



*Home of the Tualatin River National Wildlife Refuge*

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**CONTRACT DOCUMENTS**

**FOR**

**CONSTRUCTION OF**

**2022 WATERLINE REPLACEMENT PROJECT**

**CITY OF SHERWOOD, OREGON**

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**FINAL DESIGN SUBMITTAL**

**OCTOBER 2022**



CONTRACT DOCUMENTS  
FOR  
CONSTRUCTION OF  
2022 WATERLINE REPLACEMENT PROJECT  
FOR  
CITY OF SHERWOOD, OREGON  
OCTOBER 2022



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**CONTRACT DOCUMENTS  
FOR  
2022 WATERLINE REPLACEMENT PROJECT  
FOR  
CITY OF SHERWOOD**

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## **BIDDING REQUIREMENTS**

**SECTION 00050 - INVITATION TO BID FOR  
2022 WATERLINE REPLACEMENT PROJECT  
FOR CITY OF SHERWOOD, OREGON**

Sealed proposals for 2022 Waterline Replacement Project for the City of Sherwood will be received by Rich Sattler, City of Sherwood, at 15527 SW Willamette Street, Sherwood, Oregon 97140 until the **BID CLOSING** at 2:00 PM, local time, on the 24th day of OCTOBER, 2022, at which time the bids will be publicly opened and read. No bids will be received after the **BID CLOSING** time. First-Tier Subcontractor Disclosure forms will be received at the above-mentioned location and date, until 4:00 PM, local time.

The work contemplated consists of proposed improvements for SW Norton Ave. Improvements for SW Norton Ave. include installing a new 8-inch diameter connection to the waterline in SW Willamette St, installing approximately 580 linear feet of a new 8-inch diameter waterline in SW Norton Ave, connecting to existing 8-inch waterline at SW Forest and SW Norton, installing a new fire hydrant assembly, connecting waterline services to new waterline and abandoning an existing 6-inch diameter waterline. The permits or approvals anticipated for this project are anticipated to be limited to a street opening permit issued by the City.

The Contract Documents for the above project are available online at <https://www.sherwoodoregon.gov/bids>. Parties can request to be included on the official Planholders list by sending an email to [sattlerr@sherwoodoregon.gov](mailto:sattlerr@sherwoodoregon.gov). Bidders are not required to be on Planholders list to submit a Bid for this project.

No proposal will be considered by the City of Sherwood unless the Bid contains a statement by the Bidder that the Bidder will comply with the provisions of ORS 279C.800 to 279C.870 and 40 U.S.C. 276(a) pertaining to prevailing wages, as applicable. Contractor licensing under ORS 468A.720 for working with asbestos-containing materials is not a requirement of this project. Each bid must contain a statement as to whether or not the bidder is a resident bidder as defined in ORS 279A.120. Each bid must also contain a statement as to whether the bidder is registered with the Oregon Construction Contractors Board. No bid will be received or considered unless the bidder is registered with the Construction Contractors Board, as required by ORS 701.035 et seq. No bid will be considered unless the First-Tier Subcontractor Disclosure form is submitted by the specified deadline. Faxed copies will NOT be accepted.

Contractors must be qualified in accordance with the applicable parts of ORS 279 in order to enter into a contract with the City of Sherwood for public work in Oregon. To document qualifications, bidders shall submit a completely executed Contractor's Prequalification Application when submitting their bid proposal. Prequalification application forms may be obtained at the State of Oregon Department of Administrative Services, Purchasing Section, 1225 Ferry Street SE, Salem, Oregon 97301-4285 or on-line at:

<http://www.oregon.gov/DAS/EGS/PS/docs/contractors-pre-application.pdf>

The City of Sherwood will investigate and determine the qualifications of the bidders as part of its evaluation of the bids.

Proposals must be submitted on the prescribed forms and must be accompanied by certified check, cashier's check, or bid bond executed in favor of the City of Sherwood in an amount not less than five percent (5%) of the amount bid. The successful bidder will be required to furnish to the City of Sherwood a performance bond and a payment bond each equal to one hundred percent (100%) of the amount of the bid. The successful bidder and all subcontractors will be required to furnish to the Oregon Construction Contractors Board a public works bond in the amount of \$30,000, unless exempt under ORS 279C.

The City of Sherwood reserves the right to reject any and all bids, to waive any irregularities, and to accept the bid deemed in the best interests of the City of Sherwood. The City of Sherwood may reject any bid not in compliance with all prescribed public bidding procedures and requirements and may reject for good cause any or all bids upon a finding of the agency it is in the public interest to do so.

Dated this 10<sup>th</sup> day of OCTOBER, 2022

By: Rich Sattler

SECTION 00100 - INSTRUCTIONS TO BIDDERS  
FOR  
2022 WATERLINE REPLACEMENT PROJECT  
FOR  
CITY OF SHERWOOD, OREGON

**1. Defined Terms**

Certain terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof.

- 1.1 Bidder - one who submits a Bid directly to OWNER as distinct from a sub-bidder, who submits a bid to a Bidder.
- 1.2 Issuing Office - the office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.
- 1.3 Successful Bidder - the lowest, responsible Bidder to whom OWNER (on the basis of OWNER's evaluation as hereinafter provided) makes an award.
- 1.4 First-Tier Subcontractor - an individual, firm or corporation having a direct contract with the CONTRACTOR for furnishing labor or furnishing labor and materials in connection with the performance of a part of the work.

**2. Copies of Bidding Documents**

- 2.1 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the Advertisement or Invitation to Bid may be obtained from the office of the ENGINEER. The purchase price will not be refunded.
- 2.2 Complete sets of Bidding Documents must be used in preparing Bids; neither OWNER nor ENGINEER assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.3 OWNER and ENGINEER in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids for the Work and do not confer a license or grant for any other use.

**3. Qualifications of Bidders**

- 3.1 To demonstrate qualifications to perform the Work, each Bidder must be prepared to submit within five days after Bid Opening, upon OWNER's request, detailed written evidence such as financial data, previous experience, present commitments and other such



data as may be called for below or elsewhere in these documents. Each Bid must contain evidence of Bidder's qualification to do business in the state where the Project is located.

#### **4. Examination of Bidding Documents, Other Data, and Site**

4.1 It is the responsibility of each Bidder before submitting a Bid:

- 4.1.1 To examine thoroughly and carefully study the Bidding Documents, including any Addenda and other related data identified in the Bidding Documents;
- 4.1.2 To visit the site and become familiar with and satisfy Bidder as to the general, local and Site conditions that may affect cost, progress, performance or furnishing of the Work;
- 4.1.3 To become familiar with and satisfy Bidder as to all federal, state and local Laws and Regulations that may affect cost, progress, performance or furnishing of the Work;
- 4.1.4 To obtain and carefully study (or assume responsibility to do so) all reports of explorations and tests of subsurface conditions at or contiguous to the Site, all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site, all examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, performance or furnishing of the Work or which are related to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by the Bidder, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto, and be responsible for all costs associated with these examinations including all restoration work and damages which may be a result of such investigations;
- 4.1.5 To agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary to the determination of its Bid for performance of the Work at the price bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;
- 4.1.6 To become aware of the general nature of the work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents;
- 4.1.7 To correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding

Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;

- 4.1.8 To promptly give ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by ENGINEER is acceptable to Bidder; and
  - 4.1.9 To determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance of the Work.
- 4.2 Reference is made to the Supplementary General Conditions and/or the Supplementary Information for identification of:
- 4.2.1 Those reports of conditions at or contiguous to the site which have been utilized by ENGINEER in preparation of the Bidding Documents. Bidder may rely upon the general accuracy of the "technical data" contained in such reports but not upon other data, interpretations, opinions or information contained in such reports or otherwise relating to the conditions at the site, nor upon the completeness thereof for the purposes of bidding or construction; and
  - 4.2.2 Those drawings utilized by ENGINEER in preparation of the Bidding Documents. Bidder may rely upon the general accuracy of the "technical data" contained in such drawings but not upon other data, interpretations, opinions or information shown or indicated in such drawings or otherwise relating to such structures, nor upon the completeness thereof for the purposes of bidding or construction. Bidder is responsible for any interpretation or conclusion drawn from any "technical data" or any such data, interpretations, opinions or information, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site or otherwise, which may affect cost, progress, performance or finishing of the Work or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto or which Bidder deems necessary to determine its Bid for performing and finishing the Work in accordance with the time, price and other terms and conditions of the Bidding Documents.
- 4.3 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, Underground Facilities and other physical conditions, and possible changes in the Bidding Documents due to differing conditions appear in Paragraph 4 of the General Conditions of the Construction Contract. Information and data reflected in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the site is based upon information and data furnished to the OWNER and ENGINEER by the owners of such Underground Facilities or others, and the OWNER does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary General Conditions.

- 4.4 On request, OWNER will provide each Bidder access to the site to conduct such examinations, investigations, explorations, tests and studies, as each Bidder deems necessary for submission of a Bid.
- 4.5 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by ENGINEER are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.
- 4.6 Failure to comply with Sections 4.1 through 4.5 above will not relieve the Successful Bidder of its obligation to enter into a contract and complete the contemplated work in strict accordance with the Bidding Documents.

## **5. Availability of Lands for Work**

The lands upon which the Work is to be performed, rights-of-way and easements for access thereto and other lands designated for use by CONTRACTOR in performing the Work are identified in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by CONTRACTOR.

## **6. Interpretations and Addenda**

- 6.1 All questions about the meaning or intent of the Bidding Documents are to be directed to ENGINEER. Interpretations or clarifications considered necessary by ENGINEER in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by ENGINEER as having received the Bidding Documents. Questions received less than ten (10) calendar days prior to the date for opening of Bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
- 6.2 Addenda may also be issued to modify the Bidding Documents as deemed advisable by OWNER or ENGINEER.

## 7. Bid Security

- 7.1 Each Bid must be accompanied by Bid security made payable to OWNER in an amount of five (5) percent of Bidder's maximum Bid price and in the form of a certified or cashier's check or a Bid Bond on the form attached to the Bidding Documents or one conforming substantially to it, meeting the requirements of Paragraphs 5.1 and 5.2 of the General Conditions of the Construction Contract and issued by an acceptable surety.
- 7.2 The Bid security of Successful Bidder will be retained until such Bidder has executed the Agreement, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Agreement and furnish the required contract security within ten (10) days after the Notice of Award, OWNER may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom OWNER believes to have a reasonable chance of receiving the award may be retained by OWNER until the Effective Date of the Agreement or the sixtieth (60<sup>th</sup>) calendar day after the Bid opening, whereupon Bid security furnished by such Bidders will be returned. Bid security with Bids which are not competitive will be returned upon execution of the Agreement between OWNER and the successful bidder.

## 8. Contract Times

The number of days within which, or the dates by which, the Work is to be substantially completed and also completed and ready for final payment (the term "Contract Times" is defined in **paragraph 1.12 of the General Conditions** of the Construction Contract) are set forth in the Agreement (or incorporated therein by reference to the attached Bid Form).

## 9. Substitute Or "Or-Equal" Items

The Contract, if awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "or-equal" items. Whenever it is indicated in the Drawings or specified in the Specifications that an "or-equal" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the Effective Date of the Agreement, unless a pre-bid approval process is specified for certain material or equipment items. The procedure for submission of any such application by CONTRACTOR and consideration by ENGINEER is set forth in Paragraphs 6.7.1, 6.7.2 and 6.7.3 of the General Conditions of the Construction Contract and may be supplemented in the General Requirements.

## 10. Subcontractors, Suppliers and Others

10.1 Bidders are required to disclose information about certain first-tier subcontractors when the contract value for a Public Improvement is estimated by the OWNER to be greater than \$100,000 (see ORS 279C.370). Specifically, when the contract amount of a first-tier subcontractor furnishing labor or labor and materials would be greater than or equal to: (i) 5% of the project Bid, but at least \$15,000; or (ii) \$350,000 regardless of the percentage, the Bidder must disclose the following information about that subcontract either in its Bid submission, or within two hours after Bid Closing:

(A) The subcontractor's name;

(B) The category of Work that the subcontractor would be performing, and

(C) The dollar value of the subcontract. 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.

**THE CONTRACTING AGENCY MUST REJECT A BID IF THE BIDDER FAILS TO SUBMIT THE DISCLOSURE FORM WITH THIS INFORMATION BY THE STATED DEADLINE. THE DISCLOSURE FORM IS ATTACHED TO THE BID DOCUMENT.**

**Submission.** A Bidder shall submit the disclosure form required by this rule either in its Bid submission, or within two working hours after Bid Closing.

**Responsiveness.** Compliance with the disclosure and submittal requirements of ORS 279C.370 and this rule is a matter of Responsiveness. Bids that are submitted by Bid Closing, but for which the disclosure submittal has not been made by the specified deadline, are not Responsive and shall not be considered for Contract Award.

10.2 If these Bidding Documents require, separate from and in addition to those requirements as identified in paragraph 10.1 above, the identity of certain Subcontractors, Suppliers and other persons and organizations (including those who are to furnish the principal items of material and equipment) to be submitted to OWNER, Bidder shall submit with the bid a list of all such Subcontractors, Suppliers and other persons and organizations proposed for those portions of the Work for which such identification is required. Such list shall be supplemented by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, person or organization if requested by OWNER or ENGINEER.

10.3 If OWNER or ENGINEER has reasonable objection after due investigation to any proposed subcontractor, other person or organization, either may before giving the Notice of Award, request the apparent Successful Bidder to submit an acceptable substitute, in which case the apparent Successful Bidder shall submit an acceptable substitute, that Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such

substitution, and OWNER may consider such prior adjustment in evaluating Bids and making the Contract award.

- 10.4 If the apparent Successful Bidder declines to make any such substitution, OWNER may award the Contract to the next lowest Bidder that proposes to use acceptable subcontractor, other person, or organization. The declining to make any such substitution will not constitute grounds for sacrificing the Bid security of any Bidder. Any subcontractor, other person, or organization so listed and to whom the OWNER or ENGINEER does not make written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER and ENGINEER subject to revocation of such acceptance after the Effective Date of the Agreement as provided in the General Conditions of the Construction Contract.
- 10.5 No Contractor shall be required to employ any subcontractor, other person or organization against which he has reasonable objection.

## **11. Bid Form**

- 11.1 The Bid Form is included with the Bidding Documents; additional copies may be obtained from ENGINEER (or the Issuing Office).
- 11.2 All blanks on the Bid Form must be completed by printing in ink or by typewriter.
- 11.3 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.
- 11.4 A Bid by a partnership shall be executed in the partnership name and signed by a partner, whose title shall appear under the signature, accompanied by evidence of authority to sign. The official address of the partnership shall be shown below the signature.
- 11.5 A Bid by an individual shall show the Bidder's name and official address.
- 11.6 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid form. The official address of the joint venture shall be shown below the signature.
- 11.7 All names shall be typed or printed in ink below the signatures.
- 11.8 The Bid shall contain an acknowledgement of receipt of all Addenda (the numbers of which shall be filled in on the Bid Form).
- 11.9 The address and telephone number for communications regarding the Bid shall be shown.

- 11.10 The Bid shall contain evidence of authority to conduct business as an out-of-state corporation in the state where the Work is to be performed. Bidder's state contractor license number for the state where the work is to be performed shall also be shown on the Bid form.

## **12. Submission of Bids**

Bids and first tier subcontractor disclosure forms shall be submitted at the time and place indicated in the Advertisement or Invitation to Bid and shall be enclosed in separate opaque sealed envelopes, marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), date of opening, the applicable words "Sealed Bid" or "First-Tier Subcontractor Disclosure Form", name and address of Bidder and accompanied by the Bid security and other required documents. If the Bid and/or disclosure form is sent through the mail or other delivery system, the sealed envelopes shall be enclosed in separate envelopes with the applicable notation "sealed bid" or "First-Tier Subcontractor Disclosure Form" on the face. It is the Bidder's sole responsibility to see that its Bid and disclosure form are received within the proper time.

Bidder shall also include in their bid, three project references per Section 00 41 43, and a proposed construction schedule that complies with dates described in Section 00 52 43.

## **13. Modification and Withdrawal of Bids**

- 13.1 Bids may be modified or withdrawn at any time prior to the opening of Bids. This may be done by the Bidder in person or upon the Bidder's telegraphic or written request delivered to the place where Bids are to be submitted. A telephoned request for withdrawal of a Bid will not be recognized as a legitimate means for withdrawal of a Bid.
- 13.2 If, within twenty-four hours after Bids are opened, any Bidder files a duly signed, written notice with OWNER and promptly thereafter demonstrates to the reasonable satisfaction of OWNER that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid and the Bid security will be returned. Thereafter, that Bidder will be disqualified from further bidding on the Work to be provided under the Bidding Documents.

## **14. Opening of Bids**

Bids will be opened and (unless obviously non-responsive) read aloud publicly at the place where Bids are to be submitted.

## **15. Bids to Remain Subject to Acceptance**

All Bids will remain subject to acceptance for forty-five (45) days after the day of the Bid opening, but OWNER may, in its sole discretion, release any Bid and return the Bid security prior to that date. OWNER and the apparent low Bidder may, by written agreement, extend the period during which the Bid is subject to acceptance.

## **16. Award of Contract and Protests**

- 16.1 OWNER reserves the right to reject any or all Bids, including without limitation the rights to reject any or all nonconforming, non responsive, unbalanced or conditional Bids and to reject the Bid of any Bidder if OWNER believes that it would not be in the best interest of the OWNER to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by OWNER. OWNER also reserves the right to waive all informalities not involving price, time or changes in the Work and to negotiate contract terms with the Successful Bidder. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.
- 16.2 In evaluating Bids, OWNER will consider the qualifications of Bidders, whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- 16.3 OWNER may consider the qualifications and experience of Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work as to which the identity of Subcontractors, Suppliers, and other persons and organizations must be submitted as provided in the Bidding Documents. OWNER also may consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to the Notice of Award.
- 16.4 OWNER may conduct such investigations as OWNER deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of Bidders, proposed Subcontractors, Suppliers and other persons and organizations to perform and furnish the Work in accordance with the Bidding Documents to OWNER's satisfaction within the prescribed time.
- 16.5 If the contract is to be awarded, it will be awarded to the lowest responsible Bidder as that term is set forth in ORS 279A.010 and whose evaluation by OWNER indicates to OWNER that the award will be in the best interests of the OWNER. In determining the lowest responsible Bidder, OWNER will: (a) check the list created by the Oregon Construction



Contractors Board for bidders who are not qualified to hold a public improvement contract; and (b) determine whether the Bidder has met the standards of responsibility in accordance with ORS 279C.375. OWNER will document OWNER's determination of responsibility with the Oregon Construction Contractors Board within 30 days after the date the OWNER awards the contract. Separate schedules may be awarded to the same or different Contractors. Bidders are allowed to specify on the Bid Form a deduction in their total Bid if multiple schedules are awarded to the same Contractor. The lowest total Bid shall be determined by adding schedules and subtracting any deductions provided.

- 16.6 If the contract is to be awarded, OWNER will issue a Notice of Intent to Award and give Successful Bidder a Notice of Award at least seven (7) days after the Notice of Intent to Award is issued and within forty-five (45) days after the day of the Bid opening or within such extended period as OWNER and CONTRACTOR shall agree in writing.
- 16.7 All protests and judicial review procedures shall be undertaken in accordance with ORS 279B.410 and ORS 279B.415. A bidder must file a written protest to the OWNER within seven (7) days of the Award of a Contract or the Intent to Award of a Contract, whichever occurs first. The Bidder's written protest shall specify the grounds for the protest to be considered by the OWNER.

## **17. Signing of Agreement**

When OWNER gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with all other written Contract Documents attached. Within ten (10) days thereafter CONTRACTOR shall sign and deliver the required number of counterparts of the Agreement and attached documents to OWNER with the required liability and workers compensation insurance certificates, and payment and performance bonds. Within thirty (30) days thereafter, OWNER shall deliver one fully signed counterpart to CONTRACTOR. Each counterpart is to be accompanied by a complete set of the Drawings with appropriate identification.

## **18. Retainage**

Provisions concerning retainage and CONTRACTORS' rights to deposit securities in lieu of retainage are set forth in the Agreement. In lieu of retainage, provisions may be made as provided in ORS 279C.560 for depositing with OWNER approved bonds or securities of value equal to the retainage.

## **19. Liquidated Damages**

Provisions for liquidated damages are set forth in the Agreement.

**20. Performance and Payment Bonds**

Article 5 of the General Conditions of the Construction Contract sets forth performance bond and payment bond requirements. When the successful Bidder delivers the executed Agreement to the OWNER, it shall be accompanied by the required performance and payment bonds. Attorneys-in-fact who sign bonds must file with each bond a notarized and effective copy of their power of attorney dated the same date as the Bonds. Bond forms enclosed in the Bidding Documents must be used.

**21. Conflict of Interest**

No member, officer, or employee of the OWNER, or its designees or agents, no member of the governing body of the OWNER, and no other public official of the OWNER who exercise any function or responsibility with respect to this Contract during his/her tenure or for one year thereafter, shall have any interest, direct or indirect, in Work performed in connection with this Contract.

**END OF SECTION**

SECTION 00300 - BID PROPOSAL  
FOR  
2022 WATERLINE REPLACEMENT PROJECT  
FOR  
CITY OF SHERWOOD, OREGON

THIS BID IS SUBMITTED TO:

City of Sherwood  
Attn: Rich Sattler  
15527 SW Willamette Street  
Sherwood, OR 97140

1. The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an agreement with the OWNER in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Bid Price and within the Bid Times indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.
2. BIDDER accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to Bidders, including without limitations those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for forty-five (45) days after the day of Bid opening. BIDDER will sign and deliver the required number of counterparts of the Agreement with the Bonds and other documents required by the Bidding Requirements within ten (10) days after the date of OWNER's Notice of Award.
3. In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:
  - (a) BIDDER has examined and carefully studied the Bidding Documents and the following Addenda receipt of all which is hereby acknowledged: (List Addenda by Addendum Number)  
  
Addendum No. \_\_\_\_\_ through Addendum No. \_\_\_\_\_.
  - (b) BIDDER is a resident Bidder in the State of Oregon as defined in ORS 279A.120. (Check the Appropriate Box)  
 YES  
 NO
  - (c) BIDDER is registered with the Oregon Construction Contractors Board. (Check the Appropriate Box and provide license number)  
 YES State Contractor License No. \_\_\_\_\_  
 NO

- (d) BIDDER has visited the site and become familiar with and is satisfied as to the general, local and site conditions that may affect cost, progress, performance and furnishing of the Work;
- (e) BIDDER is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress, performance and furnishing of the Work.
- (f) BIDDER has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) which have been identified in the Supplementary General Conditions as provided in paragraph 4.2.1 of the General Conditions. BIDDER acknowledges that such reports and drawings are not Contract Documents and may not be complete for BIDDER's purposes. BIDDER acknowledges that OWNER and ENGINEER do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Bidding Documents with respect to Underground Facilities at or contiguous to the site.
- (g) BIDDER has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.
- (h) BIDDER does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for the determination of this Bid for performance and furnishing of the Work in accordance with the times, price and other terms and conditions of the Contract Documents.
- (i) BIDDER is aware of the general nature of Work to be performed by OWNER and others at the site that relates to Work for which this Bid is submitted as indicated in the Contract Documents.
- (j) BIDDER has correlated the information known to BIDDER, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies and data with the Contract Documents.
- (k) BIDDER has given ENGINEER written notice of all conflicts, errors, ambiguities or discrepancies that BIDDER has discovered in the Contract Documents and the

written resolution thereof by ENGINEER is acceptable to BIDDER, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work for which this Bid is submitted.

- (l) This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; BIDDER has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; BIDDER has not solicited or induced any person, firm or corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.
  - (m) BIDDER agrees to be bound by and will comply with and further agrees that the provisions required by ORS 279C.800 through 279C.870 and 40 U.S.C. 276(a) pertaining to prevailing wage rates, as applicable, shall be included in this contract.
  - (n) BIDDER agrees that if awarded the contract, BIDDER will furnish to the OWNER, within ten (10) days after receiving from the OWNER Notice of Award, a signed Agreement, such Bonds and certificates of insurance as are required by OWNER, and evidence of having obtained a \$30,000 public works bond with the Oregon Construction Contractors Board if the project value exceeds \$100,000 and the BIDDER is not exempted by the Board from the bond requirement.
  - (o) BIDDER agrees that if awarded the contract, the BIDDER will commence the Work within ten (10) calendar days after the date of receipt of written Notice to Proceed, and that the BIDDER will complete the Work within the time limits specified in the Agreement.
4. BIDDER will complete the Work in accordance with the Contract Documents for the following price(s):

Schedule of Unit Price Work  
For  
City of Sherwood  
2022 Waterline Replacement Project

Item No.	Description	Estimated Quantity	Unit*	Unit Price	Total Price
1	Mobilization, bonds, insurance, and demobilization	1	LS		
2	Traffic control	1	LS		
3	Erosion control	1	LS		
4	Saw cut existing pavement and complete surface restoration with AC pavement				
	a. 2 to 4 inches deep	350	SY		
	b. Additional removal and paving per 1-inch depth beyond 4 inches	0	SY		
5	Furnish and install Class 52 ductile iron waterline:				
	a. 4-inch diameter, restrained	215	LF		
	b. 6-inch diameter, restrained	65	LF		
	c. 8-inch diameter, restrained	579	LF		
6	Furnish and install cast or ductile iron pipe fittings	720	LBS		
7	Furnish and install buried valves:				
	a. 2-inch gate valve, THRD	1	EA		
	b. 6-inch gate valve, FLGxMJ	2	EA		
	c. 6-inch gate valve, MJ	2	EA		
	d. 8-inch gate valve, MJ	2	EA		
8	Furnish and install fire hydrant assembly	2	EA		
9	Furnish and install water services:				

	a. 1-inch Service Connection	3	EA		
	b. 1-inch Dual Service Connection	7	EA		
10	Furnish and install 2-inch blow-off assembly	1	EA		
11	Testing, flushing, and disinfection of water mains	1	LS		
12	Connection to existing water main:				
	a. 6-inch diameter, restrained (SW June Ct)	1	LS		
	b. 8-inch diameter, restrained (SW Willamette St)	1	LS		
	c. 8-inch diameter, restrained (SW Forest Ave)	1	LS		
13	Existing 2" water abandonment	1	LS		
14	Existing 6" water abandonment	1	LS		
15	Concrete curb replacement	10	LF		
16	Sidewalk, Curb, Gutter & ADA Ramp Construction	100	SF		
17	General surface restoration and clean-up	1	LS		

**Total Bid: \$** \_\_\_\_\_  
 (Use words) (Use numbers)

**\*Abbreviations**

LS – Lump sum  
 CY – Cubic yards  
 EA – Each

LBS – Pounds  
 LF – Lineal feet  
 SY – Square yard

Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

Unit Prices have been computed in accordance with paragraph 11.9.2 of the General Conditions. BIDDER acknowledges that estimated quantities are not guaranteed and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid Items will be based on actual quantities provided, determined as provided in the Contract Documents.

5. BIDDER agrees that the Work will be substantially completed and ready for final payment in accordance with Paragraph 14.13 of the General Conditions of the Construction Contract on or before the dates or within the number of calendar days indicated in the Agreement. BIDDER accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the times specified in the Agreement.
6. The following documents are attached to and made a condition of this Bid:
  - (a) Required Bid Security, in the form of \_\_\_\_\_  
in the amount of \_\_\_\_\_ which  
is not less than five percent (5%) of the total bid amount.
  - (b) BIDDER's proposed construction schedule.



7. BIDDER shall provide three references for projects completed in the last three years of similar nature in Oregon or Washington. Provide an attachment if additional space is required.

Project Name, Owner & Project Size	Year Completed	Name & Address of Owner Contact Person, Phone Number and Email Address	Name & Address of Engineer Contact Person, Phone Number and Email Address

8. BIDDER agrees that a completed First-Tier Subcontractor Disclosure Form is either included with this bid submission or will be provided within the time frame prescribed in these Bidding Documents. BIDDER agrees that substitution of First-Tier Subcontractors will be made only in accordance with the provisions of ORS 279C.585.
8. BIDDER certifies that BIDDER will not discriminate against minority, women or emerging small business enterprises in obtaining any subcontracts for this Work.
9. Communications concerning this Bid shall be addressed to the address of BIDDER indicated below.
10. Terms used in this Bid which are defined in the General Conditions of the Construction Contract or Instructions to Bidders will have the meanings indicated in the General Conditions of the Construction Contract or Instructions to Bidders.

SUBMITTED on \_\_\_\_\_, 2022.

If BIDDER is:

An Individual

By: \_\_\_\_\_ (SEAL)  
(Signature)

\_\_\_\_\_  
(Print Individual's Name)

doing business as: \_\_\_\_\_

Business address: \_\_\_\_\_

\_\_\_\_\_

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

A Partnership

Partnership Name: \_\_\_\_\_ (SEAL)

By: \_\_\_\_\_  
(Signature of General Partner)

\_\_\_\_\_  
(Print General Partner's Name)

Business address: \_\_\_\_\_

\_\_\_\_\_

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

A Corporation

Corporation Name: \_\_\_\_\_ (SEAL)

State of Incorporation: \_\_\_\_\_

By: \_\_\_\_\_ (SEAL)

(Signature of Person Authorized to Sign)

\_\_\_\_\_  
(Print Name of Person Authorized to Sign)

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

(Corporate Seal)

Attest: \_\_\_\_\_  
(Signature of Corporate Secretary)

Business address: \_\_\_\_\_

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

Date of Qualification to do business is: \_\_\_\_\_

A Joint Venture

Joint Venturer Name: \_\_\_\_\_ (SEAL)

By: \_\_\_\_\_  
(Signature of Joint Venture Partner)

\_\_\_\_\_  
(Print Name of Joint Venture Partner)

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

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

\_\_\_\_\_

Joint Venturer Name: \_\_\_\_\_ (SEAL)

By: \_\_\_\_\_  
(Signature of Joint Venture Partner)

\_\_\_\_\_  
(Print Name of Joint Venture Partner)

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

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

\_\_\_\_\_

(Each joint venturer must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above).

SECTION 00410 - FIRST-TIER SUBCONTRACTOR DISCLOSURE FORM  
 FOR  
 2022 WATERLINE REPLACEMENT PROJECT  
 FOR  
 CITY OF SHERWOOD, OREGON

Bid Closing: \_\_\_\_\_ October 24, 2022 at 2:00 PM  
 Disclosure Submittal Deadline: \_\_\_\_\_ October 24, 2022 at 4:00 PM

This form must be completed, signed and 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.

Bidders are required to disclose information about certain first-tier subcontractors (see ORS 279C.370). Specifically, when the contract amount of a first-tier subcontractor furnishing labor and material would be greater than or equal to: (i) 5% of the project Bid, but at least \$15,000; or (ii) \$350,000 regardless of the percentage, the Bidder must disclose the following information about that subcontractor either in its Bid submission, or within two hours after Bid Closing.

List below the names of each subcontractor that will be furnishing labor or furnishing labor and materials and that are 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 are required to be disclosed. (ATTACH ADDITIONAL SHEETS IF NEEDED).

<u>Subcontractor Name</u>	<u>Dollar Value</u>	<u>Category of Work</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

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

Form Submitted by (Bidder Name): \_\_\_\_\_

Contact Name: \_\_\_\_\_ Phone No.: \_\_\_\_\_

SECTION 00420 - BID BOND  
FOR  
2022 WATERLINE REPLACEMENT PROJECT  
FOR  
CITY OF SHERWOOD, OREGON

KNOW ALL PEOPLE BY THESE PRESENTS:

That we, \_\_\_\_\_, hereinafter called  
(Name of Contractor)

the PRINCIPAL, as Principal, and \_\_\_\_\_,  
(Name of Surety)

a corporation and existing under and by virtue of the laws of the State of \_\_\_\_\_  
and authorized to transact a surety business in the State of **Oregon**, hereinafter called the  
SURETY, as Surety, are held and firmly bound unto **Owner**,  
a **Municipal Corporation** of the State of **Oregon**, hereinafter called the OBLIGEE, in the

penal sum of \_\_\_\_\_ Dollars

(\$\_\_\_\_\_) for the payment of which sum well and truly to be made, the said PRINCIPAL  
and the said SURETY bind ourselves, our heirs, executors, administrators, successors, and assigns,  
jointly and severally, firmly by these presents.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT:

WHEREAS the PRINCIPAL has submitted a Bid Proposal for **2022 WATERLINE REPLACEMENT  
PROJECT**

NOW, THEREFORE, if the Bid Proposal submitted by the PRINCIPAL is accepted, and the Contract  
awarded to the PRINCIPAL, and if the PRINCIPAL shall execute the proposed Agreement and shall  
furnish such Performance and Payment Bonds as required by the Contract Documents within the  
time fixed by the Documents, then this obligation shall be void; if the PRINCIPAL shall fail to  
execute the proposed Agreement and furnish the bonds, the SURETY hereby agrees to pay to the  
OBLIGEE the penal sum as liquidated damages, within ten (10) days of such failure.

Signed and sealed this \_\_\_\_\_ day of \_\_\_\_\_, 2022.

CONTRACTOR AS PRINCIPAL:

SURETY:

(Corp. Seal)

(Corp. Seal)

Company: \_\_\_\_\_

Company: \_\_\_\_\_

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

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

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

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

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

(Attach Power of Attorney)

NOTE: THIS FORM TO BE COMPLETED BY CITY OF SHERWOOD. IT IS INCLUDED IN THE CONTRACT DOCUMENTS FOR BIDDERS' INFORMATION ONLY.

SECTION 00430- RESPONSIBILITY DETERMINATION FORM  
FOR  
2022 WATERLINE REPLACEMENT PROJECT  
FOR  
CITY OF SHERWOOD, OREGON

Project Name: 2022 Waterline Replacement Project

Bid Number: N/A

Bidder's Business Entity Name: \_\_\_\_\_

Bidder's CCB License Number: \_\_\_\_\_

Form Submitted By (Contracting Agency): City of Sherwood, OR

Form Submitted By (Representative Name): \_\_\_\_\_

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

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

OWNER has:

- Checked the list created by the Construction Contractors Board under ORS 701.227 for bidders who are not qualified to hold a public improvement contract.
- Determined whether the Bidder has met the standards of responsibility. In doing so, OWNER has considered whether the Bidder:
  - Has available the appropriate financial, material, equipment, facility and personnel resources and expertise, or the ability to obtain the resources and expertise, necessary to meet all contractual responsibilities.
  - Holds current licenses that businesses or service professionals operating in this state must hold in order to undertake or perform the work specified in the contract.
  - Is covered by liability insurance and other insurance in amounts required in the solicitation documents.
  - Qualifies as a carrier-insured employer or a self-insured employer under ORS 656.407 or has elected coverage under ORS 656.128.
  - Has disclosed the bidder's first-tier subcontractors in accordance with ORS 279C.370.
  - Has a satisfactory record of performance.
  - Has a satisfactory record of integrity.
  - Is qualified legally to contract with OWNER.
  - Has supplied all necessary information in connection with the inquiry concerning responsibility.

**NOTE: THIS FORM TO BE COMPLETED BY CITY OF SHERWOOD. IT IS INCLUDED IN THE CONTRACT DOCUMENTS FOR BIDDERS' INFORMATION ONLY.**

[ ] Determined the Bidder to be (check only one of the following):

[ ] Responsible under ORS 279C.375 (3)(a) and (b).

[ ] Not responsible under ORS 279C.375 (3)(a) and (b).

(Attach documentation if OWNER finds the bidder not to be responsible)

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This form and any attachments must be submitted within 30 days after the date of Contract Award to the Oregon Construction Contractors Board, PO Box 14140, Salem, OR 97309-5052, Phone (503) 378-4621, Fax (503) 373-2007.



**CONTRACT FORMS**

**SECTION 00500 - AGREEMENT  
FOR  
2022 WATERLINE REPLACEMENT PROJECT  
FOR  
CITY OF SHERWOOD, OREGON**

**THIS AGREEMENT** is dated as of the \_\_\_\_\_ day of \_\_\_\_\_ in the  
year \_\_\_\_\_ by and between \_\_\_\_\_  
(hereinafter called OWNER) and \_\_\_\_\_  
(hereinafter called CONTRACTOR).

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

**Article 1. WORK.**

CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The project and Work is generally described as follows:

**2022 WATERLINE REPLACEMENT PROJECT  
CITY OF SHERWOOD, OREGON**

The work contemplated consists of consists of proposed improvements for SW Norton Ave. Improvements for SW Norton Ave. include installing a new 8-inch diameter connection to the waterline in SW Willamette St, installing approximately 580 linear feet of a new 8-inch diameter waterline in SW Norton Ave, connecting to existing 8-inch waterline at SW Forest and SW Norton, installing a new fire hydrant assembly, connecting waterline services to new waterline and abandoning an existing 6-inch diameter waterline. The permits or approvals anticipated for this project are anticipated to be limited to a street opening permit issued by the City.

## **Article 2. ENGINEER.**

The Project has been designed by Murraysmith, Inc. 888 SW 5<sup>th</sup> Ave. Suite 1170, Portland, Oregon 97204, who is hereinafter called ENGINEER and who is to act as OWNER's representative, assume all duties and responsibilities and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

## **Article 3. CONTRACT TIMES.**

3.1. Work shall be substantially completed on or before March 31, 2023. Substantially completed, as defined generally within Paragraph 14.8 of the General Conditions of the Construction Contract, hereinafter termed the General Conditions, and more specifically herein, shall be when the ENGINEER and OWNER agree that the entire Work is operational following successful testing and start-up and the OWNER is able to take possession of and have full operational use of the facilities. The Work shall be completed and ready for final payment in accordance with Paragraph 14.13 of the General Conditions on or before April 30, 2023.

The above completion dates are based on the following:

- a) Notice of Award no more than 45 days after Bid Opening Date, and
- b) OWNER Signing of Contract and Issuance of Notice to Proceed within thirty (30) days after Notice of Award.

Where the OWNER is prevented from signing of contract and issuing Notice to Proceed due to a delay in receiving signed agreements, bonds and insurance certificates from CONTRACTOR in the form required by the Contract Documents, the Contract Times will not be extended.

Where the CONTRACTOR is prevented from starting to perform the work due to delay in issuance of Notice to Proceed beyond the control of the CONTRACTOR, the Contract Times will be extended in an amount equal to the time lost due to such delay, and such extension of the Contract Times shall be CONTRACTOR's sole and exclusive remedy for such delay.

## **Article 4. CONTRACT PRICE.**

OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of that item as indicated in the attached Bid Proposal, said sum being

( \_\_\_\_\_ )  
(use words)

( \_\_\_\_\_ ).  
(use figures)

As provided in Paragraph 11.9 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classification are to be made by ENGINEER as provided in Paragraph 9.10 of the General Conditions. Unit prices have been computed as provided in Paragraph 11.9 of the General Conditions.

#### **Article 5. PAYMENT PROCEDURES.**

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

5.1. *Progress Payments; Retainage.* OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR's Applications for Payment as recommended by ENGINEER monthly during construction as provided in Paragraphs 5.1.1. and 5.1.2. below. All such payments will be measured by the schedule of values established in Paragraph 2.9 of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements.

5.1.1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below, but, in each case, less the aggregate of payments previously made and less such amounts as ENGINEER shall determine, or OWNER may withhold, in accordance with Paragraph 14.7 of the General Conditions.

- a) 95% of Work completed (with the balance of 5% being retainage).
- b) 90% (with the balance of 10% being retainage) of materials and equipment not incorporated in the Work (but delivered, suitably stored and accompanied by documentation satisfactory to OWNER as provided in Paragraph 14.2 of the General Conditions).

5.1.2. If the project is subject to state or federal prevailing rates of wages, the retained amount shall be increased to 25% of Work completed until CONTRACTOR has filed with OWNER certified statements as required by ORS 279C.845. OWNER will pay the excess amount retained under this requirement within fourteen (14) days after CONTRACTOR files with OWNER said certified statements.

5.1.3. Upon Substantial Completion, in an amount sufficient to increase total payments to CONTRACTOR to 95% of the Contract Price (with the balance of 5% being

retainage), less such amounts as ENGINEER shall determine, or OWNER may withhold, in accordance with Paragraph 14.7 of the General Conditions.

- 5.2. Final Payment. Upon final completion and acceptance of the Work in accordance with Paragraph 14.13 of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said Paragraph 14.13.

#### **Article 6. INTEREST.**

All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest at the maximum rate allowed by law at the place of the Project.

#### **Article 7. CONTRACTOR'S REPRESENTATIONS.**

In order to induce OWNER to enter into this Agreement, CONTRACTOR makes the following representations:

- 7.1. CONTRACTOR has examined and carefully studied the Contract Documents (including the Addenda listed in Paragraph 8) and the other related data identified in the Bidding Documents.
- 7.2. CONTRACTOR has visited the site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, performance or furnishing of the Work.
- 7.3. CONTRACTOR is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress, performance and furnishing of the Work.
- 7.4. CONTRACTOR has carefully studied (or assumes responsibility for having done so) all reports of explorations and tests of subsurface conditions at or contiguous to the Site, all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site, all examination, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by CONTRACTOR, and safety precautions and programs incident thereto. CONTRACTOR acknowledges that such reports and drawings are not Contract Documents and may not be complete for CONTRACTOR's purposes. CONTRACTOR acknowledges that OWNER and ENGINEER do not assume responsibility for

the accuracy or completeness of information and data shown or indicated in the Contract Documents with respect to Underground Facilities at or contiguous to the site.

- 7.5. CONTRACTOR does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for the performance and furnishing of the Work at the Contract Price, within the Contract Times and in accordance with the other terms and conditions of the Contract Documents.
- 7.6. CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the site that relates to the Work as indicated in the Contract Documents.
- 7.7. CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.
- 7.8. CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities or discrepancies that CONTRACTOR has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.
- 7.9. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

#### **Article 8. CONTRACT DOCUMENTS.**

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR concerning the Work consist of the following:

- 8.1. This Agreement (pages 1 to 8, inclusive)
- 8.2. Exhibits to this Agreement (pages -- to -- , inclusive)
- 8.3. Performance, Payment, and other Bonds, consisting of 6 pages
- 8.4. Notice to Proceed
- 8.5. General Conditions (pages 1 to 46, inclusive)
- 8.6. Supplementary Conditions (pages 1 to 18, inclusive)
- 8.7. Specifications bearing the title Technical Specifications, consisting of the Special Provision are 11 pages, as listed in table of contents thereof

- 8.8. Drawings consisting of a cover sheet and sheets numbered 1 through 15, inclusive with each sheet bearing the following general title:

**2022 Waterline Replacement Project**

Attached Yes/No  
(Circle One)

- 8.9. Addenda numbers 1 to 1, inclusive.
- 8.10. CONTRACTOR's Bid Proposal (pages 1 to 14, inclusive).
- 8.11. Documentation submitted by CONTRACTOR prior to Notice of Award (pages \_\_\_\_ to \_\_\_\_ inclusive).
- 8.12. The following which may be delivered or issued after the Effective Date of the Agreement and are not attached hereto: All Written Amendments and other documents amending, modifying or supplementing the Contract Documents pursuant to Paragraphs 3.5 and 3.6 of the General Conditions.

The documents listed in Paragraphs 8.2 et seq. above are attached to this Agreement (except as expressly noted otherwise above).

There are no Contract Documents other than those listed above in this Article 8. The Contract Documents may only be amended, modified or supplemented as provided in Paragraphs 3.5 and 3.6 of the General Conditions.

**Article 9. MISCELLANEOUS.**

- 9.1. Terms used in this Agreement which are defined in Article I of the General Conditions will have the meanings indicated in the General Conditions.
- 9.2. No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation monies that may become due and monies that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.
- 9.3. Subject to Paragraph 9.2 above, OWNER and CONTRACTOR each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, in respect of all covenants, agreements, and obligations contained in the Contract Documents.

- 9.4 Any provision or part of the Contract Documents held to be void or unenforceable under any law or regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.
- 9.5 Entire Agreement. The Contract Documents represent the entire agreement of the parties with respect to the subject matter hereof, and supersede and replaces all prior and contemporaneous oral and written agreements with respect to such subject matter. No amendment, modification or variation of the terms and conditions of the Contract Documents shall be valid unless it is in writing and signed by all parties hereto.
- 9.6 Governing Law, Jurisdiction and Venue. The parties acknowledge that the Contract Documents have been negotiated and entered into in the State of Oregon. The parties expressly agree that the Contract Documents shall be governed by, interpreted under, and construed and enforced in accordance with the laws of the State of Oregon. Venue and jurisdiction for any action at law or in equity relating to this Agreement shall lie exclusively in the Circuit Court of the State of Oregon for Multnomah County and not in any other state or federal court that may have concurrent jurisdiction.
- 9.7 Attorney Fees. In the event action is instituted to enforce any term of the Contract Documents, the prevailing party shall recover from the losing party reasonable attorney's fees incurred in such action as set by the Trial Court and, in the event of an appeal, as set by the Appellate Court.



IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in triplicate. One counterpart each has been delivered to OWNER, CONTRACTOR and ENGINEER. All portions of the Contract Documents have been signed, initialed or identified by OWNER and CONTRACTOR or identified by ENGINEER on their behalf.

This Agreement will be effective on \_\_\_\_\_ (which is the Effective Date of the Agreement).

OWNER:

CONTRACTOR:

City of Sherwood, Oregon

\_\_\_\_\_

By:

By:

\_\_\_\_\_

\_\_\_\_\_

Attest:

Attest:

\_\_\_\_\_

\_\_\_\_\_

Address for giving notices:

Address for giving notices:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(If OWNER is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of Agreement.

Contractor License No.: \_\_\_\_\_

Agent for service of process:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(If CONTRACTOR is a corporation, attach evidence of authority to sign).

**SECTION 00610 - PERFORMANCE BOND  
FOR  
2022 WATERLINE REPLACEMENT PROJECT  
FOR  
CITY OF SHERWOOD, OREGON**

AMOUNT \$ \_\_\_\_\_

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

KNOW ALL PEOPLE BY THESE PRESENTS:

That we, \_\_\_\_\_, hereinafter called  
(Name of Contractor)

the PRINCIPAL, as Principal, and \_\_\_\_\_,  
(Name of Surety)

a corporation and existing under and by virtue of the laws of the State of \_\_\_\_\_  
and authorized to transact a surety business in the State of Oregon, hereinafter called the  
SURETY, as Surety, are held and firmly bound unto Owner,  
a Municipal Corporation of the State of Oregon, hereinafter called the OBLIGEE, in the

penal sum of \_\_\_\_\_ Dollars

(\$ \_\_\_\_\_) for the payment of which sum well and truly to be made, the said PRINCIPAL  
and the said SURETY bind ourselves, our heirs, executors, administrators, successors, and assigns,  
jointly and severally, firmly by these presents.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT:

Whereas on the \_\_\_\_\_ day of \_\_\_\_\_, 2022 the PRINCIPAL entered  
into a certain contract with the OBLIGEE, a copy of which is hereto attached and made a part  
hereof for the construction of:

**2022 WATERLINE REPLACEMENT PROJECT  
CITY OF SHERWOOD, OREGON**

NOW, THEREFORE, if the PRINCIPAL herein shall faithfully and truly observe and comply with the  
terms of the contract and shall well and truly perform all matters and things undertaken to be  
performed under said contract upon the terms proposed therein and shall promptly make  
payments to all persons supplying labor or material for any prosecution of the work provided for  
each contract and shall not permit any lien or claim to be filed or prosecute against the OBLIGEE  
on account of any labor or material furnished, and shall promptly pay all contributions or amounts  
due the State Industrial Accident Fund and all contributions or amounts due the State  
Unemployment Compensation Trust Fund incurred in the performance of said contract and shall  
promptly, as due, make payment to the person, co-partnership, association or corporation entitled  
thereto of the moneys and sums mentioned in Sections 279B.220, 279C.500, 279C.505, 279C.515,

279C.520, 279C.530 and 279C.540 of the Oregon Revised Statutes, then this obligation is to be void, otherwise to remain in full force and effect.

This performance bond shall also guarantee the improvement against defects in materials or workmanship for a period of one (1) year from the date of written acceptance of the subject project by the OBLIGEE.

The total amount of the SURETY's liability under this bond both to the OBLIGEE and to the persons furnishing labor or materials, provisions and goods and to any other person or persons, shall in no event exceed the penalty hereof.

Provided, however, that the conditions of the obligation shall not apply to any money loaned or advanced to the PRINCIPAL or to any subcontractor or other person in the performance of any such work, whether specifically provided for in the contract or not.

This bond is executed for the purpose of complying with Chapter 279C, Oregon Revised Statutes, the provisions of which are hereby incorporated herein and made a part hereof.

IN WITNESS WHEREOF, this instrument is executed in three counterparts each one of which shall be deemed an original, this the \_\_day of \_\_\_\_\_, 2022.

CONTRACTOR AS PRINCIPAL:

SURETY:

(Corp. Seal)

(Corp. Seal)

Company: \_\_\_\_\_

Company: \_\_\_\_\_

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

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

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

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

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

**(Attach Power of Attorney)**

NOTE: Date of BOND must not be prior to date of Contract.  
If CONTRACTOR is partnership, all partners should execute BOND.

IMPORTANT: Surety company executing BOND must be authorized to transact business in the State of Oregon.

SECTION 00620 - PAYMENT BOND  
FOR  
2022 WATERLINE REPLACEMENT PROJECT  
FOR  
CITY OF SHERWOOD, OREGON

AMOUNT \$ \_\_\_\_\_

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

KNOW ALL PEOPLE BY THESE PRESENTS:

That we, \_\_\_\_\_, hereinafter called  
(Name of Contractor)

the PRINCIPAL, as Principal, and \_\_\_\_\_,  
(Name of Surety)

a corporation and existing under and by virtue of the laws of the State of \_\_\_\_\_  
and authorized to transact a surety business in the State of Oregon, hereinafter called the  
SURETY, as Surety, are held and firmly bound unto Owner, a Municipal Corporation of the State of  
Oregon, hereinafter called the OBLIGEE, and unto all persons, firms and corporations who or which  
may furnish labor, or who furnish materials to perform as described under the contract and to  
their successors and assigns in the total

aggregate penal sum of \_\_\_\_\_ Dollars

(\$ \_\_\_\_\_) for the payment of which sum well and truly to be made, the said PRINCIPAL  
and the said SURETY bind ourselves, our heirs, executors, administrators, successors, and assigns,  
jointly and severally, firmly by these presents.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT:

Whereas on the \_\_\_\_\_ day of \_\_\_\_\_, 2022 the PRINCIPAL entered  
into a certain contract with the OBLIGEE, a copy of which is hereto attached and made a part  
hereof for the construction of:

**2022 WATERLINE REPLACEMENT PROJECT  
CITY OF SHERWOOD, OREGON**

NOW, THEREFORE, if the PRINCIPAL shall promptly make payment to all persons, firms, and  
corporations furnishing materials for, or performing labor in the prosecution of the WORK  
provided for in such contract, and any authorized extensions or modification thereof, including all  
amounts due for materials consumed or used in connection with the construction of such WORK,  
and for all labor cost incurred in such WORK including that by a SUBCONTRACTOR, and to any

mechanic or materialman lien holder whether it acquires its lien by operation of State or Federal law; then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED, that beneficiaries or claimants hereunder shall be limited to the SUBCONTRACTORS, and persons, firms, and corporations having a direct contract with the PRINCIPAL or its SUBCONTRACTORS.

PROVIDED, FURTHER, that the said SURETY for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of this contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no suit or action shall be commenced hereunder by any claimant: (a) Unless claimant, other than one having a direct contract with the PRINCIPAL shall have given written notice to any two of the following: the PRINCIPAL, the OBLIGEE, or the SURETY above named within one hundred twenty (120) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the PRINCIPAL, OBLIGEE, or SURETY, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the aforesaid project is located, save that such service need not be made by a public officer. (b) After the expiration of one (1) year following the date on which PRINCIPAL ceased work on said CONTRACT, it being understood, however, that if any limitation embodied in the BOND is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

PROVIDED, FURTHER, that it is expressly agreed that this BOND shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the Contract not increasing the contract price more than 20 percent, 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, or the contract shall include any alteration, addition, extension or modification of any character whatsoever.

PROVIDED, FURTHER, that no final settlement between the OBLIGEE and the PRINCIPAL shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in three counterparts each one of which shall be deemed an original, this the \_\_ day of \_\_\_\_\_, 2022.

CONTRACTOR AS PRINCIPAL:

SURETY:

(Corp. Seal)

(Corp. Seal)

Company: \_\_\_\_\_

Company: \_\_\_\_\_

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

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

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

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

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

**(Attach Power of Attorney)**

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

If CONTRACTOR is partnership, all partners should execute BOND.

IMPORTANT: Surety company executing BOND must be authorized to transact business in the State of Oregon.

## **CONDITIONS OF THE CONTRACT**

This document has important legal consequences; consultation with an attorney is encouraged with respect to its completion or modification.

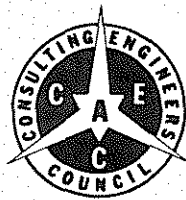
**STANDARD  
GENERAL CONDITIONS  
OF THE  
CONSTRUCTION CONTRACT**

Prepared by

**Engineers Joint Contract Documents Committee**

and

Issued and Published Jointly By



PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE  
*A practice division of the*  
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CONSTRUCTION SPECIFICATIONS INSTITUTE

This document has been approved and endorsed by

The Associated General  Contractors of America

These General Conditions have been prepared for use with the Owner-Contractor Agreements (No. 1910-A-1 or 1910-8-A-2) (1990 Editions). Their provisions are interrelated and a change in one may necessitate a change in the others. Comments concerning their usage are contained in the Commentary on Agreements for Engineering Services and Contract Documents (No. 1910-9) (1986 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. 1910-17) (1990 Edition). When bidding is involved, the Standard Form of Instructions to Bidders (No. 1910-12) (1990 Edition) may be used.



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# GENERAL CONDITIONS

## ARTICLE 1—DEFINITIONS

Wherever used in these General Conditions or in the other Contract Documents the following terms have the meanings indicated which are applicable to both the singular and plural thereof:

1.1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct or change the Bidding Requirements or the Contract Documents.

1.2. *Agreement*—The written contract between OWNER and CONTRACTOR covering the Work to be performed; other Contract Documents are attached to the Agreement and made a part thereof as provided therein.

1.3. *Application for Payment*—The form accepted by ENGINEER which is to be used by CONTRACTOR in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

1.4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

1.5. *Bid*—The offer or proposal of the bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

1.6. *Bidding Documents*—The advertisement or invitation to Bid, instructions to bidders, the Bid form, and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

1.7. *Bidding Requirements*—The advertisement or invitation to Bid, instructions to bidders, and the Bid form.

1.8. *Bonds*—Performance and Payment bonds and other instruments of security.

1.9. *Change Order*—A document recommended by ENGINEER, which is signed by CONTRACTOR and OWNER and authorizes an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

1.10. *Contract Documents*—The Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Notice to Proceed, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agree-

ment, together with all Written Amendments, Change Orders, Work Change Directives, Field Orders and ENGINEER's written interpretations and clarifications issued pursuant to paragraphs 3.5, 3.6.1, and 3.6.3 on or after the Effective Date of the Agreement. Shop Drawing submittals approved pursuant to paragraphs 6.26 and 6.27 and the reports and drawings referred to in paragraphs 4.2.1.1 and 4.2.2.2 are not Contract Documents.

1.11. *Contract Price*—The moneys payable by OWNER to CONTRACTOR for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of paragraph 11.9.1 in the case of Unit Price Work).

1.12. *Contract Times*—The numbers of days or the dates stated in the Agreement: (i) to achieve Substantial Completion, and (ii) to complete the Work so that it is ready for final payment as evidenced by ENGINEER's written recommendation of final payment in accordance with paragraph 14.13.

1.13. *CONTRACTOR*—The person, firm or corporation with whom OWNER has entered into the Agreement.

1.14. *defective*—An adjective which when modifying the word Work refers to Work that is unsatisfactory, faulty or deficient, in that it does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents, or has been damaged prior to ENGINEER's recommendation of final payment (unless responsibility for the protection thereof has been assumed by OWNER at Substantial Completion in accordance with paragraph 14.8 or 14.10).

1.15. *Drawings*—The drawings which show the scope, extent and character of the Work to be furnished and performed by CONTRACTOR and which have been prepared or approved by ENGINEER and are referred to in the Contract Documents. Shop drawings are not Drawings as so defined.

1.16. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

1.17. *ENGINEER*—The person, firm or corporation named as such in the Agreement.

1.18. *ENGINEER's Consultant*—A person, firm or corporation having a contract with ENGINEER to furnish services as ENGINEER's independent professional associate or consultant with respect to the Project and who is identified as such in the Supplementary Conditions.

1.19. *Field Order*—A written order issued by ENGINEER which orders minor changes in the Work in accordance with paragraph 9.5 but which does not involve a change in the Contract Price or the Contract Times.

1.20. *General Requirements*—Sections of Division 1 of the Specifications.

1.21. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

1.22. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes and orders of any and all governmental bodies, agencies, authorities and courts having jurisdiction.

1.23. *Liens*—Liens, charges, security interests or encumbrances upon real property or personal property.

1.24. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

1.25. *Notice of Award*—The written notice by OWNER to the apparent successful bidder stating that upon compliance by the apparent successful bidder with the conditions precedent enumerated therein, within the time specified, OWNER will sign and deliver the Agreement.

1.26. *Notice to Proceed*—A written notice given by OWNER to CONTRACTOR (with a copy to ENGINEER) fixing the date on which the Contract Times will commence to run and on which CONTRACTOR shall start to perform CONTRACTOR's obligations under the Contract Documents.

1.27. *OWNER*—The public body or authority, corporation, association, firm or person with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be provided.

1.28. *Partial Utilization*—Use by OWNER of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.

1.29. *PCBs*—Polychlorinated biphenyls.

1.30. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Wastes and crude oils.

1.31. *Project*—The total construction of which the Work to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.

1.32. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

1.33. *Resident Project Representative*— The authorized representative of ENGINEER who may be assigned to the site or any part thereof.

1.34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

1.35. *Shop Drawings*—All drawings, diagrams, illustrations, schedules and other data or information which are specifically prepared or assembled by or for CONTRACTOR and submitted by CONTRACTOR to illustrate some portion of the Work.

1.36. *Specifications*—Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

1.37. *Subcontractor*—An individual, firm or corporation having a direct contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the site.

1.38. *Substantial Completion*—The Work (or a specified part thereof) has progressed to the point where, in the opinion of ENGINEER as evidenced by ENGINEER's definitive certificate of Substantial Completion, 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; or if no such certificate is issued, when the Work is complete and ready for final payment as evidenced by ENGINEER's written recommendation of final payment in accordance with paragraph 14.13. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

1.39. *Supplementary Conditions*—The part of the Contract Documents which amends or supplements these General Conditions.

1.40. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman or vendor having a direct contract with CONTRACTOR or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by CONTRACTOR or any Subcontractor.

1.41. *Underground Facilities*—All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

1.42. *Unit Price Work*—Work to be paid for on the basis of unit prices.

1.43. *Work*—The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work includes and is the result of performing or furnishing labor and furnishing and incorporating materials and equipment into the construction, and performing or furnishing services and furnishing documents, all as required by the Contract Documents.

1.44. *Work Change Directive*—A written directive to CONTRACTOR, issued on or after the Effective Date of the Agreement and signed by OWNER and recommended by ENGINEER, ordering an addition, deletion or revision in the Work, or responding to differing or unforeseen physical conditions under which the Work is to be performed as provided in paragraph 4.2 or 4.3 or to emergencies under paragraph 6.23. A Work Change Directive will not change the Contract Price or the Contract Times, but is evidence that the parties expect that the change directed or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times as provided in paragraph 10.2.

1.45. *Written Amendment*—A written amendment of the Contract Documents, signed by OWNER and CONTRACTOR on or after the Effective Date of the Agreement and normally dealing with the nonengineering or nontechnical rather than strictly construction-related aspects of the Contract Documents.

## ARTICLE 2—PRELIMINARY MATTERS

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### *Delivery of Bonds:*

2.1. When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as CONTRACTOR may be required to furnish in accordance with paragraph 5.1.

### *Copies of Documents:*

2.2. OWNER shall furnish to CONTRACTOR up to ten copies (unless otherwise specified in the Supplementary Conditions) of the Contract Documents as are reasonably necessary for the execution of the Work. Additional copies will be furnished, upon request, at the cost of reproduction.

### *Commencement of Contract Times; Notice to Proceed:*

2.3. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement, or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within thirty days after the Effective Date of the Agreement. In no event will the

Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

### *Starting the Work:*

2.4. CONTRACTOR shall start to perform the Work on the date when the Contract Times commence to run, but no Work shall be done at the site prior to the date on which the Contract Times commence to run.

### *Before Starting Construction:*

2.5. Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. CONTRACTOR shall promptly report in writing to ENGINEER any conflict, error, ambiguity or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarification from ENGINEER before proceeding with any Work affected thereby; however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error, ambiguity or discrepancy in the Contract Documents, unless CONTRACTOR knew or reasonably should have known thereof.

2.6. Within ten days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), CONTRACTOR shall submit to ENGINEER for review:

2.6.1. a preliminary progress schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2.6.2. a preliminary schedule of Shop Drawing and Sample submittals which will list each required submittal and the times for submitting, reviewing and processing such submittal;

2.6.3. a preliminary schedule of values for all of the Work which will include quantities and prices of items aggregating the Contract Price and will subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.7. Before any Work at the site is started, CONTRACTOR and OWNER shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which CONTRACTOR and OWNER respectively are required to purchase and maintain in accordance with paragraphs 5.4, 5.6 and 5.7.

### *Preconstruction Conference:*

2.8. Within twenty days after the Contract Times start to run, but before any Work at the site is started, a conference



attended by CONTRACTOR, ENGINEER and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in paragraph 2.6, procedures for handling Shop Drawings and other submittals, processing Applications for Payment and maintaining required records.

*Initially Acceptable Schedules:*

2.9. Unless otherwise provided in the Contract Documents, at least ten days before submission of the first Application for Payment a conference attended by CONTRACTOR, ENGINEER and others as appropriate will be held to review for acceptability to ENGINEER as provided below the schedules submitted in accordance with paragraph 2.6. CONTRACTOR shall have an additional ten days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to CONTRACTOR until the schedules are submitted to and acceptable to ENGINEER as provided below. The progress schedule will be acceptable to ENGINEER as providing an orderly progression of the Work to completion within any specified Milestones and the Contract Times, but such acceptance will neither impose on ENGINEER responsibility for the sequencing, scheduling or progress of the Work nor interfere with or relieve CONTRACTOR from CONTRACTOR's full responsibility therefor. CONTRACTOR's schedule of Shop Drawing and Sample submissions will be acceptable to ENGINEER as providing a workable arrangement for reviewing and processing the required submittals. CONTRACTOR's schedule of values will be acceptable to ENGINEER as to form and substance.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT,  
AMENDING, REUSE

*Intent:*

3.1. The Contract Documents comprise the entire agreement between OWNER and CONTRACTOR concerning the Work. The Contract Documents are complementary; what is called for by one is as binding as if called for by all. The Contract Documents will be construed in accordance with the law of the place of the Project.

3.2. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any Work, materials or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be furnished and performed whether or not specifically called for. When words or phrases which have a well-known technical or construction industry or trade meaning are used to describe Work, materials or equipment, such words or phrases shall be interpreted in accordance with that meaning. Clarifi-

cations and interpretations of the Contract Documents shall be issued by ENGINEER as provided in paragraph 9.4.

**3.3. Reference to Standards and Specifications of Technical Societies; Reporting and Resolving Discrepancies:**

3.3.1. Reference to standards, specifications, manuals or codes of any technical society, organization or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard, specification, manual, code or Laws or Regulations in effect at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

3.3.2. If, during the performance of the Work, CONTRACTOR discovers any conflict, error, ambiguity or discrepancy within the Contract Documents or between the Contract Documents and any provision of any such Law or Regulation applicable to the performance of the Work or of any such standard, specification, manual or code or of any instruction of any Supplier referred to in paragraph 6.5, CONTRACTOR shall report it to ENGINEER in writing at once, and, CONTRACTOR shall not proceed with the Work affected thereby (except in an emergency as authorized by paragraph 6.23) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in paragraph 3.5 or 3.6; provided, however, that CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any such conflict, error, ambiguity or discrepancy unless CONTRACTOR knew or reasonably should have known thereof.

3.3.3. Except as otherwise specifically stated in the Contract Documents or as may be provided by amendment or supplement thereto issued by one of the methods indicated in paragraph 3.5 or 3.6, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity or discrepancy between the provisions of the Contract Documents and:

3.3.3.1. the provisions of any such standard, specification, manual, code or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

3.3.3.2. the provisions of any such Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

No provision of any such standard, specification, manual, code or instruction shall be effective to change the duties and responsibilities of OWNER, CONTRACTOR or ENGINEER, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents, nor shall it be effective to assign to OWNER, ENGINEER or any of ENGINEER's Consultants, agents or employees any duty or authority to supervise or direct the furnishing or

performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of paragraph 9.13 or any other provision of the Contract Documents.

3.4. Whenever in the Contract Documents the terms "as ordered," "as directed," "as required," "as allowed," "as approved" or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper" or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review or judgment of ENGINEER as to the Work, it is intended that such requirement, direction, review or judgment will be solely to evaluate, in general, the completed Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to ENGINEER any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.13 or any other provision of the Contract Documents.

***Amending and Supplementing Contract Documents:***

3.5. The Contract Documents may be amended to provide for additions, deletions and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways:

3.5.1. a formal Written Amendment,

3.5.2. a Change Order (pursuant to paragraph 10.4), or

3.5.3. a Work Change Directive (pursuant to paragraph 10.1).

3.6. In addition, the requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, in one or more of the following ways:

3.6.1. a Field Order (pursuant to paragraph 9.5),

3.6.2. ENGINEER's approval of a Shop Drawing or Sample (pursuant to paragraphs 6.26 and 6.27), or

3.6.3. ENGINEER's written interpretation or clarification (pursuant to paragraph 9.4).

***Reuse of Documents:***

3.7. CONTRACTOR, and any Subcontractor or Supplier or other person or organization performing or furnishing any of the Work under a direct or indirect contract with OWNER (i) shall not have or acquire any title to or ownership rights in any

of the Drawings, Specifications or other documents (or copies of any thereof) prepared by or bearing the seal of ENGINEER or ENGINEER's Consultant, and (ii) shall not reuse any of such Drawings, Specifications, other documents or copies on extensions of the Project or any other project without written consent of OWNER and ENGINEER and specific written verification or adaption by ENGINEER.

**ARTICLE 4—AVAILABILITY OF LANDS;  
SUBSURFACE AND PHYSICAL  
CONDITIONS; REFERENCE POINTS**

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***Availability of Lands:***

4.1. OWNER shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of CONTRACTOR. Upon reasonable written request, OWNER shall furnish CONTRACTOR with a correct statement of record legal title and legal description of the lands upon which the Work is to be performed and OWNER's interest therein as necessary for giving notice of or filing a mechanic's lien against such lands in accordance with applicable Laws and Regulations. OWNER shall identify any encumbrances or restrictions not of general application but specifically related to use of lands so furnished with which CONTRACTOR will have to comply in performing the Work. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by OWNER, unless otherwise provided in the Contract Documents. If CONTRACTOR and OWNER are unable to agree on entitlement to or the amount or extent of any adjustments in the Contract Price or the Contract Times as a result of any delay in OWNER's furnishing these lands, rights-of-way or easements, CONTRACTOR may make a claim therefor as provided in Articles 11 and 12. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

***4.2. Subsurface and Physical Conditions:***

4.2.1. *Reports and Drawings:* Reference is made to the Supplementary Conditions for identification of:

4.2.1.1. *Subsurface Conditions:* Those reports of explorations and tests of subsurface conditions at or contiguous to the site that have been utilized by ENGINEER in preparing the Contract Documents; and

4.2.1.2. *Physical Conditions:* Those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) that have been utilized by ENGINEER in preparing the Contract Documents.

4.2.2. *Limited Reliance by CONTRACTOR Authorized; Technical Data:* CONTRACTOR may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," CONTRACTOR may not rely upon or make any claim against OWNER, ENGINEER or any of ENGINEER's Consultants with respect to:

4.2.2.1. the completeness of such reports and drawings for CONTRACTOR's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto, or

4.2.2.2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings, or

4.2.2.3. any CONTRACTOR interpretation of or conclusion drawn from any "technical data" or any such data, interpretations, opinions or information.

4.2.3. *Notice of Differing Subsurface or Physical Conditions:* If CONTRACTOR believes that any subsurface or physical condition at or contiguous to the site that is uncovered or revealed either:

4.2.3.1. is of such a nature as to establish that any "technical data" on which CONTRACTOR is entitled to rely as provided in paragraphs 4.2.1 and 4.2.2 is materially inaccurate, or

4.2.3.2. is of such a nature as to require a change in the Contract Documents, or

4.2.3.3. differs materially from that shown or indicated in the Contract Documents, or

4.2.3.4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents; then

CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as permitted by paragraph 6.23), notify OWNER and ENGINEER in writing about such condition. CONTRACTOR shall not further disturb such conditions or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

4.2.4. *ENGINEER's Review:* ENGINEER will promptly review the pertinent conditions, determine the necessity of OWNER's obtaining additional exploration or tests with respect thereto and advise OWNER in writing (with a copy to CONTRACTOR) of ENGINEER's findings and conclusions.

4.2.5. *Possible Contract Documents Change:* If ENGINEER concludes that a change in the Contract Documents is required as a result of a condition that meets one or more of the categories in paragraph 4.2.3., a Work Change Directive or a Change Order will be issued as provided in Article 10 to reflect and document the consequences of such change.

4.2.6. *Possible Price and Times Adjustments:* An equitable adjustment in the Contract Price or in the Contract Times, or both, will be allowed to the extent that the existence of such uncovered or revealed condition causes an increase or decrease in CONTRACTOR's cost of, or time required for performance of, the Work; subject, however, to the following:

4.2.6.1. such condition must meet any one or more of the categories described in paragraphs 4.2.3.1 through 4.2.3.4, inclusive;

4.2.6.2. a change in the Contract Documents pursuant to paragraph 4.2.5 will not be an automatic authorization of nor a condition precedent to entitlement to any such adjustment;

4.2.6.3. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of paragraphs 9.10 and 11.9; and

4.2.6.4. CONTRACTOR shall not be entitled to any adjustment in the Contract Price or Times if;

4.2.6.4.1. CONTRACTOR knew of the existence of such conditions at the time CONTRACTOR made a final commitment to OWNER in respect of Contract Price and Contract Times by the submission of a bid or becoming bound under a negotiated contract; or

4.2.6.4.2. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test or study of the site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for CONTRACTOR prior to CONTRACTOR's making such final commitment; or

4.2.6.4.3. CONTRACTOR failed to give the written notice within the time and as required by paragraph 4.2.3.

If OWNER and CONTRACTOR are unable to agree on entitlement to or as to the amount or length of any such equitable adjustment in the Contract Price or Contract Times, a claim may be made therefor as provided in Articles 11 and 12. However, OWNER, ENGINEER and ENGINEER's Consultants shall not be liable to CONTRACTOR for any claims, costs, losses or damages sustained by CONTRACTOR on or in connection with any other project or anticipated project.

#### 4.3. *Physical Conditions—Underground Facilities:*

4.3.1. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site is based on

information and data furnished to OWNER or ENGINEER by the owners of such Underground Facilities or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

4.3.1.1. OWNER and ENGINEER shall not be responsible for the accuracy or completeness of any such information or data; and

4.3.1.2. The cost of all of the following will be included in the Contract Price and CONTRACTOR shall have full responsibility for: (i) reviewing and checking all such information and data, (ii) locating all Underground Facilities shown or indicated in the Contract Documents, (iii) coordination of the Work with the owners of such Underground Facilities during construction, and (iv) the safety and protection of all such Underground Facilities as provided in paragraph 6.20 and repairing any damage thereto resulting from the Work.

4.3.2. *Not Shown or Indicated:* If an Underground Facility is uncovered or revealed at or contiguous to the site which was not shown or indicated in the Contract Documents, CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by paragraph 6.23), identify the owner of such Underground Facility and give written notice to that owner and to OWNER and ENGINEER. ENGINEER will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence of the Underground Facility. If ENGINEER concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued as provided in Article 10 to reflect and document such consequences. During such time, CONTRACTOR shall be responsible for the safety and protection of such Underground Facility as provided in paragraph 6.20. CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, to the extent that they are attributable to the existence of any Underground Facility that was not shown or indicated in the Contract Documents and that CONTRACTOR did not know of and could not reasonably have been expected to be aware of or to have anticipated. If OWNER and CONTRACTOR are unable to agree on entitlement to or the amount or length of any such adjustment in Contract Price or Contract Times, CONTRACTOR may make a claim therefor as provided in Articles 11 and 12. However, OWNER, ENGINEER and ENGINEER's Consultants shall not be liable to CONTRACTOR for any claims, costs, losses or damages incurred or sustained by CONTRACTOR on or in connection with any other project or anticipated project.

#### **Reference Points:**

4.4. OWNER shall provide engineering surveys to establish reference points for construction which in ENGINEER's judgment are necessary to enable CONTRACTOR to proceed with the Work. CONTRACTOR shall be responsible for laying out the Work, shall protect and preserve the established reference points and shall make no changes or relocations

without the prior written approval of OWNER. CONTRACTOR shall report to ENGINEER whenever any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points by professionally qualified personnel.

#### **4.5. Asbestos, PCBs, Petroleum, Hazardous Waste or Radioactive Material:**

4.5.1. OWNER shall be responsible for any Asbestos, PCBs, Petroleum, Hazardous Waste or Radioactive Material uncovered or revealed at the site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work and which may present a substantial danger to persons or property exposed thereto in connection with the Work at the site. OWNER shall not be responsible for any such materials brought to the site by CONTRACTOR, Subcontractor, Suppliers or anyone else for whom CONTRACTOR is responsible.

4.5.2. CONTRACTOR shall immediately: (i) stop all Work in connection with such hazardous condition and in any area affected thereby (except in an emergency as required by paragraph 6.23), and (ii) notify OWNER and ENGINEER (and thereafter confirm such notice in writing). OWNER shall promptly consult with ENGINEER concerning the necessity for OWNER to retain a qualified expert to evaluate such hazardous condition or take corrective action, if any. CONTRACTOR shall not be required to resume Work in connection with such hazardous condition or in any such affected area until after OWNER has obtained any required permits related thereto and delivered to CONTRACTOR special written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (ii) specifying any special conditions under which such Work may be resumed safely. If OWNER and CONTRACTOR cannot agree as to entitlement to or the amount or extent of an adjustment, if any, in Contract Price or Contract Times as a result of such Work stoppage or such special conditions under which Work is agreed by CONTRACTOR to be resumed, either party may make a claim therefor as provided in Articles 11 and 12.

4.5.3. If after receipt of such special written notice CONTRACTOR does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then OWNER may order such portion of the Work that is in connection with such hazardous condition or in such affected area to be deleted from the Work. If OWNER and CONTRACTOR cannot agree as to entitlement to or the amount or extent of an adjustment, if any, in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a claim therefor as provided in Articles 11 and 12. OWNER may have such deleted portion of the Work performed by OWNER's own forces or others in accordance with Article 7.

4.5.4. To the fullest extent permitted by Laws and Regulations, OWNER shall indemnify and hold harmless CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's

Consultants and the officers, directors, employees, agents, other consultants and subcontractors of each and any of them from and against all claims, costs, losses and damages arising out of or resulting from such hazardous condition, provided that: (i) any such claim, cost, loss or damage is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, and (ii) nothing in this subparagraph 4.5.4 shall obligate OWNER to indemnify any person or entity from and against the consequences of that person's or entity's own negligence.

4.5.5. The provisions of paragraphs 4.2 and 4.3 are not intended to apply to Asbestos, PCBs, Petroleum, Hazardous Waste or Radioactive Material uncovered or revealed at the site.

companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue Bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.3.2. CONTRACTOR shall deliver to OWNER, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by OWNER or any other additional insured) which CONTRACTOR is required to purchase and maintain in accordance with paragraph 5.4. OWNER shall deliver to CONTRACTOR, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by CONTRACTOR or any other additional insured) which OWNER is required to purchase and maintain in accordance with paragraphs 5.6 and 5.7 hereof.

## ARTICLE 5—BONDS AND INSURANCE

### *Performance, Payment and Other Bonds:*

5.1. CONTRACTOR shall furnish Performance and Payment Bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, except as provided otherwise by Laws or Regulations or by the Contract Documents. CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary Conditions. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff, Bureau of Government Financial Operations, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

5.2. If the surety on any Bond furnished by CONTRACTOR is declared a bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of paragraph 5.1, CONTRACTOR shall within ten days thereafter substitute another Bond and surety, both of which must be acceptable to OWNER.

### *5.3. Licensed Sureties and Insurers; Certificates of Insurance:*

5.3.1. All Bonds and insurance required by the Contract Documents to be purchased and maintained by OWNER or CONTRACTOR shall be obtained from surety or insurance

### *CONTRACTOR's Liability Insurance:*

5.4. CONTRACTOR shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and furnished and as will provide protection from claims set forth below which may arise out of or result from CONTRACTOR's performance and furnishing of the Work and CONTRACTOR's other obligations under the Contract Documents, whether it is to be performed or furnished by CONTRACTOR, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform or furnish any of the Work, or by anyone for whose acts any of them may be liable:

5.4.1. claims under workers' compensation, disability benefits and other similar employee benefit acts;

5.4.2. claims for damages because of bodily injury, occupational sickness or disease, or death of CONTRACTOR's employees;

5.4.3. claims for damages because of bodily injury, sickness or disease, or death of any person other than CONTRACTOR's employees;

5.4.4. claims for damages insured by customary personal injury liability coverage which are sustained: (i) by any person as a result of an offense directly or indirectly related to the employment of such person by CONTRACTOR, or (ii) by any other person for any other reason;

5.4.5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

5.4.6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

The policies of insurance so required by this paragraph 5.4 to be purchased and maintained shall:

5.4.7. with respect to insurance required by paragraphs 5.4.3 through 5.4.6 inclusive, include as additional insureds (subject to any customary exclusion in respect of professional liability) OWNER, ENGINEER, ENGINEER's Consultants and any other persons or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers and employees of all such additional insureds;

5.4.8. include the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

5.4.9. include completed operations insurance;

5.4.10. include contractual liability insurance covering CONTRACTOR's indemnity obligations under paragraphs 6.12, 6.16 and 6.31 through 6.33;

5.4.11. contain a provision or endorsement that the coverage afforded will not be cancelled, materially changed or renewal refused until at least thirty days prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the CONTRACTOR pursuant to paragraph 5.3.2 will so provide);

5.4.12. remain in effect at least until final payment and at all times thereafter when CONTRACTOR may be correcting, removing or replacing *defective* Work in accordance with paragraph 13.12; and

5.4.13. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment (and CONTRACTOR shall furnish OWNER and each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued evidence satisfactory to OWNER and any such additional insured of continuation of such insurance at final payment and one year thereafter).

#### ***OWNER's Liability Insurance:***

5.5. In addition to the insurance required to be provided by CONTRACTOR under paragraph 5.4, OWNER, at OWNER's option, may purchase and maintain at OWNER's expense OWNER's own liability insurance as will protect OWNER against claims which may arise from operations under the Contract Documents.

#### ***Property Insurance:***

5.6. Unless otherwise provided in the Supplementary Conditions, OWNER shall purchase and maintain property insur-

ance upon the Work at the site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

5.6.1. include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants and any other persons or entities identified in the Supplementary Conditions, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;

5.6.2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework and Work in transit and shall insure against at least the following perils fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, and such other perils as may be specifically required by the Supplementary Conditions;

5.6.3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

5.6.4. cover materials and equipment stored at the site or at another location that was agreed to in writing by OWNER prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by ENGINEER; and

5.6.5. be maintained in effect until final payment is made unless otherwise agreed to in writing by OWNER, CONTRACTOR and ENGINEER with thirty days written notice to each other additional insured to whom a certificate of insurance has been issued.

5.7. OWNER shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants and any other persons or entities identified in the Supplementary Conditions, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

5.8. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained by OWNER in accordance with paragraphs 5.6 and 5.7 will contain a provision or endorsement that the coverage afforded will not be cancelled or materially changed or renewal refused until at least thirty days' prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with paragraph 5.11.

5.9. OWNER shall not be responsible for purchasing and maintaining any property insurance to protect the interests of CONTRACTOR, Subcontractors or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount, will be borne by CONTRACTOR, Subcontractor or others suffering any such loss and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

5.10. If CONTRACTOR requests in writing that other special insurance be included in the property insurance policies provided under paragraphs 5.6 or 5.7, OWNER shall, if possible, include such insurance, and the cost thereof will be charged to CONTRACTOR by appropriate Change Order or Written Amendment. Prior to commencement of the Work at the site, OWNER shall in writing advise CONTRACTOR whether or not such other insurance has been procured by OWNER.

#### 5.11. *Waiver of Rights:*

5.11.1. OWNER and CONTRACTOR intend that all policies purchased in accordance with paragraphs 5.6 and 5.7 will protect OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants and all other persons or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds in such policies and will provide primary coverage for all losses and damages caused by the perils covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. OWNER and CONTRACTOR waive all rights against each other and their respective officers, directors, employees and agents for all losses and damages caused by, arising out of or resulting from any of the perils covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, ENGINEER, ENGINEER's Consultants and all other persons or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by OWNER as trustee or otherwise payable under any policy so issued.

5.11.2. In addition, OWNER waives all rights against CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants and the officers, directors, employees and agents of any of them, for:

5.11.2.1. loss due to business interruption, loss of use or other consequential loss extending beyond direct physical loss or damage to OWNER's property or the Work caused by, arising out of or resulting from fire or other peril, whether or not insured by OWNER; and

5.11.2.2. loss or damage to the completed Project or part thereof caused by, arising out of or resulting from fire or other insured peril covered by any property insurance maintained on the completed Project or part thereof by OWNER during partial utilization pursuant to paragraph 14.10, after substantial completion pursuant to paragraph 14.8 or after final payment pursuant to paragraph 14.13.

Any insurance policy maintained by OWNER covering any loss, damage or consequential loss referred to in this paragraph 5.11.2 shall contain provisions to the effect that in the event of payment of any such loss, damage or consequential loss the insurers will have no rights of recovery against any of CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants and the officers, directors, employees and agents of any of them.

#### Receipt and Application of Insurance Proceeds

5.12. Any insured loss under the policies of insurance required by paragraphs 5.6 and 5.7 will be adjusted with OWNER and made payable to OWNER as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of paragraph 5.13. OWNER shall deposit in a separate account any money so received, and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof and the Work and the cost thereof covered by an appropriate Change Order or Written Amendment.

5.13. OWNER as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within fifteen days after the occurrence of loss to OWNER's exercise of this power. If such objection be made, OWNER as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, OWNER as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, OWNER as fiduciary shall give bond for the proper performance of such duties.

#### *Acceptance of Bonds and Insurance; Option to Replace:*

5.14. If either party (OWNER or CONTRACTOR) has any objection to the coverage afforded by or other provisions of the Bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within ten days after receipt of the certificates (or other evidence requested) required by paragraph 2.7. OWNER and CONTRACTOR shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the Bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent Bonds or insurance to protect such other party's interests at the expense of the party who was

required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

***Partial Utilization—Property Insurance:***

5.15. If OWNER finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, such use or occupancy may be accomplished in accordance with paragraph 14.10; provided that no such use or occupancy shall commence before the insurers providing the property insurance have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be cancelled or permitted to lapse on account of any such partial use or occupancy.

**ARTICLE 6—CONTRACTOR'S RESPONSIBILITIES**

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***Supervision and Superintendence:***

6.1. CONTRACTOR shall supervise, inspect and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences and procedures of construction, but CONTRACTOR shall not be responsible for the negligence of others in the design or specification of a specific means, method, technique, sequence or procedure of construction which is shown or indicated in and expressly required by the Contract Documents. CONTRACTOR shall be responsible to see that the completed Work complies accurately with the Contract Documents.

6.2. CONTRACTOR shall keep on the Work at all times during its progress a competent resident superintendent, who shall not be replaced without written notice to OWNER and ENGINEER except under extraordinary circumstances. The superintendent will be CONTRACTOR's representative at the site and shall have authority to act on behalf of CONTRACTOR. All communications to the superintendent shall be as binding as if given to CONTRACTOR.

***Labor, Materials and Equipment:***

6.3. CONTRACTOR shall provide competent, suitably qualified personnel to survey, lay out and construct the Work as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the site. Except as otherwise required for the safety or protection of persons or the Work or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all Work at the site shall be performed during regular working hours and

CONTRACTOR will not permit overtime work or the performance of Work on Saturday, Sunday or any legal holiday without OWNER's written consent given after prior written notice to ENGINEER.

6.4. Unless otherwise specified in the General Requirements, CONTRACTOR shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up and completion of the Work.

6.5. All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall expressly run to the benefit of OWNER. If required by ENGINEER, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with instructions of the applicable Supplier, except as otherwise provided in the Contract Documents.

***Progress Schedule:***

6.6. CONTRACTOR shall adhere to the progress schedule established in accordance with paragraph 2.9 as it may be adjusted from time to time as provided below:

6.6.1. CONTRACTOR shall submit to ENGINEER for acceptance (to the extent indicated in paragraph 2.9) proposed adjustments in the progress schedule that will not change the Contract Times (or Milestones). Such adjustments will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto.

6.6.2. Proposed adjustments in the progress schedule that will change the Contract Times (or Milestones) shall be submitted in accordance with the requirements of paragraph 12.1. Such adjustments may only be made by a Change Order or Written Amendment in accordance with Article 12.

***6.7. Substitutes and "Or-Equal" Items:***

6.7.1. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be accepted by ENGINEER under the following circumstances:



6.7.1.1. *"Or-Equal"*: If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by ENGINEER as an "or-equal" item, in which case review and approval of the proposed item may, in ENGINEER's sole discretion, be accomplished without compliance with some or all of the requirements for acceptance of proposed substitute items.

6.7.1.2. *Substitute Items*: If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR does not qualify as an "or-equal" item under subparagraph 6.7.1.1, it will be considered a proposed substitute item. CONTRACTOR shall submit sufficient information as provided below to allow ENGINEER to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. The procedure for review by the ENGINEER will include the following as supplemented in the General Requirements and as ENGINEER may decide is appropriate under the circumstances. Requests for review of proposed substitute items of material or equipment will not be accepted by ENGINEER from anyone other than CONTRACTOR. If CONTRACTOR wishes to furnish or use a substitute item of material or equipment, CONTRACTOR shall first make written application to ENGINEER for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified and be suited to the same use as that specified. The application will state the extent, if any, to which the evaluation and acceptance of the proposed substitute will prejudice CONTRACTOR's achievement of Substantial Completion on time, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) to adapt the design to the proposed substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which will be considered by ENGINEER in evaluating the proposed substitute. ENGINEER may require CONTRACTOR to furnish additional data about the proposed substitute.

6.7.1.3. *CONTRACTOR's Expense*: All data to be provided by CONTRACTOR in support of any proposed "or-equal" or substitute item will be at CONTRACTOR's expense.

6.7.2. *Substitute Construction Methods or Procedures*: If a specific means, method, technique, sequence or procedure of

construction is shown or indicated in and expressly required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, technique, sequence or procedure of construction acceptable to ENGINEER. CONTRACTOR shall submit sufficient information to allow ENGINEER, in ENGINEER's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The procedure for review by ENGINEER will be similar to that provided in subparagraph 6.7.1.2.

6.7.3. *Engineer's Evaluation*: ENGINEER will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to paragraphs 6.7.1.2 and 6.7.2. ENGINEER will be the sole judge of acceptability. No "or-equal" or substitute will be ordered, installed or utilized without ENGINEER's prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any "or-equal" or substitute. ENGINEER will record time required by ENGINEER and ENGINEER's Consultants in evaluating substitutes proposed or submitted by CONTRACTOR pursuant to paragraphs 6.7.1.2 and 6.7.2 and in making changes in the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) occasioned thereby. Whether or not ENGINEER accepts a substitute item so proposed or submitted by CONTRACTOR, CONTRACTOR shall reimburse OWNER for the charges of ENGINEER and ENGINEER's Consultants for evaluating each such proposed substitute item.

#### *Concerning Subcontractors, Suppliers and Others:*

6.8.1. CONTRACTOR shall not employ any Subcontractor, Supplier or other person or organization (including those acceptable to OWNER and ENGINEER as indicated in paragraph 6.8.2), whether initially or as a substitute, against whom OWNER or ENGINEER may have reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier or other person or organization to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.

6.8.2. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers or other persons or organizations (including those who are to furnish the principal items of materials or equipment) to be submitted to OWNER in advance of the specified date prior to the Effective Date of the Agreement for acceptance by OWNER and ENGINEER, and if CONTRACTOR has submitted a list thereof in accordance with the Supplementary Conditions, OWNER's or ENGINEER's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the bidding documents or the Contract Documents) of any such Subcontractor, Supplier or other person or organization so identified may be revoked on the basis of reasonable objection after due investigation, in which case CONTRACTOR shall submit an acceptable substitute, the Contract Price will be adjusted by the difference in the cost occasioned by such

substitution and an appropriate Change Order will be issued or Written Amendment signed. No acceptance by OWNER or ENGINEER of any such Subcontractor, Supplier or other person or organization shall constitute a waiver of any right of OWNER or ENGINEER to reject *defective* Work.

6.9.1. CONTRACTOR shall be fully responsible to OWNER and ENGINEER for all acts and omissions of the Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR just as CONTRACTOR is responsible for CONTRACTOR's own acts and omissions. Nothing in the Contract Documents shall create for the benefit of any such Subcontractor, Supplier or other person or organization any contractual relationship between OWNER or ENGINEER and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of OWNER or ENGINEER to pay or to see to the payment of any moneys due any such Subcontractor, Supplier or other person or organization except as may otherwise be required by Laws and Regulations.

6.9.2. CONTRACTOR shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR. CONTRACTOR shall require all Subcontractors, Suppliers and such other persons and organizations performing or furnishing any of the Work to communicate with the ENGINEER through CONTRACTOR.

6.10. The divisions and sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

6.11. All Work performed for CONTRACTOR by a Subcontractor or Supplier will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and ENGINEER. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in paragraph 5.6 or 5.7, the agreement between the CONTRACTOR and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against OWNER, CONTRACTOR, ENGINEER, ENGINEER's Consultants and all other additional insureds for all losses and damages caused by, arising out of or resulting from any of the perils covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, CONTRACTOR will obtain the same.

#### **Patent Fees and Royalties:**

6.12. CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance

of the Work or the incorporation in the Work of any invention, design, process, product or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of OWNER or ENGINEER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by OWNER in the Contract Documents. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants and the officers, directors, employees, agents and other consultants of each and any of them from and against all claims, costs, losses and damages arising out of or resulting from any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product or device not specified in the Contract Documents.

#### **Permits:**

6.13. Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses. OWNER shall assist CONTRACTOR, when necessary, in obtaining such permits and licenses. CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work, which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto such as plant investment fees.

#### **Laws and Regulations:**

6.14.1. CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to furnishing and performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither OWNER nor ENGINEER shall be responsible for monitoring CONTRACTOR's compliance with any Laws or Regulations.

6.14.2. If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, CONTRACTOR shall bear all claims, costs, losses and damages caused by, arising out of or resulting therefrom; however, it shall not be CONTRACTOR's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve CONTRACTOR of CONTRACTOR's obligations under paragraph 3.3.2.

#### **Taxes:**

6.15. CONTRACTOR shall pay all sales, consumer, use and other similar taxes required to be paid by CONTRACTOR in accordance with the Laws and Regulations of the place of

the Project which are applicable during the performance of the Work.

*Use of Premises:*

6.16. CONTRACTOR shall confine construction equipment, the storage of materials and equipment and the operations of workers to the site and land and areas identified in and permitted by the Contract Documents and other land and areas permitted by Laws and Regulations, rights-of-way, permits and easements, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any adjacent land or areas, resulting from the performance of the Work. Should any claim be made by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law. CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultant and anyone directly or indirectly employed by any of them from and against all claims, costs, losses and damages arising out of or resulting from any claim or action, legal or equitable, brought by any such owner or occupant against OWNER, ENGINEER or any other party indemnified hereunder to the extent caused by or based upon CONTRACTOR's performance of the Work.

6.17. During the progress of the Work, CONTRACTOR shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work. At the completion of the Work CONTRACTOR shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery and surplus materials. CONTRACTOR shall leave the site clean and ready for occupancy by OWNER at Substantial Completion of the Work. CONTRACTOR shall restore to original condition all property not designated for alteration by the Contract Documents.

6.18. CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall CONTRACTOR subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

*Record Documents:*

6.19. CONTRACTOR shall maintain in a safe place at the site one record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Work Change Directives, Field Orders and written interpretations and clarifications (issued pursuant to paragraph 9.4) in good order and annotated to show all changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to ENGINEER for reference. Upon completion of

the Work, these record documents, Samples and Shop Drawings will be delivered to ENGINEER for OWNER.

*Safety and Protection:*

6.20. CONTRACTOR shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

6.20.1. all persons on the Work site or who may be affected by the Work;

6.20.2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the site; and

6.20.3. other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and Underground Facilities not designated for removal, relocation or replacement in the course of construction.

CONTRACTOR shall comply with all applicable Laws and Regulations of any public body having jurisdiction for safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify owners of adjacent property and of Underground Facilities and utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation and replacement of their property. All damage, injury or loss to any property referred to in paragraph 6.20.2 or 6.20.3 caused, directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor, Supplier or any other person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of OWNER or ENGINEER or ENGINEER's Consultant or anyone employed by any of them or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of CONTRACTOR or any Subcontractor, Supplier or other person or organization directly or indirectly employed by any of them). CONTRACTOR's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and ENGINEER has issued a notice to OWNER and CONTRACTOR in accordance with paragraph 14.13 that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

*Safety Representative:*

6.21. CONTRACTOR shall designate a qualified and experienced safety representative at the site whose duties and

responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

**Hazard Communication Programs:**

6.22. CONTRACTOR shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the site in accordance with Laws or Regulations.

**Emergencies:**

6.23. In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, CONTRACTOR, without special instruction or authorization from OWNER or ENGINEER, is obligated to act to prevent threatened damage, injury or loss. CONTRACTOR shall give ENGINEER prompt written notice if CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby. If ENGINEER determines that a change in the Contract Documents is required because of the action taken by CONTRACTOR in response to such an emergency, a Work Change Directive or Change Order will be issued to document the consequences of such action.

**6.24. Shop Drawings and Samples:**

6.24.1. CONTRACTOR shall submit Shop Drawings to ENGINEER for review and approval in accordance with the accepted schedule of Shop Drawings and Sample submittals (see paragraph 2.9). All submittals will be identified as ENGINEER may require and in the number of copies specified in the General Requirements. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials and similar data to show ENGINEER the materials and equipment CONTRACTOR proposes to provide and to enable ENGINEER to review the information for the limited purposes required by paragraph 6.26.

6.24.2. CONTRACTOR shall also submit Samples to ENGINEER for review and approval in accordance with said accepted schedule of Shop Drawings and Sample submittals. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalog numbers and the use for which intended and otherwise as ENGINEER may require to enable ENGINEER to review the submittal for the limited purposes required by paragraph 6.26. The numbers of each Sample to be submitted will be as specified in the Specifications.

**6.25. Submittal Procedures:**

6.25.1. Before submitting each Shop Drawing or Sample, CONTRACTOR shall have determined and verified:

6.25.1.1. all field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar information with respect thereto,

6.25.1.2. all materials with respect to intended use, fabrication, shipping, handling, storage, assembly and installation pertaining to the performance of the Work, and

6.25.1.2. all information relative to CONTRACTOR's sole responsibilities in respect of means, methods, techniques, sequences and procedures of construction and safety precautions and programs incident thereto.

CONTRACTOR shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

6.25.2. Each submittal will bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's obligations under the Contract Documents with respect to CONTRACTOR'S review and approval of that submittal.

6.25.3. At the time of each submission, CONTRACTOR shall give ENGINEER specific written notice of such variations, if any, that the Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, such notice to be in a written communication separate from the submittal; and, in addition, shall cause a specific notation to be made on each Shop Drawing and Sample submitted to ENGINEER for review and approval of each such variation.

6.26. ENGINEER will review and approve Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample submittals accepted by ENGINEER as required by paragraph 2.9. ENGINEER's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. ENGINEER's review and approval will not extend to means, methods, techniques, sequences or procedures of construction (except where a particular means, method, technique, sequence or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. CONTRACTOR shall make corrections required by ENGINEER, and shall return the required number of corrected copies of Shop Drawings and submit as required new Samples for review and approval. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by ENGINEER on previous submittals.

6.27. ENGINEER's review and approval of Shop Drawings or Samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract

Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of submission as required by paragraph 6.25.3 and ENGINEER has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for complying with the requirements of paragraph 6.25.1.

6.28. Where a Shop Drawing or Sample is required by the Contract Documents or the schedule of Shop Drawings and Sample submissions accepted by ENGINEER as required by paragraph 2.9, any related Work performed prior to ENGINEER's review and approval of the pertinent submittal will be at the sole expense and responsibility of CONTRACTOR.

*Continuing the Work:*

6.29. CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with OWNER. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by paragraph 15.5 or as OWNER and CONTRACTOR may otherwise agree in writing.

**6.30. CONTRACTOR's General Warranty and Guarantee:**

6.30.1. CONTRACTOR warrants and guarantees to OWNER, ENGINEER and ENGINEER's Consultants that all Work will be in accordance with the Contract Documents and will not be *defective*. CONTRACTOR's warranty and guarantee hereunder excludes defects or damage caused by:

6.30.1.1. abuse, modification or improper maintenance or operation by persons other than CONTRACTOR, Subcontractors or Suppliers; or

6.30.1.2. normal wear and tear under normal usage.

6.30.2. CONTRACTOR's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of CONTRACTOR's obligation to perform the Work in accordance with the Contract Documents:

6.30.2.1. observations by ENGINEER;

6.30.2.3. recommendation of any progress or final payment by ENGINEER;

6.30.2.3. the issuance of a certificate of Substantial Completion or any payment by OWNER to CONTRACTOR under the Contract Documents;

6.30.2.4. use or occupancy of the Work or any part thereof by OWNER;

6.30.2.5. any acceptance by OWNER or any failure to do so;

6.30.2.6. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by ENGINEER pursuant to paragraph 14.13;

6.30.2.7. any inspection, test or approval by others; or

6.30.2.8. any correction of *defective* Work by OWNER.

*Indemnification:*

6.31. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants and the officers, directors, employees, agents and other consultants of each and any of them from and against all claims, costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys and other professionals and all court or arbitration or other dispute resolution costs) caused by, arising out of or resulting from the performance of the Work, provided that any such claim, cost, loss or damage: (i) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, and (ii) is caused in whole or in part by any negligent act or omission of CONTRACTOR, any Subcontractor, any Supplier, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, regardless of whether or not caused in part by any negligence or omission of a person or entity indemnified hereunder or whether liability is imposed upon such indemnified party by Laws and Regulations regardless of the negligence of any such person or entity.

6.32. In any and all claims against OWNER or ENGINEER or any of their respective consultants, agents, officers, directors or employees by any employee (or the survivor or personal representative of such employee) of CONTRACTOR, any Subcontractor, any Supplier, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 6.31 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for CONTRACTOR or any such Subcontractor, Supplier or other person or organization under workers' compensation acts, disability benefit acts or other employee benefit acts.

6.33. The indemnification obligations of CONTRACTOR under paragraph 6.31 shall not extend to the liability of ENGINEER and ENGINEER's Consultants, officers, directors, employees or agents caused by the professional negligence, errors or omissions of any of them.

*Survival of Obligations:*

6.34. All representations, indemnifications, warranties and guarantees made in, required by or given in accordance with

the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion and acceptance of the Work and termination or completion of the Agreement.

## ARTICLE 7—OTHER WORK

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### *Related Work at Site:*

7.1. OWNER may perform other work related to the Project at the site by OWNER's own forces, or let other direct contracts therefor which shall contain General Conditions similar to these, or have other work performed by utility owners. If the fact that such other work is to be performed was not noted in the Contract Documents, then: (i) written notice thereof will be given to CONTRACTOR prior to starting any such other work, and (ii) CONTRACTOR may make a claim therefor as provided in Articles 11 and 12 if CONTRACTOR believes that such performance will involve additional expense to CONTRACTOR or requires additional time and the parties are unable to agree as to the amount or extent thereof.

7.2. CONTRACTOR shall afford each other contractor who is a party to such a direct contract and each utility owner (and OWNER, if OWNER is performing the additional work with OWNER's employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work and shall properly connect and coordinate the Work with theirs. Unless otherwise provided in the Contract Documents, CONTRACTOR shall do all cutting, fitting and patching of the Work that may be required to make its several parts come together properly and integrate with such other work. CONTRACTOR shall not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of ENGINEER and the others whose work will be affected. The duties and responsibilities of CONTRACTOR under this paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of CONTRACTOR in said direct contracts between OWNER and such utility owners and other contractors.

7.3. If the proper execution or results of any part of CONTRACTOR's Work depends upon work performed by others under this Article 7, CONTRACTOR shall inspect such other work and promptly report to ENGINEER in writing any delays, defects or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of CONTRACTOR's Work. CONTRACTOR's failure so to report will constitute an acceptance of such other work as fit and proper for integration with CONTRACTOR's Work except for latent or nonapparent defects and deficiencies in such other work.

### *Coordination:*

7.4. If OWNER contracts with others for the performance of other work on the Project at the site, the following will be set forth in Supplementary Conditions:

7.4.1. the person, firm or corporation who will have authority and responsibility for coordination of the activities among the various prime contractors will be identified;

7.4.2. the specific matters to be covered by such authority and responsibility will be itemized; and

7.4.3. the extent of such authority and responsibilities will be provided.

Unless otherwise provided in the Supplementary Conditions, OWNER shall have sole authority and responsibility in respect of such coordination.

## ARTICLE 8—OWNER'S RESPONSIBILITIES

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8.1. Except as otherwise provided in these General Conditions, OWNER shall issue all communications to CONTRACTOR through ENGINEER.

8.2. In case of termination of the employment of ENGINEER, OWNER shall appoint an engineer against whom CONTRACTOR makes no reasonable objection, whose status under the Contract Documents shall be that of the former ENGINEER.

8.3. OWNER shall furnish the data required of OWNER under the Contract Documents promptly and shall make payments to CONTRACTOR promptly when they are due as provided in paragraphs 14.4 and 14.13.

8.4. OWNER's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.1 and 4.4. Paragraph 4.2 refers to OWNER's identifying and making available to CONTRACTOR copies of reports of explorations and tests of subsurface conditions at the site and drawings of physical conditions in existing structures at or contiguous to the site that have been utilized by ENGINEER in preparing the Contract Documents.

8.5. OWNER's responsibilities in respect of purchasing and maintaining liability and property insurance are set forth in paragraphs 5.5 through 5.10.

8.6. OWNER is obligated to execute Change Orders as indicated in paragraph 10.4.

8.7. OWNER's responsibility in respect of certain inspections, tests and approvals is set forth in paragraph 13.4.

8.8. In connection with OWNER's right to stop Work or suspend Work, see paragraphs 13.10 and 15.1. Paragraph 15.2 deals with OWNER's right to terminate services of CONTRACTOR under certain circumstances.

8.9. The OWNER shall not supervise, direct or have control or authority over, nor be responsible for, CONTRACTOR's means, methods, techniques, sequences or procedures of construction or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the furnishing or performance of the Work. OWNER will not be responsible for CONTRACTOR's failure to perform or furnish the Work in accordance with the Contract Documents.

8.10. OWNER'S responsibility in respect of undisclosed Asbestos, PCBs, Petroleum, Hazardous Waste or Radioactive Materials uncovered or revealed at the site is set forth in paragraph 4.5.

8.11. If and to the extent OWNER has agreed to furnish CONTRACTOR reasonable evidence that financial arrangements have been made to satisfy OWNER's obligations under the Contract Documents, OWNER's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

## ARTICLE 9—ENGINEER'S STATUS DURING CONSTRUCTION

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### *OWNER's Representative:*

9.1. ENGINEER will be OWNER's representative during the construction period. The duties and responsibilities and the limitations of authority of ENGINEER as OWNER's representative during construction are set forth in the Contract Documents and shall not be extended without written consent of OWNER and ENGINEER.

### *Visits to Site:*

9.2. ENGINEER will make visits to the site at intervals appropriate to the various stages of construction as ENGINEER deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of CONTRACTOR's executed Work. Based on information obtained during such visits and observations, ENGINEER will endeavor for the benefit of OWNER to determine, in general, if the Work is proceeding in accordance with the Contract Documents. ENGINEER will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. ENGINEER's efforts will be directed toward providing for OWNER a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and on-site observations, ENGINEER will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against defective Work. ENGINEER's visits and on-site observations are subject to all the limitations on ENGINEER's authority and responsibility set forth in paragraph 9.13, and particularly, but without limitation, during or as a result of ENGINEER's on-site visits or

observations of CONTRACTOR's Work ENGINEER will not supervise, direct, control or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the furnishing or performance of the Work.

### *Project Representative:*

9.3. If OWNER and ENGINEER agree, ENGINEER will furnish a Resident Project Representative to assist ENGINEER in providing more continuous observation of the Work. The responsibilities and authority and limitations thereon of any such Resident Project Representative and assistants will be as provided in paragraph 9.13 and in the Supplementary Conditions. If OWNER designates another representative or agent to represent OWNER at the site who is not ENGINEER's Consultant, agent or employee, the responsibilities and authority and limitations thereon of such other person will be as provided in the Supplementary Conditions.

### *Clarifications and Interpretations:*

9.4. ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as ENGINEER may determine necessary, which shall be consistent with the intent of and reasonably inferable from Contract Documents. Such written clarifications and interpretations will be binding on OWNER and CONTRACTOR. If OWNER or CONTRACTOR believes that a written clarification or interpretation justifies an adjustment in the Contract Price or the Contract Times and the parties are unable to agree to the amount or extent thereof, if any, OWNER or CONTRACTOR may make a written claim therefor as provided in Article 11 or Article 12.

### *Authorized Variations in Work:*

9.5. ENGINEER may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on OWNER and also on CONTRACTOR who shall perform the Work involved promptly. If OWNER or CONTRACTOR believes that a Field Order justifies an adjustment in the Contract Price or the Contract Times and the parties are unable to agree as to the amount or extent thereof, OWNER or CONTRACTOR may make a written claim therefor as provided in Article 11 or 12.

### *Rejecting Defective Work:*

9.6. ENGINEER will have authority to disapprove or reject Work which ENGINEER believes to be defective, or

that ENGINEER believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. ENGINEER will also have authority to require special inspection or testing of the Work as provided in paragraph 13.9, whether or not the Work is fabricated, installed or completed.

***Shop Drawings, Change Orders and Payments:***

9.7. In connection with ENGINEER's authority as to Shop Drawings and Samples, see paragraphs 6.24 through 6.28 inclusive.

9.8. In connection with ENGINEER's authority as to Change Orders, see Articles 10, 11, and 12.

9.9. In connection with ENGINEER's authority as to Applications for Payment, see Article 14.

***Determinations for Unit Prices:***

9.10. ENGINEER will determine the actual quantities and classifications of Unit Price Work performed by CONTRACTOR. ENGINEER will review with CONTRACTOR the ENGINEER's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). ENGINEER's written decision thereon will be final and binding upon OWNER and CONTRACTOR, unless, within ten days after the date of any such decision, either OWNER or CONTRACTOR delivers to the other and to ENGINEER written notice of intention to appeal from ENGINEER's decision and: (i) an appeal from ENGINEER's decision is taken within the time limits and in accordance with the procedures set forth in Exhibit GC-A, "Dispute Resolution Agreement," entered into between OWNER and CONTRACTOR pursuant to Article 16, or (ii) if no such Dispute Resolution Agreement has been entered into, a formal proceeding is instituted by the appealing party in a forum of competent jurisdiction to exercise such rights or remedies as the appealing party may have with respect to ENGINEER's decision, unless otherwise agreed in writing by OWNER and CONTRACTOR. Such appeal will not be subject to the procedures of paragraph 9.11.

***Decisions on Disputes:***

9.11. ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of the Work or the interpretation of the requirements of the Contract Documents pertaining to the performance and furnishing of the Work and Claims under Articles 11 and 12 in respect of changes in the Contract Price or Contract Times will be referred initially to ENGINEER in writing with a request for a formal decision in accordance with this paragraph. Written notice of each such claim, dispute or other matter will be delivered by the claimant

to ENGINEER and the other party to the Agreement promptly (but in no event later than thirty days) after the start of the occurrence or event giving rise thereto, and written supporting data will be submitted to ENGINEER and the other party within sixty days after the start of such occurrence or event unless ENGINEER allows an additional period of time for the submission of additional or more accurate data in support of such claim, dispute or other matter. The opposing party shall submit any response to ENGINEER and the claimant within thirty days after receipt of the claimant's last submittal (unless ENGINEER allows additional time). ENGINEER will render a formal decision in writing within thirty days after receipt of the opposing party's submittal, if any, in accordance with this paragraph. ENGINEER's written decision on such claim, dispute or other matter will be final and binding upon OWNER and CONTRACTOR unless: (i) an appeal from ENGINEER's decision is taken within the time limits and in accordance with the procedures set forth in EXHIBIT GC-A, "Dispute Resolution Agreement," entered into between OWNER and CONTRACTOR pursuant to Article 16, or (ii) if no such Dispute Resolution Agreement has been entered into, a written notice of intention to appeal from ENGINEER's written decision is delivered by OWNER or CONTRACTOR to the other and to ENGINEER within thirty days after the date of such decision and a formal proceeding is instituted by the appealing party in a forum of competent jurisdiction to exercise such rights or remedies as the appealing party may have with respect to such claim, dispute or other matter in accordance with applicable Laws and Regulations within sixty days of the date of such decision, unless otherwise agreed in writing by OWNER and CONTRACTOR.

9.12. When functioning as interpreter and judge under paragraphs 9.10 and 9.11, ENGINEER will not show partiality to OWNER or CONTRACTOR and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by ENGINEER pursuant to paragraphs 9.10 or 9.11 with respect to any such claim, dispute or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.16) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such claim, dispute or other matter pursuant to Article 16.

***9.13. Limitations on ENGINEER's Authority and Responsibilities:***

9.13.1. Neither ENGINEER's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by ENGINEER in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise or performance of any authority or responsibility by ENGINEER shall create, impose or give rise to any duty owed by ENGINEER to CONTRACTOR, any Subcontractor, any Supplier, any other person or organization, or to any surety for or employee or agent of any of them.



9.13.2. ENGINEER will not supervise, direct, control or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the furnishing or performance of the Work. ENGINEER will not be responsible for CONTRACTOR's failure to perform or furnish the Work in accordance with the Contract Documents.

9.13.3. ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other person or organization performing or furnishing any of the Work.

9.13.4. ENGINEER's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds and certificates of inspection, tests and approvals and Other documentation required to be delivered by paragraph 14.12 will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests and approvals that the results certified indicate compliance with, the Contract Documents.

9.13.5. The limitations upon authority and responsibility set forth in this paragraph 9.13 shall also apply to ENGINEER's Consultants, Resident Project Representative and assistants.

#### ARTICLE 10—CHANGES IN THE WORK

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10.1. Without invalidating the Agreement and without notice to any surety, OWNER may, at any time or from time to time, order additions, deletions or revisions in the Work. Such additions, deletions or revisions will be authorized by a Written Amendment, a Change Order, or a Work Change Directive. 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).

10.2. If OWNER and CONTRACTOR are unable to agree as to the extent, if any, of an adjustment in the Contract Price or an adjustment of the Contract Times that should be allowed as a result of a Work Change Directive, a claim may be made therefor as provided in Article 11 or Article 12.

10.3. CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any Work performed that is not required by the Contract Documents as amended, modified and supplemented as provided in paragraphs 3.5 and 3.6 except in the case of an emergency as provided in paragraph 6.23 or in the case of uncovering Work as provided in paragraph 13.9.

10.4. OWNER and CONTRACTOR shall execute appropriate Change Orders recommended by ENGINEER (or Written Amendments) covering:

10.4.1. changes in the Work which are (i) ordered by OWNER pursuant to paragraph 10.1, (ii) required because of acceptance of *defective* Work under paragraph 13.13 or correcting *defective* Work under paragraph 13.14, or (iii) agreed to by the parties;

10.4.2. changes in the Contract Price or Contract Times which are agreed to by the parties; and

10.4.3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by ENGINEER pursuant to paragraph 9.11;

provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, CONTRACTOR shall carry on the Work and adhere to the progress schedule as provided in paragraph 6.29.

10.5. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be CONTRACTOR's responsibility, and the amount of each applicable Bond will be adjusted accordingly.

#### ARTICLE 11—CHANGE OF CONTRACT PRICE

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11.1. The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to CONTRACTOR for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by CONTRACTOR shall be at CONTRACTOR's expense without change in the Contract Price.

11.2. The Contract Price may only be changed by a Change Order or by a Written Amendment. Any claim for an adjustment in the Contract Price shall be based on written notice delivered by the party making the claim to the other party and to ENGINEER promptly (but in no event later than thirty days) after the start of the occurrence or event giving rise to the claim and stating the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered within sixty days after the start of such occurrence or event (unless ENGINEER allows additional time for claimant to submit additional or more accurate data in support of the claim) and shall be accompanied by claimant's written statement that the adjustment claimed covers all known amounts to which the claimant is entitled as a result of said occurrence or event. All claims for adjustment in the Contract Price shall be determined by ENGINEER in accordance with paragraph 9.11 if OWNER and CONTRACTOR cannot otherwise agree on the amount involved. No claim for an adjustment in the Contract Price will

be valid if not submitted in accordance with this paragraph 11.2.

11.3. The value of any Work covered by a Change Order or of any claim for an adjustment in the Contract Price will be determined as follows:

11.3.1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of paragraphs 11.9.1 through 11.9.3, inclusive);

11.3.2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with paragraph 11.6.2);

11.3.3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under paragraph 11.3.2, on the basis of the Cost of the Work (determined as provided in paragraphs 11.4 and 11.5) plus a CONTRACTOR's fee for overhead and profit (determined as provided in paragraph 11.6).

#### *Cost of the Work:*

11.4. The term Cost of the Work means the sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work. Except as otherwise may be agreed to in writing by OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items and shall not include any of the costs itemized in paragraph 11.5:

11.4.1. Payroll costs for employees in the direct employ of CONTRACTOR in the performance of the Work under schedules of job classifications agreed upon by OWNER and CONTRACTOR. Such employees shall include without limitation superintendents, foremen and other personnel employed full-time at the site. Payroll costs for employees not employed full-time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work after regular working hours, on Saturday, Sunday or legal holidays, shall be included in the above to the extent authorized by OWNER.

11.4.2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to CONTRACTOR unless OWNER deposits funds with CONTRACTOR with which to make payments, in which case the

cash discounts shall accrue to OWNER. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to OWNER, and CONTRACTOR shall make provisions so that they may be obtained.

11.4.3. Payments made by CONTRACTOR to the Subcontractors for Work performed or furnished by Subcontractors. If required by OWNER, CONTRACTOR shall obtain competitive bids from subcontractors acceptable to OWNER and CONTRACTOR and shall deliver such bids to OWNER who will then determine, with the advice of ENGINEER, which bids, if any, will be accepted. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work Plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as CONTRACTOR's Cost of the Work and fee as provided in paragraphs 11.4, 11.5, 11.6 and 11.7. All subcontracts shall be subject to the other provisions of the Contract Documents insofar as applicable.

11.4.4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys and accountants) employed for services specifically related to the Work.

11.4.5. Supplemental costs including the following:

11.4.5.1. The proportion of necessary transportation, travel and subsistence expenses of CONTRACTOR's employees incurred in discharge of duties connected with the Work.

11.4.5.2. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the site and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost less market value of such items used but not consumed which remain the property of CONTRACTOR.

11.4.5.3. Rentals of all construction equipment and machinery and the parts thereof whether rented from CONTRACTOR or others in accordance with rental agreements approved by OWNER with the advice of ENGINEER, and the costs of transportation, loading, unloading, installation, dismantling and removal thereof—all in accordance with the terms of said rental agreements. The rental of any such equipment, machinery or parts shall cease when the use thereof is no longer necessary for the Work.

11.4.5.4. Sales, consumer, use or similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws and Regulations.

11.4.5.5. Deposits lost for causes other than negligence of CONTRACTOR, any Subcontractor or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

11.4.5.6. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by CONTRACTOR in connection with the performance and furnishing of the Work (except losses and damages within the deductible amounts of property insurance established by OWNER in accordance with paragraph 5.9), provided they have resulted from causes other than the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of OWNER. No such losses, damages and expenses shall be included in the Cost of the Work for the purpose of determining CONTRACTOR's fee. If, however, any such loss or damage requires reconstruction and CONTRACTOR is placed in charge thereof, CONTRACTOR shall be paid for services a fee proportionate to that stated in paragraph 11.6.2.

11.4.5.7. The cost of utilities, fuel and sanitary facilities at the site.

11.4.5.8. Minor expenses such as telegrams, long distance telephone calls, telephone service at the site, expressage and similar petty cash items in connection with the Work.

11.4.5.9. Cost of premiums for additional Bonds and insurance required because of changes in the Work.

11.5. The term Cost of the Work shall not include any of the following:

11.5.1. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnership and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks and other personnel employed by CONTRACTOR whether at the site or in CONTRACTOR's principal or a branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in paragraph 11.4.1 or specifically covered by paragraph 11.4.4—all of which are to be considered administrative costs covered by the CONTRACTOR's fee.

11.5.2. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the site.

11.5.3. Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the Work and charges against CONTRACTOR for delinquent payments.

11.5.4. Cost of premiums for all Bonds and for all insurance whether or not CONTRACTOR is required by the Contract Documents to purchase and maintain the same (except for the cost of premiums covered by subparagraph 11.4.5.9 above).

11.5.5. Costs due to the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied and making good any damage to property.

Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraph 11.4.

11.6. The CONTRACTOR's fee allowed to CONTRACTOR for overhead and profit shall be determined as follows:

11.6.1. a mutually acceptable fixed fee; or

11.6.2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

11.6.2.1. for costs incurred under paragraphs 11.4.1 and 11.4.2, the CONTRACTOR's fee shall be fifteen percent;

11.6.2.2. for costs incurred under paragraph 11.4.3, the CONTRACTOR's fee shall be five percent;

11.6.2.3. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of paragraphs 11.4.1, 11.4.2, 11.4.3 and 11.6.2 is that the Subcontractor who actually performs or furnishes the Work, at whatever tier, will be paid a fee of fifteen percent of the costs incurred by such Subcontractor under paragraphs 11.4.1 and 11.4.2 and that any higher tier Subcontractor and CONTRACTOR will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

11.6.2.4. no fee shall be payable on the basis of costs itemized under paragraphs 11.4.4, 11.4.5 and 11.5;

11.6.2.5. the amount of credit to be allowed by CONTRACTOR to OWNER for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in CONTRACTOR's fee by an amount equal to five percent of such net decrease; and

11.6.2.5. when both additions and credits are involved in any one change, the adjustment in CONTRACTOR's fee shall be computed on the basis of the net change in accordance with paragraphs 11.6.2.1 through 11.6.2.5, inclusive.

11.7. Whenever the cost of any Work is to be determined pursuant to paragraphs 11.4 and 11.5, CONTRACTOR will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in form acceptable to ENGINEER an itemized cost breakdown together with supporting data.

**Cash Allowances:**

11.8. It is understood that CONTRACTOR has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be furnished and performed for such sums as may be acceptable to OWNER and ENGINEER. CONTRACTOR agrees that:

11.8.1. the allowances include the cost to CONTRACTOR (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the site, and all applicable taxes; and

11.8.2. CONTRACTOR's costs for unloading and handling on the site, labor, installation costs, overhead, profit and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances and no demand for additional payment on account of any of the foregoing will be valid.

Prior to final payment, an appropriate Change Order will be issued as recommended by ENGINEER to reflect actual amounts due CONTRACTOR on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

**11.9. Unit Price Work:**

11.9.1. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made by ENGINEER in accordance with paragraph 9.10.

11.9.2. Each unit price will be deemed to include an amount considered by CONTRACTOR to be adequate to cover CONTRACTOR's overhead and profit for each separately identified item.

11.9.3. OWNER or CONTRACTOR may make a claim for an adjustment in the Contract Price in accordance with Article 11 if:

11.9.3.1. the quantity of any item of Unit Price Work performed by CONTRACTOR differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

11.9.3.2. there is no corresponding adjustment with respect to any other item of Work; and

11.9.3.3. if CONTRACTOR believes that CONTRACTOR is entitled to an increase in Contract Price as a result

of having incurred additional expense or OWNER believes that OWNER is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

**ARTICLE 12—CHANGE OF CONTRACT TIMES**

12.1. The Contract Times (or Milestones) may only be changed by a Change Order or a Written Amendment. Any claim for an adjustment of the Contract Times (or Milestones) shall be based on written notice delivered by the party making the claim to the other party and to ENGINEER promptly (but in no event later than thirty days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within sixty days after such occurrence (unless ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Times (or Milestones) shall be determined by ENGINEER in accordance with paragraph 9.11 if OWNER and CONTRACTOR cannot otherwise agree. No claim for an adjustment in the Contract Times (or Milestones) will be valid if not submitted in accordance with the requirements of this paragraph 12.1.

12.2. All time limits stated in the Contract Documents are of the essence of the Agreement.

12.3. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of CONTRACTOR, the Contract Times (or Milestones) will be extended in an amount equal to the time lost due to such delay if a claim is made therefor as provided in paragraph 12.1. Delays beyond the control of CONTRACTOR shall include, but not be limited to, acts or neglect by OWNER, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions or acts of God. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of CONTRACTOR.

12.4. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of both OWNER and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay. In no event shall OWNER be liable to CONTRACTOR, any Subcontractor, any Supplier, any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from (i) delays caused by or within the control of CONTRACTOR, or (ii)

delays beyond the control of both parties including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God or acts or neglect by utility owners or other contractors performing other work as contemplated by Article 7.

ARTICLE 13—TESTS AND INSPECTIONS;  
CORRECTION, REMOVAL OR  
ACCEPTANCE OF *DEFECTIVE* WORK

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13.1. *Notice of Defects:* Prompt notice of all *defective* Work of which OWNER or ENGINEER have actual knowledge will be given to CONTRACTOR. All *defective* Work may be rejected, corrected or accepted as provided in this Article 13.

*Access to Work:*

13.2. OWNER, ENGINEER, ENGINEER's Consultants, other representatives and personnel of OWNER, independent testing laboratories and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspecting and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR's site safety procedures and programs so that they may comply therewith as applicable.

*Tests and Inspections:*

13.3. CONTRACTOR shall give ENGINEER timely notice of readiness of the Work for all required inspections, tests or approvals, and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

13.4. OWNER shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

13.4.1. for inspections, tests or approvals covered by paragraph 13.5 below;

13.4.2. that costs incurred in connection with tests or inspections conducted pursuant to paragraph 13.9 below shall be paid as provided in said paragraph 13.9; and

13.4.3. as otherwise specifically provided in the Contract Documents.

13.5. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested or approved by an employee or other representative of such public body, CONTRACTOR shall assume full responsibility for arranging and obtaining such inspections, tests or approvals, pay all costs in connection therewith, and furnish ENGINEER the required certificates of inspection, or

approval. CONTRACTOR shall also be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests or approvals required for OWNER's and ENGINEER's acceptance of materials or equipment to be incorporated in the Work, or of materials, mix designs, or equipment submitted for approval prior to CONTRACTOR's purchase thereof for incorporation in the Work.

13.6. If any Work (or the work of others) that is to be inspected, tested or approved is covered by CONTRACTOR without written concurrence of ENGINEER, it must, if requested by ENGINEER, be uncovered for observation.

13.7. Uncovering Work as provided in paragraph 13.6 shall be at CONTRACTOR's expense unless CONTRACTOR has given ENGINEER timely notice of CONTRACTOR's intention to cover the same and ENGINEER has not acted with reasonable promptness in response to such notice.

*Uncovering Work:*

13.8. If any Work is covered contrary to the written request of ENGINEER, it must, if requested by ENGINEER, be uncovered for ENGINEER's observation and replaced at CONTRACTOR's expense.

13.9. If ENGINEER considers it necessary or advisable that covered Work be observed by ENGINEER or inspected or tested by others, CONTRACTOR, at ENGINEER's request, shall uncover, expose or otherwise make available for observation, inspection or testing as ENGINEER may require, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is *defective*, CONTRACTOR shall pay all claims, costs, losses and damages caused by, arising out of or resulting from such uncovering, exposure, observation, inspection and testing and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and OWNER shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, may make a claim therefor as provided in Article 11. If, however, such Work is not found to be *defective*, CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Times (or Milestones), or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement and reconstruction; and, if the parties are unable to agree as to the amount or extent thereof, CONTRACTOR may make a claim therefor as provided in Articles 11 and 12.

*OWNER May Stop the Work:*

13.10. If the Work is *defective*, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract Documents, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of OWNER to stop the Work

shall not give rise to any duty on the part of OWNER to exercise this right for the benefit of CONTRACTOR or any surety or other party.

**Correction or Removal of Defective Work:**

13.11. If required by ENGINEER, CONTRACTOR shall promptly, as directed, either correct all *defective* Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by ENGINEER, remove it from the site and replace it with Work that is not *defective*. CONTRACTOR shall pay all claims, costs, losses and damages caused by or resulting from such correction or removal (including but not limited to all costs of repair or replacement of work of others).

**13.12. Correction Period:**

13.12.1. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be *defective*, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions: (i) correct such *defective* Work, or, if it has been rejected by OWNER, remove it from the site and replace it with Work that is not *defective*, and (ii) satisfactorily correct or remove and replace any damage to other Work or the work of others resulting therefrom. If CONTRACTOR does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the *defective* Work corrected or the rejected Work removed and replaced, and all claims, costs, losses and damages caused by or resulting from such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by CONTRACTOR.

13.12.2. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications or by Written Amendment.

13.12.3. Where *defective* Work (and damage to other Work resulting therefrom) has been corrected, removed or replaced under this paragraph 13.12, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

**Acceptance of Defective Work:**

13.13. If, instead of requiring correction or removal and replacement of *defective* Work, OWNER (and, prior to ENGINEER's recommendation of final payment, also ENGINEER) prefers to accept it, OWNER may do so. CONTRACTOR shall

pay all claims, costs, losses and damages attributable to OWNER's evaluation of and determination to accept such *defective* Work (such costs to be approved by ENGINEER as to reasonableness). If any such acceptance occurs prior to ENGINEER's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, OWNER may make a claim therefor as provided in Article 11. If the acceptance occurs after such recommendation, an appropriate amount will be paid by CONTRACTOR to OWNER.

**OWNER May Correct Defective Work:**

13.14. If CONTRACTOR fails within a reasonable time after written notice from ENGINEER to correct *defective* Work or to remove and replace rejected Work as required by ENGINEER in accordance with paragraph 13.11, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provision of the Contract Documents, OWNER may, after seven days' written notice to CONTRACTOR, correct and remedy any such deficiency. In exercising the rights and remedies under this paragraph OWNER shall proceed expeditiously. In connection with such corrective and remedial action, OWNER may exclude CONTRACTOR from all or part of the site, take possession of all or part of the Work, and suspend CONTRACTOR's services related thereto, take possession of CONTRACTOR's tools, appliances, construction equipment and machinery at the site and incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow OWNER, OWNER's representatives, agents and employees, OWNER's other contractors and ENGINEER and ENGINEER's Consultants access to the site to enable OWNER to exercise the rights and remedies under this paragraph. All claims, costs, losses and damages incurred or sustained by OWNER in exercising such rights and remedies will be charged against CONTRACTOR and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, OWNER may make a claim therefor as provided in Article 11. Such claims, costs, losses and damages will include but not be limited to all costs of repair or replacement of work of others destroyed or damaged by correction, removal or replacement of CONTRACTOR's *defective* Work. CONTRACTOR shall not be allowed an extension of the Contract Times (or Milestones) because of any delay in the performance of the Work attributable to the exercise by OWNER of OWNER's rights and remedies hereunder.

**ARTICLE 14—PAYMENTS TO CONTRACTOR AND COMPLETION**

**Schedule of Values:**

14.1. The schedule of values established as provided in paragraph 2.9 will serve as the basis for progress payments and

will be incorporated into a form of Application for Payment acceptable to ENGINEER. Progress payments on account of Unit Price Work will be based on the number of units completed.

***Application for Progress Payment:***

14.2. At least twenty days before the date established for each progress payment (but not more often than once a month), CONTRACTOR shall submit to ENGINEER for review an Application for Payment filled out and signed by CONTRACTOR covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice or other documentation warranting that OWNER has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect OWNER's interest therein, all of which will be satisfactory to OWNER. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

***CONTRACTOR's Warranty of Title:***

14.3. CONTRACTOR warrants and guarantees that title to all Work, materials and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER no later than the time of payment free and clear of all Liens.

***Review of Applications for Progress Payment:***

14.4. ENGINEER will, within ten days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to OWNER, or return the Application to CONTRACTOR indicating in writing ENGINEER's reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application. Ten days after presentation of the Application for Payment to OWNER with ENGINEER's recommendation, the amount recommended will (subject to the provisions of the last sentence of paragraph 14.7) become due and when due will be paid by OWNER to CONTRACTOR.

14.5. ENGINEER's recommendation of any payment requested in an Application for Payment will constitute a representation by ENGINEER to OWNER, based on ENGINEER's on-site observations of the executed Work as an experienced and qualified design professional and on ENGINEER's review of the Application for Payment and the accompanying data and schedules, that to the best of ENGINEER's knowledge, information and belief:

14.5.1. the Work has progressed to the point indicated,

14.5.2. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under paragraph 9.10, and to any other qualifications stated in the recommendation), and

14.5.3. the conditions precedent to CONTRACTOR's being entitled to such payment appear to have been fulfilled in so far as it is ENGINEER's responsibility to observe the Work.

However, by recommending any such payment ENGINEER will not thereby be deemed to have represented that: (i) exhaustive or continuous on-site inspections have been made to check the quality or the quantity of the Work beyond the responsibilities specifically assigned to ENGINEER in the Contract Documents or (ii) that there may not be other matters or issues between the parties that might entitle CONTRACTOR to be paid additionally by OWNER or entitle OWNER to withhold payment to CONTRACTOR.

14.6. ENGINEER's recommendation of any payment, including final payment, shall not mean that ENGINEER is responsible for CONTRACTOR's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the furnishing or performance of Work, or for any failure of CONTRACTOR to perform or furnish Work in accordance with the Contract Documents.

14.7. ENGINEER may refuse to recommend the whole or any part of any payment if, in ENGINEER's opinion, it would be incorrect to make the representations to OWNER referred to in paragraph 14.5. ENGINEER may also refuse to recommend any such payment, or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended, to such extent as may be necessary in ENGINEER's opinion to protect OWNER from loss because:

14.7.1. the Work is *defective*, or completed Work has been damaged requiring correction or replacement,

14.7.2. the Contract Price has been reduced by Written Amendment or Change Order,

14.7.3. OWNER has been required to correct *defective* Work or complete Work in accordance with paragraph 13.14, or

14.7.4. ENGINEER has actual knowledge of the occurrence of any of the events enumerated in paragraphs 15.2.1 through 15.2.4 inclusive.

OWNER may refuse to make payment of the full amount recommended by ENGINEER because:

14.7.5. claims have been made against OWNER on account of CONTRACTOR's performance or furnishing of the Work,

14.7.6. Liens have been filed in connection with the Work, except where CONTRACTOR has delivered a specific Bond satisfactory to OWNER to secure the satisfaction and discharge of such Liens,

14.7.7. there are other items entitling OWNER to a set-off against the amount recommended, or

14.7.8. OWNER has actual knowledge of the occurrence of any of the events enumerated in paragraphs 14.7.1 through 14.7.3 or paragraphs 15.2.1 through 15.2.4 inclusive;

but OWNER must give CONTRACTOR immediate written notice (with a copy to ENGINEER) stating the reasons for such action and promptly pay CONTRACTOR the amount so withheld, or any adjustment thereto agreed to by OWNER and CONTRACTOR, when CONTRACTOR corrects to OWNER's satisfaction the reasons for such action.

#### *Substantial Completion:*

14.8. When CONTRACTOR considers the entire Work ready for its intended use CONTRACTOR shall notify OWNER and ENGINEER in writing that the entire Work is substantially complete (except for items specifically listed by CONTRACTOR as incomplete) and request that ENGINEER issue a certificate of Substantial Completion. Within a reasonable time thereafter, OWNER, CONTRACTOR and ENGINEER shall make an inspection of the Work to determine the status of completion. If ENGINEER does not consider the Work substantially complete, ENGINEER will notify CONTRACTOR in writing giving the reasons therefor. If ENGINEER considers the Work substantially complete, ENGINEER will prepare and deliver to OWNER a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. OWNER shall have seven days after receipt of the tentative certificate during which to make written objection to ENGINEER as to any provisions of the certificate or attached list. If, after considering such objections, ENGINEER concludes that the Work is not substantially complete, ENGINEER will within fourteen days after submission of the tentative certificate to OWNER notify CONTRACTOR in writing, stating the reasons therefor. If, after consideration of OWNER's objections, ENGINEER considers the Work substantially complete, ENGINEER will within said fourteen days execute and deliver to OWNER and CONTRACTOR a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as ENGINEER believes justified after consideration of any objections from OWNER. At the time of delivery of the tentative certificate of Substantial Completion ENGINEER will deliver to OWNER and CONTRACTOR a written recommendation as to division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, maintenance, heat, utilities, insurance and warranties and guarantees. Unless OWNER and CONTRACTOR agree otherwise in writing and so inform

ENGINEER in writing prior to ENGINEER's issuing the definitive certificate of Substantial Completion, ENGINEER's aforesaid recommendation will be binding on OWNER and CONTRACTOR until final payment.

14.9. OWNER shall have the right to exclude CONTRACTOR from the Work after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

#### *Partial Utilization:*

14.10. Use by OWNER at OWNER's option of any substantially completed part of the Work which: (i) has specifically been identified in the Contract Documents, or (ii) OWNER, ENGINEER and CONTRACTOR agree constitutes a separately functioning and usable part of the Work that can be used by OWNER for its intended purpose without significant interference with CONTRACTOR's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following:

14.10.1. OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees that such part of the Work is substantially complete, CONTRACTOR will certify to OWNER and ENGINEER that such part of the Work is substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. CONTRACTOR at any time may notify OWNER and ENGINEER in writing that CONTRACTOR considers any such part of the Work ready for its intended use and substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time after either such request, OWNER, CONTRACTOR and ENGINEER shall make an inspection of that part of the Work to determine its status of completion. If ENGINEER does not consider that part of the Work to be substantially complete, ENGINEER will notify OWNER and CONTRACTOR in writing giving the reasons therefor. If ENGINEER considers that part of the Work to be substantially complete, the provisions of paragraphs 14.8 and 14.9 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

14.10.2. No occupancy or separate operation of part of the Work will be accomplished prior to compliance with the requirements of paragraph 5.15 in respect of property insurance.

#### *Final Inspection:*

14.11. Upon written notice from CONTRACTOR that the entire Work or an agreed portion thereof is complete, ENGINEER will make a final inspection with OWNER and CONTRACTOR and will notify CONTRACTOR in writing of all



particulars in which this inspection reveals that the Work is incomplete or *defective*. CONTRACTOR shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

***Final Application for Payment:***

14.12. After CONTRACTOR has completed all such corrections to the satisfaction of ENGINEER and delivered in accordance with the Contract Documents all maintenance and operating instructions, schedules, guarantees, Bonds, certificates or other evidence of insurance required by paragraph 5.4, certificates of inspection, marked-up record documents (as provided in paragraph 6.19) and other documents, CONTRACTOR may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied (except as previously delivered) by: (i) all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by subparagraph 5.4.13, (ii) consent of the surety, if any, to final payment, and (iii) complete and legally effective releases or waivers (satisfactory to OWNER) of all Liens arising out of or filed in connection with the Work. In lieu of such releases or waivers of Liens and as approved by OWNER, CONTRACTOR may furnish receipts or releases in full and an affidavit of CONTRACTOR that: (i) the releases and receipts include all labor, services, material and equipment for which a Lien could be filed, and (ii) all payrolls, material and equipment bills and other indebtedness connected with the Work for which OWNER or OWNER's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, CONTRACTOR may furnish a Bond or other collateral satisfactory to OWNER to indemnify OWNER against any Lien.

***Final Payment and Acceptance:***

14.13. If, on the basis of ENGINEER's observation of the Work during construction and final inspection, and ENGINEER's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, ENGINEER is satisfied that the Work has been completed and CONTRACTOR's other obligations under the Contract Documents have been fulfilled, ENGINEER will, within ten days after receipt of the final Application for Payment, indicate in writing ENGINEER's recommendation of payment and present the Application to OWNER for payment. At the same time ENGINEER will also give written notice to OWNER and CONTRACTOR that the Work is acceptable subject to the provisions of paragraph 14.15. Otherwise, ENGINEER will return the Application to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case CONTRACTOR shall make the necessary corrections and resubmit the Application. Thirty days after the presentation to OWNER of the Application and accompanying documentation, in appropriate form and substance and with ENGINEER's recommendation and notice of acceptability, the amount recommended by ENGINEER will become due and will be paid by OWNER to

**CONTRACTOR.**

14.14. If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed and if ENGINEER so confirms, OWNER shall, upon receipt of CONTRACTOR's final Application for Payment and recommendation of ENGINEER, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by OWNER for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 5.1, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to ENGINEER with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

***Waiver of Claims:***

14.15. The making and acceptance of final payment will constitute:

14.15.1. a waiver of all claims by OWNER against CONTRACTOR, except claims arising from unsettled Liens, from *defective* Work appearing after final inspection pursuant to paragraph 14.11, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from CONTRACTOR's continuing obligations under the Contract Documents; and

14.15.2. a waiver of all claims by CONTRACTOR against OWNER other than those previously made in writing and still unsettled.

**ARTICLE 15—SUSPENSION OF WORK AND TERMINATION**

***OWNER May Suspend Work:***

15.1. At any time and without cause, OWNER may suspend the Work or any portion thereof for a period of not more than ninety days by notice in writing to CONTRACTOR and ENGINEER which will fix the date on which Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR shall be allowed an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if CONTRACTOR makes an approved claim therefor as provided in Articles 11 and 12.

***OWNER May Terminate:***

15.2. Upon the occurrence of any one or more of the following events:

15.2.1. if CONTRACTOR persistently fails to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 2.9 as adjusted from time to time pursuant to paragraph 6.6);

15.2.2. if CONTRACTOR disregards Laws or Regulations of any public body having jurisdiction;

15.2.2. if CONTRACTOR disregards the authority of ENGINEER; or

15.2.4. if CONTRACTOR otherwise violates in any substantial way any provisions of the Contract Documents;

OWNER may, after giving CONTRACTOR (and the surety, if any,) seven days' written notice and to the extent permitted by Laws and Regulations, terminate the services of CONTRACTOR, exclude CONTRACTOR from the site and take possession of the Work and of all CONTRACTOR's tools, appliances, construction equipment and machinery at the site and use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere, and finish the Work as OWNER may deem expedient. In such case CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds all claims, costs, losses and damages sustained by OWNER arising out of or resulting from completing the Work such excess will be paid to CONTRACTOR. If such claims, costs, losses and damages exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER. Such claims, costs, losses and damages incurred by OWNER will be reviewed by ENGINEER as to their reasonableness and when so approved by ENGINEER incorporated in a Change Order, provided that when exercising any rights or remedies under this paragraph OWNER shall not be required to obtain the lowest price for the Work performed.

15.3. Where CONTRACTOR's services have been so terminated by OWNER, the termination will not affect any rights or remedies of OWNER against CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR from liability.

15.4. Upon seven days' written notice to CONTRACTOR and ENGINEER, OWNER may, without cause and without prejudice to any other right or remedy of OWNER, elect to terminate the Agreement. In such case, CONTRACTOR shall be paid (without duplication of any items):

15.4.1. for completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

15.4.2. for expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

15.4.3. for all claims, costs, losses and damages incurred in settlement of terminated contracts with Subcontractors, Suppliers and others; and

15.4.4. for reasonable expenses directly attributable to termination.

CONTRACTOR shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

***CONTRACTOR May Stop Work or Terminate:***

15.5. If, through no act or fault of CONTRACTOR, the Work is suspended for a period of more than ninety days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within thirty days after it is submitted or OWNER fails for thirty days to pay CONTRACTOR any sum finally determined to be due, then CONTRACTOR may, upon seven days' written notice to OWNER and ENGINEER, and provided OWNER or ENGINEER do not remedy such suspension or failure within that time, terminate the Agreement and recover from OWNER payment on the same terms as provided in paragraph 15.4. In lieu of terminating the Agreement and without prejudice to any other right or remedy, if ENGINEER has failed to act on an Application for Payment within thirty days after it is submitted, or OWNER has failed for thirty days to pay CONTRACTOR any sum finally determined to be due, CONTRACTOR may upon seven day's written notice to OWNER and ENGINEER stop the Work until payment of all such amounts due CONTRACTOR, including interest thereon. The provisions of this paragraph 15.5 are not intended to preclude CONTRACTOR from making claim under Articles 11 and 12 for an increase in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to CONTRACTOR's stopping Work as permitted by this paragraph.

**ARTICLE 16—DISPUTE RESOLUTION**

If and to the extent that OWNER and CONTRACTOR have agreed on the method and procedure for resolving disputes between them that may arise under this Agreement, such dispute resolution method and procedure, if any, shall be as set forth in Exhibit GC-A, "Dispute Resolution Agreement," to be attached hereto and made a part hereof. If no such agreement on the method and procedure for resolving such disputes has been reached, and subject to the provisions of paragraphs 9.10, 9.11, and 9.12, OWNER and CONTRACTOR may exercise

such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any dispute.

## ARTICLE 17—MISCELLANEOUS

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### *Giving Notice:*

17.1. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

### *Computation of Times:*

17.2.1. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.2.2. A calendar day of twenty-four hours measured from midnight to the next midnight will constitute a day.

### *Notice of Claim:*

17.3. Should OWNER or CONTRACTOR suffer injury or damage to person or property because of any error, omission or

act of the other party or of any of the other party's employees or agents or others for whose acts the other party is legally liable, claim will be made in writing to the other party within a reasonable time of the first observance of such injury or damage. The provisions of this paragraph 17.3 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitations or repose.

### *Cumulative Remedies:*

17.4. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon CONTRACTOR by paragraphs 6.12, 6.16, 6.30, 6.31, 6.32, 13.1, 13.12, 13.14, 14.3 and 15.2 and all of the rights and remedies available to OWNER and ENGINEER thereunder, are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee or by other provisions of the Contract Documents, and the provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply.

### *Professional Fees and Court Costs Included:*

17.5. Whenever reference is made to "claims, costs, losses and damages," it shall include in each case, but not be limited to, all fees and charges of engineers, architects, attorneys and other professionals and all court or arbitration or other dispute resolution costs.

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**EXHIBIT GC-A to General Conditions of the  
Agreement Between OWNER and CON-  
TRACTOR Dated \_\_\_\_\_  
For use with EJCDC No. 1910-8 (1990 ed.)**

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**DISPUTE RESOLUTION AGREEMENT**

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OWNER and CONTRACTOR hereby agree that Article 16 of the General Conditions to the Agreement between OWNER and CONTRACTOR is amended to include the following agreement of the parties:

16.1. All claims, disputes and other matters in question between OWNER and CONTRACTOR arising out of or relating to the Contract Documents or the breach thereof (except for claims which have been waived by the making or acceptance of final payment as provided by paragraph 14.15) will be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association then obtaining, subject to the limitations of this Article 16. This agreement so to arbitrate and any other agreement or consent to arbitrate entered into in accordance herewith as provided in this Article 16 will be specifically enforceable under the prevailing law of any court having jurisdiction.

16.2. No demand for arbitration of any claim, dispute or other matter that is required to be referred to ENGINEER initially for decision in accordance with paragraph 9.11 will be made until the earlier of (a) the date on which ENGINEER has rendered a written decision or (b) the thirty-first day after the parties have presented their evidence to ENGINEER if a written decision has not been rendered by ENGINEER before that date. No demand for arbitration of any such claim, dispute or other matter will be made later than thirty days after the date on which ENGINEER has rendered a written decision in respect thereof in accordance with paragraph 9.11; and the failure to demand arbitration within said thirty days' period will result in ENGINEER's decision being final and binding upon OWNER and CONTRACTOR. If ENGINEER renders a decision after arbitration proceedings have been initiated, such decision may be entered as evidence but will not supersede the arbitration proceedings, except where the decision is acceptable to the parties concerned. No demand for arbitration of any written decision of ENGINEER rendered in accordance with paragraph 9.10 will be made later than ten days after the party making such demand has delivered written notice of intention to appeal as provided in paragraph 9.10.

16.3. Notice of the demand for arbitration will be filed in writing with the other party to the Agreement and with the

American Arbitration Association, and a copy will be sent to ENGINEER for information. The demand for arbitration will be made within the thirty-day or ten-day period specified in paragraph 16.2 as applicable, and in all other cases within a reasonable time after the claim, dispute or other matter in question has arisen, and in no event shall any such demand be made after the date when institution of legal or equitable proceedings based on such claim, dispute or other matter in question would be barred by the applicable statute of limitations.

16.4. Except as provided in paragraph 16.5 below, no arbitration arising out of or relating to the Contract Documents shall include by consolidation, joinder or in any other manner any other person or entity (including ENGINEER, ENGINEER's Consultant and the officers, directors, agents, employees or consultants of any of them) who is not a party to this contract unless:

16.4.1. the inclusion of such other person or entity is necessary if complete relief is to be afforded among those who are already parties to the arbitration, and

16.4.2. such other person or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration and which will arise in such proceedings, and

16.4.3. the written consent of the other person or entity sought to be included and of OWNER and CONTRACTOR has been obtained for such inclusion, which consent shall make specific reference to this paragraph; but no such consent shall constitute consent to arbitration of any dispute not specifically described in such consent or to arbitration with any party not specifically identified in such consent.

16.5. Notwithstanding paragraph 16.4 if a claim, dispute or other matter in question between OWNER and CONTRACTOR involves the Work of a Subcontractor, either OWNER or CONTRACTOR may join such Subcontractor as a party to the arbitration between OWNER and CONTRACTOR hereunder. CONTRACTOR shall include in all subcontracts required by paragraph 6.11 a specific provision whereby the Subcontractor consents to being joined in an arbitration between OWNER and CONTRACTOR involving the Work of such Subcontractor. Nothing in this paragraph 16.5 nor in the provision of such subcontract consenting to joinder shall create any claim, right or cause of action in favor of Subcontractor and against OWNER, ENGINEER or ENGINEER's Consultants that does not otherwise exist.

16.6. The award rendered by the arbitrators will be final, judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal.

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16.7. OWNER and CONTRACTOR agree that they shall first submit any and all unsettled claims, counterclaims, disputes and other matters in question between them arising out of or relating to the Contract Documents or the breach thereof ("disputes"), to mediation by The American Arbitration Association under the Construction Industry Mediation Rules of the American Arbitration Association prior to either of them initiating against the other a demand for arbitration pursuant to paragraphs 16.1 through 16.6, unless delay in initiating arbitra-

tion would irrevocably prejudice one of the parties. The respective thirty and ten day time limits within which to file a demand for arbitration as provided in paragraphs 16.2 and 16.3 above shall be suspended with respect to a dispute submitted to mediation within those same applicable time limits and shall remain suspended until ten days after the termination of the mediation. The mediator of any dispute submitted to mediation under this Agreement shall not serve as arbitrator of such dispute unless otherwise agreed.

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SECTION 00810 - SUPPLEMENTARY GENERAL CONDITIONS  
FOR  
2022 WATERLINE REPLACEMENT PROJECT  
FOR  
CITY OF SHERWOOD, OREGON

1. GENERAL

These Supplementary General Conditions amend or supplement the Standard General Conditions of the Construction Contract (EJCDC No. 1910-8, 1990 Edition), and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

2. ARTICLE 1 - DEFINITIONS

A. Immediately following paragraph 1.45 of the Standard General Conditions, add the following new paragraphs:

"1.46. Payment Bond - The form of security approved by the OWNER and furnished by the CONTRACTOR and CONTRACTOR's Surety guaranteeing payment for all labor, materials, services, and equipment furnished for use by the CONTRACTOR in performance of the Contract.

1.47. Performance Bond - The form of security approved by the OWNER and furnished by the CONTRACTOR and CONTRACTOR's Surety guaranteeing the complete and faithful performance of all the obligations and conditions placed upon the CONTRACTOR by the Contract.

1.48. Bid Bond - The security to be furnished by the Bidder on the form furnished as a guaranty of good faith to enter into a contract for the work contemplated if it be awarded to Bidder.

1.49. Act of God - An earthquake, flood, cyclone, or other cataclysmic phenomenon of nature. Rain, wind, flood or other natural phenomenon of intensity less than that recorded for the locality of the work shall not be construed as an Act of God and no reparation shall be made to CONTRACTOR for damages to the work resulting therefrom.

1.50. Provide - As used herein, "provide" shall be understood to mean "provide complete in-place", that is, "furnish and install".

3. ARTICLE 2 - PRELIMINARY MATTERS

A. SGC - 2.3. Delete paragraph 2.3 of the Standard General Conditions in its entirety and insert the following in its place:

"Within fifteen (15) days following opening of Bids, the lowest responsible Bidder will be furnished with Notice of Award accompanied by three copies each of the Agreements and Payment and Performance Bonds in form for signatures in addition to attached exhibits."



- B. SGC - 2.3.1. Add a new paragraph immediately after paragraph 2.3. of the Standard General Conditions which is to read as follows:

"Within ten (10) days after receiving from the OWNER Notice of Award and the Agreements and Bonds in form for signing, CONTRACTOR shall sign and return the Agreements and furnish to the OWNER such Bonds and certificates of insurance as are required herein, and shall furnish to OWNER evidence that \$30,000 public works bonds are on file with the Oregon Construction Contractors Board for the CONTRACTOR and all subcontractors, or evidence that such bonds are not required, in accordance with ORS 279C.800 to 279C.870."

- C. SGC - 2.3.2. Add a new paragraph immediately after paragraph 2.3.1. of the Standard General Conditions which is to read as follows:

"Within ten (10) days after execution of the Agreements, a written Notice to Proceed will be given by the OWNER to the CONTRACTOR. The Contract Times will commence to run upon the date set forth in the Notice to Proceed."

- D. SGC - 2.6.3. Add the following at the end of paragraph 2.6.3. of the Standard General Conditions:

"For Unit Price Work, a schedule of values as above described shall be provided for all lump sum bid items if so requested by the ENGINEER."

- E. SGC - 2.7. Delete paragraph 2.7 of the Standard General Conditions in its entirety and insert the following in its place:

"Before issuance of the Notice to Proceed and before any Work at the site is started, CONTRACTOR shall deliver to OWNER, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which the OWNER or any additional insured may reasonably request) which CONTRACTOR is required to purchase and maintain in accordance with paragraphs 5.4 and 5.6."

#### 4. ARTICLE 4 - AVAILABILITY OF LANDS; SUB SURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS

- A. SGC - 4.2.1.1. The following reports of explorations and tests of subsurface conditions are identified and provided with the Bidding Documents as Supplementary Information.

Landslide Hazard Study and Geotechnical Engineering Report, Columbia Creek Water Line Crossing, Valley View Water District, Multnomah County, Oregon; Amec Foster Wheeler Environmental & Infrastructure, Inc., July 14, 2017.

- B. SGC - 4.2.1.2. The following drawings of physical conditions are identified and provided with the Bidding Documents as Supplementary Information.

No such drawings are provided.

- C. SGC - 4.2.5. Delete paragraph 4.2.5 of the Standard General Conditions in its entirety and insert the following in its place:

*“Possible Contract Documents Change:* If OWNER concludes that a change in the Contract Documents is required as a result of a condition that meets one or more of the categories in paragraph 4.2.3, a Work Change Directive or a Change Order will be issued as provided in Article 10 to reflect and document the consequences of such change.”

- D. SGC - 4.3.2. Delete the first three sentences of paragraph 4.3.2 of the Standard General Conditions and insert the following in their place:

*“Not Shown or Indicated:* If an Underground Facility is uncovered or revealed at or contiguous to the site which was not shown or indicated in the Contract Documents, CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by paragraph 6.23), identify the owner of such Underground Facility and give written notice to that owner and to OWNER and ENGINEER. ENGINEER will promptly review the Underground Facility and advise the OWNER in writing of the consequences of the existence of the Underground Facility. If OWNER concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued as provided in Article 10 to reflect and document such consequences.”

- E. SGC - 4.5.4. Delete paragraph 4.5.4 of the Standard General Conditions in its entirety and insert the following in its place:

“To the fullest extent permitted by Laws and Regulations, OWNER shall indemnify and hold harmless CONTRACTOR, Subcontractors, ENGINEER, ENGINEER’s Consultants and the officers, directors, employees, agents, other consultants and subcontractors of each and any of them from and against all claims, costs, losses and damages arising out of or resulting from such hazardous condition, provided that: (i) any such claim, cost, loss or damage is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting there from, (ii) nothing in this subparagraph 4.5.4 shall obligate OWNER to indemnify any person or entity from and against the consequences of that person’s or entity’s conduct or activities, and (iii) nothing in this subparagraph 4.5.4 shall obligate OWNER to indemnify any person or entity in an amount in excess of the Tort Action Liability limitations for municipal corporations set forth in ORS Chapter 30.”

## 5. ARTICLE 5 - BONDS AND INSURANCE

- A. SGC - 5.3.2. Amend paragraph 5.3.2 of the Standard General Conditions by deleting in its entirety the second sentence which begins with the words "OWNER shall deliver..."
- B. SGC - 5.4. The limits of liability for the insurance required by paragraph 5.4 of the Standard General Conditions shall provide the following coverages for not less than the following amounts or greater where required by Laws and Regulations:

5.4.1 and 5.4.2. Workers' Compensation, etc. under paragraphs 5.4.1 and 5.4.2 of the Standard General Conditions:

- 1. State: Statutory
- 2. Applicable Federal (e.g., Longshoreman's): Statutory

3. Employer's Liability: \$ 500,000

5.4.3, 5.4.4 and 5.4.5. CONTRACTOR's Liability Insurance under paragraphs 5.4.3 through 5.4.5 of the Standard General Conditions which shall also include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of CONTRACTOR:

1. General Aggregate (Except Products -- Completed Operations) \$1,000,000

2. Products -- Completed Operations Aggregate \$500,000

3. Personal and Advertising Injury (Per Person/Organization) \$500,000

4. Each Occurrence (Bodily Injury and Property Damage) \$500,000

5. Property Damage liability insurance will provide Explosion, Collapse and Underground coverages.

6. Excess Liability:

General Aggregate \$500,000

Each Occurrence \$500,000

5.4.6 Automobile Liability:

1. Bodily Injury:

Each Person \$500,000

Each Accident \$500,000

Property Damage:

Each Accident \$500,000

or

2. Combined Single Limit (Bodily Injury and Property Damage):

Each Accident \$1,000,000

C. SGC - 5.4.10. The Contractual Liability coverage required by paragraph 5.4.10 of the Standard General Conditions shall provide coverage for not less than the following amounts:

1. General Aggregate: \$1,000,000

2. Each Occurrence (Bodily Injury and Property Damage): \$500,000

- D. SGC - 5.6. Delete paragraph 5.6 of the Standard General Conditions in its entirety and insert the following in its place:

"5.6. CONTRACTOR shall purchase and maintain property insurance upon the Work at the site in the amount of the full replacement value thereof, subject to such deductibles as may be required by Laws and Regulations. This insurance shall:

5.6.1. include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants and any other persons or entities identified in the Supplementary Conditions, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;

5.6.2. insure the work for the life of the contract against all loss or damage by fire and against all loss or damage covered by the Standard Extended Coverage Insurance endorsement, including theft, vandalism, and malicious mischief, with an insurance company or companies acceptable to the OWNER;

5.6.3 be maintained in effect until final payment is made unless otherwise agreed to in writing by OWNER, CONTRACTOR, and ENGINEER with thirty days written notice to each other additional insured to whom a certificate of insurance has been issued.

The policies of insurance required to be purchased and maintained by CONTRACTOR in accordance with this paragraph 5.6 shall comply with the requirements of GC - 5.8."

- E. SGC - 5.7. Delete paragraph 5.7, of the Standard General Conditions in its entirety.

- F. SGC - 5.8. Amend paragraph 5.8 of the Standard General Conditions as follows:

1. In the third line replace the word "OWNER" with the word "CONTRACTOR".
2. In the seventh line, replace the word "CONTRACTOR" with the word "ENGINEER".

- G. SGC - 5.10. Delete paragraph 5.10 of the Standard General Conditions in its entirety.

- H. SGC - 5.11.1. Add the following to paragraph 5.11.1 of the Standard General Conditions:

"To the extent such waiver provisions would void insurance coverage, they will not be enforceable."

- I. SGC - 5.12. Delete paragraph 5.12 of the Standard General Conditions in its entirety.

- J. SGC - 5.13. Delete paragraph 5.13 of the Standard General Conditions in its entirety.

## 6. ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

- A. SGC - 6.8.2. Add the following to paragraph 6.8.2. of the Standard General Conditions:

"As per Oregon Revised Statutes (ORS) 279C.370 and the Instructions to Bidders, each CONTRACTOR is required to disclose information about certain first tier subcontractors. OWNER and ENGINEER reserve the right to require substitutions of a listed subcontractor

by CONTRACTOR, if services or material provided do not comply with the Contract Documents. Said substitutions shall be made at no additional expense to OWNER.”

- B. SGC - 6.20. Replace the first sentence of paragraph 6.20 of the Standard General Conditions with the following:

“CONTRACTOR shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work.”

- C. SGC - 6.21. Add the following to paragraph 6.21 of the Standard General Conditions:

"CONTRACTOR shall designate a qualified and experienced "competent person" at the site whose duties and responsibilities shall include, enforcement of State of Oregon - OSHA regulations regarding excavations, the prevention of accidents, and the maintenance and supervision of construction site safety precautions and programs."

- D. SGC - 6.24 through SGC - 6.30. In paragraphs 6.24 through 6.30 of the Standard General Conditions, including all subparagraphs thereof, delete any and all occurrences of the words “approve” or “approval” as they specifically relate to shop drawing review by the ENGINEER.

- E. SGC - 6.30.1. Add the following new subparagraphs after subparagraph 6.30.1 of the Standard General Conditions:

“6.30.1A. CONTRACTOR further warrants and guarantees to the OWNER, ENGINEER, and ENGINEER’s Consultants that all Work is guaranteed for a specified period from the date of final acceptance by the OWNER. If no warranty period is specified elsewhere in these Contract Documents, the Work shall be guaranteed for one year from the date of final written acceptance by the OWNER. If, within the warranty period, repairs or changes are required in connection with the Work, the CONTRACTOR shall promptly, without expense to the OWNER:

- a) Place in satisfactory condition all guaranteed Work;
- b) Correct all damage to the building, site, equipment or contents which is the result of the use of materials, equipment or workmanship which are inferior, defective, or not in accordance with the terms of the contract; and,
- c) Correct any work, material, equipment, or contents of building, structure or site disturbed in fulfilling the guarantee.

Repairs, replacements or changes made under the warranty requirements shall be warranted for the specified warranty period, or for one year, beginning on the date of the acceptance of the repairs, replacements or changes.

If the CONTRACTOR fails within ten days to proceed to comply with the terms of this warranty, the OWNER may have the defects corrected. The CONTRACTOR and the CONTRACTOR’s surety shall be liable for all expense incurred. In case of an emergency where delay would cause serious loss or damage, repairs may be made without notice to the CONTRACTOR and the CONTRACTOR or the CONTRACTOR’s surety shall pay the cost.”

- F. SGC - 6.31. Add the following new subparagraph after paragraph 6.31 of the Standard General Conditions:

“6.31.1. CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER’s Consultants and the officers, directors, employees, agents and other consultants of each and any of them from and against any and all claims, costs, losses, damage, liabilities, penalties and fines arising out of or resulting from (i) the violation by CONTRACTOR of any federal, state or local statute, law, rule, regulation, ordinance, order, permit or governmental approval or authorization relating to the protection of the environment or human health, safety, or welfare (“Environmental Law”); and (ii) any release, spill, discharge, or disposal of any “hazardous material” which shall include, without limitations, any “hazardous substance”, “hazardous material”, “toxic substance”, “pollutant”, “contaminant”, “oil”, or “petroleum”, or words of similar impact under any Environmental Law.”

## 7. ARTICLE 8 - OWNER’S RESPONSIBILITIES

- A. SGC - 8.2. Delete paragraph 8.2 of the Standard General Conditions in its entirety and insert the following in its place:

“In case of termination of the employment of ENGINEER, OWNER shall appoint an engineer whose status under the Contract Documents shall be that of the former ENGINEER.”

- B. SGC - 8.4. Delete paragraph 8.4 of the Standard General Conditions in its entirety.
- C. SGC - 8.5. Delete paragraph 8.5 of the Standard General Conditions in its entirety.

## 8. ARTICLE 9 - ENGINEER’S STATUS DURING CONSTRUCTION

- A. SGC - 9.10. Delete paragraph 9.10 of the Standard General Conditions in its entirety and insert the following in its place:

“ENGINEER will determine the actual quantities and classifications of Unit Price Work performed by CONTRACTOR. ENGINEER will review with CONTRACTOR the ENGINEER’s preliminary determinations on such matters before rendering a written recommendation of an Application for Payment to the OWNER. OWNER’s written decision on such matters will be final and binding upon CONTRACTOR, unless, within ten days after the date of any such decision, CONTRACTOR delivers to OWNER written notice of intent to appeal OWNER’s decision and a formal proceeding is instituted by CONTRACTOR in a forum of competent jurisdiction to exercise such rights or remedies as CONTRACTOR may have with respect to the OWNER’s decision, unless otherwise agreed in writing by OWNER and CONTRACTOR.”

- B. SGC - 9.11. Delete paragraph 9.11 of the Standard General Conditions in its entirety.
- C. SGC - 9.12. Delete paragraph 9.12 of the Standard General Conditions in its entirety.

## 9. ARTICLE 11 - CHANGE OF CONTRACT PRICE

- A. SGC - 11.2. Replace the sentence beginning "All claims for adjustment in the Contract Price..." in paragraph 11.2 of the Standard General Conditions with the following:

"All claims for adjustment in the Contract Price shall be determined by OWNER if OWNER and CONTRACTOR cannot otherwise agree on the amount involved. OWNER's written decision on such matters will be final and binding upon CONTRACTOR, unless, within ten days after the date of any such decision, CONTRACTOR delivers to OWNER written notice of intent to appeal OWNER's decision and a formal proceeding is instituted by CONTRACTOR in a forum of competent jurisdiction to exercise such rights or remedies as CONTRACTOR may have with respect to the OWNER's decision, unless otherwise agreed in writing by OWNER and CONTRACTOR."

- B. SGC - 11.9.3. Delete paragraph 11.9.3. of the Standard General Conditions in its entirety and insert the following in its place:

"Except as provided otherwise, the unit price of an item of Unit Price Work may be subject to reevaluation and possible adjustment under the following conditions:

11.9.3.1. if the total cost of a particular item of Unit Price Work amounts to 10 percent or more of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by CONTRACTOR differs by more than 25 percent from the estimated quantity of such item indicated in the Agreement; and

11.9.3.2. if there is not corresponding adjustment with respect to any other item of Work; and

11.9.3.3. if CONTRACTOR believes that CONTRACTOR has incurred additional expense as a result thereof; or if OWNER believes that the quantity variation entitles OWNER to an adjustment in the unit price, either OWNER or CONTRACTOR may make a claim for an adjustment in the Contract Price in accordance with Article 11 if the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed."

## 10. ARTICLE 12 - CHANGE OF CONTRACT TIMES

- A. SGC - 12.1. Replace the sentence beginning "All claims for adjustment in the Contract Time..." in paragraph 12.1 of the Standard General Conditions with the following:

"All claims for adjustment in the Contract Time shall be determined by OWNER if OWNER and CONTRACTOR cannot otherwise agree on the amount involved. OWNER's written decision on such matters will be final and binding upon CONTRACTOR, unless, within ten days after the date of any such decision, CONTRACTOR delivers to OWNER written notice of intent to appeal OWNER's decision and a formal proceeding is instituted by CONTRACTOR in a forum of competent jurisdiction to exercise such rights or remedies as CONTRACTOR may have with respect to the OWNER's decision, unless otherwise agreed in writing by OWNER and CONTRACTOR."

11. ARTICLE 13 - TESTS AND INSPECTIONS: CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

- A. SGC - 13.12.1. In the first sentence of paragraph 13.12.1 of the Standard General Conditions, replace the words "Substantial Completion" with "final written acceptance by OWNER".

12. ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

- A. SGC - 14.4. Delete paragraph 14.4 of the Standard General Conditions in its entirety and insert the following in its place:

"ENGINEER will, within 15 days after receipt of each Application for Payment, either indicate in writing a recommendation for payment and present the Application to OWNER, or return the application to CONTRACTOR indicating in writing ENGINEER's reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application. Within fifteen days after presentation of the Application for Payment to OWNER with ENGINEER's recommendation or within 30 days of receipt of an approved Application for Payment from the CONTRACTOR, the amount recommended will (subject to the last sentence of paragraph 14.7) become due and when due will be paid by OWNER to CONTRACTOR."

- B. SGC - 14.7. Add the following new paragraphs immediately after paragraph 14.7.8 of the Standard General Conditions:

"14.7.9. CONTRACTOR has failed, neglected, or refused to make prompt and full payment of any claim for labor, services, materials, supplies or provisions furnished by any person in connection with the contract as said claim becomes due.

14.7.10. CONTRACTOR has failed to make acceptable submittals in accordance with paragraph 2.9 of the Standard General Conditions."

- C. SGC - 14.8. Delete paragraph 14.8 of the Standard General Conditions in its entirety and insert the following in its place:

"When CONTRACTOR considers the entire Work ready for its intended use CONTRACTOR shall notify OWNER and ENGINEER in writing that the entire Work is substantially complete (except for items specifically listed by CONTRACTOR as incomplete) and request that OWNER issue a Certificate of Substantial Completion. Within a reasonable time thereafter, OWNER, CONTRACTOR and ENGINEER shall make an inspection of the Work to determine the status of completion. If OWNER does not consider the Work substantially complete, OWNER will notify CONTRACTOR in writing giving the reasons therefore. If OWNER considers the Work substantially complete, OWNER will prepare and deliver to CONTRACTOR a certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. OWNER will also deliver to CONTRACTOR a written division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, maintenance, heat, utilities, insurance and warranties and guarantees. OWNER's written decision on such matters will be final and binding upon CONTRACTOR, unless, within ten days after the date of any such



decision, CONTRACTOR delivers to OWNER written notice of intent to appeal OWNER's decision and: (i) an appeal of the OWNER's decision is taken within the time limits and in accordance with the procedures set forth in a "Dispute Resolution Agreement" entered into between OWNER and CONTRACTOR pursuant to Article 16, or (ii) if no such Dispute Resolution Agreement has been entered into, a formal proceeding is instituted by CONTRACTOR in a forum of competent jurisdiction to exercise such rights or remedies as CONTRACTOR may have with respect to the OWNER's decision, unless otherwise agreed in writing by OWNER and CONTRACTOR."

### 13. ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

- A. SGC -15.2. Delete the last sentence of paragraph 15.2 of the Standard General Conditions beginning with "Such claims, costs, losses and damages incurred by OWNER..."

### 14. ARTICLE 16 - DISPUTE RESOLUTION

- A. SGC - 16. Delete Article 16 of the Standard General Conditions in its entirety and insert the following in its place:

"If and to the extent that OWNER and CONTRACTOR have agreed on the method and procedure for resolving disputes between them that may arise under this agreement, such dispute resolution method and procedure, if any, shall be as set forth by United States Arbitration & Mediation of Portland, Oregon. If no such agreement on the method and procedure for resolving such disputes has been reached, and subject to the provisions of paragraph 9.10 as modified by these Supplemental General Conditions, OWNER and CONTRACTOR may exercise such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any dispute."

- B. Delete Exhibit GC-A to the General Conditions in its entirety.

### 15. ARTICLE 17 - MISCELLANEOUS

- A. SGC - 17.6. Add the following new paragraph immediately following paragraph 17.5 of the Standard General Conditions:

***"Attorney Fees:***

17.6. In case suit or action is instituted to enforce any of the terms or provisions of the Contract Document, the losing party agrees to pay such sum as the trial court may adjudge reasonable as attorney's fees to be allowed the prevailing party in said arbitration, suit or action, and if an appeal is taken from any judgment or decree of such trial court, the losing party further promises to pay such sum as the appellate court shall adjudge reasonable as the prevailing party's attorney's fees on such appeal."

### 16. ADDITIONAL REQUIRED TERMS AND CONDITIONS

CONTRACTOR shall comply with the following terms and conditions. To the extent that they are different from or inconsistent with any other terms and conditions in the Contract Documents, then the following terms and conditions shall control:

## 16.1 COMPLIANCE WITH ALL GOVERNMENT REGULATIONS

CONTRACTOR shall comply with all federal, state and local laws, codes, regulations and ordinances applicable to the Work. Failure to comply with such requirements shall constitute a breach of Contract and shall be grounds for Contract termination. Damages or costs resulting from noncompliance shall be the responsibility of CONTRACTOR.

16.1.1 CONTRACTOR shall comply with all applicable requirements of federal and state civil rights and rehabilitation statutes, rules and regulations; and

- a) CONTRACTOR certifies to OWNER that the CONTRACTOR has not and will not discriminate against minority, women or emerging small business enterprises in the awarding of or obtaining subcontracts, as required by ORS 279A.100 to 279A.110.
- b) CONTRACTOR shall maintain, in current and valid form, all licenses and certificates required by law, regulation, or this Contract when performing the Work.
- c) CONTRACTOR certifies that CONTRACTOR is registered with the Construction Contractor's Board.
- d) In accordance with ORS 279C.505(2), CONTRACTOR shall demonstrate that an employee drug testing program is in place.
- e) In accordance with ORS 279C.510, CONTRACTOR shall salvage or recycle demolition debris if feasible and cost effective.

16.1.2 Unless contrary to federal law, CONTRACTOR certifies that it has not accepted a bid or proposal from subcontractors to perform work as described in ORS 701.005 under this Contract unless such subcontractors are registered with the Construction Contractor's Board in accordance with ORS 701.035 to 701.055 or will be so registered at the time they commence work under the contract.

## 16.2 MINIMUM WAGE RATES ON PUBLIC WORKS

16.2.1 When the contract price exceeds \$50,000, the CONTRACTOR shall comply fully with the provisions of ORS.279C.800 through 279C.870. Documents establishing those provisions, including the existing state prevailing rate of wage and, if applicable, the federal prevailing rate of wage required under the Davis-Bacon Act (40 U.S.C. 276a), as determined by the Commissioner of the Bureau of Labor and industries (BOLI), are included in these Contract Documents by reference.

16.2.2 If the project is subject to ORS 279C.800 to 279C.870 and the Davis-Bacon Act (40 U.S.C. 276a), CONTRACTOR and every subcontractor shall pay at least the state prevailing rate of wage as required by ORS 279C.800 to 279C.870 or at least the federal prevailing rate of wage as required by the Davis-Bacon Act, whichever is higher. Every subcontract shall contain this provision.

16.2.3 Pursuant to ORS 279C.845, CONTRACTOR and its subcontractors shall submit to the OWNER complete weekly certified statements of payrolls for the week immediately preceding each submission as follows:

Certified statements for each week during which the contractor or subcontractor employs a worker upon the public work shall be submitted once a month, by the fifth business day of the following month.

Before the final payment (covering the last full week of work on the project) is made to the CONTRACTOR by the OWNER.

16.2.4 Payroll and Certified Statement forms are available at any BOLI office. The forms must be submitted to: (1) the OWNER; and (2) BOLI's Wage and Hour Division. Payroll and certified statement records must be kept by the CONTRACTOR and Subcontractors for three (3) years from the date of Final Completion of the Contract. The forms shall be submitted to the OWNER in conjunction with the CONTRACTOR's regular payroll cycle.

16.2.5 Notwithstanding ORS 279C.555 or 279C.570 (7), if the CONTRACTOR is required to file certified statements under this section, OWNER shall retain 25 percent of any amount earned by CONTRACTOR until CONTRACTOR has filed the certified statements with OWNER. OWNER will pay the CONTRACTOR the amount retained under this subsection within 14 days after CONTRACTOR files the certified statements, regardless of whether a subcontractor has failed to file certified statements as required by this section.

16.2.6 Notwithstanding ORS 279C.555, CONTRACTOR shall retain 25 percent of any amount earned by a first-tier subcontractor until the subcontractor has filed with the OWNER certified statements as required by this section. CONTRACTOR shall verify that certified statements of first-tier subcontractors have been filed with the OWNER before paying any amount retained under this subsection. CONTRACTOR shall pay the first-tier subcontractor the amount retained under this subsection within 14 days after the subcontractor files the certified statements.

### 16.3 PUBLIC WORKS BOND

16.3.1 When the contract price exceeds \$50,000 and CONTRACTOR is required under ORS 279C.800 to 279C.870 to pay prevailing rates of wages, CONTRACTOR and all subcontractors shall file with the Oregon Construction Contractors Board a public works bond with a corporate surety authorized to do business in Oregon in the amount of \$30,000. The bond provisions and language shall meet the requirements of the Board and the Bureau of Labor and Industries. Before starting work, CONTRACTOR shall provide proof to OWNER that CONTRACTOR has filed a public works bond as required under this section.

16.3.2 CONTRACTOR shall include in every subcontract a provision requiring the subcontractor to have a public works bond filed with the Construction Contractors Board before starting work on the project. Before permitting a subcontractor to start work, CONTRACTOR shall verify that the subcontractor has filed a public works bond as required under this section.

16.3.3 A disadvantaged, minority, women or emerging small business enterprise certified under ORS 200.055 may, for up to one year after certification, elect not to file a public works bond as required under this section. If a business enterprise elects not to file a public works bond, the business enterprise shall give the Board written verification of the certification and written notice that the business enterprise elects not to file the

bond. The business enterprise shall notify the OWNER, or if the business enterprise is a subcontractor, the CONTRACTOR of the election before starting work.

#### 16.4 PROMPT PAYMENT AND LIABILITY FOR CLAIMS

##### 16.4.1 Pursuant to ORS 279C.505 the CONTRACTOR shall:

- a) Make payment promptly, as due, to all persons supplying to such CONTRACTOR labor or material for the prosecution of the work provided for in such Contract.
- b) Pay all contributions or amounts due the Industrial Accident Fund from such CONTRACTOR or Subcontractor incurred in the performance of the Contract.
- c) Not permit any lien or claim to be filed or prosecuted against the OWNER, state, county, school district, municipality, municipal corporation or subdivision thereof, on account of any labor or material furnished.
- d) Pay to the Department of Revenue all sums withheld from employees pursuant to ORS 316.167.

16.4.2 Pursuant to ORS 279C.580 the CONTRACTOR shall not request payment from the OWNER of any amount withheld or retained in accordance with subsection (5) of ORS 279C.580 until such time as the CONTRACTOR has determined and certified to the OWNER that the Subcontractor has determined and certified to the OWNER that the Subcontractor is entitled to the payment of such amount. A dispute between the CONTRACTOR and First-Tier Subcontractor relating to the amount or entitlement of First-Tier Subcontractor to a payment or a late payment interest penalty under a clause included in the Subcontract pursuant to subsection (3) or (4) of ORS 279C.580 does not constitute a dispute to which the OWNER is a party. The OWNER shall not be included as a party in any administrative or judicial proceeding involving such a dispute.

16.4.3 Pursuant to ORS 279C.580 the CONTRACTOR shall include the following provisions in each Subcontract for property or services entered into by the CONTRACTOR and a First-Tier Subcontractor, including a material supplier, for the purpose of performing a construction contract:

- a) A payment clause that obligates the CONTRACTOR to pay first-tier subcontractor or material supplier for satisfactory performance under its subcontract within 10 days out of such amounts as are paid to CONTRACTOR by OWNER;
- b) An interest penalty clause that obligates the CONTRACTOR if payment is not made within 30 days after receipt of payment from the OWNER, to pay the first-tier subcontractor an interest penalty on amounts due in the case of each payment not made in accordance with the payment clause included in the subcontract pursuant to paragraph 16.3.3(a). The CONTRACTOR or first-tier subcontractors shall not be obligated to pay an interest penalty if the only reason that the CONTRACTOR or first-tier subcontractor did not make payment when payment was due is that the CONTRACTOR or first-tier subcontractor did not receive payment from the OWNER or CONTRACTOR when payment was due. The interest penalty shall be for the period beginning on the day after the required payment date and ending on the

date which payment of the amount due is made, and shall be computed at the rate specified in ORS 279C.515(2).

- c) A clause which requires each of CONTRACTOR's subcontractors to include, in each of their contracts with lower-tier subcontractors or suppliers, provisions to the effect that the subcontractor shall pay its lower-tier subcontractors and suppliers in accordance with the provisions of subsections (a) and (b) above and requiring each of their subcontractors and suppliers to include such clauses in their subcontracts and supply contracts.

#### 16.4.4 Pursuant to ORS 279C.515:

- a) If 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 the Project as such claim becomes due, the proper officer(s) representing the OWNER may pay the claim and charge the amount of the payment against funds due or to become due CONTRACTOR under this Contract.
- b) If 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 OWNER 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(3) 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 the 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 OWNER or from the CONTRACTOR, but the rate of interest shall not exceed 30 percent. The amount of interest may not be waived.
- c) 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 Contractors Board, unless payment is subject to a good faith dispute as defined in ORS 279C.580.
- d) The payment of a claim in the manner authorized in this section shall not relieve the CONTRACTOR or the CONTRACTOR's surety from obligation with respect to any unpaid claims.
- e) CONTRACTOR shall require first-tier Subcontractors to include the same payment clauses contained in their contracts with lower lever subcontractors and suppliers in connection with this project.

#### 16.5 PAYMENT FOR MEDICAL CARE

Pursuant to ORS 279C.530, CONTRACTOR shall promptly, as due, make payment 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

employees of such CONTRACTOR all sums of which the CONTRACTOR agrees to pay for such services and all moneys and sums which the CONTRACTOR has collected or deducted from the wages of personnel pursuant to any law, contract or agreement for the purpose of providing or paying for such services.

## 16.6 HOURS OF LABOR

Pursuant to ORS 279C.520, no person shall be employed to perform work under this Contract for more than eight hours in any one day of a 5-day work week, ten hours in one day of a 4-day work week, or forty hours in any one week, except in cases of necessity, emergency or where public policy absolutely requires it. In such instances, CONTRACTOR shall pay the employee, except in cases of contracts for personal services as defined in ORS 279C.100, at least time and a half pay for all time in excess of the allowable on Monday through Friday or for work performed on Saturday and on any legal holiday specified in ORS 279C.540. This section will not apply to CONTRACTOR's work under this Contract if CONTRACTOR is currently a party to a collective bargaining agreement in effect with any labor organization, as provided in ORS 279C.540(4). CONTRACTOR shall cause a circular to be posted in accordance with ORS 279C.545 which contains a copy of ORS 279C.540 and the claims rights and limitations for overtime pay set forth therein.

16.7 WORKERS' COMPENSATION: The CONTRACTOR, its subcontractors, if any, and all employers providing work, labor, or materials under this Contract are subject employers under the Oregon Workers' Compensation Law and shall comply with ORS 656.017, which requires them to provide workers' compensation coverage that satisfies Oregon Law for all their subject workers. This shall include Employer's Liability Insurance with coverage limits of not less than \$100,000 each accident.

## 16.8 OWNER'S RIGHT TO SUSPEND THE WORK

16.8.1 The OWNER and the OWNER's Authorized Representative have the authority to suspend portions or all of the Work due to causes including, but not limited to:

- (a) Failure of the CONTRACTOR to correct unsafe conditions;
- (b) Failure of the CONTRACTOR to carry out any provisions of the Contract;
- (c) Failure of the CONTRACTOR to carry out orders;
- (d) Conditions, in the opinion of the OWNER's Authorized Representative, which are unsuitable for performing the Work;
- (e) Time required to investigate differing site conditions;
- (f) The initiation or pendency of litigation or administrative appeals in any way relating to permits or authorization necessary to undertake and/or continue the Work;
- (g) Any reason considered to be in the public interest.

If the Work is suspended in whole or in part by OWNER pursuant to paragraph 16.7.1.(f) or (g), the CONTRACTOR is entitled to a reasonable extension of the contract time and

reasonable compensation for all actual unavoidable out of pocket costs resulting from the suspension plus a reasonable allowance for overhead with respect to such costs. During any such suspension, CONTRACTOR shall be and remain obligated to preserve the contract site, the contract Work, whether completed in whole or in part, and any materials stored at the site, in good condition and repair.

## 16.9 OWNER'S RIGHT TO TERMINATE FOR CONVENIENCE

16.9.1 In addition to OWNER's right to terminate the Contract in accordance with paragraph 15.2 of the Standard General Conditions, OWNER may terminate the Contract in whole or in part whenever OWNER determines that termination of the Contract is in the best interest of the public, or if the circumstances are such that it is impracticable within a reasonable time to proceed with a substantial portion of the Work. OWNER may also terminate the contract in the event of the filing or pendency of litigation or administrative appeals in any way relating to the permits or authorizations necessary to undertake and/or continue the Work.

16.9.2 The OWNER will provide written notice to the CONTRACTOR and the CONTRACTOR's Surety seven (7) days prior to termination for public convenience. After such notice, the CONTRACTOR and the CONTRACTOR's surety shall provide the OWNER with immediate and peaceful possession of the Project site and premises; materials located on and off the Project site and premises for which the CONTRACTOR received progress payment. If the Contract is terminated pursuant to this paragraph (16.8), the CONTRACTOR is entitled to reasonable compensation for all materials delivered but not yet paid for, and actual unavoidable out of pocket demobilization costs resulting from the termination, plus a reasonable allowance for overhead with respect to such demobilization costs. In no circumstances shall CONTRACTOR be entitled to lost profits, or general, special, or indirect or consequential damages due to a termination of the Contract by OWNER.

## 16.10 PROTECTION OF THE ENVIRONMENT

16.10.1 The CONTRACTOR will comply with Oregon Revised Statutes (ORS) 279A.125, 279B.240 to 279B.280, and 279C.525 dealing with the prevention of environmental pollution and the preservation of natural resources that affect the performance of the work. The CONTRACTOR shall conduct operations in conformity to the applicable Sections of ORS Chapters 273, 274, 459, 459A, 465, 466, 467, 468, 468A, and 468B, laws amendatory thereto, and all pertinent regulation of the Department of Environmental Quality and other agencies of the state and the federal government, as well as ordinances or resolutions enacted or adopted by local authorities. It is public policy that all practicable means be exercised to prevent, control, and abate the pollution of waters of the state, and to maintain reasonable purity of the air by the control or abatement of air pollution.

The CONTRACTOR shall exercise every reasonable precaution throughout the life of the contract to safeguard the air resources of the state by controlling or abating air pollution, as defined in ORS 468A.005, in accord with the policy and purpose set forth in ORS 468A.010 and 468A.015.

The CONTRACTOR shall adhere to all permits issued by federal, state, and local agencies. Federal, state, and local agencies having a responsible and/or jurisdiction relating to the environment include, but are not limited to the following agencies:

- U.S. Department of Agriculture
- U.S. Department of Health and Human Services
- U.S. Environmental Protection Agency
- U.S. Army Corps of Engineers
- U.S. Coast Guard
- U.S. Department of Interior, Bureau of Land Management
- U.S. Fish and Wildlife Service
- U.S. Department of Labor
- U.S. Department of Transportation
- U.S. Forest Service
- U.S. Department of Commerce, National Marine Fisheries Service
- Heritage Conservation and Recreation Services
- Oregon Department of Environmental Quality
- Oregon Department of Geology and Mineral Industries
- Oregon Department of Agriculture
- Oregon Department of Energy
- Oregon Department of Fish and Wildlife
- Oregon Department of Forestry
- Oregon Department of Human Resources
- Oregon Department of Water Resources
- Oregon Division of State Lands
- Oregon Land Conservation and Development Commission
- Oregon Soil and Water Conservation Commission
- Local County Courts and Boards of Commissioners
- Local City Councils and Commissions
- Local Planning Commissions

#### 16.11 TAX LAW CERTIFICATION

The CONTRACTOR certifies to OWNER under penalty of perjury, that CONTRACTOR is to the best of CONTRACTOR's knowledge, not in violation of any tax laws described in ORS 305.380(4).

#### 16.12 NOTICES

Any notices permitted or required under the Contract Documents shall be deemed given upon the date of personal delivery or 48 hours after deposit in the United States mail, postage fully prepaid, return receipt requested, addressed to the parties at the addresses set forth on the face of the Contract Documents or any other address as any party may, from time to time, designate by notice given in compliance with this Section.

#### 16.13 EXHIBITS

All exhibits, schedules and lists attached to the Contract Documents or delivered pursuant to the Contract Documents shall be deemed a part of the Contract Documents and incorporated herein, where applicable, as if fully set forth herein.



#### 16.14 ATTORNEY FEES

In the event of any litigation between the parties to declare or enforce any provision of the Contract Documents, the prevailing party or parties shall be entitled to recover from the losing party or parties, in addition to any other recovery and costs, reasonable attorney fees incurred in such litigation, in both the trial and in all appellate courts.

#### 16.15 INTEGRATION

The Contract Documents embody the entire agreement of the parties hereto. There are no promises, terms, conditions or obligations other than those contained herein. The Contract Documents supersede all prior communications, representations or agreements, verbal or written, between the parties hereto and shall not be amended except in writing subscribed to by the parties hereto.

#### 16.16 JURISDICTION

The Contract Documents shall be deemed to have been made in the State of Oregon, and shall be governed by the laws of said state. Venue for any litigation filed in connection with the Contract Documents shall be in a court of competent jurisdiction in Multnomah County, Oregon.

#### 16.17 SUBCONTRACTOR REGISTRATION

The CONTRACTOR certifies to OWNER that all subcontractors performing work will be registered with the Construction Contractor's Board or licensed by the State Landscape Contractor's Board in accordance with ORS 701.035 to 701.055 before the subcontractors commence work under the contract.

#### 16.18 EQUAL OPPORTUNITY

CONTRACTOR covenants that the CONTRACTOR shall not discriminate against any person on the grounds of race, color, creed, national origin, sex or handicap and shall comply with the standard federal equal opportunity construction contract specifications in Executive Order 11246.

#### 16.19 INDUSTRIAL ACCIDENT PROTECTION

To the extent CONTRACTOR, subcontractors, and all employers working under the Contract are subject employers under the Oregon Workers' Compensation Law. CONTRACTOR shall comply with ORS 656.017, which requires workers' compensation coverage for all subject workers. CONTRACTOR will also comply with the Workers Compensations law of any state to which CONTRACTOR shall be subject.

END OF SECTION

SECTION 00820 – OREGON PREVAILING WAGE RATES  
FOR  
2022 WATERLINE REPLACEMENT PROJECT  
FOR  
CITY OF SHERWOOD, OREGON

The applicable Oregon prevailing wage rates are contained in the publication *Prevailing Wage Rates for Public Works Contracts in Oregon, Effective July 1, 2022*, and are incorporated herein as though fully set forth as of the date the Bidding Documents are first advertised.

(See Oregon Bureau of Labor and Industries website links at [http://www.oregon.gov/BOLI/WHD/PWR/pwr\\_state.shtml](http://www.oregon.gov/BOLI/WHD/PWR/pwr_state.shtml) and <http://www.oregon.gov/BOLI>)

# **TECHNICAL SPECIFICATIONS**

## SECTION 01100

### SPECIAL PROVISIONS

#### PART 1 GENERAL

These Special Provisions and additional technical specifications may contain occasional requirements not pertinent to the project. However, these specifications shall apply in all particulars insofar as they are applicable to this project.

##### 1.1 Applicable Standard Specifications and Plans

City of Sherwood, Oregon, "Engineering Design and Standard Details Manual", July 1, 2009 (including all revisions at date of bid opening) and ODOT/APWA, Oregon, Standard Specification for Construction 2021 apply except as may be modified herein. In the case of discrepancy, unless noted otherwise herein, the more restrictive provisions shall apply.

##### 1.2 Scope of Work

The 2022 Waterline Replacement project consists of proposed improvements for SW Norton Ave. Improvements for SW Norton Ave. include installing a new 8-inch diameter connection to the waterline in SW Willamette St, installing approximately 580 linear feet of a new 8-inch diameter waterline in SW Norton Ave, connecting to existing 8-inch waterline at SW Forest and SW Norton, installing a new fire hydrant assembly, connecting waterline services to new waterline and abandoning an existing 6-inch diameter waterline. The permits or approvals anticipated for this project are anticipated to be limited to a street opening permit issued by the City.

The above general outline of principal features of the work does not in any way limit the responsibility of the CONTRACTOR(s) to perform all work and furnish all equipment, labor and materials required by the specifications and drawings. The drawings and specifications shall be considered and used together. Anything appearing as a requirement of either shall be accepted as applicable to both even though not so stated therein or shown.

No attempt has been made in these specifications or drawings to segregate work covered by any trade or subcontract under one specification. Such segregation and establishment of subcontract limits will be solely a matter of specific agreement between the CONTRACTOR and its subcontractors and shall not be based upon any inclusion, segregation or arrangement in or of these specifications.

##### 1.3 Coordination of Drawings and Specifications

The drawings and specifications are intended to describe and provide for a complete work. Any requirement in one is as binding as if stated in all. The CONTRACTOR shall provide any work or materials clearly implied in the Contract Documents even if the Contract Documents do not mention it specifically. If there is a conflict within the Contract Documents, it will be resolved by the following order of precedence:

- A. Permits for outside agencies required by law
- B. OWNER-CONTRACTOR Agreement
- C. Addenda to Contract Documents
- D. CONTRACTOR's Proposal
- E. Special Provisions
- F. Contract Drawings
- G. Technical Specifications
- H. Standard Specifications
- I. Standard Plans

Dimensions shown on the drawings or that can be computed shall take precedence over scaled dimensions. Notes on drawings are part of the drawings and govern in the order described above. Notes on drawings shall take precedence over drawing details.

The intent of the drawings and specifications is to prescribe the details for the construction and completion of the work which the CONTRACTOR undertakes to perform according to the terms of the Contract. Where the drawings or specifications describe portions of the work in general terms, but details are incomplete or silent, it is understood that only the best general practice is to prevail and that only materials and workmanship of the best quality are to be used. Unless otherwise specified, the CONTRACTOR shall furnish all labor, materials, tools, equipment, and incidentals, and do all the work involved in executing the Contract in a manner satisfactory to the ENGINEER.

The contract drawings are designated by general title, sheet number and sheet title. When reference is made to the drawings, the "Sheet Number" of the drawing will be used. Each drawing bears the ENGINEER's File No. 17-1977.201. and the general title:

CITY OF SHERWOOD  
2022 WATERLINE REPLACEMENT

The specific titles of each sheet are contained on sheet G-1.

#### 1.4 Code Requirements

All work shall be done in strict compliance with the requirements of:

- A. International Building Code
- B. Uniform Mechanical Code
- C. Uniform Plumbing Code
- D. National Electric Code
- E. National Electric Safety Code
- F. Oregon State Department of Labor and Industries
- G. City of Sherwood, Oregon
- H. Washington County

In case of disagreement between codes or these specifications, the more restrictive shall prevail.

#### 1.5 Time of Completion

The CONTRACTOR shall complete all work shown and specified within the time limits stated in the Agreement (See Section 01300, Submittals, for project schedule submittal requirements). The written Notice to Proceed will be sent to the CONTRACTOR after the CONTRACTOR submits the signed Contract, Bonds and insurance certificates to the OWNER and those documents have been approved as to form and executed by the OWNER.

#### 1.6 Coordination with Other Contractors and with OWNER

Certain work within this contract may require connection to and coordination with the work of other contractors and OWNER. The CONTRACTOR under these specifications shall cooperate fully with all other contractors and OWNER and carefully fit its own work to such other work as may be directed by the ENGINEER. The CONTRACTOR shall not commit or permit any act to be committed which will interfere with the performance of work by any other contractor or the OWNER.

#### 1.7 Access to Work

Access to the work shall be provided as may be required by the OWNER or its representatives, and all authorized representatives of the state and federal governments and any other agencies having jurisdiction over any phase of the work, for inspection of the progress of the work, the methods of construction or any other required purposes.

#### 1.8 Permits and Licenses

Unless provided for otherwise in these contract documents, all permits, licenses and fees shall be obtained by the CONTRACTOR and all costs shall be borne by the CONTRACTOR. CONTRACTOR shall pay all plan check fees and other fees

necessary to obtain permits and shall accommodate special inspections required thereof. CONTRACTOR shall be responsible for compliance with all permit provisions and shall accommodate all special inspections required thereof, all at no additional expense to the OWNER beyond prices as bid.

#### 1.9 Site Investigation and Physical Data

The CONTRACTOR acknowledges that it is satisfied as to the nature and location of the work and the general and local conditions, including but not limited to those bearing upon transportation, disposal, handling and storage of materials, availability of water, roads, groundwater, access to the sites, coordination with other contractors, and conflicts with pipelines, structures and other contractors. Information and data furnished or referred to herein is furnished for information only. Any failure by the CONTRACTOR to become acquainted with the available information and existing conditions will not be a basis for relief from successfully performing the work and will not constitute justification for additional compensation.

The CONTRACTOR shall verify the locations and elevations of existing pipelines, structures, grades and utilities, prior to construction. The OWNER assumes no responsibility for any conclusions or interpretations made by the CONTRACTOR on the basis of the information made available.

#### 1.10 Temporary Utilities for Construction Purposes

The CONTRACTOR shall make all arrangements necessary to provide all temporary utilities for construction purposes and shall pay all costs associated those temporary utilities. Water for construction purposes will be furnished by the OWNER at no cost. The CONTRACTOR shall furnish all valves, hoses, connections and other devices as necessary to obtain sufficient water for construction and for filling and testing of water lines as required. Fire hydrant use is allowed only by permission of the utility owner. Backflow protection is required on all connections to potable water systems.

#### 1.11 Field Service by Manufacturer's Representative

The CONTRACTOR shall furnish the services of a manufacturer's or material supplier's representative for all major equipment and materials furnished by the CONTRACTOR or OWNER under this contract, to check, place in operation and test the installation, and train operating personnel. The manufacturer's representative shall be qualified and authorized to perform repairs and maintenance on the equipment. The above gives a general scope of the services desired from the manufacturer's representative. It will be the responsibility of the CONTRACTOR and the equipment manufacturer to determine detailed requirements. Costs for services of the manufacturer's representative shall be included in the proposal of the CONTRACTOR. The operator training mentioned above shall include sufficient time

during the CONTRACTOR's operation and testing period to fully explain to the operating personnel the features of the equipment and maintenance thereof.

#### 1.12 Construction Within Public Rights-of-Way

When the work contemplated is wholly or partly within the right-of-way of a public agency such as a city, county or state, the OWNER will obtain from these agencies any right-of-way and street opening permits and all other necessary permit(s) required for the work. The CONTRACTOR shall abide by all regulations and conditions stipulated in the permit(s). Such conditions and requirements are hereby made a part of these specifications, as fully and completely as though the same were fully set forth herein. The CONTRACTOR shall examine the permit(s) granted to the OWNER by any city, county, state and federal agencies. Failure to do so will not relieve the CONTRACTOR from compliance with the requirements stated therein.

The CONTRACTOR shall obtain all construction permits and pay all fees or charges and furnish any bonds and insurance coverages as necessary to insure that all requirements of the city, county, state or federal agencies will be observed and the roadway and ditches are restored to their original condition or one equally satisfactory. A copy of all permits shall be kept on the work site for use of the ENGINEER.

The OWNER will obtain all necessary street opening permits as may be required by the City. The CONTRACTOR shall conduct its operations so as to keep at least one lane of traffic open for public and private access at all times on City, County and Public streets, roads and highways. Lane closures will only be allowed between the hours of 8:00 a.m. and 6:00 p.m. on non-holiday weekdays. Lane closures will only be allowed on weekends with approval from OWNER. Requests for variations in lane closure hours shall be made in writing for consideration by the ENGINEER.

#### 1.13 Construction Within Private Easements

When portions of the work contemplated are within easements held by the OWNER on private property, the CONTRACTOR shall ascertain for itself to what extent the width, status and special conditions attached to easements may have on its operations and all costs resulting therefrom shall be included and absorbed in the unit prices of the CONTRACTOR's bid. CONTRACTOR shall coordinate with private property owners and businesses if required. Landscaping, surface restoration and fence restoration shall be completed within 24 hours following piping and conduit installation and other construction work. Temporary fencing shall be provided continuously until such private fencing is properly restored.

Certain portions of this project require working in close proximity to existing structures and property within private easements. It is the CONTRACTOR'S



responsibility to conduct its operations and limit the size of equipment used in such a manner so as to prevent damage to existing property from excessive vibration or from other direct or indirect CONTRACTOR operations. The cost associated with repairing or replacing property that is damaged by the CONTRACTOR's operations shall be the responsibility of the CONTRACTOR.

#### 1.14 Railroad Crossings

NOT USED

#### 1.15 Private Roads and Driveways

Bridges at entrances to business properties where vehicular traffic is necessary shall be provided and maintained. Bridges shall be adequate in width and strength for the service required. No private road or driveway may be closed without approval of the ENGINEER unless written authority has been given by the owner whose property has been affected. Driveways shall be left open and ready for use at the end of the work shift. All expenses involved in providing for construction, maintenance, and use of private roads or driveways, shall be borne by the CONTRACTOR and the amount thereof absorbed in the unit prices of the CONTRACTOR's bid.

#### 1.16 Traffic Control and Protection

The CONTRACTOR shall maintain traffic control and protection in the work areas twenty-four (24) hours per day. Traffic control shall conform to the standards set forth in the "Oregon Manual on Uniform Traffic Control Devices" issued by the Oregon Department of Transportation.

The CONTRACTOR shall conduct its operations so as to keep at least one lane of traffic open for public and private access at all times on City, County and Public streets, roads and highways. If required by the State, the CONTRACTOR shall conduct its operations so as to keep both directions of traffic open on State Highways. Permits obtained for the project may have more stringent requirements than noted in this section.

Prior to beginning construction, the CONTRACTOR shall submit a detailed street closure and traffic control plan to the ENGINEER for approval. As construction proceeds, the CONTRACTOR shall notify the ENGINEER as to the status of street closures and detours.

On streets where traffic is heavy, the ENGINEER may require the construction of two-way bridges of adequate design. These bridges shall be provided with guard rails and shall be well lighted at all times. Detours as required by the ENGINEER shall be surfaced with gravel or crushed rock and maintained in good condition. Detours for

pedestrians shall not exceed one block in length, and foot bridges over the trenches shall be provided with adequate handrails.

All work shall be carried on with due regard for safety to the public. Open trenches shall be provided with barricades of a type that can be seen at a reasonable distance, and at night they shall be distinctly indicated by adequately placed lights.

#### 1.17 Compaction Testing

The CONTRACTOR shall provide the services of a licensed, independent agency to perform compaction testing for this project. The agency must be approved by the ENGINEER. Compaction tests will be required to show that specified densities of compacted backfill and asphaltic concrete surfacing are being achieved by the CONTRACTOR's compaction methods. The CONTRACTOR shall provide the ENGINEER with copies of recent Proctor tests for the backfill and paving material in addition to copies of compaction tests performed in the field.

After the ENGINEER is satisfied that the CONTRACTOR's method of compaction consistently meets specified compaction requirements, the testing frequency may be reduced. The ENGINEER may direct testing at a higher frequency upon failure to obtain specified densities or if the CONTRACTOR changes compaction equipment or methods of compaction. All test locations shall be determined by the ENGINEER.

#### 1.18 Dechlorination and Disposal of Chlorinated Water

Any discharge of chlorinated water shall either be through an approved connection to a public sanitary sewer system or shall include dechlorination to limits acceptable by the Oregon State Department of Environmental Quality (DEQ) for discharge into the existing storm drainage system. No chlorinated water shall be discharged into the storm drainage system prior to approved dechlorination treatment.

#### 1.19 Limits of the Work and Storage of Spoils

The limits of the site which may be used for construction, storage, materials handling, parking of vehicles and other operations related to the project include the project site as shown on the drawings and adjacent public rights-of-way subject to permission of the public owner of that right-of-way. The limits of work also include rights of access obtained by the CONTRACTOR, subject to all public laws and regulations and rights of access by utility companies and other holders of easement rights.

#### 1.20 Existing Water System Shutdown

If the project involves the need to shut down an existing water system, the CONTRACTOR shall coordinate the work to insure a minimum of shutdown time.

The CONTRACTOR shall submit a written shutdown schedule to the ENGINEER for approval. The CONTRACTOR shall provide 72-hour notice preceding each shutdown.

#### 1.21 Field Changes, Alignment and Grade

Changes of alignment and grade shall be made during the course of work in order to avoid interference with unforeseen obstructions. The CONTRACTOR shall locate existing utilities to be crossed, by potholing ahead of the pipe installation, of sufficient distance to avoid conflicts through pipe joint deflection if possible. All costs for minor field changes of alignment and grade shall be borne by the CONTRACTOR. The ENGINEER will endeavor to make prompt decisions on such matters. CONTRACTOR shall anticipate a minimum of 72 hours for any decision requiring significant piping change.

#### 1.22 Testing and Operation of Facilities

It is the intent of the OWNER to have a complete and operable facility. All of the work under this contract will be fully tested and inspected in accordance with the specifications. Upon completion of the work, the CONTRACTOR shall operate the completed facilities as required to test the equipment under the direction of the ENGINEER. During this period of operation by the CONTRACTOR, the new facilities will be tested thoroughly to determine their acceptance.

#### 1.23 Protection of Existing Structures and Work

The CONTRACTOR must take all precautions and measures necessary to protect all existing structures and work. Any damage to existing structures and work shall be repaired by removing the damaged structure or work, replacing the work and restoring to original condition satisfactory to the ENGINEER.

#### 1.24 Salvage and Debris

Unless otherwise indicated on the drawings or in the specifications, all castings, pipe, equipment, demolition debris, spoil or any other discarded material or equipment shall become the property of the CONTRACTOR and shall be disposed of in a manner compliant with applicable Federal State and local laws and regulations governing disposal of such waste products. No burning of debris or any other discarded material will be permitted.

#### 1.25 Safety Standards and Accident Prevention

The CONTRACTOR shall be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and not be limited to normal working

hours. The required and/or implied duty of the ENGINEER to conduct construction review of the CONTRACTOR's performance does not, and is not intended to, include review of the adequacy of the CONTRACTOR's safety measures in, on, or near the construction site.

The CONTRACTOR shall comply with the safety standards provisions of applicable laws and building and construction codes. The CONTRACTOR shall exercise every precaution at all times for the prevention of accidents and protection of persons, including employees, and property. During the execution of the work the CONTRACTOR shall provide and maintain all guards, railing, lights, warnings, and other protective devices which are required by law or which are reasonably necessary for the protection of persons and property from injury or damage.

#### 1.26 Public Safety and Convenience

The CONTRACTOR shall ensure the safety of the public during its performance of the Work and shall minimize any public inconvenience in addition to any other requirement imposed by law. These duties include, but are not limited to, the matters listed below.

The CONTRACTOR shall not unreasonably restrict access to public facilities, commercial property, fire hydrants, residential property, and other areas where the public can be expected to be present, such as sidewalks and streets without first obtaining approval of the OWNER. Driveways shall be closed only with the approval of the OWNER or after obtaining specific permission from the property owner or owners. In addition, the CONTRACTOR shall not obstruct or interfere with travel over any public street or sidewalk without approval of the OWNER.

The CONTRACTOR shall not interfere with the normal operation of any public transit vehicles unless otherwise authorized.

The CONTRACTOR shall keep the Project site safe in compliance with applicable law. Safety includes, but is not limited to: 1) providing an approved type of secured and adequate barricades or fences that are easily visible from a reasonable distance around open excavations; 2) closing up or covering with steel plates all open excavations at the end of each Working Day in all street areas and in all other areas when it is reasonably required for public safety; 3) marking all open work and obstructions by lights at night; 4) installing and maintaining all necessary signs, lights, flares, barricades, railings, runways, stairs, bridges, and facilities; 5) observing any and all safety instructions received from the OWNER; and 6) following all laws and regulations concerning worker and public safety. In the event that the law requires greater safety obligations than that imposed by the OWNER, the CONTRACTOR shall comply with the law.

Emergency vehicles, including but not limited to police, fire, and disaster units shall be provided access to the work site at all times.

The CONTRACTOR shall, on a continuing basis, keep the surfaces of all public and private roadways, sidewalks, and other pathways free of dirt, mud, cold plane grindings, and other matters that the CONTRACTOR may place upon the road. The cost of performing such work shall be included in the CONTRACTOR's Bid and no additional payment will be made for performing this task.

The CONTRACTOR'S Project Manager or superintendent shall be in charge of accident prevention. CONTRACTOR shall take all actions necessary to prevent damage, injury and loss to persons and property as a result of accidents.

The OWNER has no responsibility for Work site safety. Work site safety is the responsibility of the CONTRACTOR. The CONTRACTOR is required to have a competent person on site at all times during construction activities.

#### 1.27 Warranty Period

The CONTRACTOR shall warrant all furnished materials and equipment for a period of two years from date of final acceptance of the Work by the OWNER. This warranty shall mean prompt attention to the correction and/or complete replacement of the faulty material or equipment. The expiration of the two-year warranty period shall not affect any other claims or remedy available to the OWNER. There may be other warranty provisions in these contract documents in addition to those noted above.

#### 1.28 Utility Properties and Service

In areas where the CONTRACTOR's operations are adjacent to or near a utility and such operations may cause damage which might result in significant expense, loss and inconvenience, the operations shall be suspended until all arrangements necessary for the protection thereof have been made by the CONTRACTOR.

The CONTRACTOR shall notify all utility offices which may be affected by the construction operation at least 48 hours in advance. Before exposing any utility, the utility having jurisdiction shall grant permission and may oversee the operation. Should service of any utility be interrupted due to the CONTRACTOR's operation, the proper authority shall be notified immediately. It is of the utmost importance that the CONTRACTOR cooperates with the said authority in restoring the service as promptly as possible. Any costs shall be borne by the CONTRACTOR.

Utilities which may be impacted include the following:

Northwest Natural Gas	Natural Gas
Portland General Electric	Power
Frontier Communications	Telephone, Communications
Century Link	Telephone, Communications
Comcast Cable Communications	Telephone, Communications
G.T.E.	Telephone, Communications
Verizon	Telephone, Communications
City of Sherwood	Water, Sanitary Sewer, Storm Drain, Communications

### 1.29 Sanitary Facilities

The CONTRACTOR shall provide and maintain sanitary facilities for its employees and its subcontractors' employees that will comply with the regulations of the local and State Departments of Health and as directed by the ENGINEER.

### 1.30 Street Cleanup

The CONTRACTOR shall clean daily all dirt, gravel, construction debris and other foreign material resulting from its operations from all streets and roads.

### 1.31 Vehicle Parking

The vehicles of the CONTRACTOR's and subcontractors' employees shall be parked in accordance with local parking ordinances.

### 1.32 Protection of Quality of Water

The work to be performed may involve connections to an existing potable water system. If such work is included in the project, the CONTRACTOR shall take such precautions as are necessary or as may be required to prevent the contamination of the water. Such contamination may include but shall not be limited to deleterious chemicals such as fuel, cleaning agents, paint, demolition and construction debris, sandblasting residue, etc. In the event contamination does occur, the CONTRACTOR shall, at its own expense, perform such work as may be necessary to repair any damage or to clean the affected areas of the water mains to a condition satisfactory to the ENGINEER.

### 1.33 Record Drawings

CONTRACTOR shall maintain at the site one set of specifications, full size drawings, shop drawings, equipment drawings and supplemental drawings which shall be corrected as the work progresses to show all changes made. Drawings shall be available for inspection by the ENGINEER. Upon completion of the contract and

prior to final payment, specifications and drawings shall be turned over to the ENGINEER.

#### 1.34 "Or Equal" Clause

In order to establish a basis of quality, certain processes, types of machinery and equipment or kinds of material may be specified on the drawings or herein by designating a manufacturer's name and referring to its brand or product designation. It is not the intent of these specifications to exclude other processes, equipment or materials of a type and quality equal to those designated. When a manufacturer's name, brand or item designation is given, it shall be understood that the words "or equal" follow such name or designation, whether in fact they do so or not. If the CONTRACTOR desires to furnish items of equipment by manufacturers other than those specified, he shall secure the approval of the ENGINEER prior to placing a purchase order.

No extras will be allowed the CONTRACTOR for any changes required to adopt the substitute equipment. Therefore, the CONTRACTOR's proposal for an alternate shall include all costs for any modifications to the drawings, such as structural and foundation changes, additional piping or changes in piping, electrical changes or any other modifications which may be necessary or required for approval and adoption of the proposed alternate equipment. Approval of alternate equipment by the ENGINEER before or after bidding does not guarantee or imply that the alternate equipment will fit the design without modifications.

#### 1.35 Surveys

Based upon the information provided by the Contract Documents, the CONTRACTOR shall develop and make all detail surveys necessary for layout and construction, including exact component location, working points, lines and elevations. Prior to construction, the field layout shall be approved by the OWNER's representative. The CONTRACTOR shall have the responsibility to carefully preserve bench marks, reference points and stakes, and in the case of destruction thereof by the CONTRACTOR or resulting from its negligence, the CONTRACTOR shall be charged with the expense and damage resulting therefore and shall be responsible for any mistakes that may be caused by the unnecessary loss or disturbance of such bench marks, reference points and stakes.

#### 1.36 Work Hour Limitations

All work shall be conducted between the hours of 7:00 a.m. and 6:00 p.m. on non-holiday weekdays and Saturdays only. Lane closures will only be allowed between the hours of 8:00 a.m. and 6:00 p.m. on non-holiday weekdays and Saturdays only. No Sunday work will be allowed. Requests for variations in work hours shall be

made in writing for consideration by the ENGINEER. No work shall be conducted outside of the above-described days and hours without prior approval of the ENGINEER.

#### 1.37 Dust Prevention

All unpaved streets, roads, detours, haul roads or other areas where dust may be generated shall receive an approved dust-preventive treatment or be routinely watered to prevent dust. Applicable environmental regulations for dust prevention shall be strictly enforced.

#### 1.38 Erosion and Sedimentation Control

Temporary construction site erosion control measures shall be designed and constructed in accordance with Clean Water Services, City of Sherwood and Washington County requirements. Erosion control measures shall be maintained throughout the project site until approved permanent cover such as a healthy stand of grass, other permanent vegetation, or other ground covering is established. When approved permanent ground cover is established, all temporary erosion control measures shall be removed from the construction site. Erosion control measures shall be installed as approved, per the erosion control drawing(s) in the above referenced document. Erosion control measures including stabilized construction entrances and sediment barriers must be established in conjunction with site clearing and grading.

During construction, and until permanent vegetation or other ground covering is established, the erosion control facilities shall be upgraded as needed for unexpected storm events or site conditions and with the purpose of retaining sediment and sediment-laden water on the construction site.

#### 1.39 Interferences, Obstructions and Sewer Crossings

At certain places, power, light and telephone poles may interfere with excavation and the operation of the CONTRACTOR's equipment. Necessary arrangements shall be made with utility companies for moving or maintaining such poles. The utility company affected by any such interferences shall be notified thereof so that the necessary moving or proper care of poles and appurtenances may have appropriate attention.

All costs resulting from any other interferences and obstructions, or the replacement of such, whether or not herein specifically mentioned, shall be included and absorbed in the unit prices of the CONTRACTOR's bid.

#### 1.40 Noise Limitations



The project areas are located within a residential zoned area. All applicable City, County ordinances and State and Federal regulations shall be compiled with.

#### 1.41 Storage and Protection of Equipment and Materials

- A. Materials and equipment stored overnight shall be placed neatly on the job site. Unusable materials (i.e. rejected or damaged liner material, old concrete chunks, metal scraps, etc.) shall be expeditiously removed from the job site.

Provide appropriate barricades, signs, and traffic control devices in like-new condition where necessary to protect the public from any hazards associated with the storage of materials and equipment used for this project.

- B. No equipment and/or materials shall be stored outside the immediate work area on public right-of-ways, in the following locations, or in the following manner:

1. In any maintained landscaped or lawn area.
2. In a manner that would totally eliminate an individual residents' street parking.
3. In front of any business.

The “immediate work area” is the area where work is taking place or will be taking place within one calendar day. The CONTRACTOR shall immediately move stored material or equipment which causes a nuisance or creates complaints.

#### 1.42 Competent Person Designation

CONTRACTOR shall designate a qualified and experienced “competent person” at the site whose duties and responsibilities shall include enforcement of Oregon - OSHA regulations regarding excavations, the prevention of accidents, and the maintenance and supervision of construction site safety precautions and programs.

#### 1.43 Emergency Maintenance Supervisor

The CONTRACTOR shall submit to the ENGINEER the names, addresses and telephone numbers of at least two employees responsible for performing emergency maintenance and repairs when the CONTRACTOR is not working. These employees shall be designated, in writing by the CONTRACTOR, to act as its representatives and shall have full authority to act on its behalf. At least one of the designated employees shall be available for a telephone call any time an emergency arises.

#### 1.44 Prevailing Wage Rates for Public Works Contracts in Oregon

The CONTRACTOR shall abide by ORS 279C.800 through 279C.870 which relate to the prevailing wage rates for the building and construction trades in the State of Oregon. These prevailing wage rates are shown in the Bureau of Labor and Industries document which is included elsewhere in these contract documents.

#### 1.45 Oregon Products

CONTRACTOR's attention is directed to the provisions of Oregon Law, ORS 279A.120 regarding the preference for products that have been manufactured or produced in Oregon. CONTRACTOR shall use Oregon-produced or manufactured materials with respect to common building materials such as cement, sand, crushed rock, gravel, plaster, etc., and Oregon-manufactured products in all cases where price, fitness, availability and quality are otherwise equal.

END OF SECTION

## SECTION 01200

### MEASUREMENT AND PAYMENT

#### PART 1 GENERAL

Measurement and payment will be on a unit price basis in accordance with the prices set forth in the proposal for individual work items. Where work is required but does not appear as a separate item in the proposal, the cost for that work shall be included and absorbed in the unit prices named in the proposal. CONTRACTOR shall make a careful assessment when preparing the bid.

1. Mobilization, Bonds, Insurance and Demobilization: Payment for mobilization, bonds, insurance and demobilization will be on a lump sum basis. The amounts paid for mobilization in the contract progress payment will be based on the percent of the original contract amount that is earned from other contract items, as follows:
  - A. When 5% is earned, either 100% of the amount for mobilization or 5% of the original contract amount, whichever is the least
  - B. When all work is completed, amount of mobilization exceeding 5% of the original contract amount

This schedule of mobilization progress payments will not limit or preclude progress payments otherwise provided by the contract.

2. Traffic Control: Payment for traffic control, maintenance and protection including all coordination, materials, labor and equipment, as required, will be on a lump sum basis, complete.
3. Erosion Control: Payment for temporary construction site erosion and sedimentation control shall be made on a lump sum basis. The lump sum price shall include compensation for acquisition of necessary permit from local jurisdiction (City of Sherwood), and all labor, equipment, materials, planning, design, and maintenance for construction site erosion and sedimentation control measures.
4. Saw Cut Existing Pavement and Complete Surface Restoration with AC Pavement: Cutting existing surfacing and surface restoration with AC, including initial trench width saw cuts and subsequent tee cuts as shown and specified, shall be as follows:
  - a. Payment for replacing removed surface with AC paving for pavement thickness up to 4 inches thickness will be on a per square yard basis. It is understood that saw cutting of AC is included and incidental to AC

replacement. Measurement for surface restoration of pipe trench shall be based on a pay width equal to the pipe diameter plus 12 inches (or 24-inch minimum) and the 6-inch tee-cut dimension on each side of trench as shown on the City of Sherwood's standard trench detail.

- b. Payment for replacing removed surface with AC paving for pavement thickness for each 1-inch depth beyond 4-inch thickness will be on a per square yard basis.
5. Furnish and Install Class 52 Ductile Iron Waterline: Payment for installing Class 52 ductile iron (DI) waterline with Class D trench backfill, including all work and materials, excavation for up to 4 feet of cover, all required joint restraint systems for pipe, fittings, valves, and appurtenances, dewatering, Class D bedding, Class D pipe zone, and Class D trench backfill and temporary asphaltic concrete surfacing as required will be on a per linear foot basis for the pipe diameters shown. Measurement will be based on total length of piping constructed with restrained joints as indicated on the plans without deduction for fittings and valves. Bedding, pipe zone and trench backfill material is understood to be imported material, compacted in place as shown on the plans. Class D fill material shall be as specified within Section 02222, Excavating, Backfill and Compacting for Utilities.

The pay quantities for pipe, trench excavation and backfill will be on the basis of the horizontal length of pipe laid without deductions for valves or fittings which may be included in the end-to-end measurement of a continuous section of pipe. Where pipe is laid on a continuous slope greater than 10 percent for a distance greater than 100 feet, payment will be made upon the average slope distance between 100-foot stations. When water mains intersect, the measurement of each main shall be to the intersection of the center lines of the connecting fittings.

The unit price shall include any incidental excavation, backfill and additional work required to cutting existing piping, installation of branch-line fittings and/or connection to existing pipelines. Unit price shall also include as incidental the removal of existing fittings and piping as shown on the plans.

6. Furnish and Install Cast or Ductile Iron Pipe Fittings: Payment for installing ductile iron pipe fittings including all materials, labor and equipment, will be on a per pound basis. The weight of fittings used for payment will be the nominal weights listed in AWWA Standard C110 for the actual Class and type of fitting specified and shown on the plans. Fitting installation will be considered a separate pay item from work performed under other pay items. Fitting accessories including glands, bolts, and gaskets shall be considered incidental in the fitting weights for payment.

7. Furnish and Install Buried Valves: Payment for installing buried valves complete not included in other pay items, including valve boxes, covers, risers and extensions if required, will be on a per each valve basis.
8. Furnish and Install Fire Hydrant Assembly: Payment for installing fire hydrant assemblies will be on a lump sum basis. The unit price for hydrants shall include all costs for pier blocks, gravel, painting and all other items for the complete installation of the hydrant including the pipe connecting the hydrant assembly to the gate valve.
9. Sidewalk, Curb, Gutter & ADA Ramp Construction: Payment for removal of existing concrete sidewalk, curb and gutter, construction of new concrete sidewalk, curb, gutter, and ADA ramp including materials, labor and equipment, as required and conforming to City of Sherwood requirements, will be on a square foot basis. Installation of detectable warning device (truncated dome type) shall be considered incidental to this bid item. General surface restoration and clean-up are to be paid for separately under the appropriate bid item.
10. Furnish and install 1-inch Dual Water Service Connections: Payment for installing new 1-inch service lines to existing 3/4-inch water meters from new waterline shall be as follows:
  - a. Payment for installing 1-inch Dual Water Service Connections shall be made on a per each basis as described on the plans and in the Supplemental Information of the contract documents. The unit price for service lines shall be full compensation for all service line work including excavation, hand excavation, trenchless installation, backfill, pavement and surface restoration and all utility locates on private property. Corporation stops, fittings, adapters, and any other fittings required for connection are incidental. Costs will also include coordination with City of Sherwood and property owners, installation and testing. No additional payment will be made for special coordination with private property owners or permits for work on private property.
11. Testing, Flushing, and Disinfection of Water Mains: Payment for testing, flushing and disinfection of water mains will be on a lump sum basis and shall include furnishing, installing and removing temporary blow-off piping including miscellaneous piping, valves and fittings, and thrust restraint. The OWNER shall provide off-site laboratory analysis. Payment for any retesting shall be paid by the CONTRACTOR.
12. Connection to Existing Water Mains: Payment for connecting to existing piping, including exploratory excavation as may be required to confirm piping locations and type, any additional excavation and backfill, cutting existing piping, pumping, dewatering, temporary or permanent thrust restraint systems and all other

miscellaneous tie-in related work not included in other pay items will be on a per each connection basis.

13. Collar Thrust Block Construction: Payment for furnishing and installing concrete collar thrust blocks shall be on a per each basis. The unit price for this bid item shall include all labor and materials required to construct collar thrust block as shown on the drawings.
14. Existing 6-inch Waterline Abandonment: Payment for removing abandoned piping or abandoning pipe in place, disconnecting and capping new/live mains, capping abandoned pipe ends, removal/demolition of associated valves, valve boxes and vaults, test stations, meters and meter boxes, hydrants, abandoned services and other appurtenances, excavation, pipe hole cutting, backfill, and restoring excavations as may be required will be on a lump sum basis.
15. General Surface Restoration and Clean-Up: Payment for general surface restoration other than streets, sidewalks, driveways and curbs shall include all regrading to areas back to original contours following stripping and stockpiling topsoil, bark mulching planting areas, and cleanup following construction as required including resurfacing gravel surfaces and reseeding as required, will be on a lump sum basis.

END OF SECTION

## SECTION 01300

### SUBMITTALS

#### PART 1 GENERAL

The CONTRACTOR shall provide submittals including shop drawings, schedules, drawings, and such other information as may be necessary for the prosecution of the work in the shop and in the field as required by the contract documents or the ENGINEER's instruction. There may be other submittals required elsewhere in these Specifications that are not necessarily included or mentioned in this Section.

Within fourteen (14) days after award of the contract, the CONTRACTOR shall submit to the ENGINEER a proposed list of manufacturers, suppliers, and subcontractors and a schedule of specific target dates for the submission and return of shop drawings required by the contract documents. The list and schedule shall be updated and re-submitted when requested by the ENGINEER. All shop drawings for interrelated items shall be scheduled for submission at the same time. Not less than one (1) week shall be allocated to each submittal for processing by the ENGINEER. At least six (6) copies of all submittals shall be provided to the ENGINEER. Four (4) copies of all submittals will be kept by the ENGINEER. If the CONTRACTOR requests that more than two (2) copies be returned, then the CONTRACTOR shall submit the appropriate quantity of submittals. In lieu of paper copies the CONTRACTOR may provide submittals in electronic PDF format.

The ENGINEER will review shop drawings to determine compliance with the design concept of the project and return them to the CONTRACTOR within the period established in the shop drawings schedule. The ENGINEER may hold shop drawings in cases where partial submission cannot be reviewed until the complete submission has been received or where shop drawings cannot be reviewed until correlated items affected by them have been received. When such shop drawings are held, the ENGINEER will advise the CONTRACTOR in writing that the shop drawing submitted will not be reviewed until shop drawings for all related items have been received.

The CONTRACTOR shall submit to the ENGINEER, for review, six (6) copies each of such shop drawings, electrical diagrams and catalog information for fabricated items and manufactured items required for construction. The ENGINEER will review the submitted data and shop drawings, and will make notations thereon indicating "No Exception Taken", "Make Corrections Noted", "Rejected", "Revise and Resubmit", or "Submit Specified Item". The ENGINEER will then return two copies of the submitted data and shop drawings to the CONTRACTOR. The ENGINEER's review of submittals and shop drawings is not a check of any dimension or quantity, and will not relieve the CONTRACTOR from responsibility for errors of any sort in the submittals and shop drawings.

When shop drawings and/or submittals are required to be revised or corrected and resubmitted, the CONTRACTOR shall make such revisions and/or corrections and resubmit those items or other materials in the same manner as specified above.

Submitted data shall be sufficient in detail for determination of compliance with the Contract Documents. Color samples for all items for which colors are to be selected shall be submitted at the same time. No equipment or material for which listings, drawings, or descriptive material is required shall be installed until the CONTRACTOR has received review from the ENGINEER.

Regardless of corrections made in or review given to the drawings by the ENGINEER, the CONTRACTOR shall be responsible for the accuracy of such drawings and for their conformity to the drawings and specifications. The CONTRACTOR shall check all submittals before submitting them to the ENGINEER and shall stamp its approval on all copies of the shop drawing documents. Any submittals received by the ENGINEER which do not bear the CONTRACTOR's approval shall be returned without review. If more than two (2) submissions are required to meet the project specifications, the cost of reviewing these additional submissions may be charged directly against the CONTRACTOR and the OWNER may withhold the funds necessary to cover these costs.

Materials and equipment shall be ordered a sufficient time in advance to allow time for reviews, and shall be available on the job when needed. Last minute review will not be given for inferior substitutes for material or equipment.

Required submittals include items listed below. This list is provided for CONTRACTOR's convenience only and may not be complete in all respects. CONTRACTOR shall provide all submittals required, whether or not specifically listed herein.

A. Schedules -- The CONTRACTOR shall prepare and submit to the ENGINEER, within fifteen (15) days after notice to proceed, a practicable schedule showing the order in which the CONTRACTOR proposes to carry out the work, the dates on which the important features of the work will start, and the contemplated dates for completing same. In addition to a time-scaled bar chart schedule depicting the project critical path, the CONTRACTOR shall submit a detailed CPM logic diagram. The CPM diagram and time-scaled bar chart shall include the following:

- Construction activities
- Submittal and approval of material samples and shop drawings
- Procurement of critical materials
- Fabrication, installation, and testing of special material and equipment
- Duration of work, including completion times of all stages and their sub-phases



The activities shall be separately identifiable by coding or use of sub-networks or both. The duration of each activity shall be verifiable by manpower and equipment allocation, in common units of measure, or by delivery dates and shall be justifiable by the CONTRACTOR upon the request of the ENGINEER.

Detailed subnetworks will include all necessary activities and logic connectors to describe the work and all restrictions to it. In the restraints, include those activities from the project schedule which initiated the subnetwork as well as those restrained by it.

Include a tabulation of each activity in the computer mathematical analysis of the network diagram. Furnish the following information as a minimum for each activity:

- Event (node) number(s) for each activity
- Activity description
- Original duration of activities (in normal workdays)
- Estimated remaining duration of activities (in normal workdays)
- Earliest start date or actual start date (by calendar date)
- Earliest finish date or actual finish date (by calendar date)
- Latest start date (by calendar date)
- Latest finish date (by calendar date)
- Slack or float time (in workdays)

Computer printouts shall consist of at least a node sort and an “early start/total-float” sort.

CONTRACTOR’S attention is drawn to typical local climatic weather patterns and the CONTRACTOR shall coordinate work accordingly.

- B. Breakdown of Contract Price -- The CONTRACTOR shall, at the preconstruction meeting, submit a complete breakdown of all lump sum bid items showing the value assigned to each part of the work including an allowance for profit and overhead adding up to the total lump sum contract price. Breakdown of lump sum bids shall be coordinated with the items in the schedule. Preparatory work, bonds, and insurance required in setting up the job will be allowed as a separate entry on the cost breakdown but shall not exceed 5 percent of the total base bid. Upon acceptance of the breakdown of the contract price by the ENGINEER, it shall be used as the basis for all requests for payment.
- C. Shop Drawings, Schedules and Drawings -- The CONTRACTOR shall provide shop drawings, schedules and such other drawings and information as may be necessary for the prosecution of the work in the shop and in the field as required by the contract documents and/or ENGINEER's instruction.

- D. Design Submittals -- Design submittals as may be required for equipment and systems elsewhere in these Specifications.
- E. Erosion and Sedimentation Control Plan
- F. Materials Lists
- G. CONTRACTOR Contact Persons
- H. Material Safety Data Sheets
- I. Traffic Control and Protection Plan
- J. Miscellaneous Materials and Other Submittals As Required Elsewhere in the Specifications

END OF SECTION

## SECTION 01650

### PIPELINE TESTING AND DISINFECTION

#### PART 1 GENERAL

##### 1.1 Description

- A. This section covers field pressure testing, disinfection and purity testing of potable water systems piping, fittings, and valves and field pressure testing of sewage force mains. All pipe shall be flushed and hydrostatically pressure and leak tested. Defective items revealed by the testing procedures shall be removed and replaced or otherwise corrected as directed by the ENGINEER. All costs for labor and materials necessary to conduct the flushing, testing and disinfecting procedures specified herein, and all costs of labor and materials required to remedy defective items shall be borne by the CONTRACTOR.
- B. The CONTRACTOR shall provide 72 hour notification to the ENGINEER and OWNER prior to conducting flushing, hydrostatic testing and disinfection. CONTRACTOR shall provide coordination and scheduling required for the OWNER and ENGINEER to witness and provide necessary labor for operating OWNER's existing system during hydrostatic testing and disinfecting procedures. CONTRACTOR shall not operate any part of the existing water or sewer systems.
- C. The CONTRACTOR shall perform flushing and testing of all pipelines and appurtenant piping and disinfection of all pipelines and appurtenant piping for potable water, complete, including conveyance of test water to point of use and all disposal thereof, all in accordance with the requirements of the Contract Documents.
- D. Unless otherwise directed by the ENGINEER, new water mains and appurtenances must be completely installed, flushed, tested, disinfected, and satisfactory bacteriological sample results received prior to completing permanent connections to existing water system.

##### 1.2 Reference Specifications, Codes, and Standards

Codes and Standards: Comply with the provisions of the latest edition of the following codes, standards and specifications, except as otherwise shown and specified:

ANSI/AWWA B300 Hypochlorites

ANSI/AWWA B301 Liquid Chlorine

ANSI/AWWA C651 Disinfecting Water Mains

ANSI/AWWA C600 Installation of Ductile-Iron Water Mains and Their Appurtenances

1.3 Contractor Submittals

A testing schedule, including proposed plans for testing water conveyance, control, disposal, disinfection, and dechlorination shall be submitted in writing for approval a minimum of one week before testing is to start.

PART 2 PRODUCTS

2.1 Equipment

- A. All test equipment, chemicals for chlorination, temporary valves, bulkheads, or other water control equipment and materials shall be determined and furnished by the CONTRACTOR subject to the ENGINEER's review. No materials shall be used which would be injurious to the construction or its future functions.
- B. As a minimum, the CONTRACTOR shall furnish the following equipment and materials for the test:

<u>Amount</u>	<u>Description</u>
2	Graduated containers approved by the ENGINEER
1	Hydraulic pump approved by the ENGINEER with hoses, valves and fittings as needed and required for the testing and disinfection of the facilities.
2	Pressure gauges with pressure range at least 120% greater than the required maximum test pressure with graduations in two (2) psi increments. Gauges shall have been calibrated with 90 days of pressure testing.

- C. Chlorine for disinfection shall be in the form of liquid chlorine, sodium hypochlorite solution, or calcium hypochlorite granules or tablets.
- D. Sodium hypochlorite and calcium hypochlorite shall be in accordance with the requirements of ANSI/AWWA B300.

- E. All temporary thrust restraint and equipment and facilities required for hydrostatic testing will be considered incidental.

## PART 3 EXECUTION

### 3.1 Hydrostatic Testing of Water Mains

- A. The CONTRACTOR shall make all necessary provisions for conveying water to the points of use and for the disposal of test water.
- B. No section of the pipeline shall be hydrostatically tested until all field-placed concrete or mortar has attained full strength. At the CONTRACTOR's option, early strength concrete may be used when the full strength requirements conflict with schedule requirements. All such early applications shall be approved by the ENGINEER prior to each installation.
- C. All piping shall be tested under a hydrostatic test pressure not less than 150 psi (+/- 5 psi) at the highest point along the test section or as shown on the plans. Testing shall be performed by filling the pipe with water, allowing for natural absorption to occur, and applying the specified test pressure by pumping. Once the test pressure has been attained, the pump shall be valved off. The test will be conducted for one two-hour period with the allowable leakage not to exceed value as per Paragraph D below.
- D. During the test, pipe, fittings and valves with welded and/or flanged joints shall be completely watertight. Pipe, fittings and valves with rubber gasketed joints (mechanical joints or push-on joints) shall have a measured loss not to exceed the rate given in the following formula:

$$AL = \frac{LD(P)^{1/2}}{148,000}$$

In the above formula:

AL = Allowable leakage, in gallons per hour

L = Length of pipe tested, in feet

D = Nominal diameter of pipe, in inches

P = Average test pressure during the leakage test, in pounds per square inch.

- E. During the test period, operate the pump as required to maintain pressure in the pipe within 5 psi of the specified test pressure at all times. At the end of test period, operate the pump until the specified test pressure is again obtained. The pump suction shall be in a graduated barrel or similar device or metered so

that the amount of water required to restore the test pressure may be accurately measured.

- F. If the test reveals any defects, leakage in excess of the allowable, or failure, the CONTRACTOR shall furnish all labor, equipment and materials required to locate and make necessary repairs. The testing of the line (and repairing of defects, excessive leakage, and failures) shall be repeated until a test satisfactory to the ENGINEER has been achieved. All costs for locating, repairing, and retesting shall be borne by the CONTRACTOR.

### 3.2 Disinfection of Water Mains

- A. After testing and repairing where necessary, all potable water systems shall be thoroughly flushed, cleaned, and disinfected by the CONTRACTOR in accordance with the latest version of AWWA C651. Chlorination by means of tablets or powders (calcium hypochlorite) placed in each length of pipe during installation is specifically prohibited.
- B. Before sterilizing, flush all foreign matter from the pipeline. The CONTRACTOR is to provide at no additional cost to OWNER, hoses, temporary pipes, ditches, etc., as required to dispose of flushing water without damage to adjacent properties. Flushing velocities shall be at least 2.5 fps. For large diameter pipe where it is impractical or impossible to flush the pipe at 2.5 fps velocity, clean the pipe in place from the inside by brushing and sweeping, then flush the line at a lower velocity.
- C. Potable water piping shall be disinfected with a solution containing a minimum 25 PPM and a maximum 50 PPM chlorine. The chlorine solution shall remain in the piping system for a period of 24 hours at which time the sterilizing mixture shall have a strength of at least 10 ppm of chlorine. If check samples fail to produce acceptable results, the disinfection procedure shall be repeated at the expense of the CONTRACTOR until satisfactory results are obtained.
- D. Disposal of any water containing chlorine shall be performed in accordance with the latest edition of AWWA C651, Section 01100 Special Provisions of this specification, and any other state or local requirements. Disposal may be made into existing sanitary sewer systems providing approvals are obtained from the system owners. Any chlorinated water discharged to open stream channels must be dechlorinated prior to discharge.
- E. The OWNER will collect samples after the line is flushed in accordance with the latest edition of AWWA C651 at locations directed by ENGINEER. The chlorine residual must be below 1.5 mg/L when the sample is taken.

- F. Results of the bacteriological testing shall be satisfactory with the State Department of Health and/or other appropriate regulatory agencies, or disinfection shall be repeated at the expense of the CONTRACTOR.

### 3.3 Disinfection of Water Main End Connections and Tie - Ins

Disinfection and pressure testing of potable water piping and appurtenances at end connections which are required to remain in service due to restrictions in allowable shutdown time shall be pressure tested and disinfected as described below:

- A. Prior to connecting new potable water piping and appurtenances with existing piping and appurtenances, the interior of all new pipe, fittings, valves and appurtenances shall be swabbed or sprayed with a 1-5% percent calcium hypochlorite solution.
- B. Following the disinfection procedures described above, connection of the new piping and appurtenances to the existing water system shall be made. During the system startup, the ENGINEER and CONTRACTOR shall visually inspect all new fittings, piping, valves and appurtenances for evidence of leakage. Any leakage observed during this period shall be promptly repaired by the CONTRACTOR, at CONTRACTOR's expense as required by the ENGINEER.

END OF SECTION

## SECTION 02060

### EXISTING PIPE ABANDONMENT

#### PART 1 GENERAL

##### 1.1 Description

- A. Work covered in this Section includes the removal or abandonment of existing buried piping.

##### 1.2 Submittals

- A. See Section 01300 for CONTRACTOR submittals.

##### 1.3 Requirements of Regulatory Agencies

- A. Permits: The CONTRACTOR is responsible for obtaining all necessary permits required for completion of the work described herein at no cost to the OWNER.
- B. Protection of Persons and Property: Meet all federal, state and local safety requirements for the protection of workmen, other persons, and property in the vicinity of the work and requirements of the General Provisions.

##### 1.4 Repair of Damage

- A. Work procedures shall provide for safe conduct of the work, careful removal and disposition of materials and equipment, protection of facilities, utilities and property which are to remain undisturbed, coordination with existing facilities and utilities to remain in service.
- B. Any damage to existing facilities or utilities to remain as caused by the CONTRACTOR's operations shall be repaired at the CONTRACTOR's expense.
- C. Damaged items shall be repaired or replaced with new materials as required to restore damaged items or surfaces to a condition equal to and matching that existing prior to damage or start of work of this contract.



## 1.5 Protection of Existing Work

- A. Before beginning, the CONTRACTOR shall carefully examine the Drawings and Specifications to determine the extent of the work. The CONTRACTOR shall take all necessary precautions to prevent damage to existing facilities or utilities which are to remain in place, and be responsible for any damages to existing facilities or utilities, which are caused by the operations. The CONTRACTOR shall carefully coordinate the work of this section with all other work and construction.

## 1.6 Existing Conditions

- A. If the pipe material contains any hazardous materials such as asbestos, that will require special handling upon removal, it is the responsibility of the CONTRACTOR to remove and dispose of the material in accordance with all applicable federal, state and local regulations.

## PART 2 PRODUCTS

### 2.1 Ownership of Existing Materials

- A. All materials, equipment, miscellaneous items and debris involved, occurring or resulting from pipe removal work shall become the property of the CONTRACTOR at the place of origin unless otherwise specified by the OWNER.

## PART 3 EXECUTION

### 3.1 General

- A. Where shown on the Plans, all fire hydrants, air release valves service lines and appurtenances being abandoned shall be removed to 36-inches below finished grade. Existing service line appurtenances, including valve and meter boxes, shall also be removed. All exposed ends of pipes and fittings to remain in service shall be capped or plugged with an appropriate ductile iron blind flange, cap or plug and restrained. A pipe shall be considered in service if it is possible to flood the pipe with water by opening valves in the water system. All excavation and backfilling for pipe abandonment or removal shall be performed in accordance with Section 02222, Excavating, Backfilling and Compacting for Utilities.

### 3.2 Pipe Removal and In Place Abandonment

- A. Where identified on the Plans, the CONTRACTOR shall remove and dispose all pipe material and associated appurtenances. All exposed ends of pipes being abandoned in place shall be cut and plugged with grout. When existing pipe is removed, the CONTRACTOR shall plug any remaining piping being abandoned in place with a minimum of 12 inches of non-shrink grout. Prior to placing grout, roughen interior pipe surface and apply epoxy bonding agent.

### 3.3 Cleanup

- A. During and upon completion of work, the CONTRACTOR shall promptly remove all unused tools and equipment, surplus materials and debris. Adjacent areas shall be returned to their existing condition prior to the start of work.

END OF SECTION

## SECTION 02100

### SITE PREPARATION

#### PART 1 GENERAL

##### 1.1 Description

Work includes all demolition, clearing and grubbing indicated on the Drawings or required for completion of work specified elsewhere.

##### 1.2 Submittals

Submit to ENGINEER a copy of written permission of private property owners with copy of fill permit for said private property as may be required for disposal of materials.

##### 1.3 Requirements of Regulatory Agencies

- A. Permits -- Burning on project site will not be permitted.
- B. Protection of Persons and Property -- Meet all federal, state and local safety requirements for the protection of workers, other persons, and property in the vicinity of the demolition and clearing work and requirements of General Provisions.

##### 1.4 Site Conditions

- A. Existing Conditions -- CONTRACTOR shall determine extent of work requirements and limitations before proceeding with work.
- B. Protection -- Protect existing site improvements, trees and shrubs to remain to preclude damage during construction. Protect existing trees and shrubs against cutting, breaking or skinning of roots, skinning and bruising of bark, smothering of roots by stockpiling construction materials, excavated materials, excess foot or vehicular traffic and parking of vehicles within drip line. Provide temporary guards, as necessary, to protect trees and vegetation to be left standing. Repairable damage to trees designated to remain shall be made by a professional tree surgeon approved by the ENGINEER. Cost shall be borne by the CONTRACTOR.

- C. Existing Utilities -- Before starting clearing of site work, notify utility agencies; disconnect or arrange for disconnection of utilities (if any) affected by required work. Keep all active utilities intact and in continuous operation.

## PART 2 PRODUCTS

### 2.1 Ownership of Existing Materials

All materials, equipment, items and debris involved, occurring or resulting from demolition, clearing and grubbing work shall become the property of the CONTRACTOR at the place of origin except as otherwise indicated.

### 2.2 Wound Paint

Emulsified asphalt formulated for use on damaged plant tissues, as approved by the ENGINEER.

## PART 3 EXECUTION

### 3.1 Workmanship

Perform work in accordance with recognized standard and efficient methods. Operators of equipment shall be conscientious and skilled.

### 3.2 Clearing and Grubbing

A. Clearing -- Remove trees, saplings, snags, stumps, shrubs, brush, vines, grasses, weeds and other vegetative growth within the clearing limits except those trees and shrubs noted to remain or as directed by the ENGINEER. Clearing shall be performed in such a manner as to remove all evidence of the presence of vegetative growth from the surface of the project site and shall be inclusive of sticks and branches of thickness or diameter greater than 3/8-inch and of grasses, weeds, exceeding 12 inches in height except as otherwise indicated.

B. Grubbing -- Limits of grubbing shall coincide with the limits of clearing. Remove all stumps, roots over one inch in diameter and matted roots within the limits of grubbing work to the following depths.

- |    |                                      |           |
|----|--------------------------------------|-----------|
| 1. | Future structures and building areas | 24 inches |
| 2. | Roads and parking areas              | 18 inches |
| 3. | All other areas                      | 12 inches |

- C. The CONTRACTOR shall remain within the property lines at all times.
- D. Except in areas to be excavated, all holes resulting from the clearing and grubbing operations shall be backfilled and compacted in accordance with the applicable sections of these Specifications.

### 3.3 Preservation and Trimming of Trees, Shrubs and Other Vegetation

The CONTRACTOR shall avoid injury to trees, shrubs, vines, plants, grasses and other vegetation growing outside of the areas to be cleared and grubbed and those trees and shrubs designated to be preserved. Provide protection for roots and limbs over 1-1/2-inch diameter cut during construction operations. Coat the cut faces with an emulsified asphalt. Temporarily cover exposed roots with wet burlap to prevent roots from drying out; cover with earth as soon as possible.

### 3.4 Landscaped Areas

When any portion of the work crosses private property or landscaped areas, the CONTRACTOR shall excavate the topsoil separately and pile it on the opposite side of the trench from the subsoil and shall conduct his work in a manner that will restore original conditions as nearly as practicable.

The CONTRACTOR shall remove and replace any trees, shrubs, plants, sod or other vegetative material. All shrubs or plants shall be balled by experienced workers, carefully handled and watered, and replaced in their original positions without damage. Sod shall be handled in a similar manner. Wherever sod cannot be saved and restored, the ground must be reseeded and cared for until a stand of grass is reestablished. Plants or shrubs killed or destroyed must be paid for by the CONTRACTOR. It is the intent of this paragraph that the CONTRACTOR shall leave the surface and plantings in substantially the same conditions as before the work is undertaken. All costs incurred by the CONTRACTOR shall be absorbed in the unit prices of his bid unless otherwise specified.

### 3.5 Demolition and Removal

Remove from the project site all debris, materials, equipment and items found thereon and materials and debris resulting from the work of demolition except as otherwise indicated. All existing improvements designated on the Drawings or specified to be removed including but not limited to structures, pipelines, walls, footings, foundations, slabs, pavements, curbs, fencing and similar structures occurring above, at, or below existing ground surface shall be included in the demolition work. Unless otherwise specified, any resulting voids shall be thoroughly cracked out for drainage and backfilled with suitable excavated or imported material compacted to the density of the adjacent soil.

### 3.6 Disposal

- A. Removal -- All material resulting from demolition, clearing and grubbing, and trimming operations shall be removed from the project site and disposed of in a lawful manner. Materials placed on property of private property owners shall be by written permission only.
  
- B. Clean-up -- During the time that the work is in progress, the CONTRACTOR shall make every effort to maintain the site in a neat and orderly condition. All refuse, broken pipe, excess fill material, cribbing and debris shall be removed as soon as practicable. Should the work not be maintained in a satisfactory condition, the OWNER may cause the work to stop until the clean-up of the work has been done to the satisfaction of the ENGINEER. The work will not be considered complete or the final payment certificate issued until all rubbish, unused material, or equipment shall have been removed and the premises left in a condition satisfactory to the OWNER and the ENGINEER.

END OF SECTION

## **SECTION 02140**

### **DEWATERING**

#### **PART 1 GENERAL**

##### **1.1 Description**

The CONTRACTOR shall provide all labor, materials, and equipment necessary to dewater trench and structure excavations, in accordance with the requirements of the Contract Documents. The CONTRACTOR shall secure all necessary permits to complete the requirements of this Section of the Specifications.

##### **1.2 Submittals**

The CONTRACTOR shall submit a dewatering plan to be reviewed by the ENGINEER prior to the beginning of construction activities requiring dewatering. Review by the ENGINEER of the CONTRACTOR's design shall not be construed as a detailed analysis of the adequacy of the dewatering system, nor shall any provisions of the above requirements be construed as relieving the CONTRACTOR of its overall responsibility and liability for the work.

##### **1.3 Quality Control**

- A. It shall be the sole responsibility of the CONTRACTOR to control the rate and effect of the dewatering in such a manner as to avoid all objectionable settlement and subsidence.
- B. All dewatering operations shall be adequate to assure the integrity of the finished project and shall be the responsibility of the CONTRACTOR.
- C. Where the critical structures or facilities exist immediately adjacent to areas of proposed dewatering, reference points shall be established and observed at frequent intervals to detect any settlement which may develop. The responsibility for conducting the dewatering operation in a manner which will protect adjacent structures and facilities rests solely with the CONTRACTOR. The cost of repairing any damage to adjacent structures and restoration of facilities shall be the responsibility of the CONTRACTOR.

## PART 2 PRODUCTS

### 2.1 Equipment

Dewatering, where required, may include the use of well points, sump pumps, temporary pipelines for water disposal, rock or gravel placement, and other means. Standby pumping equipment shall be maintained on the jobsite.

## PART 3 EXECUTION

### 3.1 Dewatering

- A. The CONTRACTOR shall provide all equipment necessary for dewatering. The CONTRACTOR shall have on hand, at all times, sufficient pumping equipment and machinery in good working condition and shall have available, at all times, competent workers for the operation of the pumping equipment. Adequate standby equipment shall be kept available at all times to insure efficient dewatering and maintenance of dewatering operation during power failure.
- B. Dewatering for structures and pipelines shall commence when groundwater is first encountered, and shall be continuous until such times as water can be allowed to rise in accordance with the provisions of this Section or other requirements.
- C. At all times, site grading shall promote drainage. Surface runoff shall be diverted from excavations. Water entering the excavation from surface runoff shall be collected in shallow ditches around the perimeter of the excavation, drained to sumps, and be pumped or drained by gravity from the excavation to maintain a bottom free from standing water.
- D. Dewatering shall at all times be conducted in such a manner as to preserve the undisturbed bearing capacity of the subgrade soils at proposed bottom of excavation.
- E. If foundation soils are disturbed or loosened by the upward seepage of water or an uncontrolled flow of water, the affected areas shall be excavated and replaced with drain rock at no additional cost to the OWNER.
- F. The CONTRACTOR shall maintain the water level below the bottom of excavation in all work areas where groundwater occurs during excavation construction, backfilling, and up to acceptance.



- G. Flotation shall be prevented by the CONTRACTOR by maintaining a positive and continuous removal of water. The CONTRACTOR shall be fully responsible and liable for all damages which may result from failure to adequately keep excavations dewatered.
- H. If well points or wells are used, they shall be adequately spaced to provide the necessary dewatering and shall be sandpacked and/or other means used to prevent pumping of fine sands or silts from the subsurface. A continual check by the CONTRACTOR shall be maintained to ensure that the subsurface soil is not being removed by the dewatering operation.
- I. The CONTRACTOR shall dispose of water from the work in a suitable manner without damage to the environment or adjacent property. The CONTRACTOR shall be responsible for obtaining any permits that may be necessary to dispose of water. No water shall be drained into work built or under construction without prior consent of the ENGINEER. Water shall be filtered using an approved method to remove sand and fine sized soil particles before disposal into any drainage system.
- J. The release of groundwater to its static level shall be performed in such a manner as to maintain the undisturbed state of the natural foundation soils, prevent disturbance of compacted backfill and prevent flotation or movement of structures, pipelines, and sewers.
- K. Dewatering of trenches and other excavations shall be considered as incidental to the construction of the work and all costs thereof shall be included in the various contract prices in the bid forms.

END OF SECTION

## SECTION 02200

### EARTHWORK

#### PART 1 GENERAL

##### 1.1 Description

Work covered in this section includes general excavation, fill and backfill work. Earthwork shall meet the specifications of this Section and Oregon Department of Transportation, Standard Specifications for Highway Construction. In the case of conflict, the more stringent specification shall apply.

##### 1.2 Submittals

- A. Submit results of aggregate sieve analysis and standard proctor tests for all granular material.
- B. See Section 01300 for CONTRACTOR submittals.

##### 1.3 Reference Specifications, Codes and Standards

###### A. Commercial Standards

ASTM C 94	Specification for Ready-Mixed Concrete
ASTM C 403	Test Method for Time of Setting Concrete Mixtures by Penetration Resistance
ASTM D 422	Method for Particle-Size Analysis of Soils
ASTM D 698	Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5-lb (2.49-kg) Rammer and 12-inch (304.8-mm) Drop (AASHTO T-99)
ASTM D 2487	Classification of Soils for Engineering Purposes
ASTM D 2922	Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D 4253	Test Methods for Maximum Index Density of Soils Using a Vibratory Table

ASTM D 4254      Test Methods for Minimum Index Density of Soils and  
Calculation of Relative Density

B.      Reference Standards

References herein to the “Standard Specifications for Highway Construction” shall mean The Oregon Department of Transportation, Standard Specifications for Highway Construction 2015. References herein to “AASHTO” shall mean Association of American State Highway Transportation Officials.

1.4      Classification of Excavation

A.      Unclassified Excavation

Unclassified excavation is defined as all excavation, regardless of the type, character, composition or condition of the material encountered and shall further include all debris, junk, broken concrete, and all other material. All excavation shall be unclassified unless provided for otherwise elsewhere in these specifications.

B.      Classified Excavation

1.      Common Excavation

Common excavation is defined, as the excavation of all material not classified as Rock Excavation.

2.      Rock Excavation

Rock excavation is defined as the removal of rock by systematic and continuous drilling and blasting, if allowed, and hammering, breaking, splitting or other approved methods. Rock is defined as material including boulders, solid bedrock, or ledge rock, which, by actual demonstration, cannot be reasonably excavated with suitable power excavation equipment. Suitable machinery is defined as a track-mounted hydraulic excavator of the 52,800 to 72,500 pound class equipped with a single shank ripper. The ENGINEER may waive the demonstration if the material encountered is well-defined rock. The term "rock excavation" shall be understood to indicate a method of removal and not a geological formation.

If material which would be classified as rock by the above definition is mechanically removed with equipment of a larger size than specified, it

shall be understood that any added costs for the removal of material by this method shall be included in the unit price for common excavation. Before the removal of rock by the methods described above will be permitted, the CONTRACTOR shall expose the material by removing the common material above it and then notify the ENGINEER who, with the CONTRACTOR or his representative, will measure the amount of material to be removed.

In trench excavations, boulders or pieces of concrete below grade larger than one half (1/2) cubic yard will be classified as rock if blasting, hammering, breaking or splitting actually required and used for their removal from the trench. If material, which would be classified as rock by the definition above and elsewhere within these specifications, is mechanically removed without blasting, hammering, breaking or splitting, it will be considered common excavation. If equipment larger than the "suitable machinery" as defined above is brought on the project site for the sole purpose of rock removal without blasting, hammering, breaking or splitting, then such removal will be considered rock excavation.

CONTRACTOR shall verify if the use of explosives for excavation of rock is allowed on this project.

#### 1.5 Quality Assurance

- A. Soil Testing -- Soil sampling and testing to be by an independent laboratory approved by the ENGINEER. The frequency of testing is to be determined by the ENGINEER. All soil testing shall be paid for by the CONTRACTOR.
- B. Compaction Tests -- Maximum density of optimum moisture content by ASTM D698 (AASHTO T-99). In-place density in accordance with Nuclear Testing Method ASTM D2922 and D3017.
- C. Soil Classification -- All imported materials, classification in accordance with ASTM D2487.
- D. Allowable Tolerances -- Final grades shall be plus or minus 0.04 foot.
- E. In Place Testing of CLSM -- CLSM shall be tested in accordance with ASTM C 403.
- F. Compressive Tests of CLSM -- CLSM shall be compressive tested in accordance with ASTM D 4832.

## 1.6 Site Conditions

- A. Quantity Survey -- CONTRACTOR shall be responsible for calculations of quantities of cut and fill from existing site grades to finish grades established under this contract as indicated on the plans or specified and shall include the cost for all earthwork in the total basic bid.
- B. Dust Control -- Must meet Oregon State DEQ and Local requirements. Protect persons and property from damage and discomfort caused by dust. Water as necessary and when directed by ENGINEER to quell dust.
- C. Soil Control -- Soil shall not be permitted to accumulate on surrounding streets or sidewalks nor to be washed into sewers. See provisions for erosion control.
- D. Existing Underground Utilities -- Protect active utilities encountered and notify persons or agencies owning same. Remove inactive or abandoned utilities from within the project grading limits to a depth at least twelve (12) inches below subgrade established under this contract. All abandoned piping to be plugged as approved by ENGINEER.

## PART 2 PRODUCTS

### 2.1 Crushed Rock

Crushed rock with 3/4 inch-0, 1 inch-0, and 1 1/2 inch-0 gradation as shown on the plans shall meet the gradation and other requirements of the Standard Specifications for Highway Construction for Base Aggregates.

### 2.2 Granular Drain Backfill Material

Granular drain backfill material shall be crushed or uncrushed rock or gravel as shown on the plans and shall be clean and free-draining. Granular drain backfill material shall be the size as shown on the plans and shall meet the gradation and other requirements of the Standard Specifications for Highway Construction for such material.

### 2.3 Select Native Fill

Select native fill shall consist of approved earth obtained from on-site excavations, free of peat, humus, vegetative matter, organic matter, and rocks greater than 12 inches in diameter, processed as required to be placed in the thicknesses prescribed and at the optimum moisture content to obtain the level of compaction required by these specifications.

## 2.4 Imported Fill

Imported fill material shall consist of approved imported earth substantially free of organic material and foreign debris. Imported fill material shall meet the requirements for select native fill as defined above and shall be approved by the ENGINEER.

## 2.5 Topsoil

Top 6-12 inches of existing soil containing organic matter. ENGINEER's decision shall be final as to determination of what is of topsoil quality. Topsoil shall be stockpiled on site for later use in landscaping. Care shall be taken in collection of topsoil so as to preserve native seed stocks, which are valuable to restoring native species as part of finish landscaping.

## 2.6 Spoils

All excess material not suitable or not required for backfill and grading shall be hauled off site and disposed of at a location approved by the ENGINEER. The CONTRACTOR shall make arrangements for disposal of the material at no additional cost to the OWNER. Landfill permit to be obtained by the CONTRACTOR and provided to ENGINEER prior to commencement of disposal.

# PART 3 EXECUTION

## 3.1 General

- A. Prior to work in this section, become familiar with site conditions. In the event discrepancies are found, notify the ENGINEER as to the nature and extent of the differing conditions.
- B. Do not allow or cause any work performed or installed to be covered up or enclosed prior to required tests and approvals. Should any work be enclosed or covered up, uncover at CONTRACTOR's expense.

## 3.2 Topsoil Stripping and Stockpiling

- A. Site within clearing limits shall be stripped of topsoil to depths approved by the ENGINEER, as required to obtain additional topsoil necessary to complete work indicated on plans or specified.
- B. Topsoil shall be free of sticks, large rocks, clods, and subsoils.

- C. Stockpile topsoil at locations approved by ENGINEER for redistribution as specified. Grade surface of stockpiles remaining over winter months to prevent ponding of water. Cover stockpile to minimize the infiltration of water. See other provisions for erosion control.

### 3.3 Excavation

- A. Excavate material of every nature and description to the lines and grades as indicated on the drawings and/or as required for construction of the facility.
- B. Provide and maintain equipment to remove and dispose of water during the course of the work of this section and keep excavations dry and free of frost or ice.
- C. Project dewatering is specified elsewhere. Coordinate drainage requirements with this work. Provide temporary drainage ditches as required and regrade as indicated at completion of project.
- D. Excavated material not approved for use in the embankments or in excess of that needed to complete the work shall be hauled off site and disposed of at no expense to the OWNER.

### 3.4 Rock Excavation

- A. Where the bottom of the excavation encounters ledge rock and/or boulders and large stones which meet the definition of "rock" as described herein, said rock shall be removed to provide 12 inches of clearance on each side and below all structures, pipe and appurtenances.
- B. Excavations below subgrade in rock shall be backfilled to subgrade with approved bedding material and thoroughly compacted.
- C. If explosives are allowed on this project, the CONTRACTOR shall comply with the requirements for the use and security of explosives as specified in the special provisions.
- D. Wherever the use of explosives is required during the course of the work, and if the use of explosives are allowed on this project, the CONTRACTOR shall conform to the recommendations of the Manual of Accident Prevention in Construction, published by AGC, in regard to Section 5, Explosives. Prior to commencing use of explosives, the CONTRACTOR shall submit a certificate of insurance showing coverage of blasting operating and blasting product

liability to the limits required by the General Conditions. Coverage for this extra hazard shall be maintained during all blasting operations.

- E. The CONTRACTOR shall provide all necessary approved types of tools and devices required for loading and using explosives, blasting caps and accessories, and conform to and obey all federal, state, and local laws that may be imposed by any public authority.
- F. When blasting rock, cover the area to be shot with blasting mats or other approved types of protective material that will prevent the scattering of rock fragments outside the excavation. The CONTRACTOR shall give ample warning to all persons within the vicinity before blasting, station people and provide signals of danger in suitable places to warn people and vehicles before firing any blasts. Fire all blasts with an electric blasting machine which shall be connected to the circuit immediately prior to the time for firing, and only then by the person who will operate the blasting machine.
- G. The CONTRACTOR shall assume all liability and responsibility connected with or accruing from blasting, or the use of explosives or dangerous material of any kind whatsoever. Such liability shall extend to include, but not be limited to, damage to work or adjacent property, injuries, lawsuits, complaints and all other adverse results, whether actual, alleged, inferred or implied.

### 3.5 Grading and Filling

- A. General -- Grading and filling operations shall not take place when weather conditions and moisture content of fill materials prevent the attainment of specified density. Vertical curves or roundings at abrupt changes in slope shall be established as approved by ENGINEER. Bring all graded areas to a relatively smooth, even grade and slope by blading or dragging. Remove high spots and fill depressions.
- B. For areas receiving surface structures or existing paved areas to be constructed or replaced by the CONTRACTOR or by others, such as railways, roadways, driveways, parking lots, and sidewalks, place clean well-graded gravel fill material (3/4 inch – 0 inch) in 6-inch lifts and compact with vibratory equipment to 95 percent maximum density unless otherwise specified.
- C. Embankment Construction -- Place fill material shown or specified in 8-inch loose lifts and compact with approved equipment. All fill material within 3 feet of top of fill elevations shall be compacted with vibratory equipment to 95 percent maximum density unless otherwise specified. All fill material below the 3-foot limit shall be compacted with vibratory equipment to 90 percent maximum density unless otherwise specified.



### 3.6 Topsoil Fill

- A. Scarify prepared subgrade to depth of four inches immediately prior to placing topsoil.
- B. Place topsoil in areas to be seeded to depths indicated, minimum depth of six inches. Place loose; do not compact, do not place in wet or muddy conditions.

END OF SECTION

## SECTION 02222

### EXCAVATING, BACKFILLING AND COMPACTING FOR UTILITIES

#### PART 1 GENERAL

##### 1.1 Description

- A. Work covered in this Section includes trench excavation for pipe, utility vaults and other utilities, pipe bedding, trench and utility vault backfill. All work shall conform to City of Sherwood Standards, Washington County Standards and Oregon Department of Transportation Standard Specifications for Highway Construction except as modified herein. In the case of discrepancy the more stringent provisions shall apply.
  
- B. Excavation for Utilities Includes
  - 1. Work of making all necessary excavations for the construction of all contract work
  - 2. Furnishing, placing and use of sheeting, shoring, and sheet piling necessary in excavating for and protecting the work and workmen
  - 3. Performing all pumping and work necessary to keep the trenches free from water
  - 4. Providing for uninterrupted flow of existing rivers, treatment plant processes, drains, and sewers and the temporary disposal of water from other sources during the progress of the work
  - 5. Damming and coffer damming where necessary
  - 6. Supporting and protecting all structures, pipes, conduits, culverts, railroad tracks, posts, poles, wires, fences, buildings, and other public and private property adjacent to the work
  - 7. Removing and replacing existing sewers, culverts, pipelines, and bulkheads where necessary
  - 8. Removing after completion of the work all sheeting and shoring not necessary to support the sides of excavations
  - 9. Removing all surplus excavated material

10. Performing all backfilling and rough grading of compacted backfill to limits specified or ordered by the ENGINEER.
  11. Restoring all property damaged as a result of the work involved in this contract
- C. The work includes obtaining and transporting suitable fill material from off-site when suitable on-site material is not available.
  - D. The work includes transporting surplus excavated material not needed for backfill at the location where the excavation is made, to other parts of the work where filling is required, or disposal of all surplus material on other sites provided by the CONTRACTOR.
  - E. Backfill and Fill Compaction: Test consolidated backfill material in trenches around pipes and structures in conformance with "Compaction Tests" specified herein. Where tests indicate insufficient values, perform additional tests as required by the ENGINEER. Testing shall continue until specified values have been attained by additional compaction effort.

## 1.2 Submittals

- A. Submit results of aggregate sieve analysis and standard proctor tests for all granular material.
- B. See Section 01300 for CONTRACTOR submittals.

## 1.3 Protection

- A. Exploratory Test Pits (Potholing) -- The CONTRACTOR shall dig such exploratory test pits as may be necessary in advance of excavation to determine the exact location and elevation of subsurface structures, pipelines, duct banks and conduits which are likely to be encountered or need to be connected to and shall make acceptable provision for their protection, support, and maintenance in operation.
- B. Sheeting, Shoring and Bracing
  1. The CONTRACTOR shall furnish and install adequate sheeting, shoring, and bracing to maintain safe working conditions, and to protect newly built work and all adjacent and neighboring structures from damage by settlement.

2. Bracing shall be arranged so as not to place a strain on portions of completed work until the construction has proceeded far enough to provide ample strength. Sheeting and bracing may be withdrawn and removed at the time of backfilling, but the CONTRACTOR shall be responsible for all damage to newly built work and adjacent and neighboring structures.

C. Construction Sheeting Left in Place

1. The CONTRACTOR shall furnish, install, and leave in place, construction sheeting and bracing when specified or when indicated or shown on the Drawings.
2. Construction sheeting and bracing, placed by the CONTRACTOR to protect adjacent and neighboring structures, may be left in place if desired by the CONTRACTOR. All such sheeting and bracing left in place shall be included in the cost for excavation.
3. Any construction sheeting and bracing which the CONTRACTOR has placed to facilitate its work may be ordered in writing by the ENGINEER to be left in place. The right of the ENGINEER to order sheeting and bracing left in place shall not be construed as creating an obligation on its part to issue such orders. Failure of the ENGINEER to order sheeting and bracing left in place shall not relieve the CONTRACTOR of its responsibility under the contract.

D. Removal of Water

1. The CONTRACTOR shall at all times during construction provide and maintain ample means and devices with which to remove promptly and dispose of properly all water entering the excavations or other parts of the work and shall keep said excavations dry until the pipelines to be placed therein are completed. In water bearing sand, well points and/or sheeting shall be supplied, together with pumps and other appurtenances of ample capacity to keep the excavation dry as specified.
2. The CONTRACTOR shall dispose of water from the work in a suitable legal manner without damage to adjacent property or structures.

## 1.4 Definitions

### A. Bedding and Pipe Zone Backfill

Bedding and pipe zone backfill is defined as the furnishing, placing and compacting of material below, around and above the top of the pipe barrel to the dimensions shown on the trench detail on the Drawings. The minimum depth for pipe bedding shall be 4 inches. The compaction requirement for the pipe bedding and pipe zone shall not be less than that required for the trench backfill above the pipe zone

### B. Trench Backfill Zone

Trench backfill is defined as the furnishing, placing and compacting of material in the trench above the pipe zone, up to bottom of the pavement base rock, ground surface or surface material.

### C. Bedding, Pipe Zone and Backfill Classification

Class A: Backfill with suitable native excavated material. Place the material in lifts with mechanical compaction sufficient to insure that no bridging occurs. Mound the excess material over the trench.

Class B: Backfill with suitable native excavated material. Place the material in lifts and mechanically compact to a relative density as shown on the Drawings or specified herein. Remove and dispose of excess material.

Class C: Backfill with suitable native excavated material. Place the material in the trench and water settle to a relative density as shown on the Drawings or specified herein. Remove and dispose of excess material.

Class D: Backfill with approved imported granular material. Place the material in lifts and mechanically compact to a relative density as shown on the Drawings or specified herein. Remove and dispose of excess material.

Class E: Backfill with Controlled Low Strength Material (CLSM). See Section 2200, Earthwork

### D. Classification of Excavated Material

Excavated materials are defined within Section 02200, Earthwork.

## 1.5 Quality Assurance

### A. Compaction Requirements

In place dry density of compacted material shall be at the percent of maximum dry density specified or shown at optimum moisture content determined on the basis of AASHTO T-99.

### B. Testing Requirements

An independent laboratory retained by the CONTRACTOR and approved by the ENGINEER will perform all soil sampling and testing. Testing location and frequency to be determined by the ENGINEER. All testing will be paid for by the CONTRACTOR.

## 1.6 References

A. Standard Specifications for Public Works, APWA, current manual, hereinafter called "APWA Standard Specifications".

B. Oregon Department of Transportation, Standard Specifications for Highway Construction current manual, hereinafter called "Standard Specifications for Highway Construction".

## PART 2 MATERIALS

### 2.1 Native Backfill Material

Native backfill material shall be select excavated native material free from roots or other organic material, trash, mud, muck, frozen material and large stones and shall comply with the select native fill specification within Section 02200, Earthwork. When native excavated material is used for backfill around the pipe, it shall be free of rocks, cobbles, stones or other debris having a dimension greater than 1 1/2 inches.

### 2.2 Granular Backfill Material

Unless otherwise shown on the plans or specified herein, granular backfill material shall be well graded crushed rock with a maximum aggregate size of 3/4-inch in the bedding and pipe zone, and a maximum aggregate size of 1 1/2-inch in the trench backfill zone. All gradations of crushed rock shall comply with Section 02200, Earthwork.

### 2.3 Foundation Stabilization Material

Foundation stabilization material shall be 6 inch - 2 inch or 4 inch - 2 inch gravel free from clay balls and organic debris, well crushed gravel or crushed rock graded with less than 8 percent by weight passing the 1/4-inch sieve, as approved by the ENGINEER.

## PART 3 EXECUTION

### 3.1 Preparation

- A. The site of an open cut excavation shall be first cleared of all obstructions preparatory to excavation. Wherever paved or surfaced streets are cut, saw wheel or approved cutting devices shall be used. Width of pavement cut shall not be less than 12 inches greater than trench width. Any cut or broken pavement shall be removed from site during excavation.
- B. The CONTRACTOR shall maintain street traffic at all times and erect and maintain barricades, warning signs, traffic cones, and other safety devices during construction in accordance with the Manual of Uniform Traffic Control Devices (MUTCD), Part VI, to protect the traveling public in any area applicable. Provide flagmen as required during active work in roadway areas.
- C. Intent of specifications is that all streets, structure, and utilities be left in condition equal to or better than original condition. Where damage occurs and cannot be repaired or replaced, CONTRACTOR shall purchase and install new material, which is satisfactory to OWNER. Plans and/or specifications cover and govern replacement and restoration of foreseeable damage.
- D. The operations shall be confined to right-of-way and easements provided. Avoid encroachment on, or damage to, private property or existing utilities unless prior arrangements have been made with copy of said arrangement submitted to ENGINEER.

### 3.2 Obstructions

This item refers to obstructions, which may be encountered and do not require replacement. Obstructions to the construction of the trench such as tree roots, stumps, abandoned piling, abandoned buildings and concrete structures, logs, rubbish, and debris of all types shall be removed without additional compensation from the OWNER. The ENGINEER may, if requested, make changes in the trench alignment to avoid major obstructions, if such alignment changes can be made within the

perpetual easement and right-of-way and without adversely affecting the intended function of the facility or increased costs to the OWNER.

### 3.3 Interfering Structures or Roadways

- A. The CONTRACTOR shall remove, replace and/or repair any damage done by the CONTRACTOR during construction to fences, buildings, cultivated fields, drainage crossings, and any other properties at its own expense and without additional compensation from the OWNER. The CONTRACTOR shall replace or repair these structures to a condition as good or better than their pre-construction condition prior to commencing work in the area.
- B. Where paved roadways are cut, trench backfill will be Class D as defined herein. New pavement shall be equal to or better than the existing paved surface, and shall not deviate by more than 1/4-inch from the existing finish elevation.
- C. If the CONTRACTOR encounters existing structures, which will prevent construction and are not adequately shown on the plans, the CONTRACTOR shall notify the ENGINEER before continuing with the work in order that the ENGINEER may make such field revisions as necessary to avoid conflict with the existing conditions. The cost of waiting or “down time” during such field revisions shall be borne by the CONTRACTOR without additional cost to the OWNER or liability to the ENGINEER. If the CONTRACTOR fails to so notify the ENGINEER when a conflict of this nature is encountered, but proceeds with construction despite this interference, he shall do so at his own risk with no additional payment.

### 3.4 Easements

- A. Where portions of the work are located on private property, easements and permits will be obtained by the OWNER. Easements shall provide for the use of property for construction purposes to the extent indicated on the easements. Copies of these easements and permits will be available from the OWNER for inspection by the CONTRACTOR. It shall be the CONTRACTOR’s responsibility to determine the adequacy of the easement obtained in every case. The CONTRACTOR shall confine its construction operations to within the easement limits or street right-of-way limits, or make special arrangements with the property owners for the additional area required and notify the ENGINEER of any such conditions.
- B. Any damage to private property, either inside or outside the limits of the easements provided by the OWNER, shall be the responsibility of the CONTRACTOR. Before the ENGINEER will authorize final payment, the



CONTRACTOR will be required to furnish the OWNER with written releases from the property owners, where the CONTRACTOR has obtained special agreements or easements or where the CONTRACTOR's operations, for any reason, have not been kept within the construction right-of-way obtained by the OWNER. Any such special agreements must be in written form and shall not involve the OWNER or ENGINEER as to liabilities in any way.

### 3.5 Trench and Utility Vault Excavation

- A. Excavation for trenches in which pipelines are to be installed shall provide adequate space for workers to place and joint the pipe properly and safely, but in every case the trench shall be kept to a minimum width. The width of trench at the top of the pipe shall not exceed the limits specified or as shown on the Drawings. Excavation for manholes and other structures shall be wide enough to provide a minimum of 12 inches between the structure surface and the sides of the excavation.
- B. Unless otherwise permitted by the ENGINEER, trenching operations shall not be performed beyond the distance which will be backfilled and compacted the same day.
- C. In general, backfilling shall begin as soon as the pipe or conduit is in approved condition to receive it and shall be carried to completion as rapidly as possible. New trenching shall not be started when earlier trenches need backfilling or the surfaces of streets or other areas need to be restored to a safe and proper condition.
- D. Where the excavation activities require the removal of portions of an abandoned pipeline, masonry plugs shall be installed in the open ends of the pipe, unless otherwise noted on the plans or by the ENGINEER. Coordinate with ENGINEER prior to plugging. For plugs, of all pipe diameter, 12-inch deep masonry units shall be used.
- E. Excavated material shall be placed at locations and in such a manner that it does not create a hazard to pedestrian or vehicular traffic, or interfere with the function of existing drainage facilities or system operation. The CONTRACTOR shall make arrangements for and dispose of all excess material not required elsewhere on the project at no cost to the OWNER.
- F. The CONTRACTOR shall provide the materials, labor and equipment necessary to protect trenches at all times. The trench protection shall provide safe working conditions in the trench and protect the work, existing property, utilities, pavement, etc. The method of protection shall be according to the CONTRACTOR's design. The CONTRACTOR may elect to use a

combination of shoring, over break, tunneling, boring, sliding trench shields, or other methods of accomplishing the work provided the method meets the approval of all applicable local, state and federal safety codes. Damages resulting from improper shoring, improper removal of shoring or from failure to shore shall be the sole responsibility of the CONTRACTOR.

- G. The CONTRACTOR shall remove and dispose of existing abandoned sewer pipe, structures, and other facilities as necessary to construct the improvements. The cost of such removal will be considered incidental to trench excavation and backfill.
- H. Trench excavation for piping, utility vaults and other utilities shall be performed to the alignment and grade as indicated on the plans or as required by the ENGINEER. Where grades are not shown, pipe or other utilities shall be laid to grade between control elevations shown on the plans. Water mains shall be installed with a minimum cover of 36 inches.

Changes in the grade and horizontal alignment of the pipeline as shown on the plans or as provided elsewhere in the specifications may be necessary due to unanticipated interferences or other reasons. No additional compensation will be allowed the CONTRACTOR for changes in horizontal alignment unless otherwise provided for within these specifications. No additional compensation will be allowed for changes in grade, which require additional depth of trench excavation and backfill up to 2 feet from those shown on the plans unless provided for within these specifications.

- I. The trench at all times shall be kept free from water to facilitate fine grading, the proper laying and joining of pipe, and prevention of damage to completed joints. Adequate pumping equipment shall be provided to handle and dispose of the water without damage to adjacent property. Water in the trench shall not be allowed to flow through the pipe while construction work is in progress unless special permission to do so has been given by the ENGINEER. An adequate screen shall be provided to prevent the entrance of objectionable material into the pipe.
- J. For pipe or utility vaults to have bedding material, excavate to a depth of 6 inches minimum below the bottom of the pipe or utility vault. Care shall be taken not to excavate below depths required. If over digging occurs, the trench bottom shall be filled to grade with compacted bedding material. The width of the pipe trench at and below the top of the pipe shall be such that the clear space between the barrel of the pipe and the trench shall not exceed 12 inches on either side of the pipe. The width of the trench above that level may be as wide as necessary for sheeting and bracing and the proper performance of the work.

### 3.6 Excavation Below Grade

If the trench bottom is unsuitable below the depth required for bedding, the ENGINEER may require additional excavation. This extra excavation shall be backfilled with compacted foundation stabilization material. This backfill shall be placed in lifts not to exceed 8 inches and compacted to 95 percent of the maximum density at optimum moisture content.

### 3.7 Tunneling

NOT USED

### 3.8 Pipe Bedding

All pipe 4-inch nominal diameter and over, all steel pipe, all concrete sewer pipe, all plastic pipe, all pipe under existing or future structures or roadways, and all pipe at a depth greater than 6 feet shall be laid in pipe bedding material. Unless otherwise noted on the plans, pipe or conduit of less than 4-inch diameter, outside structure lines and at a depth of less than 6 feet shall be bedded in native material properly shaped as specified below, all as detailed on the drawings.

Following the excavation of the trench, compacted pipe bedding material shall be placed the full width of the excavated trench to a depth as shown on the trench detail. In lieu of a detail, the depth shall be 6 inches. The bottom of the trench shall be accurately graded and rounded to fit the bottom quadrant of the pipe to provide uniform bearing and support for each section of pipe. Depressions for jointing shall be only of such length, depth and width necessary for the proper making of the joint.

### 3.9 Pipe Zone and Trench Backfill

- A. All backfill except CLSM shall be placed and compacted in 12-inch lifts. Backfill shall be carefully placed around the pipe and thoroughly compacted in 12-inch lifts or in a manner satisfactory to the ENGINEER so as to achieve the specified compaction requirements. When placing pipe zone backfill, the CONTRACTOR shall prevent pipe from moving either horizontally or vertically during placement and compaction of pipe zone material.
- B. Backfill Immediately: All trenches and excavations shall be backfilled immediately after pipe is laid therein and necessary testing is complete, unless otherwise directed by the ENGINEER. Under no circumstances shall water be permitted to rise in open trenches after pipe has been placed.
- C. Where trenches are under existing or future structures, paved areas, road shoulders, driveways or sidewalks, or where designated on the plans or

specified elsewhere in these specifications, the trench backfill shall be Class D or Class E and pipe zone backfill shall be Class D. Class D backfill shall be compacted to 95 percent of maximum density at optimum moisture content.

- D. Where trenches are outside existing or future structures, paved areas, road shoulders, driveways or sidewalks, or where designated on plans or specified elsewhere, the trench backfill shall be Class B or Class D and pipe zone backfill in these areas shall be Class D. For these locations, compaction of Class B backfill shall be to not less than 90 percent of maximum density at optimum moisture content. Class D backfill shall be compacted to not less than 95 percent of maximum density at optimum moisture content.

### 3.10 Compaction Testing

- A. Compaction tests will be required to show that specified densities of compacted backfill are being achieved by the CONTRACTOR's compaction methods.
- B. Tests of pipeline fill materials shall be made on each lift of fill for every 200 feet of pipeline trench as measured along the pipe centerline. After the ENGINEER is satisfied that the CONTRACTOR's method of compaction consistently meets specified compaction requirements, the testing frequency may be reduced to not less than one test per lift of fill for every 1,500 feet of pipeline trench. The ENGINEER may direct testing at a higher frequency at no additional cost to the OWNER upon failure to obtain specified densities or if the CONTRACTOR changes compaction equipment or methods of compaction. The ENGINEER shall determine all test locations.

### 3.11 Utility Crossings

- A. Vertical clearance between the new pipe and existing utilities shall be 12 inches minimum unless otherwise noted on the plans or specified. Where existing utility lines are damaged or broken, the utility shall be repaired or replaced, care being taken to insure a smooth flow line and absolutely no leakage at the new joints. Unless otherwise specified herein, all expenses involved in the repair or replacement of leaking or broken utility lines that have occurred due to the CONTRACTOR's operations shall be borne by the CONTRACTOR and the amount thereof shall be absorbed in the unit prices of its bid.
- B. Water Lines Crossing Sewer Lines -- Whenever water lines cross sewer lines, CONTRACTOR shall comply with Health Department requirements. Wherever possible, the bottom of the water line shall be 1.5 feet or more above the top of sewer pipe and one full length of the water line pipe shall be

centered at the crossing. For clearances less than 1.5 feet, the CONTRACTOR shall replace the existing sewer pipe with ductile iron or PVC of equal size, or shall encase existing sewer pipe with concrete for a minimum of 10 feet on both sides of crossing, as directed by the ENGINEER, at no additional cost to the OWNER.

### 3.12 Disposal of Unsuitable and Surplus Material

- A. All excavated materials which are unsuitable for use in backfilling trenches or around structures, and excavated materials that are in excess of that required for backfilling and for constructing fills and embankments as shown on the drawings, shall be disposed of by the CONTRACTOR at its own expense and at disposal sites provided by the CONTRACTOR as may be required; except that the OWNER reserves the right to require the CONTRACTOR to deposit such surplus at locations designated by the OWNER within a 2-mile radius.
- B. Surplus excavated material shall be disposed of at designated spoil sites in a legal manner, in full compliance with applicable codes and ordinances.

### 3.13 Surface Restoration and Clean-Up

- A. At the end of each work day, all open trenches shall be backfilled and all trenches within streets shall be temporarily paved or covered to the satisfaction of the ENGINEER. Temporary paving shall be replaced with permanent street paving, at completion of construction within street right of way or sooner if deemed necessary by the ENGINEER. No gravel-filled trenches shall be left open within the street right-of-way at the end of the workday.
- B. Where trenches cross lawns, garden areas, pastures, cultivated fields, or other areas on which reasonable topsoil conditions exist, the CONTRACTOR shall remove the topsoil to the specified depth and place the material in a stockpile. The CONTRACTOR shall not mix the topsoil with other excavated material. After the trench has been backfilled, the topsoil shall be replaced.
- C. CONTRACTOR shall clean up and remove all excess materials, construction materials, debris from construction, etc. CONTRACTOR shall replace or repair any fences, mailboxes, signs, landscaping, or other facilities removed or damaged during construction. CONTRACTOR shall replace all lawns, topsoil, shrubbery, flowers, etc., damaged or removed during construction. CONTRACTOR to be responsible for seeing that lawns, shrubs, etc. remain alive and leave premises in condition equal to original condition before construction.

END OF SECTION

## SECTION 02505

### PAVEMENT AND SURFACE RESTORATION

#### PART 1 GENERAL

##### 1.1 Scope

This section covers the work necessary to replace all pavements, pavement base, curbs, sidewalks and other surface features damaged directly or indirectly during construction.

##### 1.2 Reference Standards

- A. City Standards: where the term “City Standards” is used, such reference shall mean the current edition of the City’s Engineering Design and Standard Details Manual.
- B. References herein to “AASHTO” shall mean Association of American State Highway Transportation Officials.
- C. Standard Specifications: Where the term “Standard Specification” is used, such reference shall mean the current edition of the Oregon Department of Transportation Standard Specifications for Highway Construction. Where reference is made to a specific part of the Standard Specifications, such applicable part shall be considered as part of this section of the Specifications. In case of a conflict in the requirements of the Standard Specifications and the requirements stated herein, the requirements herein shall prevail.

##### 1.3 Quality Assurance

- A. All testing to determine compliance with the specifications shall be performed by an independent testing laboratory approved by the ENGINEER. All testing costs shall be borne by the CONTRACTOR.
- B. The surface smoothness of the replaced pavement shall be such that when a 10-foot straightedge is laid longitudinally across the patched area between the edges of the old surfacing and surface of the new pavement, the new pavement shall not deviate from the straightedge more than 1/8 inch and surface drainage shall be maintained. Additionally, paving must conform to the grade and crown of the adjacent pavement and contain no abrupt edges, low or high areas or any other imperfections as determined by the ENGINEER. Pavement trench construction not meeting these requirements will be repaired by grinding the existing pavement to a 1 1/2 inch depth and replacing with a Level 2, 1/2-inch dense graded, PG 70-22 Hot Mix Asphaltic Concrete (HMAC)

the full width of the previous trench patch plus 4 inches on each side at no cost to OWNER.

## PART 2 PRODUCTS

### 2.1 Aggregate Material

Base Course and Leveling Course: The aggregate material shall be a clean, well-graded crushed base aggregate conforming to the Standard Specifications. Base course shall be 1-1/2 inches minus aggregate and leveling course shall be 3/4" minus aggregate.

### 2.2 Asphalt Concrete Pavement

#### A. Hot Mix Asphalt Concrete

Use Level 2, 1/2-inch dense graded, PG 70-22 HMAC. Conform to the requirements as specified in Section 00744 of the Standard Specification.

#### B. Asphalt Prime Coat

Liquid asphalt for use as a prime coat under asphalt concrete shall be MC 250 liquid asphalt, CMS-2S or CSS-1.

#### C. Seal and Cover Coat

Asphalt material shall be CRS-2 cationic emulsified asphalt. Cover stone shall conform to size 1/4-inch - #10 aggregate in Standard Construction Specifications.

### 2.3 Concrete

A. Concrete mixture for sidewalk, curb, and gutter work shall be a 3,300 psi mixture at 28 days.

B. Concrete mixture for commercial driveway work shall be a 4,000 psi mixture at 28 days.

## PART 3 EXECUTION

### 3.1 Surface Restoration, General

- A. All areas disturbed as a result of construction shall be restored to their original condition as nearly as possible, or surfaced as shown on the Plans. All excess material shall be removed from the site. Any damaged concrete walks or driveways shall be restored. All dirt and debris that accumulates from the CONTRACTOR's operations shall be removed from inlets, catch basins, connecting pipelines and similar structures. Any material entering manholes or ditch culverts from street resurfacing and trenching work shall be removed. Daily clean up of all visible mud and debris is required.
- B. All open fields, unpaved public rights-of-way or easements, and other areas not used as driveways, as shown on the Plans or as directed by the ENGINEER, shall be restored by placement of 12 inches of topsoil, fine grading and hydroseeding.
  - 1. Seeding shall be completed as specified in these Specifications.
  - 2. Settlement of 2 inches or more within 1 year of substantial completion shall require repairs and re-seeding as directed by the ENGINEER and at the CONTRACTOR'S expense.
  - 3. Restorations occurring on private property shall be seeded to match existing conditions.

### 3.2 Aggregate Pavement Base

- A. Place pavement base to the depth shown on the plans or as specified in all cases, pavement base shall be compacted to a minimum depth of 6 inches. 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 percent of the maximum density, as determined by AASHTO T-180.

### 3.3 Temporary Pavement

Where pavement is to be replaced, a temporary cold asphalt patch shall be applied within 24 hours of trench backfill. Before replacement of the permanent pavement, the CONTRACTOR shall continuously maintain the trenches in a condition acceptable to the OWNER, ENGINEER and/or responsible roadway agency at no additional cost to the OWNER.



### 3.4 Asphalt Concrete Pavement

- A. CONTRACTOR shall conform to the requirements for prime coat and tack coat in Standard Specifications. Tack coat all edges of existing pavement, manhole and clean out frames, inlet boxes and like items. When rate is not specified, asphalt will be applied at the rate of 0.1 gallon per square yard.
- B. Asphalt Concrete Placement
  - 1. Except as specifically modified herein, conform to the requirements for construction in Standard Specifications. All trench cuts shall be kept in a smooth condition throughout the duration of the project.
  - 2. The limits of the restoration shall include all damaged or undermined surfacing.
  - 3. Provide a smooth tee cut by saw cutting the existing pavement parallel to the trench and beyond the sides of the trench excavation as shown on the plans. Remove any pavement which has been damaged or which is broken and unsound outside this area by making alternating traverse and parallel saw cuts. Parallel cuts must be a minimum of 25 feet long, unless otherwise directed by ENGINEER. Provide a smooth, sound edge for joining the new pavement.
  - 4. Place the asphalt concrete to the specified depth on the prepared subgrade over the trench. When depth is not specified, place asphalt concrete to the depth of the adjacent pavement, up to a maximum of 6 inches, at the direction of the ENGINEER. Minimum depth of pavement shall be 4 inches. When a prime coat is specified, place asphalt concrete after the prime coat has set. Maximum thickness for any one lift of pavement shall not exceed 2 inches. Spread and level the asphalt concrete with hand tools or by use of a mechanical spreader.
  - 5. When the utility trench is placed closer than 3 feet inside the edge of existing pavement, the remaining pavement must be removed and replaced with the trench repair. When the trench is under the existing edge of pavement, additional pavement shall be removed to allow a three foot minimum width of repair and to maintain the original street width.
  - 6. Settlement of 1/4-inch or greater for asphalt concrete patches, occurring within one year of substantial completion, shall require repair or replacement as directed by the ENGINEER at the CONTRACTOR'S expense.

### 3.5 Concrete

- A. Replace concrete driveways, sidewalks and curbs to the same section, width, depth, line and grade as that removed or damaged. Sawcut broken or jagged ends of existing concrete on a straight line and to a vertical plane. Place new concrete only on approved compacted subgrade.
- B. Replace concrete driveways and sidewalks between scored joints and make replacement to prevent a patched appearance. Unless otherwise shown, provide a minimum 2-inch thick compacted leveling course of clean 3/4-inch minus crushed aggregate. Aggregate shall be compacted to 95 percent of maximum density, as determined by AASHTO T-99.
- C. All replaced concrete driveways, sidewalks and curbs shall be constructed in accordance with City Standards.

### 3.6 Landscaping Restoration

Restore all landscaped areas, yards and areas specifically identified on the drawings or damaged as a result of construction as follows:

- A. Place 12 inches of topsoil.
- B. Removed landscaped material shall be replaced in-kind.
- C. Yard areas shall be restored and replanted/seeded immediately upon completion of backfilling.

### 3.7 Dust Control

When the weather is dry and when, in the estimation of the ENGINEER, the dust becomes a nuisance, the CONTRACTOR shall sprinkle water on surface streets twice a day in order to keep the dust down. This sprinkling shall be maintained until the project is accepted. On paved streets when the backfilling has been completed, the streets shall be washed to remove all dirt and debris. If the dust becomes a nuisance before backfilling is completed the CONTRACTOR shall wash the streets to the satisfaction of the ENGINEER.

END OF SECTION

## SECTION 02620

### DUCTILE IRON PIPE, FITTINGS AND SPECIAL ITEMS

#### PART 1 GENERAL

##### 1.1 Description

Work under this Section applies to the furnishing and installation of ductile iron pipe, fittings and special items for buried service. The CONTRACTOR shall furnish and install ductile iron pipe, fittings, valves, special items and all appurtenant work, complete in place, all in accordance with the requirements of the Contract Documents.

##### 1.2 Reference Specifications, Codes, and Standards

###### A. Commercial Standards

ANSI B16.1	Cast Iron Pipe Flanges and Flanged Fittings, Class 25, 125, 250, and 800
ANSI/NSF Standard 61	Listed Drinking Water System Components - Health Effects
ASTM A 126	Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings
ANSI/AWWA C104/A21.4	Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water
AWWA C105	Polyethylene Encasement for Ductile- Iron Pipe Systems
ANSI/AWWA C110/21.10	Ductile-Iron and Gray-Iron Fittings, 3- Inch Through 48-inch for Water and Other Liquids
ANSI/AWWA C111/A21.11	Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
ANSI/AWWA C115/A21.15	Flanged Ductile-Iron Pipe with Threaded Flanges
ANSI/AWWA C150/A21.50	Thickness Design of Ductile-Iron Pipe

ANSI/AWWA C151/A21.51 Ductile-Iron Pipe, Centrifugally Cast, for Water and Other Liquids

ANSI/AWWA C153/A21.53 Ductile-Iron Compact Fittings, 3-inch Through 16-inch, for Water and Other Liquids

AWWA C600 Installation of Ductile-Iron Water Mains and Their Appurtenances

### 1.3 Submittals

- A. See Section 01300, Submittals, for submittal procedures.
- B. Product technical data and material data; including all pipe, fitting, restrained joint system, lining and appurtenance information.
- C. Lining and coating data.
- D. Applicable material certifications and testing certificates.
- E. Manufacturer's handling delivery storage and installation requirements.

### 1.4 Quality Assurance

- A. Unless otherwise noted, all water works materials provided for the project shall be new, of first class quality and shall be made by reputable manufacturers. All material of a like kind shall be provided from a single manufacturer unless otherwise approved by the ENGINEER. All material shall be carefully handled and installed in good working order free from defect in manufacture, storage and handling. Where an item is to be used but does not have its quality specified herein, it shall be equal to that specified in the appropriate American Water Works Association (AWWA) Standard Specification.
- B. All references to standards of AWWA or other organizations shall be the latest version of those standards.

## PART 2 PRODUCTS

### 2.1 General

- A. Ductile iron piping materials and specials shall meet the specifications of this Section and of the appropriate AWWA Standard Specifications. In the case of conflict, the more stringent specifications shall apply.
- B. Unless otherwise specified herein or shown on the plans, the minimum working pressure rating of all water works material specified herein shall be 1.5 times the operating pressure, 150 psi minimum.
- C. All coatings and materials specified herein that come in contact with potable water shall be National Sanitation Foundation (NSF) approved.

### 2.2 Ductile Iron Pipe

- A. Ductile iron pipe shall conform to AWWA Standard C151 and shall be the standard push-on joint type or restrained joint type as identified on the drawings. Push-on joints shall be "TYTON" type or "Fas-Tite" type without exception. Unless otherwise specified herein or shown on the plans, ductile iron pipe shall be thickness Class 52. Polyethylene encasement, where required on the drawings or specified elsewhere, shall conform to AWWA Standard C105.
- B. Ductile iron pipe shall be cement mortar lined, interior and exterior sealed in accordance with ANSI/AWWA C104.A21.4.
- C. Push-on or mechanical type pipe joints shall conform to AWWA Standard C111. Flanged ductile iron pipe shall conform to AWWA Standard C115.
- D. Restrained Joint Ductile Iron Pipe
  - 1. Restrained joint ductile iron pipe and fittings shall be provided as identified on the drawings and required for the application. Joint restraint for pipe shall be accomplished with an integral lock mechanism except as may be otherwise specified. Any such system shall be a manufacturer's standard proprietary design, shall be as recommended by the manufacturer for the application, and shall be performance proven.
  - 2. Restraining components for pipe shall be ductile iron in accordance with applicable requirements of ANSI/AWWA C110/A21.10 and/or C153/A21.53 with the exception of the manufacturer's proprietary

design dimensions. Push-on joints for such fittings shall be in accordance with ANSI/AWWA C111/A21.11.

The following is the approved list of restrained joint systems:

- a. "Thrust-Lock", Pacific States Cast Iron Pipe Company.
- b. "Fast Grip", American Cast Iron Pipe Company.
- c. "TR Flex", United States Pipe and Foundry Company.
- d. "Snap-Lok", Griffin Pipe Products Company.
- e. "Megalug", EBAA Iron, Inc.
- f. "Field-Lok", United States Pipe and Foundry Company.
- g. "Super Lock", Clow
- h. "Restrained Joint", McWane
- i. "MJ-TJ" pipe with "Megalugs", Pacific States Cast Iron Pipe Company.
- j. "Flex-Ring", American Cast Iron Pipe Company

Where such a system may require "Mega-Lugs" for restraint, "Mega-Lugs" shall be provided in quantities as may be required and shall be considered incidental to the joint restraint system.

- 3. Restrained joints for pipe shall be designed for a water working pressure as shown on the drawings.
- 4. Restrained joint for pipe shall be capable of being deflected after assembly as follows:

<u>Size</u>	<u>Maximum Deflection</u>
4	5.00°
6	5.00°
8	5.00°
10	5.00°
12	5.00°
14	3.25°
16	3.25°
18	3.00°
20	2.75°
24	2.25°
30	1.75°
36	1.50°
42	0.50°
48	0.50°
54	0.50°

## 2.3 Fittings and Specials

### A. Fittings

1. Fittings used for joining ductile iron pipe shall be of the type, size and strength designated on the plans, elsewhere in the specifications, or in the proposal and, to the extent therein specified, shall conform to the appropriate specification in this section. Fittings shall have pressure ratings as specified above and as shown on the plans.
2. All ductile iron fittings shall be mortar lined and seal coated in accordance with ANSI/AWWA C104/A21.4. Mortar lining of fittings shall be factory installed only, unless otherwise directed by ENGINEER. All fitting lining interior surfaces shall be smooth finished.
3. Pipe fittings and specials used with ductile iron pipe shall be gray-iron or ductile iron and shall conform to AWWA Standard C110. Ductile iron (compact) fittings conforming to AWWA Standard C153 may be substituted in lieu of AWWA C110 fittings for fitting sizes 3 inches through 24 inches in diameter. Fittings shall be mechanical joint, push-on type, flanged or plain-end as required and shown on the plans. When fitting joints are to be restrained, pipe joint restraint systems as specified herein shall be used.

### B. Flanges

Flange pipe shall be flanged in accordance with ANSI/AWWA C115/A21.15 with bolt hole drilling according to AMSE/ANSI B 16.1, Class 125. Flanges shall have flat faces and shall be attached with bolt holes straddling the vertical axis of the pipe unless otherwise shown. Fittings for flanged ductile iron pipe shall conform to ANSI/AWWA C153/A21.53. All ductile iron pipe and fittings shall be cement-lined and seal-coated according to ANSI/AWWA C104/A21.4. The seal coat shall be coal tar. CONTRACTOR shall coordinate with pipe, valve and fitting suppliers to make certain that pipe, valve and fitting flanges match in bolt pattern.

Threaded flanges shall meet the requirement of AWWA Standard C115 and shall be installed only on pipe with a minimum Class 53 wall thickness. All flanged fittings shall be provided with bolts and gaskets as specified herein.

C. Gaskets

Gaskets for ductile iron flanged joints shall be composed of synthetic rubber, full faced and 1/8-inch thick conforming to ANSI/AWWA C111/A21.1. Gaskets shall be Garlock 3000 Blue Guard with Nitrile rubber or approved equal. Ring gaskets will be permitted only where specifically noted in the plans and specifications.

D. Flange Bolts

Flange bolts and nuts shall be of low-carbon steel composition conforming to ASTM A307, Grade B requirements per AWWA C115. Bolts shall have standard square or heavy hex head with heavy hex nuts. Higher strength (Grade A) bolts and higher torque values should not be used with gray-iron fittings.

E. Fire Hydrants

Fire hydrants shall conform to AWWA C502. Fire hydrants shall be equipped with two 2½-inch hose outlet nozzles and one 4½-inch pumper outlet nozzle with threads conforming to NFPA 194 for National Standard Fire Hose Coupling Screw Threads. Minimum hydrant valve opening shall be 5¼-inches. The minimum hydrant branch line shall be 6-inches. The inlet connection to the base of the hydrants shall be 6-inches with end type as shown on the drawings or specified elsewhere in the specifications. Hydrants shall open to the left or counterclockwise. Hydrants shall be of the “break away” type to minimize breakage of hydrant parts in case of damage. The 4½-inch port shall have a Storz quick adaptor. Hydrants shall be painted yellow above the ground line.

A solid pre-cast 3,300 psi concrete pier block, having nominal dimensions of 8-inches thick by 16-inches square base shall be installed under the fire hydrant footing. Washed ¾-inch crushed rock or graded river gravel free of organic matter, sand, loam, clay, or other small particles that would tend to restrict porosity, shall be placed around the fire hydrant for drainage. Drainage rock shall be placed to a minimum depth of 6-inches above hydrant drain opening.

Acceptable hydrant manufacturers are as follows:

- a. Mueller Centurion or Super Centurion
- b. Clow Medallion
- c. Kennedy K-81
- d. Waterous Pacer
- e. M&H Style 129



## PART 3 EXECUTION

### 3.1 General

- A. All materials, workmanship and installation shall conform to referenced AWWA Standards and other requirements of these specifications. The methods employed by the CONTRACTOR in the storage, handling, and installation of pipe, fittings, valves, hydrants, equipment and appurtenances shall be such as to insure that the material, after it is placed, tested and permanently covered by backfilling is in as good a condition as when it was shipped from the manufacturer's plant. Should any damage occur to the material, repairs or replacement shall be made to the satisfaction of the ENGINEER.
- B. Ductile iron pipe shall be installed in accordance with AWWA Standard C600, except as modified elsewhere in these specifications. Trench excavation and backfill of ductile iron piping system shall conform with the requirements of Section 02222, Excavating, Backfilling and Compacting for Utilities.
- C. Sanitary Sewer Separation: CONTRACTOR shall furnish all labor, equipment and materials required to replace sections of existing sanitary sewers or encase existing sanitary sewers in reinforced concrete as required to comply with Oregon State Health Division requirements for minimum separation of sanitary sewers.

### 3.2 Thrust Restraint

- A. All tees, plugs, caps, bends, offsets, as well as other appurtenances which are subject to unbalanced thrust, shall be properly braced with concrete thrust blocks. Concrete thrust blocks shall have a minimum 28-day compressive strength of 3000 psi. The concrete blocking shall bear against solid undisturbed earth at the side and bottom of the trench excavation and shall be shaped so as not to obstruct access to the joints of the pipe or fittings.
- B. Where shown on the plans or specified elsewhere in the Technical Specifications, the CONTRACTOR shall provide internal or external joint restraint systems at the fittings and on all joints within the specified or shown distance on each side of the fitting or joint.

### 3.3 Testing and Disinfection of Ductile Iron Pipe Mains

- A. Testing and disinfection of ductile iron pipe mains shall be done in accordance with AWWA Standard 600, AWWA Standard 651 and Section 01650, Pipeline Testing and Disinfection.
- B. All chlorinated water used in disinfection of the water main shall either be discharged through an approved connection to a public sanitary sewer system or shall be dechlorinated to limits acceptable by the Oregon State Department of Environmental Quality (DEQ) prior to discharge into any storm drainage system or open drainageway. No chlorinated water shall be discharged into storm drainage system or open drainageway without a dechlorination plan meeting DEQ's requirements.

END OF SECTION

## SECTION 02664

### WATER SERVICE CONNECTIONS

#### PART 1 GENERAL

##### 1.1 Description

Work includes furnishing and installing service connections 2-inches in diameter and smaller from the main to the water meter. The water meter shall be furnished and installed by others unless specified otherwise elsewhere in the contract documents.

##### 1.2 Reference Specifications, Codes, and Standards

- A. ANSI/AWWA C800 Underground Service Line Valves and Fittings
- B. ANSI/AWWA C901 Polyethylene Pressure Pipe and Tubing, ½-Inch through 3-inch, for Water Service
- C. ANSI/ASME B16.15 Cast Bronze Threaded Fittings, Classes 125 and 250
- D. National Sanitation Foundation (NSF) Standard 61
- E. Ductile Iron Pipe Research Association (DIPRA)

##### 1.3 Submittals

- A. Product material data including all pipe, fittings and appurtenance information in accordance with Section 01300 Submittals.
- B. Provide pipe manufacturer's certificate stating that the materials have been sampled and tested in accordance with the provision for and meet the requirements of the designated specification. An authorized agent of the manufacturer shall sign the certificate.

##### 1.4 Quality Assurance

- A. Unless otherwise noted, all water works materials provided shall be new, of first class quality and shall be made by reputable manufacturers. All material of like kind shall be provided from a single manufacturer unless otherwise approved by the ENGINEER. All material shall be carefully handled and installed in good working order free from defect in manufacture, storage and handling. Where an item is to be used but does not have its quality specified

herein, it shall be equal to that specified in the appropriate American Water Works Association (AWWA) Standard Specification.

- B. All references to Standards of AWWA or other organizations shall be the latest version of those Standards.

## PART 2 PRODUCTS

### 2.1 General

Service line material shall conform to AWWA C800 and as follows. Service line materials for normal pressure service applications shall be designed for a working pressure of 100 psig. Where high pressure service materials are called for they shall be designed for a working pressure of 150 psig.

All materials in contact with potable water shall be NSF Standard 61 approved.

### 2.2 Service Connections

Connections to main shall be direct taps for 1-inch diameter service connections.

### 2.3 Corporation Stops

Corporation stops shall be made of bronze alloy. Corporation stops for direct tapping shall have AWWA tapered thread inlet and outlet connections compatible with either copper or polyethylene tubing. Corporation stops for ¾-inch and 1-inch copper service lines shall be CC thread inlet and compression connection outlet and shall be Ford F600 or an approved equal.

### 2.4 Service Pipe

- A. Copper Tubing Service Pipe -- Copper tubing service pipe shall be annealed, seamless, and conform to the requirements of ASTM B 88M, Type K.
- B. Polyethylene Tubing Service Pipe - Polyethylene tubing service pipe shall meet the requirements of AWWA C901. Tubing shall be high molecular mass with a 200 psig rating. Tubing used for ¾-inch and 1-inch shall be either IDR 7 or DR 9. Tubing used for 1 ½-inch and 2-inch shall be DR 9.

### 2.5 Service Fittings

Fittings used for service connections shall be made of bronze alloy. All fittings used shall meet or exceed the pressure rating of the pipe to which they are connected and

shall meet the requirements of ASME B16.15. Fittings used for copper tubing shall be either compression or flare type. Fittings used for polyethylene tubing shall be either compression or stab type. Stab type fittings shall utilize an internal grip ring and O-ring seal. Stainless steel liners shall be used when utilizing compression fittings on polyethylene tubing.

Branch piece (yoke) used for double, or dual, services shall be Ford U28-43-14-NL, Mueller H-15363N (compression), or approved equal.

## 2.6 Meter Boxes

Meter boxes and covers located in the non-traffic areas shall be constructed of either reinforced concrete or high density polyethylene. High density polyethylene meter boxes and covers shall have a tensile strength conforming to ASTM D 638M. Meter box covers shall include a reading lid.

Meter boxes located in traffic areas shall be constructed of either reinforced concrete, cast iron, or ductile iron. Traffic covers shall be constructed of either aluminum, steel, cast iron, or ductile iron. Meter boxes and covers shall be designed for H-20 loading.

## 2.7 Sampling Station

Sampling stations shall have a 3/4-inch inlet and 3/4-inch unthreaded nozzle with depth of bury as shown on the Plans. All stations shall be enclosed in a lockable, non-removable, aluminum cast housing. When opened, the station shall require no key for operation and the water will flow in an all brass waterway. All working parts will also be of brass and be removable from above ground with no digging. A copper vent tube will enable each station to be pumped free of standing water to prevent freezing. The exterior piping will be galvanized. Sampling station shall be an Eclipse No. 88 as manufactured by Kupferle Foundry Company, St. Louis Missouri, or approved equal.

# PART 3 EXECUTION

## 3.1 General

All materials, workmanship and installation shall conform to referenced AWWA Standards and other requirements of these Specifications. The methods employed by the CONTRACTOR in the storage, handling, and installation of pipe, fittings, valves and appurtenances shall be such as to insure that the material, after it is placed, tested and permanently covered by backfilling, is in as good a condition as when it was shipped from the manufacturer's plant. Should any damage occur to the material, repairs or replacement shall be made to the satisfaction of the ENGINEER at no expense to the OWNER.

### 3.2 Installation

Construct the depth of trench for service connection piping to provide a minimum of three (3) feet of cover over the top of the pipe. Excavation, backfill and surface restoration shall be performed in accordance with provisions stated elsewhere in this document. All service connection under existing pavement, curbs, sidewalks or other surface improvements may be installed by trenchless construction techniques at CONTRACTORS option where ground conditions are favorable and such methods will not disturb foundations under curbs, sidewalks and other structures. The ENGINEER must approve all trenchless installation methods. Where trenchless pipe installation is used, payment for the pipe installation will be made for the equivalent trench excavation and backfill as if the open cut method was used. Payment will not be made for surface restoration including pavement, curbs, sidewalks and other surface improvements whose replacement is avoided by the tunneling method.

### 3.3 Water Main Tap

Direct tap ductile iron pipe that is Class 52 or thicker for corporation stops according to the recommendations of DIPRA unless direct taps are prohibited elsewhere in the contract documents. Make all service connections to other water main pipe material or ductile iron pipe less than Class 52 using saddles as specified and of the size and type suitable for use with the pipe being tapped. Install corporation stop at a 45-degree angle from the cross section vertical axis of the water main being tapped, unless otherwise shown on the Plans.

### 3.4 Piping

Install either copper tubing or polyethylene tubing service as shown on the Plans or as specified elsewhere in this document. Cut service pipes using tools specifically designed to leave a smooth, even, and square end on the material being cut. Ream cut ends to the full inside diameter of the pipe. Clean pipe ends to a sound, smooth finish prior to using couplings which seal to the outside surface of the pipe. Adjust meter box to finished grade after the service piping has been installed and surface has been restored to the satisfaction of the ENGINEER.

### 3.5 Reconnecting Existing Services

Where shown on the Plans, reconnect existing service connections to the new water main in accordance with the applicable provisions of this Specification. Notify affected customers of the service interruption at least 24 hours prior to service interruption.

### 3.6 Sampling Stations

Install sampling stations at the locations shown on the Plans or as directed by the ENGINEER. Perform all excavation and backfill in accordance with the provisions found elsewhere in this document.

### 3.7 Flushing and Disinfection

Flush and disinfect all service connections and appurtenances in accordance with Section 01650, Pipeline Testing and Disinfection.

END OF SECTION

## SECTION 15100

### VALVES, GENERAL

#### PART 1 GENERAL

##### 1.1 Description

- A. The CONTRACTOR shall provide all tools, supplies, materials, equipment, and labor necessary for installing, adjusting, and testing of all valves and appurtenant work, complete and operable, in accordance with the requirements of the Contract Documents. Where buried valves are shown, the CONTRACTOR shall install valve boxes to grade, with covers, and extensions.
- B. The provisions of this Section shall apply to all valves and valve operators specified in the various Sections of Division 15 of these Specifications except where otherwise specified in the Contract Documents. Valves and operators in particular locations may require a combination of units, sensors, limit switches, and controls specified in other Sections of these Specifications.

##### 1.2 Reference Specifications, Codes, and Standards

###### A. Commercial Standards

ANSI B16.1	Cast Iron Pipe Flanges and Flanged Fittings, Class 25, 125, 250, and 800
ANSI B16.5	Pipe Flanges and Flanged Fittings, Steel Nickel Alloy and other Special Alloys
ANSI/ASME B1.20.1	General Purpose Pipe Threads (Inch)
ASTM A 36	Specification for Structural Steel
ASTM A 48	Specification for Gray Iron Castings
ASTM A 126	Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings
ASTM A 536	Specification for Ductile Iron Castings
ASTM B 61	Specification for Steam or Valve Bronze Castings



ASTM B 62	Specification for Composition Bronze or Ounce Metal Castings
ASTM B 148	Specification for Aluminum Bronze Castings
ASTM B 584	Specification for Copper Alloy Sand Castings for General Applications
ANSI/AWWA C500	Gate Valves for Water and Sewerage Systems
ANSI/AWWA C502	Dry-Barrel Fire Hydrants
ANSI/AWWA C503	Wet-Barrel Fire Hydrants
ANSI/AWWA C504	Rubber-Seated Butterfly Valves
ANSI/AWWA C507	Ball Valves 6 Inches Through 48 Inches
AWWA C508	Swing-Check Valves for Waterworks Service, 2 Inches Through 24 Inches NPS
ANSI/AWWA C509	Resilient-Seated Gate Valves for Water and Sewerage Systems
ANSI/AWWA C511	Reduced-Pressure Principle Backflow-Prevention Assembly
AWWA C550	Protective Interior Coatings for Valves and Hydrants
SSPC-SP1	Solvent Cleaning
SSPC-SP3	Power Tool Cleaning
SSPC-SP6	Commercial Blast Cleaning

### 1.3 Submittals

- A. Shop Drawings -- Shop drawings of all valves and operators including associated wiring diagrams and electrical data, shall be furnished as specified in the contract documents and if specified in the individual valve sections.
- B. Valve Labeling -- The CONTRACTOR shall submit a schedule of valves to be labeled indicating in each case the valve location and the proposed labeling for the label.

- C. Lining and coating data
- D. Manufacturer's handling, delivery, storage and installation requirements.
- E. Applicable material certifications and testing certifications and testing certificates.

#### 1.4 Quality Assurance

- A. Valve Testing -- Unless otherwise specified, each valve body shall be tested under a test pressure equal to twice its design water-working pressure.
- B. Bronze Parts -- Unless otherwise specified, all interior bronze parts of valves shall conform to the requirements of ASTM B 62, or, where not subject to dezincification, to ASTM B 584.
- C. Certification -- Prior to shipment, the CONTRACTOR shall submit for all valves over 12 inches in size, certified, notarized copies of the hydrostatic factory tests, showing compliance with the applicable standards of AWWA, ANSI, ASTM, etc.
- D. Unless otherwise noted, all water works materials provided for the project shall be new, of first class quality and shall be made by reputable manufacturers. All material of a like kind shall be provided from a single manufacturer unless otherwise approved by the ENGINEER. All material shall be carefully handled and installed in good working order free from defect in manufacture, storage and handling. Where an item is to be used but does not have its quality specified herein, it shall be equal to that specified in the appropriate American Water Works Association (AWWA) Standard Specification.

#### 1.5 Material Delivery, Storage and Protection

All valves and accessories shall be delivered in a clean and undamaged condition and stored off the ground, to provide protection against oxidation caused by ground contact. All defective or damaged materials shall be replaced with new materials at no cost to the OWNER.

## PART 2 PRODUCTS

### 2.1 General

- A. Valve Flanges -- The flanges of valves shall be in accordance ANSI B16.1, ANSI B16.5 and ANSI/AWWA C115/A21.15 as required. CONTRACTOR shall coordinate with pipe, valve and fitting suppliers to make certain that pipe, valve and fitting flanges match in bolt pattern.
- B. Valve Boxes -- White, Schedule 40, 8-inch Polyvinyl Chloride, (PVC), and valve box covers as shown on details installed as part of buried valve installations.
- C. Protective Coating -- The valve manufacturer shall certify in writing that the required coating has been applied and tested in the manufacturing plant prior to shipment, in accordance with these Specifications. Flange faces of valves shall not receive protective coatings.
- D. Valve Operators -- Valve operators shall be as shown or as specified for a valve type. Provide operator extensions to 12 inches below grade where depth to valve exceeds three (3) feet.
- E. Valve Labeling -- If required by the drawings and/or these specifications, a label shall be provided on all exposed (not buried) shut-off valves exclusive of hose bibbs. The label shall be of 1/16-inch plastic or stainless steel, minimum two (2) inches by four (4) inches in size, and shall be permanently attached to the valve or on the wall adjacent to the valve as directed by the ENGINEER.
- F. Bolts, Gaskets, Glands and Nuts -- Bolts, gaskets, glands, retainer glands, nuts and miscellaneous accessories required to install all valves shall be furnished and installed. Bolts and nuts for flanged connections shall be as specified elsewhere with American Standard regular unfinished square or hex heads. Gaskets for flanged connections shall be as specified elsewhere. Jointing materials for mechanical joints shall conform to AWWA C111.
- G. Actuators -- Unless otherwise indicated, all valves and gates shall be furnished with manual actuators. Valves in sizes up to and including four (4) inches shall have direct acting lever or handwheel actuators of the manufacturer's best standard design. Larger valves and gates shall have gear-assisted manual actuators, with an operating pull of maximum 60 pounds on the rim of the handwheel. Actuators shall be sized for the valve design pressure in accordance with AWWA C504. All gear-assisted valves that are buried, submerged or located in below grade vaults and all gates shall have the actuators hermetically-sealed and grease-packed. All valves six (6) inches to

30 inches in diameter may have traveling-nut actuators, worm-gear actuators, spur- or bevel-gear actuators, as appropriate for each valve. All buried valves shall be provided with 2-inch square operating nuts.

## PART 3 EXECUTION

### 3.1 Valve Installation

- A. General -- All valves, gates, operating units, stem extensions, valve boxes, and accessories shall be installed in accordance with the manufacturer's written instructions and as shown and specified. All gates shall be adequately braced to prevent warpage and bending under the intended use. Valves shall be firmly supported to avoid undue stresses on the pipe. Stem extensions shall be braced at no greater than 10 feet intervals and be provided with double universal joints to allow for misalignment.
- B. Access -- All valves shall be installed to provide easy access for operation, removal, and maintenance and to avoid conflicts between valve operators and structural members or handrails.
- C. Valve Accessories -- Where combinations of valves, sensors, switches, and controls are specified, it shall be the responsibility of the CONTRACTOR to properly assemble and install these various items so that all systems are compatible and operating properly. The relationship between interrelated items shall be clearly noted on shop drawing submittals.
- D. Valve Boxes -- All buried valves shall be furnished with valve boxes. Valves installed out of paved or otherwise hard surfaced areas shall be set in a concrete pad at finished grade. Concrete valve box pads shall be 18 inches square and be not less than 6 inches thick. Valve boxes, except those of special design as required by the plans, shall be of cast iron of the two-piece extension type with a cast iron cover. Valve boxes shall have walls not less than 3/16-inch thick at any point, and the internal diameter shall be not less than 5 inches. Valve box covers shall have the word "WATER" cast into them as appropriate to their place of use. Valve box covers shall be of design and construction which prevents dislodging and rotation from traffic and shall be of the type which allows a hand held pry bar to be applied for easy removal. Valve boxes shall be constructed of high quality castings and shall be the product of a manufacturer approved by the ENGINEER and/or OWNER.

END OF SECTION

## SECTION 15101

### GATE VALVES

#### PART 1 GENERAL

##### 1.1 Description

The CONTRACTOR shall furnish and install gate valves, complete and operable, as shown and specified herein, including coatings and linings, appurtenances, operators, and accessories, in accordance with the requirements of the Contract Documents.

##### 1.2 Submittals

As required by Section 15100, Valves, General.

#### PART 2 PRODUCTS

##### 2.1 General

Gate valves shall be furnished and installed as shown and as specified herein.

##### 2.2 Materials & Manufacturers

###### A. Gate Valves, 2 Inches and Under

Unless specified or shown otherwise, gate valves two inches and under shall be bronze-bodied non-rising stem, solid wedge disc, as manufactured by Stockham, or approved equal. Valve pressure ratings for various end conditions shall be as follows:

Threaded Ends -- Pressure Class 125, union bonnet, Stockham Fig. No. B-139.

###### B. Gate Valves, 8 Inches and Under

Gate valves for buried service shall be the resilient-seat type, with an iron body, non-rising stem, bolted bonnet, left opening and shall conform to AWWA Standard C509 or C515 Coatings and/or linings shall conform to AWWA Standard C550 and shall be suitable for potable water service. Valve ends shall be as shown on the plans. The CONTRACTOR, as specified elsewhere, shall furnish a valve box and cover, with all buried service valves

installed. Gate valve stem extensions shall be furnished and installed on deep buried valves as specified in Section 15100, Valves General.

Acceptable manufacturers are as follows:

1. Clow
2. M&H
3. Mueller
4. Kennedy
5. American Flow Control

C. In-Plant Service

Gate valves for in-plant or exposed service shall meet the above specifications and shall be furnished with handwheel operators.

PART 3 EXECUTION

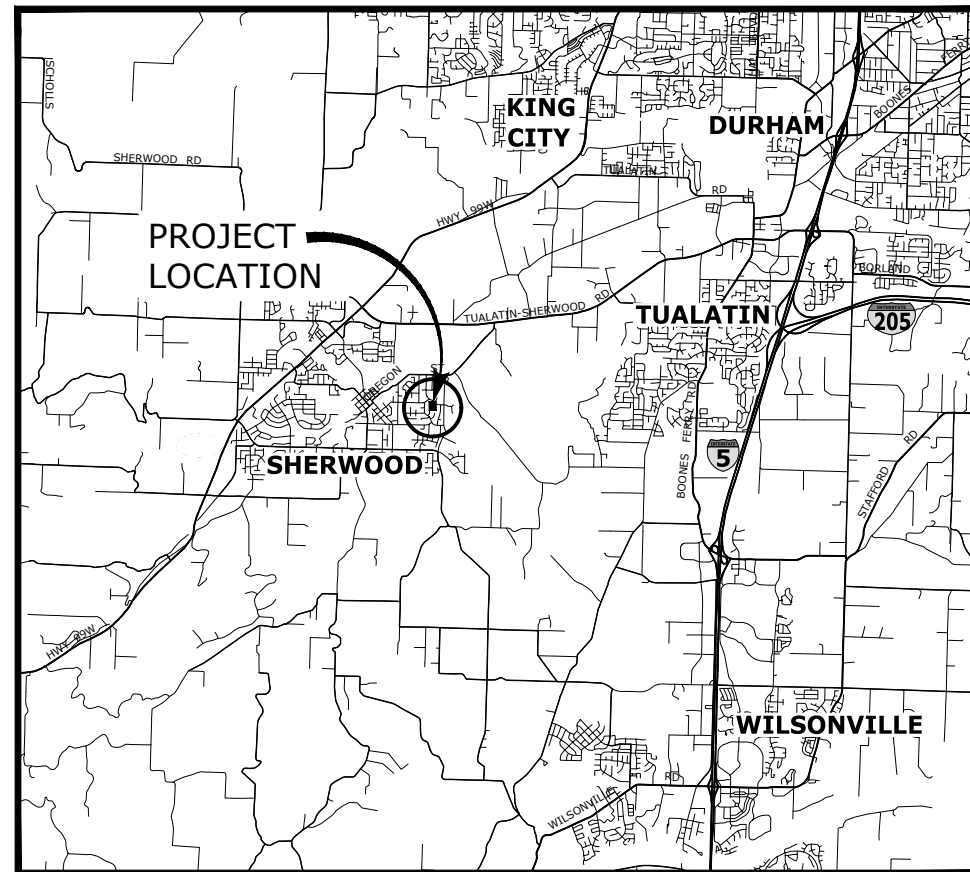
3.1 General

Valve installation shall be in accordance with Section 15100 and manufacturer's requirements.

END OF SECTION

DRAWINGS

# CITY OF SHERWOOD 2022 WATERLINE REPLACEMENT



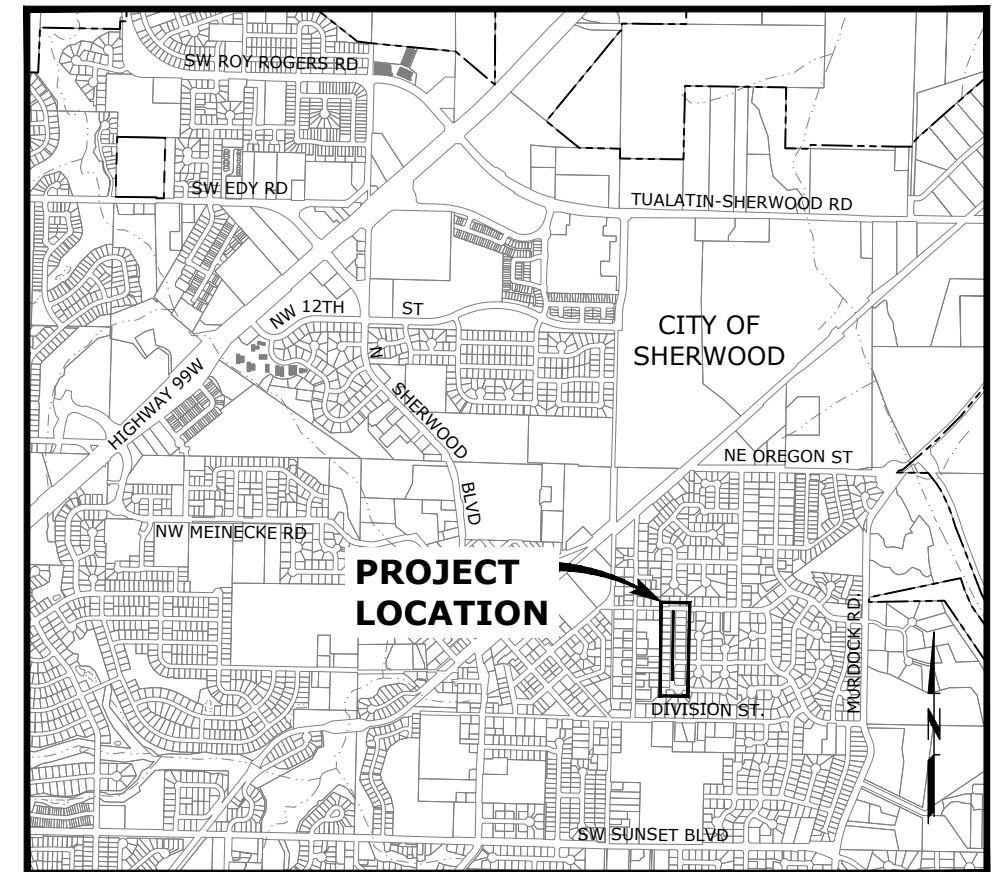
**VICINITY MAP**  
SCALE: 1"=5,000'



**OCTOBER 2022**



888 SW 5TH AVENUE, SUITE 1170  
PORTLAND, OREGON 97204  
P 503.225.9010



**LOCATION MAP**  
SCALE: 1"=1,000'

THIS DESIGN COMPLIES WITH ORS 92.044 (7) IN THAT NO UTILITY INFRASTRUCTURE IS DESIGNED TO BE WITHIN ONE (1) FOOT OF A SURVEY MONUMENT LOCATION SHOWN ON A SUBDIVISION OR PARTITION PLAT. NO DESIGN EXCEPTION NOR FINAL FIELD LOCATION CHANGES SHALL BE PERMITTED IF THAT CHANGE WOULD CAUSE ANY UTILITY INFRASTRUCTURE TO BE PLACED WITHIN THE PROHIBITED AREA.

ATTENTION: OREGON LAW REQUIRES THE CONTRACTOR TO FOLLOW THE RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. THE CONTRACTOR MAY OBTAIN COPIES OF THE RULES BY CALLING THE UTILITY NOTIFICATION CENTER. (NOTE: THE TELEPHONE NUMBER FOR THE OREGON UTILITY NOTIFICATION CENTER IS 503-246-6699.)



Know what's below.  
**Call before you dig.**



# INDEX OF DRAWINGS

## GENERAL

- 1 G-1 COVER SHEET, VICINITY AND LOCATION MAPS
- 2 G-2 INDEX OF DRAWINGS, LEGEND AND ABBREVIATIONS
- 3 G-3 GENERAL NOTES

## CIVIL

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- 5 C-2 SW NORTON AVENUE - WATERLINE PLAN AND PROFILE - 2
- 6 C-3 CITY OF SHERWOOD STANDARD DETAILS - 1
- 7 C-4 CITY OF SHERWOOD STANDARD DETAILS - 2
- 8 C-5 CITY OF SHERWOOD STANDARD DETAILS - 3

# TOPOGRAPHIC LEGEND

	EXISTING	PROPOSED
WATERLINE	---6"W---	16" DI W
ELECTRICITY	-----E-----	
GAS	-----G-----	
TELEPHONE/TELEMETRY	-----T-----	
SANITARY SEWER LINE	-----8"SS-----	
STORM DRAIN	-----8"SD-----	
CULVERT	>---12"CCP---<	
ABANDON PIPE		+++++
DRAINAGE DITCH	-----	
FENCE	---x---x---x---	
CHAIN LINK FENCE	---o---o---o---	
TREE/HEDGE/BUSH LINE		
CENTERLINE	-----	
EASEMENT/PROPERTY LINE	-----	-----
RIGHT-OF-WAY	-----	
EDGE OF PAVEMENT/AC	-----	
EDGE OF GRAVEL	-----	
CURB	=====	
SIDEWALK	=====	S/W
STRUCTURE OR FACILITY		
CONTOUR MINOR	-----	
CONTOUR MAJOR	-----500-----	
MANHOLE	○	
CLEAN-OUT	○	
CATCH BASIN/FIELD INLET	▢	
THRUST BLOCK		▲
VALVE	⊗	●
REDUCER		▽
HOT TAP		⌒
CAP/PLUG		┘
BLOW-OFF ASSEMBLY	—∞	●
AIR RELEASE ASSEMBLY	—○	●
FIRE HYDRANT ASSEMBLY	○	●
WATER METER	⊞	■
LONG SLEEVE		▭
PULL BOX/JUNCTION BOX	▣	
UTILITY POLE	—○	
GUY WIRE	└	
LIGHT POST	☆	
MAILBOX	▢	
SIGN	└	
IRON ROD	○	
SURVEY MONUMENT	△	
TREE DECIDUOUS	⊙	
TREE CONIFEROUS	•	
RESTRAINED JOINT PIPE		⬡
SLIP-ON JOINT PIPE		⬢

# ABBREVIATIONS

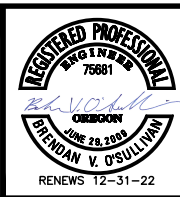
ABAN(D)	ABANDON(ED)
AC	ASPHALTIC CONCRETE
APPROX	APPROXIMATELY
APPVD	APPROVED
APWA	AMERICAN PUBLIC WORKS ASSOCIATION
ASSY	ASSEMBLY
AWWA	AMERICAN WATER WORKS ASSOCIATION
BETW	BETWEEN
BFV	BUTTERFLY VALVE
CB	CATCH BASIN
CCP	CONCRETE CYLINDER PIPE
CDF	CONTROLLED DENSITY FILL
CI	CAST IRON
CL	CLASS
CLR	CLEARANCE
CLSM	CONTROLLED LOW STRENGTH MATERIALS
℄	CENTER LINE
CONC	CONCRETE
CORP	CORPORATION
CPLG	COUPLING
CR	CRUSHED ROCK
CU	COPPER
DEFL	DEFLECTION
DET(S)	DETAIL(S)
DI	DUCTILE IRON (PIPE OR FITTING)
DIA	DIAMETER
DWG(S)	DRAWING(S)
DWY	DRIVEWAY
E	ELECTRIC/POWER
EA	EACH
EL/ELEV	ELEVATION
EOP	EDGE OF PAVEMENT
EXIST	EXISTING
FH	FIRE HYDRANT
FLEX	FLEXIBLE
FLG	FLANGE/FLANGED
FT	FEET
FTG(S)	FITTING(S)
G	GAS
GALV	GALVANIZED
GEN	GENERAL
GRVL	GRAVEL
GV	GATE VALVE
HORIZ	HORIZONTAL
IE	INVERT ELEVATION
INSUL	INSULATED/INSULATING
JT(S)	JOINT(S)
LF	LINEAR FEET
LS	LONG SLEEVE
MAINT	MAINTAIN
MATL	MATERIAL
MAX	MAXIMUM
MFR	MANUFACTURER
MH	MANHOLE
MJ	MECHANICAL JOINT
MIN	MINIMUM
NO	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
PERM	PERMANENT
PE	PLAIN END
PROP	PROPOSED
PSI	POUNDS PER SQUARE INCH
RDCR	REDUCER
REINF	REINFORCED
RESTR	RESTRAINED
REQ'D	REQUIRED
R/W	RIGHT-OF-WAY
SD	STORM DRAIN
SHT	SHEET
SLP	SLOPE
SLV	SLEEVE
SS	SANITARY (SEWER)
ST	STREET
STA	STATION
STD	STANDARD
STL	STEEL
S/W	SIDEWALK
T	TELEPHONE CONDUIT
TB	THRUST BLOCK
TEMP	TEMPORARY
THRD	THREADED
TOP	TOP OF PIPE
TYP	TYPICAL
VERT	VERTICAL
W	WATER/WATERLINE
W/	WITH
WS	WATER SERVICE

G:\PDX\_Projects\17\1977 - Sherwood On-Call 2017\202 - 2019 Waterline Replacement\CAD\Sheets\17-1977-202-OR-G.dwg G-2 9/21/2022 9:18 AM BRENT.BUTTERFIELD 23.0s (LMS Tech)

NO.	DATE	BY	REVISION

NOTICE  
  
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

JJU  
DESIGNED  
 CAD  
DRAWN  
 BVO  
CHECKED



**INDEX OF DRAWINGS,  
LEGEND AND ABBREVIATIONS**

PROJECT NO.: 17-1977.202    SCALE: AS SHOWN    DATE: OCTOBER 2022

SHEET  
**G-2**  
 2 of 8

# GENERAL NOTES

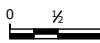
- CONTRACTOR SHALL OBTAIN ALL NECESSARY LOCAL, COUNTY, STATE, AND UTILITY CONSTRUCTION PERMITS, AND SHALL CONTACT EACH PERMITTING AGENCY AT LEAST TWO (2) BUSINESS DAYS PRIOR TO STARTING WORK. CONTRACTOR SHALL OBTAIN ALL REQUIRED LICENSES BEFORE STARTING CONSTRUCTION.
- THE LOCATIONS OF ALL EXISTING UNDERGROUND FACILITIES SHOWN ON THE PLANS ARE BASED ON A FIELD SURVEY AND INFORMATION SUPPLIED BY UTILITY COMPANIES. LOCATIONS ARE NOT GUARANTEED TO BE COMPLETE OR ACCURATE. THE CONTRACTOR SHALL VERIFY LOCATIONS, ELEVATIONS, TYPE AND SIZES OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTING NEW PIPING/CONDUITS AND SHALL ADJUST NEW PIPING/CONDUITS AS REQUIRED. POTHOLING AND TRENCH EXCAVATION SHALL SUFFICIENTLY PRECEDE LAYING OF PIPE TO ALLOW REQUIRED ELEVATION AND ALIGNMENT ADJUSTMENTS TO BE ACCOMPLISHED WITHOUT REWORK. ADJUSTMENTS SHALL BE EXPECTED AND CONSIDERED INCIDENTAL. CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY OF ANY CONFLICTS NOT SHOWN ON THE PLANS AND SHALL KEEP EXISTING UTILITIES IN SERVICE AND PROTECT THEM DURING CONSTRUCTION. WHERE INTERRUPTION OF EXISTING FACILITIES IS REQUIRED, CONTRACTOR SHALL PROVIDE 72 HOUR NOTICE TO ENGINEER AND THE AFFECTED UTILITY. CONTRACTOR SHALL ARRANGE FOR THE RELOCATION OF ANY IN CONFLICT WITH THE PROPOSED CONSTRUCTION.
- THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS OF ORS 757.542 TO 757.562. THE CONTRACTOR SHALL NOTIFY EACH UNDERGROUND UTILITY AT LEAST 48 BUSINESS-DAY HOURS, BUT NOT MORE THAN 10 BUSINESS DAYS, PRIOR TO EXCAVATING, BORING, OR POTHOLING.
- NO ADDITIONAL PAYMENT SHALL BE MADE FOR UTILITY RELOCATION COORDINATION OR DELAYS CAUSED BY UTILITY CONFLICTS. ALL COSTS RELATED TO UTILITY COORDINATION AND RELOCATION, INCLUDING ADDITIONAL POTHOLING, ARE TO BE CONSIDERED INCIDENTAL AND INCLUDED IN THE UNIT PRICES OF THE BID. NO ADDITIONAL PAYMENT SHALL BE MADE FOR REWORK AND DELAYS RESULTING FROM FAILURE TO POTHOLE FOR UTILITIES SUFFICIENTLY IN ADVANCE OF WORK.
- ALL PIPING SHOWN HATCHED SHALL BE ABANDONED IN PLACE OR REMOVED AND DISPOSED OF. ALL EXPOSED ENDS OF WATER MAINS TO BE ABANDONED IN PLACE SHALL BE PLUGGED WITH GROUT. GROUT PLUGS SHALL EXTEND 12 INCHES INTO PIPE. CAPS SHALL BE PLACED ON ENDS OF ABANDONED LINES AS SHOWN ON PLANS.
- CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION AND SEDIMENTATION CONTROL DURING CONSTRUCTION (ANY TIME OF YEAR) PER THE REQUIREMENTS OF THE CITY OF SHERWOOD, WASHINGTON COUNTY AND THE OREGON DEQ.
- SURVEY DATA COMPILED BY BLUEDOT GROUP. ALL ELEVATIONS SHOWN ARE BASED ON VERTICAL DATUM NAVD 88. CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION SURVEYS. SEE CONTRACT DOCUMENT FOR SURVEY REQUIREMENTS.
- ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE PLANS AND PROJECT SPECIFICATIONS.
- CONTRACTOR SHALL KEEP AND MAINTAIN A CURRENT SET OF DRAWINGS ON SITE. CONTRACTOR TO KEEP ACCURATE "AS-BUILT" RECORD COPY OF PLANS. "AS-BUILT" PLANS TO BE RETURNED TO ENGINEER AT COMPLETION OF PROJECT.
- CONTRACTOR SHALL MAINTAIN ACCESS TO ALL HOMES AND BUSINESSES AT ALL TIMES. CONTRACTOR SHALL MAINTAIN ACCESS FOR MAIL, TRASH COLLECTION (FRIDAYS) AND SCHOOL BUS SERVICES AT ALL TIMES. PROVIDE WRITTEN NOTICE TO ALL PROPERTY OWNERS AT LEAST TWO BUSINESS DAYS IN ADVANCE OF WORK IN AND/OR CROSSING OF DRIVEWAYS. CONTRACTOR SHALL NOTIFY PROPERTY OWNERS AT LEAST TWO DAYS IN ADVANCE OF TEMPORARY SHUTDOWNS TO WATER SERVICE.
- CONTRACTOR SHALL NOTIFY THE ENGINEER AND OWNER 48 HOURS BEFORE STARTING CONSTRUCTION, AND 24 HOURS BEFORE RESUMING WORK AFTER SHUTDOWNS EXCEPT FOR NORMAL RESUMPTION OF WORK FOLLOWING SATURDAYS, SUNDAYS, OR HOLIDAYS. CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE ENGINEER A MINIMUM OF 48 HOURS PRIOR TO ANY TESTING OR REQUIRED INSPECTION.
- ANY ALTERATION OR VARIANCE FROM THESE PLANS, EXCEPT MINOR FIELD ADJUSTMENT NEEDED TO MEET EXISTING FIELD CONDITIONS, SHALL FIRST BE APPROVED BY THE ENGINEER. ANY ALTERATIONS OR VARIANCE FROM THESE PLANS SHALL BE DOCUMENTED ON CONSTRUCTION FIELD PRINTS AND TRANSMITTED TO THE ENGINEER. ANY PROPOSED CHANGES IN CONSTRUCTION PLANS MUST BE SUBMITTED IN WRITING AND APPROVED BY ENGINEER PRIOR TO COMMENCING WORK.
- CONTRACTOR SHALL PROTECT ALL PROPERTY CORNERS, SURVEY MONUMENTS AND CONTROL POINTS. SURVEY MONUMENTS OF THIS TYPE DISTURBED DURING CONSTRUCTION SHALL BE REPLACED AT CONTRACTOR'S EXPENSE, WITH APPROPRIATE SURVEYS FILED WITH THE COUNTY SURVEYOR.
- THE CONTRACTOR SHALL DISPOSE OF ALL REMOVED OR REPLACED MATERIAL AND EQUIPMENT IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS, EXCEPT THOSE ITEMS DESIGNATED BY THE OWNER FOR SALVAGING. SALVAGED ITEMS, INCLUDING BUT NOT LIMITED TO FIRE HYDRANTS AND BRANCH TEES, SHALL REMAIN THE PROPERTY OF THE OWNER, AND SHALL BE CAREFULLY REMOVED AND STORED AS DIRECTED.
- ALL STRUCTURES, LOTS, LANDSCAPING, SWALES, DITCHES, SPEED BUMPS, FENCES, WALLS, MAILBOXES, SIGNS, POLES, GUY WIRES, PIPING, AND UTILITIES DISTURBED DURING CONSTRUCTION TO BE RESTORED TO EXISTING CONDITION UNLESS OTHERWISE SPECIFIED. CONTRACTOR SHALL REPAIR ALL UTILITY SERVICES DAMAGED DURING CONSTRUCTION. ALL SUCH REPAIRS SHALL BE CONSIDERED INCIDENTAL TO PIPELINE INSTALLATION.
- CONTRACTOR SHALL PROTECT TRAFFIC AT ALL TIMES DURING CONSTRUCTION. ALL TRAFFIC CONTROL MEASURES SHALL BE APPROVED BY CITY, COUNTY AND STATE AS REQUIRED AND IN PLACE PRIOR TO ANY CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL PLANS TO THE ENGINEER PRIOR TO COMMENCING ANY WORK WITHIN THE PUBLIC RIGHT-OF-WAY. SEE SPECIAL PROVISIONS SECTION IN THE TECHNICAL SPECIFICATIONS FOR DETAILS. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING EMERGENCY VEHICLE ACCESS TO ALL PROPERTIES AT ALL TIMES.

- CONSTRUCTION SHALL BE CONFINED TO THE RIGHT-OF-WAY. WORK SHALL NOT ENCROACH BEYOND THE RIGHT-OF-WAY WITHOUT APPROVAL.
- THE USE OF CONCRETE THRUST BLOCKS IS ALLOWED ONLY WHERE SHOWN ON PLANS. REQUIRED THRUST RESTRAINT IN ALL OTHER LOCATIONS WILL BE ACCOMPLISHED WITH APPROVED JOINT RESTRAINT SYSTEM. THE REQUIRED LENGTH OF RESTRAINED PIPE SHALL BE AS SHOWN ON PLANS.
- ALL CONCRETE SHALL BE A MINIMUM OF 3300 PSI STRENGTH.
- NOT USED
- ALL FLANGE CONNECTIONS TO BE PROVIDED WITH FULL-FACE GASKETS.
- PROVIDE POLYETHYLENE ENCASEMENT FOR ALL PIPING WITHIN 10 FT OF EXISTING GAS MAIN ACCORDING TO ANSI/AWWA C105/A21.5.
- COMPLY WITH OREGON ADMINISTRATION RULE (OAR) CHAPTER 333 RULES FOR REQUIRED WATERLINE - SEWER LINE SEPARATION AND CROSSING REQUIREMENTS.
- ALL PIPING SHALL HAVE A MINIMUM OF 3 FEET OF COVER FROM TOP OF PIPE TO STREET GRADE OR OTHER FINISH GRADE.
- PROVIDE "AS CONSTRUCTED" DRAWINGS INDICATING ALL CHANGES IN GRADE, ALIGNMENT, FITTINGS AND MATERIALS INSTALLED AND ANY OTHER UTILITIES OR OBSTACLES NOT SO INDICATED ON THESE PLANS.
- AT THE END OF EACH WORK DAY ALL OPEN TRENCHES SHALL BE BACKFILLED AND ALL TRENCHES WITHIN STREETS SHALL BE TEMPORARILY PAVED OR AC COLD PATCHED TO THE SATISFACTION OF THE ENGINEER.
- CONTRACTOR SHALL COMPLY WITH ALL OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ) REQUIREMENTS IN THE DISPOSAL OF SUPER CHLORINATED WATER. SEE TECHNICAL SPECIFICATIONS.
- CONTRACTOR SHALL PROVIDE TEMPORARY TAPS, TEMPORARY CONNECTIONS, BLOWOFFS AND THRUST RESTRAINTS AS REQUIRED TO FACILITATE FLUSHING, TESTING AND DISINFECTION OF WATERLINES. AT COMPLETION OF DISINFECTION, REMOVE TEMPORARY TEST TAPS AND REPLACE WITH TEMPORARY PLUGS UNTIL CONNECTIONS TO EXISTING FACILITIES ARE COMPLETE.
- CONNECTIONS TO EXISTING WATERLINES MAY REQUIRE TEMPORARY SHUTDOWNS OF EXISTING FACILITIES. THE CONTRACTOR SHALL COORDINATE THIS WORK WITH THE AFFECTED UTILITY AND PROVIDE A MINIMUM OF 72 HOURS ADVANCE NOTICE PRIOR TO PERFORMING THIS WORK. MAXIMUM ALLOWABLE SHUTDOWN FOR WATER LINES AND SERVICES IS 4 HOURS UNLESS OTHERWISE APPROVED BY ENGINEER.
- ALL VALVES AND FITTINGS SHALL BE CLASS 150. DUCTILE IRON PIPE SHALL BE CLASS 52.
- THE CONTRACTOR SHALL COMPLY WITH ALL CITY OF SHERWOOD REQUIREMENTS FOR WORK IN AND RESTORATION OF CITY STREETS AND RIGHT-OF-WAYS. SEE TECHNICAL SPECIFICATIONS FOR DETAILS.
- OPERATION OF EXISTING VALVES SHALL BE BY CITY OF SHERWOOD STAFF ONLY.
- CONTRACTOR SHALL INSTALL TEMPORARY CONSTRUCTION ZONE SIGNS AT LOCATIONS TO BE DETERMINED BY ENGINEER 10 DAYS PRIOR TO BEGINNING OF CONSTRUCTION. TEMPORARY SIGNS SHALL BE CONSTRUCTED AS SPECIFIED WITHIN THE SPECIAL PROVISIONS OF THE TECHNICAL SPECIFICATIONS. TEMPORARY SIGNS SHALL BE LOCATED BY ENGINEER.
- NO UNDERGROUND WORK SHALL BE "BURIED" UNTIL INSPECTED AND APPROVED BY THE CITY OR OWNER'S REPRESENTATIVE.
- ANY PLUMBING ALTERATIONS REQUIRED ON THE CUSTOMER SIDE OF THE WATER METER SHALL BE PERFORMED BY A LICENSED PLUMBER. CONTRACTOR SHALL OBTAIN THE NECESSARY PLUMBING PERMITS REQUIRED FOR SUCH WORK.
- PROPOSED FIRE HYDRANTS, BLOWOFFS AND AIR RELEASE VALVE STATIONING ARE APPROXIMATE WITH FINAL LOCATIONS TO BE DETERMINED IN THE FIELD BY OWNER'S REPRESENTATIVE.
- CONTRACTOR SHALL COMPLY WITH OREGON ADMINISTRATION RULE (OAR) 340-248 AND 437, DIVISION 3, "CONSTRUCTION" REGARDING THE SAFE HANDLING, REMOVAL AND DISPOSAL OF ASBESTOS-CEMENT WATER PIPE, INCLUDING ALL REPORTING REQUIREMENTS. DEQ FACT SHEET, DEQ GUIDELINES AND DEQ NOTIFICATION AND REPORT FORMS ARE ATTACHED AS SUPPLEMENTARY INFORMATION.
- EFFECTIVE EROSION, DUST, SEDIMENTATION AND DRAINAGE CONTROL IS REQUIRED AT ALL TIMES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROTECTION OF ALL WORK, ADJACENT PROPERTIES AND DOWNSTREAM FACILITIES FROM EROSION AND SILTATION DURING THE COURSE OF THE WORK. ANY DAMAGE RESULTING FROM SUCH EROSION AND SILTATION SHALL BE CORRECTED AT THE SOLE EXPENSE OF THE CONTRACTOR. SEE SPECIFICATIONS.
- ALL WORK SHALL BE CONDUCTED BETWEEN THE HOURS OF 7:00AM AND 6:00PM ON NON-HOLIDAY WEEKDAYS. LANE CLOSURES WILL ONLY BE ALLOWED BETWEEN THE HOURS OF 8:00AM AND 6:00PM ON NON-HOLIDAY WEEKDAYS. NO SUNDAY WORK WILL BE ALLOWED. SATURDAY WORK MAY BE ALLOWED VIA A CITY APPROVED SATURDAY WORK REQUEST. SATURDAY WORK REQUESTS MUST BE SUBMITTED AT LEAST 72 HOURS IN ADVANCE OF DESIRED WORK DAY.
- ALL WORK AND MATERIALS SHALL COMPLY WITH ALL APPLICABLE CITY CODES AND STANDARDS, THE OREGON STATE HEALTH DIVISION ADMINISTRATION RULES, A.W.W.A. STANDARDS, A.P.W.A. STANDARDS, AND CITY OF SHERWOOD ENGINEERING DESIGN AND DETAILS MANUAL.

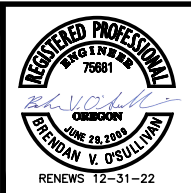
- ALL PIPE SHALL HAVE MINIMUM COVER OF THREE-FEET BELOW THE FUTURE FINISHED GRADES IN EASEMENTS AND STREET RIGHT-OF-WAYS.
- ALL VALVES SHALL BE PER CITY OF SHERWOOD WATER SYSTEM STANDARDS AND CITY CODES, STANDARD DETAILS, AND DRAWINGS.
- ALL FIRE HYDRANTS SHALL BE PER CITY WATER SYSTEM STANDARDS AND CITY CODES, STANDARD DETAILS, AND DRAWINGS.
- ALL SANITARY LINES WITHIN 10 FEET Laterally OR 18 INCHES VERTICALLY OF WATER MAIN SHALL BE ENCASED IN CONCRETE, OR CONSTRUCTED OF DUCTILE IRON PIPE WITH WATERTIGHT JOINTS.
- JOINT DEFLECTION ALLOWED ONLY WITH THE APPROVAL OF THE PROJECT ENGINEER AND INSPECTOR AND BE PER CITY OF SHERWOOD STANDARDS.
- IF REQUIRED, OREGON STATE HEALTH DIVISION BACTERIOLOGICAL TESTS SHALL BE TAKEN BY THE CITY OF SHERWOOD.
- HYDROSTATIC TESTS SHALL CONFORM WITH ALL APPLICABLE CODES AND BE MONITORED BY THE INSPECTOR OR PROJECT ENGINEER.
- DISINFECTION: PIPELINES SHALL BE FLUSHED AND DISINFECTED BEFORE PLACING INTO SERVICE, AFTER PERFORMING HYDROSTATIC TESTING. DISINFECTION SHALL CONFORM WITH ALL APPLICABLE CODES, DISCHARGING OF THE HIGHLY CHLORINATED WATER USED FOR DISINFECTION SHALL NOT BE DISCHARGED INTO SURFACE WATERS. APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS CONCERNING DISCHARGE SHALL BE FOLLOWED. TESTING AND INSPECTION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE CODES.
- PRIOR TO TAPPING INTO EXISTING WATER MAINS, THE CONTRACTOR WILL CONTACT THE CITY OF SHERWOOD WATER DEPARTMENT INSPECTOR.
- OPERATION OF WATER VALVES BY CONTRACTOR IS PROHIBITED.
- CONTACT RICH SATTTLER AT (503) 925-2319, CITY OF SHERWOOD PUBLIC WORKS, A MINIMUM OF 48 HOURS IN ADVANCE TO SCHEDULE WATER LINE INSPECTIONS.
- NEW FIRE HYDRANTS TO HAVE STORZ QUICK ADAPTER ON 4 1/2" PORT.
- INSTALL BLUE REFLECTOR AT CENTER LINE OF ROADWAY(S) PERPENDICULAR TO FIRE HYDRANT.

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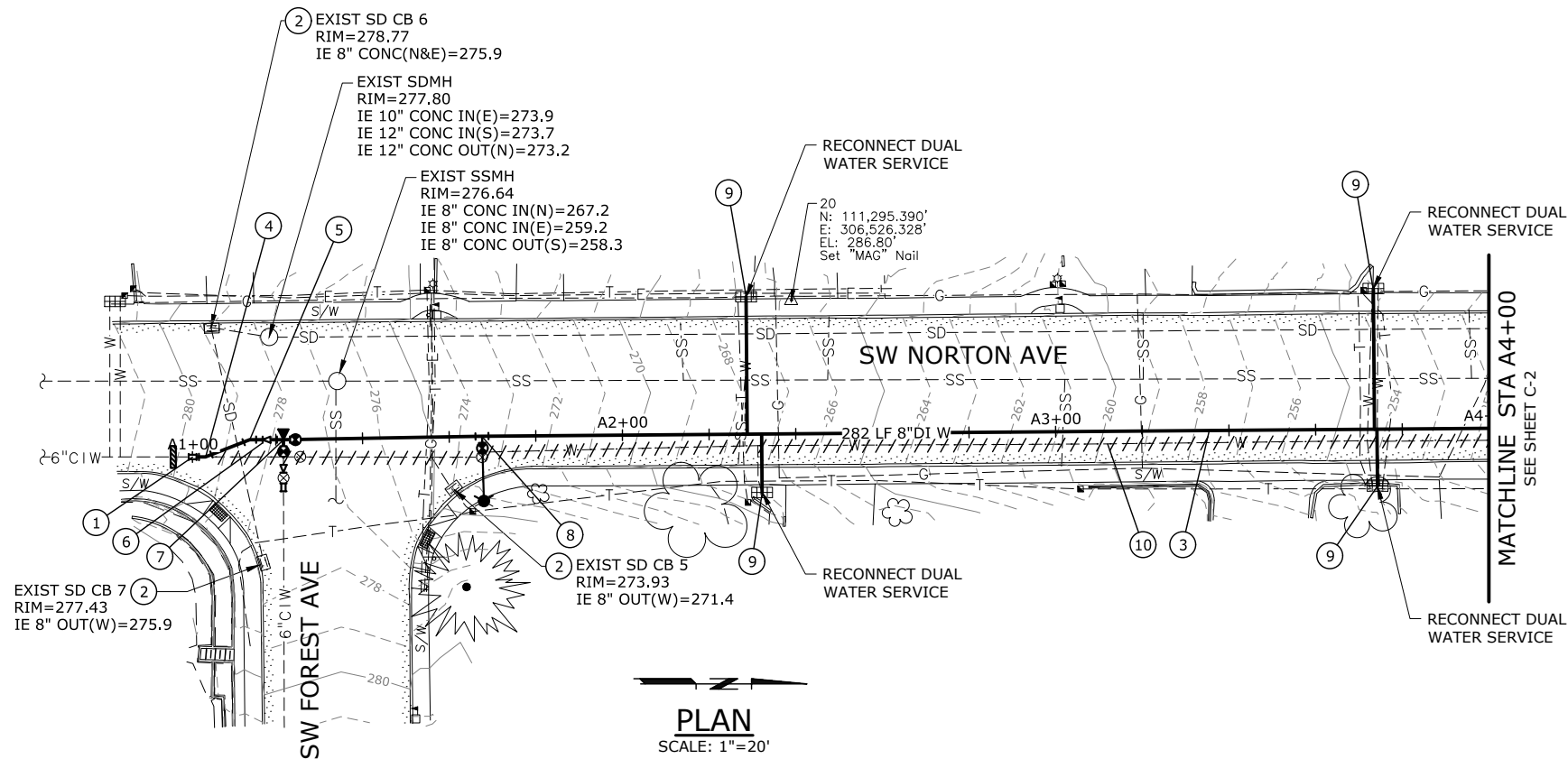
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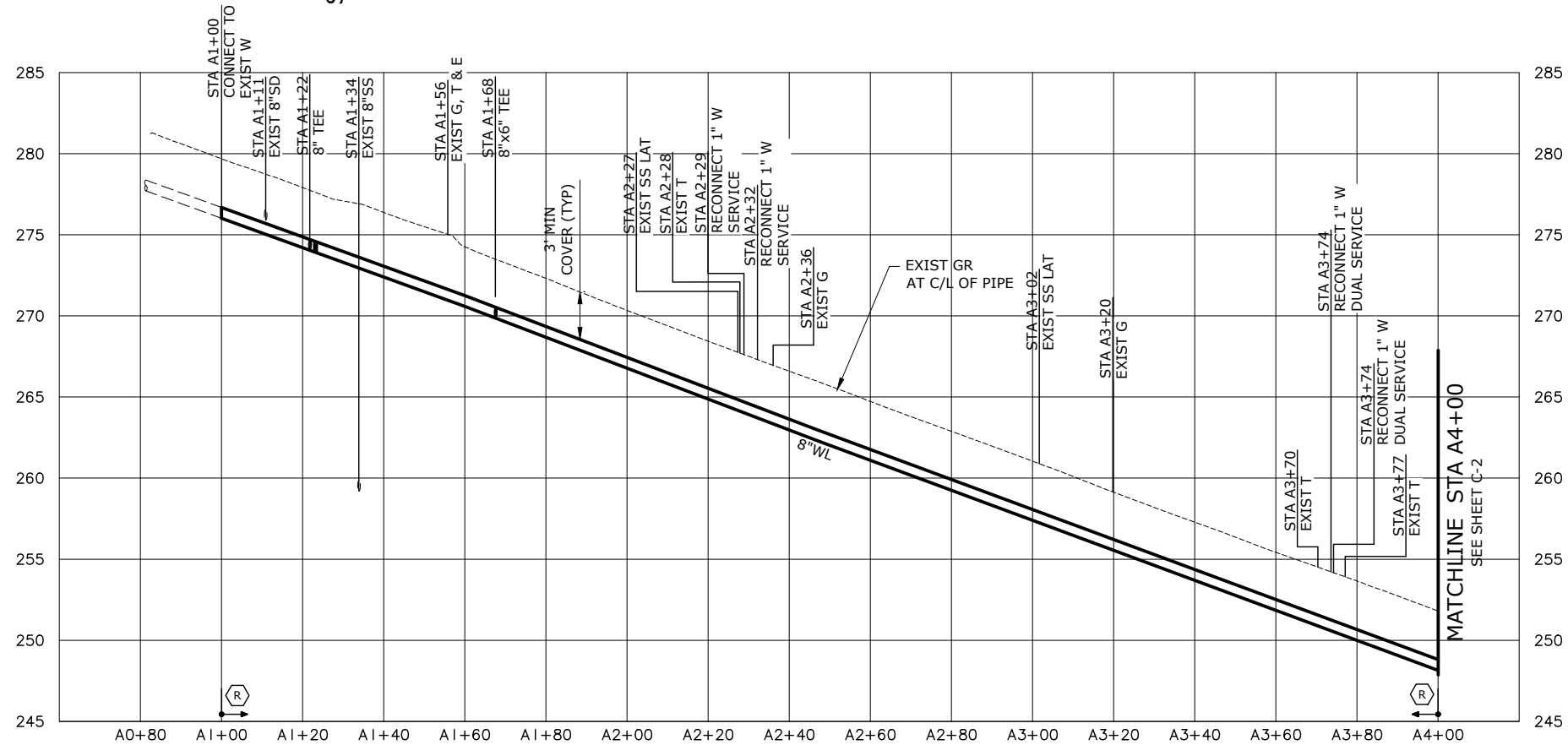
<b>GENERAL NOTES</b>			
PROJECT NO.:	17-1977.202	SCALE:	AS SHOWN
DATE:	OCTOBER 2022		

SHEET  
 G-3  
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**PLAN**  
SCALE: 1"=20'



**PROFILE**  
SCALE: 1"=20' HORIZ, 1"=5' VERT

**KEY NOTES:**

- ① STA A1+00  
CONNECT TO EXIST 6" CI W (SOUTH)  
SEE NOTE 2, THIS SHEET  
FURNISH & INSTALL:  
1-6" LS  
1-COLLAR THRUST BLOCK, SEE DETS SHT C-5  
REMOVE AFTER TESTING COMPLETE AND EXIST 6" W  
READY TO BE ABANDONED:  
1-EXIST 6" TEE  
2-EXIST 6" GV
- ② INLET PROTECTION, SEE DETS SHT C-6
- ③ STA A1+00 TO STA A4+00  
FURNISH & INSTALL:  
8" DI PIPE
- ④ STA A1+03  
FURNISH & INSTALL:  
1-6" 22.5° HORIZ BEND, MJ
- ⑤ STA A1+14  
FURNISH & INSTALL:  
1-6" 22.5° HORIZ BEND, MJ
- ⑥ STA A1+18  
FURNISH & INSTALL:  
1-EXIST 8"x6" RDCR
- ⑦ STA A1+22  
CONNECT TO EXIST 6" CI W (EAST)  
SEE NOTE 2, THIS SHEET  
FURNISH & INSTALL:  
1-8" TEE, MJ  
1-8" GV, MJ, RESTR (NORTH)  
1-8" GV, MJ, RESTR (EAST)  
1-8"x6" RDCR (EAST)  
1-6" LS (EAST)  
APPROX IE=274.2  
1-TB (HIGH EARLY STRENGTH CONC)
- ⑧ STA A1+68  
FURNISH & INSTALL:  
1-8"x6" TEE, MJxFLG  
1-6" GV, FLGxMJ  
1-FH ASSY TO BE INSTALLED AFTER TESTING COMPLETE  
AND EXIST 6" W READY TO BE ABANDONED PER CITY  
STD DWG NO. W-20 & W-21, PROVIDE FH BARREL  
LENGTH AS REQ'D, REMOVE EXIST FH ASSY  
REMOVE & REPLACE CONC CURB & SIDEWALK AS REQ'D
- ⑨ FURNISH & INSTALL:  
NEW 1" DUAL WS CONNECT  
TO NEW 8" W AFTER TESTING COMPLETE
- ⑩ ABANDON EXIST 6" W

**SHEET NOTES:**

1. ALL NEW DUCTILE IRON PIPING SHALL BE RESTRAINED.
2. CONTRACTOR TO POTHOLE EXISTING 6" AND 8" WATER TO VERIFY TIE-IN LOCATION AND CONDITION OF EXISTING PIPE.
3. CONTRACTOR TO POTHOLE AND VERIFY LOCATIONS, SIZES AND DEPTHS OF EXISTING UTILITIES AS NECESSARY TO PROTECT EXISTING UTILITIES AND TO AVOID POTENTIAL CONFLICTS IN WATERLINE ALIGNMENT GRADE. CONTRACTOR TO COORDINATE WITH UTILITIES LOCATED NEAR WATERLINES DURING CONSTRUCTION ACTIVITIES.
4. CONTRACTOR SHALL CONNECT NEW 1" DUAL WATER SERVICE LINES TO EXISTING WATER METER.
5. CONTRACTOR SHALL PROTECT ALL CONCRETE CURB AND SIDEWALK DURING CONSTRUCTION UNLESS SHOWN OTHERWISE. CONCRETE CURB AND SIDEWALK DAMAGED DURING CONSTRUCTION SHALL BE REPLACED AT CONTRACTORS EXPENSE.

NO.	DATE	BY	REVISION

**NOTICE**  
0 1/2 1  
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

JJU DESIGNED  
CAD DRAWN  
BVO CHECKED

**REGISTERED PROFESSIONAL ENGINEER**  
75681  
*B. VOON*  
OREGON  
JUNE 28, 2008  
BRENDAN V. O'SULLIVAN  
RENEWS 12-31-22

**murraysmith**

**City of Sherwood Oregon**

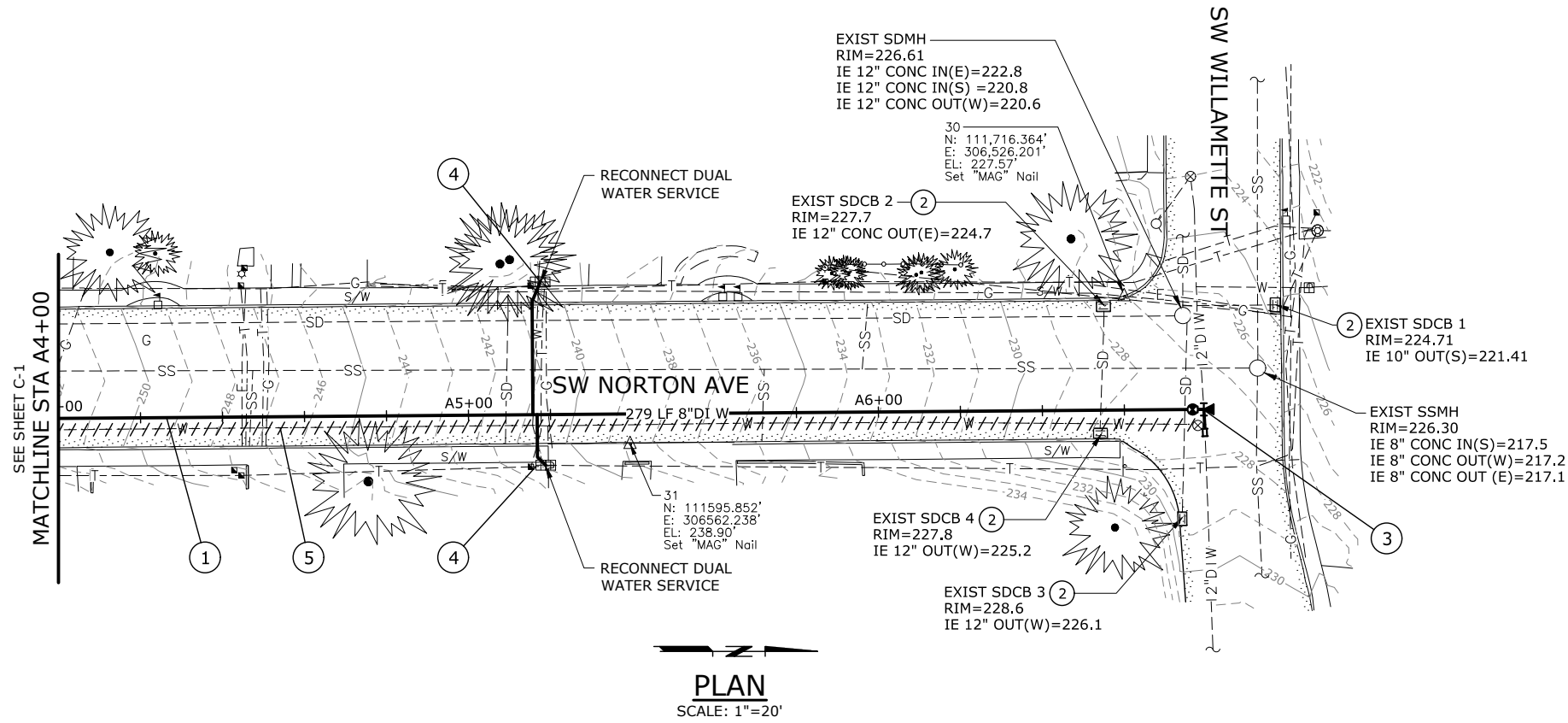
**CITY OF SHERWOOD  
2022 WATERLINE  
REPLACEMENT**

**SW NORTON AVENUE  
WATERLINE PLAN AND PROFILE - 1**

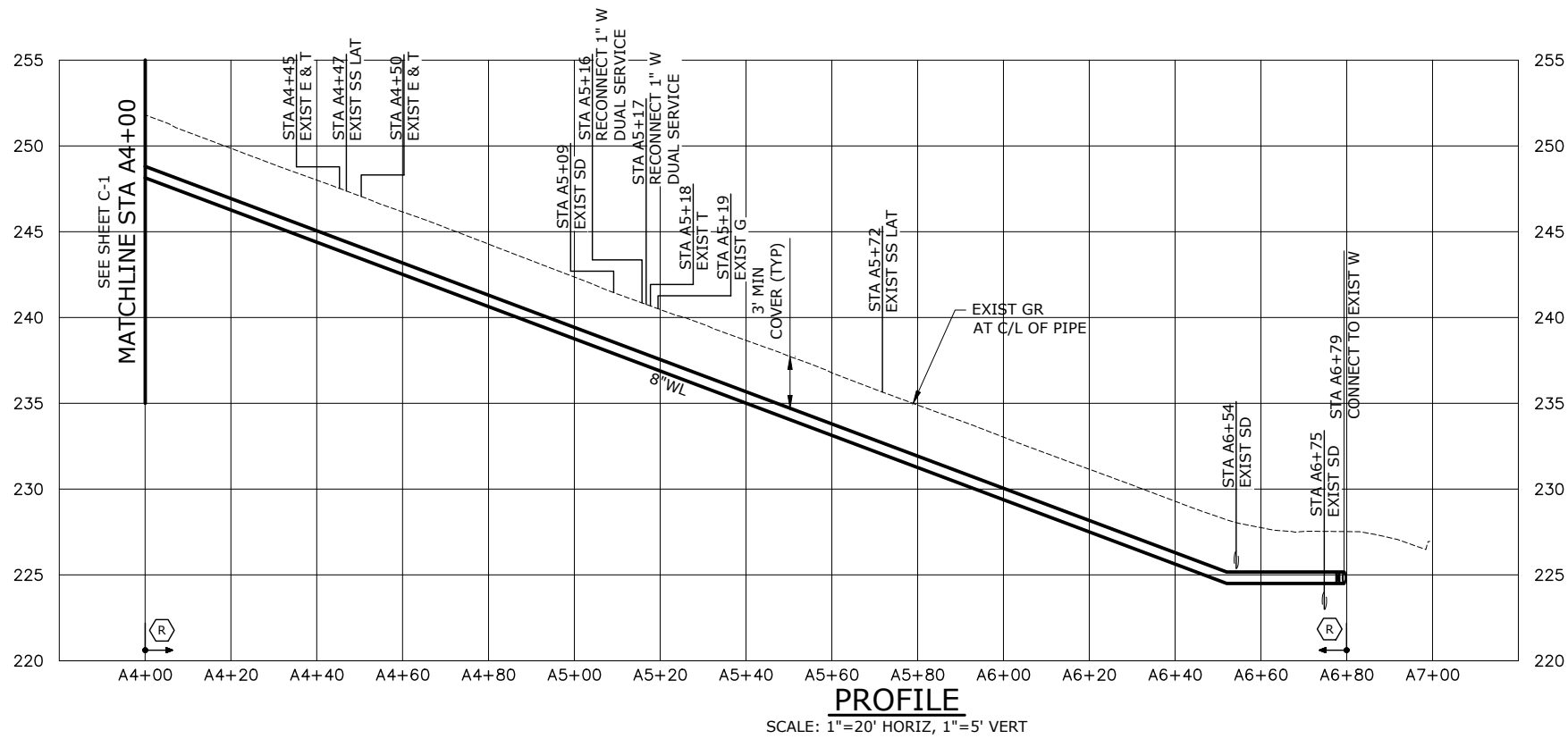
PROJECT NO.: 17-1977.202 SCALE: AS SHOWN DATE: OCTOBER 2022

SHEET  
**C-1**  
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- KEY NOTES:**
- 1 STA A4+00 TO STA A6+79  
FURNISH & INSTALL:  
8" DI PIPE
  - 2 INLET PROTECTION, SEE DETS SHT C-6
  - 3 STA A6+79  
CONNECT TO EXIST 12" DI W  
SEE NOTE 2, THIS SHEET  
FURNISH & INSTALL:  
1-12"x8" TEE, MJ  
APPROX IE=224.3  
1-12" LS  
1-8" GV, MJ, RESTR (SOUTH)  
1-TB (HIGH EARLY STRENGTH CONC)  
REMOVE EXIST 12"x6" TEE AFTER TESTING COMPLETE OF  
NEW 8" W AND EXIST 6" W READY TO BE ABANDONED
  - 4 FURNISH & INSTALL:  
NEW 1" DUAL WS CONNECT TO NEW 8" W AFTER TESTING  
COMPLETE
  - 5 ABANDON EXIST 6" W



- SHEET NOTES:**
1. ALL NEW DUCTILE IRON PIPING SHALL BE RESTRAINED.
  2. CONTRACTOR TO POTHOLE EXISTING 6" WATER TO VERIFY TIE-IN LOCATION AND CONDITION OF EXISTING PIPE.
  3. CONTRACTOR TO POTHOLE AND VERIFY LOCATIONS, SIZES AND DEPTHS OF EXISTING UTILITIES AS NECESSARY TO PROTECT EXISTING UTILITIES AND TO AVOID POTENTIAL CONFLICTS IN WATERLINE ALIGNMENT GRADE. CONTRACTOR TO COORDINATE WITH UTILITIES LOCATED NEAR WATERLINES DURING CONSTRUCTION ACTIVITIES.
  4. CONTRACTOR SHALL CONNECT NEW 1" DUAL WATER SERVICE LINES TO EXISTING WATER METER.
  5. CONTRACTOR SHALL PROTECT ALL CONCRETE CURB AND SIDEWALK DURING CONSTRUCTION UNLESS SHOWN OTHERWISE. CONCRETE CURB AND SIDEWALK DAMAGED DURING CONSTRUCTION SHALL BE REPLACED AT CONTRACTORS EXPENSE.

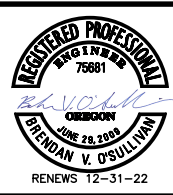
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**NOTICE**

0 1/2 1

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JJU DESIGNED  
CAD DRAWN  
BVO CHECKED



**CITY OF SHERWOOD  
2022 WATERLINE  
REPLACEMENT**

**SW NORTON AVENUE  
WATERLINE PLAN AND PROFILE - 2**

PROJECT NO.: 17-1977.202 SCALE: AS SHOWN DATE: OCTOBER 2022

SHEET  
**C-2**  
5 of 8

**VERTICAL CURB**

FACE OF CURB  
WIDTH OF STREET

1" RADIUS

6"

1/2" RADIUS

6"

16"

AC PAVEMENT

CONCRETE TO BE MIN. 3,300 PSI AT 28 DAYS

SEE NOTE 6

3/4"-0" BASE COURSE COMPACTED TO 95% T-180

NATIVE SUBGRADE COMPACTED TO 95% T-99

9"

12" MIN.

**NOTES:**

- VERTICAL CURB TO BE USED AT MEDIANS AND MEDIAN PLANTING STRIPS, OR IN REPLACEMENT OF DAMAGED EXISTING VERTICAL CURBS.
- CONCRETE SHALL BE COMMERCIAL MIX, MIN. COMPRESSIVE STRENGTH OF 3,300 PSI AT 28 DAYS.
- EXPANSION JOINTS TO BE PROVIDED: AT POINT OF TANGENCY OF THE CURB, AT EACH COLD JOINT, AT THE SIDE OF INLET STRUCTURES, AT THE ENDS OF DRIVEWAYS AND AT LOCATIONS NECESSARY TO LIMIT SPACING TO 45 FEET.
- MATERIAL TO BE PRE-MOLDED, ASPHALT IMPREGNATED, NON-EXTRUDING, WITH A THICKNESS OF 1/2 INCH.
- CONTRACTION JOINTS SHALL NOT BE SPACED MORE THAN 15 FEET AND SHALL BE 1 1/2" IN DEPTH.
- BASE ROCK: 3/4"-0", COMPACTED TO 95% MAX DENSITY; BASE ROCK SHALL BE TO SUBGRADE OF STREET STRUCTURE OR 6" IN DEPTH, WHICHEVER IS GREATER.

STANDARD DRAWING TITLE	DRAWING NUMBER
VERTICAL CURB	RD-21
SCALE	DATE
N.T.S.	MAR '16

**SIDEWALK WITH PLANTER STRIP**  
(FOR ALL NEW CONSTRUCTION)

5' PLANTER STRIP

6' TO 8' SIDEWALK

R/W

SLOPE TO STREET 2%

SLOPE TO STREET 2% MAX.

1"

12-1 MAX

2-1 MAX

4" PCC SEE NOTE 5

STERILIZE AND COMPACT SUBGRADE TO 95% OF T-99

4" OF 3/4"-0" BASE ROCK COMPACTED TO 90% OF T-99

**CURB-TIGHT SIDEWALK**  
(TO BE USED WITH VARIANCE ONLY)

6' TO 8' SIDEWALK

SLOPE TO STREET 2% MAX.

12-1 MAX

2-1 MAX

4" PCC SEE NOTE 5

STERILIZE AND COMPACT SUBGRADE TO 95% OF T-99

4" OF 3/4"-0" BASE ROCK COMPACTED TO 90% OF T-99

**NOTES:**

- CONCRETE SHALL BE COMMERCIAL MIX, MIN. COMPRESSIVE STRENGTH OF 3,300 PSI @ 28 DAYS, WITH A 4" MAX SLUMP.
- SIDEWALK PANELS TO BE SQUARE (6' LONG x 6' WIDE TYP.).
- EXPANSION JOINTS TO BE PLACED AT SIDES OF DRIVEWAY APPROACHES, UTILITY VAULTS, CURB RAMPS, AND/OR POINTS OF TANGENCY IN CURB AS SHOWN ON THE STANDARD DRAWINGS FOR SIDEWALK RAMPS, AND AT SPACING NOT TO EXCEED 45'.
- FOR SIDEWALKS ADJACENT TO THE CURB AND POURED AT THE SAME TIME AS THE CURB, THE JOINT BETWEEN THEM SHALL BE A TROWELED JOINT WITH A MINIMUM 1/2" RADIUS.
- SIDEWALKS SHALL HAVE A MINIMUM THICKNESS OF 4", IF MOUNTABLE CURB IS USED, OR IF SIDEWALK IS INTENDED AS PORTION OF A RESIDENTIAL DRIVEWAY IT SHALL HAVE A 6" MINIMUM THICKNESS, COMMERCIAL 8".
- CONCRETE SHALL HAVE A BROOM FINISH, ALL JOINTS SHALL BE EDGED WITH 3" SHINE.
- WIDTH OF PLANTER STRIP AND SIDEWALK IS MEASURED FROM FACE OF CURB.
- IF DRAIN BLOCKOUTS IN CURBS ARE APPROVED, THEY SHALL BE EXTENDED PERPENDICULAR TO CURB TO 1" PAST BACK OF SIDEWALK WITH A 3" DIAMETER ADS PIPE. CONTRACTION JOINT SHALL BE PLACED OVER PIPE.

STANDARD DRAWING TITLE	DRAWING NUMBER
SIDEWALK DETAIL	RD-26
SCALE	DATE
N.T.S.	MAR '16

**CROSS-SECTION**

EDGE LINE OF EXISTING PATCH, CURB OR EDGE OF STREET

SAW CUT EDGE LINE

EXISTING AC

TOTAL WIDTH VARIES SEE NOTES 2-4

12" T-CUT

SAND SEAL EDGE

12" MIN.

IF <3" REPLACE SURFACE SEE NOTE 2

EXISTING BASE ROCK

AGGREGATE TRENCH BACKFILL COMPACTED PER RD-47

AGGREGATE BASE COMPACTED TO 95% T-180

**NOTES:**

- T-CUT IS 12" MINIMUM FOR TRENCHES WIDER THAN 12".
- IF NEW EDGE OF PAVEMENT IS LESS THAN 3" FROM ANOTHER PATCH, CURB, EDGE OF STREET OR LONGITUDINAL CRACK, REPLACE THE PAVEMENT IN BETWEEN.
- IF MORE THAN ONE EXISTING PATCH EDGE IS WITHIN THE 3" ZONE, REMOVE PAVEMENT TO THE FAR EDGE OF THE PRE-EXISTING PATCH.
- NEW EDGE OF PAVEMENT (EDGE LINE) SHALL NOT LIE IN A WHEEL PATH. WIDTH OF T-CUT SHALL BE WIDENED WHERE NECESSARY TO MOVE THE EDGE LINE OUT OF THE WHEEL PATH.
- SEE STD DET RD-20 FOR TYPICAL STREET PAVEMENT SECTION.
- SEE STD DET RD-47 FOR TYPICAL TRENCH BACKFILL REQUIREMENTS.

STANDARD DRAWING TITLE	DRAWING NUMBER
PIPE TRENCH RESTORATION	RD-45
SCALE	DATE
N.T.S.	MAR '16

**PIPE TRENCH BACKFILL**

WITHIN STREET RIGHT-OF-WAY CLASS "B"

OUTSIDE STREET RIGHT-OF-WAY AS APPROVED BY CITY ENGINEER CLASS "A"

RESURFACING SEE NOTE 4

3/4"-0" AGGREGATE BASE COURSE COMPACTED TO 95% OF MAX DENSITY AS PER AASHTO T-180 AND ODOT/APWA SPEC. 00405.

RESTORE TO PRE-EXISTING CONDITIONS OR BETTER PER SPECS

CLASS "A" NATIVE BACKFILL (COMPACTED TO 90% OF MAX DENSITY AS PER AASHTO T-99 AND ODOT/APWA SPEC. 00405).

UNDISTURBED EARTH

TRENCH BACKFILL SHALL BE 3/4"-0" CRUSHED AGGREGATE COMPACTED TO 95% OF MAX DENSITY PER AASHTO T-99 WITHIN 48" OF SURFACE

TRENCH BACKFILL SHALL BE 3/4"-0" CRUSHED AGGREGATE COMPACTED TO 90% OF MAX DENSITY PER AASHTO T-99 BELOW 48" OF SURFACE

12" TYPICAL SEE NOTE 3

EXIST ROAD SECTION

SAWCUT EXIST PAVEMENT SEE NOTE 2

3/4" - 0" CRUSHED ROCK PIPE ZONE

6"

3/4" - 0" PIPE BEDDING

4" - 6"

6" MINIMUM

**NOTES:**

- THESE TRENCH BACKFILL REQUIREMENTS APPLY TO ALL PUBLIC UTILITY PIPES. FOR ADDITIONAL REQUIREMENTS, SEE CITY STANDARD DESIGN MANUAL SECTION 210.19.
- SAWCUT EXISTING HMA/AC PAVEMENT FULL DEPTH. SAWCUT EXISTING PCC PAVEMENT ACCORDING TO CITY STANDARD DETAILS.
- 12" FOR TRENCHES WIDER THAN 12", 6" FOR TRENCHES LESS THAN 12".
- MATCH EXISTING PAVEMENT MATERIAL(S). THICKNESS SHALL BE AS FOLLOWS:
  - FOR EXISTING HMA/AC: RESURFACE TO A MINIMUM OF 3" OF LEVEL 2, 1/2" DENSE HMA/AC OR EXISTING AC THICKNESS PLUS 2", WHICHEVER IS GREATER, BUT DO NOT EXCEED 6". COMPACT AC IN 2" MAX LIFTS TO 92% OF MAXIMUM DENSITY (RICE).
  - FOR EXISTING PCC: EXISTING PAVEMENT THICKNESS PLUS 2", BUT NOT LESS THAN 8". ON ARTERIAL AND COLLECTOR STREETS, CONCRETE PATCHING MATERIAL SHALL BE HIGH EARLY STRENGTH CLASS 5000 PSI PCC APPROVED BY CITY ENGINEER.
- ALL OUT EDGES OF AC SHALL BE SAND SEALED WITH CRS-1 OR CRS-2 EMULSIFIED ASPHALT OR EQUIVALENT.

STANDARD DRAWING TITLE	DRAWING NUMBER
PIPE TRENCH BACKFILL	RD-47
SCALE	DATE
N.T.S.	MAR '16

**TYPICAL WATER VALVE LOCATION DETAIL**

1'-0" MIN DI SPOOL PE  
1'-6" MAX (TYP)

MJ GATE VALVE 8" AND SMALLER  
MJ BUTTERFLY VALVE 10" AND LARGER

SEE DETAILS W-3 & W-4 FOR VALVE BOX AND SETTING REQUIREMENTS

8'-0" MAX.

STANDARD DRAWING TITLE	DRAWING NUMBER
TYPICAL WATER VALVE LOCATION DETAIL	W-1
SCALE	DATE
N.T.S.	DEC '15

**TYPICAL GATE VALVE SETTING DETAIL**

OLYMPIC FOUNDRY VBB10 VALVE BOX AND COVER WITH "W" CAST IN THE TOP SURFACE

HAND TAMP BACKFILL AROUND TOP SECTION

4" MIN  
12" MAX

OPERATOR EXTENSION (SEE DETAIL W-5)

6" TYPE PSM SDR 35 PVC, D3034 PIPE SPACER LENGTH AS NECESSARY

**NOTES:**

- VALVE BOX NOT TO REST ON OPERATING ASSEMBLY
- OPERATOR EXTENSION REQUIRED WHEN VALVE NUT IS DEEPER THAN 3 FEET FROM FINISHED GRADE
- CENTER VALVE BOX ON AXIS OF OPER NUT
- PROVIDE 24" SQUARE BY 4" THICK CONCRETE PAD AROUND VALVE BOX OUTSIDE OF PAVED AREAS
- VALVE BOX COVER SHALL BE A MINIMUM OF 2 1/2' IN LENGTH

STANDARD DRAWING TITLE	DRAWING NUMBER
TYPICAL GATE VALVE SETTING DETAIL	W-3
SCALE	DATE
N.T.S.	JUL '09

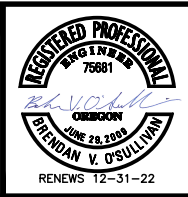
NO.	DATE	BY	REVISION

**NOTICE**

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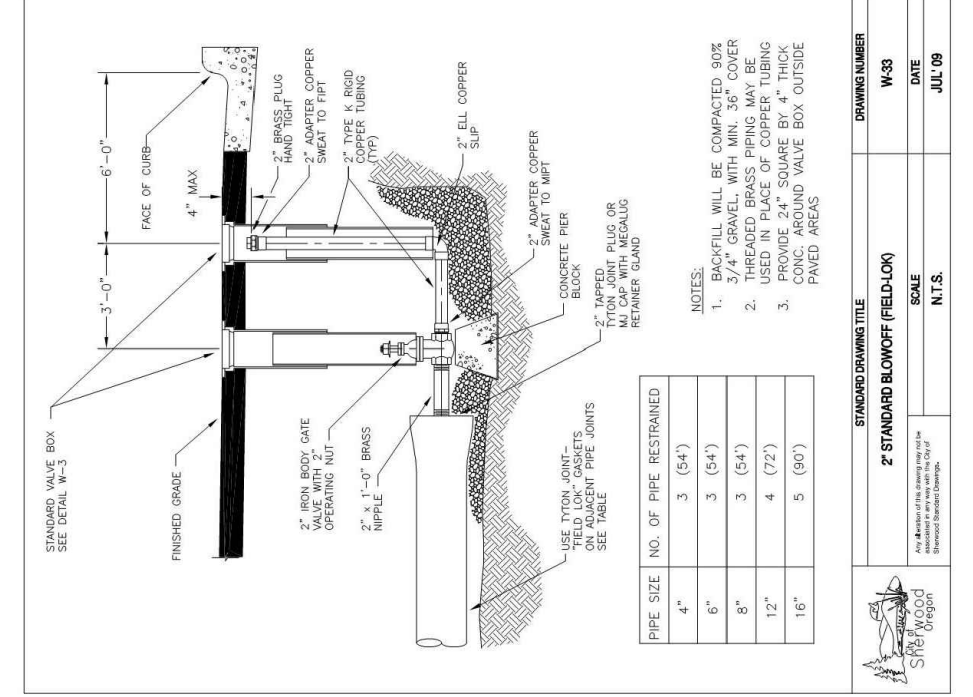
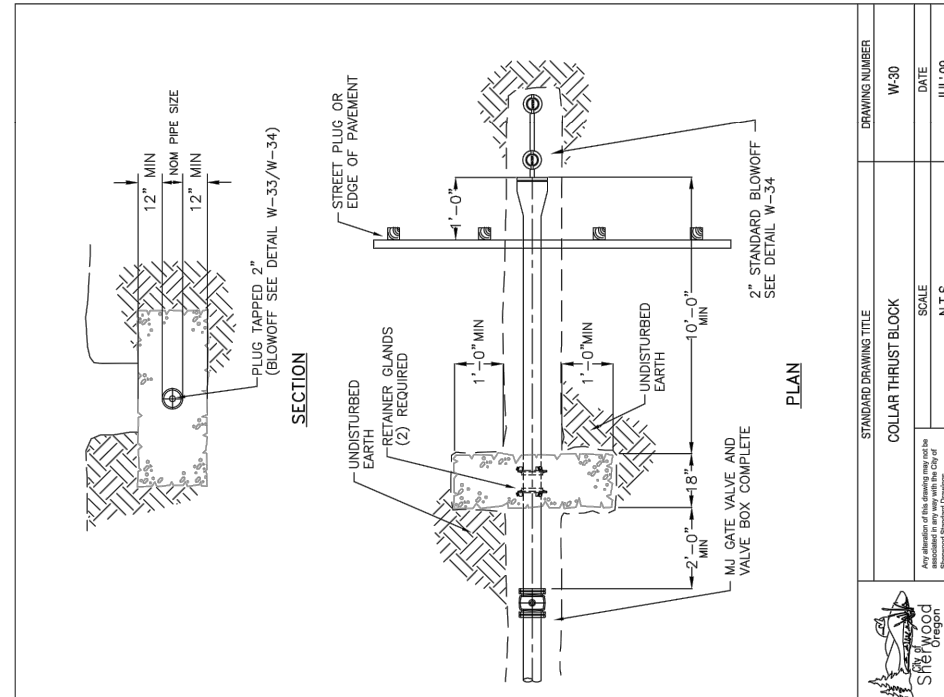
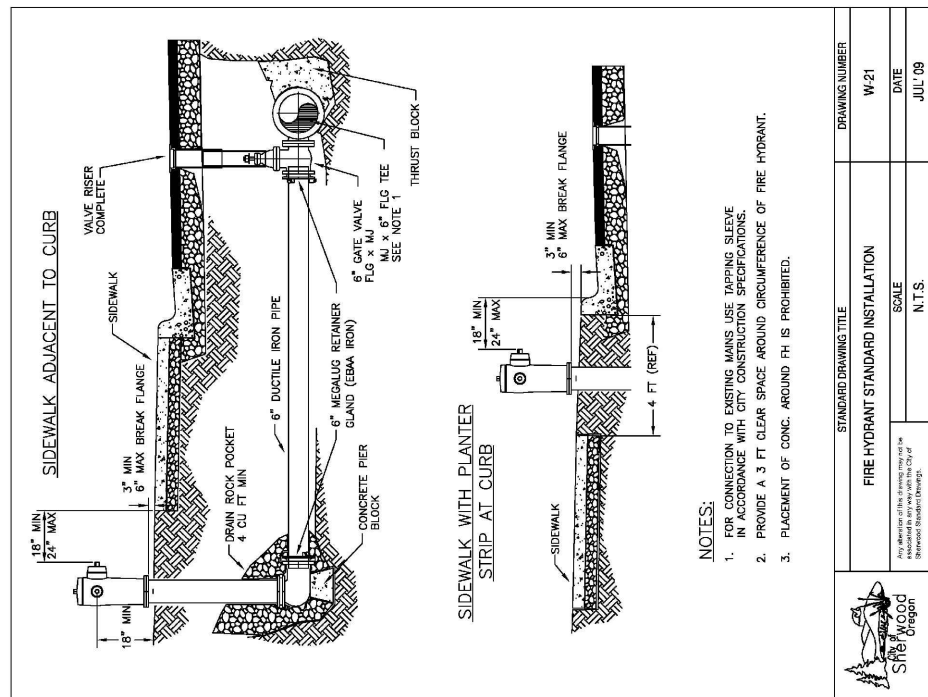
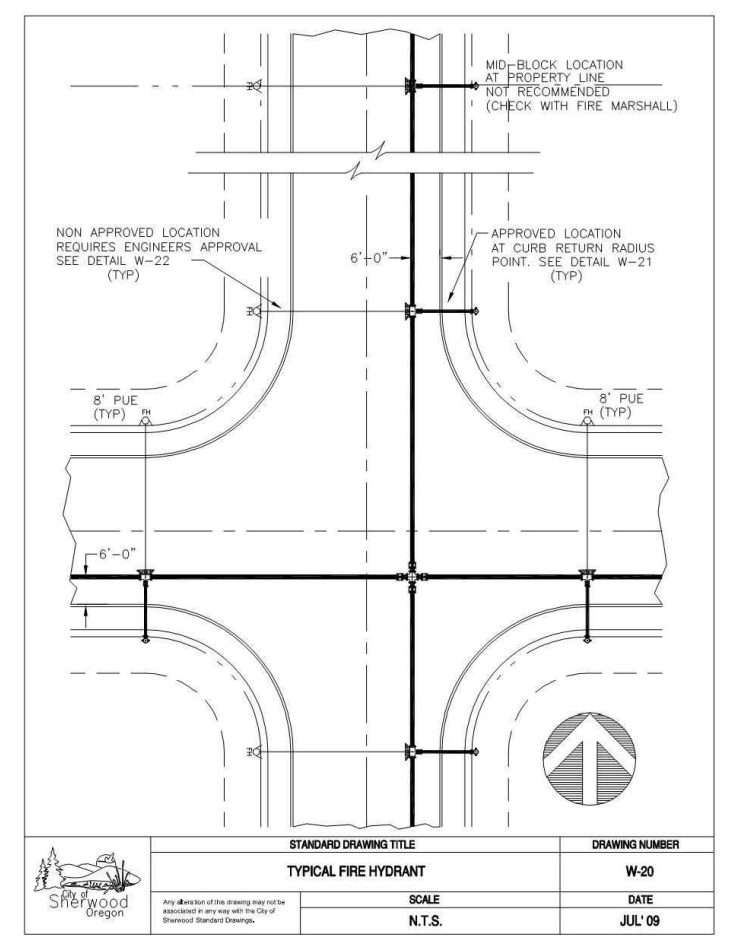
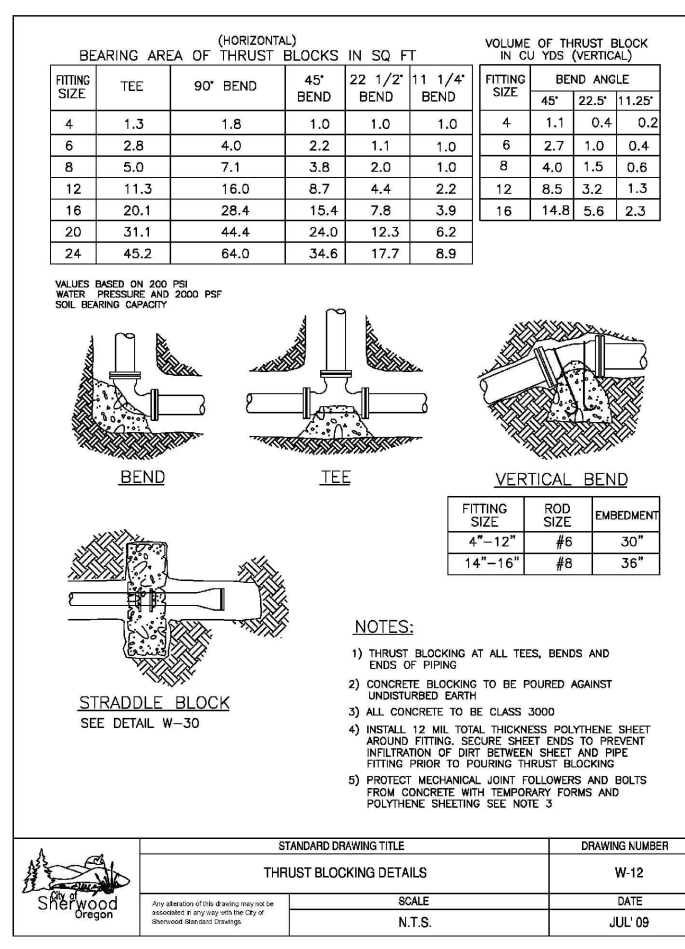
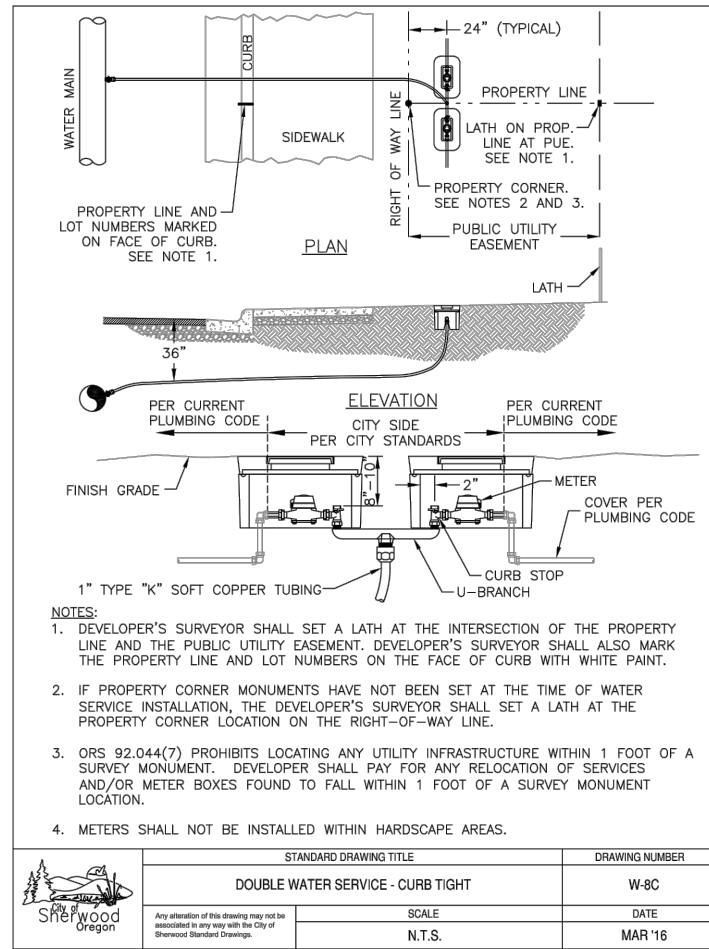
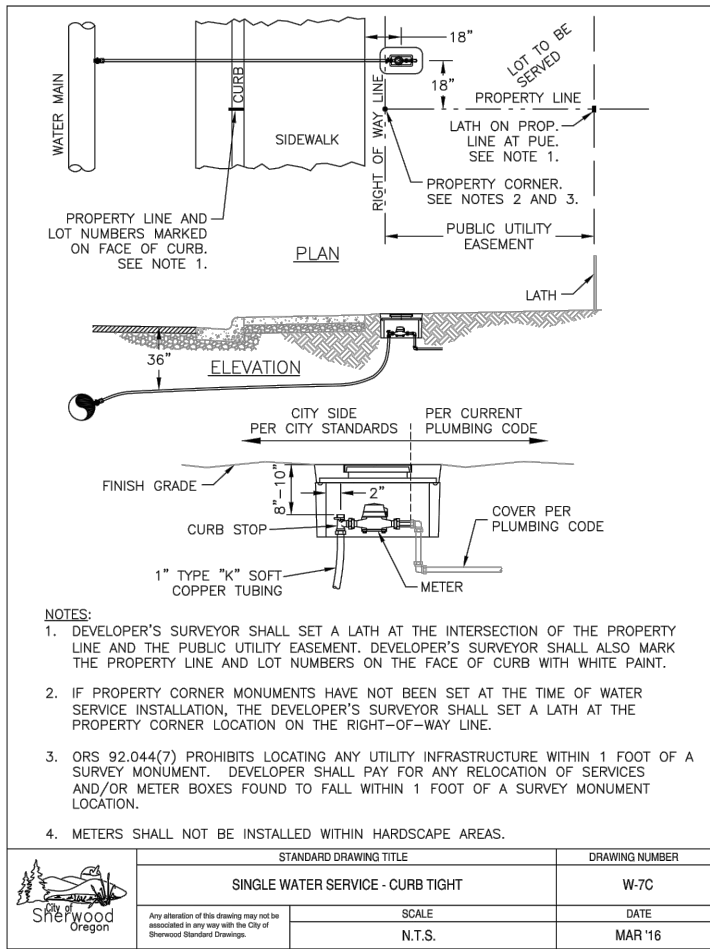
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JJU  
DESIGNED  
CAD  
DRAWN  
BVO  
CHECKED

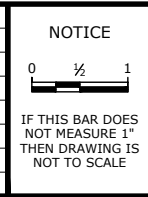


**CITY OF SHERWOOD  
STANDARD DETAILS - 1**

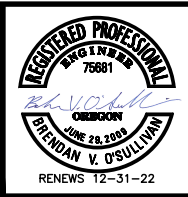
PROJECT NO.: 17-1977.202 SCALE: AS SHOWN DATE: OCTOBER 2022



NO.	DATE	BY	REVISION



JJU  
DESIGNED  
CAD  
DRAWN  
BVO  
CHECKED



PROJECT NO.:	SCALE:	AS SHOWN	DATE:	OCTOBER 2022
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**NOTES:**

- ADDITIONAL MEASURES MUST BE CONSIDERED DEPENDING ON SOIL TYPES.
- BIO-FILTER BAGS SHOULD BE STAKED WHERE APPLICABLE USING (2) 1"x2" WOODEN STAKES OR APPROVED EQUAL PER BAG.
- WHEN USING 30" BIO-BAGS TO PROTECT A CATCH BASIN YOU MUST HAVE 4 BAGS AND THEY SHALL BE OVERLAPPED BY 6".

FOR FURTHER INFORMATION ON DESIGN CRITERIA SEE CHAPTER 4 OF CLEAN WATER SERVICES EROSION PREVENTION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.

STANDARD DRAWING TITLE		DRAWING NUMBER	
INLET PROTECTION - TYPE 4		ESC-24	
Any alteration of this drawing may not be associated in any way with the City of Sherwood Standard Drawings.	SCALE	DATE	
	N.T.S.	JUL' 09	

**NOTE:**

- RECESSED CURB INLET CATCH BASINS MUST BE BLOCKED WHEN USING FILTER FABRIC INLET SACKS. SIZE OF FILTER FABRIC INLET SACKS TO BE DETERMINED BY MANUFACTURER.

FOR FURTHER INFORMATION ON DESIGN CRITERIA SEE CHAPTER 4 OF CLEAN WATER SERVICES EROSION PREVENTION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.

STANDARD DRAWING TITLE		DRAWING NUMBER	
INLET PROTECTION - TYPE 5		ESC-25	
Any alteration of this drawing may not be associated in any way with the City of Sherwood Standard Drawings.	SCALE	DATE	
	N.T.S.	JUL' 09	

**NOTES:**

- WHEN RAINFALL AND RUNOFF OCCURS DAILY INSPECTIONS OF THE EROSION AND SEDIMENT CONTROLS AND DISCHARGE OUTFALLS MUST BE PROVIDED BY SOME ONE KNOWLEDGEABLE AND EXPERIENCED IN THE PRINCIPLES, PRACTICES, INSTALLATION, AND MAINTENANCE OF EROSION AND SEDIMENT CONTROLS WHO WORKS FOR THE PERMITTEE.
- CONSTRUCTION ACTIVITIES MUST AVOID OR MINIMIZE EXCAVATION AND CREATION OF BARE GROUND FROM OCTOBER 1 THROUGH MAY 31 EACH YEAR.
- DURING WET WEATHER PERIOD, TEMPORARY STABILIZATION OF THE SITE MUST OCCUR AT THE END OF EACH WORK DAY.
- SEDIMENT CONTROLS MUST BE INSTALLED AND MAINTAINED ON ALL DOWN GRADIENT SIDES OF THE CONSTRUCTION SITE AT ALL TIMES DURING CONSTRUCTION. THEY MUST REMAIN IN PLACE UNTIL PERMANENT VEGETATION OR OTHER PERMANENT COVERING OF EXPOSED SOIL IS ESTABLISHED.
- ALL ACTIVE INLETS MUST HAVE SEDIMENT CONTROLS INSTALLED AND MAINTAINED AT ALL TIMES DURING CONSTRUCTION. UNLESS OTHERWISE APPROVED, A SURFACE MOUNTED AND ATTACHABLE, U-SHAPED FILTER BAG IS REQUIRED FOR ALL CURB INLET CATCH BASINS.
- SIGNIFICANT AMOUNTS OF SEDIMENT WHICH LEAVES THE SITE MUST BE CLEANED UP WITHIN 24 HOURS AND PLACED BACK ON THE SITE AND STABILIZED OR PROPERLY DISPOSED. THE CAUSE OF THE SEDIMENT RELEASE MUST BE FOUND AND PREVENTED FROM CAUSING A REOCCURRENCE OF THE DISCHARGE WITHIN THE SAME 24 HOURS. ANY IN-STREAM CLEAN UP OF SEDIMENT SHALL BE PERFORMED ACCORDING TO THE OREGON DEPARTMENT OF STATE LANDS REQUIRED TIME FRAME.
- SEDIMENT MUST NOT BE INTENTIONALLY WASHED INTO STORM SEWERS, DRAINAGE WAYS, OR WATER BODIES.
- SEDIMENT MUST BE REMOVED FROM BEHIND ALL SEDIMENT CONTROL MEASURES WHEN IT HAS REACHED A HEIGHT OF 1/3RD THE BARRIER HEIGHT, AND PRIOR TO THE CONTROL MEASURES REMOVAL.
- CLEANING OF ALL STRUCTURES WITH SUMPS MUST OCCUR WHEN THE SEDIMENT RETENTION CAPACITY HAS BEEN REDUCED BY 50% AND AT COMPLETION OF PROJECT.
- ANY USE OF TOXIC OR OTHER HAZARDOUS MATERIALS MUST INCLUDE PROPER STORAGE, APPLICATION, AND DISPOSAL.
- THE PERMITTEE MUST PROPERLY MANAGE HAZARDOUS WASTES, USED OILS, CONTAMINATED SOILS, CONCRETE WASTE, SANITARY WASTE, LIQUID WASTE, OR OTHER TOXIC SUBSTANCES DISCOVERED OR GENERATED DURING CONSTRUCTION.
- THE APPLICATION RATE OF FERTILIZERS USED TO REESTABLISH VEGETATION MUST FOLLOW MANUFACTURER'S RECOMMENDATIONS. NUTRIENT RELEASES FROM FERTILIZERS TO SURFACE WATERS MUST BE MINIMIZED. TIME RELEASE FERTILIZERS SHOULD BE USED AND CARE SHOULD BE MADE IN APPLICATION OF FERTILIZERS WITHIN ANY WATER WAY RIPARIAN ZONE.
- OWNER OR DESIGNATED PERSON SHALL BE RESPONSIBLE FOR PROPER INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES, IN ACCORDANCE WITH CURRENT CLEAN WATER SERVICES STANDARDS AND STATE, AND FEDERAL REGULATIONS.
- PRIOR TO ANY LAND DISTURBING ACTIVITIES, THE BOUNDARIES OF THE CLEARING LIMITS, VEGETATED BUFFERS, AND ANY SENSITIVE AREAS SHOWN ON THIS PLAN SHALL BE CLEARLY DELINEATED IN THE FIELD. UNLESS OTHERWISE APPROVED, NO DISTURBANCE IS PERMITTED BEYOND THE CLEARING LIMITS. THE OWNER/PERMITTEE MUST MAINTAIN THE DELINEATION FOR THE DURATION OF THE PROJECT.  
NOTE: VEGETATED CORRIDORS TO BE DELINEATED WITH ORANGE CONSTRUCTION FENCE OR APPROVED EQUAL.
- PRIOR TO ANY LAND DISTURBING ACTIVITIES, THE BMPs THAT MUST BE INSTALLED ARE GRAVEL CONSTRUCTION ENTRANCE, PERIMETER SEDIMENT CONTROL, AND INLET PROTECTION. THESE BMPs MUST BE MAINTAINED FOR THE DURATION OF THE PROJECT.
- IF VEGETATIVE SEED MIXES ARE SPECIFIED, SEEDING MUST TAKE PLACE NO LATER THAN SEPTEMBER 1ST; THE TYPE AND PERCENTAGES OF SEED IN THE MIX ARE AS IDENTIFIED ON THE PLANS OR AS SPECIFIED BY THE DESIGN ENGINEER.
- WATER-TIGHT TRUCKS MUST BE USED TO TRANSPORT SATURATED SOILS FROM THE CONSTRUCTION SITE. AN APPROVED EQUIVALENT IS TO DRAIN THE SOIL ON SITE AT A DESIGNATED LOCATION USING APPROPRIATE BMPs. SOIL MUST BE DRAINED SUFFICIENTLY FOR MINIMAL SPILLAGE.
- ALL PUMPING OF SEDIMENT LADEN WATER MUST BE DISCHARGED OVER AN UNDISTURBED, PREFERABLY VEGETATED AREA, AND THROUGH A SEDIMENT CONTROL BMP (I.E. FILTER BAG).
- THE ESC PLAN MUST BE KEPT ON-SITE. ALL MEASURES SHOWN ON THE PLAN MUST BE INSTALLED PROPERLY TO ENSURE THAT SEDIMENT LADEN WATER DOES NOT ENTER A SURFACE WATER SYSTEM, ROADWAY, OR OTHER PROPERTIES.
- THE ESC MEASURES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE MEASURES SHALL BE UPGRADED AS NEEDED TO MAINTAIN COMPLIANCE WITH ALL REGULATIONS.
- WRITTEN ESC LOGS ARE SUGGESTED TO BE MAINTAINED ON-SITE AND AVAILABLE TO DISTRICT INSPECTORS UPON REQUEST.
- IN AREAS SUBJECT TO WIND EROSION, APPROPRIATE BMPs MUST BE USED WHICH MAY INCLUDE THE APPLICATION OF FINE WATER SPRAYING, PLASTIC SHEETING, MULCHING, OR OTHER APPROVED MEASURES.
- ALL EXPOSED SOILS MUST BE COVERED DURING WET WEATHER PERIOD.

STANDARD DRAWING TITLE		DRAWING NUMBER	
STANDARD EROSION CONTROL NOTES FOR SITES LESS THAN 1 ACRE		ESC-30	
Any alteration of this drawing may not be associated in any way with the City of Sherwood Standard Drawings.	SCALE	DATE	
	N.T.S.	JUL' 09	

NO.	DATE	BY	REVISION

**NOTICE**

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CHECKED

RENEWS 12-31-22

**CITY OF SHERWOOD  
2022 WATERLINE  
REPLACEMENT**

**CITY OF SHERWOOD  
STANDARD DETAILS - 3**

PROJECT NO.: 17-1977.202 SCALE: AS SHOWN DATE: OCTOBER 2022