



**City of Newport**  
Lincoln County, Oregon

**CONTRACT DOCUMENTS**

**VOLUME 1 – Bidding Forms, Contract Forms, General Conditions, Etc.  
and Technical Specifications**

FOR THE CONSTRUCTION OF

**South Beach/Hwy 101 Water & Sewer Improvements**

July, 2012  
*Project No. 2302-006*



*Prepared By:*

**Civil West Engineering Services, Inc.**

486 E Street • Coos Bay, Oregon 97420 • Ph. 541.266.8601, Fax 541.266.8681 [www.civilwest.com](http://www.civilwest.com)

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## **INVITATION FOR BIDS**

Sealed bids for the construction of the City of Newport - South Beach/Hwy. 101 Water and Sewer Improvements in Lincoln County, Oregon will be received by Tim Gross, PE, Public Works Director/City Engineer, at 169 SW Coast Highway, Newport OR 97365, until **2:00 p.m., August 22nd, 2012** and then at said office publicly opened and read aloud. Bids received after this time will not be accepted. All interested parties are invited to attend. Subcontractor declarations must be delivered to Owner as above no later than **4:00 p.m.** on the day of the bid opening.

A brief description of the scope of work is provided below:

**Water System Improvements:** Furnish and install approximately 3400 lineal feet of new treated water distribution piping consisting of approximately 2250 lineal feet of 12-inch and 660 lineal feet of 8-inch C900 PVC piping by open trench placement along with a bore/ jack placement of a carrier pipe for a single Hwy Crossing and approximately 500 lineal feet of 14-inch HDPE water distribution piping being placed using horizontal directional drilling (HDD) methodology and all associated connections and appurtenances such as fire hydrants, services and connections as required for complete installation.

**Sewer System Improvements:** Furnish and install approximately 1900 lineal feet of new 8-inch and 10-inch PVC SDR 35 sanitary sewer pipe by open trench placement along with associated manholes, service laterals and cleanouts and all associated connections and appurtenances and required for a complete installation.

Complete installation of the new water and sewer lines shall include, but not be limited to, trench dewatering system, excavation and backfill, connection to existing systems, services and meters along designated water and sewer line routes along with complete testing and disinfection of new systems and landscape restoration all as required.

Bidding Documents may be examined at the design Engineer's office:

**Civil West Engineering Services, Inc.**  
486 'E' Street; Coos Bay, OR 97420  
Ph: 541-266-8601; Fax: 541-266-8681

Bidding Documents can also be examined at the following locations:

City of Newport, City Hall; 169 SW Coast Hwy., Newport, OR 97365, 541-574-3369  
Daily Journal of Commerce Plan Center, Documents online only; please call: 503-274-0624  
Eugene Builders Exchange, 2460 W. 11<sup>th</sup>, Eugene, OR 97402, 541-484-5331  
Oregon Association of Minority Entrepreneurs, 4134 N. Vancouver Ave., Portland, OR 97217, 503-249-7744  
Medford Builders Exchange, Inc., 305 Bartlet, Medford, OR 97501: 541-773-5327  
Douglas County Plan Center, 3076 NE Diamond Lake Blvd., Roseburg, OR 97470, 541-440-9030

Bidders must purchase Bidding Documents from the Engineer and be listed on plan holders list. One copy of the Bidding documents, including specifications and drawings, may be obtained from the Engineer's design office with a non-refundable payment of \$90.00 per set, payable to the Engineer.

No bid will be considered unless fully completed in the manner provided in the Instructions to Bidders, and accompanied by a bid security, executed in favor of the Owner, in the amount not less than 10% of the total amount of the bid.

Bidders must prequalify with Owner as specified in the Instructions to Bidders, no less than five (5) days prior to bid opening.

This contract is for public work and is subject to ORS 279C.800 to 279C.870 regarding prevailing wage rates. Licensing under ORS 468A.720 is not required.



# INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACTS

Prepared by

**ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE**

and

Issued and Published Jointly by



AMERICAN COUNCIL OF ENGINEERING COMPANIES

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ASSOCIATED GENERAL CONTRACTORS OF AMERICA

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AMERICAN SOCIETY OF CIVIL ENGINEERS

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PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE  
*A Practice Division of the*  
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**INSTRUCTIONS TO BIDDERS**

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## ARTICLE 1 – DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
- A. *Issuing Office* – The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered. Issuing Office is: **Civil West Engineering Services, Inc.; 486 E Street; Coos Bay, OR. 97420; phone 541-266-8601.**
  - B. *Owner* – **City of Newport**, Lincoln County Oregon
  - C. *Engineer* – Civil West Engineering Services, Inc.

## ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

- 2.01 Complete sets of the Bidding Documents in the number and for the price, if any, stated in the Advertisement or Invitation to Bid may be obtained from the Issuing Office. The price is intended to cover the cost of labor, shipping, and materials of production and is non-refundable.
- 2.02 Complete sets of Bidding Documents shall 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.
- 2.03 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 authorize or confer a license for any other use.

## ARTICLE 3 – QUALIFICATIONS OF BIDDERS

- 3.01 To demonstrate Bidder's qualifications to perform the Work; Bidder shall submit written evidence such as financial data, previous experience, present commitments, and such other data as may be called for below.
- A. Bidder shall provide a Prequalification Form to the Engineer at least five (5) days prior to bid opening. Prequalification Form will be the current Oregon Department of Transportation (ODOT) Prime Contractor Prequalification Form.
  - B. Prequalification Form shall show evidence of successful completion of at least three (3) similar projects in scope, size, complexity, and type within the last ten (10) years.
  - C. All Bidders must have a valid license from the Construction Contractors Board (CCB) and shall be capable of obtaining all required bonds and insurance.
  - D. ORS 279C.836 requires that all independent contractors working on qualifying public works projects, with a contract price that exceeds \$100,000 must obtain and file with the Construction Contractors Board (CCB) a public works bond with a corporate surety authorized to do business in Oregon for the amount of \$30,000 before starting work on a contract or subcontract for a public works project.
- 3.02 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.
- 3.03 To qualify for an award, Bidder must be deemed responsible per ORS 279C.375.

## ARTICLE 4 – EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE

### 4.01 *Subsurface and Physical Conditions*

- A. The Supplementary Conditions identify:
  - 1. Those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site.
  - 2. Those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
- B. Copies of reports and drawings referenced in Paragraph 4.01.A will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which Bidder is entitled to rely as provided in Paragraph 4.02 of the General Conditions has been identified and established in Paragraph 4.02 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any “technical data” or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

### 4.02 *Underground Facilities*

- A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.

### 4.03 *Hazardous Environmental Condition*

- A. The Supplementary Conditions identify any reports and drawings known to Owner relating to a Hazardous Environmental Condition identified at the Site.
- B. Copies of reports and drawings referenced in Paragraph 4.03.A will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which Bidder is entitled to rely as provided in Paragraph 4.06 of the General Conditions has been identified and established in Paragraph 4.06 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any “technical data” or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

4.04 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 4.02, 4.03, and 4.04 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 4.06 of the General Conditions.

4.05 On request, Owner will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies. Bidder shall comply with all applicable Laws and Regulations relative to excavation and utility locates.

- 4.06 A. Reference is made to Article 7 of the Supplementary Conditions for the identification of the general nature of other work that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) that relates to the Work contemplated by these Bidding Documents. On request, Owner will provide to each Bidder for examination access to or copies of contract documents (other than portions thereof related to price) for such other work.
- B. Paragraph 6.13.C of the General Conditions indicates that if an Owner safety program exists, it will be noted in the Supplementary Conditions.
- 4.07 It is the responsibility of each Bidder before submitting a Bid to:
- A. examine and carefully study the Bidding Documents, and the other related data identified in the Bidding Documents;
- B. visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
- C. become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work;
- D. carefully study all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have been identified in Paragraph 4.02 of the Supplementary Conditions as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in the Paragraph 4.06 of the Supplementary Conditions as containing reliable "technical data";
- E. consider the information known to Bidder; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs;
- F. agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;
- G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
- H. 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
- I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.
- 4.08 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.

## **ARTICLE 5 – PRE-BID CONFERENCE**

- 5.01 A pre-Bid conference will not be held. All prospective Bidders are encouraged however to visit the Site and familiarize themselves with the conditions.

## **ARTICLE 6 – SITE AND OTHER AREAS**

- 6.01 The Site is identified in the Bidding Documents. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by Owner unless otherwise provided in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor.

## **ARTICLE 7 – INTERPRETATIONS AND ADDENDA**

- 7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. 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 days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
- 7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by Owner or Engineer.

## **ARTICLE 8 – BID SECURITY**

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of **Ten** percent (10%) of Bidder's maximum Bid price and in the form of a certified check, bank money order, or a Bid bond (on form EJCDC C-430) issued by a surety meeting the requirements of Paragraphs 5.01 and 5.02 of the General Conditions.
- 8.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, 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 Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults. 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 earlier of seven days after the Effective Date of the Agreement or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.
- 8.03 Bid security of other Bidders whom Owner believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening.

## **ARTICLE 9 – CONTRACT TIMES**

- 9.01 The number of days within which, or the dates by which, milestones are to be achieved and/or the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

## **ARTICLE 10 – LIQUIDATED DAMAGES**

- 10.01 Provisions for liquidated damages, if any, are set forth in the Agreement.

## **ARTICLE 11 – SUBSTITUTE AND “OR-EQUAL” ITEMS**

- 11.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, or those substitute or “or-equal” materials and equipment approved by Engineer and identified by Addendum. The materials and equipment described in the Bidding Documents establish a standard of required type,

function and quality to be met by any proposed substitute or “or-equal” item. No item of material or equipment will be considered by Engineer as a substitute or “or-equal” unless written request for approval has been submitted by Bidder and has been received by Engineer at least 15 days prior to the date for receipt of Bids. Each such request shall conform to the requirements of Paragraph 6.05 of the General Conditions. The burden of proof of the merit of the proposed item is upon Bidder. Engineer’s decision of approval or disapproval of a proposed item will be final. If Engineer approves any proposed item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidders shall not rely upon approvals made in any other manner.

## **ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS AND OTHERS**

- 12.01 In accordance with ORS 279C.370, when the contract value as estimated by the public contracting agency is more than \$100,000, the Bidder must disclose first-tier subcontractors. Proposed first-tier subcontractors shall be listed on the form contained in these Contract Documents (Section 00440).
- A. Form must be submitted to the location specified in the Invitation to Bid, on the advertised bid closing date, and within two (2) working hours after the bid closing time.
  - B. Bidder shall list on the Form; subcontractors that will be furnishing labor or will be furnishing labor and materials in connection with the public improvement contract; and will have a contract value equal to or greater than 5% of the total project bid or \$15,000, whichever is greater, or \$350,000 regardless of the percentage of the total project bid.
  - C. Failure to provide the First-Tier Subcontractor Disclosure Form will result in the bid being deemed nonresponsive and a contract will not be awarded to that bidder.

## **ARTICLE 13 – PREPARATION OF BID**

- 13.01 The Bid Form is included with the Bidding Documents. Additional copies may be obtained from Engineer. Bidder must have purchased the Contract Documents from the Engineer and thus be listed on the plan holders list. *Bids from Bidders who have not purchased the Documents, and thus are not known as plan holders, will not be accepted.*
- 13.02 All blanks on the Bid Form shall be completed in ink and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each Bid item, alternative, adjustment unit price item, and unit price item listed therein. In the case of optional alternatives the words “No Bid,” “No Change,” or “Not Applicable” may be entered.
- 13.03 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. 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.
- 13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown.
- 13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.
- 13.06 A Bid by an individual shall show the Bidder’s name and official address.
- 13.07 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.
- 13.08 All names shall be printed in ink below the signatures.
- 13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.

- 13.10 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- 13.11 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

#### **ARTICLE 14 – BASIS OF BID; COMPARISON OF BIDS**

##### **14.01 *Unit Price***

- A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid schedule.
- B. The total of all estimated prices will be the sum of the products of the estimated quantity of each item and the corresponding unit price. The final quantities and Contract Price will be determined in accordance with Paragraph 11.03 of the General Conditions.
- C. 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.

#### **ARTICLE 15 – SUBMITTAL OF BID**

- 15.01 The Bidding Documents bound herein include all Bid Forms, Bid Security Forms, and Supplements to Bid Forms that are required. These Bidding Documents shall be submitted together.
- 15.02 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall be enclosed in a plainly marked package with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED."
- 15.03 Fax or email bids will not be considered. Bids received after the bid due time will not be considered.

#### **ARTICLE 16 – MODIFICATION AND WITHDRAWAL OF BID**

- 16.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.
- 16.02 If within 24 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, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

#### **ARTICLE 17 – OPENING OF BIDS**

- 17.01 Bids will be opened at the time and place indicated in the Advertisement or Invitation to Bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

## **ARTICLE 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE**

- 18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

## **ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT**

- 19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to not be responsible under ORS 279C.375. Owner may also reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder. 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. Owner may reject all bids for good cause if found to be in the public interest to do so.
- 19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest. When Bid Form has multiple schedules of Work, Bidder may Bid on one or more schedules.
- 19.03 In evaluating Bids, Owner will consider 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.
- 19.04 In evaluating Bidders, Owner will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions.
- 19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work in accordance with the Contract Documents.
- 19.06 If the Contract is to be awarded, Owner will award the Contract to the Bidder whose Bid is in the best interests of the Project. Award will be identified by a Notice of Award within 60 calendar days of the Bid opening.
- 19.07 Any protests of award must be filed with the Owner within five (5) calendar days from the Notice of Intent to Award.

## **ARTICLE 20 – CONTRACT SECURITY AND INSURANCE**

- 20.01 Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it shall be accompanied by such bonds.

## **ARTICLE 21 – SIGNING OF AGREEMENT**

- 21.01 When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement along with the other Contract Documents which are identified in the Agreement as attached thereto. Within 15 days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner. Within ten days thereafter, Owner shall deliver one fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.
- 21.02 Dates on the Agreement (Effective Date of Agreement) shall be filled in by the Owner so that required bonds may be properly dated.

**ARTICLE 22 – SALES AND USE TAXES**

22.01 The State of Oregon has no sales tax and said taxes shall not be included in Bid.

**ARTICLE 23 – RETAINAGE**

23.01 In accordance with ORS 279C.550 through 279C.570, retainage will be withheld from progress payments at a rate of 5% of the value of work completed.

**ARTICLE 24 – PREVAILING WAGES**

24.01 The prevailing wage rates of the State of Oregon (ORS 279C.800 to 279C.870) apply to this contract as do any requirements of the State of Oregon associated with the use of these State Prevailing wages.

# BID FORM FOR CONSTRUCTION CONTRACTS

Prepared by

**ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE**

and

Issued and Published Jointly by



AMERICAN COUNCIL OF ENGINEERING COMPANIES

ASSOCIATED GENERAL CONTRACTORS OF AMERICA

AMERICAN SOCIETY OF CIVIL ENGINEERS

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE  
*A Practice Division of the*  
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**ARTICLE 1 – BID RECIPIENT**

1.01 This Bid is submitted to:

*City of Newport  
Tim Gross, PE, Public Works Director  
169 SW Coast Hwy.  
Newport, Oregon 97365*

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

**ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS**

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

**ARTICLE 3 – BIDDER’S REPRESENTATIONS**

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged:

<u>Addendum No.</u>	<u>Addendum Date</u>
_____	_____
_____	_____
_____	_____

B. 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, and performance of the Work.

C. Bidder is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have been identified in SC-4.02 as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in SC-4.06 as containing reliable "technical data."

E. Bidder has considered the information known to Bidder; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) 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; and (3) Bidder's safety precautions and programs.

- F. Based on the information and observations referred to in Paragraph 3.01.E above, Bidder does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder 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 Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

#### **ARTICLE 4 – BIDDER’S CERTIFICATION**

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
  - 1. “corrupt practice” means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
  - 2. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
  - 3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
  - 4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.
- E. Bidder certifies that Bidder will comply with ORS 279C.838 or 279C.840 regarding prevailing wage rates.
- F. Bidder is is not a resident bidder as defined in ORS 279A.120.

**ARTICLE 5 – BASIS OF BID**

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

**Basic Bid - UNIT PRICE BID – South Beach/ Hwy. 101 Water & Sewer System Improvements**

Attached Itemized Unit Price Sheets

Item No.	Description	Unit	Estimated Quantity	Unit Price	Total Estimated Price
1	Mobilization, Bonds and Insurance	Ls	1		
2	Const Facilities and Temporary Controls	Ls	1		
3	Demolition and Site Preparation	Ls	1		
4	Foundation Stabilization	Cy	135		
5	Trench Dewatering System, Design and Testing	Ls	1		
6	Install & Operate Excavation Dewatering Well points	Ea	284		
<b>SEWER ITEMS</b>					
7	Install Gravity Sewer - Class "A" Backfill - All Sizes & Depths	Lf	330		
8	Install Gravity Sewer - Class "B" Backfill - All Sizes & Depths	Lf	1560		
9	Install Mainline Gravity Sewer Cleanout - All Sizes & Depths	Ea	1		
10	Install 8' Lateral Stub & Cleanout - All Sizes & Depths	Ea	6		
11	New 48" Diam. Std Manhole	Ea	3		
12	New 48" Diam. flat top Manhole	Ea	3		
13	Core Penetration, Bench & Channel Exist Manhole SS1	Ea	1		
<b>WATER ITEMS</b>					
14	Service Line	Lf	750		
15	Service Reconnection (Exist)	Ea	24		
16	Meter Reconnection	Ea	24		
17	New Meter Box	Ea	6		
18	2" Waterline w/ Class 'A' Backfill	Lf	165		
19	2" Waterline w/ Class 'B' Backfill	Lf	210		
20	2" Reconnection / Connection	Ea	2		
21	2" Gate Valve	Ea	1		
22	6" PVC Waterline w/ Class 'A' Backfill	Lf	100		

23	6" PVC Waterline w/ Class 'B' Backfill	Lf	60		
24	6" Gate Valve	Ea	7		
25	6" Tee	Ea	2		
26	6" Transition Coupling	Ea	3		
27	6" - 45 Degree Elbow	Ea	3		
28	6" End Cap/ Plug	Ea	2		
29	16" x 6" Hot Tap Tee w/ 6" Gate Valve	Ea	1		
30	8" PVC Waterline w/ Class 'B' Backfill	Lf	660		
31	8" Flg x Mj Adapter	Ea	2		
32	8" Transition Coupling	Ea	1		
33	8" Gate Valve	Ea	1		
34	8" x 6" Reducer	Ea	1		
35	8" 90 Degree Elbow	Ea	1		
36	8" End Cap/ Plug	Ea	1		
37	12" PVC Waterline w/ Class 'A' Backfill	Lf	480		
38	12" PVC Waterline w/ Class 'B' Backfill	Lf	1500		
39	14" HDPE HDD Placement	Lf	790		
40	Concrete Anchor Wall	Ea	4		
41	14" HDPE Wall Anchor	Ea	4		
42	14" x 12" HDPE/Concentric Reducer	Ea	4		
43	12" HDPE Flange	Ea	4		
44	12" Gate Valve	Ea	9		
45	12" Tapping Tee w/ Gate Valve	Ea	1		
46	12" Tee	Ea	4		
47	12" x 6" Tee	Ea	5		

48	12" Transition Coupling	Ea	3		
49	12"-90 Degree Elbow	Ea	3		
50	12"-45 Degree Elbow	Ea	2		
51	12" Flg x Mj Adapter	Ea	4		
52	12" x 8" Reducer	Ea	2		
53	12" Blind Flange	Ea	2		
54	New Fire Hydrant Assembly	Ea	9		
55	Existing F-Hydrant Assembly Reconnect w/ new Gate Valve	Ea	2		
56	Bollards	Ea	6		
MISC. ITEMS					
57	New Cedar Wood Fence	Lf	420		
58	Chain Link Fence R & R	Lf	275		
59	Gate (Chain Link Fence)	Ea	1		
60	18" Concrete Culvert	Lf	20		
61	Relocated Sign(s)	Ea	8		
62	Ac Pavement - Trench Patch	Ton	45		
63	Ac Pavement - Overlay	Ton	185		
64	Misc. Painted Pavement Markings (Lane lines and Directional Arrows)	Ls	1		
65	1' Wide Thermoplastic Stop Bar/ Crosswalk	Lf	60		
66	Gravel Surfacing (2 inch min.)	Cy	110		
67	Compaction Testing	Ls	1		
68	Landscape Restoration	Ls	1		

**Total** of Item Prices (in words): \_\_\_\_\_

**Total** of Item Prices (numbers): \$ \_\_\_\_\_

- Unit Prices have been computed in accordance with paragraph 11.03.B 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, determined as provided in the contract Documents.

## **ARTICLE 6 – TIME OF COMPLETION**

- 6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
- 6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

## **ARTICLE 7 – ATTACHMENTS TO THIS BID**

- 7.01 The following documents are submitted with and made a condition of this Bid:
- A. Required Bid security in the form of a Bid Bond (EDCDC No. C-430);
  - B. List of Proposed Subcontractors (First-Tier Subcontractor Disclosure Form submitted with 2 working hours after bid closing time).

## **ARTICLE 8 – DEFINED TERMS**

- 8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

**ARTICLE 9 – BID SUBMITTAL**

9.01 This Bid is submitted by:

If Bidder is:

An Individual

Name (typed or printed): \_\_\_\_\_

By: \_\_\_\_\_  
*(Individual's signature)*

Doing business as: \_\_\_\_\_

A Partnership

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

By: \_\_\_\_\_  
*(Signature of general partner -- attach evidence of authority to sign)*

Name (typed or printed): \_\_\_\_\_

A Corporation

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

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

Type (*General Business, Professional, Service, Limited Liability*): \_\_\_\_\_

By: \_\_\_\_\_  
*(Signature -- attach evidence of authority to sign)*

Name (typed or printed): \_\_\_\_\_

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

Attest \_\_\_\_\_

Date of Qualification to do business in Oregon is \_\_\_\_/\_\_\_\_/\_\_\_\_.

A Joint Venture

Name of Joint Venture: \_\_\_\_\_

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

By: \_\_\_\_\_  
(Signature of first joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): \_\_\_\_\_

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

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

By: \_\_\_\_\_  
(Signature of second joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): \_\_\_\_\_

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

*(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.)*

Bidder's Business Address \_\_\_\_\_  
\_\_\_\_\_

Phone No. \_\_\_\_\_ Fax No. \_\_\_\_\_

E-mail \_\_\_\_\_

SUBMITTED on \_\_\_\_\_, 20 \_\_\_\_\_

State Contractor License No. \_\_\_\_\_.

**BID BOND**

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

BIDDER *(Name and Address):*

SURETY *(Name and Address of Principal Place of Business):*

OWNER *(Name and Address):*

City of Newport  
169 SW Coast Hwy.  
Newport, OR 97365

BID

Bid Due Date:  
Description *(Project Name and Include Location):*  
South Beach/Hwy. 101 Water & Sewer Improvements, Newport Oregon

BOND

Bond Number:  
Date *(Not earlier than Bid due date):*  
Penal sum \_\_\_\_\_

(Words)

\$

\_\_\_\_\_ (Figures)

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

**BIDDER**

**SURETY**

\_\_\_\_\_  
Bidder's Name and Corporate Seal

\_\_\_\_\_  
Surety's Name and Corporate Seal

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

By: \_\_\_\_\_  
Signature (Attach Power of Attorney)

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

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

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

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

*Note: Above addresses are to be used for giving any required notice. Provide execution by any additional parties, such as joint venturers, if necessary.*

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
  - 3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
  - 3.2 All Bids are rejected by Owner, or
  - 3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

**SECTION 00440 – FIRST-TIER SUBCONTRACTOR DISCLOSURE FORM**

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

Bid Closing Date: \_\_\_\_\_ Time: \_\_\_\_\_

A. Subcontractor List

1. Bidder shall list below the name, address, Construction Contractor’s Board (CCB) number, description of work and dollar value of the subcontract for each subcontractor performing work in excess of the amount specified in the Instructions to Bidders, Section 00200, Article 12. If no subcontractor will be performing work on this project in excess of the amount specified in the Instructions to Bidders, Section 00200, Article 12, Bidders shall enter “NONE” in the first line below.

<u>Name</u>	<u>Address</u>	<u>CCB #</u>	<u>Description of Work</u>	<u>\$ Value of Subcontract</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

2. Total value of work provided by all subcontractors including those listed above is \$ \_\_\_\_\_.

\_\_\_\_\_  
Signature of Bidder                      Printed Name of Bidder                      Title                      Company Submitting

*This form must be submitted at the location specified in the Advertisement for Bids or Invitation to Bid on the bid closing date and within **Two (2)** working hours after bid closing time.*

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# Notice of Award

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

Project: South Beach/Hwy. 101 Water & Sewer Improvements

Owner: City of Newport, Oregon

Owner's Contract No.:

Contract: Construction of Project

Engineer's Project No.: 2302-006

Bidder:

Bidder's Address:

You are notified that your Bid dated \_\_\_\_\_ for the above Contract has been considered. You are the Successful Bidder and are awarded a Contract for:

### *Construction of the South Beach/Hwy. 101 Water & Sewer Improvements*

The Contract Price of your Contract is \_\_\_\_\_ Dollars (\$\_\_\_\_\_). Adjustments may be made with Change Orders to reflect actual units installed in the project.

\_\_\_\_\_ copies of the proposed Contract Documents (except Drawings) accompany this Notice of Award.

\_\_\_\_\_ sets of the Drawings will be delivered separately or otherwise made available to you immediately.

You must comply with the following conditions precedent within [15] days of the date you receive this Notice of Award.

1. Deliver to the Owner [\_\_\_\_\_] fully executed counterparts of the Contract Documents. Owner will fill in Effective Date of the Agreement.
2. Deliver with the executed Contract Documents the Contract security [Bonds] as specified in the Instructions to Bidders (Article 20), General Conditions (Paragraph 5.01), and Supplementary Conditions (Paragraph SC-5.01).
3. Deliver with the executed Contract Documents the Certificates of Insurance as specified in the General Conditions (Article 5) and associated Supplementary Conditions with required parties listed as "Insured" and "Additional Insured".
4. Other conditions precedent prior to starting any Work at the Site:
  - a. Receive Notice to Proceed from Owner

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Contract Documents.

\_\_\_\_\_  
Owner  
By: \_\_\_\_\_  
Authorized Signature  
\_\_\_\_\_  
Title

*Copy to Engineer*

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**AGREEMENT  
BETWEEN OWNER AND CONTRACTOR FOR  
CONSTRUCTION CONTRACT (STIPULATED PRICE)**

Prepared by

**ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE**

and

Issued and Published Jointly by



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final payment in accordance with Paragraph 14.07 of the General Conditions within 150 days after the date when the Contract Times commence to run.

#### 4.03 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner \$500 for each day that expires after the time specified in Paragraph 4.02 above for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner \$250 for each day that expires after the time specified in Paragraph 4.02 above for completion and readiness for final payment until the Work is completed and ready for final payment.

### **ARTICLE 5 – CONTRACT PRICE**

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraphs 5.01.A below:

- A. 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 actual quantity of that item as shown in the Bid Form, a sum of: \$ \_\_\_\_\_

The Bid prices for Unit Price Work set forth as of the Effective Date of the Agreement are based on estimated quantities. As provided in Paragraph 11.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer as provided in Paragraph 9.07 of the General Conditions.

### **ARTICLE 6 – PAYMENT PROCEDURES**

#### 6.01 *Submittal and Processing of Payments*

- A. 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.

#### 6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 25th day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A 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.

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 may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions.
  - a. 95 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and
  - b. 95 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less such amounts as Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General Conditions and less 100 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of Substantial Completion.

#### 6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 14.07 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 14.07.

### **ARTICLE 7 – INTEREST**

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

### **ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS**

- 8.01 In order to induce Owner to enter into this Agreement, Contractor makes the following representations:
  - A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
  - B. 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, and performance of the Work.
  - C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
  - D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities), if any, that have been identified in Paragraph SC-4.02 of the Supplementary Conditions as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in Paragraph SC-4.06 of the Supplementary Conditions as containing reliable "technical data."
  - E. Contractor has considered the information known to Contractor; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits

to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) Contractor's safety precautions and programs.

- F. Based on the information and observations referred to in Paragraph 8.01.E above, Contractor does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
- G. 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.
- H. 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.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

## **ARTICLE 9 – CONTRACT DOCUMENTS**

### **9.01 Contents**

- A. The Contract Documents consist of the following:
  - 1. This Agreement (pages 1 to 8, inclusive).
  - 2. Performance bond (pages 1 to 4, inclusive).
  - 3. Payment bond (pages 1 to 4, inclusive).
  - 4. General Conditions (pages 1 to 48, inclusive).
  - 5. Supplementary Conditions (pages 1 to 12, inclusive).
  - 6. Specifications as listed in the table of contents of the Project Manual.
  - 7. Drawings consisting of 24 sheets with each sheet bearing the following general title: South Beach/Hwy. 101 Water & Sewer Improvements
  - 8. Addenda (numbers \_\_\_\_\_ to \_\_\_\_\_, inclusive).
  - 9. Exhibits to this Agreement (enumerated as follows):
    - a. Contractor's Bid (pages 1 to 8, inclusive).
    - b. Documentation submitted by Contractor prior to Notice of Award (pages \_\_\_\_\_ to \_\_\_\_\_, inclusive).

10. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
  - a. Notice to Proceed (pages 1 to 2, inclusive).
  - b. Work Change Directives.
  - c. Change Orders.
  - d. ODOT Permits.
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

## **ARTICLE 10 – MISCELLANEOUS**

### 10.01 *Terms*

- A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

### 10.02 *Assignment of Contract*

- A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys 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.

### 10.03 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

### 10.04 *Severability*

- A. 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.

### 10.05 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
1. “corrupt practice” means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
  2. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
  3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
  4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

#### 10.06 *Other Provisions*

- A. Pursuant to ORS 279C.505(1) – Contractor shall make payment promptly, as due, to all persons supplying the Contractor with labor or materials for the performance of the work provided for in the contract. Contractor shall pay all contributions or amounts due the Industrial Accident Fund from the contractor or subcontractor incurred in the performance of the contract. Contractor shall not permit any lien or claim to be filed or prosecuted against the Owner on account of any labor or material furnished.
- B. Pursuant to ORS 279C.505(2) – Contractor certifies that it has an employee drug testing program in place.
- C. If the Contractor fails, neglects or refuses to make prompt payment of any claim for labor or services furnished to the contractor or a subcontractor by any person in connection with the public improvement contract as the claim becomes due, the proper officer or officers representing the Owner may pay such claim to the person furnishing the labor or services and charge the amount of the payment against funds due or to become due the contractor by reason of the contract. Other provisions of ORS 279C.515 and ORS 279C.580 concerning payments also apply.
- D. Contractor shall comply with hours of labor rules Pursuant to ORS 279C.520, 279C.540, and 279C.545.
- E. Per ORS 279C.530, Contractor shall promptly, as due, make payment to any person, copartnership, association or corporation furnishing medical, surgical and hospital care services or other needed care and attention, incident to sickness or injury, to the employees of the contractor, of all sums that the contractor agrees to pay for the services and all moneys and sums that the contractor collected or deducted from the wages of employees under any law, contract or agreement for the purpose of providing or paying for the services. All subject employers working under the contract are either employers that will comply with ORS 656.017 or employers that are exempt under ORS 656.126
- F. Contractor shall pay workers not less than the applicable prevailing wage rate.

- G. Public Works Bond – Contractor shall have a public works bond filed with the Oregon Construction Contractors Board before starting Work on the Project unless exempt under ORS 279C.836. Contractor shall include in every subcontract a provision requiring every subcontractor to have a public works bond filed with the Oregon CCB before starting Work on the project unless exempt under ORS 279C.836.
- H. Contractor shall defend, hold harmless and indemnify Owner, its officers, agents, engineers, attorneys and employees from any and all losses, liability, damages, costs, expenses (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), claims, suits or actions whatsoever in nature, including intentional acts, resulting from or arising out of the activities of the Contractor or its subcontractors, agents, or employees under this Contract.
- I. Failure of Owner to enforce any provision of this Contract shall not constitute a waiver by the Owner of that or any other provision.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement. Counterparts have been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or have been identified by Owner and Contractor or on their behalf.

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

OWNER:

CONTRACTOR

**City of Newport** \_\_\_\_\_

\_\_\_\_\_

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

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

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

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

*(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)*

Attest: \_\_\_\_\_

Attest: \_\_\_\_\_

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

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

Address for giving notices:

Address for giving notices:

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

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

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

# Notice to Proceed

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

---

Project: South Beach/Hwy. 101 Water & Sewer Improvements

---

Owner: City of Newport, Oregon

---

Owner's Contract No.:

---

Contract: Construction of Project

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Engineer's Project No.: 2302-006

---

Contractor:

---

Contractor's Address: *[send Certified Mail, Return Receipt Requested]*

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You are notified that the Contract Times under the above Contract will commence to run on \_\_\_\_\_. On or before that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 4 of the Agreement, the date of Substantial Completion is \_\_\_\_\_, and the date of readiness for final payment is \_\_\_\_\_ [(or) the number of days to achieve Substantial Completion is \_\_\_\_\_, and the number of days to achieve readiness for final payment is \_\_\_\_\_].

Before you may start any Work at the Site, Paragraph 2.01.B of the General Conditions provides that you and Owner must each deliver to the other (with copies to Engineer and other identified additional insureds and loss payees) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents.

Also, before you may start any Work at the Site, you must:

\_\_\_\_\_ *[add other requirements].*

---

Contractor

---

Owner

---

Given by:

---

Authorized Signature

---

Authorized Signature

---

Title

---

Title

---

Date

---

Date

*Copy to Engineer*

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# PERFORMANCE BOND

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

---

CONTRACTOR (*Name and Address*):                      SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

City of Newport  
169 SW Coast Hwy.  
Newport, OR 97365

CONTRACT

Effective Date of Agreement:

Amount:

Description (*Name and Location*):              South Beach/Hwy. 101 Water & Sewer Improvements  
Newport, Oregon

BOND

Bond Number:

Date (*Not earlier than Effective Date of Agreement*):

Amount:

Modifications to this Bond Form:

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

**CONTRACTOR AS PRINCIPAL**

**SURETY**

\_\_\_\_\_  
Contractor's Name and Corporate Seal (Seal)

\_\_\_\_\_  
Surety's Name and Corporate Seal (Seal)

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

By: \_\_\_\_\_  
Signature (Attach Power of Attorney)

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

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

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

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

*Note: Provide execution by additional parties, such as joint venturers, if necessary.*

Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.

1. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 2.1.
2. If there is no Owner Default, Surety's obligation under this Bond shall arise after:
  - 2.1 Owner has notified Contractor and Surety, at the addresses described in Paragraph 9 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor, and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and
  - 2.2 Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 2.1; and
  - 2.3 Owner has agreed to pay the Balance of the Contract Price to:
    1. Surety in accordance with the terms of the Contract; or
    2. Another contractor selected pursuant to Paragraph 3.3 to perform the Contract.
3. When Owner has satisfied the conditions of Paragraph 2, Surety shall promptly, and at Surety's expense, take one of the following actions:
  - 3.1 Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or
  - 3.2 Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
  - 3.3 Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 5 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or
  - 3.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:
    1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefore to Owner; or
    2. Deny liability in whole or in part and notify Owner citing reasons therefore.
4. If Surety does not proceed as provided in Paragraph 3 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 3.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.
5. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 3.1, 3.2, or 3.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To the limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:
  - 5.1 The responsibilities of Contractor for correction of defective Work and completion of the Contract;
  - 5.2 Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions of or failure to act of Surety under Paragraph 3; and
  - 5.3 Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.

6. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than Owner or its heirs, executors, administrators, or successors.

7. Surety hereby waives notice of any change, including changes of time, to Contract or to related subcontracts, purchase orders, and other obligations.

8. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located, and shall be instituted within two years after Contractor Default or within two years after Contractor ceased working or within two years after Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

9. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.

10. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

11. Definitions.

11.1 Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.

11.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

11.3 Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.

11.4 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or otherwise comply with the other terms thereof.

FOR INFORMATION ONLY – *(Name, Address and Telephone)*

Surety Agency or Broker:

Owner's Representative (*Engineer*): **Civil West Engineering Services, Inc.; 486 E St., Coos Bay, OR 97420; 541-266-8601**

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# PAYMENT BOND

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

CONTRACTOR (*Name and Address*):                      SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

City of Newport  
169 SW Coast Hwy.  
Newport, OR 97365

CONTRACT

Effective Date of Agreement:

Amount:

Description (*Name and Location*):              South Beach/Hwy. 101 Water & Sewer Improvements  
Newport, Oregon

BOND

Bond Number:

Date (*Not earlier than Effective Date of Agreement*):

Amount:

Modifications to this Bond Form:

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

**CONTRACTOR AS PRINCIPAL**

**SURETY**

\_\_\_\_\_  
Contractor's Name and Corporate Seal (Seal)

\_\_\_\_\_  
Surety's Name and Corporate Seal (Seal)

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

By: \_\_\_\_\_  
Signature (Attach Power of Attorney)

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

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

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

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

*Note: Provide execution by additional parties, such as joint venturers, if necessary.*

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.

2. With respect to Owner, this obligation shall be null and void if Contractor:

Promptly makes payment, directly or indirectly, for all sums due Claimants, and

Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.

3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.

4. Surety shall have no obligation to Claimants under this Bond until:

Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.

Claimants who do not have a direct contract with Contractor:

1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
3. Not having been paid within the above 30 days, have sent a written notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.

5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.

6. Reserved.

7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.

8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.

9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

10. Surety hereby waives notice of any change, including changes of time, to the Contract or to related subcontracts, purchase orders, and other obligations.

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.

14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. Definitions

Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract, or to perform and complete or otherwise comply with the other terms thereof.

FOR INFORMATION ONLY – *(Name, Address, and Telephone)*

Surety Agency or Broker:

Owner's Representative: **Civil West Engineering Services, Inc.; 486 E St., Coos Bay, OR 97420; 541-266-8601**

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## Contractor's Application for Payment No.

1

	Application Period:	Application Date:
To (Owner): <p style="text-align: center;"><b>City of Newport</b></p>	From (Contractor):	Via (Engineer): <p style="text-align: center;"><b>Civil West Engineering Services, Inc.</b></p>
Project:	Contract:	
Owner's Contract No.:	Contractor's Project No.:	Engineer's Project No.: <p style="text-align: center;"><b>2302-006</b></p>

### Application For Payment Change Order Summary

Approved Change Orders		
Number	Additions	Deductions
TOTALS		
NET CHANGE BY CHANGE ORDERS		

1. ORIGINAL CONTRACT PRICE.....	\$	
2. Net change by Change Orders.....	\$	
3. Current Contract Price (Line 1 ± 2).....	\$	
4. TOTAL COMPLETED AND STORED TO DATE (Column F on Progress Estimate).....	\$	#REF!
5. RETAINAGE:		
a. X <u>  #REF!  </u> Work Completed.....	\$	#REF!
b. X <u>          </u> Stored Material.....	\$	
c. Total Retainage (Line 5a + Line 5b).....	\$	#REF!
6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5c).....	\$	#REF!
7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application).....	\$	
8. AMOUNT DUE THIS APPLICATION.....	\$	#REF!
9. BALANCE TO FINISH, PLUS RETAINAGE (Column G on Progress Estimate + Line 5 above).....	\$	#REF!

**Contractor's Certification**

The undersigned Contractor certifies that to the best of its knowledge: (1) all previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with Work covered by prior Applications for Payment; (2) title of all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to Owner at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to Owner indemnifying Owner against any such Liens, security interest or encumbrances); and (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

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

Payment of: \$ \_\_\_\_\_  
(Line 8 or other - attach explanation of the other amount)

is recommended by: \_\_\_\_\_ (Engineer) \_\_\_\_\_ (Date)

Payment of: \$ \_\_\_\_\_  
(Line 8 or other - attach explanation of the other amount)

is approved by: \_\_\_\_\_ (Owner) \_\_\_\_\_ (Date)

Approved by: \_\_\_\_\_ (Funding Agency (if applicable)) \_\_\_\_\_ (Date)

**Progress Estimate**

**Contractor's Application**

For (contract):					Application Number:							
Application Period:					Application Date:							
A		B			Work Completed			E	F		G	
Item	Description	Unit	Estimated Quantity	Unit Price From Bid	Contract Amount	C		D	Total Installed to Date	Total Completed to Date	% (E/B)	Balance to Finish (B - F)
Item No.						From Previous Application	Quantity	This Period				
<b>General</b>												
1	Mobilization, Bonds & Insurance	Ls	1									
2	Const Facilities and Temporary Controls	Ls	1									
3	Demolition and Site Preparation	Ls	1									
4	Foundation Stabilization	Cy	135									
5	Trench Dewatering System, Design and Testing	Ls	1									
6	Install and Operation of Excavation Dewatering Well Points	Ls	284									
<b>Sanitary Sewer Items</b>												
7	Install Gravity Sewer - Class "A" Backfill - All Sizes and Depths	Lf	330									
8	Install Gravity Sewer - Class "B" Backfill - All Sizes and Depths	Lf	1560									
9	Install Mainline Gravity Sewer Cleanout - All Sizes and Depths	Ea	1									
10	Install 8" Lateral Stub and Cleanout - All Sizes and Depths	Ea	6									
11	New 48" Diameter Standard Manhole	Ea	3									
12	New 48" Diameter Flat Top Manhole	Ea	3									
13	Core Penetration, Bench and Channel Existing Manhole SS1	Ea	1									
<b>Water Items</b>												
14	Service Line	Lf	750									
15	Service Reconnection (Existing)	Ea	24									
16	Meter Reconnection	Ea	24									
17	New Meter Box	Ea	6									
18	2" Waterline w/ Class "A" Backfill	Lf	165									
19	2" Waterline w/ Class "B" Backfill	Lf	210									
20	2" Reconnection/ Connection	Ea	2									
21	2" Gate Valve	Ea	1									
22	6" PVC Waterline w/ Class "A" Backfill	Lf	100									
23	6" PVC Waterline w/ Class "B" Backfill	Lf	60									
24	6" Gate Valve	Ea	7									
25	6" Tee	Ea	2									
26	6" Transition Coupling	Ea	3									
27	6" 45-Degree Elbow	Ea	3									
28	6" End Cap	Ea	2									
29	16" x 6" Hot Tap Tee w/ Gate valve	Ea	1									
30	8" PVC Waterline w/ Class "B" Backfill	Lf	660									
31	8" Flg x Mj Adapter	Ea	2									
32	8" Transition Coupling	Ea	1									
33	8" Gate Valve	Ea	1									
34	8" x 6" Reducer	Ea	1									
35	8" 90-Degree Elbow	Ea	1									
36	8" End Cap/ Plug	Ea	1									
37	12" PVC Waterline w/ Class "A" Backfill	Lf	480									
38	12" PVC Waterline w/ Class "B" Backfill	Lf	1500									
39	14" HDPE - HDD Placement	Lf	790									
40	Concrete Anchor Wall	Ea	4									
41	14" HDPE Wall Anchor	Ea	4									
42	14" x 12" HDPE Concentric Reducer	Ea	4									
43	12" HDPE Flange	Ea	4									
44	12" Gate Valve	Ea	9									
45	12" Hot Tapping Tee w/ Gate Valve	Ea	1									
46	12" Tee	Ea	4									
47	12" x 6" Tee	Ea	5									
48	12" Transition Coupling	Ea	3									
49	12" 90-Degree Elbow	Ea	3									
50	12" 45-Degree Elbow	Ea	2									
51	12" x 8" Reducer	Ea	4									
52	12" Flg x Mj Adapter	Ea	2									
53	12" Blind Flange	Ea	2									
54	New Fire Hydrant Assembly	Ea	9									
55	Existing Fire Hydrant Assembly Reconnect w/ New Gate Valve	Ea	2									
56	Bollards	Ea	6									
<b>Miscellaneous Items</b>												
57	New Cedar Wood Fence	Lf	420									
58	Chain Link Fence Removal and Replacement	Lf	275									
59	Gate (Chain Link Fence)	Ea	1									
60	18" HDPE ADS Culvert	Lf	20									
61	Relocated Sign(s)	Ea	8									
62	Ac Pavement - Trench Patch	Ton	130									
63	Ac Pavement - Overlay	Ton	180									
64	Ac Pavement - Grind Out	Sf	3850									
65	12" Wide White Thermoplastic Stop Bar/ Crosswalk	Lf	60									
66	Gravel Surfacing (2 inch Min.)	Sy	110									
67	Compaction Testing	Ls	1									
68	Landscape Restoration and Cleanup	Ls	1									
<b>Totals</b>												

Sample

# Stored Material Summary

# Contractor's Application

For (contract):	Application Number:
-----------------	---------------------

Application Period:	Application Date:
---------------------	-------------------

A	B	C	D		E		F		G
Invoice No.	Shop Drawing Transmittal No.	Materials Description	Stored Previously		Stored this Month		Incorporated in Work		Materials Remaining in Storage (\$) (D + E - F)
			Date (Mo./Year)	Amount (\$)	Amount (\$)	Subtotal	Date (Mo./Year)	Amount (\$)	
		<b>Totals</b>							



# Certificate of Substantial Completion

Project: South Beach/Hwy. 101 Water & Sewer Improvements

Owner: City of Newport

Owner's Contract No.:

Contract: Construction of Project

Engineer's Project No.: 2302-006

**This [tentative] [definitive] Certificate of Substantial Completion applies to:**

All Work under the Contract Documents:       The following specified portions of the Work:

---

---

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---

\_\_\_\_\_  
Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Project or portion thereof designated above is hereby declared and is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below.

A [tentative] [definitive] list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

**The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance and warranties shall be as provided in the Contract Documents except as amended as follows:**

Amended Responsibilities                       Not Amended

Owner's Amended Responsibilities:

---

---

---

Contractor's Amended Responsibilities:

---

---

---

---

The following documents are attached to and made part of this Certificate:

---

---

---

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.

\_\_\_\_\_  
Executed by Engineer

\_\_\_\_\_  
Date

\_\_\_\_\_  
Accepted by Contractor

\_\_\_\_\_  
Date

\_\_\_\_\_  
Accepted by Owner

\_\_\_\_\_  
Date

SAMPLE

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

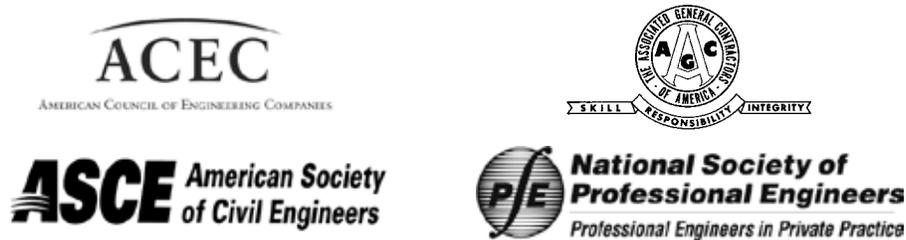
# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

**ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE**

and

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# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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## ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

### 1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
  2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
  3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
  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.
  5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
  6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
  7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
  8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
  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.
  10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
  11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.
  12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
  13. *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 11.03 in the case of Unit Price Work).
  14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *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.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *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.
24. *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.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *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.
27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *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 Waste and crude oils.
32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *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.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *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.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.
40. *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.
41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *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 Subcontractor.
48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.

50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
51. *Work Change Directive*—A written statement 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 subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered 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.

## 1.02 *Terminology*

- A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:*
  1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the 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 is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.
- C. *Day:*
  1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:*
  1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
    - a. does not conform to the Contract Documents; or
    - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
    - c. 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 14.04 or 14.05).
- E. *Furnish, Install, Perform, Provide:*
  1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
  2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
  4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

## **ARTICLE 2 – PRELIMINARY MATTERS**

### *2.01 Delivery of Bonds and Evidence of Insurance*

- A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Insurance:* 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 Article 5.

### *2.02 Copies of Documents*

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

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

- A. 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 30 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.

### *2.04 Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

### *2.05 Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:
  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. a preliminary Schedule of Submittals; and
  3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, 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 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial Acceptance of Schedules*

- A. At least 10 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 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
  - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
  - 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
  - 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

**ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE**

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. 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 labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

- A. Standards, Specifications, Codes, Laws, and Regulations
  - 1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the 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.
  - 2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their

subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

### 3.03 *Reporting and Resolving Discrepancies*

#### A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* 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 (a) any applicable Law or Regulation, (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
3. 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 had actual knowledge thereof.

#### B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, 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:
  - a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or
  - b. the provisions of any 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).

### 3.04 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
  1. A Field Order;
  2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or
  3. Engineer's written interpretation or clarification.

### 3.05 *Reuse of Documents*

- A. Contractor and any Subcontractor or Supplier shall not:

1. 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 its consultants, including electronic media editions; or
  2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

### 3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

## **ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS**

### 4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current 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 or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

### 4.02 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
  2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the 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 or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
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
  2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
  3. any Contractor interpretation of or conclusion drawn from any “technical data” or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

- A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:
1. is of such a nature as to establish that any “technical data” on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
  2. is of such a nature as to require a change in the Contract Documents; or
  3. differs materially from that shown or indicated in the Contract Documents; or
  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 the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

- B. *Engineer’s Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, 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.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor’s cost of, or time required for, performance of the Work; subject, however, to the following:
  - a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
  - b. 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 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
  - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

- b. 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
  - c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or 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) sustained by Contractor on or in connection with any other project or anticipated project.

#### 4.04 *Underground Facilities*

A. *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, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

- 1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
- 2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
  - a. reviewing and checking all such information and data;
  - b. locating all Underground Facilities shown or indicated in the Contract Documents;
  - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
  - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

- 1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy 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 6.16.A), 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 or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- 2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy 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

on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

#### 4.05 *Reference Points*

- A. 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 property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument 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 or property monuments by professionally qualified personnel.

#### 4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the 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 or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
  - 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
  - 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
  - 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for any Hazardous Environmental Condition 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. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly 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 condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.
- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (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 on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

- F. If after receipt of such 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 the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment 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 Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors 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) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors 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) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

## **ARTICLE 5 – BONDS AND INSURANCE**

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

- A. 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 of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, 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 Contract Documents.
- B. 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 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 Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
- C. If the surety on any bond furnished by Contractor is declared 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 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

- A. 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 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.

5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee 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.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee 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.
- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:
  - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
  - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
  - 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
  - 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:
    - a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
    - b. by any other person for any other reason;
  - 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
  - 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.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
2. include at least 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;
3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 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 5.03 will so provide);
5. 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 13.07; and
6. include completed operations coverage:
  - a. Such insurance shall remain in effect for two years after final payment.
  - b. 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.

5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, 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.

5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance 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:
1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
  2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.

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);
  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;
  5. allow for partial utilization of the Work by Owner;
  6. include testing and startup; and
  7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown 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, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.
- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 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, Subcontractors, 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.
- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. 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.

#### 5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss 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 loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) 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.

- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:
  - 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 perils whether or not insured by Owner; and
  - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B 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 Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. 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.
- B. 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 15 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.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either 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 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. 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.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 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 canceled or permitted to lapse on account of any such partial use or occupancy.

## ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

### 6.01 *Supervision and Superintendence*

- A. 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. Contractor shall not be responsible for the negligence of Owner or Engineer 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.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

### 6.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. 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 stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner’s written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

### 6.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, 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 performance, testing, start-up, and completion of the Work.
- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required 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 source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

### 6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.
  - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
  - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

- A. 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, appearance, 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 submitted to Engineer for review under the circumstances described below.
1. *"Or-Equal" Items:* 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 approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:
    - a. in the exercise of reasonable judgment Engineer determines that:
      - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
      - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and
      - 3) it has a proven record of performance and availability of responsive service.
    - b. Contractor certifies that, if approved and incorporated into the Work:
      - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
      - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.
  2. *Substitute Items:*
    - a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
    - b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
    - c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
    - d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
      - 1) shall certify that the proposed substitute item will:
        - a) perform adequately the functions and achieve the results called for by the general design,
        - b) be similar in substance to that specified, and
        - c) be suited to the same use as that specified;

- 2) will state:
  - a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
  - b) whether use of the proposed substitute item 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 other work on the Project) to adapt the design to the proposed substitute item, and
  - c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
- 3) will identify:
  - a) all variations of the proposed substitute item from that specified, and
  - b) available engineering, sales, maintenance, repair, and replacement services; and
- 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by 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 requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

F. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

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

A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner'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 individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.
- C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:
  - 1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor
  - 2. shall 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 individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. 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.
- G. 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 a loss payee on the property insurance provided in Paragraph 5.06, 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, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss 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.

#### 6.07 *Patent Fees and Royalties*

- A. 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.

- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors 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) arising out of or relating to 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 specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors 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) arising out of or relating to 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.

6.08 *Permits*

- A. 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. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the 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.
- B. 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 (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) arising out of or relating to such Work. However, it shall not be Contractor's 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 3.03.
- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefore as provided in Paragraph 10.05.

6.10 *Taxes*

- A. 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.

6.11 *Use of Site and Other Areas*

- A. *Limitation on Use of Site and Other Areas:*
  - 1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas 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.

2. 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.
  3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors 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) arising out of or relating to 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.
- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading Structures:* 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.

#### 6.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show 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.

#### 6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
1. all persons on the Site or who may be affected by the Work;
  2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
  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.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property 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 other 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.

- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform 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 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 individual or entity directly or indirectly employed by any of them).
- F. 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 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

#### 6.14 *Safety Representative*

- A. 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.

#### 6.15 *Hazard Communication Programs*

- A. 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.

#### 6.16 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor 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 or are required as a result thereof. 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.

#### 6.17 *Shop Drawings and Samples*

- A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.
  - 1. *Shop Drawings:*
    - a. Submit number of copies specified in the General Requirements.
    - b. 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 services, materials, and

equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:*

- a. Submit number of Samples specified in the Specifications.
- b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, 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.

C. *Submittal Procedures:*

1. Before submitting each Shop Drawing or Sample, Contractor shall have:

- a. 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;
- b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
- c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
- d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. 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.

2. 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.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.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. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

1. 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.

6.18 *Continuing the Work*

- A. 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 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
  1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
  2. normal wear and tear under normal usage.
- C. 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:
  1. observations by Engineer;
  2. recommendation by Engineer or payment by Owner of any progress or final payment;
  3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
  4. use or occupancy of the Work or any part thereof by Owner;
  5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;
  6. any inspection, test, or approval by others; or
  7. any correction of defective Work by Owner.

6.20 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors 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) arising out of or relating to the performance of the Work, provided that 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 but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.

- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A 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 individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
  - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
  - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

#### 6.21 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

### **ARTICLE 7 – OTHER WORK AT THE SITE**

#### 7.01 *Related Work at Site*

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefore, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and
  2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefore as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' 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.
- C. 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 to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

#### 7.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
  2. the specific matters to be covered by such authority and responsibility will be itemized; and
  3. the extent of such authority and responsibilities will be provided.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

#### 7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

### **ARTICLE 8 – OWNER'S RESPONSIBILITIES**

#### 8.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

- 8.02 *Replacement of Engineer*
- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.
- 8.03 *Furnish Data*
- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.
- 8.04 *Pay When Due*
- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.
- 8.05 *Lands and Easements; Reports and Tests*
- A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.
- 8.06 *Insurance*
- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.
- 8.07 *Change Orders*
- A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.
- 8.08 *Inspections, Tests, and Approvals*
- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.
- 8.09 *Limitations on Owner's Responsibilities*
- A. 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 performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- 8.10 *Undisclosed Hazardous Environmental Condition*
- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.
- 8.11 *Evidence of Financial Arrangements*
- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.
- 8.12 *Compliance with Safety Program*
- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

## ARTICLE 9 – ENGINEER’S STATUS DURING CONSTRUCTION

### 9.01 *Owner’s Representative*

- A. 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.

### 9.02 *Visits to Site*

- A. 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, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site 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 observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer’s visits and observations are subject to all the limitations on Engineer’s authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer’s 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 performance of the Work.

### 9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. 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 individual or entity will be as provided in the Supplementary Conditions.

### 9.04 *Authorized Variations in Work*

- A. 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 Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

### 9.05 *Rejecting Defective Work*

- A. Engineer will have authority to 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 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. 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 (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, 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.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. 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 in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. 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 performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A 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.
- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

**ARTICLE 10 – CHANGES IN THE WORK; CLAIMS**

10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by 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).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

- A. 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, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
  - 1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
  - 2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
  - 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; 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 6.18.A.

10.04 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety 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), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

## 10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).
- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
1. deny the Claim in whole or in part;
  2. approve the Claim; or
  3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

## **ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK**

### 11.01 *Cost of the Work*

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. 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 not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:
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 on the Work. 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 outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

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.
3. Payments made by Contractor to Subcontractors for Work performed 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 acceptable. 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 this Paragraph 11.01.
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.
5. Supplemental costs including the following:
  - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
  - b. 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.
  - c. 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, assembly, dismantling, and removal thereof. All such costs shall be 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.
  - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
  - e. 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.
  - f. 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 of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages 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.
  - g. The cost of utilities, fuel, and sanitary facilities at the Site.
  - h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.

- i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety 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 branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
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.
4. 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.
5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.

C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

## 11.02 Allowances

A. 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 performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances:*

1. Contractor agrees that:
  - a. the cash 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
  - b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash 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.

C. *Contingency Allowance:*

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

- D. 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.

11.03 *Unit Price Work*

- A. 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 unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. 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 subject to the provisions of Paragraph 9.07.
- C. 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.
- D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:
  - 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
  - 2. there is no corresponding adjustment with respect to any other item of Work; and
  - 3. 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 PRICE; CHANGE OF CONTRACT TIMES**

12.01 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. 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:
  - 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 Paragraph 11.03); or
  - 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 12.01.C.2); or
  - 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 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).
- C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:
  - 1. a mutually acceptable fixed fee; or

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:
  - a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
  - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;
  - c. 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 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.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;
  - d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
  - e. 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
  - f. 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 12.01.C.2.a through 12.01.C.2.e, inclusive.

#### 12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

#### 12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times 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 12.02.A. 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.
- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.
- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or 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) sustained by Contractor on or in connection with any other project or anticipated project.

- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

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

### 13.01 *Notice of Defects*

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

### 13.02 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

### 13.03 *Tests and Inspections*

- A. 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.
- B. 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:
  - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
  - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
  - 3. as otherwise specifically provided in the Contract Documents.
- C. 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.
- D. Contractor shall 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 acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.
- E. 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, Contractor shall, if requested by Engineer, uncover such Work for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E 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.

13.04 *Uncovering Work*

- A. 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.
- B. 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.
- C. If it is found that the uncovered Work is defective, Contractor shall pay 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) arising out of or relating to 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. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefore as provided in Paragraph 10.05.
- D. If the uncovered 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 both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefore as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to 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, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay 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) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).
- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed 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, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
  - 1. repair such defective land or areas; or
  - 2. correct such defective Work; or

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
  4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. 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) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.
- C. 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.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, 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.
- E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

#### 13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay 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) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. 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, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefore as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

#### 13.09 *Owner May Correct Defective Work*

- A. 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 13.06.A, 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, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or 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.

- C. 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) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 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. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefore as provided in Paragraph 10.05. 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.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

## **ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION**

### **14.01 *Schedule of Values***

- A. The Schedule of Values established as provided in Paragraph 2.07.A 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.

### **14.02 *Progress Payments***

#### **A. *Applications for Payments:***

1. At least 20 days before the date established in the Agreement 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 or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

#### **B. *Review of Applications:***

1. Engineer will, within 10 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.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's 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:
  - a. the Work has progressed to the point indicated;
  - b. 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, the results of any subsequent

tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and

- c. 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.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
  - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or
  - b. 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.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
  - a. to supervise, direct, or control the Work, or
  - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
  - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
  - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
  - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. 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 stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:
  - a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
  - b. the Contract Price has been reduced by Change Orders;
  - c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
  - d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

*C. Payment Becomes Due:*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

*D. Reduction in Payment:*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

- a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
  - b. 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;
  - c. there are other items entitling Owner to a set-off against the amount recommended; or
  - d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.
  3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

#### 14.03 *Contractor's Warranty of Title*

- A. 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.

#### 14.04 *Substantial Completion*

- A. 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.
- B. Promptly after Contractor's notification, 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 therefore.
- C. If Engineer considers the Work substantially complete, Engineer will 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 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefore. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 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.
- D. 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, and protection of the Work, 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.
- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

#### 14.05 *Partial Utilization*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which 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, subject to the following conditions:
1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.
  2. 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.
  3. 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 therefore. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 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.
  4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

#### 14.06 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly 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.

#### 14.07 *Final Payment*

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
  - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
  - b. consent of the surety, if any, to final payment;
  - c. a list of all Claims against Owner that Contractor believes are unsettled; and
  - d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 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 might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, 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.

B. *Engineer's Review of Application and Acceptance:*

1. 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 for Payment 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 14.09. Otherwise, Engineer will return the Application for Payment 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 for Payment.

C. *Payment Becomes Due:*

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

- A. 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 (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, 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 5.01, 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.

14.09 *Waiver of Claims*

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

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 14.06, 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
2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

## ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

### 15.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive 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 granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefore as provided in Paragraph 10.05.

### 15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will justify termination for cause:
  1. Contractor's persistent failure 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 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
  2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
  3. Contractor's repeated disregard of the authority of Engineer; or
  4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
  1. 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);
  2. 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
  3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds 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) sustained by Owner arising out of or relating to 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. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. 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.
- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
  - 1. 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;
  - 2. 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;
  - 3. 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) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
  - 4. reasonable expenses directly attributable to termination.
- B. 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.

15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 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 Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

**ARTICLE 16 – DISPUTE RESOLUTION**

16.01 *Methods and Procedures*

- A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.
- B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or
2. agrees with the other party to submit the Claim to another dispute resolution process; or
3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

## **ARTICLE 17 – MISCELLANEOUS**

### **17.01 *Giving Notice***

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
1. 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
  2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

### **17.02 *Computation of Times***

- A. 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.

### **17.03 *Cumulative Remedies***

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto 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. 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.

### **17.04 *Survival of Obligations***

- A. 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 or termination or completion of the Contract or termination of the services of Contractor.

### **17.05 *Controlling Law***

- A. This Contract is to be governed by the law of the state in which the Project is located.

### **17.06 *Headings***

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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**SUPPLEMENTARY CONDITIONS**

Prepared by

**ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE**

and

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# SUPPLEMENTARY CONDITIONS

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## Supplementary Conditions

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC C-700 (2007 Edition). All provisions which are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

### *SC-1.01 Defined Terms*

#### SC-1.01.A. Add Agency Definition:

If project has involvement from funding agency, Agency approval of various contract items is required and the term Agency may appear in the Contract Documents. The following Agency is involved and the term Agency means: None

#### SC-1.01.A.44. Amend Paragraph 1.01.A.44 to read as follows:

Substantial Completion - The time at which 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 100% complete in accordance with the Contract Documents with the exception of minor and specific corrective items that would normally be itemized on a final punch list and completed before final acceptance; 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 14.07. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

### *SC-2.02 Copies of Documents*

#### SC-2.02.A. Amend Paragraph 2.02.A to read as follows:

Owner shall furnish to Contractor up to 5 printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction and shipping.

### *SC-4.02 Subsurface and Physical Conditions*

#### SC-4.02 Add the following new paragraphs immediately after Paragraph 4.02.B:

4.02.C. The following reports of explorations and tests of subsurface conditions at or contiguous to the Site are known to the Owner:

1. None

4.02.D. The following drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) are known to Owner.

1. None

4.02.E. The reports and drawings identified above are not part of the Contract Documents, but the "technical data" contained therein upon which Contractor may rely, as expressly identified and established above, are incorporated in the Contract Documents by reference. Contractor is not entitled to rely upon any other information and data known to or identified by Owner or Engineer.

*SC-4.04 Underground Facilities*

SC-4.04 Add the following new paragraph immediately after Paragraph 4.04.B:

- 4.04.C. Oregon law requires Contractor to follow rules adopted by the Oregon Utility Notification Center (OUNC). These rules are set forth in OAR 952-001-0010 through 952-001-0090. OUNC can be contacted at (800) 332-2344 and copies of the rules can be obtained from the center.

*SC-4.06 Hazardous Environmental Condition at Site*

SC-4.06 Delete Paragraphs 4.06.A and 4.06.B in their entirety and insert the following:

4.06.A. No reports or drawings of Hazardous Environmental Conditions are known to Owner or Engineer.

4.06.B. Not Used.

SC-4.06.C. Add the following new paragraph immediately after Paragraph 4.06.C:

- 4.06.C.1. Contractor shall be responsible for and to pay all costs associated with the abatement, removal, and disposal of any existing Asbestos-Cement pipe requiring removal or disturbed during the Work which is shown or indicated in Drawings or Specifications.

*SC-4.07 Historical or Archaeological Finds*

SC-4.07 Add the following new paragraph immediately after Paragraph 4.06.I:

- 4.07 Historical or Archaeological Finds – Where historical objects of archaeological or paleontological nature are encountered during the course of construction, including but not limited to ruins, sites, buildings, artifacts, and fossils, the Contractor shall suspend operations in the area, preserve all such objects from disturbance and shall notify the Engineer of the nature and location of such finds. The Engineer will arrange for the disposition of all finds and shall notify the Contractor when to proceed with construction in the affected area.

*SC-5.01 Performance, Payment and Other Bonds*

SC-5.01.B. Add the following new paragraph immediately after Paragraph 5.01.B:

- 5.01.B.1. The Bonds shall be accompanied by the name, address and phone number of the agent for the surety who is authorized to receive notice of claims against the Bond.

*SC-5.02 Licensed Sureties and Insurers*

SC-5.02.A. Add the following new paragraph immediately after Paragraph 5.02.A:

- 5.02.A.1. Bonds and insurance shall be written by companies licensed to do business in the State of Oregon and satisfactory to the Owner.

*SC-5.03 Certificates of Insurance*

SC-5.03 Add the following new paragraphs immediately after Paragraph 5.03.E:

- 5.03.F. By requiring such insurance and insurance limits herein, Owner does not represent that coverage and limits will necessarily be adequate to protect Contractor and such coverage and limits shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

*SC-5.04 Contractor's Liability Insurance*

SC-5.04.B.1 Add the following new paragraph immediately after Paragraph 5.04.B.1:

5.04.B.1.a. Other parties to be named as additional insured include the following:

- (1) Tenants (if applicable)
- (2) Subcontractors (if not separately insured)
- (3) City of Newport
- (4) Civil West Engineering Services

SC-5.04.C Add the following new paragraphs immediately after Paragraph 5.04.B:

5.04.C. The limits of liability for the insurance required by Paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

5.04.C.1. Workers' Compensation, and related coverages under paragraphs 5.04.A.1 and 5.04.A.2 of the General Conditions:

- |   |           |
|---|-----------|
| a. State                                    | Statutory |
| b. Applicable Federal (e.g. Longshoremen's) | Statutory |
| c. Employer's Liability                     | \$500,000 |

Contractor shall require all subcontractors to purchase and maintain Workman's Compensation Insurance, including Occupational Disease and Employer's Liability Insurance, in the amounts and coverage as required by all applicable Federal, State or other laws.

5.04.C.2. Contractor's General Liability under paragraphs 5.04.A.3 and A.6 of the General Conditions which shall include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody, and control of the Contractor:

- |  |             |
|--|-------------|
| a. General Aggregate   | \$2,000,000 |
| b. Products - Completed Operations Aggregate   | \$2,000,000 |
| c. Personal and Advertising Injury   | \$1,000,000 |
| d. Each Occurrence (Bodily Injury and Property Damage)   | \$1,000,000 |
| e. Excess or Umbrella Liability - Aggregate  | \$1,000,000 |
| - Each Occurrence  | \$1,000,000 |
| f. Property Damage liability insurance will provide Explosion, Collapse, and Underground coverages where applicable. |             |

5.04.C.3. Automobile Liability under paragraph 5.04.A.6 of the General Conditions:

- |                                    |             |
|------------------------------------|-------------|
| a. Bodily Injury (Each Person)     | \$500,000   |
| b. Bodily Injury (Each Accident)   | \$1,000,000 |
| c. Property Damage (Each Accident) | \$1,000,000 |

5.04.C.4. Contractual Liability required by paragraph 5.04.B.4 of the General Conditions shall provide coverage for not less than the following amounts.

- |                                       |             |
|---------------------------------------|-------------|
| a. Bodily Injury (Each Person)        | \$1,000,000 |
| b. Bodily Injury (Each Accident)      | \$1,000,000 |
| c. Property Damage (Each Accident)    | \$1,000,000 |
| d. Property Damage (Annual Aggregate) | \$1,000,000 |

5.04.C.5. All liability policies required by 5.04.C.2, 5.04.C.3, and 5.04.C.4 shall be primary and non-contributory with Owner and shall contain a waiver of subrogation in favor of Owner.

SC-6.03 *Services, Materials, and Equipment*

SC-6.03.B. Add the following new paragraph immediately after Paragraph 6.03.B:

6.03.B.1. Contractor agrees to prefer goods or services that have been manufactured or produced in the United States of America if price, fitness, availability or quality are otherwise equal.

*SC-6.05 Substitutes and "Or-Equals"*

SC-6.05.A.2. Add the following new paragraph immediately after Paragraph 6.05.A.2.d.4:

6.05.A.2.e. It shall be the responsibility of the Contractor to insure that the items to be furnished as substitution shall fit within the space and envelope of the originally specified item. The Contractor shall make necessary field measurements to ascertain space requirements, including those for connections, and shall order such sizes and shapes of equipment that the final installation shall suit the true intent and meaning of the Plans and Specifications. Where equipment requiring different arrangement of connections from those shown is approved, it shall be the responsibility of the Contractor to install the equipment to operate properly and in harmony with the intent of the Plans and Specifications and to make all changes in the work required by the different arrangement of connections.

*SC-6.06 Concerning Subcontractors, Suppliers, and Others*

SC-6.06.B. Add the following new paragraphs immediately after Paragraph 6.06.B:

6.06.B.1. Due to the specialized nature of the Project, the Contractor shall within 5 days after Bid opening, submit for the Owner's approval the identity of the Suppliers or other individuals or entities furnishing the following items:

a. Suppliers or Equipment as listed in Section 01300 of the Specifications.

6.06.B.2. Once a subcontractor and supplier list has been submitted and approved by the Owner (or Owner makes no objection thereto), Contractor shall not substitute any subcontractor or supplier without the written approval of Owner.

SC-6.06.G. Add the following new paragraphs immediately after Paragraph 6.06.G:

6.06.G.1. Contractor agrees to make all provisions of the contract with the Owner applicable to any Subcontractor performing work under the contract.

6.06.G.2. Contractor and all first tier Subcontractors and Suppliers must comply with prompt payment provisions pursuant to ORS 279C.515. Contractor shall include in each subcontract for property, materials or services (1) a payment clause which obligates the Contractor to pay such Subcontractor or Supplier within 30 days of receiving payment from the Owner, (2) an interest penalty clause which obligates the Contractor to pay the Subcontractor an interest penalty on delinquent payments, and (3) a clause which requires first tier Subcontractors or Suppliers to include similar payment and interest penalty clauses in lower tier subcontracts. These clauses and the rights and obligations described thereby, shall conform to the requirements of ORS 279C.515 and ORS 279C.580.

*SC-6.09 Laws and Regulations*

SC-6.09 Add the following new paragraphs immediately after Paragraph 6.09.C:

6.09.D. Payment of Prevailing Wage Rates for Public Works. The Contractor and all persons doing or contracting to do any of the work contemplated by the Contract shall comply with all Federal and State Laws in employment and payment of labor. Contractor shall comply with all provisions of said laws (and pay all related fees), not only in regard to the payment of prevailing wage rates, but also in the matter of the necessary certificates and affidavits required to accompany each request for payment. No payment, progress or otherwise, will be paid unless accompanied by the necessary certificates and affidavits pertaining to prevailing wages.

- 6.09.E. The minimum wages to be paid workers on this project shall not be less than the prevailing rate including fringe benefits in accordance with ORS 279C.800 to 279C.870, paid to the corresponding classes of workers in the locality where the public work is being provided. Prevailing rates shall be in accordance with the most current version – **published April 1, 2011** (or as it is modified by addendum) of the "Prevailing Wage Rates for Public Works Contracts in Oregon" as published by the Oregon Bureau of Labor and Industries (BOLI). Such publications can be obtained from the Bureau of Labor and Industries and the U.S. Department of Labor and a copy of the most current version is to be supplied to the Owner with the first pay request. Electronic version of the wage rate book may be obtained at [www.oregon.gov/boli](http://www.oregon.gov/boli). If a dispute arises as to what is the prevailing wage rate for any class of workers, and a dispute cannot be settled by the parties involved, it may be referred to the Commissioner of Labor, State of Oregon, for final determination.
- 6.09.E.1. The wage rates are minimum rates only and the Owner will not consider any claims for additional compensation because of payment made by the Contractor or a Subcontractor of any wage rate in excess of the prevailing rate.
- 6.09.E.2. If Owner determines at any time that the prevailing rate of wage has not or is not being paid as required herein, it may retain from moneys due to Contractor an amount sufficient to make up the difference between the wages actually paid and the prevailing rate of wages, and may also cancel the Contract. Liquidated damages for failure to pay the rate of wage required herein shall be an additional amount equal to the unpaid premium, over and above the liability of the Contractor, any Subcontractor, or surety to pay said unpaid minimum to any workers affected.
- 6.09.F. Under the provisions of Oregon Law, ORS 279C.845, the wage certification form on public works contracts must be provided: Once within fifteen (15) days of the date the Contractor or Subcontractor first began work on the project and once before the final inspection of the project by the public contracting agency: In addition, for projects exceeding ninety (90) days, submissions are to be made at 90-day intervals. Payroll information is to be filed with both the public contracting agency and the Wage and Hour Division, Bureau of Labor and Industries, 1400 S.W. 5th Avenue, Portland, Oregon 97201. This payroll information must be kept by the Contractor and/or Subcontractor for three (3) years.
- 6.09.G. Contractor shall strictly observe and obey all of the terms and provisions of ORS 279C pertaining specifically, but not exclusively, to the furnishings of Workers Compensation Insurance, payment of laborers and materialmen, the withholding of State and Federal income and other taxes, hours of labor, and all other regulations provided in said chapter, and shall hold Owner harmless on account thereof.
- 6.09.H. Contractor shall employ no person for more than eight hours in any one day, or 40 hours in any one week, except in cases of necessity, emergency or where the public policy absolutely requires it. In such cases, Contractor shall pay the laborer at least time and a half pay for all overtime in excess of eight hours a day and for work performed on any legal holiday specified in ORS 279C.520. When specifically agreed to in a written labor-management negotiated labor agreement, a laborer may be paid at least time and a half pay for work performed in any legal holiday specified in ORS 187.010 and 187.020 and not listed in ORS 279C.540(1). Contractor to comply with ORS 279C.540 to 279C.545 and ORS 653.268 to 653.269 regarding hours of labor and overtime.
- 6.09.I. Contractor shall comply with ORS 279C.530 and shall make payment promptly, as due, to any person, copartnership, association, or corporation furnishing medical, surgical, hospital, or other needed care of attention incident to sickness or injury to the employees of Contractor of all sums which the Contractor agreed to pay or collected or deducted from the wages of employees pursuant to any law, Contractor or agreement for the purpose of providing payment for such service.
- 6.09.J. The Contractor, or its Subcontractors, if any, and all employers working under this Contract are subject employers under Oregon Workers' Compensation Law and shall comply with ORS 656.017, which requires them to provide Workers' Compensation for all their subject workers as defined under ORS chapter 656 (ORS 279C.530(2)).

- 6.09.K. Contractor shall comply with all federal, state, and local laws and regulations dealing with the prevention of environmental pollution and the preservation of natural resources that affect the performance of the Contract. If new or amended statutes, ordinances, or regulations are adopted, or the Contractor encounters a condition not referred to in the bid document not caused by the Contractor and not discoverable by reasonable site inspection which requires compliance with federal, state, or local laws or regulations dealing with the prevention of environmental pollution or the preservation of natural resources, both the Owner and the Contractor shall have all the rights and obligations specified in ORS 279C.525 to handle the situation.
- 6.09.L. This Contractor and all Subcontractors shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, handicap, marital status, age or national origin. Such action shall include, but not be limited to: employment, upgrading, demotion or transfer, recruitment, advertising, layoff or termination, rates of pay or other forms of compensation and selection for training, including apprenticeship.
- 6.09.M. The Contractor shall post in conspicuous places available to employees and applicant for employment, notices setting forth the provisions of this nondiscrimination clause. Contractor's and Subcontractor's solicitations and advertisements for employees shall state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, handicap, marital status, age or national origin.
- 6.09.N. Contractor certifies that all subcontractors performing work described in ORS 701.005(2) (i.e. construction work) will be registered with the Construction Contractors Board or licensed by the State Landscape Contractors Board in accordance with ORS 701.035 to 701.055 before the subcontractors commence work under the Contract.
- 6.09.O. Before starting work, the contractor and every subcontractor employed under this contract is required to have a public works bond filed with the Construction Contractors Board, in accordance with ORS 279C.830 (3), unless the contractor or subcontractor is exempt under ORS 279C.836 (4), (7), (8), or (9).
- 6.09 P. Upon award of this contract, the Owner is required to pay a fee to the BOLI Prevailing Wage Rate Unit in accordance with ORS 279C.830 (2) and OAR 839-025-0200. The amount of the fee shall be one tenth of one percent (.001) of the contract price; however, the fee must be no less than \$250 or more than \$7,500 regardless of the contract price.

*SC-6.10 Taxes*

SC-6.10 Add the following new paragraphs immediately after Paragraph 6.10.A:

- 6.10.A.1. Contractor and any Subcontractor shall pay to the Department of Revenue all sums withheld from employees pursuant to ORS 316.167.
- 6.10.A.2. Contractor shall pay promptly all contributions or amounts to the State Industrial Accident Fund and the State Unemployment Compensation Fund from Contractor or any Subcontractor in connection with the performance of the contract.

*SC-6.17 Shop Drawings and Samples*

SC-6.17 Add the following new paragraphs immediately after Paragraph 6.17.E:

- 6.17.F. Contractor shall furnish required submittals with sufficient information and accuracy in order to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing subsequent submittals of Shop Drawings, samples, or other items requiring approval and Contractor shall reimburse Owner for Engineer's charges for such time.
- 6.17.G. In the event that Contractor requests a change of a previously approved item, Contractor shall reimburse Owner for Engineer's charges for its review time unless the need for such change is beyond the control of Contractor.

*SC-6.20 Indemnification*

SC-6.20 Add the following new paragraphs immediately after Paragraph 6.20.C.2:

- 6.20.D. Contractor shall not be required to indemnify any indemnity to the extent the claim, cost, loss or damage is caused by the indemnity's negligence.
- 6.20.E. The performance of this Contract is at Contractor's sole risk. The service or services to be rendered under this Contract are those of an independent Contractor who is not an officer or agent of the Owner as those terms are used in ORS 30.265.
- 6.20.F. The Contractor shall not permit any lien or claim to be filed or prosecuted against the Owner in connection with this Contract and agrees to assume full responsibility for their satisfaction should any lien or claim be filed.

*SC-7.02 Coordination*

SC-7.02 Delete Paragraph 7.02A in its entirety and replace with the following:

- 7.02.A. Owner does not intend to contract with others for the performance of the work on the Project at the Site. Other related work for the Project may occur at other sites when multiple schedules are awarded as indicated in the Bid Form and other Contract Documents. Contractor shall coordinate as required with other contractors doing work on nearby sites or adjacent sites.

*SC-7.04 Claims Between Contractors*

SC-7.04 On Projects involving multiple contractors, add the following new paragraph immediately after paragraph GC-7.03:

- 7.04.A. Should Contractor cause damage to the work or property of any other contractor at the Site, or should any claim arising out of Contractor's performance of the Work at the Site be made by any other contractor against Contractor, Owner, Engineer, or the construction coordinator, then Contractor (without involving Owner, Engineer, or construction coordinator) shall either (1) remedy the damage, (2) agree to compensate the other contractor for remedy of the damage, or (3) remedy the damage and attempt to settle with such other contractor by agreement, or otherwise resolve the dispute by arbitration or at law.
- 7.04.B. Contractor shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner, Engineer, the construction coordinator and the officers, directors, partners, employees, agents and other consultants and subcontractors of each and any of them from and against all claims, costs, losses and damages (including, but not limited to, fees and charges of engineers, architects, attorneys, and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any other contractor against Owner, Engineer, consultants, or the construction coordinator to the extent said claim is based on or arises out of Contractor's performance of the Work. Should another contractor cause damage to the Work or property of Contractor or should the performance of work by any other contractor at the Site give rise to any other Claim, Contractor shall not institute any action, legal or equitable, against Owner, Engineer, or the construction coordinator or permit any action against any of them to be maintained and continued in its name or for its benefit in any court or before any arbiter which seeks to impose liability on or to recover damages from Owner, Engineer, or the construction coordinator on account of any such damage or Claim.
- 7.04C. If Contractor is delayed at any time in performing or furnishing the Work by any act or neglect of another contractor, and Owner and Contractor are unable to agree as to the extent of any adjustment in Contract Times attributable thereto, Contractor may make a Claim for an extension of times in accordance with Article 12. An extension of the Contract Times shall be Contractor's exclusive remedy with respect to Owner, Engineer, and construction coordinator for any delay, disruption, interference, or hindrance caused

by any other contractor. This paragraph does not prevent recovery from Owner, Engineer, or construction coordinator for activities that are their respective responsibilities.

*SC-9.03 Project Representative*

SC-9.03.A. Amend Paragraph 9.03.A to read as follows:

Engineer will furnish a Resident Project Representative (RPR) to assist Engineer in providing more extensive observation of the Work. The RPR will be the Engineer's employee or agent at the Site, will act as directed by and under the supervision of the Engineer, and will confer with Engineer regarding the RPR's actions. The authority and responsibilities of the Resident Project Representative and any assistants will be as provided herein, with limitations on the responsibilities thereof as provided in Paragraph 9.09 of the General Conditions.

1. Conduct on-Site observations of Contractor's work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.
2. Serve as Engineer's liaison with Contractor to assist in providing information regarding the intent of the Contract Documents. Serve as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.
3. Report to Engineer whenever RPR believes that any part of Contractor's work in progress will not produce a completed Project that conforms generally to the Contract Documents or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.
4. Observe and report to Engineer appropriate details relative to test procedures.
5. Review Applications for Payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the schedule of values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.

SC-9.03.B. The RPR shall not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
3. Undertake any of the responsibilities of Contractor, Subcontractors, Suppliers, or Contractor's superintendent.
4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor's work unless such advice or directions are specifically required by the Contract Documents.
5. Advise on, issue directions regarding, or assume control over safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
7. Accept Shop Drawing or Sample submittals from anyone other than Contractor.

8. Authorize Owner to occupy the Project in whole or in part.

#### *SC-11.03 Unit Price Work*

SC-11.03 Delete Paragraph 11.03.D in its entirety and insert the following in its place:

- 11.03.D. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:
1. if the Bid price of a particular item of Unit Price Work amounts to 20 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
  2. if there is no corresponding adjustment with respect to any other item of Work; and
  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 10 if the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

#### *SC-12.03 Delays*

SC-12.03 Add the following new paragraph immediately after Paragraph 12.03.A:

- 12.03.A.1 Abnormal weather conditions are further defined as the occurrence of more than 1.5 inches of rain in a 24-hour period on a normal workday or 1.0 inch of snow in a 24-hour period on a normal workday.

#### *SC-13.03 Tests and Inspections*

SC-13.03.A. Add the following new paragraph immediately after Paragraph 13.03.A:

- 13.03.A.1. Timely notice for inspections, tests, or approvals shall mean not less than 24 hours prior to the time when inspection, test, or approval is required.

#### *SC-13.07 Correction Period*

SC-13.07.A. Amend the first sentence of Paragraph 13.07.A as follows:

Change the words "Substantial Completion" to "Final Acceptance."

#### *SC-14.02 Progress Payments*

SC-14.02.A.2. Add the following new paragraph immediately after Paragraph 14.02.A.2:

- 14.02.A.2.a. *Payments of Liens, Withholding Taxes, Contributions to Industrial Accident Fund, Labor, and Materials.* The Contractor shall make payment promptly as due to all persons supplying to the Contractor labor or materials for the prosecution of the work provided for herein, and shall pay all contributions or amounts due the State Industrial Accident Fund from the Contractor or subcontractors incurred in the performance of this Contract. The Contractor shall permit no lien or claim to be filed or prosecuted against the Owner on account of any labor or material furnished, and shall promptly pay any and all withholding taxes, whether state or federal, all social security charges and all contributions on amounts due to the State Unemployment Compensation Trust Fund, and promptly pay or cause to be withheld, as the case may be, any and all taxes, charges, or fees, or sums whatsoever which are now or may hereafter be required to be paid or withheld under any laws of the state and location where the work is to be performed. Contractor shall assume responsibility for

satisfaction of any liens or claims filed or prosecuted and shall defend, indemnify and hold Owner harmless against any such liens or claims.

14.02.A.2.b. *Payment of Claims by the Owner.* In the event the Contractor shall fail, neglect, or refuse to make prompt payment of any claim for labor or services furnished to the Contractor or Subcontractor by any person in connection with this contract as such claim becomes due, whether said services and labor be performed for the Contractor or a Subcontractor, then in such event, the proper officer or officers representing the Owner may pay such claim to the person furnishing the labor or services and charge the amount of the payment against funds due or to become due to the Contractor. The payment of a claim in the manner authorized herein shall not relieve the Contractor or his Surety from his or its obligation with respect to any unpaid claims. If the Owner is unable to determine the validity of any claim for labor or material furnished, the Owner may withhold from any current payment due Contractor an amount equal to said claim until its validity is determined, and the claim, if valid, is paid by the Contractor or the Owner. There shall be no final acceptance of the work under the Contract until all such claims have been resolved.

SC-14.02.C.1 Amend Paragraph 14.02.C.1 to read as follows:

14.02.C.1 After presentation of the Application for Payment to Owner by Engineer with Engineer's recommendation, the Application for Payment will be reviewed and processed by Owner and any involved funding agencies. The amount recommended and accepted by Owner and any involved agencies will, subject to the provisions of paragraphs 14.02.B.5 and 14.02.D, become due and payable by Owner to Contractor within 30 days of submission to the Owner by Engineer.

SC-14.02.C.2. Add the following new paragraph immediately after Paragraph 14.02.C.1:

14.02.C.2. The Owner and Contractor are bound by the rights and responsibilities of the prompt payment policies and shall comply with the procedures for prompt payment as stated in ORS 279C.515, 279C.570 and ORS 279C.580.

SC-14.02.D.1. Add the following new paragraphs immediately after Paragraph 14.02.D.1.d:

- e. Third party claims filed or evidence indicating probable filing of such claims.
- f. Failure of Contractor to make payments properly or promptly to subcontractors for material, labor, or equipment.
- g. Damage to Owner or others.

#### *SC-14.04 Substantial Completion*

SC-14.04.A. Add the following new paragraphs immediately after Paragraph 14.04.A:

14.04.A.1. Substantially complete is further defined and clarified as being 100% complete in accordance with the Contract Documents with the exception of minor and specific corrective items that will be itemized by the Engineer on a final punch list and completed before final acceptance. Final completion of the entire project shall be no later than the time indicated on the Certificate of Substantial Completion. If no date is indicated, then fifteen (15) calendar days from the date of substantial completion will be considered maximum. If final completion is not accomplished within the time indicated, liquidated damages if included in this Contract and as defined in the Agreement will be reinstated at that date and will continue until final completion or a time extension is granted.

14.04.A.2. Liquidated Damages. Should the Contractor fail to accomplish Substantial Completion or Final Acceptance in the time agreed upon in the Contract or within such extra time as may have been allowed for delays by extensions granted as provided in the Contract, the Contractor shall reimburse the Owner for the additional expense and damage for every day, that the Contract remains uncompleted after the date of completion given in the Contract. It is agreed that the amount of such

additional expense and damage incurred by reason of failure to complete the Work within the time agreed is the per diem rate stipulated in the Agreement as a minimum or actual expenses or damages if they exceed this agreed to minimum amount. The said amounts are hereby agreed upon as liquidated damages for the loss to the Owner and on account of the value of the operation of the works dependent thereon. It is expressly understood and agreed that this amount is not to be considered in the nature of a penalty, but as actual expense and damages experienced by the Owner for delay of completion beyond the agreed to Contract times. Owner is authorized to deduct the amount of such damages from any monies due the Contractor for work performed or material furnished under this Contract, and the Contractor and his sureties shall be liable for any excess. Liquidated damages include only cost and expenses incurred by the Owner for delay of completion beyond the agreed to Contract times. Liquidated damages do not include any other cost, expense or claim Owner may have against Contractor for any other reason.

*SC-14.07 Final Payment*

SC-14.07.A. Add the following new paragraph immediately after Paragraph 14.07.A.3:

14.07.A.4. Final payment will not be made to the Contractor until it files with the Owner a notarized affidavit containing the following statements:

- a. "I (we) hereby certify that all work has been performed and material supplied in accordance with the plans, specifications, and Contract Documents for the above work;
- b. No less than the prevailing rates of wages as ascertained by the governing body of the contracting agency has been paid to laborers and workers employed on this work (a signed State-approved Wage Certification Form certifying that Contractor has paid not less than the prevailing rate of wages as required by law);
- c. No subcontract was assigned or transferred or performed by any subcontractor other than the original subcontractor, without prior notice having been submitted to the Engineer together with the names of all subcontractors;
- d. All suppliers and subcontractors connected with the Work have been paid in full;
- e. All claims for material and labor and other services performed in connection with these specifications have been paid; and
- f. All monies due the State Industrial Accident Fund, the State Unemployment Compensation Trust Fund, the State Tax Commission, hospital associations and/or others have been paid."

SC-14.07.C.1. Add the following language at the end of Paragraph 14.07.C.1:

Final Payment shall include all amounts previously withheld as retainage.

*SC-16.01 Dispute Resolution - Methods and Procedures*

SC-16.07.D. Add the following new paragraph immediately after Paragraph 16.07.C:

16.07.D. If either party commences any legal action, suit or proceeding against the other to enforce the terms of this Contract or to interpret any provision of these Contract Documents, the prevailing party shall be entitled to recover from the non prevailing party reasonable attorneys fees and costs, as are fixed by the courts, incurred in any action, suit or proceeding and in any appeal therefrom.

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SAMPLE

# Change Order

No. \_\_\_\_\_

Date of Issuance: \_\_\_\_\_ Effective Date: \_\_\_\_\_

Project:	Owner:	Owner's Contract No.:
Contract:	Date of Contract:	
Contractor:	Engineer's Project No.:	

**The Contract Documents are modified as follows upon execution of this Change Order:**

Description:

**Attachments (list documents supporting change):**

**CHANGE IN CONTRACT PRICE:**

Original Contract Price:

\$ \_\_\_\_\_

[Increase] [Decrease] from previously approved Change Orders No. \_\_\_\_\_ to No. \_\_\_\_\_:

\$ \_\_\_\_\_

Contract Price prior to this Change Order:

\$ \_\_\_\_\_

[Increase] [Decrease] of this Change Order:

\$ \_\_\_\_\_

Contract Price incorporating this Change Order:

\$ \_\_\_\_\_

**CHANGE IN CONTRACT TIMES:**

Original Contract Times:  Working days  Calendar days

Substantial completion (days or date): \_\_\_\_\_

Ready for final payment (days or date): \_\_\_\_\_

[Increase] [Decrease] from previously approved Change Orders No. \_\_\_\_\_ to No. \_\_\_\_\_:

Substantial completion (days): \_\_\_\_\_

Ready for final payment (days): \_\_\_\_\_

Contract Times prior to this Change Order:

Substantial completion (days or date): \_\_\_\_\_

Ready for final payment (days or date): \_\_\_\_\_

[Increase] [Decrease] of this Change Order:

Substantial completion (days or date): \_\_\_\_\_

Ready for final payment (days or date): \_\_\_\_\_

Contract Times with all approved Change Orders:

Substantial completion (days or date): \_\_\_\_\_

Ready for final payment (days or date): \_\_\_\_\_

**RECOMMENDED:**

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

Engineer (Authorized Signature)

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

Approved by Funding Agency (if applicable):

\_\_\_\_\_

**ACCEPTED:**

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

Owner (Authorized Signature)

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

**ACCEPTED:**

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

Contractor (Authorized Signature)

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

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

# Change Order

## Instructions

### A. GENERAL INFORMATION

This document was developed to provide a uniform format for handling contract changes that affect Contract Price or Contract Times. Changes that have been initiated by a Work Change Directive must be incorporated into a subsequent Change Order if they affect Price or Times.

Changes that affect Contract Price or Contract Times should be promptly covered by a Change Order. The practice of accumulating Change Orders to reduce the administrative burden may lead to unnecessary disputes.

If Milestones have been listed in the Agreement, any effect of a Change Order thereon should be addressed.

For supplemental instructions and minor changes not involving a change in the Contract Price or Contract Times, a Field Order should be used.

### B. COMPLETING THE CHANGE ORDER FORM

Engineer normally initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by Contractor, or requests from Owner, or both.

Once Engineer has completed and signed the form, all copies should be sent to Owner or Contractor for approval, depending on whether the Change Order is a true order to the Contractor or the formalization of a negotiated agreement for a previously performed change. After approval by one contracting party, all copies should be sent to the other party for approval. Engineer should make distribution of executed copies after approval by both parties.

If a change only applies to price or to times, cross out the part of the tabulation that does not apply.



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SAMPLE



# City of Newport

Lincoln County, Oregon

## Technical Specifications

FOR THE CONSTRUCTION OF

# South Beach/Hwy 101 Water & Sewer Improvements

July, 2012

Project No. 2302-006

**Civil West**

Engineering Services, Inc.



Prepared By:

**Civil West Engineering Services, Inc.**

486 E Street • Coos Bay, Oregon 97420 • Ph. 541.266.8601, Fax 541.266.8681 [www.civilwest.com](http://www.civilwest.com)

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## **SECTION 01010 – SUMMARY OF THE WORK**

### **PART 1 GENERAL**

#### 1.01 WORK SUMMARY

- A. The Contractor shall furnish all labor, equipment, and materials necessary to complete all work in accordance with the Contract Documents.
- B. The work shall be performed within and along Highway 101 in Newport, Lincoln County, Oregon. The area is south of the Yaquina Bay Bridge in the area known as South Beach.
- C. A brief description of the summary of the work is described below:

**Water System Improvements:** Furnish and install approximately 3400 lineal feet of new treated water distribution piping consisting of approximately 2250 lineal feet of 12-inch and 660 lineal feet of 8-inch C900 PVC piping by open trench placement along with a bore/ jack placement of a carrier pipe for a single Hwy Crossing and approximately 500 lineal feet of 14-inch HDPE water distribution piping being placed using horizontal directional drilling (HDD) methodology and all associated connections and appurtenances such as fire hydrants, services and connections as required for complete installation.

**Sewer System Improvements:** Furnish and install approximately 1900 lineal feet of new 8-inch and 10-inch PVC SDR 35 sanitary sewer pipe by open trench placement along with associated manholes, service laterals and cleanouts and all associated connections and appurtenances and required for a complete installation.

- D. Complete installation of piping shall include, but not be limited to: excavation, dewatering systems, traffic control, all connections to existing piping, complete testing and disinfection of new waterlines, reconnection and relocation of existing water services and sewer services, pressure and leakage testing, and landscape restoration.
- E. Other activities required for the construction of the new waterlines shall also include, but not limited to, potholing and locating the existing waterline, landscaping, plug and abandonment of those portions of the existing waterline designated to be abandoned in place.
- F. Work shall not begin until Engineer has issued the Notice to Proceed to the Contractor.

#### 1.02 WORK PROGRESS

- A. It is the intent of these Contract Documents that the Work proceed in a systematic manner so that a minimum of inconvenience to the public results in the progression of the work. Suitable equipment will be required to properly execute the work with the least amount of disruption to services and access through the work area. Contractor shall contain operations to within the designated public properties, rights-of-way and within any construction easements obtained for this project.
- B. Order and schedule delivery of materials in ample time to avoid delays in construction. If any item is found to be unavailable, notify the Engineer immediately to permit the Engineer's selection of suitable substitute. Timely delivery of all materials and equipment is Contractor's responsibility. No extensions in Contract Time will be allowed due to delays caused by late delivery of items. Availability of items should be determined during bidding.

- C. The Contractor shall protect the work and materials from damage due to the nature of the work, the elements, carelessness of others, or from any other cause until the completion and final acceptance of the work. All loss or damage arising out of the nature of the work to be done under these Contract Documents, or from any unseen obstruction or defects which may be encountered in the execution of the work, or from the action of the elements, shall be sustained by the Contractor.
- D. The Contractor shall remove completely all materials designated for removal, to the extent specified and/or indicated in the drawings. For such materials, removal, hauling, disposal (including providing disposal location), and applicable precautions are entirely the Contractor's responsibility. Allow no excess accumulation of non-reusable material at job site(s).
- E. Contractor is responsible for the protection of all existing improvements that are to remain in place. This includes, but is not necessarily limited to: existing utilities, roads, driveways, drainage ditches, culverts, fencing, shrubbery, and all landscaping structures and vegetation. Temporary enclosures, walls, covers, or other protection shall be provided and maintained by the Contractor as required. Contractor shall cooperate with the owners of such improvements, and shall restore and/or replace all damaged items as directed, without any additional expense to the Owner or payments to the Contractor.
1. The location and depth shown on the drawings for the existing waterlines are approximate only and are based on Record Drawings, valve locations and other information.
  2. Contractor shall pothole and locate the existing waterlines prior to placement of new waterlines. Minor field adjustments to the proposed waterline routes may be required. Existing waterlines shall remain in service and shall be protected in place until completion of new waterlines. Contractor shall provide temporary service connections as required to maintain continued service to all customers until completion of new waterlines.
  3. After the completion of the waterline and all testing and connections has been made, designated existing waterlines or portions thereof shall be abandoned in place. Contractor shall remove all temporary connections, valve covers, appurtenances and provide end caps or plugs as required for waterline abandonment. Existing valves may remain in place at the discretion of the Contractor.
- F. Water service shall not be interrupted for more than 8 hours to any customer. Contractor shall schedule and plan work as required to ensure this. Coordinate with Owner and give minimum 24-hour written notification prior to all shutdowns. To maintain the Owner's water supply to its users, the Contractor shall phase the construction work for the new watermains, a Guideline for use as construction phasing is as follows;
1. Pothole and confirm location of the existing waterline at tie in location.
  2. Construct new Waterline, taking care to avoid existing waterline. Location of existing waterlines is not specifically known and may be in close proximity or conflict with the placement of the new waterlines. Provide temporary waterline and service to residences along the proposed waterline routes if required for the placement of the new waterlines.
  3. Install service lines and services from the new waterline to the side of existing meter to be connected to. Install angle meter stop at end of each service line.

4. New waterlines and services shall be flushed, tested and chlorinated. After the new waterlines and services have been successfully tested, including bacteriological testing and results as required by the State Drinking Water Program. Chlorinated water shall be disposed of and dechlorinated in accordance with Oregon DEQ requirements.
  5. Connection of new service lines to existing meters shall be completed.
  6. Abandon existing waterlines or portions thereof that are designated for abandonment, provide end caps, plugs as required.
  7. Complete surface restoration and replacement.
- G. To facilitate the Contractor's cleaning and pressure testing of the new waterlines, existing water from the Owner's distribution system can be used for these purposes. The contractor shall provide all required temporary connections to existing fire hydrants, waterlines and other approved locations for this work.
- H. Work must be conducted in a manner which provides residences continued access to driveways to the greatest extent practical. Contractor shall coordinate with residents and notify them in advance of driveway access closure.

## **SECTION 01025 – MEASUREMENT AND PAYMENT**

### ***PART 1      GENERAL***

#### **1.01    GENERAL**

- A. Wherever in these Specifications an article, device or piece of equipment is referred to in the singular, such reference shall include as many such items as are shown on the Drawings or are required to complete the installation.
- B. Miscellaneous items required in the project that do not have a corresponding Section in the Bid Form are to be considered incidental costs to the project. Compensation for such items and/or work shall be incorporated into other related bid items or total costs. No separate measurement and payment will occur for such incidental costs.
- C. Monthly progress payments and final payment will be made in accordance with the Contract, the General Conditions, and the Supplementary General Conditions. A portion of all progress payments will be withheld as "retainage" in accordance with the General and Supplementary General Conditions.
- D. Additional detail on measurement and payment may be found in other Sections detailing specific items.

#### **1.02    UNIT PRICES**

- A. Payment will be made on a unit price basis according to the prices provided by the Contractor in the accepted Bid Form. Payment will be made for the actual quantity of individual items (units) incorporated and installed in the project.

#### **1.03    LUMP SUMS**

- A. Payments on lump sum bid items will be made based on the percentage of work complete at the end of the particular payment period.

- B. Percentage of work complete will be recorded and submitted by the Contractor and estimated by the Engineer based on inspection. Payment will be based on the Contractor's approved schedule of values.

#### 1.04 PROGRESS PAYMENTS

- A. Monthly progress payments will be made as set forth in the Agreement, in accordance with the General Conditions and Supplementary General Conditions.
- B. At the stated day of the month, submit a monthly payment request in accordance with the General Conditions and Supplementary General Conditions. Base request on actual quantities installed and completed, and/or approved schedule of values with percent complete of each item. Show payment requested for each item, and total payment requested.
- C. Engineer will review payment requests and compare with inspection records to verify quantities and completed items. Engineer will recommend payment amounts for Owner approval and payment.

### **SECTION 01028 – CHANGE ORDER PROCEDURE**

#### **PART 1 GENERAL**

##### 1.01 SUMMARY

- A. Make such changes in the Work, in the Contract Sum, in the Contract Time of Completion, or any combination thereof, as described by Change Orders signed by the Owner, Engineer, and the Contractor.
- B. See also applicable sections of the General Conditions and applicable portions of the Supplementary General Conditions.

##### 1.02 PROCESSING CHANGE ORDERS

- A. Change Orders will be numbered in sequence and dated. The Change Order will describe the changes and will be signed by the Owner, Engineer and the Contractor. Request for estimates for possible changes are not to be considered Change Orders or direction to proceed with the proposed changes.
- B. Change Orders will be prepared by the Engineer.
- C. Contractor may request that the Owner consider a Change Order by sending a written Change Order Request to both Owner and Engineer.

### **SECTION 01040 – COORDINATION**

#### **PART 1 GENERAL**

##### 1.01 SUMMARY

- A. Restrict work to within public rights-of-way and easements obtained for this project.

- B. The Contractor shall coordinate his work with the following:
  - 1. City of Newport
  - 2. Oregon Department of Transportation, Northwest Division
  - 3. Lincoln County Public Works / Road Department
  - 4. Sprint United Telephone & Charter Communications or other affected communications
  - 5. Central Lincoln People's Utility District
  - 6. Other affected utilities and agencies
  - 7. Private Property Owners and general public
- C. Coordinate with Owner for site access and any required water service shut-downs. Notify Owner at least 2 days in advance of when shutdowns of water service are needed. Contractor shall not operate system valves without Owner approval
- D. Permit and maintain access for the Owner and/or residents to any adjacent facilities that are not part of work included within the project.
- E. Coordinate with Owner to determine the locations of underground piping, vaults, valves and other items that could be damaged during construction.
- F. Do not allow water service to be interrupted for more than 8 hours. The Contractor shall make every reasonable effort to minimize any inconvenience to the public.
- G. Restoration and cleanup work shall be completed with each phase of the construction project. Parking lots and properties shall be maintained and kept clean and clear of excess excavation, debris, dirt and other materials.
- H. Requirements of the Oregon Department of Transportation (ODOT)
  - 1. ODOT has issued a permit to the Owner for work to be completed within the ODOT Right-of-Ways.
  - 2. The Contractor shall comply with all requirements of the permit and shall notify ODOT 48-hours before commencing any work covered by the permit.
  - 3. For a copy of the permit see Volume 1, Section 00890 of the Contract Documents.

## **SECTION 01046 – PROTECTION OF EXISTING IMPROVEMENTS**

### ***PART 1 GENERAL***

#### **1.01 GENERAL**

- A. Where Contractor's operations are near utility systems, structures, or are adjacent to other property, no work shall be started until Contractor has made all arrangements necessary for protection thereof have been made. Contractor shall exercise all possible precautions to prevent damage to existing structures, improvements, and underground utilities which are to remain.

- B. Approximate locations of known underground utilities are shown on the Plans. Exact location or extent of such utilities is not guaranteed, and utilities may exist which are not shown on the Plans. Contractor shall call for utility locates prior to any digging. Contractor shall also pothole as required ahead of the work to verify the location and depths of affected utilities. No additional compensation will be given for such work or for utilities being different than shown on the plans.
  - 1. All trench excavations and structure excavations within two (2) feet of any existing underground utility shall be performed by hand methods in accordance with state laws.
- C. The Contractor shall be solely and directly responsible to the owner's and operator's of such properties and services for any damage, injury, expense, loss, inconvenience, delay, suits, actions, or claims of any character brought because of any injuries or damage which may result from the carrying out of the work to be done under this Contract.
- D. Restoration of Existing Improvements. Except as shown on the Plans or as provided elsewhere in these specifications, the Contractor shall, at their own expense, repair and/or replace all utilities, services, landscaping, structures, substructures and other improvements damaged by the operations associated with this project, as directed. These repairs and replacements shall all be suitable and proper for intended use and in every respect acceptable to the Owner, Engineer and appropriate governing body or owner of such improvement. At minimum, restoration will be required to match the existing adjacent structure/improvement in thickness, finish, quality, quantity, and aesthetics.
- E. In the event of interruption of domestic water, electric, telephone, sewer, or other utility services, the Contractor shall promptly notify the proper authority and the Owner. The Contractor shall cooperate with the proper authority in restoration of service as promptly as possible and shall bear all costs of repair.
- F. The Contractor shall pothole existing waterlines or other utilities ahead of his work so that potential conflicts can be minimized or that minor relocation of the new waterline routes can be made. Potholing is defined as exploratory excavation of existing waterlines or other utilities to verify their depth and location.

#### 1.02 INTERFERING STRUCTURES, IMPROVEMENTS AND LANDSCAPING

- A. It shall be entirely the responsibility of the Contractor to locate and protect all existing structures, landscaping, and other improvements in advance of the work. Neither the Owner, Engineer, nor any of their officers or agents shall be responsible to the Contractor for damages as a result of any structures or improvements being located differently than indicated in the drawings, nor which exist and are not indicated on the drawings.
- B. If interfering power poles, telephone poles, guy wires, or anchors are encountered, the Contractor shall notify the affected utility and the Engineer at least seven (7) days in advance of construction to permit arrangements for protection or relocation of the structure. However, failure of utility to respond shall create no obligation on Owner, and Contractor shall protect all utilities against damage, or shall stand all costs involved thereof.
- C. Landscaping, Tree and Plant Protection. Provide adequate protection of existing landscaping against damage from construction operations, including all structures and vegetation. Protect roots, trunk and foliage of existing and new shrubs and trees from all

damage including that possible from compaction and dust. Contractor shall be entirely responsible to remove and replace all property which is damaged by work related to the project. Contractor shall bear all costs associated with replacement of existing landscaping, and shall cooperate with the owner of such improvements, the Owner, and the Engineer in all protection and restoration/replacement that is required. In specific circumstances, Contractor may make special arrangements with property owners for removal of landscaping without replacement. Copies of written agreements for all such arrangements shall be furnished to the Engineer.

- D. When construction operations will affect the property of a private citizen (such as driveways, landscaping, etc.), even when such improvements are in the road right-of-way, the Contractor shall notify the owner of such property and the Owner, at least seven (7) days in advance of any affecting Work, so that any desired preparations can be made.

### 1.03 ROADS AND ACCESS

- A. All work shall be conducted to minimize damage to existing roadways, easements and parking lots, including limiting wheel loads to acceptable levels. At all times keep roadways, shoulders, and ditches free from excess materials and debris.
- B. Spillage of soil, dust, rock, mud, etc. on all roads used by the Contractor (and any working for Contractor) during construction, shall be prevented as much as possible. If spillage cannot be prevented, an hourly patrol shall be provided by the Contractor to police and sweep clean all spillage. At the conclusion of each workday, such traveled areas shall be left completely clean and free from all extraneous materials. Contractor is entirely responsible to prevent such spills and follow all related laws and regulations. If spillage of hazardous material occurs, Contractor shall immediately notify the proper authorities and remove the spill in the proper manner. Owner will not be liable for any additional costs due to spillage of any kind.
- C. All damaged gravel, concrete and/or asphaltic concrete surfaces shall be repaired as required to conditions acceptable to the governing body and Engineer. No cledated or crawl-type equipment shall be operated on paved surfaces, except to cross a road when adequate protection of the surface is provided.
- D. During construction the Contractor shall take necessary measures to avoid and abate excessive dust. Sprinkling of roadways and sites may be necessary and shall be conducted carefully to avoid over wetting while keeping dust to a minimum.
- E. Contractor is responsible for constructing, maintaining, and removing any additional access that Contractor deems necessary for the Work. Contractor must notify Owner and Engineer, and must obtain written consent from the governing body, prior to construction of additional access not shown on the drawings. All applicable regulations shall be followed in such access construction, including obtaining any required permits.

## **SECTION 01050 – FIELD ENGINEERING**

### **PART 1 GENERAL**

#### 1.01 SUMMARY

- A. Construction stakeout – The Engineer will provide assistance to the Contractor for the following:
  - 1. Offset stakes for horizontal alignment of the proposed waterline.

- a. Approximate start and end point locations for the new waterline.
  - b. 100 foot intervals for the new waterline.
  - c. Tees and other appurtenances.
2. Offset stakes for horizontal alignment of the proposed sewer line.
    - a. Approximate start and end point (clean out) locations for the new sewer line.
    - b. 100 foot intervals along the new sewer line.
  3. Offset measurements for locating center of each new manhole.
    - a. Offset locations for locating center of new manhole locations.
    - b. Placement of temporary bench mark (TBM) with established elevation.
- B. The Contractor shall be solely responsible for laying out the work from this stakeout control and no additional stakeout will be provided except at the expense of the Contractor.
- C. It shall be the responsibility of the Contractor to maintain and preserve the construction stakeout as provided. The Contractor will not be allowed time extensions or damages caused by the loss of control stakes. If control is lost and/or disturbed and in the judgment of the Engineer requires replacement, such replacement will be at the expense of the Contractor.
- D. It is expected that minor revisions of the stakeout along the water route may be required during the course of construction. These revisions and relocations shall be made only as directed by the Engineer. The Contractor shall not be entitled to any additional compensation for minor revisions or relocations.

## **SECTION 01060 – REGULATORY REQUIREMENTS**

### ***PART 1 GENERAL***

#### **1.01 SUMMARY**

- A. The Contractor shall at all times observe and comply with all federal and state laws and lawful regulations issued and local laws, ordinances and regulations which in any manner affect the activities of the Contractor under this contract and further shall observe and comply with all orders or decrees as exist as present and those which may be enacted later by bodies or tribunals having any jurisdiction or authority over such activities of the Contractor.
- B. The contractor shall be responsible and liable for all accidents, damage or injury to any person or property resulting from any activity, duty and obligation of the Contractor under this Contract for which the Contractor may be legally liable. The contractor shall hold blameless and harmless and shall indemnify the Owner and its officers, employees and against the any and all claims, demands, loss injury, damage, actions and cost of actions whatsoever which they or any may sustain by reason of any act, omission or neglect of the Contractor or employees, agents, representatives or assignees of the Contractor in

connection with the activities, duties and obligations of the Contractor under this Contract.

- C. All water system materials and construction undertaken on this project shall meet the requirements of the Oregon State Department of Human Services, Drinking Water Program, as outlined in OAR 333-061.

## **SECTION 01100 – REFERENCE STANDARDS**

### ***PART 1 GENERAL***

#### **1.01 GENERAL**

- A. Abbreviations and Acronyms. Whenever the following abbreviations are used in these specifications or in the drawings, the following definitions apply. Unless otherwise designated, all reference to the following standards, specifications and methods shall imply the latest adopted revision in effect at the time of bid opening. Such standard, except as modified herein, shall have full force and effect as though printed in the specifications.

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Association
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute
APWA	American Public Works Association
ASCE	American Society of Civil Engineers
ASTM	ASTM International, formerly known as the American Society for Testing Materials
AWWA	American Water Works Association
EPA	United States Environmental Protection Agency
DEQ	Department of Environmental Quality (both Federal and State)
DWP	Oregon Dept. of Human Services, Drinking Water Program
FM	Factory Mutual
NEC	National Electric Code
NEMA	National Electric Manufacturers Association
NFPA	National Fire Protection Association
NSF	National Sanitation Foundation
OAR	Oregon Administrative Rules
ODOT	Oregon Department of Transportation
ORS	Oregon Revised Statutes
OSHA	Occupational Safety and Health Act (both Federal and State)
OSS	Oregon Standard Specifications – ODOT/APWA
UL	Underwriters' Laboratories
USDA	United States Department of Agriculture
SSPC	Steel Structures Painting Council or, The Society for Protective Coatings

- B. The abbreviation of "N.I.C." if shown on the plans or specifications represents work that is "Not in Contract". This work is to be completed at a later date by Owner or others and for which the Contractor will not be responsible for.

## **SECTION 01300 - SUBMITTALS**

### **PART 1 GENERAL**

#### 1.01 GENERAL

- A. This section outlines in general the items the Contractor must prepare or assemble during the progress of the work, including technical submittals, O&M data, record drawings, and substitution requests. Submittals are required for each piece of equipment or material even when the item being proposed for use is the same as specified.

#### 1.02 RELATED SECTIONS

- A. General Conditions – Article 6.05, Substitutes and “Or-Equals”
- B. Supplementary Conditions – SC-6.05
- C. General Conditions – Article 6.17, Shop Drawings and Samples
- D. Supplementary Conditions – SC-6.17
- E. Section 01310 – Construction Progress Schedules
- F. Section 01700 – Closeout Submittals
- G. Section 01740 – Warranties
- H. Section 01780 – Record Drawings
- I. Various sections requiring submittals for equipment and materials

#### 1.03 TECHNICAL PRE-BID SUBMITTALS

- A. Some of the major equipment items may require approval prior to bid, even when a specific manufacturer and model is specified and contractor plans to use the specified item. For items requiring pre-bid submittals, a complete submittal package must be received by the Engineer no later than 14 days prior to bid opening. Only items that have been approved in writing by the Engineer will be used in the project, and substitution requests for these items will not be considered. Engineer will either approve or reject such items at least 5 days prior to bid date. Items in the specifications that require pre-bid submittals are noted as such and listed below for convenience:

1. N/A

#### 1.04 SUBSTITUTION REQUESTS

- A. Where the specifications state “or-equal”, “or approved equal”, or similar statement, the Engineer alone will determine if the proposed substitute item is allowed.
- B. Requests for substitution for items specified by manufacturer or manufacturer's model number as specified throughout the Contract Documents shall be in writing and be accompanied with sufficient information to allow the Engineer to identify the nature and scope of the request. Information to be provided shall include.
  1. Reason the substitution request is being made.
  2. All submittal information required for the specified item or equipment, including all deviations from the specified requirements necessitated by the proposed substitution.
  3. Reproducible contract drawings, marked up to illustrate the alterations to all structural, architectural, mechanical and electrical systems required to accommodate the proposed substitution.

4. If the substitution requires any mechanical, electrical or structural changes, the Contractor will be responsible for costs in evaluating a requested substitution. The cost for such an evaluation will be determined on a case-by-case basis, after receipt of written request. The Engineer will notify the Contractor in writing of said cost. If the Contractor wishes to proceed, he shall advise the Engineer in writing and submit additional information as may be requested. Final approval of a substitution must be made by both the Engineer and Owner.
5. No additional costs of any kind will be incurred by the Owner or Engineer by approval or rejection of any substitution request.

## 1.05 SUBMITTALS

### A. Technical submittals

1. Technical submittals covered by these specifications include manufacturer's information, shop drawings, test procedures, test results, samples, request for substitutions and miscellaneous work related submittals. Submittals shall also include, but not be limited to, all mechanical, electrical and electronic equipment and systems, materials, reinforcing steel, fabricated items, piping and conduit details, and lead time required for delivery to job site.
2. Contractor's Responsibilities
  - a. The Contractor shall furnish all drawings, specifications, descriptive data, certifications, dimensional drawings, samples, tests, methods, schedules and manufacturers installation and other instructions as required by the contract documents, or the Engineer, to demonstrate fully that the materials and equipment to be furnished and the methods of work comply with the provisions and intent of the contract documents.
  - b. The Contractor shall be responsible for the accuracy and completeness of the information contained in each submittal and shall assure that the material, equipment or method of work shall be as described in the submittal. The Contractor shall verify that all features of all products conform to the specified requirements.
  - c. The Contractor shall ensure that there is no conflict with other submittals and notify the Engineer in each case where his submittal may affect the work as shown on the Plans.
  - d. The Contractor shall coordinate submittals among his subcontractors and suppliers.
  - e. Submittals shall coordinate with the work so that work will not be delayed. Coordinate and schedule different categories of submittals, so that one will not be delayed for lack of coordination with another. No extension of time will be allowed because of failure to properly schedule submittals.
  - f. The Contractor shall not proceed with work related to a submittal until the submittal process is complete.
  - g. The Contractor shall certify on each submittal document that he has reviewed the submittal, verified final conditions and complied with the contract documents. The Contractor may authorize in writing a material or

equipment supplier to deal directly with the Engineer. This interaction shall be limited to contract interpretations to clarify and expedite the work.

- h. Charges will be documented and the Contractor will be charged for review of multiple non-conforming submittals for any one (1) item in excess of two (2) times.

#### 1.06 RECORD DRAWINGS

- A. During the course of construction, Contractor shall maintain a marked-up set of the project drawings. See Section 01780.

#### 1.07 OPERATION AND MAINTENANCE (O&M) MANUALS

- A. Contractor shall collect O&M data from all equipment and material suppliers for all items provided in the project. See Section 01730.

#### 1.08 ENGINEER'S REVIEW

- A. Review shall not extend to means, methods techniques, sequences or procedures of construction, or to verify quantities, dimensions, weights or gages, or to fabrication processes, except when specifically indicated or required by the contract documents, or to safety precautions or programs.
- B. The Contractor shall submit four (4) copies of all submittal material to Engineer. Two (2) copies will be returned upon final approval. If the submittal is rejected all four (4) copies will be returned.
- C. Unless otherwise specified, within 14 calendar days after receipt of submittal, the Engineer will return the marked-up copies. The Contractor shall take appropriate action if the submittal needs to be resubmitted. If specified submittal material is to be used for O&M data, all corrections shall be made and new clean copies shall be submitted with the O&M data.
- D. Review of contract documents, method of work or information regarding materials or equipment the Contractor proposes to provide, shall not relieve the Contractor of his responsibilities for errors therein and shall not be regarded as an assumption of risks or liability by the Engineer or Owner. The Contractor shall have no claim under the Contract on account of failure or partial failure of the method of work, material or equipment so reviewed.

### **SECTION 01310 – CONSTRUCTION PROGRESS SCHEDULES**

#### ***PART 1 GENERAL***

#### 1.01 SUMMARY

- A. Provide a progress schedule indicating the times for starting and completing the various stages of work, including any Milestones.
- B. As work progresses, Contractor shall prepare and submit updated progress schedules as necessary.

- C. Schedule duration of each activity shall be based on the work being performed during the normal 40-hour work week with allowances made for legal holidays and normal weather conditions.
- D. Updates – Schedule shall be updated at least once per month as required to maintain accuracy.

## 1.02 SUBMITTALS

- A. Within 10 days after the date of the Agreement (Contract), submit a proposed progress schedule to the Owner and Engineer for approval.
- B. Interim Schedule
  1. Contractor shall submit within 10 days after award of Contract, but before any scheduled pre-construction conference, an Interim Schedule setting forth all activities for the first two (2) months of construction.
  2. Review comments by the Engineer concerning the Interim Schedule shall be considered in developing the Overall Schedule.
  3. The Contractor shall submit three (3) copies of the Interim Schedule.
- C. Overall Schedule
  1. For Contract Periods exceeding 60 days, the General Contractor shall prepare and submit, within 30 days after the award of Contract, an Overall Schedule composed of all construction operations in connection with the Contract.
  2. Overall Schedule, if it is sufficiently developed to equal or exceed the Interim Schedule requirements, may be submitted in lieu of a separately prepared Interim Schedule. In any event, the Interim Schedule shall form the basis for the Overall Schedule and will be considered an integral part of the Overall Schedule.
  3. Contractor shall submit three (3) copies to the Engineer for his review. Within seven (7) days after receipt of the submittal, the Engineer shall review the submitted schedule and return one copy of the marked-up original to the Contractor. If the Engineer finds that the submitted schedule does not comply with specified requirements, the corrective revisions will be noted on the submittal copy returned to the Contractor for corrections and resubmitted.
- D. Schedule Content
  4. Schedules shall indicate the sequence of work and the time of starting and completion of each activity. Activities shall include, but not be limited to, the following items as they pertain to the Contract:
    - a. Each subcontractor's items of work
    - b. Temporary provisions for continued service
    - c. Installation of specific major items
    - d. Submittals from Contractor to Engineer for review and return to the Contractor. Material and equipment order, manufacture and delivery

- e. Dates for performance of all testing procedures
- f. Dates for tie-ins to existing systems
- g. Final cleanup and Start-Up
- h. Allowance for inclement weather

1.03 PROGRESS OF THE WORK

- A. The Contractor shall execute work with such progress as necessary to prevent delay to the overall completion of the project and with such forces, materials and equipment to assure completion in the time established by the Contract.
- B. The Contractor may find it necessary to work overtime, double shifts, weekends and/or holidays if such a schedule is required to complete the project within the time allowed.

**SECTION 01400 – QUALITY CONTROL**

**PART 1 GENERAL**

1.01 GENERAL

- A. Work shall conform to these specifications and the standards of quality contained herein.
- B. Only new items of recent manufacturer and quality specified, free from defects, will be permitted on the Work, unless items are specifically noted as existing to be reutilized. Remove rejected items immediately from the Work and replace with items of quality specified. Failure to remove rejected materials and equipment shall not relieve the Contractor from responsibility for quality and character of items used, nor from any other obligation imposed by the Contract.
- C. No work defective in construction or quality, or deficient in any requirement of the drawings and specifications will be acceptable in consequence of the Owner's or the Engineer's failure to discover or to point out defects or deficiencies during construction; nor will the presence of Resident Project Representatives on the work relieve the Contractor from responsibility for securing the quality and progress of work as required by the Contract. Defective work revealed within the time required by guarantees shall be replaced by the Contractor by work conforming to the intent of the Contract. No payment, whether partial or final, shall be construed as an acceptance of defective work or improper materials.

**SECTION 01500 – TEMPORARY FACILITIES AND CONTROLS**

**PART 1 GENERAL**

1.01 GENERAL

- A. This section includes mobilization, temporary utilities, temporary construction, safety requirements, temporary environmental controls, and other temporary controls.
- B. Submittals
  - 1. Traffic control plan (see Section 01570).

2. Staging area plan and notification of any obstructions encountered during mobilization.
  3. Plans for disposal of waste materials and excavated material not required for fill, including permits as required.
- C. Permits. Contractor shall secure and pay for all permits and fees required pertaining to temporary facilities and all other work.
- D. Mobilization shall include de-mobilization and consist of preparatory work and operations, including but not limited to, those necessary for the movement of personnel, equipment, supplies and incidentals to and from the project site; for the establishment of offices, buildings and other facilities necessary for work on the project; for premiums on bond and insurance for the project, and for other work and operations which the Contractor must perform or costs he must incur before beginning work on the project and after completion of the project.
- E. Access of Government Officials. Authorized representatives of the Federal, State and Local Governments shall at all times have safe access to the Work, whenever in preparation or in progress, and Contractor shall provide proper facilities for such access and inspections.

## **PART 2      PRODUCTS**

### 2.01    MATERIALS

- A. Contractor shall provide all materials necessary for all work under this Section.

## **PART 3      EXECUTION**

### 3.01    WORKMANSHIP

- A. During all construction operations, the Contractor shall construct and maintain such facilities as may be required to provide access by all property owners to their property. No person shall be cut off from access to their place of business or residence, unless the Contractor has made special arrangements with the affected persons and has notified Engineer and Owner. All temporary facilities shall be removed by the Contractor upon completion of the Work.
- B. Temporary Utilities
1. Electric Power and Telephone
    - a. Electrical power. Power requirements should be confirmed by the Contractor for any special power needs. Arrangements for power shall be the responsibility of the Contractor.
    - b. Phone service shall be the responsibility of the Contractor.
  2. Sanitary Facilities
    - a. The Contractor shall provide chemical toilets of suitable types and maintain them in a sanitary condition at all times, conforming to code requirements and acceptable to the health authorities. They shall be of watertight construction so that no contamination of the area can result from their use.

Arrangements shall be made for frequent emptying of the toilets. Upon completion of the work, toilets shall be removed and the area restored to its original condition.

- b. Portable toilet facilities shall be located only at locations approved by the Owner.

3. Water

- a. Water is available for normal filling, flushing and testing operations through Owner approved connections to the existing system.

- C. Safety Requirements

1. Proper traffic control shall be provided in accordance with Section 01570.

2. Access for Police, Fire, and School Bus Service

- a. Notify the fire department, police department and, when applicable, the School District before closing any street or portion thereof, and no closing shall be made without the Engineer's approval. Notify said departments when the streets are again passable for emergency vehicles. Do not block off emergency vehicle access to any area, such as consecutive arterial crossings or dead-end streets, in excess of 300 linear feet, unless the Contractor obtains special written permission from the chief of the fire department. Conduct operations so as to cause the least interference with any fire station access and at no time prevent such access.
- b. The Contractor shall furnish a list of emergency telephone numbers to both the Engineer and the Owner so that contact may be made easily at all times in cases of emergencies.

3. Fire Prevention. Contractor shall perform all work in a fire-safe manner. Contractor shall supply and maintain on site all fire-fighting equipment, supplies, and capable personnel for extinguishing incipient fires as required by all Federal, State and local laws and regulations. Each piece of internal combustion engine-driven equipment shall be equipped with a fire extinguisher in accordance with the appropriate recommendation of the National Fire Protection Association (NFPA). All engines shall be equipped with functional spark arrestors and sound suppression devices.

- D. Temporary Environmental Controls

1. The Contractor shall maintain affected areas from his construction free from environmental pollution that would be in violation of federal, state or local regulations.

2. Air Pollution Control

- a. Minimize air pollution likely to occur from construction operations by wetting down bare soils to control dust and requiring proper combustion emission control devices on construction vehicles.
- b. Give unpaved streets, roads, and detours or haul roads in the construction area a dust preventative treatment or periodically water to prevent dust. Strictly adhere to applicable environmental regulations for dust prevention.

3. Water Pollution Control and Erosion Control

- a. Discharge from dewatering, or flushing operations shall not directly impact existing water courses.
- b. Turbidity shall not exceed 10 percent above natural stream turbidities as a result of the project. The turbidity standard may be exceeded for a limited duration, provided all practicable erosion control measures have been implemented, including, but not limited to:
  - i. Use of filter bags, sediment fences, silt curtains, leave strips or berms, placing mulch and hay bale silt fences, or other measures sufficient to prevent offsite movement of soil.
  - ii. Use of an impervious material to cover stockpiles when unattended or during a rain event.
  - iii. Graveled construction accesses to prevent movement of material offsite via construction vehicles.
  - iv. Sediment traps or catch basins to settle out solids prior to water entering ditches or waterways.
  - v. Spreading mulch on exposed embankments greater than 3 feet in height.
  - vi. Place hay bale silt fence at any locations where soil erosion potential is evident and as directed by the Engineer.
  - vii. Constructing sediment basins where surface runoff is causing soil erosion or as directed by the Engineer.
- c. Erosion control measures shall be maintained as necessary to ensure their continued effectiveness.
- d. Petroleum products, chemicals, or other deleterious materials shall not be allowed to enter the water.

**PART 4      SPECIAL PROVISIONS**

**4.01      MEASUREMENT AND PAYMENT**

- A. Mobilization, Bonding, and Insurance - Payment for this item shall be on a lump sum basis at the amount stated on the Bid Form and shall include all activities related to mobilization and demobilization on the project, preparatory work, insurance and bonding costs, project closeout, building permits (as required) and other agency fees and other facilities and equipment necessary for work on the project. Mobilization shall be divided into separate costs for Waterline Improvements and Roadway Improvements as stated on the bid form for Owners book-keeping purposes.
- B. Construction Facilities and Temporary Controls - Payment for work in this item shall be on a lump sum basis at the amount stated on the Bid Form and shall include all temporary construction facilities, traffic control, project offices, miscellaneous equipment, costs related to scheduling, coordination, submittals, and all other Division 1 activities within the scope of work not designated with individual payment items shall be included within this item. Construction Facilities and Temporary Controls shall be divided into

separate costs for Waterline Improvements and Roadway Improvements as stated on the bid form for Owners book-keeping purposes.

## **SECTION 01570 – TRAFFIC REGULATION**

### ***PART 1 GENERAL***

#### **1.01 GENERAL**

- A. This section includes traffic control related safety requirements as may be required for the project.
- B. Contractor shall comply with all rules and regulations of County, State, City, and Federal authorities regarding the closing, detouring, and loading of all public streets or highways.
- C. No road (public or private) shall be closed or detoured by the Contractor to the public, except by express written permission of the Owner and entity governing such roadways. Traffic must be kept open on all roads and streets where no detour is possible. The Contractor shall, at all times, conduct the work so as to assure the least possible obstruction to traffic and normal commercial pursuits. The convenience of the general public and residents, safety, and the protection of property is of prime importance and shall be provided for by the Contractor in an adequate and satisfactory manner.
- D. Submittals
  - 1. If road closures, lane closures, or detours are required, Contractor shall prepare, and submit for approval a Traffic Control Plan to the appropriate governing body of such road.

### ***PART 2 PRODUCTS***

#### **2.01 MATERIALS**

- A. Contractor shall furnish all flaggers, barricades, lead cars, warning signs, lights, signals, etc. as required to comply with regulations and provide safety.
- B. All signs, lights, flags and other warning and safety devices shall meet the current ODOT safety manual affecting the location of construction, or to applicable City/County standards.
- C. Barricades shall conform to the Standard Specifications for Highway Construction of the State Highway Department affecting the location of construction, or to City or County Standards where applicable.

### ***PART 3 EXECUTION***

#### **3.01 WORKMANSHIP**

- A. Contractor shall, at their own expense, and without further or other order, provide, erect and maintain at all times during the progress or temporary suspension of the work, suitable barricades, fences, signs or other adequate warnings or protection and shall provide, keep and maintain such danger lights, signals, and flaggers as may be necessary or as may be ordered by the Engineer to insure the safety of the public as well as those engaged in connection with the work.

- B. Failure of the Engineer to notify the Contractor to maintain barricades, barriers, lights, flares, danger signals, or watchmen, shall not relieve the Contractor from this responsibility. All barricades and obstructions shall be protected at night by signal lights which shall be suitably distributed and kept burning from sunset to sunrise. Barricades shall be of substantial construction and shall be suitably painted to increase their visibility at night.
- C. Whenever the Contractor's operations create a hazardous condition, Contractor shall furnish flagmen and guards as necessary, or as directed, to give adequate warning to the public of any dangerous conditions to be encountered. Contractor shall furnish, erect, and maintain approved fences, barricades, lights, signs, and any other devices that may be necessary to prevent accidents and to avoid damage and injury to the public. Flaggers and guards, while on duty and assigned to give warning to the public, shall be equipped with approved red wearing apparel and a red flag which shall be kept clean and in good repair.
- D. Contractor shall provide access to private properties at all times, except during urgent stages of construction when it is impractical to carry on the construction and maintain traffic simultaneously. Coordinate all construction activities with the affected property owners.
- E. Contractor shall patrol the traffic-control area and reset all disturbed signs and traffic-control devices immediately, and will remove or cover all non-applicable signs during periods not needed.
- F. At the end of each day, the Contractor shall leave work in such condition that it can be traveled without damage to the work and without danger to the public.
- G. If, in the opinion of the Engineer or other governing traffic authority, traffic control is lacking or otherwise unsafe or deficient, the Engineer may require that all work be halted until the traffic control measures can be improved to an acceptable level.

#### **PART 4 SPECIAL PROVISIONS**

##### **4.01 MEASUREMENT AND PAYMENT**

- A. Payment for this item shall be included within the lump sum price for Construction Facilities and Temporary Controls, unless a line item lump sum bid is shown in the Bid Form specifically for this item. It shall include all activities related to traffic and safety control on the project, preparatory work for work on the project.

#### **SECTION 01610 – STORAGE AND PROTECTION**

##### **PART 1 GENERAL**

##### **1.01 SUMMARY**

- A. Protect products scheduled for use in the Work by means as described in this Section and as recommended by the manufacturer.

##### **1.02 MANUFACTURER'S RECOMMENDATIONS**

- A. Except as otherwise approved by the Owner, determine and comply with manufacturers' instructions on product handling, storage and protection.

### 1.03 PACKAGING

- A. Deliver products to the job site in their manufacturer's original container, with the labels intact and legible.
- B. Maintain packaged materials with seals unbroken and labels intact until time of use. Allow Resident Project Inspector to observe original packaging before removal.
- C. Promptly remove damaged material and unsuitable items from the job site, and promptly replace with material meeting the specified requirements at no additional cost to the Owner.
- D. The Owner may reject as non-complying such material and products that do not bear identification satisfactory to the Owner as to the manufacturer, grade, quality and other pertinent information.

### 1.04 STORAGE

- A. Store materials in coordination with the Owner to provide suitable site access and clearance.
- B. Do not store unnecessary materials that will not be incorporated into the work.
- C. Obtain written approval from Owner for any proposed site to be used to store materials.

### 1.05 PROTECTION

- A. Protect stored materials from moisture and temperature, and unauthorized handling.
- B. Provide protection for finished surfaces.
- C. Maintain finished surfaces clean, unmarred and suitably protected until accepted by the Owner.
- D. Provide proper protection for all workers.

### 1.06 REPAIRS AND REPLACEMENTS

- A. In event of damage, promptly make replacements and repairs to the approval of the Owner and at no additional cost to the Owner.
- B. Additional time required to secure replacements and to make repairs will not be considered by the Owner to justify an extension of the Contract Time of Completion.
- C. Repair all scratches and damage to painted surfaces promptly with proper color and material.
- D. Backfill or other soil materials to be incorporated into the Work which have become too wet due to improper storage and protection shall be properly dried or replaced prior to incorporation into the Work.

## **SECTION 01700 – CONTRACT CLOSEOUT**

### ***PART 1 GENERAL***

#### 1.01 WORK INCLUDED

- A. Section includes procedures and requirements for finalizing and closing out the Project(s).
- B. Final clean-ups and restorations shall be done prior to requesting final inspections.

### ***PART 2 PRODUCTS – NOT USED***

### ***PART 3 WORKMANSHIP***

#### 3.01 RESTORATION AND CLEAN-UP

- A. Upon completion of any portion of the work, promptly remove temporary facilities generated by that portion of the work, including surplus materials, equipment and machinery unless directed otherwise by the Engineer or the Owner. All construction work by the Contractor shall be clean and free of rubbish, dirt, overspray, and extraneous materials to the satisfaction of the Engineer before acceptance of the work.
- B. Street/Road Cleanup. All roadways affected during construction shall be cleaned and restored. All ditches and culverts shall be cleaned and re-graded for proper drainage. Culverts broken or damaged by construction activities shall be restored to their original condition and location. Immediately following construction, remove all dirt, mud, rock, gravel, and other foreign material at the completion of the day or as otherwise required by the Engineer.
- C. Site Restoration and Cleanup. Restore or replace any ground covering (e.g., bark chips, cinders, gravel, river rock, etc.) to the original condition or better. Replace topsoiled areas, rake and grade to conform to their original contours. Replace any damaged landscaping or plantings to prior conditions in manner acceptable to Owner. Reseed grass areas as approved. Seed and protect any disturbed slopes.

#### 3.02 CERTIFICATIONS

- A. Contractor shall provide certifications in accordance with Supplementary Conditions SC-14.07 prior to final payment.
- B. See Section 01740 for Warranty requirements.

### ***PART 4 SPECIAL PROVISIONS***

#### 4.01 MEASUREMENT AND PAYMENT

- A. This item shall be considered incidental and no separate measurement and payment will occur.

## **SECTION 01730 - OPERATION AND MAINTENANCE MANUALS**

### ***PART 1 GENERAL***

#### **1.01 GENERAL**

- A. This section outlines in general the format and content of O&M Manuals required on the project.
- B. Contractor shall collect O&M data from all equipment and material suppliers for all items provided in the project. Data shall be specific to the actual equipment used with specific model numbers and options highlighted. General cut-sheets that do not clearly indicate the specific parts and options provided on this job will not be accepted.

#### **1.02 RELATED SECTIONS**

- A. Section 01300 – Submittals
- B. Section 01700 – Contract Closeout
- C. Various sections requiring operation and maintenance data

#### **1.03 SUBMITTALS**

- A. The Contractor shall submit two (2) copies of the complete manuals to Engineer prior to substantial completion. The manuals will be reviewed by the Engineer. If complete and acceptable without corrections, Engineer will notify the Contractor in writing and one (1) additional set will be sent to the Engineer by the Contractor.
- B. If changes, corrections, or additional information is required, the Engineer will notify the Contractor and may either return one (1) copy, return portions marked-up, or request additional data. Contractor will then resubmit two (2) copies of the corrected manuals. Contractor shall keep copies for their records. This process will continue until Engineer has two complete approved sets.
- C. When the manuals are complete and approved by the Engineer, the Contractor will then provide one (1) additional complete set so that Engineer can retain one set and two sets can be delivered to the Owner.
- D. Final payment will not be issued until all approved O&M manuals are received.

### ***PART 2 PRODUCTS***

#### **2.01 FORMAT**

- A. Data shall be prepared in the form of an instructional manual providing clear information on operational procedures, periodic maintenance requirements, repair procedures, and troubleshooting procedures.
- B. Binders shall be commercial quality, 8-1/2 x 11 inch three-ring binders with hardback plastic covers. Maximum binder ring size is 2 inches and multiple volumes will be used as required. Covers shall have a clear outer shell to allow insertion of cover sheet.
- C. Each binder shall be identified with a cover that is typed with the title "OPERATION AND MAINTENANCE INSTRUCTIONS", the title of the project, the name of the Owner, and the date of project completion.

- D. Each binder shall include a table of contents and tabbed dividers either color coded or with printed labels. Labels shall be permanently affixed. Manual contents shall be arranged by systems and process flow under section numbers and sequence of table of contents.
- E. Text shall be manufacturer's printed data or typewritten data on 20 pound bond paper. Drawings shall be provided with reinforced punched binder tab, bound with text, and folded as necessary to the size of text pages.

## 2.02 CONTENT

- A. The first sheet inside the cover shall provide the title of project; names, addresses and telephone numbers of the Engineer; names, addresses and telephone numbers of the general contractor with the names of responsible parties.
- B. For each product or system, provide the names, addresses, and telephone numbers of subcontractors and suppliers, including local sources of supplies and replacement parts.
- C. Product Data: Section sheet shall clearly identify specific products, component parts, and data applicable to the installation.
- D. Drawings shall supplement product data to illustrate relations of component parts of equipment and systems to show control and flow diagrams.
- E. Materials and Finishes
  - 1. Building products, applied materials, and finishes shall include product data with catalog number, size, composition, and color and texture designations.
  - 2. Instruction for care and maintenance shall include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and schedule for cleaning and maintenance.
- F. Equipment and Systems
  - 1. For each item of equipment and each system, a description of the unit or system component parts, identification of function, normal operating characteristics, and limiting conditions; and performance curves, engineering data and tests, and complete nomenclature and commercial number for replaceable parts.
  - 2. Electrical service characteristics, controls, and communications for panelboard circuits. Color coded wiring diagrams as installed.
  - 3. Operating procedures. Start-up, break-in, and routine normal operating instructions; regulation, control, stopping, shut-down, and emergency instructions; and any special operating instructions.
  - 4. Maintenance Requirements. Routine procedures and guide for troubleshooting, disassembly, repair, and reassembly instructions; and alignment, adjusting, and checking instructions.
    - a. Servicing and lubrication schedules and list of lubricants required.
    - b. Manufacturer's printed O&M instructions
    - c. Sequence of operation by controls manufacturer
    - d. Parts lists, illustrations, assembly drawings and diagrams
    - e. Control diagrams
    - f. Charts of valve tag numbers

- g. List of manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage
- h. Additional data requirements as specified in individual product sections.

**PART 4 SPECIAL PROVISIONS**

**4.01 MEASUREMENT AND PAYMENT**

- A. Payment for O&M Manuals will be considered an incidental cost. No separate measurement and payment will occur.

**SECTION 01740 – WARRANTIES**

**PART 1 GENERAL**

**1.01 INSTALLED MATERIALS WARRANTIES**

- A. Installed Materials Warranties. Prior to 75% completion and payment for work under this Contract, the Contractor shall furnish the Owner through the Engineer, all warranty and/or guarantee forms normally furnished by the manufacturer of equipment. Warranty form shall include the specific equipment installed, the duration of the warranty, details of the warranty, and the installer's name, address and phone number. Installation date will be filled in by the Owner and will coincide with date of substantial completion of the work under this contract. All such warranties shall name the Owner as the warranted party.
  - 1. Attention is directed to various other sections of the Contract Documents where specific material or installation warranties may be required for items specified.

**1.02 CONTRACTOR'S WARRANTY OF WORK**

- A. Contractor shall guarantee the Work for a period of one (1) year from the date of Final Acceptance. All materials and workmanship that prove defective within the one-year guarantee period shall be promptly replaced or corrected with no additional cost to the Owner.
- B. Contractor shall correct any work not in compliance with specifications and is responsible for all repairs of damage to other improvements, natural or artificial structures, systems, equipment and vegetation cause by, or resulting in whole or in part from occurrences beginning during the warranty period and are the result of defects in construction or materials installed under this Contract. Contractor shall be responsible for all costs associated with site cleanup and remediation caused by, or resulting in whole or in part from, defects in its work or materials.
- C. Within 10 calendar days of the Owner's written notice of defects, Contractor shall begin repair of the defects and all related damage. If Contractor or Contractor's Surety fails to correct and repair the defects in a timely manner, the Owner may have the correction and repair performed by others. Contractor or Contractor's Surety shall promptly reimburse the Owner for all expenses incurred to correct and repair the defects.
- D. In case of an emergency where delay could result in serious loss or damage, the Owner may make emergency corrections and repairs without written notice to Contractor. Contractor or Contractor's Surety shall promptly reimburse the Owner for all expenses incurred to correct and repair the defects.

- E. On Contractor's letterhead; provide written letter stating that Work has been completed in accordance with the Contract Documents and that a one year warranty of the work will be provided from the date of Final Acceptance. Written certification that Contractor will replace all materials and workmanship that prove defective within one-year after the date of Final Acceptance is required for project close-out and shall accompany application for Final Payment.
- F. One-Year Warranty Inspection. On the 11th month following final project completion and acceptance, Contractor shall be available to be present during the on-site warranty inspection by Owner. Any defects identified in materials or workmanship shall be corrected within 30 days by the Contractor at his own expense.

**PART 2 PRODUCTS – NOT USED**

**PART 3 EXECUTION – NOT USED**

**PART 4 SPECIAL PROVISIONS**

4.01 MEASUREMENT AND PAYMENT

- A. This item shall be considered incidental and no separate measurement and payment will occur.

**SECTION 01780 - PROJECT RECORD DRAWINGS**

**PART 1 – GENERAL**

1.01 SUMMARY

- A. This section outlines in general the Contractor requirements for preparing and maintaining and record drawings of the project.
- B. Contractor shall provide access to the Record Drawings to the Engineer and Owner throughout construction and shall finalize and submit complete record drawings upon completion of the work.
- C. Accurate Record Drawings or "As-Builts" are considered extremely important and it shall be entirely the Contractor's responsibility to maintain a complete and accurate record of all details of the project as he constructs and installs equipment and materials.
- D. Engineer or Owner may stop work if it is determined that Contractor is not properly recording details in record drawings and require correction and accurate documentation of all previous work before additional work proceeds.
- E. Engineer must accept and approve the drawings prior to recommending final payment.

1.02 RELATED SECTIONS

- A. General Conditions – Article 6.12, Record Documents

1.03 SUBMITTALS

- A. Submit two complete sets of initial marked-up Record Drawings immediately upon completion of construction work. Engineer will review for completeness and either approve or return one set with comments and corrections.

- B. If initial submittal required corrections, submit one complete set of corrected marked-up Record Drawings to Engineer with or before request for final payment.

## **PART 2 – PRODUCTS**

### 2.01 RECORD DRAWINGS

- A. Maintain one set of black-line prints of the Contract Drawings. Mark-up drawings using erasable red-colored pencil. Use additional colors as necessary to clearly document changes from original drawings for different categories of work at the same location.
- B. Use clear original or copy of project drawings for mark-up. Use shop drawings for markup when they are more capable of showing actual physical conditions completely and accurately.
- C. All deviations or differences from the original drawings, including dimensional, location, layout, material, and other details shall be noted clearly. Any additional information discovered during construction shall also be noted including location and depth of buried utilities and structures not shown in the original drawings.

### 2.02 FORMAT

- A. Organize Record Drawings into manageable sets using plans and shop drawings as applicable. Keep sets bound and protected.
- B. Keep on-site during construction and clearly identify as “Record Drawing” on cover.

## **PART 3 – EXECUTION**

### 3.01 RECORDING AND MAINTENANCE

- A. Record data as soon as possible after obtaining it. Do not wait until the end of the job or a portion of the job to record data.
- B. Give particular attention to information concealed that would be difficult to identify or measure and record later. Record and check the markup before enclosing concealed installations.
- C. Require the individual who installed or constructed the portion of the work, or otherwise obtained the record data, to prepare that portion of the marked-up record print.
- D. Incorporate changes and additional information previously marked on Record Drawings, erase, redraw, and add details and notations where applicable.
- E. Refer instances of uncertainty to Engineer for resolution.

## **END OF SECTION**

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<b><u>SECTION NO.</u></b>	<b><u>TITLE</u></b>
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<b>SECTION 02230</b>	<b>CLEARING &amp; GRUBBING</b>
<b>SECTION 02250</b>	<b>DEMOLITION &amp; SITE PREPARATION</b>
<b>SECTION 02315</b>	<b>TRENCH EXCAVATION, BEDDING &amp; BACKFILL</b>
<b>SECTION 02321</b>	<b>COMPACTION TESTING</b>
<b>SECTION 02446</b>	<b>HORIZONTAL DIRECTIONAL DRILLING</b>
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## **SECTION 02140 – EXCAVATION DEWATERING SYSTEMS**

### ***PART 1 GENERAL***

#### **1.01 WORK INCLUDED**

- A. This section covers furnishing, installation, operation, maintenance, and removal of dewatering wellpoint systems, as specified in this section; control of any seepage from the soils above the bottom of the excavation not intercepted by the system; and installing any additional wellpoints, and appurtenances, if necessary, to maintain the hydrostatic water level 2 feet beneath all excavations at all times.

#### **1.02 QUALITY CONTROL**

- A. Before dewatering commences, the Contractor shall obtain the acceptance of the Engineer for the method, installation, and details of the dewatering system, designed by a licensed professional engineer or licensed geologist. To that end, the Contractor shall submit to the Engineer plans, design calculations, drawings, and other documentation stamped by the responsible designer selected by the Contractor for the proposed dewatering system. The dewatering system plans shall be in sufficient detail to indicate sizes of wellpoints, pumps, piping, appurtenances, treatment, and the ultimate disposal point for water and to permit the Engineer to judge the overall completeness of the proposed system.
- B. Contractor shall be responsible of securing and payment for all permits and fees as required pertaining to the (NPDES) 1200-C permit.
- C. Fees and permits as may be associated with the Oregon Water Resource Department shall be the responsibility of the Owner. Upon approval of an Excavation Dewatering System the Contractor shall coordinate with the Owner and identifying wellpoints.

#### **1.03 AVAILABLE SOIL TEST DATA**

- A. No soil data is available for the project area. The Contractor shall perform additional testing as required, including soil sampling and test pumping, to insure a properly functioning dewatering system.

#### **1.04 SUBMITTALS**

- A. The Contractor shall submit for approval by the Engineer, complete information regarding motor generator, pumps, wellpoints, and any other equipment proposed to be utilized in dewatering, relieving hydrostatic pressure, and maintaining the excavation in a dewatered and hydrostatically relieved condition. The data to be submitted shall include, but not necessarily be limited to, the following:
  - 1. Characteristics of water and vacuum pumps and generator, and types and pertinent features of wellpoints including screen sizes.
  - 2. Plans for operating, maintaining, and monitoring the system.
  - 3. Documentation of drawdown tests or other data used to develop the dewatering system design.
  - 4. Design calculations proving adequacy of systems and selected equipment.

5. Drawings indicating the location and size of well points, berms, dikes, ditches, observation wells, vacuum and discharge lines. The drawings shall include, at a minimum, all groundwater control system elements specified herein.
  6. Documentation in support of filter grain size.
  7. Qualifications of the firm proposed to perform control of water for the project.
  8. Wellpoint and peizometer construction logs and abandonment reports.
- B. Review by the Engineer of the design, materials, method, installation, and operation and maintenance details submitted by the Contractor shall not in any way relieve the Contractor from responsibility for errors therein or from the entire responsibility for complete and adequate design, materials, installation, operation, maintenance and performance of the system in controlling the water level in the excavated areas and for control of the hydrostatic pressures to the depths herein specified. The Contractor shall bear sole responsibility for proper design, installation, operation, maintenance, and any failure of any component of the groundwater control system for the duration of this Contract.

## **PART 2 PRODUCTS**

### **2.01 WELLPOINT'S AND PIEZOMETERS**

- A. The Contractor shall provide wellpoints and piezometers constructed in accordance with the requirements of OAR 690-200. Materials for all Contractor-supplied dewatering systems shall be determined by the Contractor and shall comply with these regulations.

### **2.02 PUMPING EQUIPMENT**

- A. The Contractor shall select and furnish the groundwater pumping system and supply the site with sufficient power generating and other equipment and materials to ensure continuous and successful operation of groundwater control systems.

### **2.03 FLOW METERS**

- A. The Contractor shall provide in line flow meters on each discharge pipe of the system. The flow meters shall show flow in gallons per minute and total flow passing through the meter. The flow meters shall be sized and installed to accurately represent the flow through the meter. The Contractor shall test and document the accuracy of all installed flow meters.

### **2.04 CONVEYANCE SYSTEMS**

- A. The Contractor shall select the materials and furnish all necessary piping, valves and appurtenances required to convey the water removed from the excavation to the discharge point.

### **2.05 DEWATERING TREATMENT SYSTEMS**

- A. The Contractor shall provide all groundwater treatment required to comply with the requirements of the applicable federal, state and local regulations and permits including the National Pollution Discharge Elimination System(NPDES) 1200-C permit.

**PART 3 EXECUTION**

3.01 GENERAL

- A. The Contractor shall be fully responsible for furnishing, installing, operating, maintaining, and removing all seepage or surface water control systems. Excavation operations shall not commence until groundwater levels are proven to be at the required depth below the excavation.
- B. The Contractor shall be responsible for:
  - 1. Installing and testing the system as specified.
  - 2. Dewatering or controlling any seepage from the soils above the bottom of the excavation so that the structures may be installed without any significant sloughing of earth during excavation and construction.
  - 3. Maintaining the hydrostatic water level a minimum of 2-feet below the bottom of the excavation at all times.
  - 4. Maintaining the bottom of the excavation free of all seepage or surface water until the excavation has been backfilled.
- C. The Contractor shall be fully responsible for any failure of any component of the systems. The Contractor shall be responsible for all damages to work in the excavation area and for damages to any other area caused by failure to maintain and operate the dewatering systems as specified. The Contractor shall be responsible to perform all work and practices in accordance with respective agency(s) requirements having jurisdiction over the activity(s). In addition, it is the Contractor's responsibility to obtain all applicable permits prior to commencing the activity.
- D. The dewatering system description in this specification provides an example of a method of approach to obtain a dewatered excavation. Should the Contractor elect to pursue alternative methods, the Engineer will evaluate them against the method herein specified to determine their acceptability. Before the commencement of any dewatering, the Contractor shall obtain acceptance by the Engineer for the design, materials, method, installation, and operation and maintenance details of any groundwater control system(s) the Contractor plans to install.
- E. The Contractor shall not rely upon open or cased sumps for any excavations. The Contractor shall use sumps only where the hydrostatic pressure of the groundwater system(s) immediately beneath the excavation has been previously lowered 2 feet beneath the excavation using well points. The Contractor shall design any groundwater control system using accepted and professional methods of design and engineering consistent with the best modern practice. The Contractor shall have, or shall employ the services of a Subcontractor who has, experience in the field of groundwater control system design, installation, operation, and maintenance. The Contractor shall visit the site to determine the existing conditions thereof.
- F. The Contractor shall control all surface water, any seepage into the excavation, and hydrostatic pressure in the stratum beneath the excavation, regardless of source. Any water seeping, falling, or running into the excavation as it is dug shall be promptly pumped out. The entire periphery of the excavation area shall be suitably diked or sloped to prevent any surface water from running into the excavation. The Contractor shall be fully responsible for disposal of all water from the excavation and from the well systems in an approved manner at no additional cost.

- G. The control of groundwater shall be such that softening of the bottom of excavations or formation of "quick" conditions or "boils" during excavation shall be prevented. Dewatering systems shall be designed and operated to prevent erosion of the natural soils.
- H. Subsequent to completion and acceptance of all work in the excavated area, the Contractor shall maintain the excavation in a dewatered state and the water level in the piezometers at minimum of 2 feet below the bottom of the excavation until placement of the backfill is complete and accepted.

### 3.02 PRELIMINARY TESTING

- A. Prior to acceptance of the submittals required in section 1.04, the Contractor shall perform testing as required to design the dewatering system, including soil sampling and test pumping, to insure a properly functioning dewatering system.
- B. A full-scale pumping test shall be run on wellpoints installed at locations determined by the Contractor's design Engineer to determine well spacing, well construction, pumping rates, and other design criteria as required.
- C. The Contractor shall be responsible for recording the results of the pumping tests on the well system and furnishing them to the Engineer. He shall also advise the Engineer at least three days in advance of making this test so that a representative of the Owner can observe the test.
- D. If the results of the pumping test indicate that the dewatering system as designed is incapable of maintaining a dewatered excavation, the Contractor shall modify the design and provide additional testing as needed at no additional cost.

### 3.03 WELLPOINT INSTALLATION

- A. Install all dewatering well points at locations as determined by the successful dewatering tests and dewatering plan design. For bidding purposes, the Contractor shall assume that 17' deep wellpoints, spaced at a maximum distance of 7-feet will be required to dewater all trench and manhole excavations. Contractor should assume that each wellpoint will produce up to 40 gallons per minute.
- B. The development, drilling, reporting, and abandonment of all wells shall comply with Oregon Water Resources Department (OWRD) requirements (OAR Chapter 690-200). Installation of the wellpoint systems shall be by a bonded water supply well constructor. All well construction notices, and reporting shall be submitted to OWRD as required by the OAR.
- C. Piezometers or test pits shall be installed prior to starting the excavation to measure the hydrostatic water level in the stratum beneath the excavation. If used, the piezometers shall be installed using the same equipment and procedure specified for installing the wellpoints.
- D. The Contractor shall number and obtain location coordinates and ground surface elevations for all piezometers and wellpoints.

### 3.04 PUMPING, CONVEYANCE SYSTEM INSTALLATION AND MONITORING

- A. The Contractor shall have on hand, at all times, sufficient pumping equipment, conveyance piping, and machinery in good working condition and shall have available, at all times, competent workmen for the operation of the pumping equipment. Adequate

standby equipment shall be kept available at all times to ensure efficient dewatering and maintenance of dewatering operations during power failure.

- B. Install all water and vacuum pumps, piping and appurtenances required to convey water from the installed well points to the discharge point. Piping should be sized to provide adequate hydraulic capacity for the system and shall be constructed with proper piping restraints to ensure safe operation.
- C. Install the electrical system for powering the pumping apparatus. The electrical system shall meet the local electrical code. Each pump shall be provided with a starter and fuse disconnect with a clearly visible red light mounted on the control panel that indicates a pump is running. A power source with a capacity capable of operating the system in all wells at one time shall be provided. The electrical system and controls shall be designed so that failure of any one pump, or the need to disconnect and replace a pump, does not adversely affect operation of any other pump.
- D. The Contractor shall bear full responsibility for obtaining and maintaining a continuous, accurate, and precise daily record of all water level measurements for the piezometers and flow measurements for the flow meters. The Contractor shall take and submit to the Engineer on a form provided by the Engineer, daily measurements, including water levels in all piezometers, rate and total flow in all discharge system flow meters and time measurements were taken.

### 3.05 DISCHARGE POINTS

- A. The Contractor shall monitor discharge from all parts of the system to ensure that the turbidity of the discharge water does not violate the terms of the National Pollution Discharge Elimination System (NPDES) 1200-C statewide permit. The Contractor shall provide all equipment and fittings for monitoring the discharge. The Contractor shall take all necessary precautions to avoid discharge of oil, grease, and excessive suspended solids. Discharge shall be treated as required using the applicable Best Management Practices which must be in place prior to the commencement of any dewatering activity.
- B. Discharge to any sanitary sewerage facility is prohibited unless approved by the Owner in writing. Discharge of ground and surface runoff water shall be to locations approved by the Engineer.

### 3.06 RESTORATION OF GROUNDWATER LEVEL

- A. The restoration 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.

### 3.07 WELL ABANDONMENT

- A. Abandon all wells per the requirements of OAR 690-200 and submit all documentation as required.

### 3.08 DAMAGES

- A. The Contractor shall be responsible for all costs to repair any damage to existing facilities, work in place, other Contractors' equipment, and the excavation (including damage to the bottom and removal of material) that may result from the Contractor's dewatering operations. In addition, the Contractor is responsible for any damages that

may result from mechanical or electrical failure of the dewatering system. Any permit violation resulting in fines is the responsibility of the Contractor.

**PART 4      MEASUREMENT AND PAYMENT**

- A.      Payment for design and testing of the proposed system shall be paid for on a lump sum basis and shall include all equipment, materials and labor required to install test wells, piezometers and pumping equipment to test the proposed dewatering system. Payment shall also include preparation of a dewatering plan by a qualified professional as required in this specification.
  
- B.      Payment for the dewatering system will be made per each wellpoint installed, operated and abandoned and shall constitute full compensation for furnishing all labor, materials, and equipment necessary to operate the wells. The price shall also include the cost of pumping, treatment, and disposal of the water extracted from each wellpoint.
  
- C.      Installation of test pits or piezometers, surface water control, and sump pumping shall be considered incidental to the work and will not be paid for separately. Any wellpoints not required shall be deducted at the unit price from the Contract Price.

**END OF SECTION**

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**SECTION 02230 – CLEARING & GRUBBING**

***PART 1 GENERAL***

**1.01 WORK INCLUDED**

- A. The work to be performed under this section shall include all labor, equipment, and materials necessary for the removal of vegetation and organic matter including, trees, logs, stumps, roots, shrubs, brush, grass and other organic materials as specified herein and as necessary to complete the proposed improvements. This work shall also include the preservation and protection from injury or defacement of all vegetation and objects designated to remain, hauling and disposal of all resulting materials, backfilling of all voids resulting from clearing and grubbing operations, and grading of areas along the project alignment which are not included elsewhere in grading.
- B. Clearing and grubbing work shall be performed in strict compliance with all City, County, State and Federal laws and requirements pertaining to clearing, disposal, erosion control, and other related operations.
- C. No trimming is allowed within any State or County right-of-way without specific approval from the proper ODOT and/or County official. The Contractor shall obtain any permits required for clearing and grubbing within said right-of-way.
- D. Extra care shall be taken when construction occurs on private property. For areas within easements the Contractor shall coordinate with the Owner and private property owners prior to removal or trimming of any vegetation.

***PART 2 PRODUCTS – NOT USED***

***PART 3 EXECUTION***

**3.01 CLEARING**

- A. Clearing shall consist of the felling, trimming or cutting of trees, stumps, shrubs, brush and branches, and the clearing of downed timber, vines, grass and other vegetation to the limits specified herein, with the exception of items designated either on the Plans or within these Specifications to remain. The ground surface shall be cleared completely of all growth and organic matter as specified.
- B. Merchantable timber, shrubs and other vegetation of value occurring within areas designated for clearing or resulting from the clearing work shall become the property of the Contractor unless otherwise specified.
- C. Trees of which less than one-half (1/2) of the lower portion of the trunk is within the area to be cleared may be left in place unless they are so situated that they interfere with other work to be completed under this contract, in which case they shall be removed.
- D. Trimming
  - 1. Tree branches hanging within the zone extending from the ground surface to 13-feet above the finished roadway grade, or 9-feet above other areas, shall be cut off to the boles in a workmanlike manner in conformance with tree surgeon practice, as directed.

2. The Contractor shall remove additional tree branches as directed by the Engineer in such a manner that the tree presents a balanced appearance.
3. Scars resulting from trimming of branches shall be treated with an approved tree sealant.

E. Clearing Limits

1. Clearing shall be performed within designated rights-of-way or easements on a 15-foot-wide strip centered over pipelines installed on this project, and as directed.
2. Clearing from the Edson Creek Tank site shall be kept within the property boundaries and kept to a minimum unless otherwise directed by Engineer. Approval from Menasha Forest Products must be given prior to the start of clearing and grubbing or removal of any trees

3.02 GRUBBING

- A. Grubbing shall consist of the removal of all embedded wood and other organic matter. Materials to be removed include stumps, trunks, buried logs, roots one-inch (1") in diameter and larger and other objectionable material.
- B. Grubbing Limits
  1. Grubbing shall be performed within all clearing area limits, as specified above, to a depth of six-inches (6") below the ground surface, or subgrade, whichever is deeper.
  2. At all trenches and other excavations, grubbing shall be conducted to six-inches (6") outside the exposed sides of the excavation. All stumps shall be completely removed to firm undisturbed soils.

3.03 DISPOSAL

- A. All materials and debris resulting from clearing and grubbing operations shall become property of the Contractor at the place of origin, and shall be hauled away and disposed of by the Contractor.
- B. Materials resulting from clearing and grubbing operations shall not be disposed of on lands owned or controlled by the Owner except by written permission. If so permitted, the Contractor shall place materials only at locations and in such manner as directed by the Owner.
- C. The Contractor shall obtain written permission from the owner of any property upon which clearing and grubbing materials are to be disposed. Copies of the agreement between the property owner and the Contractor shall be furnished to the Owner and Engineer.
- D. No burning of materials shall be allowed at the project site unless approved by the Owner in writing. No excess accumulation of materials shall be allowed at the project site.

3.04 PRESERVATION OF EXISTING VEGETATION

- A. The Contractor shall protect from injury all trees, shrubs, vines, plants, grasses and other vegetation outside of areas to be cleared and grubbed, or which are designated by the

Engineer to be preserved. Operations which may damage such vegetation to remain shall be conducted in areas where damage will not result.

- B. All items designated to remain which are damaged by the Contractor's operations shall be restored or replaced by the Contractor to as nearly as possible original condition and location at no cost to the Owner.

### 3.05 COMPLIANCE WITH LAWS AND REGULATIONS

- A. The clearing and grubbing work shall be performed in strict compliance with all City, County, State and Federal laws and requirements pertaining to clearing, hauling, disposal, erosion control, and related operations.

### 3.06 BACKFILLING AND GRADING

- A. Stump holes and other excavations which result from clearing and grubbing operations shall be backfilled with suitable material and compacted in accordance with Section 02315.
- B. Holes in areas to be excavated or trenched at a later time may be temporarily backfilled or covered as approved to provide for public safety until completion of final backfill.
- C. Areas subject to Clearing and Grubbing shall be smoothed and reshaped to blend to surrounding grades.

## **PART 4 SPECIAL PROVISIONS**

### 4.01 MEASUREMENT AND PAYMENT

- A. Payment for Clearing & Grubbing shall be included within the Lump Sum price for Demolition & Site Preparation for the amount stated on the Bid Form. Payment shall include compensation for the removal and disposal of all cleared debris and materials and labor required to complete the work described herein.

**END OF SECTION**

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**SECTION 02250 – DEMOLITION & SITE PREPARATION**

**PART 1 GENERAL**

1.01 SUMMARY

- A. This work in this section includes the furnishing of all labor, equipment, materials, incidentals, and performing all work required for the removal and disposal of concrete, miscellaneous structures, water, sewer piping as designated for removal, debris, buildings, fences and other items or improvements of manmade origin, in accordance with the Plans and these Specifications.
- B. The owner's water distribution system is compromised of steel pipe, asbestos cement pipe, cast iron piping and polyvinyl chloride and other materials. The majority of the existing water mains consist of piping without any toning wire or locator tape.
- C. The removal work described herein does not include the removal or disposal of items or improvements designated to remain.
- D. The area in which removal work, under these Specifications, is to be performed shall be confined to the minimum dimensions, within the public right-of-way or easements, which will permit proper construction of the proposed improvements, or as otherwise indicated.

**PART 2 PRODUCTS**

2.01 MATERIALS

- A. Trench Excavation and Backfill shall comply with Section 02315.
- B. End caps, plugs and blind flanges and other Waterline Appurtenances shall comply with Section 02515.
- C. Asphalt concrete pavements shall comply with Section 02740
- D. Landscape restoration and reseeding shall be as specified in Section 02900.
- E. Concrete for Curbs, Walks and Driveway Approaches shall be Class 4000-3/4 (4000 psi, 3/4" max. aggregate) per OSS 02000, unless otherwise specified.
  - 1. Expansion joint filler shall be 1/2-inch thick preformed asphalt fiberboard conforming to ASTM D994.
- F. Fences
  - 1. Wood Cedar/Stockade Fences
    - a. Posts and rails shall be pressure treated Douglas Fir (PTDF) and size shall be the same as fence being replaced. Fencing will be cedar and nails shall be galvanized with size of fencing in accordance with plans.
    - b. Wooden gates shall be constructed with quality materials and pressure treated wood making use of galvanized steel corner reinforcement to construct a durable gate.
    - c. Concrete, for posts, shall be 3000-psi compressive strength minimum.

2. Barbed Wire/Woven Fences
  - a. Metal posts and braces shall conform to ASTM A702. The posts may either be galvanized or painted and must match height of existing fence posts.
  - b. Tie wires shall be ten (10) gauge and galvanized with Class 1 coating. All fence clips and hardware shall be galvanized.
  - c. Concrete, for posts, shall be 3000-psi compressive strength minimum.
3. Chain Link Fences
  - a. Fence height and style shall match existing. Line posts and rails shall be Standard pipe or roll formed section with minimum 210 pounds bending strength perpendicular to fence line. Post sizes shall match existing unless directed otherwise on plans.
  - b. All end, corner and pull posts shall have braces with same material as top rail and trussed to line posts with rods and tighteners as recommended by the manufacture.
  - c. Concrete, for corner posts, shall be 3000-psi compressive strength minimum.

### **PART 3 EXECUTION**

#### **3.01 WORKMANSHIP**

- A. Pavements, Curbs, Walks and Driveways
  1. Where construction operations require the removal of pavements and other concrete flatwork or structures, bituminous pavements or portions thereof, the area to be removed shall be neatly sawcut. Just prior to placement of hot ac pavement final sawcuts shall be made 6-inches outside the limits of the trench on each side to a depth of 1½-inches, or deeper as required, to permit the removal of material without damage to adjoining portions of structures to be left in place. All cuts shall be clean, vertical cuts made true to lines designated or approved by the Engineer. See Detail drawings for further clarification.
  2. The Contractor shall remove and dispose of all pavement and structures, or portions thereof, which lie within the limits of excavation.
  3. Pavements and/or structures designated to remain but damaged as a result of the Contractor's operations shall be sawcut and removed as described above, and replaced or restored at the sole expense of the Contractor.
  4. Concrete shall be deposited in forms without segregation and tamped spaded or mechanically vibrated for thorough consolidation.
    - a. Finishing shall produce a smooth finish matching surrounding finish or a non-slip broom finish as applicable unless otherwise specified in Section 3300.

- b. Sidewalks shall be 4-inches thick and shall match existing sidewalks at limits of replacement.
  - c. Driveway approaches shall be 6-inches thick and shall match existing sidewalks at limits of placement.
  - d. Provide expansion joints around poles, fire hydrants, limits of driveways and other fixtures that protrude through or against the structures and at points of curvature. Scored joints shall be required at 5-foot centers.
  - e. Curing, protection and concrete testing shall comply with applicable Sections of Division 03000.
- B. Removal and Disposal of Asbestos-Containing Pipe
- 1. Removal of Asbestos-Containing Pipe
    - a. When existing pipe containing asbestos (i.e. Transite or A.C. Pipe) is exposed, cut or removed, all requirements of the EPA, Oregon DEQ, and OR-OSHA shall be followed. Specific guidelines pertaining to the handling and removal of asbestos-containing materials are given in OAR 340, Division 248 and OAR 437, Division 3, Construction. The Contractor is required to be familiar with these and all other requirements related to the removal, handling and disposal of asbestos-containing material, and shall comply with all such laws and regulations.
    - b. All asbestos-containing pipe that is not removed or otherwise disturbed shall be left or abandoned in place. The location of all such pipe shall be documented by the Contractor on the As-Built plans.
  - 2. Disposal of Asbestos-Containing Pipe
    - a. All asbestos-containing pipe that is removed from the ground or otherwise disturbed must be handled, enclosed, encapsulated, and removed in accordance with the provisions of **29 CFR 1926.1101** in OAR 437, Division 3, Construction.
    - b. The asbestos-containing pipe must be adequately wetted to prevent the release of asbestos fibers during cutting and handling. Asbestos-containing materials must be disposed of in leak-tight 6-mil thick plastic bags, plastic-lined cardboard containers or plastic lined metal containers, in accordance with the above requirements.
    - c. The sealed containers of asbestos-containing pipe shall be hauled to an approved asbestos landfill and disposed of according to DEQ regulations and the landfill requirements.
    - d. The Contractor shall take special precautions to protect the integrity of the asbestos-containing pipe and prevent the release of asbestos during the handling, loading and transportation of the pipe.
- C. Valves and valve covers, fittings, and other pipe appurtenances designated for removal shall be removed in their entirety to the limits shown on the Plans, or as required to permit proper construction of the proposed improvements. Remaining ends of pipes shall be suitably capped or plugged in a watertight manner. Provide a minimum of two (2) feet of concrete slurry filling inside of pipe for full diameter.

- D. Culverts removed during water and sewer line construction and which, in the opinion of the Engineer, are reusable shall be salvaged and relaid following placement of the water and sewer line. Placement of bedding and backfill around reused culverts shall be in conformance with the requirements of Section 02315.
- E. All items and materials designated to remain shall be protected against damage as required. Damage to items or materials not intended for removal shall be repaired promptly by the Contractor to the satisfaction of the affected property owner. If the Engineer determines it necessary, repairs shall consist of complete replacement of the affected items or materials. All such repairs and replacements shall be made by the Contractor without compensation.
- F. Existing fences requiring removal for the construction of the planned improvements shall be replaced to near original condition and location or installed as shown on the plans and as specified. Any fences designated to remain but damaged during construction shall be replaced to near original condition at the expense of the Contractor.
  - 1. Those portions of wooden fences removed shall be replaced as directed on the plans or to near original condition, paint as required to match existing.
  - 2. Salvage all major components from barbed wire/woven wire fences being removed and reuse with the exception of the existing posts, fence clips and wire tie-downs. Barbed wire that is rusted and in poor condition shall be replaced between the nearest posts (wooden). Components not specifically identified for re-use shall be furnished and installed by the Contractor for replacement of fence to original or better condition.
  - 3. Chain Link Fence
    - a. Salvage all major components being removed and reuse with the exception of existing post, fence clips and tension wire. Components not specified for reuse shall be furnished and installed by the Contractor for replacement of fence to original condition.
    - b. Installation shall be by experienced fence erectors and shall be placed at location of existing fence unless fence is being relocated. All fencing shall be true to line, tight and straight.
    - c. The Contractor shall take care in dismantling and reconnecting the existing fence to new chain link fence at the corner locations. Any portions of the existing fencing that has become damaged during this operation shall be replaced by the Contractor.
  - 4. Fence corner posts shall be set in concrete. No strain shall be placed on the corner posts until concrete has set for at least seven (7) days.
- G. Existing service lines shall be removed as required for new service line construction. Contractor shall maintain existing service lines intact until the new service lines are to be connected to the existing meters. Remove existing angle meter valve and provide new angle meter as specified in Section 02515.
- H. Waterline / Service Line Abandonment
  - 1. The Contractor shall install repair clamps on existing waterlines where shown on the Plans or as specified.

2. All materials, except those determined by the Engineer or Owner to be reusable, shall become property of the Contractor at the place of origin and shall be disposed of by the Contractor in conformance with all laws, regulations and rules legally imposed on such activities
- I. Contractor shall remove and relocate, where shown on the plans or as required all existing signs, sign posts, reflectors, guard posts and mailboxes that are affected by the placement of the new waterlines. Final locations shall be coordinated with the Engineer or Owner.
- J. Disposal of Materials
  1. Salvaged valves, fittings, hydrants and other such fixtures or fittings removed and determined by the Engineer to be reusable, shall be delivered to Owner as directed.
  2. All materials, except those determined by the Engineer or Owner to be reusable, shall become property of the Contractor at the place of origin and shall be disposed of by the Contractor in conformance with all laws, regulations and rules legally imposed on such activities.
    - a. Contractor shall make every effort to salvage or recycle construction demolition items and debris as is feasible.
  3. Materials shall not be disposed of on City owned or City controlled lands except by written permission of the City, and if so permitted, the materials shall be placed only at such locations and in such manner as the City may direct. Materials may be disposed of on private properties only with written permission of the property owner(s) involved, and with copies of the agreement furnished to the City and Engineer.
- K. Excavations resulting from the removal of structures and/or obstructions shall be backfilled and compacted in accordance with the requirements of Section 02315. Backfill materials shall consist of the type and class designated on the Plans and specified in Section 02315.
- L. All existing ditches damaged by the Contractor by his operations and incidental ditching shall be re-constructed as required as to maintain existing drainages and ditches. The Contractor shall maintain channel width and side slopes of existing conditions.

**PART 4 SPECIAL PROVISIONS**

**4.01 MEASUREMENT AND PAYMENT**

- A. Payment for Demolition & Site Preparation shall be made on a lump portions basis for the amount stated on the Bid Form. Payment shall include the removal of all portions waterlines and appurtenances including fire hydrants, as required for the proposed improvements and for the abandonment of or connection to existing waterlines, existing valves and valve covers and those portions of existing waterlines as designated for abandonment. Contractor shall sequence his work in such that no disruption existing service or system occurs unless said disruption is approved by the Owner and Engineer.
- B. Payment for four (4) inch and larger end plugs for the abandonment of existing waterlines shall be on a unit price basis for the amount as stated on the Bid Form for each size. For end caps used for waterlines and service lines smaller than four (4) inches shall be

considered incidental to the demolition cost and no additional payment will be made for these items.

- C. Payment for the removal, replacement and relocation of existing signs, sign posts, reflectors, guard posts, mailboxes and newspaper boxes shall be included within the lump sum basis for the amount stated on the Bid Form for Demolition and Site Preparation.
- D. Payment for Wood Fence Removal & Replacement shall be made on a lineal foot basis for the amount stated on the Bid Form. Payment shall include the removal and disposal of all material not suitable for reuse and replacement with new fencing as covered in this section and as shown on the plans.
- E. Payment for Barbed Wire/Woven Fence Removal & Replacement shall be made on a lineal foot basis for the amount stated on the Bid Form. Payment shall include the removal and disposal of all material not suitable for reuse and replacement with new fencing as covered in this section and as shown on the plans.
- F. Payment for Chain Link Fence Removal & Replacement shall be made on a lineal foot basis for the amount stated on the Bid Form. Payment shall include the removal and disposal of all material not suitable for reuse and replacement with new fencing as covered in this section and as shown on the plans.
- G. Payment for removal and disposal of excavated material from the trench as required for the removal of existing waterlines and appurtenances and backfill shall be included within the lump sum basis for the amount stated on the Bid Form for Demolition and Site Preparation.
- H. Measurement and payment for the removal and replacement of existing culverts as designated for removal and replacement shall be made on a unit price basis for the amount as stated on the Bid Form.
  - 1. No additional compensation or payment will be allowed the Contractor for damage to existing culverts as designated to remain or protect in place that are damaged during the placement of new waterlines.
- I. Measurement and payment for ac pavement excavation and disposal, backfill and other preparation of trenches shall be included in the lineal foot cost for Trench Excavation, Bedding and Backfill.
- J. The Cost for sawcutting existing pavement adjacent to new utility trenches shall be considered incidental to the work. No additional compensation will be allowed for sawcutting.
- K. Measurement and payment for ac pavement replacement shall be as specified in Section 02740.
- L. No additional compensation will be allowed the Contractor for the handling, removal or disposal of any asbestos-containing pipe encountered during construction.

**END OF SECTION**

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## **SECTION 02315 – TRENCH EXCAVATION, BEDDING, & BACKFILL**

### **PART 1 GENERAL**

#### 1.01 SUMMARY

- A. This work consists of furnishing all labor, materials, incidentals and equipment, as well as performing all work required for excavation, foundation stabilization, pipe bedding, pipe zone material, trench backfill, compaction, final grading, hauling and disposal of material resulting from the construction of utility piping, and all related appurtenances. Included also is the locating and protecting of existing utilities and other improvements (see Division 1), shoring, and bracing, excepting only such work as is covered and included under other sections of this Division, or other Divisions of these Contract Documents.
- B. Excavation must be in accordance with ORS 757.541 to 757.571 and all other applicable laws and regulations.

#### 1.02 REFERENCES

- A. Oregon Standard Specifications (OSS) – The 2008 Oregon Department of Transportation/APWA Oregon Chapter Standard Specifications for Construction.

#### 1.03 DEFINITIONS

- A. Trench Excavation – Trench excavation consists of the removal of all material encountered in the trench to the limits shown on the Plans or as directed. Trench excavation shall be classified as either common excavation or rock excavation.
  - 1. Common excavation is defined as the removal of all material as required to complete the planned improvements, regardless of type, nature or condition of materials encountered, except that which is designated as rock excavation.
  - 2. Rock excavation is defined as the removal of boulders composed of igneous, sedimentary or metamorphic stone material which have a least dimension of 36-inches or more, or a displacement of one cubic yard or more; or the removal of solid ledge rock which, in the opinion of the Engineer, requires for its removal drilling and blasting, wedging, sledging, barring or breaking with power operated tools.
    - a. No soft or disintegrated rock; hard-pan or cemented gravel that can be removed with a hand pick or power operated excavator or shovel; no loose, shaken, or previously blasted rock or broken stone in rock fillings or elsewhere; and no rock outside of the minimum limits of measurement allowed, which may fall into the excavation, will be measured or allowed.
    - b. When solid rock layers have an overburden of non-rock material (common material) which cannot practically be stripped and handled separately, and/or when solid rock is interspersed with non-rock material, the entire mass will be classified as solid rock if the actual solid rock fraction exceeds 85% of the entire volume.
- B. Trench Foundation – Trench foundation is defined as the bottom of the trench on which the pipe bedding is to lay and which provides support for the pipe.

- C. Foundation Stabilization – Foundation stabilization is defined as the furnishing, placing and compacting of specified materials for any unsuitable material removed from the bottom of an excavation, as directed by the Engineer, to provide a firm trench foundation.
- D. Pipe Bedding – Pipe bedding is defined as the furnishing, placing and compacting of specified materials on the trench foundation so as to uniformly support the barrel of the pipe. The total bedding depth shall be as shown on the Contract Drawings.
- E. Pipe Zone – Pipe zone is defined as the furnishing, placing and compacting of specified materials for the full width of the trench and extending from the top of the bedding to a level above the top outside surface of the barrel of the pipe as shown on the Contract Drawings.
- F. Trench Backfill – Trench backfill is defined as the furnishing, placing and compacting of material in the trench extending from the top of the pipe zone to the bottom of pavement base, ground surface or surface material. Plans generally show locations for each type of backfill class.
- G. Drain Rock – Drain rock is defined as the furnishing, placing and compacting of specified free draining material for the full width of the drain trench (perforated pipe drains) and extending to a level as specified above the top outside surface of the pipe barrel.

#### 1.04 SUBMITTALS

- A. Certifications, test results, source, and samples for all imported material proposed to be used in the work. Samples of materials to be used shall be submitted 2 weeks in advance of use. Samples shall consist of 0.5 cubic feet of each type of material. Samples of Class E material are not required.
- B. Drawings, tabular product data, and method of installation and removal of all sheeting, sheet piling, shoring, and bracing.

### **PART 2 PRODUCTS**

#### 2.01 MATERIALS

- A. Trench Foundation – The trench foundation shall be undisturbed native material when suitable. Where ground water or other unstable conditions exist and the native material cannot properly support the pipe, additional excavation may be required. The trench shall be stabilized with foundation stabilization material when such conditions are present in the opinion of the Engineer.
- B. Foundation Stabilization – Foundation Stabilization: 1½"-0 or 2"-0 aggregate base rock meeting OSS Sections 00641 and 02630. Required when native trench foundation material contains groundwater, or is unsuitable to provide a firm foundation in the opinion of the Engineer.
- C. Pipe Bedding – Material for pipe bedding shall be clean, hard, sound, durable, well-graded, ¾"-0 crushed rock, free from organic matter. Engineer must approve material prior to use.
- D. Pipe Zone – Material for pipe zone shall be the same material used for bedding.

- E. Trench Backfill
1. Class "A" Backfill: Native or common excavated material, free from organic or other deleterious material, free from rock larger than 3-inches, and which meets the characteristics required for the specific surface loading or other criteria of the backfill zone in the opinion of the Engineer. If stockpiled material becomes saturated or unsuitable, Class B, C or D Backfill shall be substituted. Engineer must approve material prior to use.
  2. Class "B" Backfill:  $\frac{3}{4}$ "-0 dense-graded aggregate, uniformly graded from coarse to fine and meeting OSS Section 02630.10.
  3. Class "C" Backfill: Clean sand with no particles larger than  $\frac{1}{4}$ -inch.
  4. Class "D" Backfill: Pit run or bar run material, well graded from coarse to fine, with maximum aggregate size of 3 inches.
  5. Class "E" Backfill (CLSM or CDF): Controlled Low-Strength Material (cement slurry) conforming to OSS Section 00442.
    - a. Slurry shall consist of a highly flowable lean concrete mix; mixture of Portland cement, fly ash, fine aggregates, water and admixtures as required for a mixture that results in a hardened, dense, non-settling, hand excavatable fill.

### **PART 3 EXECUTION**

#### **3.01 GENERAL**

- A. Remove, haul, and dispose of all formations and materials, natural or man-made, irrespective of nature or conditions encountered, within lines and grades shown on the Plans or defined herein, and as necessary for completion of the proposed improvements. The method of excavation shall be as determined by the Contractor, and as required for special protection of existing improvements. Special care shall be taken to avoid overexcavation below subgrades. Store and protect materials suitable for use as backfill where applicable. Clearing & Grubbing and Removal of Structures and Obstructions to be completed prior to excavation.
- B. Coordinate and provide all utility locates prior to any excavation as required by local state and federal laws and regulations. When the precise location of subsurface structures and/or utilities is unknown, locate such items by hand excavation prior to utilizing mechanical excavation equipment. Use hand excavation when mechanical equipment might damage existing improvements which are to remain undisturbed. See Division 1 for other requirements.
- C. Incidental to excavation shall be the furnishing, installing and removal of all shoring, sheeting, bracing as required to support adjacent earth banks and structures, keep excavations free from water, and to provide for the safety of the public and all personnel working in excavations.

#### **3.02 EXCAVATION**

- A. Excavate to the lines and grades shown on the project Plans, allowing for forms, shoring, working space and gravel base. Provide a minimum clearance around pipe barrel in all directions or greater in accordance with the standard trench detail drawing.

B. Shoring and Bracing

1. Sheet and brace excavation as necessary to prevent caving and to protect adjacent structures, property, workers and the public.
2. The design, planning, installation and removal of all sheeting, shoring, sheet piling, lagging and bracing shall be accomplished in such a manner as to maintain the required excavation or trench section and to maintain the undisturbed state of the soil below and adjacent to the excavation.
3. Horizontal strutting below the barrel of a pipe and the use of pipe as support are not acceptable.
4. All sheeting, shoring and bracing shall conform to safety requirements of OSHA and other Federal, State and local agencies.
5. See Specification 02140 Excavation Dewatering Systems

3.03 FOUNDATION STABILIZATION

- A. The contractor shall overexcavate the trench to firm undisturbed soils or rock when, in the opinion of the Engineer, the trench foundation materials are not suitable for the support of the pipe. Foundation Stabilization materials, as specified, shall be placed and compacted in lifts not exceeding 6-inches in compacted thickness to the required grade. Each lift shall be compacted to at least 95% of the maximum dry density in accordance with ASTM D698.

3.04 DISPOSAL OF EXCESS MATERIALS

- A. Excavated materials not suitable or required for backfill shall be hauled away and disposed of on approved sites arranged by the Contractor. No site shall be used for disposal of materials without written approval of the property owner. All costs associated with the hauling and disposal of materials shall be borne by the Contractor. The Contractor shall be entitled to any proceeds received from the sale of excess materials.

3.05 TEMPORARY STOCKPILING

- A. Place excavated materials suitable for use as backfill (and not excess material) only within construction easements, right-of-way, or approved work area. Stockpiles shall be placed in such manner as to provide the minimum inconvenience to the public.
- B. The Contractor shall obtain written permission from any property owners prior to placement of stockpiles on private property. Provide copies to the Owner and Engineer. Remove stockpiles as soon as possible and restore sites to affected property owners' satisfaction.
- C. Access to all fire hydrants, water valves and meters shall be maintained. Stockpiles shall not be permitted to block any stormwater drainage ditches, gutters, drain inlets, culverts or natural water courses.
- D. Protect stockpiled material which is to be later incorporated into the work so that excessive wetting or drying of the material does not occur. Material shall be brought to near optimum moisture content prior to placement and compaction. Depending on the moisture content of stockpiled materials, necessary processing may include aeration, mixing and/or wetting. No additional payment will be allowed for protecting or preparing native backfill materials.

- E. If approved native materials become unsuitable (too wet or mixed with unsuitable materials) due to negligence by the Contractor, then imported granular materials may be required for backfilling at the subject location at no additional cost to the Owner.
- F. Comply with all requirements of the 1200-C Construction Stormwater Permit. Provide necessary protection for stockpiled materials so that silt-laden runoff does not occur during rain events and to prevent wind-blown dust from stockpiles.

### 3.06 PIPE ZONE AND TRENCH BACKFILL

- A. Place and compact pipe bedding material before placing pipe in the trench. Dig depression for pipe bells to provide uniform bearing along the entire pipe length. Thoroughly compact bedding material to at least 95% of the maximum dry density in accordance with ASTM D698.
- B. Place materials in the pipe zone in layers not greater than 6 inches thick and in a manner that equalizes the pressure on the pipe and minimizes stress. As required under the haunches of pipe and areas not accessible to mechanical tampers or to testing, compact with hand methods to ensure thorough contact between the material and the pipe. Before placing the pipe zone material, condition, aerate, or wet the material so that the moisture content of each layer is within minus 4% to plus 2% of optimum moisture content.
- C. Contractor shall backfill the trench above the pipe zone in successive lifts not exceeding 12-inches in loose thickness. Do not allow the backfill to free-fall into the trench until at least 3 feet of cover is provided over the top of the pipe. Each lift shall be compacted, using suitable mechanical or pneumatic equipment, to a minimum of 95% of the maximum dry density as determined by ASTM D698. If the specified compaction is not obtained, the Contractor may be required to use a modified compaction procedure and/or reduce the thickness of lifts. If approved materials meeting the specifications cannot be compacted to the required density regardless of compactive effort or method, the Engineer may reduce the required density or direct that alternate materials be used. In no case shall excavation and pipe laying operations proceed until the Contractor is able to compact the backfill to the satisfaction of the Engineer.
- D. CLSM. When CLSM Backfill is required, backfill above pipe zone with CLSM material. If the CLSM is to be used as a temporary surfacing, backfill to top of the trench and strike off to provide a smooth surface. If CLSM is not to be used as a temporary surface, backfill to bottom of the proposed resurfacing. Use steel plates to protect the CLSM from traffic a minimum of 24 hours.
- E. When backfilling is complete, the Contractor shall finish the surface area as specified. In paved or graveled areas the Contractor shall maintain the surface of the trench backfill level with existing adjacent grades with  $\frac{3}{4}$ "-0 crushed rock until pavement replacement is completed and accepted by Owner.

## **PART 4 SPECIAL PROVISIONS**

### 4.01 MEASUREMENT AND PAYMENT

- A. Payment for Trench Excavation, Shoring, hauling excavated material, Bedding, Pipe Zone, and Backfill shall be included within the unit prices for piping, manholes or other structures, service laterals and all associated appurtenance items. Price will include all such work and materials required for each backfill class and size and type of pipe as shown in the Bid Form. A separate payment will not be made for these items.

Where granular backfill material is used within gravel shoulders and gravel roadways, the backfill shall be brought to the finish grade of the existing shoulder and/or gravel roadway and shall be included in the unit prices for piping. A separate payment for surfacing gravel will not be made in such cases.

- B. Payment for Foundation Stabilization will be made on a cubic yard basis. Measurement shall be based on the in place volume of material excavated, placed and compacted below the pipe bedding material, within the pay limits defined on the Contract Drawings, and shall be approved by the Engineer. Payment shall include all excavation, removal and disposal of existing materials excavated and placement of new foundation material.

**END OF SECTION**

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## **SECTION 02321 – COMPACTION TESTING**

### ***PART 1 GENERAL***

#### **1.01 SUMMARY**

- A. The Contractor shall retain and pay for the service of an approved, recognized independent testing laboratory to conduct laboratory tests on materials and field testing to determine the relative compaction of trench backfill, subgrades, embankments, gravel surfacing, aggregate base and asphalt concrete pavement, as indicated. The approved Testing Agency shall recommend methods of compaction to Contractor and issue final report to the Owner, through the Engineer, regarding compaction testing results and material compliance with the specifications.
- B. These specifications call for field compaction efforts to achieve a specified relative compaction for each of the indicated classes of backfill. Determination of in-place density shall be made by means of non-destructive nuclear probe method testing in accordance with ASTM D2922-01 and ASTM D3017-01 test methods.

#### **1.02 DEFINITIONS**

Relative Compaction -- The ratio, expressed as a percentage, of the in-place density of the Engineered fill material to the maximum density of the same material as determined by the ASTM D698 Standard Test Method.

### ***PART 2 PRODUCTS***

#### **2.01 APPROVED TESTING AGENCIES**

- A. Foundation Engineering; 820 N.W. Cornell Ave; Corvallis, OR 97330; (541) 757-7645
- B. Professional Service Industries (PSI); 1040-A Shelly Street, Springfield, Oregon 97477; (541)746-9649.
- C. Carlson Testing, Inc.; 4060 Hudson Ave. NE; Salem, Oregon 97301 (503)589-1252
- D. Other certified private testing laboratory(s) as approved by Engineer.

### ***PART 3 EXECUTION***

#### **3.01 WORKMANSHIP**

- A. Field Testing
  - 1. Testing to determine the relative compaction of materials placed and compacted by the Contractor shall be performed a short distance behind construction. Tests shall be taken on each lift of the material prior to placement of the succeeding lift to ensure proper compaction is obtained. The Testing Agency shall perform testing at such locations and elevations as to be representative of the entire material and area being compacted. The Engineer shall have authority to require testing at times and locations he deems necessary.
  - 2. A sufficient number of density tests shall be taken on the first section of subgrade and trench backfill placed by the Contractor to establish the effectiveness of the Contractor's compactive efforts. If tests indicate that the specified relative

compaction for a given material is not being achieved, the Contractor shall modify compaction methods in order to obtain the specified results.

3. A minimum of four (4) tests will be required to be taken at each site visit. It is estimated that the following number of site visits will be required:
  - a. A minimum of two (2) site visits shall be required along waterline routes.
  - b. A minimum of three (3) site visits shall be required along sewer line routes.

Additional site visits or tests may be required to prove Contractor is meeting compaction requirements or as requested by the Owner, Engineer, and other affected utilities.

- B. Failing Tests – For areas failing to meet the specified compaction, the Contractor shall be responsible to perform all additional work necessary to achieve specified compaction at no additional cost to the Owner. Additional work may include further compactive effort, moisture treatment, other compaction methods, removal and replacement of failing materials, or other processes required to obtain the specified results.
- C. Any subsequent settlement of backfilled areas during the one-year warranty period shall be considered to be the result of insufficient compaction, and shall be promptly repaired by the Contractor at no additional cost to the Owner.
- D. The Contractor shall not be allowed any additional compensation for down time incurred as a result of compaction testing or waiting for test results.

#### **PART 4 SPECIAL PROVISIONS**

##### **4.01 MEASUREMENT AND PAYMENT**

- A. Payment for Compaction Tests shall be included within the unit prices for water and sewer lines, service laterals and all associated appurtenance items. The price shall include compensation for all costs associated with compaction testing, including sampling, laboratory testing, field testing, administration, and all other work required to obtain certification of backfills placed under this Contract for each type of pipe as shown in the Bid Form.
  1. Only Compaction Tests with results meeting the requirements of these Specifications will be accepted. All costs associated with or arising from additional work required due to failing compaction test results, including removal and replacement of material, shall be borne by the Contractor.
  2. Contractor must submit invoice from Testing Agency clearly identifying Project, location and date of testing, material tested, test method, test results, specified compaction, maximum dry density of material tested, and number of tests taken. Only tests directed by the Engineer and which obtain passing results will be paid for.

**END OF SECTION**

## **SECTION 02446 – HORIZONTAL DIRECTIONAL DRILLING**

### ***PART 1 GENERAL***

#### **1.01 DESCRIPTION**

- A. This Section includes requirements for Horizontal Directional Drilling (HDD) and related installation of High Density Polyethylene (HDPE) pipe.

#### **1.02 QUALITY ASSURANCE**

- A. HDD Contractor Experience: Actively engaged in horizontal directional drilling for a minimum of 3 years with 8" diameter pipe or larger.

#### **1.03 SUBMITTALS**

##### **A. General Information**

1. Presentation of similar experience in the last 3 years.
2. References, including: owner name, address, telephone number, contact person, date and duration of work, location, pipe information, and contents handled by pipeline.

##### **B. Project Specific Submittals**

1. Working Drawings and written procedure describing in detail proposed method and entire operation for information only including, but not limited to:
  - a. Size, capacity and arrangement of equipment.
  - b. Location and size of drilling and receiving pits.
  - c. Method of removing spoils material.
  - d. Method of installing locator wire and pipe.
  - e. Method of fusion pipe segment and type of equipment.
  - f. Type of cutting head.
  - g. Method of monitoring and controlling line and grade.
  - h. Detection of surface movement.
  - i. Drilling mud information, including:
    - i) Product information, material specifications, and handling procedures.
    - ii) Material safety data sheet and special precautions required.
    - iii) Method of mixing and application.

#### **1.01 PROJECT CONDITIONS**

- A. Complete HDD so as not to interfere with, interrupt, or endanger ground surface or structures thereon.
- B. Comply with applicable ordinances, codes, statutes, rules, and regulations of the State of Oregon, applicable County codes, and applicable regulations of Federal Government, OSHA 29CFR 1926, and applicable criteria of ANSI A10.16-1995 (R2001), "Safety Requirements for Tunnels, Shafts, and Caissons."

**PART 2      PRODUCTS**

2.01    MATERIALS

- A.      HDPE Pipe and Joints. See Section 02510 – Water Distribution Piping.
  - 1. Use butt fusion joining technique for joining pipe segments installed by HDD. (See Section 02510).
  - 2. When joining HDPE pipe at ends of directional drilling runs use butt fusion to join to the adjacent pipe section. (See Section 02510).
  - 3. Mechanical Couplings are not permitted for joining of directional drilled pipe sections.
- B.      Drilling Fluid.
  - 1. Bentonite drilling mud compatible with the environment.
  - 2. Waste oil or environmentally non-compatible polymers cannot be part of composition.
- C.      Locator Wire: See Section 02511 – Locator Wire & Warning Tape. Warning tape not used along HDD pipe sections.

**PART 3      EXECUTION**

3.01    PREPARATION

- A.      Excavate pits following submittal drawings and according to the guidelines of Section 02315 – Trench Excavation & Backfill and Other Site Work.
- B.      Locate and verify any crossing underground utilities before commencing HDD operations.
- C.      Provide equipment to guard against electrocution and an alarm system on drilling equipment capable of detecting electrical current as it approaches buried electric lines.
- D.      Provide erosion control as required.

3.02    OPERATION

- A.      General.
  - 1. Determine equipment pull strength for drilling length and type of soil encountered.
  - 2. Provide method to control line and grade.
    - a. Provide and maintain instrumentation that accurately locates pilot hole.
    - b. Drill pilot hole along path following Drawings to these tolerances:
      - i) Vertical alignment plus or minus 0.5 foot. Vertical path of the pilot hole must not establish new high points not shown on Drawings.
      - ii) Horizontal alignment plus or minus 1.0 foot.
    - c. Include electronic monitoring of the horizontal and vertical drilling head location. Obtain an accuracy range within 1 inch of actual position of the pipeline. Record position readings at a maximum of 10-foot intervals.
    - d. At completion of pilot hole drilling, furnish Engineer tabulations of horizontal and vertical alignment.

3. When water is encountered.
  - a. Provide and maintain a dewatering system of sufficient capacity to remove water.
  - b. Keep excavation free of water until backfill operation is in progress.
  - c. Perform dewatering in such a manner that removal of soils particles are held to a minimum.
  - d. Dewater into a sediment trap with DEQ approved erosion/sediment control measures, as applicable.
4. Maintain close observation to detect settlement or displacement of surface along HDD route.
  - a. Notify Engineer immediately if settlement or displacement is detected.
  - b. Act to maintain safe conditions and prevent damage to ground surface and any existing adjacent structures.

B. Drilling Operation.

1. Drilling Fluids.

- a. Maintain drilling fluid in bore hole to increase stability of the surrounding soil and reduce drag on pulled pipe.
- b. Dispose of drilling fluid and other spoils at location following laws, ordinances, rules, and regulations of local jurisdiction.
- c. Transport excess fluids and other spoils to the disposal site, at no additional cost to the District.
- d. Minimize drilling fluid at locations other than entry and exit points. Immediately clean up any drilling fluids that inadvertently surface.
- e. Provide clean water for drilling. Contractor may negotiate with District to obtain clean water for drilling as necessary.
- f. Maintain DEQ approved erosion/sediment control measures around bore hole entrance and exit during course of the project as applicable.

2. Pilot Hole Drilling.

- a. Angle entry hole so that curvature of pilot hole does not exceed allowable bending radius of HDPE pipe.
- b. Advance pilot hole with necessary vertical and/or horizontal bends per Plans. Curvature not to exceed allowable bending radius of HDPE pipe.
- c. Alignment Adjustment and Restarts.
  - i) Follow pipeline alignment on Plans within tolerances specified herein. Before adjustments, notify Engineer for approval.
  - ii) Notify Engineer when forward motion of operation is stopped by an obstruction. Abandon in place with drilling fluid, unless Engineer directs otherwise.

### 3.03 INSTALLATION

A. Installing HDPE Pipe.

1. Provide a swivel to reaming assembly and pull section of pipe to minimize torsional stress on pull section after drilling pilot hole.
2. Reaming diameter shall be at least one pipe size larger than the outside diameter of HDPE pipe being installed.

3. Protect pull section during pull back so that it moves freely and is not damaged on adjacent ground or at entry pit.
  4. Pull locator wire along with HDPE pipe. Provide locator wire access box at each end of HDD pipe segment.
  5. When connecting to adjacent pulled or non-pulled section of HDPE pipe, allow pull section of pipe to extend past termination point. Make tie-ins at least 8 hours after pullback of HDPE pipe has been completed to allow for relaxation of the pipe.
- B. Locator Wire.
1. Install locator wire without splices as shown on Standard Details.
  2. Terminate locator wire inside access box using proper sized crimp type connectors on wire ends.
  3. Neatly coil at least 18" of slack wire in access box.
  4. Test locator wire for continuity following installation.
    - a. If test for continuity is negative, repair or replace at Engineer's direction.

#### 3.04 FIELD QUALITY ASSURANCE

- A. Perform pressure testing of HDPE pipe as described in Section 002510 – Water Distribution Piping.

### **PART 4 SPECIAL PROVISIONS**

#### 4.01 MEASUREMENT AND PAYMENT

- A. Measurement and payment for Horizontal Directional Drilling of HDPE water distribution piping will be made on a unit price basis as stated on the Bid Form per lineal foot of pipe actually installed. Payment shall include full compensation for materials, labor, equipment, and incidentals necessary for the complete installation of the specified pipe to the limits shown on the Plans or otherwise approved or directed by the Engineer.

**END OF SECTION**

## **SECTION 02510 – WATER DISTRIBUTION PIPING**

### **PART 1 GENERAL**

#### 1.01 SUMMARY

- A. This work consists of furnishing all labor, materials, incidentals and equipment, and performing all work for the furnishing, installation and testing of waterlines required for the completion of the proposed improvements. Valves, hydrants and other fittings and appurtenances shall be as specified in Section 02515.

### **PART 2 PRODUCTS**

#### 2.01 MATERIALS

- A. 4" – 12" Polyvinyl Chloride (C.I.O.D. PVC) Pipe
1. Rigid PVC pipe, 4-inch through 12-inch nominal diameter, shall be made from quality PVC resin compounded to provide physical and mechanical properties that equal or exceed cell class 12454 as defined in ASTM D1784. Pipe shall be designated for use as water supply and distribution pressure pipe, and shall conform to the outside diameters of cast iron pipe. Pipe furnished shall be Pressure Class 235 (DR 18) conforming to all requirements of AWWA C900, Polyvinyl Chloride Pressure Pipe.
  2. Pipe shall be furnished in 20-foot laying lengths with integral wall-thickened bell ends. The bell shall consist of an integral wall section with a bonded-in elastomeric gasket manufactured in conformance with the requirements of ASTM F477. Gaskets shall be Rieber type to resist rolling during installation. The bell section shall be designed to be at least as hydrostatically strong as the pipe wall and meet the requirements of AWWA C900 and ASTM D3139.
    - a. A non-toxic vegetable soap lubricant shall be supplied by the pipe manufacturer with pipe.
  3. Pipe shall be as manufactured by JM Eagle, CertainTeed, North American Pipe Corp, or approved equal.
- B. Buried Solvent Weld PVC Pipe – Buried rigid PVC pipe shall be Schedule 40 solvent weld pressure pipe, conforming to ASTM D1785. PVC material shall consist of Type I, Grade I compound, Cell classification 12454-B per ASTM D1784. Pipe shall be as manufactured by Harvel Plastics, Inc., JM Eagle, or approved equal.
- C. Exposed ½" – 6" Solvent Weld PVC Pipe – Exposed rigid PVC pipe, ½-inch through 6-inch nominal diameter, shall be Schedule 80 solvent weld pressure pipe, conforming to ASTM D1785. PVC material shall consist of Type I, Grade I compound, Cell classification 12454-B per ASTM D1784. Pipe shall be as manufactured by Harvel Plastics, Inc., JM Eagle, or approved equal.
- D. 4" And Larger High Density Polyethylene (HDPE) Pipe
1. Black PE materials used for the manufacture of polyethylene pipe and fittings shall be PE 4710 high density polyethylene meeting ASTM D 3350 cell classification 445574C (formerly PE 3408 meeting 345464C per ASTM D3350-

- 02) and shall be Listed in the name of the pipe and fitting Manufacturer in PPI (Plastics Pipe Institute) TR-4 with a standard grade HDB rating of 1600 psi at 73°F. Color material, when used, shall be the same except for meeting ASTM D 3350 cell classification 445574E.
2. The material shall be listed and approved for potable water in accordance with NSF/ANSI 61. The pipe shall meet the requirements of AWWA C906.
  3. Pipe shall be DR11, Pressure Class 200 minimum, IPS Size, and shall be manufactured to the requirements of ASTM F714 and AWWA C906-99 (IPS) and shall be of standard pipe lengths (40 or 50 foot).
  4. HDPE pipe shall be DriscoPlex 4100 IPS HDPE pipe; Isco industries or approved equal.
  5. Pipe shall be provided with a continuous mark made of durable printing containing the following:
    - a. Name and/or trademark of pipe manufacture, nominal pipe size and dimension ratio.
    - b. The manufacturing standard reference ASTM F714 and polyethylene grade per ASTM D3350.
- E. 4" – 12" Ductile Iron Pipe – Ductile iron pipe shall be Class 52 minimum thickness, conforming to ANSI/AWWA C151/A21.51 under method of design outlined in ANSI/AWWA C150/A21.50. Pipe shall be cement mortar lined in accordance with ANSI/AWWA C104/A21.4. External pipe coating shall be an asphaltic coating in accordance with ANSI/AWWA C151/A21.51. Use only where shown.
- F. ½" – 3" High Density Polyethylene (HDPE) Pipe – as specified in Section 02515.
- G. Restrained Joint Piping – Where Plans call for Restrained Joints, all joints within the designated area shall be formally restrained with mechanical restraints designed for pipe restraint. CertainTeed Certa-Lok C900/RJ or restraint harness at regular slip-on joints rated at full pressure of pipe such as EBAA Iron Series 1900. Joints at fittings shall be restrained using MEGALUG or approved equal.
- H. All water pipe materials shall be NSF approved for use in potable water systems, shall be made in the USA, and shall be UL listed and FM approved.

### **PART 3 EXECUTION**

#### **3.01 GENERAL**

- A. Materials shall not be distributed on the job faster than can be used to good advantage. Sites shall be maintained clean and safe at all times. The Contractor shall supply all necessary signing and flagging to provide for a safe working environment.
- B. Remove from the job site material which, according to the judgment of the Engineer, is damaged beyond repair or otherwise has been rejected. Payment will not be made for damaged or rejected materials, their removal, or for repairs to such materials.
- C. Excavate and prepare trench as specified in Section 02315. Place any required foundation stabilization and compact pipe bedding prior to laying pipe.

### 3.02 PIPE INSTALLATION

- A. PVC pipe shall be installed and handled in accordance with the JM Eagle Blue Brute Installation Guide, the Uni-Bell Uni-PUB-09, and these specifications. The Contractor shall have on site all proper tools and equipment to properly and safely install the pipe.
- B. Properly prepare trench and trench bedding. Do not construct trench in a manner which requires bending of the pipe. Utilize fittings rather than bending pipe.
- C. Provide concrete thrust blocking at all bends, valves, tees and other fittings in accordance with the Plans, as required to prevent movement due to thrust.
- D. Prior to lowering pipe into the trench, the Engineer will check for damage to the pipe. The Contractor shall repair or replace, as directed, all damaged or flawed pipe prior to installation.
- E. Thoroughly clean inside the pipe before laying. Prevent foreign material from entering the pipe while it is being placed in the trench. Remove all foreign material from the inside of the pipe and joint before the next pipe is placed. Keep debris, tools, rags or other materials out of the pipe at all times. When pipe laying is not in progress, cover the exposed end of the pipe using a watertight expanding plug, or by other approved means to prevent entry of trench water or other foreign materials into the pipe.
- F. Lay pipe with bell ends facing the direction of laying. For lines on an appreciable slope, face bells up-grade unless otherwise directed by the Engineer.
- G. At no time shall pipe be deflected, either in the vertical or horizontal plane, in excess of the maximum deflection recommended by the pipe manufacturer. Maximum deviation from grade shall not exceed ½-inch. No deflection is allowed at push-on joints.
- H. Where new water pipe is installed near existing or new sanitary sewer lines, all provisions of current OAR 333-61-050 (Crossings – Sanitary sewers and waterlines), regarding placement of pipe near, under, or over sanitary sewer lines shall be followed.
- I. When existing water service lines are in direct conflict with the new waterline improvements and appurtenances and minor field revisions in the alignment and grade of the new improvements cannot avoid direct conflict then existing service lines shall be temporarily adjusted to allow for the proposed improvements.
- J. Existing driveway culvert pipes or other drainage structures that are removed for ease of construction shall be replaced with the same pipe size without additional cost to the Owner. Existing pipe may be reused if not damaged and approved by the Engineer.
- K. Cutting of pavement for service line placement shall be kept to a minimum; Contractor shall minimize impact to existing roadway surfaces. All 1-inch service lines shall be pushed under existing pavements. Exceptions must be approved by the Engineer.
- L. Pipe Jointing
  - 1. Thoroughly clean the ends of the pipe to remove all foreign matter from the pipe joint. Lubricate the bell and spigot ends with NSF approved pipe lubricant, as recommended by the manufacturer.
  - 2. Furnish the gaskets required for the joint being assembled. Install the gasket with uniform tension around the joint groove before placing the pipe in the trench.

3. Solvent weld joints shall be installed according to ASTM D2855-90.
4. No deflection is allowed at pipe joints.

### 3.03 HDPE PIPE INSTALLATION

#### A. Fusion

1. Sections of polyethylene pipe should be joined into continuous lengths on the jobsite above ground. The joining method shall be the butt fusion method and shall be performed in strict accordance with the pipe manufacturer's recommendations. The butt fusion equipment used in the joining procedures should be capable of meeting all conditions recommended by the pipe manufacturer, including, but not limited to, temperature requirements of 400 degrees Fahrenheit, alignment, and an interfacial fusion pressure of 75 PSI. The butt fusion joining will produce a joint weld strength equal to or greater than the tensile strength of the pipe itself. All field welds shall be made with fusion equipment equipped with a Data Logger. Temperature, fusion pressure and a graphic representation of the fusion cycle shall be part of the Quality Control records.
2. Sidewall fusions for connections to outlet piping shall be performed in accordance with HDPE pipe and fitting manufacturer's specifications. The heating irons used for sidewall fusion shall have an inside diameter equal to the outside diameter of the HDPE pipe being fused. The size of heating iron shall be ¼ inch larger than the size of the outlet branch being fused.
3. Mechanical joining will be used where the butt fusion method can not be used. Mechanical joining will be accomplished by either using a HDPE flange adapter with a Ductile Iron back-up ring or HDPE Mechanical Joint adapter with a Ductile Iron back-up ring. Method of mechanical joining shall be as indicated on the Plans.
4. Socket fusion, hot gas fusion, threading, solvents, and epoxies will not be used to join HDPE pipe.

B. Inspection – Inspect the pipe for defects before installation and fusion. Defective, damaged or unsound pipe will be rejected.

C. See Section 02446 for Horizontal Directional Drilling.

### 3.04 FILLING AND FLUSHING

- A. After installation of water piping, fill pipes slowly while venting all air. Fill with potable water at a maximum rate to maintain 2 fps or less. Take all required precautions to prevent entrapping air in the pipes. Flush all sections of pipe to remove any solids or material that may be in the pipe. If no hydrant is installed at the end of the main, provide a tap large enough to develop sufficient flow rates to achieve a velocity between 3 to 5 feet per second in the main. Control and dispose flushing water in a proper manner to avoid erosion, flooding, property damage, and discharge of chlorinated water in an unacceptable manner.
- B. All waterlines shall be flushed as specified herein as to remove any foreign material. The contractor shall provide all fittings and backflow preventions as required to perform the flushing.

- C. In addition to flushing, all waterlines six (6) inches and larger shall be “pigged” as specified herein to remove any foreign mater.
1. “Pigging” shall be accomplished prior to hydrostatic testing and disinfection.
  2. A minimum of three (3) pigs shall be flushed through the waterlines. The Contractor has the option of running all three pigs at the same time or running the pigs one at a time. Identify individual pigs if all three pigs are to be ran simultaneously.
  3. Pigs shall be polyurethane form as manufactured by Knapp Poly Pig, Inc. or as approved by Engineer.
  4. It shall be the responsibility of the Contractor to flush the pigs through the waterlines and retrieving pigs after the test. If one or more pigs fails to run the complete length of the waterline, Contractor shall be responsible for retrieving the pigs and repeating the test.
  5. Contractor shall provide erosion control as required to prevent damage to surrounding vegetation and existing ground.
  6. The Contractor shall re-pig the waterlines as required if after pigging and disinfection of the treated waterlines, the bacteriological test fails.
  7. Contractor shall notify Engineer and Owner a minimum of 24-hours prior to pigging the waterlines. Engineer can require waterlines to be re-pigged if excessive foreign material is encountered during pigging.
  8. The contractor shall be required to temporarily remove and replace any reducers, pipe spools and fittings as required placing and removing pigs for the flushing.

### 3.05 PRESSURE TESTING

- A. Hydrostatic pressure testing shall be conducted after the waterline has been flushed.
- B. All waterlines and service lines shall be subjected to hydrostatic pressure testing. Testing shall be conducted by the Contractor in the presence of the Engineer or Owners representative. Engineer and Owner shall be notified at least 2 working days in advance.
- C. Testing shall not be commenced until all thrust blocking has been in place for not less than 10 days and sufficient backfill has been placed to prevent pipe movement.
- D. Furnish and operate all pumps, gauges, plugs, saddles, corporation stops, miscellaneous hose and piping, and measuring equipment necessary for performing the test. Provide certifications of accuracy for gauges from an approved laboratory when requested.
- E. Perform pressure testing with hydrant auxiliary gate valves open and pressure against the hydrant valve. After the pipe test is completed, test each gate valve in turn by closing it and relieving the pressure beyond. This test of the gate valve is acceptable if there is no immediate loss of pressure
- F. All visible leaks on new waterlines shall be repaired, regardless of the amount of leakage.
- G. Test Procedure – Rigid Piping (PVC, D.I.)

1. The test section shall be slowly filled with water and all air expelled from the pipe prior to testing. Owner will provide water for testing at a time of day when sufficient quantities of water are available for normal system operation.
2. All valves isolating the test section shall be securely closed and the specified test pressure applied by means of a pump connected near the lower end of the test section.
3. The test pressure shall be 150 psi and the duration shall be at least 2-hours at the test pressure. Provide additional pumping during the test period to continuously maintain pressure within 5 psi of that required (PVC and D.I. pipe only). Use a clean container of potable water to supply the pump.
4. Accurately determine the quantity of water required to maintain and restore the required pressure at the end of the test by pumping through an approved positive displacement water meter.
5. The allowable leakage rate for the test section shall be determined from the following formula:

$$L = \frac{SD\sqrt{p}}{148,000}$$

L = allowable leakage (gph)  
S = length of pipe being tested  
D = nominal diameter of pipe (inches)  
p = average test pressure during test (psi)

6. Compare the amount of water added during the test to the allowable leakage for the test section. If the amount of water added is less than the allowable leakage, then the section shall be considered to have passed hydrostatic testing and the Contractor may proceed with disinfection. If the amount of water added to the section exceeds the allowable leakage, the Contractor shall, at his own expense, determine the source of leakage, repair or replace the defective elements, and repeat the test until the pipeline withstands the test pressure and the allowable leakage requirements have been satisfied.

H. Test Procedure – Non-Rigid Piping (HDPE)

1. Conduct per ASTM F 2164. The test section shall be slowly filled with water and all air expelled from the pipe prior to testing. Owner will provide water for testing at a time of day when sufficient quantities of water are available for normal system operation. Procedure involves an initial expansion, and test phases.
2. All valves isolating the test section shall be securely closed and the specified test pressure applied by means of a pump connected near the lower end of the test section.
3. Apply initial pressure of 160 psi and allow to stand for 3 hours to allow for diametric expansion or pipe stretching to stabilize. Add make-up water as required to maintain the pressure for the 3-hour period.
4. After this equilibrium period, apply the specified test pressure and turn the pump off.
5. The test pressure shall be 150 psi and the duration shall be at least 1 hour at the test pressure. If after the 1-hour test period the pressure remains steady (within 5%), leakage is not indicated.

6. If leaks are discovered, depressurize the test section before repairing leaks. Correctly made fusion joints do not leak. *Leakage at a butt fusion joint may indicate imminent catastrophic rupture. Depressurize the test section immediately if butt fusion leakage is discovered.* Leaks at fusion joints require the fusion joint to be cut out and redone.
7. Depressurize test section of pipe and conclusion of testing period by utilizing a controlled release of the testing liquid. If the test is not completed due to leakage, equipment failure, or for any other reason, that section of line being tested shall be depressurized completely and allowed to relax at least eight (8) hours before pressurizing the test section of pipe.

### 3.06 DISINFECTION

- A. All potable water distribution lines installed or modified under this Contract shall be sterilized prior to connection to the existing system, in accordance with the following procedure, AWWA Standards C651 through C654, and current OAR 333-61-050 (Disinfection or Facilities).
- B. Flushing and passing hydrostatic testing must be accomplished prior to disinfection.
- C. The Contractor shall have the option of utilizing either a liquid chlorine gas-water mixture, direct fed chlorine gas, or a calcium hypochlorite and water mixture for disinfection.
- D. Disposal of chlorinated water from the pipelines shall be performed in conformance with the most recent draft or edition of *Best Management Practices for the Disposal of Chlorinated Water* by the Oregon Department of Environmental Quality. Chlorinated water used for disinfection of waterlines and service lines shall not be directly disposed of into or impair the waters of the State (i.e. lakes, creeks, streams and wetlands).
- E. The Contractor shall provide all equipment, materials, and workmanship required to complete the flushing and disinfection of waterlines and appurtenances. Engineer shall be notified 2 working days in advance of planned disinfection procedures.
- F. Disinfection Procedure
  1. The Contractor shall inject chlorine solution into the waterline. Solution shall have a free chlorine residual of at least 25 mg/L, but not more than 100 mg/L. All entrapped air shall be discharged from the line and all surfaces shall be wetted. Chlorinated water shall be retained in the pipe for at least 24-hours. A free residual of not less than 10 mg/L shall be found in all parts of the line after the 24-hour period has elapsed.
  2. After the 24-hour period, all valves in the mainline shall be operated and all hydrants flushed with a free residual of at least 10 mg/L being found. If the residual concentration within any part of the chlorinated section is found to be less than 10 mg/L, the Contractor shall flush, rechlorinate, and retest all sections until a 10 mg/L minimum residual is obtained.
  3. Upon obtaining the minimum 10 mg/L free residual following the 24-hour disinfection period, the Contractor shall flush the section with potable water until the chlorine residual is equivalent to the residual of the existing system water. A minimum of one sample shall then be collected from the pipe for microbiological analysis.
- G. Microbiological Sampling and Analysis

1. The Contractor is responsible for collecting and submitting samples to a certified independent testing laboratory for microbiological analysis.
2. The Engineer or District representative shall be present to witness the collection of the water samples for testing. Chain of custody procedures shall be utilized during the collection and transport of samples to the laboratory.
3. The Contractor shall bear all costs associated with the required testing, including laboratory fees, materials required, and transportation costs. The Contractor also shall pay for all additional tests required as a result of failing to meet the bacterial limits.
4. If the results of the microbiological analysis indicates that the water is free of coliform organisms, the waterline may be put into service.
5. If the results of the microbiological analysis indicate that coliform organisms are present, then the waterline shall be flushed, rechlorinated, and retested until a coliform-free sample is obtained.
6. A minimum of one sample from each separable structure or pipeline shall be obtained for analysis. The presence of coliform organisms shall be determined using the Colilert 24-hour test, Method MMO-Mug, or other methods approved by the Oregon State Drinking Water Program.

### 3.07 CONNECTION TO EXISTING MAINS

- A. New waterlines shall not be connected to the existing system until passing microbiological testing results have been received. A physical break shall be provided (12-inch to 24-inch portion of pipe left out) and shall remain until all tests have passed. Merely leaving a valve closed is not acceptable. After disinfection has been completed satisfactorily, the tie-in may be made. Tie-in fittings and small sections of pipe shall be disinfected as specified below.
- B. Where new waterlines connect to existing lines and the tie-in requires a portion of the new construction to be brought into service immediately upon completion of the tie-in, the new piping and appurtenances shall be disinfected by liberally spraying or brushing on 1% hypochlorite solution (i.e. 1 gallon 5.25% bleach mixed with 4 gallons potable water), waiting 10 minutes, and then thoroughly flushing. This is generally limited to cut-in fittings.
- C. Upon completion of the tie-in, the new piping and appurtenances shall be flushed.

## **PART 4 SPECIAL PROVISIONS**

### 4.01 MEASUREMENT AND PAYMENT

- A. Payment for Water Distribution Piping items (i.e. waterlines and service lines) shall be made on a lineal foot basis as stated on the Bid Form for each size, type, and backfill class, with the exception of piping associated with appurtenances such as combination air valves and blow-offs. Measure for payment quantities shall be based on horizontal length.
  1. Payment for Water Distribution Piping items shall include compensation for trench excavation, equipment to make push and casing pipe (service lines),

- water distribution pipe, backfill and pipe zone material, compaction, toning wire, flushing, testing and disinfection.
2. Payment for Water Distribution Piping items associated with water distribution piping such as tees, elbows and other fittings and appurtenances shall be as specified in Section 02515.
  3. Payment for Water Distribution Piping items associated with combination air valves, blow-offs, and hydrants shall be included within the unit price for these items. No separate payment will be made for water distribution items associated with combination air valves, blow-offs, and hydrants.
  4. When Horizontal Directional Drilling is used to install piping; Payment for Water Distribution Piping will include bore pit excavation, backfill and compaction, directional drilling, pipe, equipment to make push and casing pipe (service lines), flushing, testing and disinfection.
- B. Payment for 2-inch diameter and smaller Waterline (all backfill classes) shall include compensation for trench excavation, backfill, pipe zone, compaction, toning wire, fittings (i.e. elbows), flushing, testing and disinfection.
- C. Temporary end plugs and other equipment and materials required for flushing, disinfection and testing are considered incidental and shall be included in the unit price for Waterline Distribution Piping items.

**END OF SECTION**

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## **SECTION 02511 – LOCATOR WIRE & WARNING TAPE**

### ***PART 1 GENERAL***

#### **1.01 SUMMARY**

- A. This section consists of furnishing all labor, material and equipment, and performing all work required for the burying of an insulated copper conductor wire and plastic underground warning tape in the trench with installed non-ferrous and/or nonconductive (plastic, etc.) water and sewer lines. See the Standard Detail Drawings for trench cross section.

### ***PART 2 PRODUCTS***

#### **2.01 MATERIALS**

- A. Waterlines
  - 1. Tracer wire shall be No. 12 AWG minimum, solid copper with blue colored insulation. Insulation shall be 0.030-inch thick HDPE designed for direct bury.
  - 2. Underground warning tape shall be 6-inch wide, 4-mil-thick, APWA Standard Blue color, reading “CAUTION – WATER LINE BURIED BELOW.”
- B. Sewer Lines
  - 1. Tracer wire shall be No. 12 AWG, solid copper with green colored insulation. Insulation shall be 0.030-inch thick HDPE designed for direct bury.
  - 2. Underground warning tape shall be 6-inch wide, 4-mil thick, APWA Standard Green color, reading “CAUTION – BURIED SEWER LINE BELOW.”
- C. Horizontal Directional Drill Installations
  - 1. Tracer wire for HDD installations shall have steel core with copper cladding and HDPE insulation. Insulation shall be 0.045-inch thick. Minimum gage is 12 AWG. Colors shall be as above. Pro-Trace HDD-CCS; Copperhead SoloShot EHS; DURAttrace DD; or approved equal.

### ***PART 3 EXECUTION***

#### **3.01 WORKMANSHIP**

- A. Waterlines Wire and warning tape shall be buried the entire length of the trench, placed in accordance with the Standard Detail Drawings, for all nonconductive pipelines.
  - 1. Wire shall be brought to the surface and connected at each valve box and each water meter. Distance between tracer lead access locations shall not exceed 1,000 feet. All joints and/or splices in the wire shall be made with a designed waterproof splice kit. Wire shall be taped to pipe every 5 feet and shall be run straight with a small amount of slack.

2. Warning tape shall be placed over the pipe zone material, approximately 15 to 18 inches below finish grade, in accordance with the Standard Detail Drawings. Lay tape flat and untwisted, centered over the pipe and with wording facing upwards.

**B. Sewer Lines**

1. Wire and warning tape shall be buried the entire length of the trench, placed in accordance with the Standard Detail Drawings, for all nonconductive pipelines.
2. Wire shall be brought to the surface and connected at each manhole and sewer cleanout. Distance between tracer lead access locations shall not exceed 1,000 feet. All joints and/or splices in the wire shall be made with a designed waterproof splice kit. Wire shall be taped to pipe every 5 feet and shall be run straight with a small amount of slack. Wire shall be routed outside each manhole or cleanout riser. Wire shall be exposed inside all cleanout covers and a minimum of 24" of wire provided. At manholes, pass wire into manhole between concrete grade ring and manhole lid frame and provide a minimum of 24" coiled wire.
3. Warning tape shall be placed over the pipe zone material, approximately 15 to 18 inches below finish grade, in accordance with the Standard Detail Drawings. Lay tape flat and untwisted, centered over the pipe and with wording facing upwards.

**PART 4 SPECIAL PROVISIONS**

**4.01 MEASUREMENT AND PAYMENT**

- A. Payment for Locator Wire & Warning Tape shall be included within the lineal footage prices for each size and backfill class of water and sewer lines to be installed. No additional compensation will be allowed.

**END OF SECTION**

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## **SECTION 02515 – WATERLINE APPURTENANCES**

### ***PART 1 GENERAL***

#### **1.01 SUMMARY**

- A. The work in this Section consists of furnishing all labor, materials, equipment and performing all work necessary for the proper installation of pipe appurtenances indicated on the Plans and/or required for the completion of the proposed waterline improvements.
- B. Pipe appurtenances may include, but are not necessarily limited to the following:
  - a. Fittings (bends, tees, etc.)
  - b. Valves and Valve Boxes
  - c. Concrete Thrust Blocking
  - d. Service Laterals (including saddles, valves, and other related items)
  - e. Fire Hydrant Assemblies
  - f. Blow-off and Combination Air Valve Assemblies
- C. All water pipe fittings and appurtenances (including rubber gaskets) shall be ANSI/NSF Standard 61 (for potable water service) approved, shall be made in the USA, shall be UL listed and FM approved.
- D. Appurtenance Submittals – four (4) copies of drawings and/or brochures for all appurtenances to be installed, whether as specified or a proposed substitution, shall be submitted to the Engineer for approval prior to installation.

### ***PART 2 PRODUCTS***

#### **2.01 MATERIALS**

- A. Ductile Iron Fittings
  - 1. Bends, tees, reducers, and all other fittings required for piping systems shall be ductile iron fittings cast with tested and traceable ASTM A536 Ductile Iron, with mechanical joint (MJ), flanged ends (FE), or plain ends (PE), unless otherwise shown in the Drawings.
  - 2. Special note shall be taken of the various end configurations (MJ, FE, PE) of fittings, valves, and other appurtenances as indicated in the Drawings for various installation connections to existing and new materials. Contractor may use full body or compact mechanical joint fittings provided the minimum pressure rating and other specifications are met.
  - 3. All fittings interiors shall be Cement-Mortar Lined and Seal Coated in accordance with ANSI/AWWA C104/A21.4-08 Standard (or latest revision, typical). External finish of all fittings shall be a bituminous coating in accordance with ANSI/AWWA C104/A21.4-08. All coated fittings shall meet the requirements of NSF-61.
  - 4. Fittings shall conform to ANSI/AWWA C110/A21.10-08 Standard (full body), or ANSI/AWWA C153/A21.53 Standard (compact). Fittings up to 24-inch shall be rated at 350 psi. Fittings over 24-inch shall be rated at 250 psi.

5. Mechanical Joints and gaskets for mechanical joint fittings shall conform to ANSI/AWWA C111/A21.11-07 Standard. Furnish with standard high-strength, low-alloy steel T-bolts and hexagonal nuts conforming to ANSI/AWWA C111/A21.11. Gasket material shall be vulcanized styrene butadiene rubber (SBR) or ethylene propylene rubber (EPDM) in accordance with ANSI/AWWA C111/A21.11.
6. Flanged fittings shall be faced and drilled to standard 125-pound template per ANSI Class 125 B16.1 Standard unless ANSI Class 250 B16.1 fittings are indicated on Drawings. Flange thickness shall conform to ANSI/AWWA C115/A21.15-05. Flange Gaskets shall be 1/8-inch thick SBR rubber per ANSI/AWWA C111/A21.11 Appendix C, Sec. C.2 with at least (3) three bulb type rings molded into both faces of the gasket. Gaskets shall be full face style with holes for bolts. Bolts shall be stainless steel. Flat rubber gaskets and/or thinner are not approved. Adapter flanges are not approved.
7. MJ Joint restrainers shall be used for all MJ fittings. Joint restrainers for MJ fittings shall MEGALUG by EBAA Iron or approved equal, joint restrainers shall be designed specifically for pipe material used. Use where shown on the Plans or required by conditions.
8. Thrust blocking as specified shall be installed at all fittings.

B. HDPE Fittings

1. Fittings shall be PE 4710 HDPE, Cell Classification of 445574C as determined by ASTM D 3350. Butt Fusion Fittings shall have a manufacturing standard of ASTM D 3261. Electrofusion Fittings shall have a manufacturing standard of ASTM F 1055. Molded and fabricated fittings shall have the same pressure rating as the pipe and shall be tested in accordance with AWWA C 906.
2. Fabricated fittings are to be manufactured using a Data Logger. Temperature, fusion pressure and a graphic representation of the fusion cycle shall be part of the quality control records.
3. Fittings may be fused to pipe when fitting DR is within one DR of the pipe, otherwise flanges must be used.
4. Services and service taps shall be accomplished with electrofusion saddles with brass or stainless steel threaded outlet, electrofusion saddles, or sidewall fusion branch saddles. Mechanical saddles shall not be used.
5. Flanged and Mechanical Joint Adapters - Flanged and Mechanical Joint Adapters shall be used to connect HDPE pipe with other pipe materials. Flanged and Mechanical Joint Adapters shall have a manufacturing standard of AWWA C 906, ASTM D 3261.
6. HDPE Wall Anchor shall be fused to HDPE pipe at concrete wall anchor locations. HDPE wall anchor shall be IPS HDPE wall anchor as manufactured by Performance Pipe; ISCO Industries or approved equal.

- C. Couplings – All couplings shall be epoxy coated and equipped with 304 stainless steel hardware and bolts conforming to nuts and bolts specified for flanged fittings. Contractor shall verify outside diameters (O.D.) of pipes to be connected prior to ordering couplings. Supply with standard shop coat enamel coating.

1. Transition, reducing, and straight couplings, 2-inch through 12-inch, shall have cast ductile iron or carbon steel body, and resilient gaskets. TPS Hymax 2000 Series; Romac 501; or approved equal.
2. End caps couplings, 3-inch through 12-inch, shall have cast ductile iron sleeves, end rings and end caps, and resilient gaskets. Smith-Blair 482; Romac EC501; or approved equal.
3. Flange coupling adapters, 3-inch through 12-inch, shall have cast iron body and end ring, and resilient flange and coupling gaskets. Smith-Blair 912; Romac FCA501; or approved equal. Use only where restraint is not required.
4. Flange by mechanical joint (Fig x MJ) adapters, 3-inch through 12-inch, shall have ductile or cast iron bodies and joints conforming to applicable fitting specifications herein. Tyler; Union Foundry Co.; or other approved pipe/fittings manufacturer.
5. Restrained flange coupling adapters shall be MEGAFLANGE by EBAA Iron, or standard flange by MJ adapters with MEGALUG restraint gland.
6. Couplings, ½-inch through 2-inch, for CTS pipe shall be compression type with rubber gaskets. Body shall be at least 3-¾inches long and constructed of galvanized carbon steel, with ASTM A47 malleable iron nuts. Smith-Blair 522; Romac 702; or approved equal.

D. Valves

1. Gate Valves
  - a. Gate valves, 2-inch through 12-inch, shall be iron body, resilient seat, non-rising stem (NRS), rubber encapsulated disc, wedge gate valves with O-ring seals. Valves shall be manufactured to open when the stem is rotated counterclockwise. Provide a 2-inch square operating nut unless otherwise specified. Valve end configurations and sizes shall be as shown on the Plans. All gate valves shall conform to AWWA C509. All valves shall be 200 psi working pressure, 400 psi test pressure.
  - b. Valve body shall have nominal 10 mil epoxy coating inside and out meeting AWWA C550 and certified to NSF 61.
  - c. Buried valves shall be furnished with a cast iron valve box as specified herein, and shall have operators designed for direct bury service. Furnish with a stem extension such that the operating nut is within 18-inches of the ground surface. Furnish hand-wheel operators for all non-buried valves, including valves in vaults.
  - d. Joint materials, nuts, and bolts for mechanical and flange joints shall be as specified in Section 02515-2.01.A.
  - e. Valves shall be as manufactured by M&H style 4067; U.S. Pipe; or approved equal.
2. Butterfly Valves (Buried Service)
  - a. Not Used

E. Valve Boxes

1. Cast iron valve boxes with PVC extensions shall be furnished and installed with all buried gate and/or butterfly valves. See standard detail drawing.
2. Valve box shall have a single piece top section and separate cover. Box and cover shall be manufactured from ASTM A48, Class 30 cast iron and shall be rated for H20 traffic loading. Cover shall have "W" or "WATER" formed in the casting.
3. Box shaft shall be 18-inches long with a 7-inch I.D. and 7½-inch O.D. Top flange of box shall be 12-inches in diameter. Cover shall be 7¾-inch diameter.
4. A PVC extension shall be placed at the valve extending to within 6-inches of the ground surface. The cast iron valve box is placed over this PVC extension. The PVC section shall be 6-inch diameter PVC, ASTM D3034, SDR35.
5. Cast iron valve boxes shall be USA made East Jordan Iron Works Catalog No. 3639Z1 18T with 3639A1 cover; Olympic Foundry, Inc. VB-910; or approved equal.
6. Valve Box for Combination Air Valve Assembly (CAV) – Utilize section of 18-inch diameter ADS N-12 storm drain pipe or equal of sufficient length per Detail Drawing. Lid shall be Ford Meter Box C52 Cast Iron Cover or approved equal. Provide sealant between cover and pipe to prevent dirt from entering interior.

F. Thrust Blocks and Concrete Anchor Walls – Furnish and place thrust blocks, sized as shown on the Plans. Concrete shall conform to Oregon Standard Specifications Section 00440, Commercial Grade Concrete. Compressive field strength shall not be less than 3,000 psi at 28 days. Maximum aggregate size shall be 1½-inches. Slump shall be between 2 and 4 inches. Thrust blocking shall be placed between undisturbed earth and the waterline fitting to be anchored in such a manner that the fitting is accessible for repair and nuts and bolts are not encased. 6 mil thick plastic sheeting shall be placed between fittings and poured concrete. Thrust blocks shall be neatly formed with plywood. Contractor shall install as required to prevent lateral movement and uplift.

1. Concrete anchor walls shall be formed and centered midway within the walls as shown on the Plans, HDPE wall anchor shall be incorporated into concrete wall anchor.
2. Reinforcing bars shall be placed as shown in the Detail drawings and Plans and shall be of deformed, billet steel conforming to ASTM A615, grade 60.
3. Adequate spacing shall be provided between the concrete cutoff wall and the nearest fitting to keep all joints, bolts and nuts free of concrete.
4. Concrete shall cure for a minimum of five (5) days prior to hydrostatic testing.

G. Fire Hydrant Assemblies

1. Fire hydrants shall conform to AWWA C502, latest revision, and shall be a breakflange traffic model type. Hydrants shall be of dry top center stem design. Hydrants shall be UL listed and FM approved.
2. Main Valve shall be 5-1/4-inch and barrel shall be 6-inch diameter.

3. Barrel length shall be sufficient for 36 inches of pipe cover, with extensions as required, by hydrant manufacturer. Include sweep-type bottom shoe with 6-inch mechanical joint inlet. Hydrant shall be installed to finish grade, with split safety flange 2-1/2 to 3-inches above adjacent ground or as shown in the Drawings.
  4. Hydrant 'split break-away' safety flange and stainless steel snap ring at groundline shall allow for 360-degree rotation of the standpipe for positioning purposes.
  5. Hydrants shall have "O" ring seals, rugged main valve, positive drain valve and non-kinking chains. Hydrants shall have bronze seat ring, drain ring, nozzles operating and thrust nuts and upper valve plate.
  6. Main valve seat ring removal and extension of the hydrant shall be accomplished without digging.
  7. Each hydrant shall be equipped with two 2 1/2 inch nozzles and one 4-1/2 inch steamer (pumper) nozzle. Operating nut shall be ductile iron 1-1/2 inch Pentagon National Standard, counterclockwise opening.
  8. Hydrants shall be installed according to Drawings and shall be backed by manufacturer's 5-year warranty on materials and workmanship.
  9. Hydrants shall be Fire Hydrant Red.
  10. Hydrants shall be Mueller Super Centurion 250 A-423, ACIPCO Waterous Pacer; or approved equal.
- H. Combination Air Valves (CAV) – Single housing style combination air release and air/vacuum valves, sized as indicated on the Plans, shall be installed at high points along waterlines or at the maximum spacing recommended by the valve manufacturer. Install combination air valve assemblies per Plans and Detail Drawing.
1. Furnish and install combination air valves and complete assemblies, sized as shown on the Plans and/or Standard Detail Drawings. Valves shall be 2-inch with NPT connection unless otherwise shown.
  2. All valve materials shall have NSF 61 certification. Body shall be reinforced Nylon with EPDM rolling seal design. Float shall be foamed polypropylene.
  3. Valves shall be as manufactured by A.R.I., model D-040; or approved equal.
- I. Blow-Off Assembly – Blow-off assemblies shall be provided at low points along the new waterline routes as shown on the Plans and Detail Drawings.
1. The blow off assembly shall include but not be limited to excavation and backfill, saddle, piping, gate valve and all other items necessary for complete installation as shown on the Plans and Detail Drawings.
- J. Red brass pipe nipples shall be seamless, M.I.P. threaded, rated for 150 psi and conforming to ASTM B43-98 and ASTM B687-99. Bronze fittings shall meet the requirements of ASTM B62-02 with NPT threaded ends conforming to ANSI/ASME B16.15. Type 304 stainless steel is approved alternate material.

- K. Service Saddles (1" – 2" taps on C900 PVC Pipe)
1. Saddles with 1-inch through 2-inch taps, on 4-inch through 12-inch AWWA C900 PVC pipe shall have solid 85-5-5-5 bronze body and nuts per ASTM B62, wide stainless steel band, and Buna-N rubber gasket. Supply with F.I.P. taps. Saddles must be sized properly for pipe furnished on project and have fully factory contoured clamp to provide full support around pipe without distorting pipe, and shall be leak free. Use double strap design for taps over 1-inch. Ford Meter Box Company Style 101BS (202BSD for 1.5" and 2" tap); or approved equal.
  2. Corporation stops used with 1-inch through 2-inch F.I.P. tap service saddles shall be ball type, constructed of 85-5-5-5 red brass and shall conform to AWWA C800 with low or no lead composition as required for NSF 61 classification. M.I.P. inlet and pack joint for CTS outlet. Ford Meter Box Company Type FB1100 Ballcorp; or approved equal. M.I.P. inlet and F.I.P. outlet for connection to fittings as required for air valve and blow-off assemblies - Ford Meter Box Company Type FB500-7 Ballcorp; or approved equal.
- L. Service Laterals
1. Service lateral piping, 1-inch through 2-inch (1-inch minimum size allowed), shall be high density polyethylene (PE 3408) pipe conforming to AWWA C901, NSF listed, ASTM 2737 SDR 9, 200 psi rating, standard CTS sizes. Pipe shall be solid blue in color or black with blue stripes. All fittings shall be standard pack joint for CTS tube. Ford Meter Box Grip Joint for CTS and Quick Joint for CTS (or equals) are also acceptable. Stainless steel internal pipe stiffeners as required at each pack joint connection.
  2. Meter Stops
    - a. Meter valves used with 1-inch CTS HDPE pipe laterals shall be 85-5-5-5 cast bronze per ASTM B62 conforming to AWWA C800 with low or no lead composition as required for NSF 61 classifications. Angle-style ball valves. Use only ¾-inch valves on 5/8-inch and 5/8x3/4-inch meters and 1-inch valves on 1-inch meters. Pack joint for CTS pipe inlet meter swivel nut outlet. Ford Meter Box Company BA43-3xxW; or approved equal. Contractor shall verify meter outlet size prior to ordering.
    - b. Meter valves used with 1½-inch and 2-inch CTS HDPE pipe laterals shall be 85-5-5-5 cast bronze per ASTM B62 conforming to AWWA C800 with low or no lead composition as required for NSF 61 classifications. Angle-style ball valves or straight ball valve where required. Use only 1½-inch valves on 1½-inch service lines and 2-inch valves on 2-inch service lines. CTS pack joint inlet by meter flange outlet. Ford Meter Box Company BFA43-xxxW and BF43-xxxW; or approved equal. Contractor shall verify meter outlet size prior to ordering.
  3. Couplings
    - a. Utilize CTS pack joint couplings with various MIP, FIP ends as required and shown in Detail Drawings. Use straight couplings and 90 degree ell couplings as required and shown in Detail Drawings. Couplings shall be brass conforming to AWWA C800 with low or no lead composition as required for NSF 61 classifications.

4. Water Meters
  - a. Utilize existing water meters when reconnecting to new service laterals, except where noted or directed to provide new meters. Meters damaged by construction operations shall be replaced at Contractor's expense. New meters shall be as required by Owner.
5. Meter Boxes
  - a. Utilize existing meter boxes when reconnecting to existing meter and box. Use new meter box when relocating water meters and boxes, providing new service, or when otherwise shown on the plans. Boxes damaged by construction shall be replaced at Contractor's expense.
  - b. New meter boxes shall be fiber reinforced, light-weight box with inside open dimensions of approximately 12-inch by 20-inch with 12-inch height. Boxes shall be FL12 Fiberlyte with SYN12S reading lid by Oldcastle Precast (Christy).
  - c. Larger meter boxes (for 1-1/2" and 2" meters, blow-off hydrant) shall be fiber reinforced polymer body with polymer reinforced concrete ring, 10K rating, interior dimensions of approximately 17-inch by 30-inch by 12-inch height. Boxes shall be WFB1730122A0C by Newbasis. Covers shall be polymer concrete, Newbasis Part # WPC1730C02A0BWM (with hinged reader lid) for meters, and Part # WPC1730A02A0B17 (solid cover) for blow-off. Cover marked with "Water".

### **PART 3 EXECUTION**

#### **3.01 WORKMANSHIP**

- A. Fitting Installation – Install fittings at the location shown or as directed by the Engineer. Comply with AWWA C600. Handle, clean, lubricate and install fittings as specified in the appropriate sections for laying pipe. Where a cut in the pipe is necessary for inserting fittings or closure pieces, cut the pipe mechanically without damaging it or its lining and leave a smooth end at right angles to the centerline of the pipe. Dress and bevel the cut end of the pipe to remove sharp edges and projections which may damage the gasket. Repair all damaged lining and coating to the satisfaction of the Engineer. On the pipelines, securely anchor all tees, plugs and elbows as shown or directed to prevent movement due to thrust. Achieve anchorage only by use of approved thrust blocking or approved joint restraint. Maximum deflection at mechanical joints shall be 3 degrees.
- B. Valves – Set valves in the same manner as specified in Section 02510 for pipe. Clean the face of flanges thoroughly before assembling the flanged joint. Insert the gasket and tighten the nuts uniformly around the flange. Align pipe carefully on both sides of the valve before final tightening of the flanges to avoid stressing the valve body. After installation, operate the valve from full open to full closed to ensure proper operation of the valve. Correct any malfunction in the operation of the valve. Test valve joints with adjacent pipeline. Repair any leaks as observed around the valve. Backfill around valves as specified in Section 02510 for pipe.
- C. Valve Boxes – Center valve boxes and set plumb over the operating nut of the valve. Set valve boxes so they do not transmit shock or stress to the valve. Set valve box covers flush with the surface of the finished pavement or such other level as may be directed. Adjust the extensions to the proper length as required for proper installation. Backfill

shall be as specified for the connecting pipeline. Correct any misalignment of valve boxes without additional expense to the Owner.

D. Concrete Thrust Blocking and Anchor Walls

1. Provide thrust blocking, as shown or directed by the Engineer, using concrete as specified. Place the concrete blocking between undisturbed earth and the fitting to be anchored. The bearing surface shall be sized and located to adequately withstand the applied thrust force. Do not encase pipe joints or fittings with concrete. See the Plans for thrust block configurations.
2. Install concrete anchor walls to secure HDPE pipe in place and allow for connection to new or existing waterlines other than HDPE pipe. Secure flex restraint or wall anchor to HDPE pipe following manufactures recommendations.
3. Thrust blocks and anchor walls shall not be backfilled for a minimum of 12 hours unless approved by Engineer. Contractor shall provide suitable steel plating and pinning as required to cover the thrust blocks and anchor walls until backfill material may be placed.

E. Service Laterals – Replace existing lateral piping with new specified material of the same pipe diameter, unless otherwise directed.

1. Service laterals shall be installed with a 2-inch schedule 40 PVC casing pipe from main tap to meter box. Laterals larger than 1-inch shall have a 3-inch schedule 40 PVC casing.
  - a. All corporation stops and all other lines being tapped shall use service saddles. Corporation stops shall be tapped at a 45-degree angle to the main and orientated in such a way as to provide adequate room for future operation and maintenance.
2. Within gravel or other unpaved surfaces, laterals shall be installed in open-cut trenches, or other method preferred by the Contractor and approved by the Owner and Engineer.
3. Within asphalt or other paved surfaces open-cut trenching will not be permitted. Laterals shall be bored, pushed or other method preferred by the Contractor that does not require open trenching. Submit lateral installation method for approval prior to commencing.
  - a. Service lines pushed or placed under roadways shall consists of a continuous length of pipe. No splicing, coupling and fusing of the service line underneath the roadway will be allowed unless prior approval has been given by Engineer.
4. New laterals shall be installed to replace all existing service laterals along the alignment of new mainlines constructed under this Contract.
5. Existing service laterals shall be removed from meter box to a point 5-foot from meter box, or greater if required for proper installation of new service lateral. All materials to be abandoned which are exposed during construction shall be removed from the site and disposed of by the contractor. Existing service laterals shall be capped watertight at cut end.

6. New service laterals shall be “stubbed-out” to any parcels located along new waterline alignments which do not currently have individual water service. See Plans for new service lateral locations. Contractor shall supply new service connection, line and stub to new meter box, District shall supply new water meter to property.

F. Fire Hydrant Assemblies

1. Construction and installation of the hydrants shall conform to applicable provisions of AWWA C600, except where otherwise specified.
2. Hydrants shall be located as shown or as directed to provide complete accessibility. Improperly located hydrants shall be disconnected and reset at the Contractors expense.
3. Hydrant shall be placed on precast concrete base block set on firm, level subbase to assure uniform support. Provide concrete thrust blocking against firm undisturbed native soil.
4. Hydrants shall be carefully placed as to prevent the base blocking from breaking. After hydrant is in place and pipeline connection has been made, place temporary blocks to maintain the hydrant in a plumb position during subsequent work. New hydrants shall be set plumb and solid for acceptable installation.
5. Provide a minimum of 4-cubic feet of drain rock around base of the hydrant. Extend drain rock at least 6 inches above hydrant drain hole.
6. Flush hydrant thoroughly following installation to remove any foreign matter.
7. Provide bollards to protect hydrants where shown on the plans or as directed by the Engineer. Install in accordance with detail drawings and provide two coats of epoxy coatings on post to match fire hydrants.

G. Combination Air Release Valves

1. Install in accordance with detail drawings at locations as shown on the Plans and to manufactures recommendations.
2. Air Release Valves shall be located at high points of the system where there is a change from an upward slope to a downward slope. It is essential that a positive grade be maintained between mainline and air valve. Contractor shall field verify and coordinate location with Engineer.

H. Blow Off Assembly

1. Install in accordance with detail drawings at locations as shown on the Plans and to manufactures recommendations. All connections to pipes shall have service saddles; service saddles shall be located on the bottom of the pipe.

**PART 4 SPECIAL PROVISIONS**

4.01 MEASUREMENT AND PAYMENT

- A. Measurement and payment for fittings, including but not limited to Tees, Elbows, End Caps, Couplings, Adapters, Sleeves and Blind Flanges will be made on a unit price basis for each size and type of fitting installed, for the corresponding unit price stated on the

Bid Form. No separate or additional payment will be made for nuts, bolts, washers and other fitting related hardware or supplies. Payment for fittings shall include compensation for thrust and resistance blocking, joint restraints, and connection to existing and new waterlines.

- B. Measurement and payment for Valves will be made on a unit price basis for each size and type of valve specified and installed, for the unit price stated on the Bid Form. Payment for valves will include valve box, restraint glands, and installation complete. No separate or additional payment will be made for nuts, bolts, washers, valve boxes, stem extensions, concrete blocking or other valve related hardware or supplies.
- C. Measurement and payment for Combination Air Valve Assemblies will be made on a unit price basis for each size of air valve assembly installed, as stated on the Bid Form. The unit price per each shall include compensation for excavation and backfill, saddle, piping, fittings, ball valve, combination air valve, vault and cover, and all other items necessary for a complete installation as shown in the Plans and specified herein.
- D. Measurement and payment for Blow-off Assemblies shall be made on a unit price basis for each size of blow-off assembly installed, as stated on the Bid Form. The unit price shall include compensation for excavation and backfill, saddle, piping fittings, gate valve, valve box, blow-off hydrant and all other items as required for a complete installation as shown on the plans and as specified herein.
- E. Measurement and payment for Water Service Reconnection will be made on a unit price basis for each size of service saddle installed, as stated in the Bid Form. The unit price shall include compensation for the service saddle, corporation stop and angle meter valve as well as associated excavation, backfill, tapping and all other work required for a complete installation. *[Saddles required for combination air valve and blow-off assemblies are included in bid items for those assemblies, and are not paid separately under this item.]*
- F. Measurement and payment for Water Service Laterals will be made on a lineal foot basis for each size and type of lateral installed, at the unit price stated on the Bid Form. Lateral piping will be measured horizontally from center of waterline to meter or end of pipe, whichever is applicable. Payment for service laterals shall include compensation for trench excavation, pipe bedding, pipe, pipe fittings, backfill, removal and capping of specified portion of existing service lateral, and connection to corporation and meter stop valves at each end of the new lateral and all other items as shown on the Standard Detail Drawings and specified herein. Payment shall constitute full compensation for all work specified herein and not specifically paid for in other pay items.
- G. Measurement and payment for new services and Meter Boxes shall be made on a unit price basis for each meter box and service, as stated on the Bid Form. Payment for relocated new meter box's and services shall include compensation for placement of meter box, compensation for the service saddle, corporation stop and angle meter valve as well as associated excavation, backfill, tapping and all other work required for a complete installation as shown in the plans and specified herein.
- H. Measurement and payment for Fire Hydrant Assemblies will be made on a unit price basis for each type of hydrant specified and installed, at the price stated on the Bid Form. Payment for Fire Hydrant Assemblies shall include compensation for new hydrant and gate valve, all excavation, pipe bedding, pipe spool, drain rock, thrust blocking, pad, backfill, and all other items as shown on the Standard Detail Drawings and specified herein. Payment shall constitute full compensation for all work specified herein and not specifically paid for under other pay items.

- I. Payment for Concrete Anchor Wall shall be on a unit price basis as stated on the Bid Form and as complete. Payment shall include concrete, steel reinforcing, forming, HDPE Wall Anchor, steel plating and all incidental work as shown on the plans and as specified.

**END OF SECTION**



## **SECTION 02530 – GRAVITY SEWER PIPE & FITTINGS**

### ***PART 1 GENERAL***

#### **1.01 SUMMARY**

- A. This section covers gravity sewer pipe materials for sewer mains and service laterals, including fittings, anchors, complete installation and testing.
- B. All work shall conform to the latest version of the Oregon Standard Specifications (OSS) Part 00400, except as specified herein and shown on the Plans.

### ***PART 2 PRODUCTS***

#### **2.01 MATERIALS**

- A. All pipe, fittings and appurtenances shall be new and unused.
- B. 4-inch through 15-inch PVC Gravity Sewer Pipe and Fittings
  - 1. Unplasticized polyvinyl chloride (PVC) plastic gravity sewer pipe with integral wall bell and spigot joints for the conveyance of domestic sewage. Pipe shall be colored green for identification as sewer pipe. Pipe shall be furnished in 20-foot laying lengths. Unless otherwise noted on the Contract Drawings, pipe shall meet ASTM D3034 and have an SDR of 35.
  - 2. PVC compounds shall meet the requirements of ASTM D1784, cell classification 12454-B.
  - 3. Bells shall consist of an integral wall section with a solid cross-section rubber ring, factory assembled, and securely locked in place to prevent displacement during assembly. Spigot ends shall be supplied from the factory with beveled ends. Joints shall provide a tight flexible seal meeting the requirements of ASTM D3212. Material used for elastometric seal in push-on joints shall meet the requirements of ASTM F477.
  - 4. All fittings and accessories shall be as manufactured and furnished by the pipe supplier, or approved equal, and shall have bell and/or spigot configurations compatible with that of the pipe. Fittings shall meet the same requirements as the pipe.
  - 5. All fittings and appurtenances required to construct laterals and cleanouts shall be PVC and provided by or approved by the same manufacturer as the sewer piping. This shall include all tees, caps, wyes, couplings and other required fittings.
  - 6. Pipe and fittings shall be Ring-Tite PVC Gravity Sewer Pipe and Fittings as manufactured by J-M Manufacturing Company, Inc.; or approved equal.
- C. Appurtenances
  - 1. Transition couplings and same diameter couplings for new sewer lines, unless otherwise specified, shall be flexible rubber with stainless steel bands. Fernco, or approved equal. Rotate coupling so type and size wording is visible from top to allow for inspection.

2. PVC pipe connections to concrete manholes shall utilize appropriately sized flexible, watertight seal adapters designed for such use. Adapters shall be tested watertight to a minimum of 10.8 psi during factory testing. Adapters shall be for connections to precast concrete shall be KOR-N-SEAL as manufactured by NPC, Inc.; or approved equal. Adapters for connections at cast-in-place manhole bases shall be made with a rubber waterstop grouting ring. Ring shall clamp to pipe with stainless steel clamp and have waterstop ribs. Waterstop Grouting Ring by Press-Seal Gasket Corp., or approved equal
  3. New service lateral connection to existing sewers shall utilize one of the following clamp on style saddles:
    - a. Molded PVC saddle with neoprene rubber seal to sewer main, gasket branch, and stainless steel straps; conform to ASTM D3034; GPK or approved equal.
    - b. Cast ductile iron saddle with virgin SBR gasket and adjustable 3½” wide stainless steel strap; Romac Style “CB” or approved equal.
  4. Service lateral connections to new sewer mains shall utilize manufactured tees or wyes as shown on the Plans or required by the Owner. Fittings shall conform to subsection 2.01.B. above. New tees or wyes shall also be cut into existing mains where use of saddles is not feasible or when so directed by the Engineer.
- D. Concrete shall conform to Oregon Standard Specifications Section 00440, Commercial Grade Concrete. Compressive field strength shall not be less than 4,000 psi at 28 days. Maximum aggregate size shall be 1½-inches. Slump shall be between 2 and 4 inches.
- E. Non-Shrink Grout. Grout shall be Sika 212, Euco N-S, Five Star, or approved equal nonmetallic cementitious commercial grout exhibiting zero shrinkage per ASTM C827. Grout shall not be amended with cement or sand and shall not be reconditioned with water after initial mixing. Nonsrink grout shall be placed and packed only with the use of an approved commercial bonding agent. Unused grout shall be discarded after 20 minutes.

### **PART 3 EXECUTION**

#### **3.01 PIPE INSTALLATION**

- A. PVC gravity pipe shall be installed, stored and handled in accordance with the manufacturer’s installation guide, the Uni-Bell PVC Pipe Association Installation Guide for PVC Sewer Pipe, ASTM D2321, and these specifications.
- B. Remove material from job site, which in the judgment of the Engineer is damaged, not as specified, or otherwise rejected. Payment will not be made for damaged or rejected materials, their removal, or for repairs to such materials.
- C. Preparation of Trench – Dewater, excavate and prepare trench for pipe laying to the lines and grades as specified and shown on the Plans. Place any required foundation stabilization and compact pipe bedding prior to laying pipe. Stabilize trench as required and comply with OSHA safety provisions.

- D. Place and compact pipe bedding material before placing pipe in the trench. Dig depression for pipe bells to provide uniform bearing along the entire pipe length. Thoroughly compact bedding material to prevent future bellies.
- E. Prior to lowering pipe into the trench, the Engineer and City representative will check for damage to the pipe. The Contractor shall repair or replace, as directed, all damaged or flawed pipe prior to installation.
- F. Thoroughly clean inside the pipe before laying. Prevent foreign material from entering the pipe while it is being placed in the trench. Remove all foreign material from the inside of the pipe and joint before the next pipe is placed. Keep debris, tools, rags or other materials out of the pipes at all times. When pipe laying is not in progress, seal the open end of the pipe with a watertight plug, or by other approved means to prevent the entry of trench water or other foreign materials into the pipe.
- G. Lay pipe with bell ends facing the direction of laying. For lines on an appreciable slope, face bells up-grade unless otherwise directed by the Engineer. Thoroughly clean the ends of the pipe to remove all foreign matter from the pipe joint. Lubricate the bell and spigot ends with approved pipe lubricant, as recommended by the manufacturer.
- H. Tolerance. For gravity pipelines, vertical deviation from true grade shall not exceed 0.02 feet (0.24 inch). Horizontal tolerance for deviation from line shall be 0.03125 feet (3/8 inch). Depressions or bellies which create the potential for solids deposition are not allowed.
- I. Care must be taken to ensure the pipe is not moved and the side support fill is not disturbed when moving sheeting or trench boxes.
- J. Place materials in the pipe zone in layers not greater than 6 inches thick and in a manner that equalizes the pressure on the pipe and minimizes stress. As required under the haunches of pipe and areas not accessible to mechanical tampers or to testing, compact with hand methods to ensure thorough contact between the material and the pipe. Before placing the pipe zone material, condition, aerate, or wet the material so that the moisture content of each layer is within minus 4% to plus 2% of optimum moisture content.
- K. Provide proper Backfill Class material as required. Backfill the trench above the pipe zone in successive lifts. Do not allow the backfill to free-fall into the trench until at least 3 feet of cover is provided over the top of the pipe. Modify the compaction as necessary to protect the pipe. Compact each lift to not less than 95% of the maximum density.
- L. Service laterals shall be installed at a minimum 2% slope from the mainline or manhole to the connection with the existing lateral from the building, unless otherwise approved by the Engineer. Provide couplings for connection to existing service laterals. Coordinate with home-owner.
- M. Service Lateral Connections
  - 1. Service lateral connections shall include the connection of any new or existing service lateral to the main at locations shown on the Plans. Service laterals shall be connected to the main using either strap-on saddles or new manufactured tees, as specified. In general, saddles will be used where new laterals are being added along existing mains or where existing laterals are being replaced and reconnected to the existing main. Reconnection to existing tees may be allowed when, in the Engineer's opinion, the condition of the tee is acceptable to provide for a durable, watertight seal. New manufactured tees will be required to connect

laterals to new mains as well as to reconnect laterals to existing mains when the existing tees are unusable or damage to the mainline has occurred such that use of a saddle is impractical.

2. The Contractor shall install new PVC tees or saddles with manufactured bends as shown on the Standard Details. Service lateral piping shall be extended from the new saddle to the point where the existing service lateral crosses into the public right-of-way, and connected to the existing piping.
  3. The Contractor shall provide a minimum of 1-hour notice to any existing user prior to cutting the user's service lateral and thereby disrupting service. Lateral replacement shall be completed within 4-hours or the Contractor will be required to provide bypass pumping for the affected service.
  4. The Contractor shall be responsible for all exploratory excavation necessary to locate service laterals.
  5. Service laterals shall be neatly cut at the property line and removed to the point of connection to the mainline. Reconnection to existing lateral piping shall be made using an appropriately sized transition coupling, as specified.
  6. Where existing tees on the sewer main are cracked, broken, or otherwise unusable, the Contractor shall install a new tee and necessary mainline piping in order to provide a watertight connection for the lateral.
- N. All pipes shall be thoroughly flushed with water prior to testing. Removal of water and debris shall be accomplished by exposing the pipe on the low end of the gravity main in each section and pumping water from the trench to the ground surface for disposal. The Contractor shall be responsible for the removal of all debris that enters into the sewer system from construction. All costs associated with removal of such debris shall be the responsibility of the Contractor and result in no additional costs to the Owner.
- O. After installation and compaction of backfill, all pipe shall be thoroughly flushed and then subject to either hydrostatic or low-pressure air testing. Pipe will also be tested for deflection and will be video inspected.

### 3.02 MANHOLE CONNECTIONS

- A. Where shown on the Plans or directed by the Engineer, the Contractor shall connect new sewer piping to existing manholes.
- B. Core drill the manhole wall using appropriately sized core drill for the new pipe. Jack-hammering will not be allowed. Install pipe in accordance with Section 02535.
- C. When an existing manhole has a poured-in-place base or other obstruction at the pipe level and core drilling is not feasible, contractor may jackhammer to provide penetration for new or replacement pipe. Install pipe in accordance with Section 02535 using Waterstop Grouting Ring.
- D. Connections to plastic manholes shall utilize appropriately sized flexible couplings between sewer pipes and preformed pipe stub-outs on the manhole base.
- E. Install flexible transition couplings on all pipes within 2 feet of the outside walls of manholes, or a pipe bell shall be located a minimum of 1 foot to a maximum of 2 feet from the outside wall of manholes. Provide a watertight connection.

- F. Bench and channel the manhole in accordance with Section 02535-3.03.

3.03 PLUG AND ABANDON PIPING/LATERALS

- A. Plug and abandon existing sewer main or lateral piping where shown on the Plans or directed by the Engineer. Install an appropriately sized mechanical plug at least 2-feet into the pipe or lateral designated for plugging or abandonment.
- B. Concrete slurry for sealing sewer lines and laterals being abandoned shall consist of 2 sacks of Portland cement per cubic yard of cement sand. Water shall be added at such a ratio as to provide a 4-inch slump.
- C. Concrete slurry shall be packed into the end of the pipe up to the mechanical plug and troweled flush with the end of the pipe.

3.04 LOW-PRESSURE AIR TESTING OF GRAVITY SANITARY SEWER (per UNI-B-6-98 / ASTM F1417)

- A. The Contractor shall furnish all equipment, materials and personnel required for properly conducting all required low-pressure air testing under observation of the Engineer. Pressure gauge shall have 0.10 psi increments and an accuracy of 0.0625-psi. Testing equipment must include a pressure relief device designed to relieve pressure at a maximum of 9 psi and must allow continuous monitoring of the test pressure to avoid excessive pressure. All air used shall pass through a single control valve. Only qualified personnel shall be permitted to conduct the test. The Time Pressure Drop Method shall be used.
- B. Testing shall be performed in the presence of the Engineer or a City representative. Testing shall be conducted after backfilling and compaction has been completed to finish grade. Notify Engineer at least 2 working days in advance.
- C. Initial Test – A test shall be conducted on the first section of pipe laid by each crew to establish that the pipeline installation is capable of preventing excessive infiltration. The section of pipeline tested shall be at least 300 feet in length. If the test indicates exfiltration exceeding the amount hereinafter specified, all defective materials and/or workmanship shall be corrected and the test rerun until leakage is within the specified limits.
- D. If, in the opinion of the Engineer, the water-tightness of the pipe is in question during installation, the Engineer may require the Contractor to test the pipe sections in question. Such testing shall not be considered adequate for final pipe testing, performed after the pipe is installed, backfilled, and cleaned. Thereafter all sewer pipe shall be tested as provided herein.
- E. The Contractor may desire to make air tests prior to complete backfilling, for his own purposes; however, acceptance air test shall be made only after installation of all laterals and backfilling has been completed and compacted.
- F. It is extremely important that all plugs, including end of service laterals, be installed and braced such that blowouts are prevented (ex. 250 lbs force is exerted on an 8" plug at 5 psig). Exercise care to prevent excessive pressures. Keep workers out of manholes until pressure is released.
- G. Testing Procedure

1. Immediately following pipe cleaning, the pipe installation shall be tested with low pressure air. Each pipe section between manholes shall be tested. Service laterals from the main to the property line shall be included in the test.
2. Check the average height of ground water over the pipe invert. The test pressure required below shall be increased 0.433 psi for each foot of average water depth over the pipe (ex. If groundwater is 2.8 feet above pipe invert, add 1.2 psig to test pressures). Method used to determine groundwater depth shall be acceptable to the Engineer.
3. Air shall be slowly supplied to the plugged pipe until internal air pressure reaches 4.0 psi greater than the average back pressure of any ground water that may submerge the pipe. Do not exceed a total pressure of 9.0 psig.
4. After the internal test pressure is reached, at least two minutes shall be allowed for the air temperature to stabilize. After the stabilization period, disconnect the air supply.
5. The continuous monitoring pressure gauge shall then be observed while the pressure is decreased to no less than 3.5 psig (greater than average backpressure of any groundwater over the pipe). At a reading of 3.5 psig, or any convenient pressure between 3.5 psig and 4.0 psig (above groundwater pressure), timing shall commence with an accurate stop watch.
6. Acceptance - The tested section shall be considered acceptable if the required testing time has elapsed before a 1.0 psig pressure drop has occurred. If the pressure drops 1.0 psig before the minimum length of time has elapsed, the air loss rate is considered excessive and the section of pipe has failed the test.
7. Acceptance criteria is based on an allowable air loss of  $Q=0.0015$  cfm per  $ft^2$  of internal pipe surface area less than  $625 ft^2$ . This results in a total allowable loss of  $625Q = 0.94$  cfm. The shortest time (T), in seconds, allowed for the air pressure to drop 1.0 psig is calculated with the following formula:  
$$T = 0.085 (DK/0.0015)$$
  
$$K = 0.000419DL \text{ but not less than } 1.0, D = \text{pipe I.D. in inches, and } L = \text{length of pipe tested in feet.}$$
8. Contractor shall record and document the testing procedure and results during the testing process. The UNI-Bell "Air Test Data Sheet" or similar approved equal shall be used and submitted to the Engineer. Record the diameter (in), length (ft), start and end manhole numbers, time, date, pressure drop, and groundwater level on inspection form.

**Minimum Specified Time Required for 1.0 PSIG Pressure Drop**

Pipe ø (in)	T <sub>min</sub> (min:sec)	L for T <sub>min</sub> (ft)	T for longer L (sec)	Specification Time for Length (L) Shown (min:sec)							
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft
4	3:46	597	.380L	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6	5:40	398	.854L	5:40	5:40	5:40	5:40	5:40	5:40	5:42	6:24
8	7:34	298	1.520L	7:34	7:34	7:34	7:34	7:36	8:52	10:08	11:24
10	9:26	239	2.374L	9:26	9:26	9:26	9:53	11:52	13:51	15:49	17:48
12	11:20	199	3.418L	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38
15	14:10	159	5.342L	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04
18	17:00	133	7.692L	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41
21	19:50	114	10.470L	19:50	26:10	34:54	43:37	52:21	61:00	69:48	78:31
24	22:40	99	13.674L	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33
27	25:30	88	17.306L	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48
30	28:20	80	21.366L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15

*If no pressure drop (0 psig) has occurred after 1 hour, test may conclude and section passes*

9. Service laterals shall be included in test however the length of service laterals may be ignored and the length of main line only used in the above table. If desired, length of service laterals included in test section may be included in the calculation by following the method outlined in UNI-B-6-98 Section 9.4.

**3.05 HYDROSTATIC TESTING OF PIPE**

- A. Hydrostatic testing may be done in lieu of low-pressure air testing. Hydrostatic testing shall be required for water storage tank drain piping between tank and final manhole.
- B. Contractor shall provide all hose, temporary piping, approved pipe plugs, tank trucks, and other equipment, labor and material required to make the hydrostatic tests, and shall pay for the water used, unless otherwise approved by the Engineer. Testing of the pipe shall be conducted in the presence of the Engineer. Testing shall be conducted after backfilling and compaction has been completed to finish grade. Notify Engineer at least 2 working days in advance.
- C. Prior to making exfiltration leakage tests, contractor may fill the pipe with clear water to permit normal absorption into the pipe walls; provided however, that after filling the pipe, leakage testing shall be completed within twenty-four (24) hours after filling. When under test, allowable leakage shall comply with the following requirements:

Leakage shall not exceed 0.04 gallons per hour per inch diameter per one hundred (100) feet of sanitary sewer pipe, with a minimum test pressure of six (6) feet of water column above the highest section of pipe (including service laterals), or above the active ground water table, whichever is higher as determined by the Engineer. The length of pipe tested shall be limited so that the pressure on the invert of the lower end of the section tested shall not exceed 28 feet of water column, and in no case shall be greater than 500 feet. All service connection footage shall be taken into account in computing allowable leakage. Test duration shall be at least 2 hours. Methods of imposing the water column and measuring the water loss shall be acceptable to the Engineer.

**3.06 DEFLECTION TESTING OF FLEXIBLE PIPE FOR SANITARY SEWERS**

- A. In addition to air or hydrostatic testing, the contractor shall conduct deflection tests of sanitary sewers constructed of flexible pipe. Testing will consist of pulling an approved

mandrel through the completed pipeline after backfill and compaction to finish grade is complete. Testing shall be conducted in the presence of the Engineer.

- B. Diameter of the mandrel shall be at least 95% of the pipe internal diameter. Mandrel shall have at least 6 vanes.
- C. Testing shall be done from manhole to manhole. Pipe shall be thoroughly cleaned and flushed prior to pulling the mandrel. Mandrel shall pass smoothly through the pipe without excessive effort.
- D. Testing shall be conducted only after at least 30 days have elapsed after backfill and compaction was completed. May be conducted concurrently with video inspection.

### 3.07 VIDEO INSPECTION OF GRAVITY SANITARY SEWER SYSTEMS

- A. All gravity sewer lines constructed as part of the project shall be televised and taped at the end of construction prior to acceptance. Taping shall be conducted after all backfill and compaction, but prior to final surface restoration. All pipes shall be thoroughly flushed by the Contractor immediately prior to the video inspection. A 1-inch target ball shall be placed in front of the camera. The video shall be recorded in color on VHS format. Sufficient light shall be provided to show detail. Camera speed shall not exceed 3 feet per second. Camera shall have a swivel head capable of looking up each service connection. A copy of the video tape and a written TV Inspection Report shall be furnished to the Engineer. Any sections of sewer pipe not meeting specifications or exhibiting defects shall, at the Contractor's expense, be corrected to meet specification. Repaired sections shall be re-televised. All repairs must be completed before acceptance of the project.
- B. The sanitary sewer lines constructed as part of the project will also be video inspected near the end of the one year warranty period by the Owner to determine if any defects exist in the system. The warranty video inspection will be conducted during a season of high groundwater as close to the end of the warranty period as possible. The warranty period will continue to be in effect, regardless of duration, until all video recordings are received and approved. All defects in the system will be corrected at the Contractor's expense.

## **PART 4 SPECIAL PROVISIONS**

### 4.01 MEASUREMENT AND PAYMENT

- A. Payment for Gravity Sewer Pipe & Fittings will be made on a lineal foot basis for each size and backfill class, for the indicated range of depths, at the unit prices stated on the Bid Form. Payment shall include compensation for trench excavation, pipe zone, pipe, backfill, anchors, fitting, transition couplings, appurtenances, testing, video inspection and all related work. Measurement will be made along the pipe centerline.
- B. Payment for Sewer Service Connection & Cleanout will be made on a unit price basis per each. Payment shall include compensation for furnishing and installing new manufactured tees or wyes, excavation, backfill material, fittings, cleanouts, appurtenances, and a pressure treated 2x4 locator post.
- C. Payment for Sewer Service Lateral Piping will be made on a lineal foot basis regardless of size of backfill class. Payment shall include compensation for all excavation, labor, and materials required for installation of the required lateral piping.

## **END OF SECTION**

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## **SECTION 02535 – MANHOLES & APPURTENANCES**

### ***PART 1 GENERAL***

#### **1.01 SUMMARY**

- A. This Section covers manholes, frames, covers, adapters, and other manhole appurtenances not specifically paid for in other sections, used in the gravity sewer collection system. See Standard Detail Drawings.
- B. This Section covers manhole(s), frames, covers, adapters and other manhole appurtenances not specifically paid for in other sections.
- C. All manholes, frames and covers supplied under this contract shall be from the same manufacturer.

### ***PART 2 PRODUCTS***

#### **2.01 MATERIALS**

##### **A. Manholes**

- 1. Manhole riser sections shall be pre-cast reinforced concrete with a minimum wall thickness of 5 inches, conforming to ASTM C 478. Concrete used in forming the sections shall have a minimum compressive strength of 4000 psi at 28 days. Reinforcing steel shall be Grade 60.
- 2. Manholes shall have precast reinforced concrete bases with shelves, channels and slopes as specified. Precast bases shall have same wall thickness and reinforcement as riser sections.
- 3. Joints between manhole sections as well as base sections shall be tongue and groove with an o-ring gasket or approved equal conforming to ASTM C-443. Preformed gaskets shall be Ram-Nek, Kent-Seal No. 2, or approved equal.
- 4. Manholes shall have yard permeability tests passing ASTM C497-03 prior to delivery. Manhole steps shall be plastic with ½" grade 60 steel reinforcing bars encapsulated with injection molded copolymer polypropylene with serrated surfaces.

##### **B. Frames and Covers**

- 1. All frames and covers shall be heavy duty, gray cast iron designed for H20 traffic loading. Metal used in the castings shall conform to ASTM A48 Class 30. All castings shall be manufactured true to pattern, uniform in quality, free from blowholes, shrinkage, distortion or other defects. Component parts shall fit together in a satisfactory manner and shall have continuously machined bearing surfaces to prevent rocking and rattling. Castings shall be smooth and well cleaned by shotblasting at the factory.
- 2. Frames and covers shall have skid resistant surface of raised knobs or indentations. Cover shall have the word "SEWER" cast into it. Non-watertight lids shall have two vent holes.
  - a. Storm drain covers shall have the letter "S" or word "Storm" cast into it.

3. Frames and covers shall be manufactured in accordance with the dimensions shown in the Standard Detail Drawings; Olympic Foundry, or approved equal.

C. Manhole Connections

1. Connections to precast manhole sections shall be accurately core-drilled and shall utilize a properly sized flexible rubber boot providing a watertight seal. Adapter shall be factory tested for watertightness up to 10.8 psi. Kor-N-Seal as manufactured by NPC, Inc. or approved equal.
2. Connections to cast-in-place concrete shall be made with a rubber waterstop grouting ring. Ring shall clamp to pipe with stainless steel clamp and have waterstop ribs. Waterstop Grouting Ring by Press-Seal Gasket Corp., or approved equal.
3. Connections to plastic manholes shall be made using appropriately sized flexible couplings and connecting to preformed pipe stub-outs, provided that stub-outs are not damaged.

D. Grout

1. Non-Shrink Grout. Grout shall be Sika 212, Euco N-S, Five Star, or approved equal nonmetallic cementitious commercial grout exhibiting zero shrinkage per ASTM C827. Grout shall not be amended with cement or sand and shall not be reconditioned with water after initial mixing. Nonshrink grout shall be placed and packed only with the use of an approved commercial bonding agent. Unused grout shall be discarded after 20 minutes

**PART 3 EXECUTION**

3.01 MANHOLE INSTALLATION

- A. Prepare native soil and place and compact the crushed rock base to 95% maximum dry density as shown in the Standard Detail Drawings. Backfill material around manholes shall be as specified for trenches in Section 02320.
- B. Concrete base shall be carefully placed on the prepared bedding so as to be fully and uniformly supported at true grade and alignment.
- C. Pipe penetrations shall be core drilled to the appropriate size for each pipe entering or exiting the manhole. Jackhammering will not be allowed. Install appropriately sized KOR-N-SEAL boot on each pipe and apply non-shrink grout to remainder of wall penetration to provide positive seal. Non-shrink grout shall be as specified.
- D. Install transition couplings, per Section 02530, within 2 feet of the outside wall of manholes on all pipes; or, a pipe bell shall be located a minimum of 1 foot to a maximum of 2 feet from the outside wall of manholes.
- E. All flow channels within precast bases shall be constructed of non-shrink grout with a minimum depth of three-fourths ( $\frac{3}{4}$ ) the contributing pipe diameter. Inverts shall be true to line and grade with flow lines having a minimum drop of 0.1 feet from inlet to outlet (0.2 feet for 90 degree flow direction changes) or as shown on the Contract Drawings. Sides of channels shall be troweled smooth to prevent solids deposition. Ledges or benches shall be sloped towards channel to drain. Provide fine broom finish on ledges.

- F. Clean tongue and grooves of base and wall sections, prime and apply joint sealer prior to setting in place. Ensure that joint has fully seated. Use approved flexible joint sealant and same manufacturer's primer. The height of the lowest wall section shall be at least three (3) times the inside diameter of the largest sewer pipe entering the manhole and in no case less than 2-feet. Wall sections shall be plumb vertical.
- G. Use eccentric cone top section for manholes greater than 6-feet deep. Use extension rings in accordance with the standard detail.
- H. Frame and covers shall be installed so that the cover is exposed and flush with the existing surface. In no case will pavement be raised or lowered to meet the grade of installed manhole frames and covers. Where manholes are installed in sloping areas, the grade of the slope shall intersect the top rim of the cover on the uphill side. Manhole frame shall be sealed to the concrete manhole section with a bed of non-shrink grout on either side of bead of flexible joint sealant. In addition, the frame and cover shall be grouted to the outside of the concrete manhole section.
- I. Manhole installations with tilted or otherwise defective bases, wall sections which are not plumb, covers which do not match existing grade properly, or are otherwise not in specification compliance shall be removed by the Contractor and replaced until acceptable.

### 3.02 MANHOLE VACUUM TESTING

- A. Precast concrete manholes shall be tested in accordance with the following procedure. Manhole installations which fail the testing shall be repaired or replaced until passing results are obtained. If flexible joint sealant is pulled out during testing, it shall be repaired. No payment to the Contractor will be made for such repair and/or replacement.
- B. Testing shall be done in the presence of the Engineer. Notify Engineer at least 2 working days in advance.
- C. All manholes shall be tested for acceptance after the trench has been backfilled, compaction requirements have been met, road base rock has been installed, paving is complete, and concrete manhole collars have been installed. If manhole has passed test and the castings have later been disturbed, manhole shall be re-tested.
- D. Thoroughly clean all manholes prior to testing. Remove all debris and do not allow foreign material to enter downstream piping.
- E. Contractor shall provide all necessary equipment and personnel to conduct the testing, including vacuum equipment and indicating devices.
- F. Procedure:
  - 1. Plug all pipes entering manhole. Secure all plugs to prevent movement while vacuum is being drawn.
  - 2. Testing shall include the joint between the manhole cone or riser ring(s) and the manhole cover frame.
  - 3. Installation and operation of vacuum equipment and indicating devices shall be in accordance with the manufacturer's specifications and instructions.
  - 4. Withdraw air from the manhole until a measured vacuum of 10-inches of mercury (10" Hg) is established in the manhole interior.

5. Record the time it takes for the vacuum to drop to 9-inches of mercury (9" Hg). Acceptance standards are based on this 1-inch of mercury change in negative pressure. Time measured for the 1" Hg pressure change shall be equal to or greater than the values in the following table:

**Vacuum Testing Requirements (minimum test times, seconds)**

Manhole Depth (ft)	Manhole Diameter (in)				
	42"	48"	54"	60"	72"
8' or less	17	20	23	26	33
10	21	25	29	33	41
12	25	30	35	39	49
14	30	35	41	46	57
16	34	40	46	52	67
18	38	45	52	59	73
20	42	50	53	65	81
22	46	55	64	72	89

6. Hydrostatic testing of manholes may be allowed. Test shall be in accordance with ASTM C497 as modified here. Test will consist of plugging all inlets and outlets and filling the manhole with water to the rim. Leakage in each manhole shall not exceed 0.2 gallons per hour per foot of head above the invert. Leakage will be determined by refilling to the rim using a calibrated or known volume container. Testing duration shall be at least 2 hours. Testing results shall be recorded on a form approved by the Engineer.

### 3.03 BENCH AND CHANNEL EXISTING MANHOLE

- A. Modify or reconstruct manhole bases as required by hand forming channels with non-shrink grout to provide smooth flow surfaces from all inlets to the outlet. Non-shrink grout shall be as specified.
- B. All flow channels shall be constructed with a minimum depth of three-fourths ( $\frac{3}{4}$ ) the contributing pipe diameter. Inverts shall be true to line and grade with flow lines having a minimum drop of 0.2 feet from inlet to outlet.
- C. Shape flow channels to conform to connecting pipe surfaces. Ledges or benches shall be sloped towards channel to drain.
- D. Remove all rough sections or sharp edges that might obstruct flow or cause snags.
- E. Form base channels in conformance with the standard detail drawings.

### 3.04 NEW MANHOLES ON EXISTING SEWER MAINS

- A. New manholes constructed along existing sewer mains shall, where feasible, utilize precast manhole bases as defined in Paragraph 2.01 A. Existing sewer mains shall be neatly cut or snapped approximately 12 to 18 inches outside the limits of the new manhole base. Pipe stubs, properly cut to length, shall be placed in properly sized cored penetrations and joined to existing sewer mains using appropriate transition couplings as defined in Section 02530.
- B. In situations where it is not feasible or practical to cut in new pre-cast manhole bases on existing sewer mains, cast-in-place bases will be allowed. Contractor shall notify Engineer of conditions warranting cast-in-place bases.

**PART 4        SPECIAL PROVISIONS**

4.01    MEASUREMENT AND PAYMENT

- A.        Payment for Standard Manholes installed at all depths shall be made on a unit price basis per each, at the price stated on the Bid Form. Payment will include all materials and labor required for complete installation, including excavation and backfill around manholes, all precast components, grouting and shaping of base channels, pipe adapters, testing, temporary hard surfacing, and all else related to this item not paid under other sections.
  
- B.        Payment for Channeling, Benching and Modification of existing manhole base will be made on a unit price bases per each, at the price stated on the Bid Form. Payment will include all materials, labor and equipment required for complete modification of existing manhole base including all penetration coring, cleaning, preparation for cementitious grout all as required for a complete manhole base modification.
  
- C.        Connection of existing piping to new manholes shall be considered incidental to the work. No additional payment will be allowed.

**END OF SECTION**

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## **SECTION 02740 – HOT MIX ASPHALT CONCRETE PAVEMENT**

### ***PART 1 GENERAL***

#### **1.01 SUMMARY**

- A. This section includes furnishing all materials, labor and equipment necessary to construct asphalt concrete pavement to the lines, grades and cross sections shown or established, including one or more courses and overlays. Work shall be performed in conformance with any applicable State, County or City Standards.

### ***PART 2 PRODUCTS***

#### **2.01 DEFINITIONS**

- A. Hot Mixed Asphalt Concrete (HMAC) – Asphalt concrete is a hot mix of asphaltic cement; well graded, high quality aggregate; mineral filler and additives, as required; plant mixed into a uniformly coated mass, hot laid in on a prepared foundation, and compacted to a specified density.
- B. Oregon Standard Specifications (OSS) – The 2008 Oregon Department of Transportation/APWA Oregon Chapter Standard Specifications for Construction.

#### **2.02 MATERIALS**

- A. Unless otherwise specified herein, types, grades, quality and proportions of materials shall conform to specified and/or applicable sections of the current Oregon Standard Specifications.
- B. HMAC shall be Level 3 HMAC, ½-inch Dense Graded Mix in accordance with OSS Section 00745.
- C. Asphalt Tack Coat shall consist of CSS-1 or CSS-1h emulsified asphalt (EA) tack coat conforming to OSS 00730.

### ***PART 3 EXECUTION***

#### **3.01 WORKMANSHIP**

- A. Unless otherwise specified herein, HMAC shall be mixed, processed, hauled, laid, compacted and finished in accordance with OSS Section 00745.
- B. Notify the Engineer at least 48-hours prior to placement of base aggregate and asphalt concrete pavement to permit inspection.
- C. When, in the judgment of the Engineer, the weather is such that satisfactory results cannot be achieved asphalt concrete paving operations shall be suspended. Owner shall not be liable for damages or claims of any kind or description due to the suspension of operations by the Engineer. HMAC shall not be placed when the ambient temperature is below 35° F.
- D. Adhere to all applicable State and/or OSHA regulations pertaining to road closure, traffic control, and other related safety precautions.

- E. To provide for the convenience and safety of the traveling public, pavement replacement shall be performed immediately following the completion of backfilling operations. In the event that pavement replacement cannot be performed as such, the Contractor shall maintain the trench backfill on a daily basis, as directed, until pavement replacement has been completed.
- F. Pavement Sawcutting
1. Utility trenches in existing pavement areas shall be sawcut immediately prior to repaving. Sawcuts shall be made a minimum of 6-inches outside the limits of the trench, or to the outer extents of pavement damaged as a result of the Contractor's operations, whichever is greater.
- G. Tack Coat Asphalt
1. Contact surfaces of manholes, catch basins, gutters and existing pavements shall be treated with a layer of tack coat asphalt. Do not place on wet surfaces.
  2. Joints between existing and new AC pavement shall be filled with tack coat asphalt.
  3. Apply tack coat asphalt with a pressure distributor capable of uniformly applying the emulsified asphalt at even heat on variable surface widths up to 16-feet, at readily determined and controlled rates from 0.05 to 0.20 gallons per square yard, and with uniform pressure. Pressure distributor shall include a tachometer, pressure gages, accurate volume measuring devices and a thermometer for measuring temperature of tank contents. Pressure distributor shall be equipped with a positive power asphalt pump and full circulation spray bars adjustable both laterally and vertically. Set bar height for triple lap coverage.
  4. Minimum surface temperature at the time of placement of tack coat asphalt shall not be less than 50° F.
  5. Tack coat shall only be applied to clean dry surfaces. All loose material should be removed by sweeping, flushing with water or other approved methods.
  6. Apply tack coat asphalt at the following rates for the indicated surfaces.
- | Surface       | Application Rate (gallons / yd <sup>2</sup> ) |                        |
|---------------|---|------------------------|
|               | Undiluted                                     | Diluted 1:1 with Water |
| New HMAC      | 0.05 – 0.07                                   | 0.10 – 0.13            |
| Oxidized HMAC | 0.07 – 0.10                                   | 0.13 – 0.20            |
| Milled HMAC   | 0.10 – 0.13                                   | 0.20+                  |
7. Tack coat asphalt shall be at a temperature between 140° F and 185° F as recommended by the manufacturer at the time of application.
  8. Do not place HMAC on the tack coat until the asphalt separates from the water, but before it loses its tackiness.
- H. Asphalt Concrete Pavement
1. HMAC shall be a minimum of 250° F at the time of placement.
  2. Storage of HMAC in silos shall not be permitted.

3. Control of line and grade shall be manual.
4. HMAC shall be covered during hauling if rain or cold air temperatures are encountered any time between loading and placement. HMAC will be rejected if any of the following is observed: mix falls below minimum specified temperature; slumping or separating; solidifying or crusting; absorbing moisture. Rejected loads shall be disposed of at the Contractor's expense.
5. Deposit HMAC from the hauling vehicles so segregation is prevented. HMAC shall not be windrowed.
6. Placement
  - a. HMAC should be placed using a self-contained, self-propelled paver supported on tracks or wheels that do not contact the mix being placed.
  - b. When leveling irregular surfaces and raising low areas, do not exceed 2-inches actual compacted thickness on any one lift.
  - c. Place the mix in the number of lifts and courses, and to the compacted thickness for each lift and course as shown on the Plans. Limit the minimum lift thickness to twice the maximum aggregate size in the mix.
7. The compacted depth of new asphalt concrete pavement on public streets shall be 2-inches, minimum. Asphalt concrete paving for utility trench patches shall be 2-inches, minimum, or shall match the existing paving, whichever is greater. Asphalt concrete overlays on public streets shall have a minimum thickness of 2-inches. On non-public roads or driveways, match existing thickness, with a minimum thickness of 2-inches. Asphalt concrete pavement in excess of 2-inches thick shall be constructed in multiple lifts of approximately equal thickness. The maximum compacted thickness of any individual lift shall not exceed 2-inches.
8. Pavement shall be placed, shaped, compacted and finished to the grades and cross sections shown on the Plans or established. Taper new overlays at limits to match existing asphalt pavement.
9. HMAC shall be compacted using self-propelled steel wheeled static rollers, vibratory rollers, or pneumatic tired rollers capable of achieving the minimum compaction specified. If vibratory rollers are used, they should be specifically designed for compaction of HMAC, have adjustable amplitude and frequency, and be capable of at least 2000 vibrations per minute. Finish rolling should be performed by a static roller or a vibratory roller in the static mode.
10. Asphalt concrete pavement shall be compacted to a minimum of 92% relative compaction with the theoretical maximum density determined by AASHTO T-209. Testing shall be performed at random locations using a nuclear gauge operated in the back-scatter mode. At least one density test shall be performed every 1000 lineal feet on each spread or a minimum of one test each day of production.
  - I. No traffic shall come in contact with any newly paved surface until surface has cooled and set sufficiently to prevent marking. The Contractor is responsible for traffic control.
  - J. Warranty

1. Contractor shall maintain all asphalt concrete paved areas and shall furnish all required materials and workmanship at no additional cost to the Owner for a period of one year following the Owner's acceptance of the complete project.
2. If any newly paved asphalt concrete surfaces settles, cracks, breaks, or becomes otherwise defective within the warranty period as described herein, then the deficiencies or damages in surfacing shall be immediately repaired by the Contractor upon request and in a manner approved by the Engineer.
3. All costs incurred in the repair of deficiencies or damages shall be borne by the Contractor, with no additional compensation allowed.

**PART 4 SPECIAL PROVISIONS**

**4.01 MEASUREMENT AND PAYMENT**

- A. Measurement and payment for the excavation, disposal, backfill, and other preparation of trenches is included within the lineal foot cost for Trench Excavation, Bedding & Backfill.
- B. Utility Trenches – Class "B" backfill or CLSM backfill shall be brought to the surface and used as Aggregate Base. No separate measurement and payment will be made for Aggregate Base.
- C. Sawcutting – The cost for sawcutting existing pavement adjacent to new utility trenches shall be considered incidental to the work. No additional compensation will be allowed for sawcutting.
- D. Asphalt Concrete Pavement
  1. Measurement and payment for Asphalt Concrete Pavement shall be made on a tonnage basis, at the unit price stated on the Bid Form. Payment shall include full compensation for all work necessary to prepare and construct the asphalt concrete pavement. There will be no separate measurement of bituminous cements or additives contained in the mixture or used otherwise in the work. Payment will be made only for material incorporated into the specified limits.
    - a. Asphalt Concrete Pavement for utility trenches shall be paid on a tonnage basis, at the unit price stated on the Bid Form. The limits of the trench patching shall be as established herein, including sawcuts. Additional costs for repair of pavement damaged by the Contractor outside the trench and sawcut limits as described herein shall be borne by the Contractor.
  2. A separate ticket shall accompany each load delivered to the job site and shall be given to the Engineer before the load is spread. No ticket will be accepted unless it shows the date, ticket number, driver's name, project name, batch number, truck weight, gross weight and tonnage of asphalt.
  3. All trucks shall be weighed at least once each day while unloaded and weighed while loaded for each trip. Platform scales furnished by the Contractor shall be tested and certified.

**END OF SECTION**

## **SECTION 02760 – TRAFFIC LINES & MARKINGS**

### ***PART 1 GENERAL***

#### **1.01 SUMMARY**

- A. This Section includes all materials and workmanship for durable permanent pavement striping and pavement markings.

#### **1.02 DEFINITIONS**

- A. Oregon Standard Specifications (OSS) – The joint Oregon Department of Transportation/APWA Oregon Chapter Standard Specifications for Construction.
- B. ODOT Qualified Products List (QPL) – The Qualified Products List published every six months by the Oregon Department of Transportation, Construction Section.

### ***PART 2 PRODUCTS***

#### **2.01 MATERIALS**

- A. All markings shall be either white or yellow to match existing and shall be from the ODOT QPL. Pavement markings for this project shall be painted per ODOT Standard Method 'F' or extruded per ODOT Standard Method 'B' or approved equal.

### ***PART 3 EXECUTION***

#### **3.01 DURABLE PAVEMENT STRIPING APPLICATION**

- A. Apply striping to the lines and locations shown on the Plans or as directed.
- B. Lay out a continuous guideline for each line and receive approval from the Engineer prior to striping.
- C. Apply striping material only when the surface is sufficiently dry, clean and free of contaminants such as surface oils. Some striping materials require the asphalt to cure for several weeks prior to placement.

#### **3.02 FINISHING AND CLEANUP**

- A. Protect applied markings from traffic until sufficiently dry to prevent damage or tracking by normal traffic movements. At a minimum, place cones or tubular markers next to all pavement markings, and place barricades at all areas where cross traffic is anticipated.
- B. Remove or repair all unacceptable work and dispose of at the Contractor's expense. Repair or replace unacceptable work immediately if it causes a safety problem. The removed material becomes the property of the Contractor. If additional traffic control is required for removal of unacceptable material, provide it as directed and at no additional cost to the Owner.
- C. Do not open up any work area to traffic that is not adequately striped and suitable for safe driving.

**PART 4        SPECIAL PROVISIONS**

**4.01    MEASUREMENT AND PAYMENT**

- A.     Payment for miscellaneous Painted Traffic Markings and Restoration and striping shall be considered incidental and cost shall be included within the lump sum cost of landscape restoration & cleanup. A separate payment item will not be made for this item.
  
- B.     Payment for extruded (thermoplastic) markings will be made on a linear foot basis as stated on the Bid Form. Payment shall include all materials, labor and equipment required for layout and application of durable pavement striping and stop bars as described herein. No separate measurement and payment will occur.

**END OF SECTION**

## **SECTION 02900 – LANDSCAPE RESTORATION & CLEANUP**

### ***PART 1 GENERAL***

#### **1.01 SUMMARY**

- A. This section covers the work necessary to reseed, restore and cleanup the site(s). Work shall include the removal of all construction equipment, rubbish, construction debris, and unused materials of any kind resulting from the project activities.
- B. Site cleanup shall include the cleanup of all pavement surfaces, whether new or existing within the limits of the project and shall include the replacement of any disturbed pavement markings.

### ***PART 2 PRODUCTS***

#### **2.01 RESEEDING MATERIALS**

- A. Grass seed shall be from blue tag stock and from the latest crop available. Deliver each variety in standard containers labeled in accordance with Oregon State laws and U.S. Department of Agriculture rules and regulations under the Federal Seed Act. Provide with label showing seed variety, percentage of purity, germination, maximum weed content, date of test within nine months of date of delivery, and as set forth in the General Seed Certification Standard by the Oregon State University Certification Board. Mold or other evidence of container having been wet or otherwise damaged will be cause for rejection of each lot of seed. Grass seed may be delivered to the project as a mixture provided each variety of grass seed in the mixture is identified and labeled as specified.
- B. Where imported topsoil is required, provide natural, fertile, friable topsoil, representative of local productive soil, and 90% free of clay lumps or other foreign matter larger than 2-inches in diameter, not frozen or muddy, with pH 5.0 to 7.0, and not less than 3% humus as determined by loss of ignition of moisture-free samples dried at 100° C. Gravel portion (particles larger than 2 mm) shall not exceed 15% of total volume. Topsoil shall be free of quack grass, horsetail and other noxious vegetation and seed. Should such regenerative material be present in the soil, all resultant growth, both surface and root, shall be removed by the Contractor within 1-year of acceptance of the work at no expense to the Owner.
- C. Provide a lime compound of ground dolomitic limestone not less than 85% total carbonates and magnesium, ground so that 50% passes a number 100 sieve and 90% passes a number 20 sieve. Coarser material will be acceptable provided the specified rates of application are increased proportionately on the basis of quantities passing the number 100 sieve.
- D. Furnish fertilizer in moisture-proof bags marked with weight and the manufacturer's certified analysis of the contents showing the percentage for each ingredient. Furnish fertilizer in a dry condition free from lumps and caking, in granular or palletized form, of standard commercial grade conforming to all State and Federal regulations and to the standards of the Association of Official Agricultural Chemists.
- E. Provide all other materials required to accomplish the work specified.

### ***PART 3 EXECUTION***

#### **3.01 WORKMANSHIP**

- A. Surface Dressing
  - 1. Slopes, sidewalk areas, planting areas, easements and roadways shall be smoothed and dressed to the required cross section and grade by means of a grading machine insofar as it is possible to do without damaging the work or existing improvements, trees and shrubs. Supplement machine dressing by hand work as directed.
  - 2. Upon completion of the cleaning and dressing, the project shall appear uniform in all respects. Grade all areas true to line and grade as shown or as approved. Where the existing planting is below sidewalk and curb, fill and dress the area to the walk regardless of limits shown. Wherever fill material is required in the planting area, make finished surface high enough to allow for final settlement.
- B. Remove and dispose of all excavated or construction materials, equipment, and rubbish of all kinds resulting from the work. Where brush and trees beyond the limits of the project have been disturbed or damaged, remove and dispose of or restore same, as directed, at no expense to the Owner.
- C. Clean all drainage facilities such as inlets, catch basins, culverts and open ditches of all excess material or debris resulting from the work, to the satisfaction of the Owner.
- D. Clean all pavement surfaces, whether new or existing within the limits of the project. Clean existing improvements such as curbs, gutters, walls, sidewalks, castings for manholes, monuments, water gates, lamp poles, vaults, signs, and other similar installations as approved. Flush the roadway with a pressure type flusher as approved. Hand sweep or flush all sidewalks as directed.
- E. Restoring Planted Areas
  - 1. Hand rake and drag all formerly grassed and/or planted areas leaving disturbed areas free from rocks, gravel, clay, or any other foreign material and ready, in all respects, for seeding. The finished surface shall conform to the original surface, be free draining and free from holes, rough spots, or other surface features detrimental to a seeded area.
  - 2. Plant grass seed only at times when local weather and other conditions are favorable to the preparation of the soil and to the germination and growth of grass. Sow grassed areas evenly with a mechanical spreader at a rate of one pound per 300 square feet, roll with packer to cover seed, and water with fine spray. Method of seeding may be varied as approved, however, responsibility to establish a smooth, uniformly grassed area will not be waived.

**PART 4 SPECIAL PROVISIONS**

**4.01 MEASUREMENT AND PAYMENT**

- A. Payment for Landscape Restoration will be made on a lump sum basis as stated on the Bid Form, and shall include topsoil, seed, landscape shrubs/trees, site cleanup and all other materials and work required to complete the work.
- B. Payment for miscellaneous pavement markings and striping shall be considered incidental and cost shall be included within the lump sum cost of landscape restoration & cleanup. A separate payment item will not be made for this item.

**END OF SECTION**