testing time to begin.
 - 5. Zero loss is allowed in order to pass.

APPENDIX C

TECHNICAL PROVISIONS

PART 01000 - RIGHT OF WAY DEVELOPMENT AND CONTROL

Section 01030 - Seeding

Description

01030.00 Scope - This work consists of seeding and associated tasks to develop plant growth for erosion control, environmental mitigation, and roadside development.

01030.02 Definitions:

Certified Seed - A grass or legume seed named variety that has been reviewed and accepted into the Oregon Certified Seed program. Currently certified seed is individually sold in bags with a blue-colored Oregon Certification Tag, thus the name commonly used for such seed is "blue tag stock".

Establishment Period - A period when planting work has been performed and initially accepted, and there is a Contract requirement to care for the planted areas in some way until the period ends.

Native Plant (existing) - A variety of plant species occurring in its natural habitat without direct or indirect human actions.

Noxious Weed - All weed designated by the Oregon State Weed Board as injurious to public health, agriculture, recreation, wildlife, or all public or private property. The Oregon Department of Agriculture (ODA) will be the authority in determination of noxious weed species.

Pure Live Seed (PLS) - The amount of living seed in the total quantity of seed when non-viable seed or non-seed material is excluded.

Riparian - Related to the bank, shore, or water-influenced areas of a watercourse or water body.

Sensitive Areas - Defined areas such as wetlands, natural water and riparian resources, special environmental zones, or where certain activities are restricted such as the use of chemicals.

Specified Weeds - All noxious weeds as defined above, and all plant species identified in the Special Provisions or on the plans as a species to be removed.

Waters of the State - See ORS 468B.005 for "Waters of the State" definition.

Weed - A plant that is undesirable where it is growing.

Weed Free - For these Specifications, "Weed Free" is defined as the following maximum amount of living weeds per square yard:

- Zero "Type A" or "Type T" Noxious Weeds
- One "Type B" Noxious Weed
- One of each non-noxious weed listed in the Special Provisions

The ODA Noxious Weed Policy and Classification System lists Type "A", "B", and "T" Noxious Weeds.

Weed Management Area (WMA) - A defined project area with Specified Weeds to remove, including areas where weeds begin growing because of project-associated ground disturbance. A WMA may be the entire project site or any portion, including material source and disposal sites as shown.

Materials

01030.11 Topsoil - Furnish topsoil meeting the requirements of 01040.14.

01030.12 Soil Conditioners, Amendments, and Bio-Amendments - Furnish soil modifiers meeting the requirements of 01040.15, 01040.16, and 01040.17.

01030.13 Seed - Furnish seed meeting the following requirements:

(a) **Label** - Deliver all seed in standard, sealed containers. Label each container with the following:

- The kind and variety of each seed of 3% or more in a mixture, by weight. Be sure that seed mix labels include the words "mixture" or "mixed seed" when the seed is a mixture
- The country or state where the seed is grown
- The lot number or other lot identification
- The total percentage, by weight, of other crop seed
- The total percentage, by weight, of weed seed
- The total percentage, by weight, of inert matter
- Statement of "No Noxious (weed) Found"
- For each named seed:
 - Percentage of germination
 - Percentage of hard (non-living) seed, if more than 1%
- Percent of PLS for each kind of seed
- Percent and kind of other crop
- Month and year of seed test
- Net weight of contents
- Name and address of seed labeler or seller
- Origin for each seed (state or foreign country)
- If seed inoculant is used, the claimed date that inoculant effectiveness ends
- For treated seeds (if any):
 - Statement that the seeds have been treated
 - Name of all chemical used in the treatment
 - Description process used in the treatment
 - Warning statement for all residual chemicals used
- Net weight of each container
- For seeds listed as native, date and location of collection of source (first generation) seed
- For native seeds specified to be collected for direct use on a project, label containers with the date and location of collection sites for each seed species

Alternate label requirements may be identified in the Special Provisions for certain native plant seeds.

(b) Quality - Furnish seed meeting the following requirements:

- The seed and labeling complies with Oregon Seed Law and Federal Seed Act.
- The seed has been tested within 18 months of the planting date.
- The seed is not sprouted, moldy, or showing evidence of having been wet or otherwise damaged.
- The seed is labeled as "Oregon Certified Seed" or the equivalent from another state when identified in the Special Provisions. Information about certified seed is available from County Extension Offices, Oregon State University, and the Oregon Department of Agriculture.

(c) Pure Live Seed - Obtain the amount of seed to apply by using the purity and germination percentages from the label on actual bags of seed to be used on the Project.

To calculate the amount of seed to be applied:

- Obtain the PLS factor - Multiply the seed label germination percentage times the seed label purity percentage.
- Divide the specified PLS rate by the PLS factor.

Example: A PLS seeding rate of 10 pounds per acre is specified. The seed label shows a purity of 80% and germination is 90%. After converting percentages to decimals, 0.80×0.90 equals a factor of 0.72. The specified PLS rate, 10 pounds per acre, divided by the factor of 0.72 equals 13.88. In order to meet a PLS seeding rate of 10 pounds per acre, about 14 pounds of seed needs to be applied per acre. For a seed mix, make this calculation for every seed to obtain the total amount to be applied.

(d) Inspection - Each lot of seed is subject to inspection upon delivery to the Project. Seed that is not labeled or that does not conform to the Specifications will be rejected and shall be replaced at no additional cost to the Agency.

(e) Mixes - Furnish seed mixes that meet the labeling, quality and inspection requirements stated above. Submit all other proposed seed or seed mixes for consideration and receive written approval before seeding work begins. Replace rejected seed before planting.

(f) Types of Seed Mixes - Seed mixes, quantities, standards, seeding rates, and other information will be included in the Special Provisions for each type of seed mix.

The following are the functional categories of seed mixes that may be included on projects (a category may have multiple functions on a project site):

- **Temporary Seeding** - To provide short-term control of soil erosion until permanent seeding is performed or all potential for erosion is removed.
- **Permanent Seeding** - The final seeding, or only seeding performed for erosion control.
- **Lawn Seeding** - Seeding for areas where finished turf appearance is desired.
- **Wildflower Seeding** - Seeding to develop growth of wildflowers. The seed mix will typically contain grass or other plant seed to provide erosion control.
- **Plant Seeding** - Seeding which typically includes more than just grass species, such as seeds of woody or herbaceous plants.
- **Water Quality Seeding** - For use in water quality facilities such as swales or settling basins.

- **Wetland Seeding** - To vegetate existing or constructed wetlands with native plant species.
- **Native Plant Seeding** - Seeding to restore native vegetation.

(g) Availability - Provide a list of seed sources for all specified seeds within 60 calendar days after execution of the Contract. Verify that all specified seed has been located and will be available for use on the Project.

01030.14 Fertilizer - Furnish standard, commercial grade fertilizer meeting the following requirements:

(a) General - Deliver fertilizers in separate or mixture containers that have the percentage of total nitrogen, available phosphoric acid, and water-soluble potash (NPK) in the amounts specified. Label each container with a quality compliance certificate that includes the container weight, the percentage of each ingredient, and the source of each component in the mixture. Ensure that each container is labeled with a quality compliance certificate that meets the applicable requirements of Section 00165.

Furnish fertilizer according to State and federal regulations. Fertilizer is subject to testing by the State Department of Agriculture.

(b) Type of Fertilizer - Provide the following fertilizer:

(1) West of the Cascades - Furnish 22-16-8 inorganic fertilizer analyzing 22% nitrogen, 16% phosphoric acid, 8% soluble potash, and including a minimum of 2% sulfur. Furnish fertilizer containing not less than 50% available water-insoluble, controlled-release nitrogen derived from one of the following sources:

- Urea formaldehyde (Nitroform)
- Isobutylidene Diurea (IBDU)
- Polymer coated urea (no sulfur)

(2) East of the Cascades - Furnish 22-10-5 inorganic fertilizer analyzing 22% nitrogen, 10% phosphoric acid, 5% soluble potash, and including a minimum of 10% sulfur. Furnish fertilizer containing not less than 50% available water-insoluble, controlled-release nitrogen derived from one of the three sources stated for West of the Cascades above.

(3) Statewide, Near Water - For application within 50 feet of open water, furnish 22-2-11 low-phosphorus fertilizer analyzing 22% nitrogen, 2% phosphorus, and 11% potassium which releases slowly over an eight to nine month period. Furnish fertilizer containing a minimum of 60% available water-insoluble, controlled-release nitrogen derived from one of the three sources stated for west of the Cascades above. Furnish phosphorus and potassium that is coated to allow a minimum of 95% controlled-release.

01030.15 Mulch - Furnish mulch materials free of all weed or plant seeds and containing no substances detrimental to plant life. The kind of mulch material(s) acceptable for use will be shown on the plans, listed in the Special Provisions, or will be as approved. Furnish mulch meeting the following requirements:

(a) Hydromulch from Cellulose, Wood, or Straw Fiber - Furnish cellulose fiber produced from virgin wood, straw, or paper fiber product from the QPL. Furnish wood or straw mulch processed so the fibers remain uniformly suspended under agitation in water and the fibers have moisture-absorption and percolation properties. Ship hydromulch in packages of uniform weight, plus or minus 5%, and labeled with the manufacturer's name and air-dry weight.

(b) Straw - Unless otherwise specified, furnish straw mulch for non-hydroseeding applications from bentgrass, bluegrass, fescue or ryegrass singly or in combination. Cereal grain straw from barley, oat or wheat may be allowed upon approval of the Agency. Provide straw that is not moldy, caked, decayed or of otherwise low quality. Submit certification from the supplier that the straw is free of noxious weed seeds or plant parts. Acceptable documentation is any one of the following:

- The straw source is an "Oregon Certified Seed" field.
- The straw is certified by a recognized program accepted by the Oregon Department of Agriculture as being weed free.
- Seed lab test results of seed harvested from the straw meet minimum Oregon Certified Seed quality for weed seed content.

(c) Tracer - For hydromulch application, include enough green dye so applied mulch is easily visible.

01030.16 Tackifier - Furnish a commercial quality tackifier containing no agent toxic to plant life. Furnish tackifier of either a liquid stabilizing emulsion or a dry powder tackifier meeting the following requirements:

(a) Liquid Stabilizer Emulsion - Tackifier with a base material of liquid, polyvinyl acetate polymers, using emulsion resins and containing not less than 55% total solids by weight. Furnish tackifier containing no polyacrylates or polyvinyl acrylics. The emulsion shall, when diluted with water and upon drying, allow exchange of air and moisture to the seeds and have an effective life of one year or more.

(b) Dry Powder Tackifier - Tackifier base consisting of one or more active hydrocolloids from natural plant sources, which hydrates in water and blends with other slurry materials, and upon application and drying tacks the slurry particles to the soil surface, and exhibits no growth or germination inhibiting factors. Provide stabilizing emulsion in a dry powder form that may be re-emulsifiable, and consisting of a processed organic adhesive derivative of one of the following:

- Gumbinder derived from guar (*Cyamopsis tetragonoloba*)
- Gumbinder derived from plantain (*Plantago insularis*)

01030.17 Pesticides - Submit proposed pesticides and receive approval before using. Submit a copy of the manufacturer's federal registered label and, if requested, a Material Safety Data Sheet. The Agency reserves the right to restrict chemicals from being used on Sensitive Areas.

Labor

01030.30 General:

(a) Weed Control Coordinator - Submit certification at the preconstruction conference that the weed control coordinator meets the following minimum requirements:

- Demonstrates ability to identify noxious and other weed species commonly seen in Oregon. Some examples of potentially acceptable credentials are at least one year conducting weed surveys in Oregon or Washington State or a degree in botany or horticulture from an accredited institution.
- Has successful weed control experience, with similar duties to those stated under typical duties below, on at least three construction or vegetation management projects. Two examples of acceptable certification are an Oregon Pesticide Consultant License or Oregon Landscape Contractor's License held in the individual's name.

01030.30(a)

Typical duties of the weed control coordinator include the following:

- Identify Specified Weeds.
- Prepare and update the Weed Control Work Plan (WCWP).
- Coordinate Contractor's weed removal work and records.
- Resolve weed control issues as the Contractor's representative.
- Determine when Specified Weed content exists in disposable materials and ensures the materials are disposed of at an approved off-site facility.

(b) Pesticide Applicator - Submit certification before application of pesticide work begins, that when chemical weed control is used, that each applicator possesses an Oregon Commercial Pesticide Applicator's License held in the individual's name. Submit a certification each time a new applicator begins application work on the Project.

Construction

01030.40 General - Notify the Agency not less than 24 hours in advance of seeding operations. Do not begin seeding until prepared slopes in an area have been approved for seeding. Do not perform seeding during windy weather or when the ground is frozen, excessively wet, or otherwise not tillable.

Do not disturb or damage existing desirable vegetation to be left in place. Do not disturb areas previously seeded and mulched, with the exception of disturbances caused by stage construction. If previously seeded areas are disturbed, rework and reseed as directed, at no additional cost to the Agency.

Remove all non-approved plants resulting from the seed mixes provided for the Project at no additional cost to the Agency, including erosion protection required during reseeding.

01030.41 Area Preparation - Refer to 01040.48 for area preparation for the following kinds of seeding:

- Temporary Seeding - Method E
- Permanent Seeding - Method D
- Wildflower Seeding - Method B
- Plant Seeding - Method B
- Water Quality Seeding - Method B
- Wetland Seeding - Method B
- Lawn Seeding - Method C
- Native Plant Seeding - Method B

01030.42 Weed Control - When the Contract Schedule of Items includes an item for "Weed Control", remove and prevent regrowth of Specified Weeds, weed plant parts, and weed seeds from areas within the Project limits.

Do not harm or disturb existing native or ornamental vegetation, unless directed to do so. Do not compact soil with heavy equipment in areas where soil will not be disturbed for roadway or other construction.

If a pesticide has been approved for use, apply according to federal and State laws, including conditions and requirements of the federal registered pesticide label.

(a) Weed Control Work Plan - Depending on project conditions such as location, sensitive environments, permit requirements, jurisdictional regulations, or other items, there may be limits on

the use of chemicals or other weed control methods. Before submitting the initial WCWP, determine if there are restrictions or all potential for restrictions on weed control methods on project sites. At the preconstruction conference, submit a WCWP with the following:

- Name and contact information for the approved weed control coordinator.
- WMA's with existing Specified Weeds mapped on project plan sheets where possible.
- Botanical and common name of each species of weed to be removed.
- The proposed methods of weed removal and continuing control for each weed species listed.
- Schedule of weed control measures.
- Request to use wheeled or tracked construction equipment in sensitive areas.

If changes of the WCWP are necessary, resubmit a revised WCWP for approval before proceeding.

(b) Weed Control Inspections - Inspect the project for new growth of specified weeds at least monthly and apply weed control measures as appropriate. This requirement may be waived by the Engineer during the period that weeds are fully dormant. To ensure satisfactory weed removal, the last WMA inspection will occur at least 30 days after growing season has begun or as directed.

At a minimum, schedule weed control inspection with the Agency at the following times:

- After approval of WCWP and prior to beginning weed control within a WMA.
- Monthly.
- Upon request by the Agency to discuss non-compliant weed control work.
- After completing weed control at material sources and disposal sites.

(c) Remove and Control of Weeds - Remove and control weeds according to the following:

(1) All areas:

- At least three calendar days prior to beginning weed control activities, walk through each WMA with the Engineer and confirm the identity, location, type, and approximate number of Specified Weeds. Verify that control methods in the WCWP are acceptable as planned for each WMA before proceeding with weed control activities.
- Remove Specified Weeds and receive approval prior to beginning construction or equipment mobilization in that area. As much as practicable, ensure that weed seeds or reproducing plant parts such as vines, runners, or rhizomes don't remain or become disbursed during control activities.
- As soon as practicable, place weeds and related materials in an approved container and transport to an approved offsite disposal facility according to applicable laws and regulations. During transport, ensure that materials are fully enclosed at all times to prevent escape.
- Keep a record of all weed material loads transported off the Project and submit documentation from the approved disposal facilities that a corresponding number of weed material loads were disposed of at that facility.
- Keep WMA's Weed Free including weeds not initially present in the walk through.

(2) Sensitive Areas:

- Unless otherwise approved in writing, use only hand or light mechanical weed control methods within 50 feet of Sensitive Areas. Hand methods include the use of hand tools. Light mechanical methods include the use of hand carried, motorized machinery.

01030.42(c)

- Inside Sensitive Areas, obtain approval before using wheeled or tracked construction equipment. Requests will be approved only when all vegetation in the area will be cleared, such as under new roadways or slopes.
- The Engineer will be the authority in the determination of Sensitive Areas.

(d) Weed Control Corrective Work - If corrective work for areas identified as deficient by the Engineer is not completed within a 15 calendar day period, the Engineer may suspend the work according to 00180.70. If the Contactor's weed control work is determined to be unsatisfactory, the Agency reserves the right to do the work at the Contractor's expense.

01030.43 Temporary and Permanent Seeding:

(a) Temporary Seeding - Temporarily seed disturbed soils and slopes that are not at finished grade and which will be exposed for two months or longer before being disturbed again. Provide fertilizer, mulch, water, and other amendments necessary to ensure establishment. Ensure that temporary seeding work achieves the coverage of live plants required by 01030.60 by the end of the next permanent seeding date stated in 01030.43(b). If this coverage is not achieved, or if the Agency determines that it is not effective in stabilizing the soil from erosion, stabilize the area with other temporary stabilization methods as described in 00280.42 at no additional cost to the Agency.

(b) Permanent Seeding - Perform this seeding during the permanent seeding dates shown below. If work done within the seeding dates does not provide coverage according to 01030.60, re-seed according to 01030.48 and as directed. The dates for permanent, wildflower, plant, water quality, wetland, lawn, and native plant seeding are as follows:

- **West of the Cascades** - March 1 through May 15 and September 1 through October 31. If new lawn areas are regularly watered, they can be seeded from March 1 through November 15.
- **East of the Cascades** - October 1 through February 1. If new lawn areas are regularly watered, they can be seeded from March 1 through October 31.
- **Wetland (Statewide)** - September 1 through October 31 and March 1 through April 30.

Permanent seeding outside the these dates requires written authorization from the Agency. Approval to seed outside these dates will only be given when physical completion of Project work is imminent and environmental conditions are conducive to satisfactory growth. For permanent seeding done outside the seeding dates, ensure that the coverage of live plants required by 01030.60 is achieved no later than three weeks into the next permanent seeding period. If this coverage is not achieved, re-seed and re-fertilize areas of insufficient coverage according to the permanent seeding requirements, at no additional cost to the Agency.

01030.44 Fertilizer:

(a) Inorganic - Apply 22-16-8 or 22-10-5 inorganic fertilizer at the rate of 400 pounds per acre.

(b) Low-Phosphorous - Apply 22-2-11 polymer coated urea low-phosphorus fertilizer at the rate of 200 pounds per acre.

01030.45 Soil Testing - Test soil according to 01040.13.

01030.46 Topsoil and Wetland Topsoil - Construct topsoil areas according to 01040.43 and 01040.44, as appropriate.

01030.47 Soil Amendments and Bio-Amendments - Incorporate soil amendments and bio-amendments into the seeding operation according to 01040.45 and 01040.46, as appropriate.

01030.48 Application - The following application methods are acceptable for both temporary and permanent seeding:

(a) Hydroseeding, Fertilizing, Hydromulching, and Tacking - Apply seed, fertilizer, mulch, and tackifier as follows:

Use hydraulic equipment that continuously mixes and agitates the slurry and applies the mixture uniformly through a pressure-spray system providing a continuous, non-fluctuating delivery. Ensure the equipment and application method provides a uniform distribution of the slurry. Place seed, fertilizer, mulch, and tackifier in the hydroseeder tank no more than 30 minutes prior to application.

(1) Hydroseeding Operation - Perform hydroseeding according to the following:

a. One-step Operation - Apply materials in one step only for the following situations:

- When seeding in conjunction with erosion control matting. Apply seed, fertilizer, and tracer before installing matting.
- When treating small areas according to 01030.48(e). Double the amount of seed to compensate for seed suspended above soil by the mulch.

b. Two-step Operation - Except for the one-step method situations in 01030.48(a-1-a), use the two-step method for all hydroseeding operations:

1. Step 1 - Apply seed, fertilizer, and tracer. The seed and fertilizer may be applied separately or together. If hydromulch is used as a tracer, apply it at a rate of 500 pounds per acre.

2. Step 2 - Apply mulch and tackifier. Hydromulch, if used as a tracer in Step 1, will be included as part of the specified hydromulch rate specified in 01030.48(a-3).

(2) Seed - Thoroughly mix seeds when more than one kind is to be used.

(3) Mulch - Apply hydromulch at the following rates based on dry fiber weight:

a. Slopes Flatter Than 1V:2H - Apply cellulose fiber that includes a tackifier at a rate of 2,000 pounds per acre.

b. Slopes 1V:2H or Steeper - Apply cellulose fiber that includes a tackifier at a rate of 3,000 pounds per acre.

(4) Tackifier for Cellulose Fiber Applications - Use one of the following:

a. Liquid Stabilizer Emulsion - Dilute the emulsion with water at a rate of one part emulsion to 30 parts water. Apply the diluted mixture at the rate of 865 gallons per acre unless the manufacturer recommends a greater rate of application.

b. Dry Powder Tackifier - Apply at the following rates unless the manufacturer recommends a greater rate of application:

1. Slopes flatter Than 1V:2H - 60 pounds per acre mixed with hydromulch fibers at the rate specified.

2. Slopes of 1V:2H or Steeper - 100 pounds per acre mixed with hydromulch fibers at the rate specified.

(b) Seeding, Fertilizing, Dry Mulching, and Tacking - Apply seed and fertilizer separately or together as the first step. Apply dry mulch as the second step. Tackify the mulch as the third step.

(1) Seed and Fertilizer - Apply seed and fertilizer at the specified rates. When fertilizer and seed are to be applied in dry condition, apply them separately. When applied from separate compartments, the application may be done in one operation. Apply seed and fertilizer by one of the following methods:

a. Blower - Blower equipment using air pressure and an adjustable spout that uniformly applies dry fertilizer and dry seed in separate and successive applications at constant measured rates.

b. Helicopter - Helicopter equipped with hoppers and adjustable disseminating mechanisms that separately and successively apply fertilizer and seed in uniform and prescribed quantities.

c. Mechanical Spreaders - Hand or machine operated mechanical spreaders that uniformly apply dry fertilizer and dry seed separately and successively in the prescribed quantities.

d. Hydroseeding - Uniformly apply at the rate specified. Add 500 pounds per acre of hydromulch fiber to the seed and fertilizer mixture to visibly aid uniform application at no additional cost to the Agency.

(2) Dry Mulch - Evenly apply straw mulch within 24 hours after seeding and fertilizing. In areas not accessible to heavy equipment or hose, apply straw mulch by hand or other approved method.

Place straw mulch approximately 2 inches deep, in loose condition, which requires approximately 2 1/2 tons per acre of dry mulch, depending on moisture content. Do not use straw mulch on slopes of 1V:1.5H or steeper.

(3) Tacking - Anchor straw mulch using one of the following methods:

a. Dry Powder Tackifier - Unless the manufacturer recommends a greater rate, apply dry powder tackifier at the rate of 80 pounds per acre mixed with 800 pounds per acre of hydromulch.

b. Mechanical Crimping - Mechanically incorporate the straw into the top 2 inches of the soil forming a uniform surface cover effective at preventing erosion by one of the following:

1. Crimping Disc - A heavy disk with flat scalloped discs approximately 1/4 inch thick, having dull edges and spaced no more than 9 inches apart.

2. Sheep's-Foot Roller - Modified sheep's foot roller equipped with straight studs, made of approximately 3/4 inch steel plate, placed approximately 8 inches apart and staggered. Ensure that the studs are not less than 6 inches long or more than 6 inches wide, and are rounded to prevent withdrawing the straw from the soil. Use a roller with enough weight to incorporate the straw sufficiently into the soil providing a uniform surface cover.

(c) Drill Seeder - Apply seed and fertilizer with a grass seed drill that works fertilizer into the soil and places seed under about a 1/4 inch soil cover.

(d) Seeding Over Mulched Areas - If an area has been previously mulched for erosion control or temporary seed and mulch is present on the soil surface, double the amount of each seed type used.

Apply seed and fertilizer hydraulically and add a green dye to the mixture to visibly aid uniform application. Upon approval, fertilizer and seed may only be applied after mulching if one of the following conditions apply:

- Mulch is punched into the soil by mechanized means.
- It is necessary to hold down mulch with netting or like material.
- The slope is 1V:1.5H or steeper and a slurry mixture would tend to run down the slope.
- Mulch is removed prior to seeding.

(e) Optional Temporary or Permanent Seeding - Upon approval, the following may be used to stabilized disturbed areas that are 1,500 square feet or less and totaling no more than 0.5 acre:

(1) Seed - Seed the disturbed area with the seed mix at the rate of 2 pounds per 1,000 square feet. Seed may be spread by mechanical spreader according to 01030.48 (b-1-c).

(2) Cover - Cover seeded areas with one of the following:

- Straw mulch at a rate of 100 pounds per 1,000 square feet. Spread the mulch uniformly and apply commercial tackifier or netting to hold in place.
- Bark mulch spread uniformly at an approximate depth of 1/2 inch. Use well-decomposed mulch for seed mulching.
- Suitable open-weave, biodegradable erosion control matting installed according to manufacturer's instructions.
- Hydromulch applied in one step according to 01030.48(a).

(3) Fertilizer - Fertilize according to 01030.44.

01030.49 Work Quality:

(a) Drift - Prevent drift and displacement of seed and fertilizer regardless of equipment and methods used. Use protective covering on structures and objects where coverage and stains would be objectionable and when tacking agents are used with mulch. Protect vehicles and people from drifting spray. If equipment and methods of application result in wasting material, make corrections to prevent waste.

(b) Displacement - Prevent seed, fertilizer, and mulch from falling or drifting onto areas occupied by rock base, rock shoulders, plant beds, or other areas where grass is detrimental. Remove material that falls on plants, roadways, gravel shoulders, structures, and other surfaces where material is not specified.

(c) Damage - Prevent damage to prepared areas and to completed fertilizer, seed, and mulch work. Replace all material that becomes displaced before acceptance of the work.

Maintenance

01030.60 General - Ensure that each seeded area has a uniform, healthy and weed-free stand of grass or other seeded plants growing at the end of the establishment period. The minimum living plant coverage standards for acceptance of seeding in a planted area are as follows:

- **Temporary Seeding** - 70% coverage of ground surface.
- **Permanent Seeding** - 90% coverage of ground surface.

- **Wildflower and Wetland Seeding** - 70% coverage of ground surface.
- **Water Quality and Lawn Seeding** - 100% of ground surface.
- **Woody or Other Plant Seeding** - See Special Provisions for minimum living plant coverage.
- **Native Plant Seeding** - See Special Provisions for minimum living plant coverage.

01030.61 Establishment Period - The seeding establishment period is as follows:

(a) Erosion Control Seeding - For temporary and permanent seeding done solely for erosion control, the establishment period begins upon acceptance of the initial seeding work and ends upon satisfactory plant growth and coverage of the seeded areas according to 01030.42 and 01030.60.

(b) All Other Seeding - Establishment periods for wildflower, plant, water quality, lawn, wetland, native plant, and permanent seeding begins upon acceptance of the initial seeding work and ends as follows:

- The seeding establishment period will end 45 days after the beginning of the establishment period, if the area was seeded during the seeding season and all establishment responsibilities have been met.
- If the original seeding construction is completed and accepted outside the permanent seeding dates, the establishment period will end 45 calendar days after all necessary reseeding is completed and accepted during the following seeding season.

01030.62 Establishment Work:

(a) Erosion Control Seeding - Select and provide establishment work for erosion control seeding from 01030.62(b) necessary to provide performance described in 01030.60.

(b) All Other Seeding - Ensure the establishment of wildflower, lawn, plant, water quality, wetland, native plant, and permanent seeding by the following:

(1) Protection - Protect seeded areas from trespass and other hazards of damage. Use protective fences and signs at no additional cost to the Agency. Obtain approval of protective methods used.

(2) Fertilizing and Watering - Apply fertilizer according to 01030.44. Apply water according to good horticultural practice under the prevailing conditions, as required to promote a healthy stand of plants. Obtain water at no additional cost to the Agency.

(3) Weed Control - Remove Specified Weeds prior to plants going to seed and keep WMA's and seeded areas "Weed Free" throughout the establishment period.

(4) Mowing - Mowing is required for lawn seeding and water quality seeding. Do the first mowing of grass when soil is firm enough to prevent rutting and grass is about 3 inches tall. After mowing, leave grass that is approximately 2 inches tall. At each subsequent mowing, leave about 1 1/2 inches of growth. After the second mowing, grass clippings may be left in place upon written approval. The approval may be granted if:

- Mowing is done with a mulching blade.
- There are no weed seeds in the mulch.
- Mulch is not detrimental to the growth of grass.

(5) Repair and Restore - Repair and restore soil grades and re-seed damaged, settled, or unproductive areas to the specified conditions of this Section at no additional cost to the Agency.

Finishing and Clean Up

01030.70 Cleanup - Remove weeds, trash, debris, stones, and other extraneous matter from seeded areas as directed and dispose of according to 00290.20.

01030.71 Waste Disposal - Protective coverings used on structures and all waste materials associated with seeding, fertilizing, mulching, and associated activities become the property of the Contractor at the point of origin. Dispose of these waste materials according to 00290.20.

Measurement

01030.80 Measurement - The quantities of seeding and associated work performed under this Section will be measured according to the following:

- **Unit Basis** - Unit basis items will be measured by actual count.
- **Area Basis** - Area basis items will be measured on the ground surface.

Payment

01030.90 Payment - The accepted quantities of seeding and associated work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement
(a) Weed Control.....	Acre
(b) Seeding Mobilization	Each
(c) Temporary Seeding,.....	Acre
(d) Permanent Seeding,.....	Acre
(e) Wetland Seeding,.....	Acre
(f) Water Quality Seeding,.....	Acre
(g) Plant Seeding,.....	Acre
(h) Native Plant Seeding,.....	Acre
(i) Wildflower Seeding,.....	Acre
(k) Lawn Seeding	Acre or Square Yard
(l) Fertilizing.....	Acre
(m) Mulching.....	Acre

Item (a) includes all work associated with the WCWP.

Item (b) includes all labor and transportation of materials and equipment, each time the Contractor mobilizes as required for all hydraulically or airborne applied seeding, fertilizing, and mulching.

In items (c) through (i), the type of seed mix, such as Mix No. 1, if applicable, will be inserted in the blank.

Items (c) through (k) include preparing the seed bed, soil preparation, seeding, fertilizing, mulching, applying tacking agent, and all establishment work.

When temporary seeding, applied according to 01030.43(a), is later accepted as permanent seeding according to 01030.43(b), payment will be made only one time under the permanent seeding pay item. No separate payment will be made for the initial seeding.

01030.90

Payment will be payment in full for furnishing and placing all materials, and for furnishing all equipment, labor, and incidentals necessary to complete the work as specified.

No separate or additional payment will be made for:

- mobilization for application by blowers, mechanical spreaders, or hand spreading
- inspections or maintenance
- seeding mobilization if it is not included in the Contract Schedule of Items

Partial payments for permanent seeding, regardless of type, will be made as follows:

- At completion of seeding70%
- At completion of seeding establishment period.....30%

Section 01040 - Planting

Description

01040.00 Scope - This work consists of planting and associated work as shown or directed.

01040.02 Definitions:

Arborist - A specialist in the care and maintenance of trees.

Certified Arborist - An Arborist certified by the International Society of Arboriculture (ISA).

Consulting Arborist - An Arborist registered with the American Society of Consulting Arborists (ASCA).

Caliper - The diameter of a tree measured at a point 6 inches above the ground. If the measurement is over 4 inches, a new measurement is taken at a point 12 inches above the ground.

Dripline - The area directly under the branch and leaf canopy of trees and large shrubs. This area typically contains the most important of a plant's roots and is sometimes used as an approximate guide to estimate a root protection zone.

Licensed Nursery - Commercial nursery licensed by the Oregon Department of Agriculture to operate as a grower, dealer or agent, or to transport or store nursery stock grown or held for sale.

Native Plant (existing) - See 01030.02 for native plant definition.

Noxious Weed - See 01030.02 for noxious weed definition.

Ornamental Plant - A desirable plant species that is not native, or a plant propagated in such a way that it does not carry genetic characteristics of the species that are native to the area where it is planted.

Plant Establishment Period - A period of time, that is part of the planting work, that ensures satisfactory growth and establishment of plants.

Permanent Wilting Point - The level of soil wetness at which point a plant wilts and can no longer recover its sustainable turgidity when placed in a saturated atmosphere for 12 hours.

Root Protection Zone - A generally circular area around an existing plant to be protected from disturbance or compaction by the use of temporary fencing or other means. The zone as actually staked may exceed the current root area to allow for future growth of the plant. Root Protection Zones will be shown on the plans or staked before construction activities begin.

Weed - See 01030.02 for weed definition.

01040.03 General - Ensure that work meets the following requirements:

(a) **Existing Vegetation** - Do not disturb existing desirable vegetation that is to remain or is designated for protection, unless approved by the Agency prior to construction.

(b) **Pesticide Applicators License and Chemical Registration** - Furnish evidence to the Agency that each applicator is licensed for the specific class of chemical being applied. Also, furnish evidence that any chemical is registered for the proposed use by the Oregon Department of Agriculture according to ORS Chapters 452, 561, 570, and 634.

(c) Weather Conditions - Planting work will not be allowed during the following conditions, unless otherwise approved:

- **Cold weather** - When air or ground temperatures are expected to be below 32 °F.
- **Hot weather** - When air or ground temperatures are expected to be above 88 °F.
- **Wet weather** - When the ground reaches saturation, except as approved when planting wetland plants.
- **Windy weather** - When wind velocity exceeds 25 mph.

(d) Work Performed During Unacceptable Conditions - If any work occurs during unacceptable weather conditions, the Contractor may be required to provide the following services at no additional cost to the Agency:

(1) Expert Consultation - Consultation with a certified Arborist (for trees) or other expert as approved (for other plants) to determine what plant care measures are required to maintain the plants installed during the unacceptable weather conditions in a healthy and vigorous condition.

(2) Replacement - Replacement of all work performed during unacceptable weather conditions.

(3) Watering and Maintenance - Watering and maintenance of all plant materials installed during the unacceptable weather conditions and responsibility for all extra costs incurred.

01040.04 Coordination - Coordinate the following elements with the Agency prior to construction:

(a) Planting Work Plan (PWP) - Within 90 calendar days of award of the Contract, submit a PWP for approval. Include or describe the proposed methods for the following:

- Work progress schedule according to 00180.41
- Material submittals according to 01040.10
- Contract Growing Plan according to 01040.19(g)
- Topsoil and/or Wetland Topsoil approvals according to 01040.14
- Plant installation and establishment
- Weed Control Work Plan (WCWP) according to 01030.42(a)
- Emergency contact person, including the Name, telephone and pager numbers, and voice mail and/or email address information

The following are included as part of the PWP, but are required only before the related planting work begins:

- Soil Fertility Test and Soil Amendment Report according to 01040.13.
- Soil Testing and Soil Bio-amendment Report according to 01040.13.

Proceed according to the approved PWP once written approval is received from the Agency. If any part of the PWP become unworkable at any time during construction, notify the Agency, then submit a revised plan. Do not proceed with the planting work until approved by the Agency.

(b) Notice for Inspections - Notify the Agency a minimum of 24 hours prior to each required inspection.

- (c) **Site Conditions** - Ensure that the area is properly prepared prior to the start of the planting operation.
- (d) **Utility Locate** - Coordinate all existing utility locations according to Section 00150.
- (e) **Utility Use** - Provide required water and electricity for planting and plant establishment at no additional cost to the Agency unless an approved Agency source is available.
- (f) **Verification** - Verify actual ground dimensions prior to construction. Notify the Agency of any discrepancies before beginning work.

Materials

01040.10 General - Submit a list of Project materials for approval according to 01040.04(a) before arranging for procurement of any materials. For materials not approved, submit a list of alternate materials for approval. Materials installed without approval will be subject to removal and replacement with acceptable material at no additional cost to the Agency.

Substitute materials may be allowed if proof of equivalent quality, suitable product specifications, manufacturer's literature and other detailed information is furnished to the Agency according to 00140.70.

01040.12 Product Delivery, Storage, and Handling - Deliver manufactured products in original, unopened containers, each bearing the manufacturer's guaranteed analysis, name, trade name, and conformance with governing regulations and laws. Protect products against damage or dehydration. Remove unacceptable products as soon as possible from the Project site. If required or requested, provide any manufacturer's literature to the Agency.

01040.13 Soil Testing - Furnish the following kinds of soil testing and reports:

(a) **Soil Fertility Test and Soil Amendment Report** - Prior to planting, furnish a soil fertility analysis of existing soils performed by a certified testing lab. Prior to planting, adjust soil amendment and fertilizer applications as recommended by the soil amendment report and as approved by the Agency.

(1) **Sampling** - Take five samples per acre of each soil type. Mix the five samples into one test sample for each soil type. Furnish soil fertility test results that provide information on available nutrient content and fertility status of the soil. Conduct sampling procedures according to the Oregon State University Extension Service handout EC 628, "How to Take a Soil Sample... and Why".

(2) **Testing** - The test may be performed by any qualified soils testing laboratory. A list of qualified soils testing laboratories is available from the Oregon State University Extension Service. Include testing for levels of acidity (pH), salinity, nitrates, ammonium, phosphates, potassium, calcium, magnesium, and any other tests necessary to determine appropriate fertilization and amendment needs for the type of plants being planted.

(3) **Soil Amendment Report** - Provide a report from the testing laboratory summarizing sampling locations and procedures with printed results, and which makes recommendations for fertilizers and soil amendments to effectively develop productive soil.

(b) **Testing and Soil Bio-Amendment Report** - Have soils tested prior to planting by an approved soil ecology lab. Provide information on soil foodweb structure and function, and include total and active bacterial biomass, total and active fungal biomass, protozoan numbers, nematodes,

microarthropods, and mycorrhizal colonization. Adjust the kind and amount of soil conditioners, soil amendments, soil bio-amendments, and fertilizers (if any) as recommended by the soil bio-amendment report, and as approved by the Agency prior to construction.

(1) Sampling - Take five samples per acre of each soil type. Mix the five samples into one test sample for each soil type. Conduct sampling according to the standard procedures for soil organism assessment as recommended by the soil ecology lab.

(2) Testing - Perform the following soil ecology tests and furnish soil meeting these minimum soil organism biomass requirements:

Test	Minimum Requirements
Percent active bacterial and fungal biomass	between 5% and 25% activity
Total bacterial biomass	6 X 10 ⁸ per gram of dry soil
Total fungal biomass	100 µg for grasslands 200 µg for shrubs or perennials 300 µg for forested areas
Protozoa.....	5000 per gram of soil
Beneficial nematodes.....	20 per gram of soil (No root-feeding nematodes)

Determine if anaerobic or compacted conditions are present, based on the assessment of total bacterial biomass, percent bacterial activity, and protozoan biomass.

If the soil contains biomass numbers lower than these levels, apply amendments and inoculates according to the soil ecology lab recommendations in the soil bio-amendment report in 01040.13(b-3).

(3) Soil Bio-Amendment Report - Provide a report summarizing sampling locations and procedures. Include the soil ecology lab report of the soil organism assessment and the recommendations for:

- Inoculation of missing organisms groups to the soil.
- Amendment with food resources for organism groups with too low of a biomass.
- Reduction of undesirable groups, or groups with the biomass too high for the optimal growth of the desired plants.
- Any adjustments to the bio-amendments required for the types of plants being planted.

01040.14 Topsoil - Furnish topsoil containing no substance detrimental to the growth of plants and that is free of plants designated by the Oregon Department of Agriculture as Type "A" or Type "B" weeds. Unsuitable topsoil, or topsoil placed by the Contractor without approval in areas to be planted, may be required to be replaced at no additional cost to the Agency.

20 days before furnishing any type of topsoil, do the following:

- Give the Agency notice of intent to use the source.
- Provide access to the source for Agency inspection.
- Provide one 20 pound representative soil sample of each topsoil type for testing of particle size range and organic matter by the Agency, unless otherwise specified.
- Obtain approval of the source before excavation of topsoil begins.

(a) Selected Topsoil - Furnish native topsoil from the required excavations meeting the requirements of 00330.10 or from other Agency-controlled lands. The general limits of topsoil materials will be indicated on the plans. The Agency will make the final determination of the areas where the most suitable materials exist. Furnish topsoil that is the fertile part of a soil profile commonly referred to as the "A" horizon, typically ranging in depth from 3 inches to 12 inches. Do not take material for topsoil from a depth greater than 12 inches below existing ground, unless approved.

Select only sources that are well-drained and, before stripping, have a healthy crop of vegetative growth. Remove and dispose of all heavy grass or other vegetation before taking materials from the source.

(b) Imported Topsoil - Furnish imported topsoil from non-Agency controlled lands that, when tested according to AASHTO T 88, meeting the following limits:

Standard Sieve Analysis

Particle Size Range	Percent Retained (by Weight)
Larger than 2"	0
2" - 3/4"	0 - 5
3/4" - No. 4	0 - 20
No. 4 or less	0 - 100

Of the fraction passing the No. 4 sieve, excluding organic material, furnish topsoil that conforms to the following limits:

Hydrometer Analysis

Particle Size Range	Percent (by Weight)
No. 4 - No. 200	5 - 70 (Retained)
No. 200 - 2 μ m	20 - 80 (Retained)
Less than 2 μ m	5 - 30 (Passing)

In addition, furnish topsoil that analyzes at least 2 percent organic matter according to ASTM D 2974.

(c) Wetland topsoil - Furnish a native, naturally hydric wetland topsoil consisting of silts, clays, and organic matter in combination that is free from substances detrimental to plant growth, such as noxious weeds, undesirable plant roots, refuse, sticks, or lumps. Provide wetland topsoil that is from a wetland with an existing, well established, healthy growth of the desired wetland plants. Obtain approval of the source before excavation of wetland topsoil begins.

Excavate, at a minimum, the top 24 inch depth of existing wetland soils using standard construction equipment.

01040.15 Soil Conditioners - Soil conditioners are for modifying soil structure and improving soil aeration characteristics, as distinguished from plant foods, mulch, and soil organism amendments. Furnish soil conditioners free of noxious weeds, living plants and rhizomes, and substances detrimental to plant life. Submit a 15 pound sample for approval by the Agency prior to construction. Provide soil conditioners that are free of weed seeds, excessive salts, chemicals detrimental to plant growth, and pest organisms. Soil conditioners proposed for use are subject to testing at any time or place the Agency deems appropriate.

Furnish one or more of the following soil conditioners:

(a) Mushroom Compost - The used bedding material from commercial mushroom production.

(b) Composted Yard Debris - Commercially manufactured material, made from dead plant material such as grass clippings, weeds, green and dead dry leaves, garden and vegetable material, and ground branches of trees and shrubs. Furnish a product that is composted under controlled aerobic decomposition, with the internal temperature reaching 135 °F for 15 days, without exceeding 155 °F. Ensure that it contains a maximum of 10% bacteria and 10% fungus. Additional certification may be required in areas having a certification program.

(c) Peat Moss - Horticultural grade, natural peat moss in air-dry condition, free from woody substances, in bales or bags labeled for content and volume. Only peat moss used in combination with one of the above composts is acceptable.

01040.16 Soil Amendments - Soil amendments are intended to improve soil nutrition. Furnish soil amendments that are free of materials detrimental to plant life. Furnish manufacturer or supplier quality compliance certification according to 00165.35. Ensure that material testing methods meet the requirements of the Oregon Department of Agriculture appropriate to that material. Obtain approval for use before beginning work. Soil amendments may include the following:

- Lime
- Dolomite Lime
- Gypsum
- Rock, Diammonia, or other Phosphate
- Calcium or Potassium Nitrate
- Iron Sulfate

01040.17 Soil Bio-Amendments - Soil bio-amendments are intended to increase beneficial soil organism numbers or soil organic nutrient content. Furnish bio-amendment products or materials that are free of substances or life forms detrimental to plant life and receive approval prior to use on the Project. Furnish manufacturer or supplier quality compliance certification according to 00165.35. Ensure that material testing methods meet the requirements of the Oregon Department of Agriculture appropriate to that material. The following are typical soil bio-amendments that may be identified in the soil bio-amendment report:

(a) Bacterial Food Amendments:

- Simple sugars such as brown sugar, brown syrups, or molasses
- Plant extracts of Yucca or Nettle, usually containing sap of the plant comprised of a combination of simple sugars, proteins, and carbohydrates
- Fulvic acids
- Yeast, including baker's yeast, brewer's yeast, and champagne yeast
- Kelp meal
- Rock dust

(b) Fungal Food Amendments:

- Cellulose
- Lignin
- Humic acids - brown to dark brown products (black is not acceptable)

(c) Protozoa Food Amendments:

- Bacteria
- Hay infusions - A method of growing protozoa for soil inoculation by using hay in water

(d) Nematode Food Resources - Nematodes come as four types: bacterial-feeders, fungal-feeders, root-feeders, and predatory nematodes. Predatory nematodes eat other nematodes, while the name of the other groups indicate what organisms they eat.

The primary source of material containing a wide diversity of beneficial nematodes is good compost. Provide certification that the compost contains beneficial nematodes and does not contain root-feeding or other detrimental nematodes.

(e) Mycorrhizal Inoculates - Commercially produced ectomycorrhizal and endomycorrhizal fungi that improve plant root absorption of soil nutrients.

(f) Microbes - Commercially produced product designed to enhance microbiological activity in the soil by the addition of beneficial and essential microbes. Commercial products may also contain vitamins, amino acids, plant growth hormones, micronutrients, and plant stress relievers.

(g) Earthworms - Common earthworms that are either "Red Wigglers" or "Night Crawlers" delivered in peat moss or other damp medium.

01040.18 Fertilizer - The soil amendment and bio-amendment reports will recommend fertilizer types and application rates. When identified in the report furnish commercial fertilizer meeting the requirements of 01030.14 and the following:

(a) Organic - Organic fertilizer 5-4-3, analyzing 5% nitrogen, 4% available phosphoric acid, and 3% soluble potash.

(b) Plant Bags and Tablets - Plant bags or tablets containing 20-10-5, or approved equal, may be used instead of granular fertilizer in pit planting.

Furnish plant bags or tablets that are controlled-release with a minimum one-year release period. Chemical formulation, rates and use will be approved by the Agency.

01040.19 Plants:

(a) Nomenclature - Botanical identification and nomenclature of plant materials shall be according to the most current edition of "Hortus Third", by Bailey. The Agency may authorize use of other references such as the "Sunset Western Garden Book", the "Flora of the Pacific Northwest", by Hitchcock, or the "Manual of California Plants", by Jepson.

Furnish plants that conform to the applicable requirements of the current issue of the "American Standard for Nursery Stock", published by the American Association of Nurserymen. When a conflict exists between this publication and the Specifications, the Specifications will prevail.

(b) Quality - Provide plants that are healthy, first-class representatives of their species or variety, free from disease and insect pests, with top growth that is well developed and free of disfiguring knots, sun scalds, bark abrasions, wind or frost injury or any other objectionable features.

Furnish plants that are acclimated to the specific project environmental site conditions prior to planting. Store all container-grown and balled and burlapped (B&B) plant materials acquired for fall planting a minimum of three months before planting, at a location north of the 42nd Latitude (Oregon - California border).

Furnish plants that possess top growth and root systems typical to their variety. Provide trees with central leaders that have a symmetrical, well-branched, straight trunk. Trees with a damaged or missing leader, multiple leaders or Y-crotches will be rejected, as will sheared conifer trees.

Protect plants at all times during handling, shipping, storage and planting against such detrimental effects as windburn, extreme weather conditions and drying of roots, root balls and foliage.

(c) Certification - Furnish a State inspection certificate and shipping certificate for each load or lot of plant material that includes the following information:

- Date of shipment
- Name of nursery where grown
- Name of plants (Including all names as specified in the Contract)
- Number of plants
- Grade or classification of plants (Verifying conformance with the Specifications)
- Size (Including height, spread, runner length, caliper and other measurements as required)
- Identify at least one plant (botanical and common name) within each group of like species
- Identify one plant (botanical and common name) within each different size category

(d) Inspection - Plants will be subject to inspection by the Agency, at any time and place. The Agency will make no plant material inspection at the source, except as it may elect. Notify the Agency of each delivery of plants to the Project site no less than 24 hours ahead of delivery. Do no planting until the plants have been inspected and approved for use. Any planting done without prior approval of the plants will be considered in violation of these Specifications.

The presence of noxious weeds in the soil accompanying plants or at the nursery source will be cause for rejection of any or all plants from that source.

(e) Availability - Furnish a list of nursery sources for all specified plants within 90 calendar days after execution of the Contract. Verify, by this list, that all specified plant material has been located and will be available for use on the Project. If applicable, see 01040.19(g) for alternate requirements.

(f) Plant Substitution - No substitution of plant materials will be allowed unless written evidence is submitted that a specified plant or material cannot be obtained and has been unobtainable since the execution of the Contract. If substitution is allowed, it will be by written approval from the Agency for the nearest acceptable variety, size and grade. Make any request for substitution in writing to the Agency with ample time for approval without delaying the work.

(g) Contract Grown Plant Materials - When required by the Special Provisions, include a contract growing agreement between the Contractor and a nursery supplier in order to ensure plant availability or suitability.

If a contract growing agreement is part of the Project, submit a Contract Growing Plan that describes plant material size at delivery, growth environment, name and location of nursery, and the source for each plant (native seed, indigenous cuttings, or commercially grown). Submit this required information as part of the PWP.

(h) Definition of Plants and Descriptive Terms - The following definitions describe the distinctive habit and characteristics of the most common plant materials:

(1) Conifer Trees - Trees with needle or scale-like leaves that maintain live-leaf foliage throughout the year, and that usually bear seed from a woody cone.

(2) Deciduous Trees - Trees with leaves that are shed at the end of the growing season, and which remain leafless throughout dormancy.

(3) Transplanted Specimen Plants - Unique or large plants typically used in low numbers on projects. See the plans for specimen type, size, and location. Deliver trees to the site that are dormant and with buds that have not yet swelled. Furnish plants that have an unbroken root ball sufficient to sustain continued growth. Ensure that the root ball size conforms to the current edition of the "American Standard for Nursery Stock". Provide plants with no broken limbs or bark abrasions, and cleanly cut off any frayed roots or damaged limbs. Deliver trees that are balled and burlapped, boxed or moved by commercial tree spade.

(4) Balled and Burlapped (B&B) Plants - Plants excavated with soil around the root system whose root ball is wrapped for shipping and handling. B&B materials are generally trees or shrubs, such as evergreens, that require a large ball of earth to sustain them after the transplant. Furnish plants that are balled and burlapped meeting the requirements of the latest edition of the "American Standard for Nursery Stock", including minimum size of root balls.

Furnish plants with root balls securely wrapped in burlap or similar mesh fabrics not harmful to plants, and bound with removable twine or wire. Provide root balls that are firm, intact and held solidly together by a fibrous root system consisting of only the earth in which the plant was growing. "Made" balls will be rejected.

(5) Collected Plants - Plant material that is harvested from existing on- or off-site plant populations. Furnish collected plants that conform to all appropriate quality, grade and class requirements of the current issue of the "American Standard for Nursery Stock".

(6) Container Grown Plants - Plants that are grown and delivered in containers which possess well-formed top growth and whose root growth is typical to the variety.

Furnish plants that are resident in their delivery containers long enough to have established new fibrous roots, have a root mass that will retain its shape, and hold 90% (visual estimate) of the root ball material when removed from their containers. Some root growth should be visible along the outer edges of the container. Root-bound container grown plants and "made" container plants will be rejected.

(7) Seedling Trees - Plants that are grown from seed in a nursery and brought to the site in a bare root condition. Provide seedlings labeled with age and certification (class number) which shows the number of seasons grown in a nursery seedbed, followed by the number of seasons grown in a transplant bed. Furnish seedling trees that are a minimum two years old.

Furnish seedling trees that are Oregon Department of Forestry "zoned" (grown) within approximately 500 vertical feet of the Project site elevation. Submit seedling zone information for the proposed plants to the Agency prior to construction.

(8) Bare-root Plants - Small deciduous plant material that is excavated for transplant with exposed roots. Furnish only bare-root plant materials that have dormant buds at the time of planting. Take great care to protect bare root plants against dehydration and sunburn.

(9) Plant Cuttings - Living, freshly cut branches from certain woody shrub or tree species that readily propagate when embedded in damp soil. Furnish plant cuttings of regionally native species and dimensions as shown on the plans. Obtain written approval of the cutting stock sources before taking any cuttings and furnish a brief, written description of the cutting site(s) and the date and time the cuttings were taken to the Agency. Take cuttings in such a manner so as to leave no long-term damage to the source population. If willow species are called for, select the local native shrub variety.

(10) Fascine - Bound, cylindrical bundles of live plant cuttings that are placed in shallow trenches, partially covered with soil, and staked in place, typically used to stabilize stream banks against erosion. Furnish only fascines of regionally native materials having the dimensions shown on the plans.

(11) Brush Mattress - A combination of plant cuttings and fascines installed to cover and protect stream banks and shorelines. Brush mattress dimensions and any material requirements will be shown on the plans.

(12) Tubeling Plants - Plants grown in containers that encourage deep root growth.

(13) Vines - Plants with growth primarily along stems, often having climbing characteristics, and typically attaching to walls by tendrils or other means.

(14) Groundcovers - Low growing or spreading plants.

(15) Wetland Plants - Plants that meet the definition of hydrophyte, which is any macrophyte that grows in water, or on a substrate, that is at least periodically deficient in oxygen as a result of excessive water content.

(16) Bulbs - For the purposes of this section, these will typically include the forms known as bulbs, corms, culms, plantlets, rhizomes, runners, small offsets, stolons and tubers. These plants will be collectively referred to as "Bulbs". The appropriate propagule (plant part that can be separated and used to grow another plant) will vary depending on the plant species.

(17) Sod Lawn - Grass sod grown on agricultural land that is commercially cultivated specifically for turf sod. Furnish sod that is free of weeds, diseases, harmful nematodes and insects. Provide sod that is mature, not less than 10 months old, and machine cut to a uniform thickness of 5/8 inch or more, excluding top growth and thatch. Broken pieces and torn or uneven ends will not be accepted. Plant sod within 36 hours of harvest.

01040.20 Mulch - Furnish plant bed mulch materials free of noxious weed seeds or plants and which contain no substance detrimental to plant life. Mulches are subject to inspection at any time and place at the discretion of the Agency. The following are some types of materials that fall under the category of "mulch", and may be used on projects:

(a) Bark Mulch - Ground, shredded or broken particles from the bark of fir, pine or hemlock trees which is free of non-bark debris, harmful bacteria, disease spores, pests and substances toxic to plant growth. Provide mulch that is the standard trade size known as "medium fine mulch".

(b) Cinder Mulch - Crushed lava cinders, screened to an approximate size between 3/16 inch to 5/8 inch. Furnish cinders free of fines and other non-cinder material.

(c) Straw Mulch - Provide straw mulch according to 01030.15.

(d) Rock Mulch - Round 3/8" - No. 4 pea gravel or round 2" - 3/8" rock. Provide material that is free of fines and other non-gravel material. Rock colors may vary.

(e) Wood Chip Mulch - Mulch that is chipped from cleared site vegetation. Ensure that chipped material is free of any noxious weeds or invasive vegetation. Allowable size range or other qualities may be listed in the Special Provisions.

01040.21 Herbicides - The use of herbicide chemicals will be allowed only upon approval of the Agency. Select and apply chemical herbicides according to all applicable Federal, State and local laws, as well as the WCWP requirements of the PWP. The following are standard herbicide functional categories:

- (a) **Soil Sterilant** - Chemical herbicide that is used to kill all new emergent vegetation, often including seeds or other plant parts.
- (b) **Pre-emergent** - Chemical herbicide that is used to stop the germination of seeds before they grow above the soil level.
- (c) **Post-emergent** - Chemical herbicide that is used to selectively or non-selectively kill vegetation after germination and emergence above ground.

01040.22 Water - When required by the Special Provisions, furnish the following:

- (a) **Pressure Moisture Stress Sensor** - A pressure chamber instrument capable of applying up to 40 bars or 600 psi to a small leaf or shoot in order to determine its water uptake potential. Instrument is to include all accessories necessary to perform a plant moisture stress test.
- (b) **Timed-Release Water** - Containerized moisture retention chemical in the form of a solid gel delivered in biodegradable cartons. Typical ingredients are 97.85% water, 2% cellulose and 0.15% aluminum sulfate.
- (c) **Moisture Retention Chemicals** - Granular chemical that are typically cross-linked potassium based polyacrylate or polyacrylamide copolymers. Provide commercial quality product from the QPL.

01040.23 Miscellaneous Items - Furnish miscellaneous items meeting the following requirements or provide commercial-quality products from the QPL. Obtain approval from the Agency prior to use.

- (a) **Anti-transpirant** - Apply liquid anti-transpirant spray to all appropriate deliverable plant materials, prior to transport.
- (b) **Boulders** - Furnish boulders of indigenous materials, with source, dimensions, and other characteristics as shown.
- (c) **Browsing Protectors** - Flexible, semi-rigid plastic or metal mesh, brown or light green in color, with stake supports.
- (d) **Game Repellent** - A commercial nontoxic spray that makes vegetation unpalatable for animal forage.
- (e) **Root Barrier** - A root barrier designed to contain and control root intrusion into unwanted areas.
- (f) **Tree Grates** - Tree grates complete with frames, all required attachment hardware, and at least one issue of any specialty key or tool that is required to open or move the item for maintenance.
- (g) **Tree Stakes and Ties** - Rough sawn tree stakes of 1 1/2 inches x 1 1/2 inches douglas fir or pine, construction grade or better. Use stakes 6 foot long for trees less than 8 feet tall, and stakes 8 foot long for trees 8 feet or taller. Stain all tree stakes with an approved, dark green penetrating oil stain. Provide tree trunk protection of guying material of either a commercially available tree tie or a section of garden hose. Furnish tree guying material of a commercial product manufactured for this use, such as plastic chain, or stainless steel woven-wire with clamp fasteners. Size the guying material appropriate to the size of the tree and the wind factors of the area.

(h) Trunk Wrap - Typically manufactured of waterproof, crinkled paper and is designed to protect tree trunks against sunscald, loss of moisture and insect attack.

(i) Weed Control Geotextile - Weed control geotextile is typically manufactured of permeable, fibrous synthetic material and is generally for use under material such as mulch or gravel.

(j) Woody Course Debris - Logs or root-wads salvaged from on-site deciduous tree clearing and grubbing activity.

Construction

01040.40 General - Planting areas and plant locations shown on the plans are approximate unless shown with dimensions. Be responsible for layout and staking for plant placement, subject to approval by the Agency before planting. The Agency will make only field measurements necessary to calculate and verify quantities for payment.

Adjust tree locations to avoid possible conflicts with vehicle recovery clear zones, utilities, structures, miscellaneous appurtenances, and signing, as directed. In mowable grass areas, locate trees at least 10 feet from the edge of plant beds, other trees, fences, and ditch bottoms, unless otherwise specified.

01040.41 Planting Season (West of the Cascades) - Perform all plant installation work from September 1 to May 15, unless otherwise specified. Container-grown materials located within irrigated areas may be planted at other times, depending upon written Agency approval.

Do not place lawn sod before March 15 or after September 30 without written Agency approval.

01040.42 Planting Season (East of the Cascades) - Perform all plant installation work from October 15 to November 30, unless otherwise specified. Container-grown materials located within irrigated areas may be planted at other times, depending upon written Agency approval.

01040.43 Topsoil:

(a) Excavation - Prevent fouling of suitable material with subsoil or other detrimental matter. Form stockpiled soil into windrows at least 6 feet high, not to exceed 13 feet high, to maintain and preserve soil organism vitality.

(b) Subsoil Preparation - Grade and finish areas that are to receive topsoil, allowing for the specified amounts of topsoil. Scarify or till subsoil that is not loose and friable to a depth of 6 inches and obtain approval from the Agency before placing topsoil.

(c) Hauling and Spreading - Haul and spread material without compacting the topsoil or areas where it is placed. Protect from damage any surrounding objects, pavement, structures and areas that are traveled, crossed, or mounted by equipment.

Smoothly spread the topsoil over the specified areas to the thickness, grades, and slopes shown or directed. Avoid wasting topsoil and do not place material during wet conditions. Do not work saturated soils in any manner. Material placed contrary to Agency instructions or in undesignated places will not be paid for and removal may be required at the discretion of the Agency.

(d) Finishing and Cleaning Up - Finish areas covered with topsoil to proper grade, contour and cross section. Cultivate all topsoil not in a loose and friable condition to a depth of at least 4 inches. Bring the surface to a condition ready for planting operations.

01040.44 Select Wetland Topsoil:

(a) Excavation - Stage construction so that excavated soils may be moved directly to the wetland mitigation location. If that is not possible, stockpile the material for not more than 28 days. Water stockpiled material twice weekly and keep moist until used. Form stockpiled soil into windrows at least 6 feet high, not to exceed 13 feet high, to maintain and preserve soil organism vitality.

(b) Subsoil Preparation - Excavate or grade areas to receive selected wetland topsoil as shown on the plans and finish as smooth as practicable through one pass of standard construction equipment. Have subsoil preparation inspected and approved by the Agency prior to spreading the selected wetland topsoil.

(c) Hauling and Spreading - Transport select wetland topsoil to the site by any means which meets all applicable regulations related to hauling potentially wet or moist materials. Spread the topsoil to a depth of 6 inches minimum to 24 inches maximum, or to meet the finished elevations as specified on the plans. Make as smooth as practicable without excessive soil compaction. After spreading, have the area inspected and approved by the Agency prior to planting.

01040.45 Soil Amendments - Incorporate soil amendments into the topsoil when required by the soil fertility test and soil amendment report. The application rate will be verified by checking settings on the spreading or application equipment.

01040.46 Soil Bio-Amendments - Incorporate the following soil bio-amendments into the topsoil of areas to be planted, according to the recommendations of the soil bio-amendment report, the supplier, or the following:

- Bacterial Food Amendments
- Fungal Food Amendments
- Protozoa Food Amendments
- Nematode Food Amendments
- Microbes and Biostimulants
- Earthworms - Add nine worms per cubic yard of topsoil (this roughly equates to three worms per 10 square feet of topsoil at 12 inches depth).
- Mycorrhizal inoculation - Incorporate into the planting hole quantities of mycorrhizia sufficient to correct the soil for the type of plants or grasses being grown.
- Mycorrhizal Inoculation (Injection) - Provide pre-measured packets containing live endomycorrhizal and ectomycorrhizal fungi.
- Mycorrhizal Inoculation (Root Dip) - Apply root dip material containing live endomycorrhizal and ectomycorrhizal fungi.

The application rate will be verified by visual inspection of application rates. A one-time application should be adequate, as long as pesticides, fertilizers or other toxic materials are not used at the same time. If it becomes necessary to apply pesticides that have non-target organism effects, or to apply fertilizer at rates greater than 13 pounds per acre, re-inoculate the organisms about one month after the pesticide or fertilizer was applied.

01040.47 Fertilizers - Incorporate fertilizer based upon recommendations of the soil amendment and soil bio-amendment reports or, with Agency approval, at the type and rate as follows:

Plant Bags/Tablets

Plant	Rate	Size
Tree	3 per tree	3/4 ounce
Shrub	2 per shrub	3/4 ounce
Vine/Ground Cover	1 per plant	3/16 ounce

Granular Fertilizer Rate

- 1 pound per tree per application
- 1/2 pound per shrub per application
- 1/8 pound per vine/ground cover per application

Evenly space planting bags or tablets around plants after planting pits are two-thirds filled with backfill. Mix granular fertilizer into the upper one-half of plant backfill.

The application rate will be verified by visual inspection. Furnish manufacturer or supplier quality compliance certification according to 00165.35. Ensure that material testing methods meet the requirements of the Oregon Department of Agriculture appropriate to that material.

Do not allow the fertilizer application to conflict with the soil bio-amendments. In case of questions, provide the soil bio-amendment supplier's written recommendations to the Agency.

01040.48 Planting Area Preparation - All planting areas shall be Weed Free before planting or seeding operations begin. Identify, kill, and remove plants according to 01030.62(b-3).

Prepare planting areas according to the following methods, or as otherwise specified:

(a) Method "A" (Cultivated Planting Areas, Non-lawn) - Cultivate plant beds to a depth of 2 inches. Thoroughly mix 52 inches of soil conditioners into the top 12 inches of plant beds. In addition, add soil amendments, soil bio-amendments and fertilizers, as shown or specified, according to the soil amendment and soil bio-amendment reports recommendations, into the top 12 inches of topsoil.

Finish grades by raking to a grade tolerance of plus or minus 1 inch, with a smooth and firm condition, and an even grade that is free of undulations or low areas that could create standing water. Match existing grades at the perimeter. Finish to the proposed grades shown or specified.

On slopes that the Agency determines are too steep to cultivate, plants may be planted in individual planting holes prepared using method "B".

(b) Method "B" (Non-Cultivated Planting Areas) - Spray existing weeds and non-desirable vegetation with herbicide to kill all top growth and roots in areas not requiring cultivation. Use herbicides that have limited residual toxicity to permit safe planting as required under the Contract. Do not spray or otherwise harm plants to be saved. After inspection and approval, remove the dead top growth of plant material within 2 inches of the surface and dispose of according to Section 00320. Replace plants to be saved that are damaged by herbicide application at no additional cost to the Agency.

Add any soil conditioners, soil amendments, soil bio-amendments or fertilizers with the backfill at each plant pit or to the seeding operation.

Finish wetland mitigation planting areas to specified finish elevations, blending to existing ground smoothly, as required and directed. Except for projects that are less than one year in duration and unless otherwise approved, review the seasonal hydrology of the area to be planted for one full winter season (November 15 to February 28) prior to planting any wetland plants. Adjust plant types and planting locations as required or directed, based on the review of site hydrology.

When planting seedling plants, completely scalp vegetation from a 12 inch diameter area around each planting hole. Clear all debris such as wood and rocks from the planting spots, provided debris is not deeper than 12 inches. When debris is deeper, move the planting location. Use herbicides around seedlings only upon written approval of the Agency.

(c) Method "C" (Sod Lawn and Seeded Lawn Areas) - Cultivate existing ground to a depth of 6 inches, achieving a loose and friable condition suitable for fine grading. Remove all vegetation, rocks larger than 2 inch diameter, clods, roots, sticks, debris, and other matter detrimental to the growth of sod.

Uniformly spread soil conditioners, soil amendments, soil bio-amendments, and fertilizer evenly over the area and thoroughly rototill into the soil to a depth of 4 inches. Apply at rates recommended by soil testing, or as follows:

Material	Rate (per 100 square yards)
Soil Conditioner	1/2 cubic yard
Fertilizer	10 pounds
Lime (Western Oregon only)	40 pounds

Fine grade and roll planting areas with a water-filled roller to provide a fine-textured, smooth, firm surface, free of undulations, irregularities or low areas that could create standing water. Grade areas receiving sod to within 1/2 inch of the designed grades, and 1 inch below adjacent walks, curbs and pavement. Since sod thickness varies, adjust initial grades so the final sod soil level is slightly below adjacent hard surface grades. Ensure that final sod grade does not create a pedestrian tripping hazard.

Furnish the Agency with sod mixture information and a quality compliance certificate from the sod grower, certifying sod compliance with mixture requirements, according to 01040.10.

Prior to completion of any sodding and seeding, re-grade ruts, footprints, washouts, or any other irregularities, and re-seed or re-sod repaired areas as originally specified.

(d) Method "D" (Rough Areas Seeded for Revegetation or Erosion Control) - Remove any matter detrimental or toxic to the growth of plants, including weeds, clods, rocks or debris. On slopes 1V:3H or flatter, remove all debris larger than 2 inches in any dimension. On cut slopes 1V:1.5H or flatter, roughen the surface with furrows parallel with slope contours and loosen the soil to a depth between 3 inches and 6 inches.

(e) Method "E" (Temporary Seeding Areas) - If grading is required or directed, make equipment passes at right angles to the slope in order to form seed-holding tracks in the soil.

01040.49 General Planting - Plant trees, shrubs, groundcover, vines, and bulbs using the following practices:

- Inspect plants after arrival at the Project and before planting. Do not install plant materials until each required inspection by the Agency is complete. Replace plants not meeting the requirements of the Specifications with plants as specified or otherwise directed, at no additional cost to the Agency. Initial approval of plant materials for planting by the Agency will not constitute final acceptance.

- Protect all plants during shipping, handling, storage, and planting from windburn or exposure to harmful weather conditions, and root or root ball drying.
- When excavating planting holes, stockpile excavated topsoil separately from subsoil. Do not include alkali soil, subsoil, gravel, debris or rocks in the topsoil. Dispose of any substandard excavated materials in a manner not harmful to plants or planting work. Scarify planting pit sides and bottoms to eliminate glazed surfaces. Dispose of excess soil in a manner that is not harmful to plants or planting work.
- Do not plant in standing water unless approved by the Agency. If standing water is present within a plant pit, notify the Agency prior to planting to determine what corrective measures are required. Perform corrective measures on an Extra Work basis according to Section 00196.
- Excavate tree plant pits a minimum of twice the diameter of the plant root ball or 2 feet larger than the root ball, whichever is greater. Dig shrub plant pits a minimum of 1 foot larger than the root ball diameter. Dig pits to the same depth as the root ball, root mass, or container. Spread root systems of bare root plants and container stock as necessary to keep plants from being root bound.
- Cleanly cut off broken or frayed roots of bare-root plants before planting. Spread out roots in their natural position within the pit and trim only damaged roots as approved by the Agency. Remove all labels, tags and attachment materials from the plants before final inspection.
- Set upright growing plants straight and plumb, and prostrate growing plants level to the ground surface. Set all plants so that, after settlement, they are at the same level as when growing in the nursery or container.
- Place the backfill then add soil amendments, soil bio-amendments, and fertilizers as recommended by the soil amendment and bio-amendment reports. Moisten backfill completely after placing to eliminate air pockets and minimize settlement of the backfill. Form a shallow (2 inch high) water-holding saucer in the soil around the plant unless directed otherwise.
- Balled and burlapped plants may be placed with the root ball wrapping removed or, if all materials are untreated and fully biodegradable, left in place. If the root ball wrapping (burlap) is left around the plant, completely remove all tie wire, string or twine and fold down the burlap from the top half of the root ball.
- Perform any required pruning using good horticultural practice appropriate to the type of plant. Prune to remove all dead, damaged, crossed or rubbing twigs and branches, and to compensate for loss of roots during planting. Make cuts close to the parent stem, but not flush or through the bark "knob" at the branch joint. Do not prune terminal ends of tree leaders without approval of the Agency.
- Apply bark or wood chip mulch of the type and depth as shown. Correct contamination of new mulch due to the Contractor's operations at no additional cost to the Agency. Feather mulch into plant material trunks, stems, canes or root collars, and leave 1 inch below the top of junction and valve boxes, curbs and pavement edges. Any mulch placed to a thickness greater than specified will be at no additional cost to the Agency.
- Do not disturb protected existing vegetation unless approved by the Agency prior to construction.
- Dig pits for street trees that have hard surfaces around them so the crown of the root ball is 3 inches below the finished surface of the surrounding grade.
- Water deciduous trees that are 1 1/2 inches or larger in diameter, conifer trees that are over 4 feet in height, and all shrubs at a minimum frequency identified in the Special Provisions.

01040.50 Special Planting Requirements:

(a) Transplanted Specimen Plants - Use the following methods for transplanting specimen plants, unless otherwise specified:

(1) Mechanical Digging - Use a "Vermeer" type of tree spade or approved equal. Move only during the season that the tree is dormant. Treat deciduous plants with anti-transpirant prior to excavation. Confirm with the Agency that the size of the spade is appropriate to the size and type of tree prior to beginning work. Dig the receiving hole prior to digging the tree to be transplanted. Take care not to damage the tree bark. Refill the original hole after transplanting. Do not move Oregon White Oak (*Quercus garryana*) by this method.

(2) Hand Digging - Before digging, obtain approval from the Agency for the size of container or root ball to be used for each plant. Begin digging at a diameter greater than the expected size of the root ball and remove dirt toward the plant until the surface roots show. When completely dug, secure the root ball with burlap and twine, wire basket or in a wooden box. Take special care to dig deep enough so that the taproot is not cut until it is smaller than 3/8 inch. Take care not to damage the tree bark. Refill the original hole and compact the soil after transplanting.

Install perforated plastic drainpipe as shown. Add fertilizer, soil amendments or bio-amendments to backfill topsoil mixture. Stake or guy the tree as specified.

Provide one application of anti-transpirant before transplanting, and one application of Vitamin B1 growth hormone after planting to each specimen plant according to the manufacturer's recommendations.

Perform all replanting of specimen plants according to 01040.41 and 01040.42.

(b) Staking and Guying Trees - Stake and guy planted trees as shown or directed.

(c) Seedling Trees - Plant seedling trees using one of the following three methods:

- Planting hoe capable of opening a vertical hole broken out on three sides, with a minimum blade length of 12 inches and width of 3 inches.
- Planting shovel capable of opening a vertical hole broken out on three sides and at least 10 inches deep.
- Normal bare-root planting method.

No pre-staking of planting locations will be required. The Agency will be present as planting begins and will approve the spacing, planting method, and areas to be planted before work can begin. Vary plant spacing in order to allow seedlings to be planted in suitable soil. During the planting process, remove one tree at a time from the planting bag or other container to prevent drying of roots.

Place the roots of each seedling in the ground so that they assume a natural arrangement and do not twist, angle, bunch together or turn up at the ends. Plant seedlings so that the root collar is at or above the ground plane by no more than 1/2 inch. During planting, tamp soil around the roots in the lower half of the hole. Then fill the hole to the surrounding soil level and firmly pack so that no air pockets remain around the roots.

Ensure that seedlings do not pull loose with a tug strong enough to detach a small group of needles or small branch ends as applicable. Place a stake at the edge of each planting pit and install browsing protection and browsing repellent.

(d) Tubeling Plants - Place the tubeling into the planting pit without breaking the root mass. Set the top of the root collar 1/2 inch above finish grade, and gently tamp soil around the plant to compact the backfill. Place a stake at the edge of the plant pit and attach a browsing protector around each plant.

(e) Collected Plants - After plants become dormant, excavate collected plants by hand, protecting the root mass against drying, freezing or breaking. If possible, plant all collected stock the same day as gathered, or transport to a local nursery for temporary storage until final planting.

If immediate planting is not possible, place collected plants in heavy paper or plastic with slightly damp peat moss or sterile potting soil. Store dormant plants at 32 °F to 37 °F until planting. Examine stored material frequently for signs of stress or disease and correct storage conditions as necessary. Plant collected plants before dormant bud development.

(f) Bulbs - Plant dormant bulbs at a depth of 1 inch to 2 inches or to the grade they grew naturally. Compact the soil firmly around the bulbs to prevent float-out and ensure good establishment. Dig holes large enough to naturally space bulbs within the planting area.

(g) Plant Cuttings - Collect and plant the cuttings while in winter dormancy, generally between October and March. Notify the Agency if conflicts exist with permit requirements. Store all cut material in ventilated plastic containers that allow free flow of water. Protect root systems from excessive drying at all times. Do not store plants in airtight containers.

Plant stock within four hours of harvest. If plants are a willow species, plant in the riparian zone on that portion of the slope where the plant stem ends will be in contact with year-round moist soil as determined by the Agency. Make planting holes by forcing a steel bar or similar tool into the ground about 12 inches deep. Place the cuttings into the holes and tamp soil firmly around the stems, leaving a minimum of 6 inches showing. Vary these dimensions as required for larger plant cuttings.

01040.51 Planting Wetland Plants - When planting wetland plants, do not use soil amendments, mulch, or fertilizer. Plant rhizomes, tubers and plugs within the upper 2 inches to 3 inches in exposed muddy or moist soils. When the water depth reaches or exceeds 1 inch notify the Agency of the potential need for adjustment to the planting.

01040.52 Placing Sod Lawn - Place sod only after approval of the Agency. Immediately before placing sod, water the soil bed to prevent drying of grass roots. Lay the first sod row in a straight line, then place subsequent rows parallel to and tightly against each other, staggering lateral joints. Do not stretch or overlap the sod. Tightly butt all joints. Do not use sod segments containing less than 2 square feet of surface area.

After placement, diagonally roll and thoroughly water the sod. Apply a second application of fertilizer (22-16-8) at the rate of 510 pounds per 100 square yards and thoroughly water.

01040.53 Mulch - Apply mulch according to the following:

(a) Ornamental Plant Bed Areas - Submit a 15 pound sample of bark mulch to the Agency for visual inspection and approval. The approved sample will be the standard of acceptability for all mulch used on the Project.

Apply bark mulch after beds are made free of weeds and debris, the surface is brought to a smooth finished grade, and all planting work (except for vines and groundcovers) is complete. Uniformly bark mulch planted areas to a nominal depth of 2 inches with bark mulch. Apply bark mulch so that it presents a smooth and even appearance as approved by the Agency (raking may be required).

Keep bark mulch off plants, structures, roadways, shoulders, walks, and lawns. Uncover all plants covered by mulch material as soon as possible and leave the site in a neat, clean and finished appearance. When planting vines or groundcover, rake bark mulch away from planting pits so that the bark is not contaminated. After planting, evenly spread excess soil and rake bark mulch back into place.

Replace bark mulch that is displaced or blown away, and correct to the specified depth any bark mulch placed to a greater than specified depth, at no additional cost to the Agency.

Spread rock or cinder mulch to a depth of 2 inches after planting trees and shrubs.

(b) Non-Ornamental Plant Bed Areas - Apply mulch according to one of the following methods:

(1) Straw Mulch - Spread grass straw mulch to a nominal 2 inch depth and tackify, after planting of tubeling plants and seeding as required.

(2) Wood Chips - Spread wood chips to a nominal depth of 2 inches. Add 15 pounds of Ammonium Nitrate/1000SF to neutralize nitrogen loss.

01040.54 Water - Water all plants at intervals as required to maintain and promote healthy growth. Avoid excessive watering of shrub bed areas that may leach herbicide and damage adjacent lawns or desirable or protected vegetation. Repair all lawn vegetation damage at no additional cost to the Agency.

(a) Pressure Moisture Stress Sensor - When a pressure moisture stress sensor is specified, the Agency will test a 1% to 5% representative sample to ensure that the moisture stress level is below 20 bars of pressure and inform the Contractor if any material exceeds this limit. Any plant material found to have greater than 25 bars of pressure will be considered to be under extreme moisture stress. Provide sufficient water within 24 hours to bring the plant into normal range. The Agency will retest to determine the new representative pressure. Plant material that have 30 bars or greater will be considered to have reached its permanent wilting point. Replace all such material during the next planting period. Testing will occur mid-day at the following times until the end of the establishment period(s):

- After plant delivery, during temporary storage, and before planting.
- At one-month intervals throughout the summer season, up to the first fall rain or snow.
- At weekly intervals during extremely hot or dry summer periods.
- Any time the Agency believes the plant material may be under stress.

(b) Timed-Release Water - Apply timed-release water containers when specified. Cut the bottom from the carton, dig a hole next to the plant and place so the contents touches the root ball or root area approximately 4 inches beneath finish grade, or according to the manufacturer's directions. Fill soil back around the carton to hold it firmly in place. Apply one carton for seedlings and tubelings, two cartons for No. 1 containers, and four cartons for larger plant material.

(c) Moisture Retention Chemicals - Utilize moisture retention chemicals according to the manufacturer's recommendation, depending upon specific applications.

01040.55 Miscellaneous Items - Place or install miscellaneous items as follows:

(a) Boulders - Place boulders in locations as shown. Do not scar or break boulders with equipment. Ensure that one-third to one-half of each rock is buried beneath finish grade. Verify all rock placement with the Agency prior to installation.

(b) Tree Grates - Install grates, frames, and appurtenances as shown and according to the manufacturer's recommendations. Place frames flush at sidewalks and place guards plumb according to the manufactures recommendations.

(c) Weed Control Geotextile - Place weed control geotextile at finish soil grade when planting is complete but before mulch placement begins. Place weed control geotextile with a minimum 4 inch overlap between rolls, turned under edges, and attached to the ground as recommended by the manufacturer.

(d) Woody Course Debris - Place woody course debris within the stream channel, facing upstream at approximately 45 degrees from the stream bank, or as shown or as directed. Anchor woody course debris to the stream channel bottom as shown.

(e) Anti-transpirant - Apply anti-transpirant according to the manufacturer's directions to all exposed foliage surfaces immediately before materials are delivered to the Project, or as otherwise specified. Provide certification of compliance.

(f) Game Repellent - Apply a game repellent to all exposed foliage surfaces immediately after materials are planted, or as otherwise specified. Re-apply to each plant every 120 days, or according to the manufacturer's printed instructions, until the end of the plant establishment period.

(g) Browsing Protectors - Install browsing protectors according to the manufacturer's recommendations.

(h) Root Barrier - Install root barrier according to the manufacturer's recommendation.

(i) Tree Stakes and Ties - Place tree stakes parallel with the prevailing winds and drive vertically into the ground at least 12 inches below the planting hole depth, or as shown. Do not drive stakes through the root ball.

(j) Trunk Wraps - Wrap tree trunks with the specified wrap, covering all exposed trunk between finish ground and the first whorl of tree branches.

01040.56 Cleanup During Construction - Maintain the Project in a neat, orderly condition. Remove unsightly construction materials at the end of each working shift. Clean all pavement surfaces of mud, debris, or other materials that may, in the opinion of the Agency, cause problems. If material is not removed, the Agency reserves the right to have the cleanup work performed and deduct the value of this work from the monies otherwise due the Contractor.

Plant Establishment

01040.70 General - The Contractor is responsible for the survival of all plant material until the end of a plant establishment period of one calendar year. The plant establishment period will begin when all the original planting is complete. The original planting is considered complete when all the plant material has been planted to the satisfaction of the Agency.

Establishment period work includes removing all plants that have reached their permanent wilting point, are dead, dying, or which do not meet Specifications, and replacing them with healthy plants. All plants in place after this replacement will be recognized as the original planting and will be subject to the establishment specifications. Repair, restore, and replace all plantings that have been damaged by vehicles, vandalized, and stolen according to 00170.80.

01040.71 Plant Care and Success Criteria - During the plant establishment period, maintain plants in a vigorous growing condition by regularly doing the following:

- Watering and fertilizing sufficiently to promote growth.
- Weeding, cultivating, pruning, and repairing.
- Adjusting tree stakes and guys.
- Controlling weeds before they seed according to 01040.48.
- Controlling pests and noxious weeds before the reproductive cycle.
- Removing dead or non-vigorous plants.
- Replacing missing plants.
- Re-mulching of plant bed areas.

The determination of a successful plant establishment period will be made at periodic plant establishment inspections. A successful planting establishment for each inspection is defined as follows:

- All plants are surviving and have vigorous growth.
- Plants are free of insects and disease.
- Plants show signs of continuing health.
- Plants have not reached permanent wilting point.

At the discretion of the Agency, certain types of regularly spaced plantings such as groundcovers may be measured using an area sampling method. To determine the rate of survival, set out (delineate) representative plots measuring 100 square feet at the completion of the original planting at random locations in each general planting area. The representative plots will be mutually agreed upon between the Contractor and the Agency. Mark the plot corners with permanent markers such as re-bar, including date and identification. Delineate a minimum of three plots per acre of new planting area.

The use of representative plots is intended to simplify the measurement of planting establishment work. If work within the representative plots does not accurately reflect the condition of the entire planting area(s), the Agency reserves the right to reject all establishment work.

01040.72 Periodic Inspections - During the plant establishment period, the Agency will make three plant establishment inspections jointly with the Contractor at the following times:

- Spring, early May
- Summer, mid July
- Fall, late September

Depending on when the establishment period begins, one of the above inspections will be the final inspection.

During each plant establishment inspection, the Agency may determine, based upon the specified success criteria, that corrective work is required. If so, the Agency will provide the Contractor with a written notice of required corrective work sent by hand-delivery or mail.

01040.73 Corrective Work - Complete all corrective work within 15 calendar days after receiving the written notice of the required corrective work to be taken. The 15 day requirement excludes those days the Agency determines to be impractical for working.

01040.73

The Contractor will be allowed to replace plants outside the Planting Season to perform corrective work after each periodic inspection.

Provide plant replacements of the same variety, size, and quality as specified for the original plants, unless otherwise approved.

Notify the Agency when the corrective work is complete. When the corrective work has been re-inspected and is completed to the satisfaction of the Agency, the appropriate partial payment due the Contractor will be made.

If the Contractor does not perform the corrective work within the 15 day period after written notification, excluding those days the Agency determines to be impractical for working, the Agency may have the corrective work done by others and deduct the entire cost of the corrective work from monies due or to become due the Contractor under the Contract.

01040.75 Weed Control - Provide weed control according to 01030.42.

01040.77 Plant Establishment (Ornamental Areas) - In addition to these plant establishment requirements, perform the following:

(a) Watering, Fertilizing, and Mulching - Water all plants at the required intervals using the installed permanent or temporary irrigation systems, or such means as has been established for the Project. Avoid excessive watering of shrub areas adjacent to lawns that may leach herbicide and damage the lawn. Repair damaged lawns at no additional cost to the Agency.

If specified for the original planting, re-fertilize plants to promote vigorous growth.

Maintain the plant bed mulch at a 2 inch depth during establishment, unless otherwise specified. Rake to a smooth and even finish grade.

Remove all timed-release water cartons that have not bio-degraded by the end of the establishment period.

(b) Trimming and Pruning - Prune in order to enhance the natural growth of plants, eliminate dead growth and crossing branches, maintain growth within available space, minimize overgrowth onto walks and walls, and minimize tree canopy damage from winds.

Prune during the dormant season unless otherwise specified. Remove and dispose of all dead and critically damaged plant material to maintain the overall appearance of the Project.

(c) Transplanted Specimen Plants - Care for transplanted specimen plants immediately after the planting work is completed. Water, fertilize, and protect specimen plants against disease and infestation as required to ensure the plants remain healthy and vigorous. Final acceptance of transplanted specimen plants will depend on plant health and condition.

(d) Sod Lawn - Mow, cut and fertilize sod lawns as required to maintain a healthy and vigorous condition. A schedule of feeding, mowing, and general treatment, including thatching and aeration will be listed in the Special Provisions. Final acceptance of sod lawn areas will depend on its health and condition. Keep sod lawns mowed to a height between 1 1/2 inches to 2 inches.

Do not perform the first mowing until the sod is firmly rooted and secure in place. Remove no more than one-third of the grass leaf during initial or subsequent cuttings.

01040.78 Plant Establishment (Mitigation or Other Non-Ornamental Areas):

(a) Watering and Mulching - Water all plants as necessary to promote and maintain growth using temporary irrigation methods. Keep planted areas raked to a smooth and even finish grade. Maintain mulch within plant saucers at a 2 inch depth, unless otherwise specified.

(b) Weeding - Perform weed control activities according to 01030.42.

(c) Soil Testing and Corrective Soil Amendments - If specified for the original planting, have a soil test performed by a soil ecology lab between the second and third periodic inspection. Present the recommendations to the Agency at the third inspection. Apply the amendments as recommended by the soil test report and as directed by the Agency.

01040.79 Final Inspection - After plant replacement work and any other required work has been completed, the Agency will make a final inspection. Ensure that all plant materials, planting beds and other facilities are according to the Specifications as a prerequisite for acceptance.

Measurement

01040.80 Measurement - The quantities of plantings and associated work performed under this Section will be measured according to the following:

(a) Soil Testing - Soil testing will be measured on the unit basis for each test that is completed and accepted. Soil testing includes the required sampling, testing, analyses, and reports for one or more of the following:

- Soil particle size range test.
- Soil fertility test and soil amendment report (including chemical analysis, acidity, salinity).
- Soil ecology analysis and soil bio-amendment report.

(b) Topsoil and Wetland Topsoil - Topsoil and wetland topsoil will be measured on the volume basis in the hauling vehicle.

Topsoil taken from the required excavations according to 00330.10 will be measured according to 00330.82.

(c) Soil Conditioners - Soil conditioners will be measured on the volume basis in the hauling vehicle or in containers delivered to the Project site.

(d) Plant Materials - Plant materials will be measured according to one of the following:

- **Unit Basis** - Under this method, plant materials will be measured on a unit basis.
- **Average Area** - This method may be used when a plant bed area is greater than or equal to 3,000 square yards and will be measured as follows:
 - The total plant bed area will be measured along the ground surface by the foot and calculated to the nearest square yard.
 - A total number of 30 square yard plots will be calculated.
 - 1% to 5% of the plant bed area will be selected and staked as 30 square yard representative plots.

- All the plants in each staked representative plot will be counted. Unless otherwise approved, if the number of plants in a plot exceeds the number of required plants of the representative plot, the number of required plants will be used to represent the plot.
- Based on the results of the plant count, the average number of plants per plot will be calculated.
- The quantities of each item will be based on the calculated average number of plants per plot multiplied by the number of plots in the total plant bed area.

(e) Sod Lawn - Sod lawn will be measured on an area basis on the ground surface and calculated to the nearest square yard.

(f) Mulch - Mulch will be measured on the volume basis in the hauling vehicle, or on the weight basis.

(g) Miscellaneous - Miscellaneous items will be measured as follows:

- **Tree Grates** - Tree grates will be measured on a unit basis. One grate includes two half grates, frame, hardware, tree guards, and appurtenances.
- **Woody Course Debris** - Woody course debris will be measure on a unit basis.
- **Boulders** - Boulders will be measured on a unit basis or on the weight basis.
- **Root Barrier** - Root barrier will be measured on the length basis.
- **Weed Control Geotextile** - Weed control geotextile will be measured on the area basis on the ground surface and calculated to the nearest square foot.

Payment

01040.90 Payment - The accepted quantities of plantings and associated work performed under this Section will be paid for according to the following:

(a) Soil Testing - Soil tests will be paid for at the Contract unit price, per each, for the item "Soil Testing".

Payment includes mobilization, soil sampling, testing, analyses, and preparation of the soil amendment and bio-amendment reports.

(b) Topsoil and Wetland Topsoil - Topsoil, not taken from required excavations, will be paid for at the Contract unit price, per cubic yard, for the item "Topsoil".

Wetland topsoil, taken from either the Project excavations or imported from other sites, will be paid for at the Contract unit price, per cubic yard, for the item "Wetland Topsoil".

Topsoil taken from required excavations according to 00330.10 will be paid for according to 00330.94.

No payment will be made for topsoil or wetland topsoil that is placed in nondesignated areas or which is contrary to the Agency's instructions.

(c) Soil Conditioners - Soil conditioners will be paid for at the Contract unit price, per cubic yard, for the item "Soil Conditioner".

(d) Plant Materials - Plants will be paid for at the Contract unit price, per each, for the appropriate items listed in the Contract Schedule of Items. Plant materials will be listed by caliper size, size of container, or other size, or condition shown.

Transplanted plants will be paid for at the Contract unit price, per each, for the item "Transplanted Specimen Plants".

Partial payments for plant materials will be made as follows:

At the time of the original planting.....	30%
After the first plant establishment inspection.....	10%
After the second plant establishment inspection	10%
After the third plant establishment inspection	10%
At completion of the establishment period	40%

Partial payments made throughout the establishment period will be made for all surviving and replaced plants.

Upon completion of the establishment period, full payment will be made for all surviving and replaced plants, except for corrective work performed by others according to 01040.73 The Agency will pay the Contract unit price only once for the specified quantity, whether or not plants are replaced.

If the Contractor requests partial payment for plant materials on hand, payment will be made according to 00195.60.

(e) Sod Lawn - Sod lawn will be paid for at the Contract unit price, per square yard, for the item "Sod Lawn".

(f) Mulch - Mulch will be paid for at the Contract unit price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement
Bark Mulch.....	Cubic Yard
Cinder Mulch.....	Cubic Yard
Wood Chip Mulch.....	Cubic Yard
Grass Straw Mulch.....	Ton
Rock Mulch	Ton

(g) Miscellaneous - The accepted quantities of miscellaneous items will be paid for at the Contract unit price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement
Tree Grates.....	Each
Woody Course Debris	Each
Boulders.....	Each or Ton
Root Barrier.....	Foot
Weed Control Geotextile	Square Foot

END

APPENDIX D

CITY OF GARIBALDI

GARIBALDI, OREGON

ARIZONA WAY BRIDGE CONSTRUCTION PROJECT

AUGUST 2016



CITY OF GARIBALDI
ARIZONA WAY BRIDGE CONSTRUCTION PROJECT
TITLE SHEET

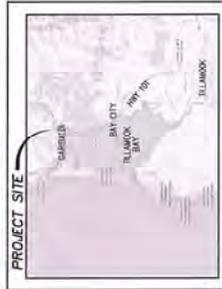
PROJECT NO. 2016-100
FILE NAME: BRIDGE-SHEET-1.DWG

N.T.S.
SCALE: N.T.S.

DESIGNED BY: BRL
DRAWN BY: BRL
CHECKED BY: MFM
APPROVED BY: JWO

SHEET 1
1/8

LOCATION MAP



N.T.S.

UTILITY CONTACTS

TILLAMOOK PEOPLE'S UTILITY DISTRICT
1115 PACIFIC
TILLAMOOK, OR 97141
PHONE (503) 842-3533

CHARTER COMMUNICATIONS
PHONE (866) 731-1479

CITY OF GARIBALDI
P.O. BOX 708
GARIBALDI, OREGON 97118
PHONE (503) 329-3327
CONTACT: MARTIN MCCORMICK

SHEET INDEX

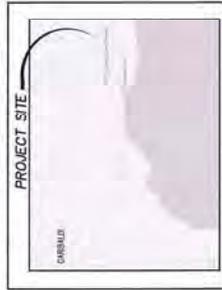
SHEET	DESCRIPTION
1	TITLE SHEET
2	GRADING/EROSION CONTROL/PLANTING PLAN
3	BRIDGE & STREET PLAN
4	SANITARY SEWER PLAN
5	WATER PLAN
6	CONSTRUCTION DETAILS
7	CONSTRUCTION DETAILS
8	BRIDGE SPECIFICATIONS



POTENTIAL UNDERGROUND
UTILITY NOTIFICATION CENTER
503-232-1987

ATTENTION:
OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THESE RULES ARE ENFORCEABLE AND YOU MAY OBTAIN COPIES OF THE RULES BY CALLING THE CENTER, DIAL 811.

VICINITY MAP



N.T.S.

CITY ENGINEER/SURVEYOR

CITY OF GARIBALDI
P.O. BOX 708
GARIBALDI, OREGON 97118
PHONE (503) 329-3327
CONTACT: BLAKE LETTENMAKER, P.E., PLS

GENERAL NOTES

1. BRIDGE DESIGN SHALL BE SUBMITTED TO THE CITY AND APPROVED BY THE CITY PRIOR TO CONSTRUCTION.
2. ON-SITE CONSTRUCTION SHALL NOT COMMENCE UNTIL ALL APPROPRIATE INSURANCE CERTIFICATES AND BONDS HAVE BEEN PROVIDED AND APPROVED.
3. OWNER SHALL ARRANGE FOR THE INSTALLATION OF ALL FRANCHISED UTILITIES.
4. CONTRACTOR SHALL NOT CAUSE NATURAL STORM OR STREAM WATER FLOW TO BE BLOCKED AND/OR IMPROVED ON ADJACENT PROPERTY.

CONSTRUCTION NOTES

1. ALL PUBLIC IMPROVEMENTS SHALL BE CONSTRUCTED TO THE APPLICABLE STANDARD OF THE CITY OF GARIBALDI UNLESS OTHERWISE NOTED ON THE PLANS.
2. THE CONTRACTOR SHALL FURNISH ALL THE WORK SPECIFIED ON THE DRAWINGS AND ALL NECESSARY MATERIALS TO COMPLETE THE PROJECT IN AN ACCEPTABLE MANNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF GARIBALDI AND ALL APPLICABLE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF GARIBALDI AND ALL APPLICABLE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF GARIBALDI AND ALL APPLICABLE AGENCIES.
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LEGEND

- SS - PROBABLE LOCATION OF SEWER LINE, SIZE INDICATED
- W - PROBABLE LOCATION OF WATER LINE, SIZE INDICATED
- SMH - SEWER MAN HOLE
- WVB - WATER VALVE BOX
- WMB - WATER METER BOX
- FWH - FIRE HYDRANT
- UP - UTILITY POLE
- SGN - SIGN
- SDM - STORM DRAIN MANHOLE
- TEP - TELEPHONE PEDSTAL



EXPIRES: 12/31/16

NOTES:

1. CITY WILL PROVIDE ALL CONSTRUCTION SURVEYING.
2. CONTRACTOR SHALL PUMP/OVERT CREEK WATER AROUND NEW STREAMBED WORK AREA.
3. CONTRACTOR SHALL CONSTRUCT TEMPORARY ACCESS/EGRESS FOR ARIZONA WAY BEFORE BLOCKING THE NORMAL ACCESS.

1. APPROVE TO THESE PLANS MUST BE APPROVED BY THE CITY ENGINEER PRIOR TO CONSTRUCTION.
2. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES.

CONSTRUCTION NOTES

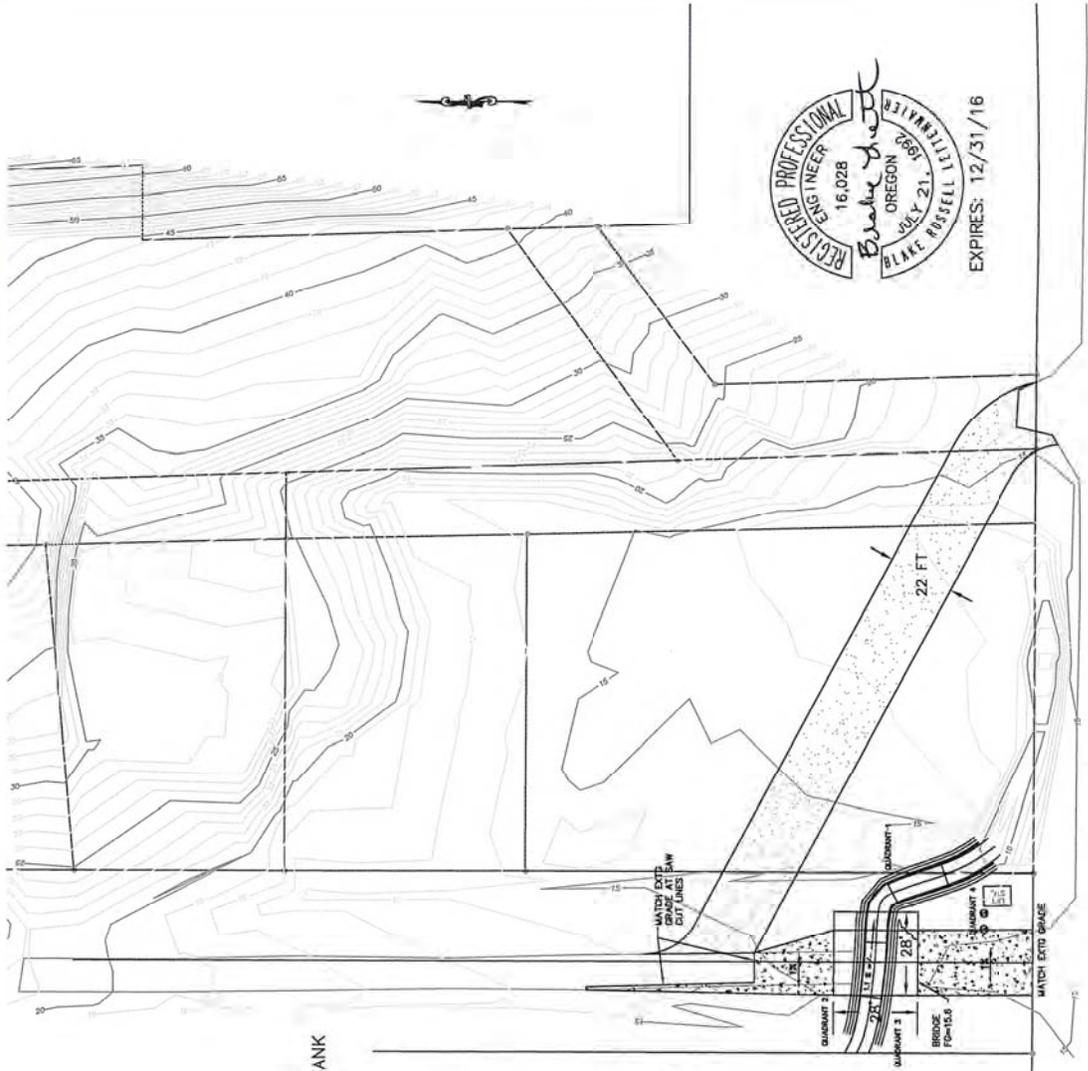
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SHEET 2/8

DESIGNED BY: BRL
 DRAWN BY: BRL
 CHECKED BY: MFM
 APPROVED BY: JWC

CITY OF GARIBALDI
 ARIZONA WAY BRIDGE CONSTRUCTION PROJECT
 GRADING/EROSION CONTROL/PLANTING PLAN
 GARIBALDI/TILLAMOOK
 PROJECT NO. 2016-100
 FILE NAME: BRIDGE-SHEET-1.DWG
 OREGON

PLOT DATE: 8-1-2016



WITHIN 3' OF THE TOP OF 95 LINEAL FEET OF STREAM BANK

PLANT (1) Mimulus guttatus - Snap Monkeyflower
 1/2 GAL PLANTS IN EACH QUADRANT
 OF STREAM BANK and

PLANT (1) Oenothera caerulescens - Indian Plum, Oso Berry
 1/2 GAL PLANTS IN EACH QUADRANT
 OF STREAM BANK and

PLANT (1) Philadelphus lewisii - Mock Orange
 1/2 GAL PLANTS IN EACH QUADRANT
 OF STREAM BANK

IN POTTING SOIL IN HOLE TWICE
 THE SIZE OF THE PLANT'S CONTAINER THEN

COVER ALL SURFACES FROM 1 FOOT
 ABOVE THE STEAM BED TO 3 FEET AWAY FROM THE
 TOP OF THE STREAM BANK WITH 4"-INCH
 THICKNESS OF TOPSOIL
 THEN

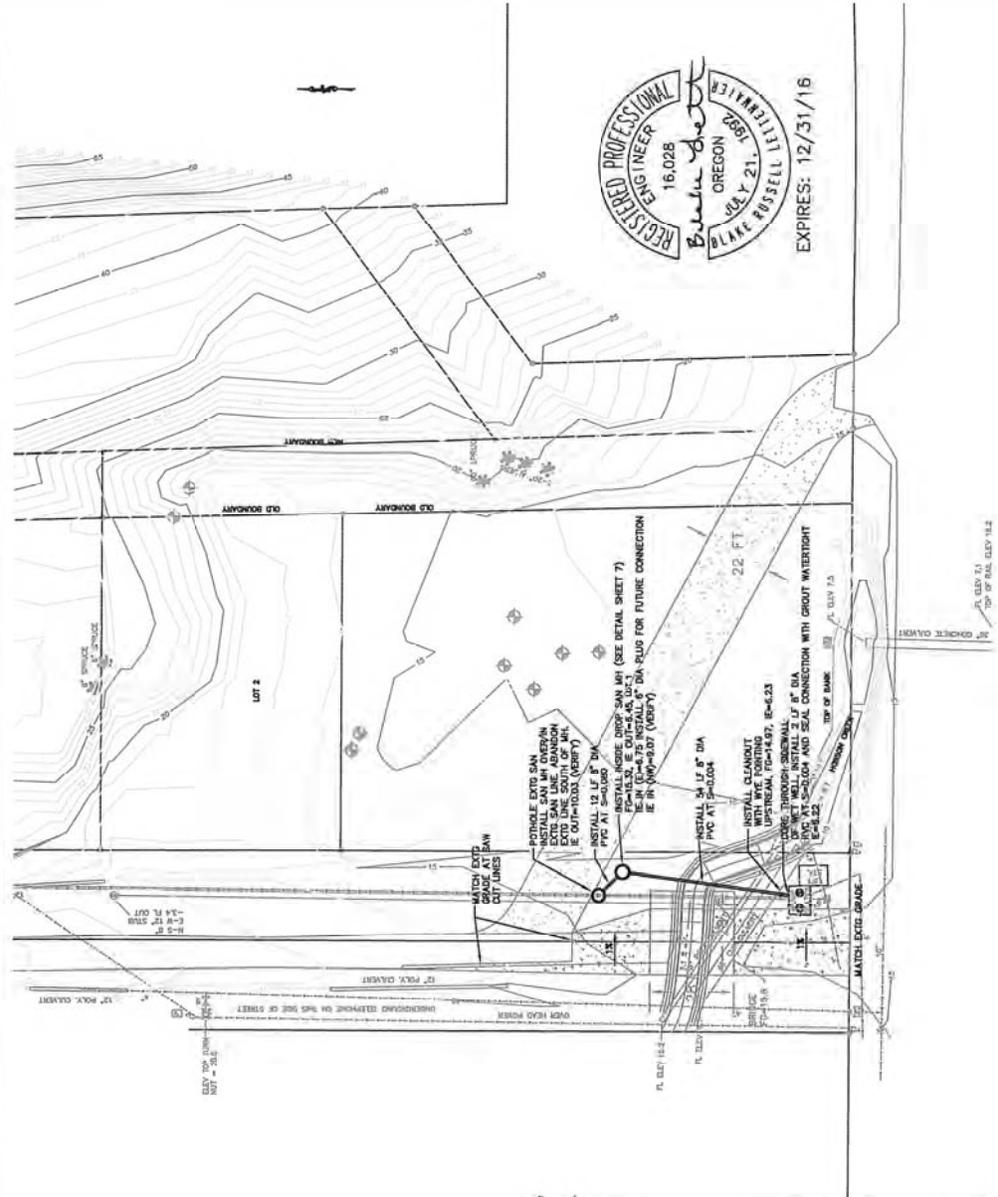
SEED ALL TOPSOIL WITH
 WEED-FREE NATIVE
 SPECIES GRASS AND COMPACT SEEDED TOPSOIL
 THEN COVER WITH
 WEED-FREE STRAW
 MULCH.



CITY OF GARIBALDI
ARIZONA WAY BRIDGE CONSTRUCTION PROJECT
SANITARY SEWER PLAN
 OREGON
 FILE NAME: BRIDGE-SHEET-1.DWG
 PROJECT NO. 2016-100
 SCALE: 1"=40'

DESIGNED BY: BRL
 DRAWN BY: BRL
 CHECKED BY: MFM
 APPROVED BY: JWO

SHEET 4/8
 4



REGISTERED PROFESSIONAL ENGINEER
 16,028
 BRL
 OREGON
 JULY 21, 1999
 LAKE HUBBELL LETTERS
 EXPIRES: 12/31/16

- NOTES**
1. THE PROPOSED SANITARY SEWER SYSTEM IS LOCATED WITHIN THE CITY OF GARIBALDI, TOWNSHIP 10N, RANGE 22B, COUNTY TILLAMOOK, OREGON. THE PROPOSED SANITARY SEWER SYSTEM IS LOCATED WITHIN THE CITY OF GARIBALDI, TOWNSHIP 10N, RANGE 22B, COUNTY TILLAMOOK, OREGON. THE PROPOSED SANITARY SEWER SYSTEM IS LOCATED WITHIN THE CITY OF GARIBALDI, TOWNSHIP 10N, RANGE 22B, COUNTY TILLAMOOK, OREGON.
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ALL GRANULAR BACKFILL AND BEDDING



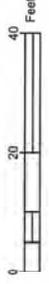
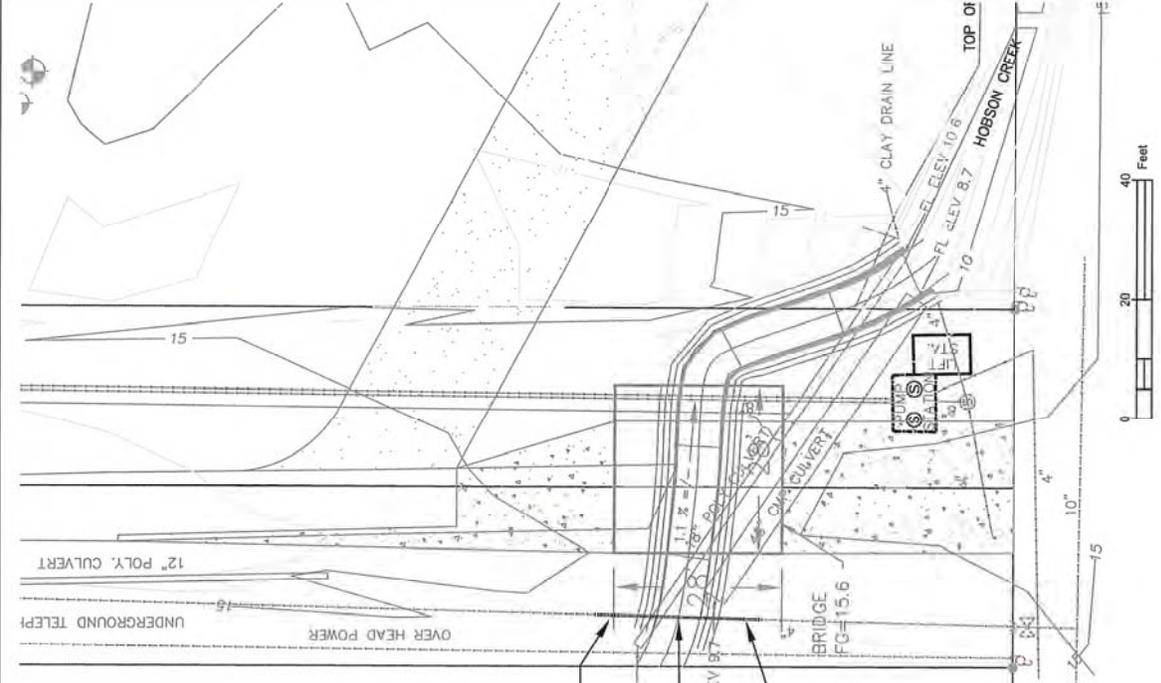
CITY OF GARIBALDI
ARIZONA WAY BRIDGE CONSTRUCTION PROJECT
WATER PLAN

GARIBALDI/TLLAMOOK
 PROJECT NO. 2016-100
 FILE NAME: BRIDGE-SHEET-1.DWG
 OREGON

DESIGNED BY: BRL
 DRAWN BY: BRL
 CHECKED BY: MFM
 APPROVED BY: JWO

SCALE: 1" = 20'

SHEET 5/8



NOTES

THIS IS A TOPOGRAPHIC MAP OF LOTS 1 AND 2, POLLYANN PARK, TILLAMOOK COUNTY PLAT RECORDS, SEE MAP C-361, TILLAMOOK COUNTY SURVEYORS OFFICE AND A STRIP OF VARYING WIDTH TO THE EAST OF SAID LOTS AS SHOWN HEREON. THE PURPOSE OF THIS MAP IS TO SHOW THE TOPOGRAPHIC FEATURES IN RELATION TO THE BOUNDARIES.

ELEVATIONS ARE IN NGVD 29. NO UNDERGROUND UTILITIES WERE LOCATED. ONLY ABOVEGROUND UTILITIES WERE LOCATED.

PROBABLE LOCATION OF SEWER LINE, SIZE INDICATED

PROBABLE LOCATION OF WATER LINE, SIZE INDICATED

- SEWER MAN HOLE
- WATER VALVE BOX
- WATER METER BOX
- FIRE HYDRANT
- UTILITY POLE
- SIGN
- STORM DRAIN MANHOLE
- TREE, SIZE AND TYPE NOTED
- TELEPHONE PEDESTAL

- POTHOLE EXTS PIPE TO VERIFY ELEVS
- E= 9.2 (VERIFY) RESTRAINED MECH COUPLING, SPOOL W/ 1 FLANGE, FLxFL 45, FLxFL SPOOL, FLxFL 45
- E=6.2 (VERIFY) 20 LF QL 52 4" DI PIPE
- E= 9.2 (VERIFY) RESTRAINED MECH COUPLING, SPOOL W/ 1 FLANGE, FLxFL 45, FLxFL SPOOL, FLxFL 45
- ALL GRAINULAR BEDDING AND BACKFILL
- LEGALLY DISPOSE OF REPLACED PVC PIPE.

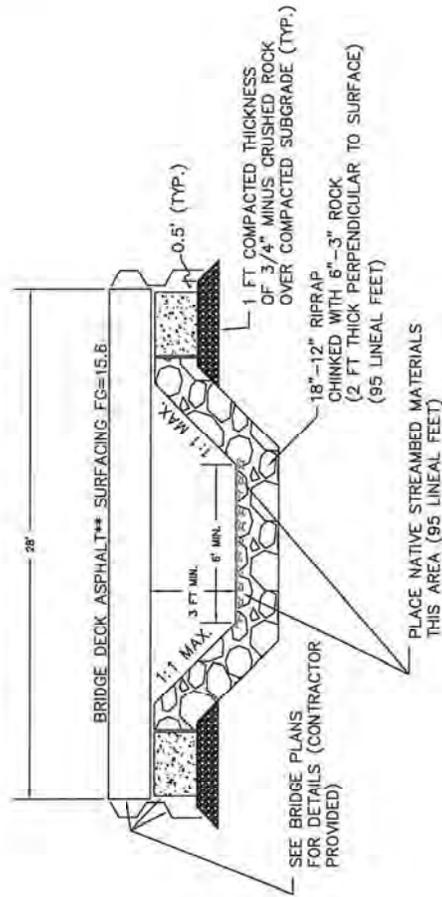


EXPIRES: 12/31/15

SCHEMATIC BRIDGE PROFILE AND STREAM CROSS-SECTION

NTS

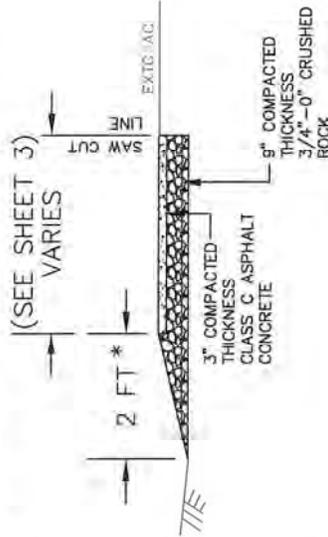
** IF CORRUGATED STEEL DECK IS USED



PLACE AND COMPACT CLASS C ASPHALT** CONCRETE IN THE DECK CORRUGATIONS; AND TO 3-INCHES ABOVE THE TOP OF THE CORRUGATIONS.

* PLACE ADDITIONAL SHOULDER ROCK NEAR SW CORNER OF BRIDGE TO PROVIDE REASONABLE PARKING FOR RESIDENCE AS EXISTED PRIOR TO CONSTRUCTION

REMOVE ALL EXISTING ASPHALT CONCRETE UNDER WHERE NEW ASPHALT IS TO BE PLACED AND BREAK IN TO PIECES SMALLER THAN 8-INCHES AND STOCKPILE IN RIGHT-OF-WAY ADJACENT TO SITE



TYPICAL PAVEMENT SECTION

NTS



EXPIRES: 12/31/16

	FILE NAME: BRIDGE-SHEET-1.DWG PROJECT NO. 2016-100 SCALE: N.T.S. GARIBALDI/TILLAMOOK	DESIGNED BY: BRL DRAWN BY: BRL CHECKED BY: MFM APPROVED BY: JWC	SHEET 6/8 6
	CITY OF GARIBALDI ARIZONA WAY BRIDGE CONSTRUCTION PROJECT CONSTRUCTION DETAILS OREGON	PLOT DATE: 8-5-2016 LAST EDIT: BRL	



CITY OF GARIBALDI		PROJECT NO.	2016-100	SCALE:	N.T.S.
ARIZONA WAY BRIDGE CONSTRUCTION PROJECT		FILE NAME:	BRIDGE-SHEET-1.DWG	GARBALDI/TILLAMOOK	
CONSTRUCTION DETAILS		OREGON			

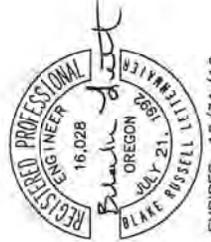
DESIGNED BY:	BRL
DRAWN BY:	BRL
CHECKED BY:	MFM
APPROVED BY:	JWO

SHEET 7
7/8

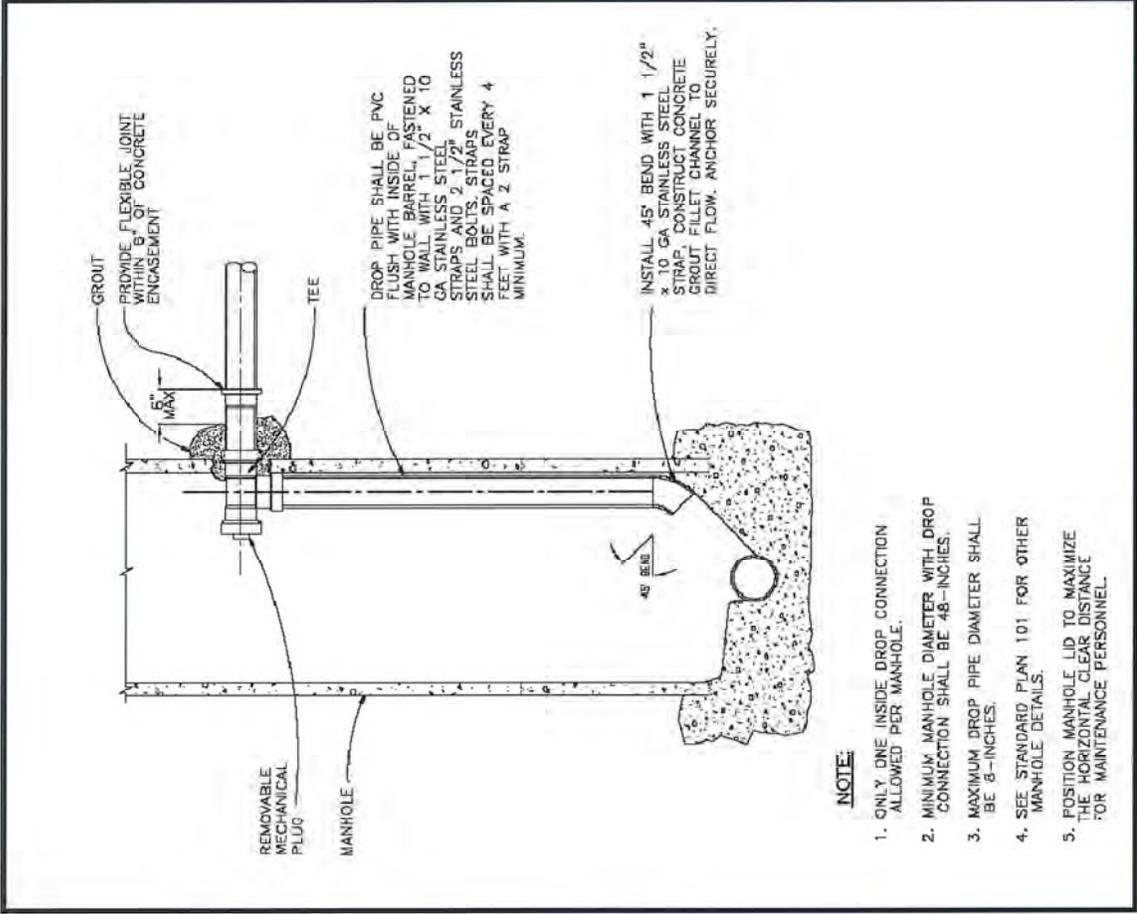
LAST EDIT: BRL

PLOT DATE: 8-1-2016

USE STD PRECAST BASE, BARRELS, CONES,
FOR ALL MANHOLES



EXPIRES: 12/31/16



	FILE NAME: BRIDGE-SHEET-1.DWG PROJECT NO. 2016-100 SCALE: N.T.S. GARIBALDI/TILLAMOOK	DESIGNED BY: BRL DRAWN BY: BRL CHECKED BY: MFM APPROVED BY: JMO
	CITY OF GARIBALDI ARIZONA WAY BRIDGE CONSTRUCTION PROJECT BRIDGE SPECIFICATIONS OREGON	SHEET 8/8 0



Michael Sinnott <michael.sinnott@state.or.us>
 RE: Arizona Way Bridge
 To: Mike Letwiner
 From: michael.sinnott@state.or.us; Robert Bradley
 Good morning Mike,
 With regard to the extension of the in-water work period for the construction of the Arizona Way bridge, we can extend the work period through to the first significant rains of fall without any additional regulation. Being as this project is the only access to a residential area and must be completed for the winter, we will continue to work with you after the rainy season starts if necessary. Doing so, however, you must likely require some additional constraints such as, shutting down operations during periods of heavy rain fall, and additional control measures at the site to limit erosion and sedimentation into the stream.
 Michael V. Sinnott
 Assistant District Fish Biologist
 Oregon Department of Fish and Wildlife
 North Coast Watershed District
 4907 Hilltop St
 Tillamook, OR 97141
 503-852-2741, x.2371(M)
 503-842-3555 (fax)

BRIDGE CONSTRUCTION SPECIFICATIONS

BRIDGE DESIGN. CONTRACTOR shall design and construct one shop assembled U50 loading, L/200 load deflection, prestabilized steel bridge superstructure, complete with 12 gauge weathering steel w-beam guardrail system utilizing galvanized steel. Bridge shall have a span of 26 feet. The bridge shall be delivered in 2 modules with built-up connections.

The bridge superstructure shall be designed in accordance with AASHTO Standard Specifications for Highway Bridges, 17th Edition, Section 10.10.1. The bridge shall have a positive connection joining the deck panels to the modular bridge sections.

Steel deck system shall be 9 gauge galvanized steel with connections 4-1/2" deep. The bridge deck running surface width shall be 26 feet between the guardrails. The asphalt running deck shall be constructed of Class C asphalt concrete. Deck panels shall have a positive connection joining the deck panels to the modular bridge sections.

All structural steel shall be of domestic (USA) manufacture and shall conform to the requirements of the American Institute of Steel Construction, Inc. (AISC) Specification for Structural Steel Buildings, 13th Edition, with all surfaces of girders being blast cleaned prior to shipment to assure uniform weathering.

Prestress concrete bridge girders shall be constructed of reinforced Class 4,000 concrete in accordance with AASHTO Standard Specifications for Highway Bridges, 17th Edition, and shall be constructed in accordance with industry standards. The bridge shall utilize bearing plates, elastomeric pads and assembly bolts. The bridge footing elevation shall be as noted.

CONTRACTOR MAY ALSO SUBMIT ALTERNATE CONCRETE BRIDGE DESIGN THAT MEETS THE L10 LOADING, THE L/500 DEFLECTION CRITERIA, COMPLIES WITH AASHTO Standard Specifications for Highway Bridges, 17th Edition - 2002 AND USES THE SAME JOINT/JOINT SYSTEM SPECIFIED ABOVE.

- BRIDGE PLANS.**
- CONTRACTOR shall submit bridge plans from manufacturer to the City Engineer for review. The City Engineer shall review the bridge plans and if approved, the bridge plans shall be signed and sealed by a professional engineer licensed in the state of Oregon.
- BRIDGE CONSTRUCTION**
- (1) In Stream work shall be completed no later than July 1 and September 15, annually UNLESS AN EXTENSION IS GRANTED BEYOND SEPTEMBER 15. SEE ODFW EMAIL THIS SHEET.
 - (2) CITY shall be notified a minimum of two working days (Monday-Friday 7:30 am) prior to beginning work. CITY will provide all construction surveying. All spill response materials shall be on site before the work begins.
 - (3) The City Engineer shall witness and approve the bridge installation and the placement of granular materials in preparation for placement of the bridge footings before such footings are placed.
 - (4) A minimum 1.8 cubic yards, track-mounted large class excavator shall be used for all excavation, stream channel development, and riprap placement.
 - (5) CONTRACTOR is responsible for scheduling and supervision of the bridge construction work.

APPENDIX E

Contracting with Small and Minority Businesses, Women's Business Enterprises, and Labor Surplus Area Firms

- a. Has the City taken the following affirmative steps³⁵ to assure that minority businesses, women's business enterprises, and labor surplus area firms are used when possible?³⁶ § 200.321 ___ **Yes** ___ **No** · **N/A (document)**
- i. Placing qualified small and minority businesses and women's business enterprises on solicitation lists? ___ **Yes** ___ **No** ___ **N/A (document)**
 - ii. Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources? ___ **Yes** ___ **No** ___ **N/A – no potential sources (document)**
 - iii. Dividing total requirements, *when economically feasible*, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises?³⁷ ___ **Yes** ___ **No** ___ **N/A – not economically feasible (document)**
 - iv. Establishing delivery schedules, *where the requirement permits*, which encourage participation by small and minority businesses, and women's business enterprises? ___ **Yes** ___ **No** ___ **N/A – the requirement does not permit (document)**
 - v. Using the services and assistance, *as appropriate*, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce ___ **Yes** ___ **No** ___ **N/A – not appropriate (document)**
 - vi. Requiring the prime contractor, if subcontracts are to be let, to take the affirmative steps listed above? ___ **Yes** ___ **No** ___ **N/A – no subcontracts will be let (document)**

³⁴ Before utilizing this exception, Applicants should review their solicitation and the publicizing of their solicitation to ensure that it was not inadvertently drafted in a manner to reduce or eliminate competition, which resulted in the receipt of one or no proposals. If this is found to be the case, the Applicant should revise the solicitation and re-publicize the solicitation in order to resolve the competitive concerns.

³⁵ The following affirmative steps are non-exclusive; while these steps must be taken, additional steps, as determined by the CITY, local, state, or tribal government regulations or procedures, may also be taken.

³⁶ Collectively referred to as "socioeconomic contractors" or "socioeconomic contracting," this requirement does not impose an obligation to set aside either the solicitation or award of a contract to these types of firms; this requirement only imposes an obligation to carry out and document the six identified affirmative steps. Failure to do so has been frequently identified as a justification to de-obligate funding by the Department of Homeland Security (DHS), Office of Inspector General (OIG).

³⁷ This is not the same as breaking a single project down into smaller components in order to circumvent the micro-purchase or small purchase thresholds to utilize their streamlined acquisition procedures (e.g. "project plitting.")

General Decision Number: OR160076 07/22/2016 OR76

Superseded General Decision Number: OR20150076

State: Oregon

Construction Type: Heavy

County: Tillamook County in Oregon.

HEAVY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.15 for calendar year 2016 applies to all contracts subject to the Davis-Bacon Act for which the solicitation was issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.15 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2016. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/08/2016
1	03/25/2016
2	07/22/2016

CARP0001-037 06/01/2012

	Rates	Fringes
CARPENTER (Including Form Work).....	\$ 32.61	14.44
MILLWRIGHT.....	\$ 33.11	14.44

ELEC0048-018 01/01/2016

	Rates	Fringes
ELECTRICIAN.....	\$ 40.20	21.11

ELEC0125-002 02/01/2014

	Rates	Fringes
LINE CONSTRUCTION LINEMAN.....	\$ 46.87	4%+13.35

ENGI0701-036 01/01/2015

	Rates	Fringes
POWER EQUIPMENT OPERATOR		

GROUP 1.....	\$ 39.47	14.10
GROUP 1A.....	\$ 41.44	14.10
GROUP 1B.....	\$ 43.42	14.10
GROUP 2.....	\$ 37.58	14.10
GROUP 3.....	\$ 36.44	14.10
GROUP 4.....	\$ 35.36	14.10
GROUP 5.....	\$ 34.13	14.10
GROUP 6.....	\$ 30.94	14.10

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: CRANE: Helicopter Operator, when used in erecting work; Whirley Operator, 90 ton and over; LATTICE BOOM CRANE: Operator 200 tons through 299 tons, and/or over 200 feet boom; HYDRAULIC CRANE: Hydraulic Crane Operator 90 tons through 199 tons with luffing or tower attachments;

GROUP 1A: HYDRAULIC CRANE: Hydraulic Operator, 200 tons and over (with luffing or tower attachment); LATTICE BOOM CRANE: Operator, 200 tons through 299 tons, with over 200 feet boom;

GROUP 1B: LATTICE BOOM CRANE: Operator, 300 tons through 399 tons with over 200 feet boom; Operator 400 tons and over

GROUP 2: CRANE: Cableway Operator, 25 tons and over; HYDRAULIC CRANE: Hydraulic crane operator 90 tons through 199 tons (without luffing or tower attachment); TOWER/WHIRLEY OPERATOR: Tower Crane Operator; Whirley Operator, under 90 tons; LATTICE BOOM CRANE: 90 through 199 tons and/or 150 to 200 feet boom; HYDRAULIC CRANE: Hydraulic crane operator, 50 tons through 89 tons (with luffing or tower attachment); Rubber tired scraper with tandem scrapers; Loader 120,000 lbs and above; BLADE: Auto Grader; Blade Operator-Robotic; Bulldozer over 120,000 lbs and above;

GROUP 3: HYDRAULIC CRANE: Hydraulic crane operator, 50 tons through 89 tons (without luffing or tower attachment); LATTICE BOOM CRANES: Lattice Boom Crane-50 through 89 tons (and less than 150 feet boom); Rubber Tired Scraper: with tandem scrapers; self loading, paddle wheel, auger type, finish and/or 2 or more units; Loader 60,000 lbs and less than 120,000 lbs; Bulldozer over 70,000 lbs up to and including 120,000 lbs;

GROUP 4: CRANE: Hydraulic Crane Operator, under 50 tons; LATTICE BOOM CRANE OPERATOR: Lattice Boom Crane Operator, under 50 tons; TRACKHOE/BACKHOE-ROBOTIC: track and wheel type, up to and including 20,000 lbs. with any or all attachments; BLADE: Blade Operator; Tractor operator with boom attachment; DRILLING: Churn Drill and Earth Boring Machine Operator; Directional Drill Operator over 20,000 lbs pullback; CRANE: Chicago boom and similar types; Boom type lifting device, 5 ton capacity or less; Rubber-Tired Scraper, single engine, single scraper; Compactor-Self Propelled; Loaders 25,000 lbs and less than 60,000 lbs;

Bulldozer over 20,000 lbs and more than 100 horse up to 70,000 lbs; Screed; Compactor with blade

GROUP 5: TRACKHOE/BACKHOE HYDRAULIC: Track type up to and including 20,000 lbs, Wheel type (Ford, John Deer, Case Type); Boom truck operator; DRILLING: Churm Drill and Earth Boring Machine Operator; Directional Drill Operator less than 20,000 lbs pullback; Loaders, rubber tired type, less than 25,00 lbs; Forklift over 5 ton, Bulldozer 20,000 lbs or 100 horses or less; Roller; Compactor without blade

GROUP 6: LOADERS: (less than 1 cu yd.); Oiler; Grade Checker; Crane oiler; Forklift; Roller (non-asphalt)

Zone Differential (add to Zone 1 rates):

Zone 2 - \$3.00

Zone 3 - \$6.00

For the following metropolitan counties: MULTNOMAH; CLACKAMAS; MARION; WASHINGTON; YAMHILL; AND COLUMBIA; CLARK; AND COWLITZ COUNTY, WASHINGTON WITH MODIFICATIONS AS INDICATED:

All jobs or projects located in Multnomah, Clackamas and Marion Counties, West of the western boundary of Mt. Hood National Forest and West of Mile Post 30 on Interstate 84 and West of Mile Post 30 on State Highway 26 and West of Mile Post 30 on Highway 22 and all jobs or projects located in Yamhill County, Washington County and Columbia County and all jobs or projects located in Clark & Cowlitz County, Washington except that portion of Cowlitz County in the Mt. St. Helens "Blast Zone" shall receive Zone I pay for all classifications.

All jobs or projects located in the area outside the identified boundary above, but less than 50 miles from the Portland City Hall shall receive Zone II pay for all classifications.

All jobs or projects located more than 50 miles from the Portland City Hall, but outside the identified border above, shall receive Zone III pay for all classifications.

For the following cities: ALBANY; BEND; COOS BAY; EUGENE; GRANTS PASS; KLAMATH FALLS; MEDFORD; ROSEBURG

All jobs or projects located within 30 miles of the respective city hall of the above mentioned cities shall receive Zone I pay for all classifications.

All jobs or projects located more than 30 miles and less than 50 miles from the respective city hall of the above mentioned cities shall receive Zone II pay for all classifications.

All jobs or projects located more than 50 miles from the respective city hall of the above mentioned cities shall

receive Zone III pay for all classifications.

ENGI0701-037 01/01/2015

	Rates	Fringes
POWER EQUIPMENT OPERATOR: (PIPELINE)		
GROUP 2.....	\$ 37.58	14.10
GROUP 3.....	\$ 36.44	14.10
GROUP 4.....	\$ 35.36	14.10
GROUP 5.....	\$ 34.13	14.10

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 2: Bulldozer over 120,000 lbs and above;

GROUP 3: Bulldozer over 70,000 lbs up to and including 120,000 lbs;

GROUP 4: TRACKHOE/BACKHOE-ROBOTIC: track and wheel type, up to and including 20,000 lbs. with any or all attachments; Bulldozer over 20,000 lbs and more than 100 horse up to 70,000 lbs

GROUP 5: TRACKHOE/BACKHOE HYDRAULIC: Track type up to and including 20,000 lbs, Wheel type (Ford, John Deer, Case Type); Bulldozer 20,000 lbs or 100 horses or less

Zone Differential (add to Zone 1 rates):

Zone 2 - \$3.00

Zone 3 - \$6.00

For the following metropolitan counties: MULTNOMAH; CLACKAMAS; MARION; WASHINGTON; YAMHILL; AND COLUMBIA; CLARK; AND COWLITZ COUNTY, WASHINGTON WITH MODIFICATIONS AS INDICATED:

All jobs or projects located in Multnomah, Clackamas and Marion Counties, West of the western boundary of Mt. Hood National Forest and West of Mile Post 30 on Interstate 84 and West of Mile Post 30 on State Highway 26 and West of Mile Post 30 on Highway 22 and all jobs or projects located in Yamhill County, Washington County and Columbia County and all jobs or projects located in Clark & Cowlitz County, Washington except that portion of Cowlitz County in the Mt. St. Helens "Blast Zone" shall receive Zone I pay for all classifications.

All jobs or projects located in the area outside the identified boundary above, but less than 50 miles from the Portland City Hall shall receive Zone II pay for all classifications.

All jobs or projects located more than 50 miles from the Portland City Hall, but outside the identified border

above, shall receive Zone III pay for all classifications.

For the following cities: ALBANY; BEND; COOS BAY; EUGENE;
GRANTS PASS; KLAMATH FALLS; MEDFORD; ROSEBURG

All jobs or projects located within 30 miles of the
respective city hall of the above mentioned cities shall
receive Zone I pay for all classifications.

All jobs or projects located more than 30 miles and less than
50 miles from the respective city hall of the above
mentioned cities shall receive Zone II pay for all
classifications.

All jobs or projects located more than 50 miles from the
respective city hall of the above mentioned cities shall
receive Zone III pay for all classifications.

IRON0029-013 07/01/2015

	Rates	Fringes
IRONWORKER (Reinforcing and Structural).....	\$ 34.12	23.04

LABO0003-025 06/01/2014

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 26.43	13.10
GROUP 2.....	\$ 27.44	13.10

LABORER CLASSIFICATIONS

GROUP 1: Asphalt Spreader

GROUP 2: Grade Checker

PAIN0055-020 07/01/2013

	Rates	Fringes
Painters:		
Brush, Roller and Spray.....	\$ 21.01	8.83

* PLAS0555-006 06/01/2016

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER....	\$ 31.00	18.87

TEAM0037-012 06/01/2014

Rates Fringes

TRUCK DRIVER		
GROUP 1.....	\$ 26.90	14.37
GROUP 2.....	\$ 27.02	14.37
GROUP 3.....	\$ 27.15	14.37
GROUP 4.....	\$ 27.41	14.37

TRUCK DRIVERS CLASSIFICATIONS

- GROUP 1: Water Truck up to 3,000 gallons
- GROUP 2: Water Truck over 3,000 to 5,000 gallons
- GROUP 3: Water Truck over 5,000 to 10,000 gallons
- GROUP 4: Water Truck over 10,000 to 15,000 gallons

 SUOR2009-074 11/23/2009

	Rates	Fringes
LABORER: Common or General.....	\$ 20.31	7.26
LABORER: Flagger.....	\$ 18.76	6.15
LABORER: Mason Tender - Cement/Concrete.....	\$ 21.27	5.35
LABORER: Pipelayer.....	\$ 20.77	6.51
OPERATOR: Bobcat/Skid Steer/Skid Loader.....	\$ 22.77	7.90
OPERATOR: Broom/Sweeper.....	\$ 32.31	6.43
OPERATOR: Excavator.....	\$ 21.73	6.32
OPERATOR: Mechanic.....	\$ 20.64	5.58
OPERATOR: Paver (Asphalt, Aggregate, and Concrete).....	\$ 27.59	2.96
TRUCK DRIVER: Dump Truck.....	\$ 17.22	4.83
TRUCK DRIVER: Off the Road Truck.....	\$ 31.81	6.33

 WELDERS - Receive rate prescribed for craft performing
 operation to which welding is incidental.
 =====

Unlisted classifications needed for work not included within
 the scope of the classifications listed may be added after

award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.

Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

**Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Performance Form**

This form is intended to capture the DBE¹ subcontractor's² description of work to be performed and the price of the work submitted to the prime contractor. An EPA Financial Assistance Agreement Recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractor's bid or proposal package.

Subcontractor Name		Project Name	
Bid/ Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact	
Address			
Telephone No.		Email Address	
Prime Contractor Name		Issuing/Funding Entity:	

Contract Item Number	Description of Work Submitted to the Prime Contractor Involving Construction, Services, Equipment or Supplies	Price of Work Submitted to the Prime Contractor
DBE Certified By: ___ DOT ___ SBA ___ Other: _____		Meets/ exceeds EPA certification standards? ___ YES ___ NO ___ Unknown

¹ A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

² Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

**Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Performance Form**

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware of that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	Date

Subcontractor Signature	Print Name
Title	Date

The public reporting and recordkeeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.

Disadvantaged Business Enterprise (DBE) Program DBE Subcontractor Utilization Form

This form is intended to capture the prime contractor's actual and/or anticipated use of identified certified DBE¹ subcontractors² and the estimated dollar amount of each subcontract. An EPA Financial Assistance Agreement Recipient must require its prime contractors to complete this form and include it in the bid or proposal package. Prime contractors should also maintain a copy of this form on file.

Prime Contractor Name		Project Name	
Bid/ Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact	
Address			
Telephone No.		Email Address	
Issuing/Funding Entity:			

I have identified potential DBE certified subcontractors	__ YES	__ NO	
If yes, please complete the table below. If no, please explain:			
Subcontractor Name/ Company Name	Company Address/ Phone/ Email	Est. Dollar Amt	Currently DBE Certified?

Continue on back if needed

¹ A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

² Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

**Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Utilization Form**

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware of that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	Date

The public reporting and recordkeeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.

2 C.F.R. § 200.326 and 2 C.F.R. Part 200, Appendix II, Required Contract Clauses

Requirements under the Uniform Rules. A non-Federal entity's contracts must contain the applicable contract clauses described in Appendix II to the Uniform Rules (Contract Provisions for non-Federal Entity Contracts Under Federal Awards), which are set forth below. 2 C.F.R. § 200.326. For some of the required clauses we have included sample language or a reference a non-Federal entity can go to in order to find sample language. Please be aware that this is sample language only and that the non-Federal entity alone is responsible ensuring that all language included in their contracts meets the requirements of 2 C.F.R. § 200.326 and 2 C.F.R. Part 200, Appendix II. We do not include sample language for certain required clauses (remedies, termination for cause and convenience, changes) as these must necessarily be written based on the non-Federal entity's own procedures in that area.

1. Remedies.

- a. Standard: Contracts for more than the simplified acquisition threshold (\$150,000) must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as appropriate. See 2 C.F.R. Part 200, Appendix II, ¶ A.
- b. Applicability: This requirement applies to all FEMA grant and cooperative agreement programs.

2. Termination for Cause and Convenience.

- a. All contracts in excess of \$10,000 must address termination for cause and for convenience by the non-Federal entity including the manner by which it will be effected and the basis for settlement. See 2 C.F.R. Part 200, Appendix II, ¶ B.
- b. Applicability. This requirement applies to all FEMA grant and cooperative agreement programs.

3. Equal Employment Opportunity.

- a. Standard. Except as otherwise provided under 41 C.F.R. Part 60, all contracts that meet the definition of "federally assisted construction contract" in 41 C.F.R. § 60-1.3 must include the equal opportunity clause provided under 41 C.F.R. § 60-1.4(b), in accordance with Executive Order 11246, *Equal Employment Opportunity* (30 Fed. Reg. 12319, 12935, 3 C.F.R. Part, 1964-1965 Comp., p. 339), as amended by Executive Order 11375, *Amending Executive Order 11246 Relating to Equal Employment Opportunity*, and implementing regulations at 41 C.F.R. Part 60 (Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor). See 2 C.F.R. Part 200, Appendix II, ¶ C.
- b. Key Definitions.

- (1) Federally Assisted Construction Contract. The regulation at 41 C.F.R. § 60-1.3 defines a “federally assisted construction contract” as any agreement or modification thereof between any applicant and a person for construction work which is paid for in whole or in part with funds obtained from the Government or borrowed on the credit of the Government pursuant to any Federal program involving a grant, contract, loan, insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan, insurance, or guarantee, or any application or modification thereof approved by the Government for a grant, contract, loan, insurance, or guarantee under which the applicant itself participates in the construction work.
 - (2) Construction Work. The regulation at 41 C.F.R. § 60-1.3 defines “construction work” as the construction, rehabilitation, alteration, conversion, extension, demolition or repair of buildings, highways, or other changes or improvements to real property, including facilities providing utility services. The term also includes the supervision, inspection, and other onsite functions incidental to the actual construction.
- c. Applicability. This requirement applies to all FEMA grant and cooperative agreement programs.
- d. The regulation at 41 C.F.R. Part 60-1.4(b) requires the insertion of the following contract clause:
- “During the performance of this contract, the contractor agrees as follows:
- (1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
 - (2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, or national origin.
 - (3) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section,

and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

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

(5) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

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

(7) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, That in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the contractor may request the United States to enter into such litigation to protect the interests of the United States.”

4. Davis Bacon Act and Copeland Anti-Kickback Act.

- a. Applicability of Davis-Bacon Act. The Davis-Bacon Act only applies to the emergency Management Preparedness Grant Program, Homeland Security Grant Program, Nonprofit Security Grant Program, Tribal Homeland Security Grant Program, Port Security Grant Program, and Transit Security Grant Program. **It does not apply to other FEMA grant and cooperative agreement programs, including the Public Assistance Program.**
- b. All prime construction contracts in excess of \$2,000 awarded by non-Federal entities must include a provision for compliance with the Davis-Bacon Act (40

U.S.C. §§ 3141-3144 and 3146-3148) as supplemented by Department of Labor regulations at 29 C.F.R. Part 5 (Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction)). See 2 C.F.R. Part 200, Appendix II, ¶ D.

- c. In accordance with the statute, contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week.
- d. The non-Federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency.
- e. In contracts subject to the Davis-Bacon Act, the contracts must also include a provision for compliance with the Copeland "Anti-Kickback" Act (40 U.S.C. § 3145), as supplemented by Department of Labor regulations at 29 C.F.R. Part 3 (Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States). The Copeland Anti-Kickback Act provides that each contractor or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The non-Federal entity must report all suspected or reported violations to FEMA.
- f. The regulation at 29 C.F.R. § 5.5(a) does provide the required contract clause that applies to compliance with both the Davis-Bacon and Copeland Acts. However, as discussed in the next subsection, the Davis-Bacon Act does not apply to Public Assistance recipients and subrecipients. As such, FEMA requires the following contract clause:

"Compliance with the Copeland "Anti-Kickback" Act.

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

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

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

5. Contract Work Hours and Safety Standards Act.

- a. Applicability: This requirement applies to all FEMA grant and cooperative agreement programs.
- b. Where applicable (see 40 U.S.C. § 3701), all contracts awarded by the non-Federal entity in excess of \$100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. §§ 3702 and 3704, as supplemented by Department of Labor regulations at 29 C.F.R. Part 5. See 2 C.F.R. Part 200, Appendix II, ¶ E.
- c. Under 40 U.S.C. § 3702, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week.
- d. The requirements of 40 U.S.C. § 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.
- e. The regulation at 29 C.F.R. § 5.5(b) provides the required contract clause concerning compliance with the Contract Work Hours and Safety Standards Act:

“Compliance with the Contract Work Hours and Safety Standards Act.

- (1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.
- (2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work

done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The (write in the name of the Federal agency or the loan or grant recipient) shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this section.

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

6. Rights to Inventions Made Under a Contract or Agreement.

- a. Stafford Act Disaster Grants. This requirement **does not apply to the Public Assistance**, Hazard Mitigation Grant Program, Fire Management Assistance Grant Program, Crisis Counseling Assistance and Training Grant Program, Disaster Case Management Grant Program, and Federal Assistance to Individuals and Households – Other Needs Assistance Grant Program, as FEMA awards under these programs do not meet the definition of “funding agreement.”
- b. If the FEMA award meets the definition of “funding agreement” under 37 C.F.R. § 401.2(a) and the non-Federal entity wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that “funding agreement,” the non-Federal entity must comply with the requirements of 37 C.F.R. Part 401 (Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements), and any implementing regulations issued by

FEMA. See 2 C.F.R. Part 200, Appendix II, ¶ F.

- c. The regulation at 37 C.F.R. § 401.2(a) currently defines “funding agreement” as any contract, grant, or cooperative agreement entered into between any Federal agency, other than the Tennessee Valley Authority, and any contractor for the performance of experimental, developmental, or research work funded in whole or in part by the Federal government. This term also includes any assignment, substitution of parties, or subcontract of any type entered into for the performance of experimental, developmental, or research work under a funding agreement as defined in the first sentence of this paragraph.

7. Clean Air Act and the Federal Water Pollution Control Act. Contracts of amounts in excess of \$150,000 must contain a provision that requires the contractor to agree to comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act (42 U.S.C. §§ 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. §§ 1251-1387). Violations must be reported to FEMA and the Regional Office of the Environmental Protection Agency. See 2 C.F.R. Part 200, Appendix II, ¶ G.

- a. The following provides a sample contract clause concerning compliance for contracts of amounts in excess of \$150,000:

“Clean Air Act

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

(2) The contractor agrees to report each violation to the (name of the state agency or local or Indian tribal government) and understands and agrees that the (name of the state agency or local or Indian tribal government) will, in turn, report each violation as required to assure notification to the (name of recipient), Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.

(3) The contractor agrees to include these requirements in each subcontract exceeding \$100,000 financed in whole or in part with Federal assistance provided by FEMA.

Federal Water Pollution Control Act

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

(2) The contractor agrees to report each violation to the (name of the state agency or local or Indian tribal government) and understands and agrees that the (name of the state agency or local or Indian tribal

government) will, in turn, report each violation as required to assure notification to the (name of recipient), Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.

(3) The contractor agrees to include these requirements in each subcontract exceeding \$100,000 financed in whole or in part with Federal assistance provided by FEMA.”

8. Debarment and Suspension.

- a. Applicability: This requirement applies to all FEMA grant and cooperative agreement programs.
- b. Non-federal entities and contractors are subject to the debarment and suspension regulations implementing Executive Order 12549, *Debarment and Suspension* (1986) and Executive Order 12689, *Debarment and Suspension* (1989) at 2 C.F.R. Part 180 and the Department of Homeland Security’s regulations at 2 C.F.R. Part 3000 (Nonprocurement Debarment and Suspension).
- c. These regulations restrict awards, subawards, and contracts with certain parties that are debarred, suspended, or otherwise excluded from or ineligible for participation in Federal assistance programs and activities. See 2 C.F.R. Part 200, Appendix II, ¶ I; and Chapter IV, ¶ 6.d and Appendix C, ¶ 2. A contract award must not be made to parties listed in the SAM Exclusions. SAM Exclusions is the list maintained by the General Services Administration that contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549. SAM exclusions can be accessed at www.sam.gov. See 2 C.F.R. § 180.530; Chapter IV, ¶ 6.d and Appendix C, ¶ 2.
- d. In general, an “excluded” party cannot receive a Federal grant award or a contract within the meaning of a “covered transaction,” to include subawards and subcontracts. This includes parties that receive Federal funding indirectly, such as contractors to recipients and subrecipients. The key to the exclusion is whether there is a “covered transaction,” which is any nonprocurement transaction (unless excepted) at either a “primary” or “secondary” tier. Although “covered transactions” do not include contracts awarded by the Federal Government for purposes of the nonprocurement common rule and DHS’s implementing regulations, it does include some contracts awarded by recipients and subrecipient.
- e. Specifically, a covered transaction includes the following contracts for goods or services:
 - (1) The contract is awarded by a recipient or subrecipient in the amount of at least \$25,000.

- (2) The contract requires the approval of FEMA, regardless of amount.
 - (3) The contract is for federally-required audit services.
 - (4) A subcontract is also a covered transaction if it is awarded by the contractor of a recipient or subrecipient and requires either the approval of FEMA or is in excess of \$25,000.
- d. The following provides a debarment and suspension clause. It incorporates an optional method of verifying that contractors are not excluded or disqualified:

“Suspension and Debarment

- (1) This contract is a covered transaction for purposes of 2 C.F.R. pt. 180 and 2 C.F.R. pt. 3000. As such the contractor is required to verify that none of the contractor, its principals (defined at 2 C.F.R. § 180.995), or its affiliates (defined at 2 C.F.R. § 180.905) are excluded (defined at 2 C.F.R. § 180.940) or disqualified (defined at 2 C.F.R. § 180.935).
- (2) The contractor must comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.
- (3) This certification is a material representation of fact relied upon by (insert name of subrecipient). If it is later determined that the contractor did not comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, in addition to remedies available to (name of state agency serving as recipient and name of subrecipient), the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.
- (4) The bidder or proposer agrees to comply with the requirements of 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.”

9. Byrd Anti-Lobbying Amendment.

- a. Applicability: This requirement applies to all FEMA grant and cooperative agreement programs.
- b. Contractors that apply or bid for an award of \$100,000 or more must file the required certification. See 2 C.F.R. Part 200, Appendix II, ¶ J; 44 C.F.R. Part 18; Chapter IV, 6.c; Appendix C, ¶ 4.
- c. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or

attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. § 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award. See Chapter IV, ¶ 6.c and Appendix C, ¶ 4.

d. The following provides a Byrd Anti-Lobbying contract clause:

“Byrd Anti-Lobbying Amendment, 31 U.S.C. § 1352 (as amended)

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

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

Certification for Contracts, Grants, Loans, and Cooperative Agreements

(To be submitted with each bid or offer exceeding \$100,000)

The undersigned [Contractor] certifies, to the best of his or her knowledge, that:

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

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or

cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

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

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The Contractor, _____, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. § 3801 *et seq.*, apply to this certification and disclosure, if any.

Signature of Contractor's Authorized Official

Name and Title of Contractor's Authorized Official

Date"

10. Procurement of Recovered Materials.

- a. Applicability: This requirement applies to all FEMA grant and cooperative agreement programs.
- b. A non-Federal entity that is a state agency or agency of a political subdivision of a state and its contractors must comply with Section 6002 of the Solid Waste Disposal Act, Pub. L. No. 89-272 (1965) (codified as amended by the Resource Conservation and Recovery Act at 42 U.S.C. § 6962). See 2 C.F.R. Part 200, Appendix II, ¶ K; 2 C.F.R. § 200.322; Chapter V, ¶ 7.
- c. The requirements of Section 6002 include procuring only items designated in guidelines of the EPA at 40 C.F.R. Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of

competition, where the purchase price of the item exceeds \$10,000 or the value of the quantity acquired by the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

- d. The following provides the clause that a state agency or agency of a political subdivision of a state and its contractors can include in contracts meeting the above contract thresholds:

“(1) In the performance of this contract, the Contractor shall make maximum use of products containing recovered materials that are EPA-designated items unless the product cannot be acquired—

- (i) Competitively within a timeframe providing for compliance with the contract performance schedule;
- (ii) Meeting contract performance requirements; or
- (iii) At a reasonable price.

(2) Information about this requirement is available at EPA’s Comprehensive Procurement Guidelines web site, <http://www.epa.gov/cpg/>. The list of EPA-designate items is available at <http://www.epa.gov/cpg/products.htm>.”

11. Additional FEMA Requirements.

- a. The Uniform Rules authorize FEMA to require additional provisions for non-Federal entity contracts. FEMA, pursuant to this authority, requires or recommends the following:
- b. Changes.

To be eligible for FEMA assistance under the non-Federal entity’s FEMA grant or cooperative agreement, the cost of the change, modification, change order, or constructive change must be allowable, allocable, within the scope of its grant or cooperative agreement, and reasonable for the completion of project scope. FEMA recommends, therefore, that a non-Federal entity include a changes clause in its contract that describes how, if at all, changes can be made by either party to alter the method, price, or schedule of the work without breaching the contract. The language of the clause may differ depending on the nature of the contract and the end-item procured.

- c. Access to Records.

All non-Federal entities must place into their contracts a provision that all contractors and their successors, transferees, assignees, and subcontractors acknowledge and

agree to comply with applicable provisions governing Department and FEMA access to records, accounts, documents, information, facilities, and staff. See DHS Standard Terms and Conditions, v 3.0, ¶ XXVI (2013).

d. The following provides a contract clause regarding access to records:

“Access to Records. The following access to records requirements apply to this contract:

(1) The contractor agrees to provide (insert name of state agency or local or Indian tribal government), (insert name of recipient), the FEMA Administrator, the Comptroller General of the United States, or any of their authorized representatives access to any books, documents, papers, and records of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts, and transcriptions.

(2) The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.

(3) The contractor agrees to provide the FEMA Administrator or his authorized representatives access to construction or other work sites pertaining to the work being completed under the contract.”

12. DHS Seal, Logo, and Flags.

- a. All non-Federal entities must place in their contracts a provision that a contractor shall not use the DHS seal(s), logos, crests, or reproductions of flags or likenesses of DHS agency officials without specific FEMA pre-approval. See DHS Standard Terms and Conditions, v 3.0, ¶ XXV (2013).
- b. The following provides a contract clause regarding DHS Seal, Logo, and Flags: “The contractor shall not use the DHS seal(s), logos, crests, or reproductions of flags or likenesses of DHS agency officials without specific FEMA pre-approval.”

13. Compliance with Federal Law, Regulations, and Executive Orders.

- a. All non-Federal entities must place into their contracts an acknowledgement that FEMA financial assistance will be used to fund the contract along with the requirement that the contractor will comply with all applicable federal law, regulations, executive orders, and FEMA policies, procedures, and directives.
- b. The following provides a contract clause regarding Compliance with Federal Law, Regulations, and Executive Orders: “This is an acknowledgement that FEMA financial assistance will be used to fund the contract only. The contractor

will comply with all applicable federal law, regulations, executive orders, FEMA policies, procedures, and directives.”

14. No Obligation by Federal Government.

- a. The non-Federal entity must include a provision in its contract that states that the Federal Government is not a party to the contract and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract.
- b. The following provides a contract clause regarding no obligation by the Federal Government: “The Federal Government is not a party to this contract and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract.”

15. Program Fraud and False or Fraudulent Statements or Related Acts.

- a. The non-Federal entity must include a provision in its contract that the contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to its actions pertaining to the contract.
- b. The following provides a contract clause regarding Fraud and False or Fraudulent or Related Acts: “The contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to the contractor’s actions pertaining to this contract.”